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REPUBLIC OF RWANDA
KIREHE COMMUNITY-BASED
WATERSHED MANAGEMENT PROJECT
(KWAMP)

PROJECT DESIGN REPORT

Main Report and Working Documents

Eastern and Southern Africa Division
Programme Management Department

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2. Local Institutional Development
3. Soil & Water Conservation and Crop Intensification
4. Livestock Development
5. Agriculture and Agricultural Water Development
6. Value-Chain Development
7. Farmers Organizations and Co-operatives
8. Food for Work
9. Feeder Roads
10. Land Tenure Security
11. Programme Costs and Financing
12. Environmental Screening and Scoping Note
13. Monitoring & Evaluation Processes

CURRENCY EQUIVALENTS

Currency = Rwandan Franc (RWF)

USD 1.00 = RWF 550 (March 2008)

WEIGHTS AND MEASURES

Metric system

ACRONYMS AND ABBREVIATIONS

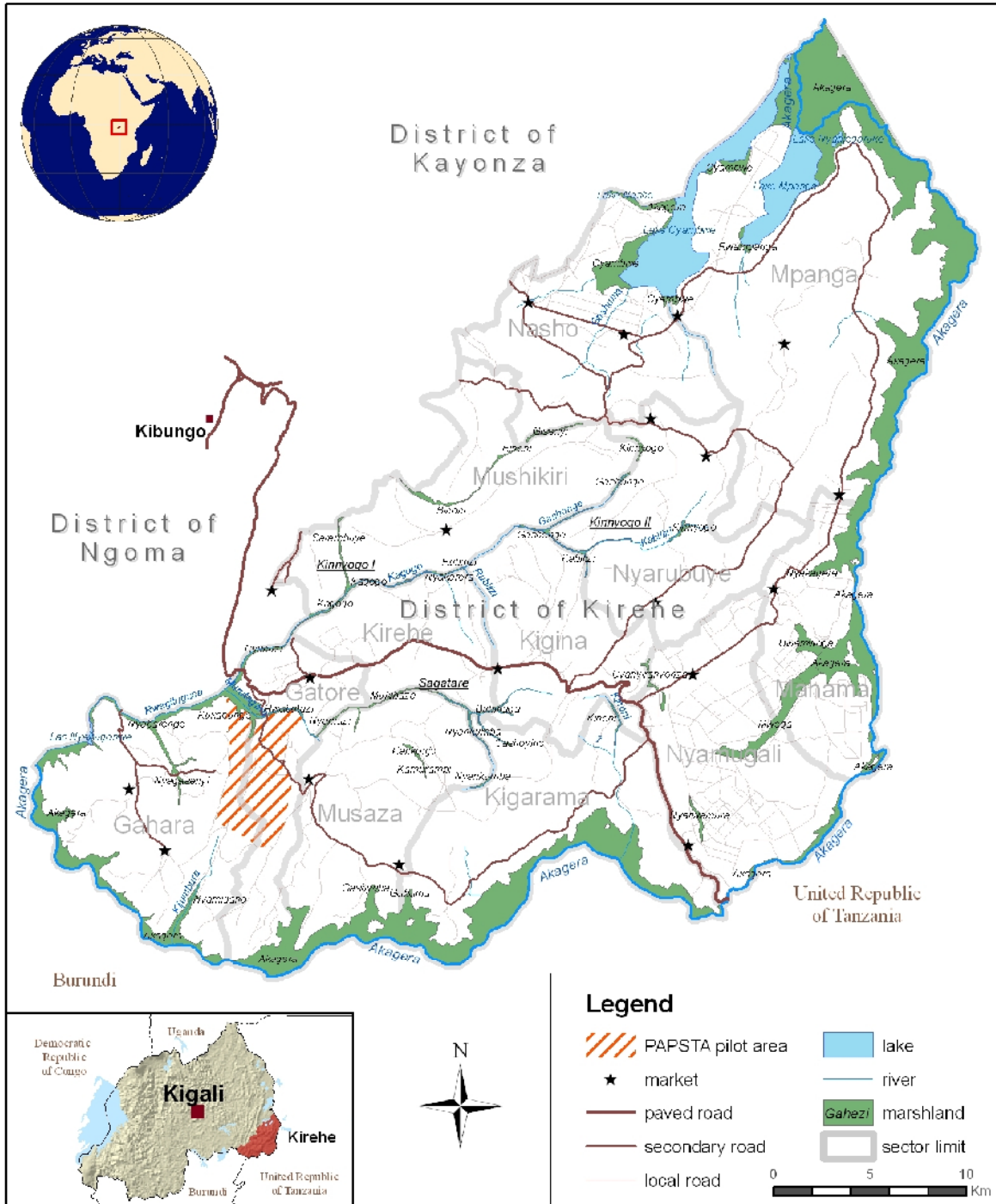
ADAR	Assistance à la Dynamisation de l'Agribusiness au Rwanda
AWPB	Annual Work Plan and Budget
CCI	Community Centre for Innovation
CDC	Community Development Centre
CLGS	<i>Comité Local de Gestion et de Supervision</i> (Watershed Management Committee)
COSOP	Country Strategic Opportunities Programme
CPE	Country Programme Evaluation
DDP	District Development Plan
DfID	Department for International Development (UK)
EAC	East African Community
EDPRS	Economic Development and Poverty Reduction Strategy
EIA	Environmental Impact Assessment
FO	Farmer Organization
GDP	Gross Domestic Product
GoR	Government of Rwanda
HIPC	Heavily Indebted Poor Countries
HH	household
IFAD	International Fund for Agricultural Development (of the United Nations)
KWAMP	Kirehe Community-Based Watershed Management Project (proposed)
LogFrame	Logical Framework
M&E	monitoring and evaluation
MFI	microfinance institution
MINAGRI	Ministry of Agriculture & Animal Resources
MINALOC	Ministry of Local Government
MINECOFIN	Ministry of Economic Planning & Finance
MINICOM	Ministries of Commerce, Industry, Investment Promotion, Tourism & Co-operatives
MINIRENA	Ministry of Natural resources
MoU	Memorandum of Understanding
NAP	National Agricultural Policy
NEPAD	New Partnership for Africa's Development
NGO	non-gouvernemental organisation
PADAB	Projet d'appui au développement agricole du Bugesera
PADEBL	Projet d'appui au développement de l'élevage bovin laitier
PAIGELAC	Projet d'appui à l'aménagement intégré et à la gestion des lacs
PAPSTA	Support Project for the Strategic Plan for the Transformation of Agriculture
PDRCIU	Umutara Community Resource & Infrastructure Development Project
PPMEL	Participatory Planning Monitoring & Evaluation and Learning
PPPMER	Rural Small- & Micro-enterprise Promotion Project – Phase II
PRSP	Poverty Reduction Strategy Paper
PSTA	Strategic Plan for the Transformation of Agriculture
RADA	Rwanda Authority for the Development of Agriculture
RARDA	Rwanda Animal Resources Development Authority
REMA	Rwanda Environmental Management Authority
REMM	Rwanda Economy-wide Multimarket Model


RHODA	Rwanda Horticulture Development Authority
RMF	Road Maintenance Fund
SC	(KWAMP) Steering Committee
SME	small-/medium-sized enterprise
SWAp	Sector-wide Approach
SWC	soil and water conservation
TA	technical assistance
UCORIRWA	Union des Coopératives Rizicoles au Rwanda (Union of Rice Producer's Cooperatives of Rwanda)
UNDP	United Nations Development Programme
WMP	Watershed Management Plan
WFP	World Food Programme
WS	watershed
WUA	Water Users' Association

MAP OF PROJECT AREA

Rwanda

Kirehe Community-Based Watershed Management Project (KWAMP)



 The designations employed and the presentation of the material in this map do not imply the expression of any opinion whatsoever on the part of IFAD concerning the delimitation of the frontiers or boundaries, or the authorities thereof.

IFAD Map compiled by IFAD

EXECUTIVE SUMMARY

Strategic context and rationale

Rwanda is a landlocked, resource-poor and overpopulated country covering an area of 26 338 km² with a population of 9.2 million. Civil wars and ethnic cleansing in the 1990s had a devastating effect on the country's social, economic and political fabric as well as on its human resource base and institutional capacity. The country's recent recovery has been strong and steady.

Agriculture contributed 43% to GDP in 2006, was the main source of livelihood for 90% of the population and accounted for 80% of foreign exchange earnings. However, while the production of most crops has increased, yields have often fallen and livestock productivity is low. Small farmers use traditional but complex farming systems with no cash inputs. Two-thirds of all food crop production is for home consumption. Tea and coffee are the main sources of cash income for smallholders. Irrigation has been developed on marshlands over the past decade to cultivate rice, but there is little water management practiced on hillsides. Many households do not have access to enough land to feed themselves and land disputes are widespread.

Increasing population pressure has forced people to cultivate on steep slopes and marginal lands, resulting in a rapid loss of forests and damage to the natural resource base. Producers have minimal access to services or markets. However, within an improving economic environment, there is potential for smallholders to develop better-quality produce, gain access to markets and raise their incomes.

The main relevant policy directions of the Government of Rwanda (GoR) are set out in the *Economic Development and Poverty Reduction Strategy* and the *National Agricultural Policy*, in which agricultural water development and management, including "water harvesting" and irrigation, are central. Planning for agricultural sector development and rural poverty reduction is based on GoR's *Strategic Plan for the Transformation of Agriculture* (PSTA), which was prepared with support from IFAD, DfID and Netherlands. PSTA aims at transforming subsistence farming into market-oriented agriculture through a pro-poor approach that associates the administration, producers, support services, civil society and private sector. The strategy addresses the needs of poorer smallholders by supporting greater productivity of food crops and targeting vulnerable areas and groups.

GoR is implementing its *Decentralization Policy* to ensure the empowerment of local populations to fight poverty by participating in the planning and management of their own development processes. District Development Plans are being drawn up and efforts made to improve service delivery to farmers' organizations. GoR envisages the "whole catchment's approach" to planning and management through participation.

The current IFAD country programme totals USD 68 million and focuses on off-farm employment, decentralization and local development, market access and policy support and the mainstreaming of technical innovations, with subsidiary inputs on agricultural policy implementation, rural finance and HIV/AIDS impact mitigation. As presented in the current Country Strategic Opportunities Programme, IFAD is seeking to improve the livelihoods of small producers and vulnerable rural poor through innovative demand-driven approaches coupled with institutional and policy support, including moves towards a *sector-wide approach* for agriculture.

Poverty and targeting

Notwithstanding its improving economic performance and strong focus on health and education, Rwanda is still one of the World's poorest countries, ranked 161 out of 177 countries on the UNDP Human Development Index in 2007. Life expectancy is estimated at 45.2 years. An estimated 45% of children in rural areas suffer from chronic malnutrition, 28% of the population is food insecure and another 24% is highly vulnerable to food insecurity. Over half of the population is poor. Women represent 54% of the population and generate 70% of total agricultural output. In 2006, poverty in women- and widow-headed households was about 60%.

GoR is committed to achieving rural economic transformation through the modernization of the agriculture sector and thereby reducing the incidence of poverty to 30% of the population. However, agricultural growth has fallen short of targets in recent years, the overall reduction of poverty has been modest and the gap between the poor and the poorest is widening. GoR sees gender equality as an important factor for economic growth and social development and has adopted a dynamic, proactive gender stance. There persist, however, several social and cultural hindrances to effective and full implementation of the equity principle, particularly in rural communities.

In line with Government requests, the project would concentrate on Kirehe District in Eastern Province in the South-East of Rwanda. It encompasses diversified ecological zones and has good potential for agricultural development with challenges for intensification. Kirehe comprises 55 000 households, of which the overwhelming majority are rural, and a population of 292 000 persons. Just over 86% of households own less than 1.0 ha of land; 46% own less than 0.5 ha and nearly 13% own no land at all. Some 70-90% of households face periods of food shortages every year. Based mainly on criteria related to access to productive land, the total number of households in the project target group would be around 48 000, or about 253 000 people (87% of the District's population). Within that plurality, activities would be targeted on vulnerable groups, poorer areas and women.

Project description

The lessons learned from earlier IFAD interventions in Rwanda converge on the needs to target the rural poor, define clear policy dialogue objectives, apply participatory methods, carry out the principles of results-based management and, for the benefit of people living with HIV/AIDS, realize the combined approach of health care and economic empowerment. The present design has sought to promote flexible, demand-driven processes, build up staff capacities, and to increase both stakeholder participation and the use of external service providers in implementation.

The Kirehe Community-based Watershed Management Project (KWAMP) aims to promote the market-oriented intensification of agricultural systems built on sound environmental practices in order to assist very poor smallholders to overcome their food insecurity and low agricultural incomes, to arrest land degradation and to restore soil fertility. Given little prospect for agricultural expansion in Rwanda, agricultural growth and poverty reduction will depend on intensification (mainly though increases in yields) and diversification.

Irrigation provides an important opportunity for Kirehe but, if it is to be viable and sustainable, will need to be cost effective, reliable, based on the catchment approach to planning, developed in response to market opportunities and provided as part of a comprehensive package that includes empowering farmers to engage with markets, and ensuring their access to and use of yield-enhancing inputs. For the majority of smallholder farmers without the benefit of irrigation development, the challenge of improving rainfed cropping must be taken up along with strengthening links with markets and ensuring inclusiveness within communities.

The **goal** of KWAMP would be the **reduction in rural poverty in Kirehe District**, as evidenced by a step improvement in household food and nutrition security, asset ownership and quality of life indicators, particularly amongst vulnerable groups. The immediate objectives converge on the **development of sustainable profitable small-scale commercial agriculture in Kirehe District**. Sustainable incremental income from farming and related economic activities is the operational instrument for poverty reduction among the poor majority.

KWAMP is intended to result in an increased level of marketed production of crops and livestock products, leading to increases in incomes; the operation and maintenance of affordable irrigation facilities, reducing dependence on increasingly erratic rains and permitting a shift to higher value crops in response to market demand; and a steady improvement in the natural resource base in selected watersheds to enable production in the future, reversing the present negative trends of soil erosion and nutrient depletion. Productive activities should be undertaken only to supply real demands and the complementary soil and water conservation activities are regarded as purposeful investments in the common productive base. Improvements to and the proper maintenance of feeder roads are justified as poor physical access constitutes a major constraint on increasing trade within or with the District.

Substantial institutional developments are needed to support the ambitious plans for District economic growth based on agriculture, including the empowerment of communities to adopt “farming as a business”, the economic integration of vulnerable groups, and the creation of strong local institutions. The proposed KWAMP interventions are in line with GoR and IFAD priorities, pre-eminently the PSTA and other rural development strategies, including the empowerment of the rural poor.

KWAMP comprises three mutually-supportive substantive components facilitated by Project Co-ordination. The first component, **Local institutional development**, seeks to raise the capacity of Governmental and community institutions to support a rapid and sustained increase in profitable smallholder agriculture in the District. *Support to agricultural transformation* comprises activities to build up the fledgling decentralized structures to deliver affordable support services, support the refinement and operation of the District Development Plan, establish three more Community Centres for Innovation to support farmers with technical advice, and enable farmer organizations to become effective permanent institutions in the District.

Under *Water and land use management*, the first component would promote the institutional and legal framework needed to achieve effective water and land use planning and management practices in Kirehe to enable agricultural intensification that conserves the natural resource base. Three related interventions would address: watershed planning and management (around fifteen selected watersheds) centred on Watershed Management Committees (CLGS); the regularization of land tenure to enable all farmers benefitting from poverty reduction interventions to have access to land with registered rights and all land in the project area to be registered; and the introduction of water use management on newly irrigated farmland through the creation of a Water Users’ Association for each potential scheme.

The second component, **Agricultural intensification**, focuses on the investments required to intensify agriculture as a business for smallholders. It comprises four interrelated subcomponents that proceed from market demand through increased production to protection of the natural resource base. The first subcomponent addresses *Value chain development* to increase the real demand for products that Kirehe farmers are producing or could produce. The approach combines an increase in the value of trade taking place with the strengthening of the economic, social and organizational capacities of the poor to give them a fair share of the profits generated. Through dedicated funds, KWAMP would enable and promote the construction of input shops and collection points in Kirehe and the start-up of value-addition activities such as storage, grading and processing.

Under *Crop and livestock intensification*, KWAMP would seek to transform subsistence crop cultivation and animal husbandry into “farming as a business” through the capitalization and greater efficiency of small-scale production. The aim would be the development of viable integrated crop-livestock systems appropriate to prevailing conditions. The limited resource base points to the maximum use of waste and by-products to minimize the need for costly fertilizer and energy. In addition to promoting conservation techniques and the recycling of nutrients on-farm, KWAMP would introduce the use of biogas to reduce the consumption of fuelwood in the District.

Crop production would be supported by community-based extension services (with farmer field schools) and the provision of improved planting materials. Livestock, including some 2 422 crossbred cows, would be restored to the integrated crop/animal husbandry systems through “solidarity chains”.

Under *Irrigation development*, KWAMP would establish irrigated/drained farmland through appropriate water management measures, including drainage, rainwater management and irrigation. The irrigation development is set firmly in the whole watershed and conservation farming context and is regarded as only one of several means to engendering profitable small-scale farming to reduce poverty. The activity would be based on a comprehensive consultation and planning processes led by the CLGS, with an Environmental Impact Assessment for each scheme. The project would carry out improvements on about 1 000 ha of marshland and 1 000 ha of new hillside irrigation, employing to the extent possible simple technologies with low investment and operating costs. Interventions in marshlands would concentrate on sites where low-cost improvements, such as drainage and/or flood protection, might bring real water control benefits. Typical hillside schemes would involve the construction of mini-dams, ponds or cisterns and distribution systems to provide supplementary irrigation for commands of up to approximately 60 ha of arable lands with a slope of less than 12%.

Activities under *Soil and water conservation* would concentrate on the stabilization of and investment in the soil and water resources of the smallholders for the future, both on- and off-farm. The objective would be to stabilize and protect around 25 000 ha of farmland by progressive terracing, contour trenches and anti-erosive hedging of farmland.

The third and last substantive component, **Feeder roads**, addresses the ongoing and increasing need for a fully functional road network to provide physical access for farmers to enable trade in both inputs and produce. Improved roads would also benefit communities by providing easier access to health, education and social facilities, in part by encouraging public transport development to more remote areas. KWAMP would support *Feeder road rehabilitation* to bring selected sections up to a maintainable state, with works likely to range from single water crossings through selective upgrading up to new construction. The project would balance value-for-money considerations with the need to spread the benefits of improved access to as many communities as possible. KWAMP aims to rehabilitate 70 km of feeder roads requiring major works and a further 60 km of access roads in deprived areas requiring partial works, construct 60 km of short access roads to storage facilities, and carry out spot improvements on short road sections.

The need for the costly and concentrated investment in the majority of the feeder roads is predicated partly by the climate, terrain and poorly-developed economy of Kirehe, but mainly by a complete lack of maintenance of the existing network. Under *Road maintenance capacity*, KWAMP would train District staff and contractors in the planning and execution of effective maintenance programmes through mentoring and “learning by doing”, and so assist the District to build up the managerial and technical capacity to undertake the proper and perpetual maintenance of feeder roads. The commitment to make maintenance a high priority and mainstream business of local Government would be a precondition of the investment programme to avoid the rapid deterioration of restored road.

The last element, **Project coordination**, provides the temporary managerial and administrative support services needed to implement the substantive components. These comprise: *Governance, liaison and contract management* functions, under the guidance of a Steering Committee; *Planning, reporting and financial management* activities as required by GoR, IFAD and other development partners, and employing a flexible proactive approach; and the delivery of effective and meaningful *Monitoring and evaluation* concentrated on outcomes and impact.

Implementation arrangements

KWAMP would contribute directly to the development of public, private and hybrid institutions in Kirehe as well as capacitating the residual central technical cadres. At the producer level, KWAMP would support the setting up of economic interest groups including WUAs, farmers’ organizations and primary cooperatives. Further up the market chains, the project would contribute to the steady increase of small contractors, traders, transporters and specialist service providers emerging in the private sector.

KWAMP would be implemented over a period of seven years, to permit time to bring about and consolidate the difficult capacity building tasks. Activities would be demand-driven, and aligned and integrated into local development plans.

MINAGRI, which is also the implementing agency for PAPSTA, would have overall responsibility for project implementation. MINIRENA is responsible for environmental, water and land tenure matters. As KWAMP activities are concentrated in one District, technical advisers can work directly to their counterpart units in the decentralized structures. The project’s administrative and managerial functions can and should be carried out by a minimal and ephemeral PCU with staff deployed in Kigali or Kirehe as appropriate. Kigali staff would be blended into an enlarged PAPSTA PCU with the current PAPSTA Coordinator taking on a dual role. In Kirehe, the KWAMP Field Coordinator would maintain a small *Field Coordination Office* in the vicinity of the offices of the Mayor and the Chief Executive Officer.

Within the decentralization process, the District of Kirehe would be the main executing agency of KWAMP, being the institution responsible for consultation and oversight, including local participatory planning and M&E, as well as the *Feeder roads* component. The project would establish working links with professional organizations and NGOs, and set up CLGS and WUAs. The piloting of KWAMP would be by a District Steering Committee made up of key stakeholders. At the national level, overall oversight would be added to the responsibilities of PAPSTA's existing National Steering Committee.

PAPSTA would expedite a rapid start-up for KWAMP by conducting a number of *Pre-project activities*: the District watershed and irrigation plan; implementation manuals for the Community Capacity Building Fund, the community competitions, the revolving fund for seed multiplication cooperatives and the district road maintenance fund; the first Annual Work Programme and Budget (AWPB); and the baseline survey. Under the initial IFAD grant, an amount of about USD 250 000 will be made available under retroactive financing arrangements for these activities.

The project would be supervised directly by IFAD with the participation of GoR and cofinanciers, with a mid-term review in 2011/12. KWAMP would generate AWPBs covering the detailed annual planning of activities, implementation responsibilities, procurement processes and physical results targeted.

Two international agencies intend to be technical partners of GoR with IFAD in contributing to the implementation and funding of KWAMP. The World Food Programme (WFP), if funding permits, would lead the soil and water conservation activities under *Agricultural intensification* through Food-for-Work arrangements targeted on vulnerable households and food deficit areas. The German Development Service (DED) would contribute a long-term Farmer Organization Adviser to work with the rice farming service provider on the subcomponent *Crop and livestock intensification*.

KWAMP would harmonize activities with proximate programmes including the World Bank-financed RSSP II on irrigation development, the AfDB-financed PAIGELAC on fish farming and natural resources management, the DfID-supported national land tenure reform programme implemented by MINIRENA, and the planned national project of irrigation in Eastern Province. The project would also maintain close ties with other externally-supported interventions by "like-minded" donors and take advantage of the experience and resources of the four on-going IFAD-supported projects in Rwanda.

The KWAMP project M&E activities will be integrated into those of PAPSTA, utilizing the same unit strengthened by additional staff. RIMS indicators are integrated into this system. Once the expanded M&E system has been functional for a year, it will be expanded by the Participatory Planning, Monitoring, Evaluation and Learning approach in three watersheds to test participative feedback loops.

Benefits, costs and financing

KWAMP benefits would include: appropriate local development solutions ensured through high levels of local participation; better land tenure security through registered land rights; strengthened women's status in rural areas; improved input supply and produce marketing in value chains; effective storage and processing services; the intensification and diversification of profitable agricultural production; improved access to agricultural knowledge, technology and information; greater livestock production and off-take; improved soil fertility; stabilised soil regimes by arresting soil loss and improving water management; and reduced commercial transaction costs through better road access.

Some 375 of the 610 villages in Kirehe District would benefit directly or indirectly from KWAMP. The project would reach about 22 500 direct client households and 10 000 indirect beneficiary households. The target group's organizational capacity within community bodies would be strengthened and their knowledge improved.

Preliminary financial analysis of a number of income-generating activities promoted by KWAMP showed a significant increase in gross and net returns from each model and high benefit/cost ratios. Economic analysis projected an internal economic rate of return of 16.8% for the project, falling only to 10.1% with either a 20% decline in benefits or a 20% increase in costs.

The total investment and incremental recurrent project costs, including contingencies, are estimated at USD 49.3 million (RWF 33 billion). Physical and price contingencies make up 8% and foreign exchange about 19% of the total project costs. Taxes amount to approximately USD 1.2 million. By component: *Local institutional development* costs USD 6.7 million (14% of the total), *Agricultural intensification* USD 32.0 million (65%), *Feeder roads* USD 8.2 million (17%) and *Project coordination* USD 2.4 million (only 5%).

The project would be funded mainly by IFAD, WFP and the government of Rwanda. IFAD would provide two grants: an initial one of USD 20.4 million (41%), and a second one of USD 6.3 million (13%) for irrigation activities for the second half of the project once additional funds are made available. The WFP contribution (USD 8.1 million or 17%) would finance food-for-work activities under the *Soil and water conservation* sub-component. The German Development Service would finance USD 0.5 million in kind for technical.

The total GoR contribution is estimated at USD 9.5 million (19%), to be provided by central government (USD 7.6 million or 15%) to finance mainly the *Feeder roads* activities, and Kirehe District (USD 2.0 million or 4%). Approximately USD 3.1 million (6%) would be provided by the beneficiaries (participating households and farmers), mainly as contributions to livestock development and irrigation small-scale infrastructure investments. In addition, USD 1.3 million (3%) would be provided by the private partners participating in the value chain development activities.

Risks and sustainability

There are no major risks foreseen for KWAMP beyond a slow down in the financial and human resource commitments to the realization of decentralization and poverty reduction activities. It is assumed that targeted communities would be mobilized and adhere to the principles of the holistic watershed basin approach, and that national and district authorities would facilitate farmer organization participation in rural economic development. In the area of global policy and strategy, IFAD and its partners would continue their efforts to promote policy dialogue on issues related to poverty and decentralization, and to support the implementation of key strategies, including women's advancement and advances in agricultural water and watershed management modalities.

The development of new irrigation could compromise fragile marshland ecosystems and the availability of water for downstream users unless carefully planned. All proposed schemes would be subjected to an environmental impact assessment. Any potential negative effects of agricultural intensification would be counterbalanced by the promotion of sound and sustainable natural resources management and the project's focus on increasing soil fertility.

The exit strategy for KWAMP would be built into the project design as an "entry strategy". All substantive interventions would be implemented by the appropriate local agencies from the start, with support, training and capacity-building as needed to ensure a seamless continuation of income-generating and asset protecting activities into the future. KWAMP would provide professional management and other necessary services to implement the once-off developmental activities, which capacities would not need to be handed over. The project would not disturb the pattern of real costs, financial risks and incentives in the emerging markets through unsustainable subsidies. Support mechanisms would be based on explicit agreements reached between the parties, to instil the basics of the "contract culture" that prevails in market economies.

Innovative features and knowledge management

The main innovative features of the Kirehe Community-based Watershed Management Project include: institutional arrangements shaped and led by local actors, including CCIs, the community capacity building fund, community competitions, and water user associations and; a strong management role for the district administration, including contracts with service providers and suppliers; the establishment of local “platforms” around selected commodities that would enhance value-chain development and enable farmers to respond to market opportunities; the integration of commercialized agriculture within a sustainable resource management approach; the application of proven agricultural technology options while ensuring sustainable natural resource management under the erosion-prone local conditions the introduction of the PPMEL concept; and; and using exiting project management structures for coordination and integrate the project in the agricultural SWAp once it becomes operational;.

KWAMP is committed to installing local management structures in a short period, including entities for district and sectoral planning, watershed planning, shared agricultural water use, the operation of CCIs, and development funds. These initiatives reflect GoR’s wish to empower the people, promote the healthy development of the private sector and to locate decision-making squarely with stakeholders and local communities. The outcome is expected to be knowledge of immediate importance to other Districts. The CCIs established for each watershed would be important tools for knowledge sharing at the grass roots and national levels.

The immediate source of technical knowledge for KWAMP would be the learning of PAPSTA. Further afield, KWAMP would seek to derive best practice from regional centres of excellence and relevant IFAD-supported projects, particularly on the technical approach and methodology to be adopted in labour-based road improvements and maintenance, community-based watershed management investments, and demand-led value chain development. The managerial, outsourcing and financial aspects of decentralization would be informed with reference to the experience of other countries that have made an earlier start on the far-reaching reform process. The project would utilize the resources of the regional organization *Improved Management of Agricultural Water in Eastern & Southern Africa* (IMAWESA) in the quest for the most appropriate irrigation and water management technologies for the specific conditions of the watersheds in Kirehe.

I. STRATEGIC CONTEXT AND RATIONALE FOR IFAD INVOLVEMENT, COMMITMENT AND PARTNERSHIP

A. Rural development context

Country background

1. Rwanda is a landlocked, resource-poor and overpopulated country covering an area of 26 338 km² with a population of 9.2 million (2006). With an average of 349 people per km², Rwanda has the highest population density in Africa. There is considerable pressure on arable land, on which the density is as high as 600 people/km². If sustained, the current demographic growth rate of 2.9% per annum will result in a population of twelve million by 2020.

2. Civil wars and genocide devastated the country in the 1990s. The genocide of 1994, which led to the loss of more than one million lives and created some 800 000 refugees and displaced persons, had a devastating effect on the country's social, economic and political fabric, as well as on its human resource base and institutional capacity. The situation returned to normal with the restoration of peace, the return of refugees and the undertaking of prudent liberalized economic policies/programmes with the assistance of international donors.

3. The disruptive legacy of the 1990s has now been corrected and the country's economic and social recovery has been strong and steady. As a result, the economy has registered an unprecedented upturn and there was an annual average growth in gross domestic product (GDP) of 7.7% in the period 1998-2002, mainly attributable to the agriculture and manufacturing sectors. This pattern of growth slowed down to 0.3% in 2003, reflecting adverse weather conditions and unfavourable terms of trade for agricultural produce such as coffee and tea, before recovering to about 4.0% in 2004. However, GDP has been growing at an average rate of 6% over the last three years and GoR has set an ambitious target of 7.2% for 2008-09. Public resources available for agriculture increased slightly from about 3% in recent years to 4% in the 2007 national budget, still well below the 10% target set by the New Partnership for Africa's Development (NEPAD) despite the fact that the sector employs more than 80% of the economically active population.

4. In 2006, agriculture was the major contributor to GDP, at 43.2%, and the main source of livelihood for 90% of the population. The share of industry is growing (20.5% in 2006 compared with 16% in 2000), and the tertiary sector contributes 37.2%. Services, construction and mining are strong performers and are driving economic growth. However, given constraints including high electricity prices and uncertain electricity supply, the manufacturing sector is faced with strong competition from other countries of the region.

5. Structural reforms in the tea and coffee sectors are expected to lead to increased investment and production, and it is hoped that quality improvements will stimulate exports. However, there is a considerable trade deficit owing to imports of capital goods and fuel. Public expenditures are increasing because of the Government's commitment to investing against poverty, mainly in infrastructure. GoR continues to pursue market-orientated reforms, supported by the country's main donors. Monetary policy implementation is improving steadily and helping to contain inflation at its current level of 7.5% per annum.

6. As a heavily indebted country, Rwanda became a major beneficiary of the Debt Initiative for Heavily Indebted Poor Countries (HIPC), which reduced its nominal debt stock. The World Bank, the African Development Bank and IFAD are now providing financial assistance in the form of grants to contribute to keeping the country's debt sustainable. As a member of the Common Market for Eastern and Southern Africa, Rwanda is implementing a 100% tariff reduction on goods. Rwanda also joined the East African Community in November 2006, with membership taking full effect in July 2007, bringing a significant reduction in the tariff barriers of other members.

7. Notwithstanding its economic performance and strong focus on health and education, Rwanda is still one of the World's poorest countries. Its ranking fell from 159 out of 177 countries in the United Nations Development Programme (UNDP) Human Development Index report of 2005, to 161 in 2007. Life expectancy is estimated at 45.2 years.

Agricultural sector

8. Agriculture is the backbone of the economy and the main source of livelihood for 90% of the population. (However, this is likely to be an underestimation because it is difficult to measure the amounts of food produced and consumed at home.) The sector contributes about 43% of total GDP and accounts for 80% of total foreign exchange earnings. Average growth in the sector over the last three years has remained at 3.6% against a target of 7%. In recent years, the share of agriculture in the national economy has displayed a modest upward trend, mainly owing to climatic fluctuations. This moderate performance can be attributed in part to structural weaknesses (including decreasing soil fertility, limited availability of inputs, use of archaic technologies and a lack of access to support services), but also reflects the sector's vulnerability to shocks, including droughts, floods and international price fluctuations for tea and coffee. Part of the production growth is due to the expansion of cultivated area rather than to increased productivity. While the production of most crops has increased, yields have often fallen.

9. Livestock productivity is low. An ever-increasing proportion of rural households own livestock, with 71% recorded in 2005/06, a significant increase from 60% in 2000/01. However, productivity remains low for various reasons, the most important of which relate to the quality of the different livestock species, the serious lack and inefficient use of all types of feeds, and major diseases that affect production and marketing, (parasitic, respiratory and tick-borne diseases, particularly theileriosis, contagious bovine pleuro-pneumonia, rift valley fever and trypanosomiasis). The most serious poultry diseases include Newcastle disease and fowl pox.

10. Despite the many constraints, there is strong potential for livestock development through improved technologies and animal husbandry practices, especially in the areas of intensive and integrated crop/livestock management, improved research and extension services, farmer organization, financial and credit support to farmers, and agro-enterprise development.

11. The total agricultural land area amounts to 1.4 million hectares (ha). The need for land has forced people to cultivate on steep slopes and marginal lands, including forests. As a result, forests have been reduced dramatically during the last decade. Production systems are characterized by small farms with average holdings of 0.6 ha. Small farmers use traditional but complex farming systems with no cash inputs, and grow mainly rainfed cereals, pulses, roots and tubers, bananas, oilseed and some vegetables. About 13% of the arable land is devoted to perennial export crops, mostly coffee, tea and some pyrethrum. Marshlands have been reclaimed and put under cultivation, thereby allowing for the introduction and development of irrigated rice as a major crop; production rose from 15 000 mt in 2001 to 62 000 mt in 2006. The Government intends to achieve full self-sufficiency in rice to meet an expected demand of 108 000 mt by 2015.

12. Two thirds of all food crop production is for self-consumption, and only 14% of beans and 20% of sweet potatoes (the two main food crops) are marketed. Agriculture sector production does not meet the country's nutritional needs, providing only about 87% of calories, 70% of proteins and 22% of lipids. In rural areas, 45% of children suffer from chronic malnutrition. Most family farms own one or two head of livestock (local breed), providing an average of 39% of household milk requirements and 86% of that for meat.

13. Efforts are being made to encourage commercial agriculture, as set out in the National Agricultural Policy (NAP) and the Economic Development and Poverty Reduction Strategy (EDPRS), and translated into the mobilization of financial resources for public and private sector projects and investments. Tea and coffee are the main sources of cash income for smallholders and account for 71% of export earnings. GoR is promoting efforts to improve quality, develop processing methods and market Rwanda's comparative advantage to access remunerative specialty markets in these commodities. In addition, the production of rice, maize and fruit such as passion fruit has been developed to meet national and sub-regional demand.

14. Incipient agribusiness offers potential market outlets to smallholders in a range of high-value produce for export, such as processed cereals, spices, vegetables and fruit. While GoR is promoting an overall economic environment favourable to the expansion of private investment, the challenge is now to ensure that smallholders can benefit from these opportunities to develop better-quality produce, gain access to markets and raise their incomes.

15. The emergent rural enterprise sector offers possibilities for alternative employment to absorb a growing rural population on increasingly scarce land. Micro and small enterprises are present in a wide range of sectors, including construction, transport, trade and services, production of manufactured goods and transformation of agricultural products, but their potential remains largely untapped. While the agricultural sector shows promise, it is generally hindered by the following constraints:

16. Declining agricultural productivity. Rapid population growth has led to land fragmentation, with the average farm size falling from 2.2 ha in 1961 to 0.7 ha in 2004. Land scarcity prompts farmers to expand cultivation onto land of marginal quality. This causes deforestation, with loss of soil fertility, mounting soil erosion and decreasing productivity, and leads farmers to engage in even more unsustainable practices. To reverse this trend, agriculture needs to be both more sustainable and more productive. Inducing poor smallholders to invest in soil improvement and improved agricultural productivity are, however, contingent on the resolution of a number of other constraints.

17. Food insecurity. The 2006 *Comprehensive Food Security and Vulnerability Analysis* showed that 28% of the population is food insecure and another 24% is highly vulnerable to food insecurity. By location, the highest levels of food insecurity are found in Bugesera (40%), the Crete of the Nile and the Lake Shore (both 37%), followed by the Eastern Curve and the Southern Plateau (both 34%).

18. Security of land tenure. About 10% of households are landless and up to 31% rent land because they own either none at all or too little to feed themselves. More than 40% of households cultivate less than 0.2 ha. Land disputes are widespread and constitute a major obstacle to sustainable peace. In 2005, GoR adopted a new Land Law that provides a basis for land registration and titling, but spatial planning and capacity building is required before the law can be applied. Government believes that land reform is the key to boosting rural incomes. Pilot local land commissions have already started functioning and it is hoped to extend the process nationwide soon.

19. Climate change. Although there are few data to support this perception¹, it is believed that climate change is causing increasingly erratic rainfall patterns, a reduced growing period and disruption of farming activities. Long-term (1961-93 and 1995-2002) data for Kigali Airport, situated on the border of the lowlands and middle altitudes of the country, indicate a slight downward trend in annual rainfall and slightly increasing rainfall variability. This trend would probably increase in an easterly direction towards the lower rainfall areas in the lowlands of the east and southeast. If confirmed, this would affect the rainfed production of most farm households. A proper assessment of how climate change is affecting cropping and yields would require the analysis of daily rainfall data.

20. Access to support services. Extension services are available to less than 15% of rural households. They lack resources, are neither demand-driven nor gender-sensitive, and focus exclusively on agricultural techniques, leaving out critical elements such as marketing information, management and conflict resolution. The research system is young and going through a reform process aimed at providing responsive services to farmers and developing improved technologies. Only 3% of farmers have access to adequate financial services and agricultural credit. Other support services, such as veterinary pharmacies and dispensaries, marketing, packaging, distribution and transport, are also insufficient.

¹ Ebony Enterprises 2007 reported that before 1994 Rwanda was covered by a network of 195 rain-gauge stations, that there were only six stations remaining today and that all historical data had disappeared. However, the availability of data for Kigali airport suggests that this might have been an unnecessarily bleak assessment and that it could be worth searching for other data.

21. Access to markets. The country has a dense network of rural roads, but about one third of it is in bad shape and the country's landlocked situation increases marketing costs significantly. Around 50% of all households live more than an hour away from a food market and water supply is as insufficient as the electricity supply. The poor state of the road network, deficient transport facilities, insufficient storage capacity and numerous trade intermediaries, compounded by farmers' insufficient organization and lack of information on market opportunities, lead to limited commercialization, high transaction costs and very low farmgate prices. In this respect, both farmer organizations (FO) and incipient agribusinesses are constrained by inadequate technological and management skills, poor market information and lack of quality control.

B. Policy, governance and institutional issues; political and economic issues

National rural poverty reduction strategy

22. Rural poverty reduction is part of the Government's ambitious *Vision 2020-Umurenge*, finalized in 2003, which is the overall framework for Rwanda's long-term development. One of its key objectives is to achieve rural economic transformation through modernization of the agriculture sector and to reduce the incidence of poverty to 30% of the population. By 2020, agricultural production should have tripled, exports multiplied fivefold and the proportion of the population living on agriculture been reduced to 50%.

23. Rural poverty reduction and agricultural development were given full consideration in the first *Poverty Reduction Strategy Paper* (PRSP) covering the period 2001-05, although it focused its financial allocations on the social sectors, mainly education and health. In 2006/07, GoR conducted several surveys (in particular, the 2006 household survey) and studies as a basis for a thorough review of the performance of the PRSP. The main conclusions were that despite positive developments, including a reduction in poverty (56.9% in 2005/06 against 60.4% in 2000/01) and a modest increase in GDP (from USD 245 in 2000 to USD 272 in 2006), the country was unable to modernize and invest sufficiently in economic growth. During PRSP implementation, the allocation of Government resources was uneven: the agricultural sector achieved a level of expenditure of only 0.2% compared to 4% and 2% for education and health, respectively.

24. In past years, agricultural growth – although positive – has fallen short of targets. The major constraints identified were limited access to improved inputs and financial services, mounting erosion and subsequent loss of fertility, and the risk of drought. These factors kept yields low and explain why the overall reduction of poverty has been modest and why the gap between the poor and the poorest is widening.

25. A new *EDPRS* has been prepared for the period 2008-12, covering a five-year planning horizon for Rwanda's medium- and long-term development. Based on the findings of a thorough review of the first PRSP, the economic productive sectors – agriculture in particular – have been accorded highest priority in the EDPRS. In addition, planning for the development of the agricultural sector and for rural poverty reduction is based on the *Strategic Plan for the Transformation of Agriculture* (PSTA), which was prepared with support from IFAD, the Department for International Development (DfID – United Kingdom) and The Netherlands, and was endorsed in January 2005.

26. In order to ensure greater coordination across sectors, foster effective implementation and maximize the impact on economic growth and poverty reduction, EDPRS contains three flagship programmes: *Export-led growth*; *Vision 2020-Umurenge*; and *Governance*. These programmes, which are directly relevant to the agricultural sector and to poverty reduction in the rural areas, are meant to re-establish a balance between the productive and social sectors. The main domains of the three programmes constitute IFAD's major thrusts in Rwanda: development of human capital, water, microfinance, access to markets, decentralization and local government development, increasing agricultural productivity and rural employment, and land reform.

27. The EDPRS views the agricultural sector as critical for accelerating growth, creating employment opportunities and reducing poverty. The main challenge faced by the agricultural sector is intensification in order to ensure that food production keeps up with population growth. Simulations made by the World Bank using the *Rwanda Economy-wide Multimarket Model* (REMM), have shown that agricultural development has the potential to be a leading engine of growth.

28. The PSTA aims at transforming Rwanda's current subsistence farming into market-oriented agriculture through a concerted pro-poor approach that associates the administration, producers, support services, civil society and the private sector. While centred on promoting commercial agriculture and developing commodity chains, the strategy also addresses the needs of poorer smallholders by supporting greater productivity of food crops and targeting vulnerable areas and groups. Based on the PSTA, MINAGRI prepared a *Medium-term Expenditure Framework* (MTEF) in 2005.

Policy framework

29. The overall policy reference is *Vision 2020-Umurenge*, aimed at transforming Rwanda from a low-income to a middle-income country by 2020. On that basis, the first PRSP and the NAP were drawn up in 2002 and 2004, respectively, and the PSTA in 2004.

30. The Government adopted its *Decentralization Policy* in May 2000 to ensure the political, economic, social, managerial, administrative and technical empowerment of local populations to fight poverty by participating in the planning and management of their own development processes. In 2006, Government introduced a set of reforms aimed, *inter alia*, at improving service delivery at the district level and making local authorities and communities participate in the decision-making process on local economic development. Districts elaborate their own District Development Plans (DDP) aligned to the new EDPRS, which accords an important role to agricultural development. Consequently, every DDP contains a section on district agricultural development, allowing MINAGRI to allocate funds in line with the DDPs. However, funds are underutilized because of a lack of technical capacity in the districts to implement activities or monitor the subcontracting of private-sector service providers.

31. Policy for agricultural water is set out in the NAP, the *Sectoral Policy on Water and Sanitation* and the *National Environment Policy*, all published in 2004. Agricultural water development and management, including "water harvesting" and irrigation, is central to the objectives of the NAP for poverty reduction and food security. It is seen as a prerequisite, along with processes for communities to take greater responsibility for planning and managing their own agricultural water development. It provides for the strengthening of FOs and connecting them with markets, as well as the use of improved inputs (seed, organic or inorganic fertilizer, pesticides and the like) and cultural practices, for intensification, diversification and commercialization, in order to increase household incomes.

32. The NAP envisages communities being enabled through the participation of civil society, the private sector and non-governmental organizations (NGOs). It focuses specifically on the need to improve the economic status of women and youth.

33. The water policy states, among its general objectives, that water must be considered as an economic good and that the development and use of water for agricultural purposes is key to GoR's poverty reduction strategy. In line with the Dublin Principles, it envisages, *inter alia*, the "whole catchment's approach to planning and management, through participatory approaches, as well as the adoption of the principle of subsidiarity". It further recognizes that Rwanda must cooperate with its neighbouring countries in the management of the Nile Basin waters.

34. The *National Environment Policy*, as it affects agricultural water development and use, is to "ensure that water is used in the various economic and social sectors without endangering the environment". This includes the harvesting of rainwater, use of wetlands and irrigation. It is intended to control economic activities likely to affect the climate and to monitor climatic change regularly.

35. The *National Land Policy* of 2004 and the *National Policy on the Promotion of Co-operatives* of 2007 are highly relevant, the former because it proposes land titling, development of land markets, land consolidation to “facilitate service provision and improved productivity” and regulations for the sustainable use of marshlands (which would remain under state ownership); and the latter since it has implications for enabling farmers to organize themselves to access technology, seasonal finance and input and output markets, as well as to manage water.

36. The *Bill for the Establishment, Organization and Functioning of Co-operative Organizations* provides for the following categories of self-governing cooperatives: (1) production and marketing; (2) commercial and consumer; (3) service; and (4) multipurpose. Three or more cooperatives may join to form a cooperative union; three or more cooperative unions may form a cooperative federation; and three or more cooperative federations may form a cooperative confederation, otherwise referred to as an apex cooperative organization, at the national level.

37. The *National Microfinance Policy* approved in 2006 is quite liberal and provides a good basis for sector growth, although institutional capacities and the legal framework for appropriate rural financial services are still to be developed. The microfinance sector has been restructured, prudent rules have been set and refinancing mechanisms have been established. The objective is to encourage microfinance institutions (MFI) to diversify lending products in order to reach a wider range of rural actors, mainly farmers. However, the MFIs remain cautious and access to financial resources for the rural poor is still very limited. Current constraints have led to the mushrooming of *tontine* clubs in rural areas. These are groups of 15-35 individuals with different savings and investment purposes and aims. They usually open savings accounts at MFIs and provide small loans to their members.

Development support and SWAps

38. MINAGRI has started to look at the future of cooperation with its development partners. In its aid policy, the Government has expressed a preference for assistance through general and sectoral budget support. *Sector-wide approaches* (SWAps) have been implemented in the education and, more recently, health sectors. MINAGRI is considering how a SWAp might be implemented for the agricultural sector. Together with a SWAp working group of donor and government representatives, it has developed a road map for the exercise. The *Support Project for the Strategic Plan for the Transformation of Agriculture* (PAPSTA), financed by IFAD and DfID, is a major supporter of the initiative, including through a facilitator to help MINAGRI to pilot the approach.

39. The SWAp road map (see *Project Life File*) identifies six phases to be covered between May and end-October 2008. Although slightly behind the ambitious schedule, its implementation has high Government priority.

- Phase 1: preparatory and familiarisation – completed;
- Phase 2: mapping of the existing situation and analysis – completed;
- Phase 3: systems development and sector studies, including formulation of a monitoring and evaluation (M&E) and information management system – partially initiated;
- Phase 4: preparation of PSTA II – draft completed and under review;
- Phase 5: consultations with development partners and possibly co-opted theme groups – to be initiated;
- Phase 6: finalisation of an Agriculture SWAp memorandum of understanding (MoU) – draft under discussion.

C. IFAD country programme

IFAD's activities

40. IFAD has funded twelve investment projects in Rwanda since 1981, for a total of USD 120.2 million in highly concessional loans. It has also provided two grants to support post-conflict reconstruction, and another grant of USD 3.8 million was provided by the Belgian Survival Fund to support public health service recovery. The first generation of projects supported rural integrated development; second-generation projects designed after 1994 focused on a single aspect of rural development, such as market access, microenterprises or agricultural production, related to government policy initiatives that favour rural investment.

41. The current country programme totals USD 68 million and focuses on four areas: (1) off-farm employment, with the *Rural Small and Micro-enterprise Promotion Project – Phase II* (PPPMER); (2) decentralization and local development, with the *Umutara Community Resource and Infrastructure Development Project* (PDRCIU); (3) market access, with the *Smallholder Cash and Export Crops Development Project* (PDCRE); and (4) policy support and mainstreaming of technical innovations, with PAPSTA. In addition, four IFAD grants for a total of USD 1.0 million have supported national agricultural policy implementation, rural finance and HIV/AIDS impact mitigation.

IFAD's strategic framework

42. IFAD took the lead in helping GoR develop a comprehensive policy framework for agriculture. This brought donors back to the sector and continues to provide momentum for a revived rural development cluster with policy dialogue among rural development stakeholders, including donors. IFAD's niche builds on this new position and on its comparative advantages in Rwanda, that is, its focus on improving the livelihoods of small producers and vulnerable rural poor through the development of innovative demand-driven approaches, coupled with institutional and policy support to scale up successful pro-poor approaches and to contribute to the development of pro-poor policies. This twofold approach will be applied to four key areas of concern: agricultural production intensification and market support for both food and export crops; rural enterprise development; support to decentralization and participatory democracy; and rural financial services.

IFAD's Country Strategic Opportunities Programme

43. A new COSOP for Rwanda was approved in 2007 for the period 2008-12. The document determines in which areas and with what types of contribution IFAD could add value to the Government's and other partners' efforts to reduce rural poverty in the context of the new EDPRS. It builds on the ongoing project portfolio, the activities of which will extend to much of the period covered by EDPRS.

44. The overall COSOP objective is to *empower rural poor to make effective their participation in the transformation of the agricultural sector*. Within this overall goal, the COSOP sets the following three strategic objectives, which are fully aligned with EDPRS aims and PSTA strategy.

- Strategic Objective 1: Raise economic opportunities of the rural poor and increase their income in a sustainable manner. Farmers will be assisted in increasing agricultural productivity growth through sustainable intensification, including irrigation. IFAD will focus on securing access to support services, developing market linkages, and improving access to sustainable rural financial systems.
- Strategic Objective 2: Capacity-building and strengthening of poor rural people's organizations and institutions as well as local and decentralized organs. In line with PSTA, IFAD will encourage the organization of small-scale producers along commodity chains, strengthening the capacities of provincial authorities, district governments and sector-level community development centres (CDCs).
- Strategic Objective 3: Vulnerable groups are included in the social and economic transformation. IFAD will ensure through its various interventions that vulnerable groups and their specific constraints are identified in a participatory fashion and that appropriate strategies are developed to facilitate their inclusion in the economic development process.

45. The COSOP focuses on four poor groups identified in the 2006 household survey and targets the poorest regions, especially those affected by declining rainfall and food insecurity. Efforts will be made to coordinate with other donors within a SWAp that may be in place during the mid-term of the period covered by the COSOP.

II. POVERTY, SOCIAL CAPITAL AND TARGETING

A. Rural poverty, information and analysis

46. Rural livelihoods. Agricultural activities constitute the main source of food and income for most of the rural population. Production is based on small family farms that cultivate less than 1.0 ha and apply complex manual production systems combining rainfed grain, root crops, banana groves, traditional livestock rearing and some vegetable production. Food crops cover 92% of the cultivated area, of which two-thirds is for family consumption. Higher-value cash crops are grown by small numbers of farmers: coffee and tea occupy 3% and 1%, respectively, of total cultivable land. Other income-generating activities include food processing, which provides some income for 72% of agricultural households. The most vulnerable population categories are landless and those who cultivate less than 0.2 ha, which is insufficient to feed a family. Women-headed households (29% of the total), large households and uneducated young people are particularly at risk, as are families affected by HIV/AIDS. In spite of consumption increases in all quintiles, the lower ones had a poor share. The reasons for this are increased food prices and growth inequality.

47. Poverty. Over half of the population is poor. Based on the 2006 household survey, in 2005/06 some 56.9% of the population lived below the national poverty line of FRW 90 000 per adult per year and 37.9% lived below the extreme poverty line of FRW 63 500 per adult per year, which means they could not afford the basic food consumption basket even without spending anything on non-food items. Poverty has been decreasing slowly but steadily since 1994, but so also has the gap between the poor and the non-poor. Rwanda has achieved considerable economic growth over the last decade and a decrease in poverty levels from 77% (1995) to 57% (2005). However, the 2006 household survey indicates that the benefits of this growth are unequally divided and the incomes of the poorest 20% have stagnated over the last ten years. This means that the rural poor in particular have not benefited fully from economic growth.

48. Except for Kigali, poverty is widespread throughout the country, with 2005/06 poverty rates ranging from 50% in Eastern Province to 67% in Southern Province, which is the only province where the poverty headcount has increased since 2000/01. The poor are primarily rural households (98%) and households headed by women, children or prisoners. Two-thirds of all rural people are poor and have little access to health facilities (13%). Many of them are illiterate (44% compared with 26% in the urban areas, and 49% for women) despite access to primary education having improved in rural areas, with 77% school enrolment (against 87% in urban areas). Nonetheless, rural secondary school enrolment is as low as 6% (compared with 26% in urban areas); dropout rates are higher in the urban areas, particularly for girls. Up to 60% of the rural poor have access to safe water. Wood is the main source of energy for 98% of the population, contributing largely to deforestation and land erosion.

49. Rural women. So many men were killed during the genocide in 1994 that women now represent 54% of the population and generate 70% of the country's agricultural output. The majority of rural women are subsistence farmers, but they have fewer assets than men and less access to support services and markets. The incidence of poverty is 7% higher in women-headed households. In 2006, poverty in women- and widow-headed households was about 60%. About 25% of the population lived in women-headed households, which are more likely to be food-insecure than those headed by men.

B. Target group, including gender issues

Kirehe District poverty profile

50. With a land surface of 1 266 km², Kirehe District is divided into twelve sectors (*imirenge*) – Gahara, Gatore, Kigarama, Kigina, Kirehe, Mahama, Mpanga, Musaza, Mushikiri, Nasho, Nyamugari and Nyarubuye – and includes 60 cells and 610 villages (or *imidugudu*). These include 22 villages covered by the Gatore-Gahara watershed currently assisted by PAPSTA. There are 55 000 households in the district (including some 1 200 households in the Gatore-Gahara watershed), of which the overwhelming majority are rural. The total population of the district is 292 000 persons, hence the average household size is approximately 5.25 persons. Just over 86% of households own less than 1.0 ha of land; 46% own less than 0.5 ha and nearly 13% own no land at all.

51. Poverty is widespread, with some 51% of the people living below the poverty threshold and extreme poverty affecting about 29% of the population of Eastern Province. Considering regional disparities and the high percentage of farmers working with less than 0.5 ha of productive land, the headcount of poor people in Kirehe District may be higher than in the other districts of the Province. In the context of the district's present subsistence agriculture, poverty is first measured by the level of food consumption, particularly cereals, pulses and tubers. The large majority of farmers in Kirehe District are potentially poor, as 70-90% of them face periods of food shortages every year. Food insecurity is a major feature in the district.

Table 1: Land Ownership in Kirehe District by Sector

Sector	Landless households	Households with less than 0.5 ha	Households with 0.5-0.99 ha	Households with more than 1 ha	Total Households
Gahara	12%	45%	32%	11%	5 584
Gatore	10%	48%	32%	10%	5 132
Kigarama	15%	25%	52%	8%	5 028
Kigina	13%	32%	40%	15%	3 996
Kirehe	10%	38%	34%	18%	4 049
Mahama	16%	20%	55%	9%	3 737
Mpanga	15%	22%	56%	7%	5 275
Musaza	10%	36%	40%	15%	4 394
Mushikiri	8%	48%	33%	12%	4 671
Nasho	12%	32%	29%	27%	4 571
Nyamugari	19%	15%	47%	18%	5 148
Nyarubuye	11%	42%	34%	13%	3 820
Total	13%	34%	40%	14%	55 405

52. The largest cohort of rural poor is made up of households that have less than 1.0 ha of land (including the landless) and whose cereal production does not cover the needs of the family during the inter-cropping period. The number of such households is estimated at 48 000. Geographically, they are spread across the whole district and, from a social standpoint, all livelihood profiles. This socioeconomic category includes specific groups that need special, targeted activities and would be given priority because of their vulnerability. These are (1) a subgroup of 20 000 destitute women who have no autonomous economic activity, and (2) a subgroup of 51 200 young unmarried people who have little chance of obtaining land because of the land tenure law (no division of land). 17% of the total population belongs to this category (9% men; 8% women).

53. Crop yields are clearly affected by the level and pattern of rainfall as well as by water availability in valleys and marshlands. Inadequate supplies of sound planting materials and problems of germination and pests affect both production and food crop yields – particularly *Pyricularia* in rice, the mosaic virus in cassava, and Kabore disease in bananas.

54. According to a WFP survey undertaken in 2006, 18% of the population in districts of the Eastern and Southern Provinces faces food insecurity. For Kirehe District, the average is much higher since four sectors (1 731 households or 33% of the total) have a level of food insecurity ranging from 31% to 35%. For seven sectors, the level ranges from 26% to 30%. As a reaction to increasing risks of food insecurity, households – particularly the poorest – start to consume seed stocks, sell or rent out land, sell goats and poultry, and envisage migration. Periods of food shortage between cropping seasons become longer and affect the health and nutrition status of children in particular.

55. Kirehe District encompasses diversified ecological zones, where various technologies might be developed for scaling up, and has good potential for agricultural development with challenges for intensification. There are lake and river water resources and opportunities for productive investments in irrigation. The area has good potential for high-value crops and dairy production, some of which is already being exploited. It is a border district, with export possibilities to Burundi and Tanzania, and there is scope for coordination with other rural pro-poor investments and projects, mainly the AfDB-financed PAIGELAC.

Project target groups

56. Farmers with lands of less than 1.0 ha would constitute the primary target group. They would be targeted directly and be eligible to participate in the proposed activities. They may have access to reclaimed land and irrigation, and to benefit from the distribution of livestock and forage trees and from soil and water conservation (SWC) activities. These farmers represent 40 900 heads of household or 74% of all farmers, of which 27.8% are women.

57. The second category is made up of around 7 000 households (13% of all households) of landless farmers who rent land from others. They would be eligible to marshland distribution, which cannot in any event exceed 0.1 ha. In addition, the project would target the landless households with agricultural activities that need no or little land for their development, such as small stock, and promote their participation in service activities such as commerce and the transformation of produce. Adults in this group would also benefit from employment opportunities generated through WFP-funded food-for-work activities and other possibilities related to the improvement of infrastructure.

58. The third category to benefit from the same type of activities as the landless would be made up of unmarried young people and destitute women. This group would also be accorded priority in terms of employment opportunities generated by the project.

59. The total number of households in the project target group would thus be around 48 000, corresponding to a total population of about 253 000 people and 87% of the District's population, based on an average of 5.3 persons per household.

Gender and equity issues

60. The Government sees gender equality as a fundamental human right and an important factor for economic growth and social development. It has adopted a dynamic, proactive gender stance and has shown a marked determination to include gender and equity issues in all development policies formulated since 1998, including the 2003 *Constitution*, the new civil legislation and the *Land Law* that grant equality to women and men in terms of inheritance and land-tenure rights.

61. A gender policy with a strategy for its implementation was elaborated in 2004. A framework defining the state's commitment on gender and equality issues has been established, which makes Rwanda one of the most advanced countries in this domain. Gender parity is almost fully effective in the representation of women in the Senate and Parliament. The objective of ensuring that 30% of women are involved at the executive level of central and local governments has been achieved. A monitoring mechanism has been put in place for the implementation of gender policies.

62. In spite of this very favourable and thorough institutional foundation, there are several social and cultural hindrances to effective and full implementation of the equity principle, particularly in rural communities. Married women are still considered as minors placed under the full responsibility and authority of their husbands. Many still have no land of their own. They cannot avail themselves of the produce of their work as long as their husbands are alive. To have an income, rural women entrepreneurs would rather indulge in economic activities downstream of agricultural production, such as transformation or commerce.

63. At the rural household level, women are not yet perceived as full economic agents. At the district level, the stronger positioning of women in production units does not yet receive sufficient attention. The challenge for the rural woman is to take charge of her economic autonomy within the farm and have more visibility and responsibility in contributing to and using the family income.

C. Targeting strategy and gender mainstreaming

Targeting strategy

64. Vulnerability targeting. As part of activities proposed in support of the watershed planning process, the project would carry out a poverty-mapping exercise in each watershed, including a vulnerability assessment and analysis to help determine how best to respond to the needs of different segments of the rural poor. The information collected would be used to build up a strategic framework based on the following: (1) undertaking a participatory vulnerability assessment and establishing a typology of vulnerability factors (such as gender, HIV/AIDS and land tenure) and poverty-inducing processes; (2) identifying different segments of poor/vulnerable within rural communities, assessing their needs and defining which and how project activities can best be made accessible to them; and (3) determining how the maximum participation of the vulnerable households would be ensured in the watershed. The work would involve participatory processes and both community- and district-level interaction, and would be undertaken in close collaboration with sector/district staff and FOs.

65. Geographical targeting. The project would concentrate its resources in the District of Kirehe, which is composed of 12 sectors and 610 villages. Although PAPSTA is already operating in the Gatore and Gahara sectors, the KWAMP would retain them in its area of operations because PAPSTA is limited to the small watershed of Rwabutazi. The Community Centre for Innovation (CCI) to be established there would serve other sectors covered by the project. Integration between the two projects would therefore be stronger. The project would proceed progressively and commence activities in three of the twelve sectors selected to reflect the main agro-climatic zones of the district. Baseline surveys would be undertaken throughout the district. Selection would be based on priorities set in the DDP and additional criteria such as poverty, food insecurity, level of land degradation and potential for irrigation development.

66. Social targeting. According to the 2007 socio-economic study of Kirehe, the district's population is estimated at 292 000 people, the majority of whom make a living from agriculture. The total number of households is estimated at 55 000, of which 28% are headed by women and 13% are landless. Potential project beneficiaries would include the 40 000 farm households owning less than 1.0 ha and the 7 000 landless households, targeted to benefit from the project in varying degrees and in a phased manner. Some would also benefit from investments in irrigation and livestock.

Gender mainstreaming

67. The project design is based on a gender-balanced support strategy whereby women are involved in all project components. Community development activities would elaborate mechanisms to ensure:

- respect of the social composition of households in accessing marshlands. A minimum of 30% of developed marshland would be allocated to women heads of household;
- funding mechanisms that allow the poorest to access financial services and to become full participants in microfinance systems;
- promotion of rural entrepreneurial activities and economic activities not requiring land; and

- the participation of women (minimum 30%) and other vulnerable groups in governing and decision-making bodies established with project support.

D. Geographic coverage of the project

68. In line with Government requests and the recommendations of the COSOP, the project would concentrate on Kirehe District in Eastern Province and develop synergetic linkages with projects supporting similar activities elsewhere. The selection is justified on the grounds of poverty, high population density, a languishing agricultural sector and a physical environment under stress.

III. PROJECT DESCRIPTION

A. Knowledge base: lessons from previous/ongoing projects

69. The main lessons learned and recommendations of the *2005 Country Programme Evaluation* (CPE) and recent *Country Portfolio Performance Reviews* organized by MINECOFIN with particular relevance to the proposed project are listed below. These have been taken fully into account in the design of the project.

70. IFAD's interventions should target the rural poor, making use of the categories identified in the PRSP with a focus on rural women, farmers' associations and youth. Issues that would receive special attention under the project include: land reform; PSTA and measures designed to increase its impact on the poor; decentralization and capacity-building at the district and sector levels; support to MFIs to enable them to reach the rural poor; HIV/AIDS; and telecommunications and information technologies.

71. With the exception of recent efforts in supporting PSTA, little attention has been given to policy dialogue hitherto, partly owing to IFAD's lack of a permanent field presence before 2007 and a shortage of financial and human resources. IFAD should define clear policy dialogue objectives, building on its field experience, and forge alliances with and build up the capacities of key strategic partners including FOs.

72. Participatory methods are not used effectively, so populations and institutions supported by IFAD interventions are often considered as beneficiaries rather than as partners in joint decision-making processes. Capacity-building activities do not constitute a priority, and there are no real strategies for ensuring sustainability after project completion.

73. M&E systems do not reflect the principles of results-based management adopted recently by IFAD. They include neither impact evaluation nor self-evaluation by the rural poor and are not linked to the Government's poverty-monitoring system. This should be addressed and M&E units provided with adequate human and material resources.

74. The 2007 external evaluation of the grant-financed SCORE-AIDS project confirmed the validity of the combined approach of health care and economic empowerment in order to bring people living with HIV/AIDS back into the social and productive sectors.

75. The MINECOFIN evaluation stressed the need to promote flexible, demand-driven processes in project design matched by unallocated resources to adapt to fast-changing environments, rather than predetermined activities. Project management units were found to have insufficient management capacities (especially in M&E) and scarce accountability to project stakeholders. This could be improved by: building up staff capacities using technical assistance; increasing stakeholder participation in the planning, implementation and monitoring of project activities; and increasing the use of external service providers for implementation.

76. The recent PAPSTA supervision/output-to-purpose (OTP) mission provided a number of additional lessons, mainly in relation to: the watershed management approach and mobilization of communities proving to be rightly addressed; and the need to encourage a clear definition and agreement among service providers about their roles and commitments to improve coordination and avoid overlaps or gaps in technical support.

B. Opportunities for rural development and poverty reduction (the rationale)

77. The rapidly growing rural population and changeable climatic conditions increase the pressure on land and lead to severe degradation. Raising the carrying capacity of land calls for intensification and environmental stabilization of agricultural production. Moreover, for effective poverty reduction, rural marketing links would need to be strengthened. Overall, a **market-oriented intensification of agricultural systems built on sound environmental practices** would assist the poor smallholders to overcome their food insecurity and low agricultural incomes, arrest land degradation and restore soil fertility.

78. There is little prospect for agricultural expansion in Rwanda. Future agricultural growth and poverty reduction will therefore depend on intensification and diversification, although intensification will depend mainly on increases in yields rather than in cropping intensities. Irrigation provides an opportunity for both intensification – through increases in cropping intensity and yields – and diversification. However, if it is to be viable and sustainable, irrigation will need to be cost effective, reliable, developed in response to market opportunities and provided as part of a comprehensive package that includes empowering farmers to engage with markets, and ensuring their access to and use of yield-enhancing inputs.

79. Furthermore, water development for irrigation needs to be based on the catchment approach to planning and to adopt integrated water resource management (IWRM) principles, so as to enhance the prospects for equitable, efficient development, minimize the risk of conflicts between competing uses, and avoid adverse environmental impacts – especially on marshlands, whether currently cultivated or not. Although Government has initiated preparation of a water resources management strategy, water institutions (policies, legal frameworks and organizations – including water users' associations (WUAs) and their apex bodies) are still relatively weak. Rwanda's theoretical potential for irrigation amounts to 11% of its cultivated area, indicating that development of irrigation would directly benefit only about 22% of the rural population.

80. While irrigation can reduce poverty, it will never be able to do so for the majority of the rural population, which suggests that the challenge of improving rainfed cropping must be taken up. In-field rainwater management, such as the various forms of conservation tillage intended to increase effective rainfall, could become an important option for stabilizing and increasing crop yields. However, experience to date with such technologies indicates that smallholder farmers only adopt them when they have access to yield-enhancing inputs, including herbicides and fertilizer (organic or inorganic). As in the case of irrigation, investment in appropriate in-field rainwater management must be part of a comprehensive package that involves empowering farmers to engage with markets, ensures reliable access to yield-enhancing inputs and encourages them to use the same.

81. The main challenge facing smallholder farmers in the project area is to optimize the benefits of integrated agriculture using productivity-enhancing technologies. This may involve intensified irrigated and rainfed production, upgrading existing livestock through crossbreeding or introducing improved breeds, introduction of improved forages, and environmental conservation. This intensification needs to follow emerging marketing opportunities.

82. Improving agricultural production as such is not enough to enhance income-generating opportunities for rural households. Effective poverty reduction in rural areas requires strengthening smallholder farmers' links with markets so they can sell their produce. It enhances the return on agricultural intensification investments and consequently improves their incomes. Agricultural intensification together with value addition allows farmers to boost their marketable production and to take a greater share of markets. Organization of poor farmers, the strengthening of their organizations for improved marketing practices, and sustained and transparent relations with processors and traders as well as with banks and other service providers, are needed to make smallholder organizations play their full role in and take their share of economic development.

83. However, combating poverty can only be achieved when all community members share the process and have access to the resources needed to ensure their own development. This entails support to private initiative promotion and inclusive processes for all vulnerable (landless, widows, young heads of household) and excluded (HIV/AIDS-affected) society groups, hence the need to strengthen local capacities at all levels and to promote individual initiatives in developing economic activities.

C. Project goal and objectives

84. The **goal** of the project would be the **reduction in rural poverty in Kirehe District**, as evidenced primarily by a step improvement in household food and nutrition security, asset ownership and quality of life indicators, particularly amongst vulnerable groups including woman-headed households, orphans and those living with HIV/AIDS.

85. The immediate objectives of the project converge on the **development of sustainable profitable small-scale commercial agriculture in Kirehe District**. Sustainable incremental income from farming and related economic activities is the operational instrument for poverty reduction among the poor majority in Kirehe. The project is intended to result in:

- an increased level of marketed production of crops and livestock products, leading to increases in incomes derived from gains in productivity, farming efficiency and cash returns to effort;
- the operation and maintenance of affordable irrigation facilities made available to a large proportion of the active poor and landless farmers in the District, reducing dependence on increasingly erratic rains and permitting a shift to higher value crops in response to market demand; and
- a steady improvement in the natural resource base in selected watersheds to enable production in the future, reversing the present negative trends of soil erosion and nutrient depletion coupled with failure to put available water to productive use.

86. Measures to promote agricultural and livestock production are all set into the developing market context, with productive activities (other than for food for own-consumption) undertaken only to supply real demands, particularly on the more costly irrigated areas. The complementary investments in soil and water conservation, undertaken in part as public works schemes, are regarded as purposeful investments in the common productive base. Similarly, improvements to and the proper maintenance of feeder roads are justified on economic grounds, that poor physical access constitutes a major constraint on increasing trade within or with the District.

87. The ambitious plans for District economic growth based on agriculture hinge on substantial institutional developments:

- to empower farming communities to plan and implement sustainable market-oriented intensification, diversification and value-addition of their on-farm production;
- to facilitate the integration of vulnerable groups into socio-economic development through increased opportunities for farm and non-farm activities; and
- to create strong local public, private and hybrid institutions capable of sustaining efficient and non-destructive agricultural and livestock production in the District.

88. The approach capitalizes on the preliminary lessons learned and gains made under PAPSTA and take account of the CPE recommendations. Areas of importance include improved targeting, community mobilization, replication of proven participatory and watershed management approaches, and improving on the experience of shared implementation responsibilities between beneficiaries, service providers and decentralized authorities. Emphasis would be placed on strengthening local planning capacities in order to increase synergies between different interventions and donors' activities.

89. Other important precepts built on the consideration of lessons learned and incorporated in the present design include:

- scaling up of PAPSTA's successful activities to accelerate the delivery of benefits, given the availability of large financial resources under that project;
- applying the watershed development approach whereby communities are central actors in achieving their development agenda;
- realizing a farmer-driven research and extension approach;
- fostering local ownership and farmer organization involvement in planning, implementation and evaluation, through capacity building;
- promoting profitable rural economic activities through enhanced market access and increased local value-addition of agricultural products;
- integrating women, young people and the landless in value-chain development, (especially for "backyard" activities such as poultry, mushroom and rabbit production), in irrigated production by small-scale land allocation, and in the decision-making bodies of producer organizations;
- ensuring donor harmonization and complementarity with projects within and outside Kirehe;
- meeting WFP Food-for-Work requirements for eligible activities, particularly in food-insecure sectors; and
- devising a robust strategy for post-project sustainability.

D. Alignment with country rural development policies and IFAD strategies

90. IFAD's strategic orientations for Rwanda take stock of both the PSTA and other sector strategies of essential importance to rural development, including that for empowerment of the rural poor and their institutions within the decentralization process, the land reform policy, the decentralization programme and the microfinance policy, the new cooperative law as well as priority areas such as development of irrigation and water harvesting and access to markets. These are in line with IFAD's corporate priorities, specifically with regard to the promotion of equitable market linkages, the development of rural financial systems and access to information and technologies.

91. This congruence will facilitate the linkage with regional grants, which will be tapped to complement national initiatives, especially in the area of value chain development, applied research and water management. KWAMP is totally in line with this strategy.

E. Project components

92. KWAMP comprises three mutually-supportive substantive components facilitated by a Project coordination component. The first component seeks to build up the capacity of the Governmental and community institutions in Kirehe to support a rapid and sustained increase in profitable smallholder agriculture in the District. The second focuses on the investments required to intensify agriculture as a business for smallholders with subcomponents addressing value chain development (increasing real demand), crop and livestock intensification (through the capitalization and greater efficiency of production), the establishment of irrigated/drained farmland, and the stabilization of and investment in the soil and water resources of the smallholders for the future.

93. The third component addresses the ongoing and increasing need for fully functional feeder roads to provide physical access for farmers to enable trade in both inputs and produce. The last element provides the temporary managerial and administrative support services needed to implement the substantive components. The following sections summarize the KWAMP activities.

Component 1: Local institutional development

1.1: Support to agricultural transformation

94. Decentralized structures. The creation of Kirehe District dates from GoR's major decentralization initiatives of 2006, which set up local elective bodies mandated to plan local development and provide public services to the rural communities. The Kirehe District Council, led by the mayor, is in the process of establishing the administrative and technical capability to deliver affordable support services. KWAMP is committed to supporting the rapid build-up of the decentralized structures in Kirehe through:

- support for a number of new permanent posts in the District's technical cadres (financed for four years by IFAD, then by the District Government);
- technical assistance for key District staff responsible for agricultural intensification (particularly the launch into irrigation development) and feeder road improvement and maintenance;
- direct support to the district by the KWAMP Field Coordinator with the organization and management of development resources in the District;
- staff training to generate skills at both District and Sector level, including participatory needs assessment and planning, new agricultural and livestock technologies, soil and water conservation technologies, support to water users associations and *Comités Locaux de Gestion et de Supervision* (CLGS), support to cooperative societies, and value chain development and marketing.
- a set of equipment (computer, printer and global positioning system) and software for a Geographic Information System (GIS) for the mapping and monitoring of watersheds, land utilization and natural resources under the responsibility of the newly created position of Natural Resources Officer, and related training of staff members in the use of this system; and
- the equipment, motorcycles and incremental operating costs needed to enable the enhanced technical units to work with and for communities.

95. The investments and initiatives under KWAMP are guided by and focused on the evolving Kirehe District Development Plan (DDP), which itself represents a negotiated position reached between central and local Government, the farming communities and other stakeholders within Kirehe. The DDP acknowledges that the economy of the District is based primarily on crop and livestock production, and that other sectors such as manufacturing, dominated by local artisans, trade and services are of minor importance. It is important to note that KWAMP, as a GoR undertaking, has no other or different mandate or intentions for the District.

96. In this light, KWAMP would contribute to the further elaboration of the DDP and its effective formulation in accordance with sector-level development plans including the integration of watershed management and infrastructure plans. This activity would consist of assisting sectors with their development plans, updating the DDP and strengthening the capacity of technical staff at different levels, mainly in monitoring and supervision, situation analysis and facilitation of community activities. The District would be involved in monitoring KWAMP as part of its task of monitoring the implementation of the DDP, and would ultimately be depended on for long-term support to interventions and local institutions beyond the life of the project.

97. Community Centres for Innovation (CCI). Three CCI would be established in the District in addition to one foreseen under the *Support Project for the Strategic Plan for the Transformation of Agriculture* (PAPSTA) to provide physical facilities that can serve as a central point for the dissemination and exchange of information, meetings for the coordination of watershed management and other development initiatives, and capacity development and learning activities. The facilities would include adequate office space for administrative purposes, a conference hall for meetings and training activities that can host at least 100 participants, a small library, a computer room, a store and toilet facilities.

98. From inception, the CCI would belong to the District, but KWAMP would provide motorcycles the operational costs of the centres and the transport facilities during the first four years of the project. The Centres would be expected to cover part of their operational costs by charging for services and facilities, for example, by hosting meetings, providing administrative support to cooperative societies, holding training sessions organized by other development institutions, computer use and the dissemination of market information.

99. Each CCI would cover three sectors and be managed by a CCI Manager who would also be responsible for the project's community development activities. He/she would work in close cooperation with the district officers financed under the project, service providers, other projects involved in the area and local Government in order to ensure the planning and organization of meetings, training and exchanges foreseen in the work plan. In addition, each CCI would have two animators to conduct training needs assessments of farmers and their organizations, deliver training under the Community Capacity Building Fund, and manage the network of contact farmers at village level. A secretary would complete the staff.

100. The centres would be overseen by a small executive board comprising representatives of beneficiaries, farmer organizations (FO), private sector, local authorities and the Project. The CLGS may be able to fulfil this role.

101. The CCI would be the focal points for the operation of the *Community Capacity Building Fund* to provide training related to economic opportunities that arise for farmers and their organizations, aimed at obtaining increased benefits from agriculture and livestock activities. The use of the Fund would be limited to formal training, demonstrations, workshops and study tours. All training activities would be aimed at improving productive activities and would be focused on the rural poor living in any of the watersheds covered by the project. A share of 10% would be set aside solely for the support of women in the project area – for example, training aimed at the integration of women leaders, or support to the economic activities of women groups. The training would be demand driven, based on formal requests from farmers and approved through a competitive process. Once agreed, the CCI staff would prepare a contract describing the key outputs that a service provider would be expected to deliver, contract in the services, and make payment based on the actual delivery of those outputs as confirmed by the beneficiaries.

102. KWAMP would use contact farmers, referred to as *personnes ressources*, to facilitate technology transfer to farmers in the watersheds where the project is operational. There would be about twenty such *personnes ressources* per watershed selected from among the more advanced farmers in a village by the community. They would provide a useful entry point for service providers for the dissemination of information and the introduction of new inputs, implement new technologies on their own farms and train neighbours, and be used by CCI staff to spread information on upcoming events and on the available resources in the Centres, such as a visiting specialist or new market information.

103. KWAMP would introduce the innovative concept of *community competitions* to stimulate the adoption and adaptation of new technologies introduced under the project. The underlying principle is that the spread of new technologies and good practices can be accelerated if, besides efforts to convince farmers of their importance, there is an additional motivating factor for adoption. These competitions would be started in the second year of the project and held between the villages that are located within a specific watershed. Three themes would be selected at the beginning of each year related to aspects that are receiving particular attention under the project. Judgement against agreed criteria would be carried out by a jury composed of two representatives from each participating village, one man and one woman, selected by the villagers themselves. Certificates and cash prizes would be awarded to the winners, to be invested in an activity or structure that benefits the entire community or distributed to some of the poorest community members. The overall management of these competitions and the funds would be under the responsibility of the CCI.

104. Farmer organizations. In a private sector context, it is imperative that farmers become organized to secure support services and the greater efficiency that comes with collaboration and economies of scale. KWAMP would build up the capacity of the farmer organizations to become effective permanent institutions in the District through:

- training of primary cooperatives as businesses;
- comprehensive training in accounting and management for UCORIRWA (rice production cooperative);
- capacity building for Cooperative Unions in Kirehe (coffee, rice, animal production, maize and fish); and
- support for lobbying and advocacy activities of national farmers' union (the *Imbaraga*).

105. The project would support emerging farmer groups to build up and join District-based FO affiliated to both the cooperatives and national apexes of Farmers' Union (FU), so that:

- individual farmers in Kirehe District contribute to agricultural development issues at the sector level and provide recommendations to authorities and other stakeholders;
- existing and emerging water committees form financially-viable entities capable of ensuring equitable distribution of water resources and of maintaining and improving irrigation-related infrastructure; and
- FO delivering economically-oriented services join District-based cooperatives and benefit from their services (including inputs supply, commodity storage, processing and marketing).

106. Emerging and existing FO would be assisted to build up capacities in local planning and organizational development to improve service delivery through accountability and transparency. Farmer-innovators (*paysan relais*) would participate actively in designing local development action plans aimed at addressing major challenges in natural resource management through sustainable and profitable farming practices.

1.2: Water and land use management

107. The project would promote the institutional and legal framework needed to achieve effective water and land use planning and management practices in Kirehe to enable agricultural intensification that conserves the natural resource base. Areas of intervention are defined by watersheds rather than administrative boundaries. The introduction of irrigation schemes highlights the need for orderly communal management of shared natural resources with contributions from and the participation of all stakeholders, including central and local Government.

108. Watershed planning and management. Within the evolving Kirehe District Development Plan and subsidiary Water Development Masterplan, KWAMP would assist with the generation of a comprehensive *Watershed Management Plan* (WMP) for each of the areas selected for project investments. The plans would be developed through consultative processes, amended as needed and implemented as living instruments. For planning purposes, it has been assumed that project activities would be started in about five watersheds (WS) per year for a period of three years, until about fifteen WS containing some 23 500 households have been reached.

109. The project would select suitable WS surrounding potential irrigation development sites and, as a first and necessary step, establish a permanent public/private institution (CLGS) to manage the development of each. *At grant negotiations, government provided assurances that it would seek IFAD's approval for a master plan for watershed development in Kirehe District within the first 12 project months.* The CLGS would focus mainly on water management at WS level and on the implementation of soil and water conservation activities. The form and operating modalities of each would be tailored to local conditions and interests, but their existence as effective consensual entities outside the local Government hierarchy would be a precondition for further project activities and investments within the subject WS. The aim would be to have an equal number of men and women members. Government staff, such as the In-charge of Agriculture and the Executive Secretaries at Sector level could join as co-opted members, to offer technical advice or assist in problem resolution. Training and mentoring would be provided for CLGS members through District structures for the life of the project.

110. A community-led mapping exercise would be conducted to identify the extent and present land use in target WS, generating an inventory of physical, economic and social attributes of each WS as the foundation of a holistic WMP. The overriding interest of the inventory of physical resources would be to know about the availability of water in the sub-catchment area. This activity would establish a baseline scenario for watershed planning and management by the CLGS, to be followed by the drafting of WMP by technicians and proofing by CLGS and communities. In principle, WMP preparation would be contracted out to an institution that is able to assemble a team consisting of the necessary specialists for this work.

111. The CLGS would send selected members for regular inspection tours of the WS and meet afterwards to hear their reports. These tours would assess water availability in the catchment, the condition of roads (especially those rehabilitated under the project), whether different water users adhere to the rules and regulations in the WMP, and whether management systems (both physical infrastructure and management tools such as rotation schedules) are functioning properly. The condition of the WS in terms of erosion and the implementation of soil and water conservation measures would also be assessed. The CLGS would have *ad hoc* meetings as necessary to address any conflicts over water or the use of other natural resources, and in response to calamities such as flooding or landslides in the area. There would be an annual workshop to review and amend the WMP.

112. Regularization of land tenure. The land tenure situation in Kirehe differs significantly from that found in many other areas of Rwanda. Average holdings are typically larger and less fragmented than elsewhere in the country and land disputes are relatively rare. After 1994, the District experienced large numbers of returning families, especially from Tanzania and Uganda, as new settlers; the majority were livestock keepers. The land that the returning families were allocated was drawn either from the subdivision of existing holdings or from the allocation of previously unoccupied land. Under conditions of increasing population pressure on finite productive land resources, GoR is seeking address the issues of:

- *land consolidation*, which is the domain of the Ministry of Agriculture & Animal Resources (MINAGRI); and
- the *redistribution of improved land to the landless*, which falls under the jurisdiction of the Districts and the Ministry of Natural Resources (MINIRENA).

113. KWAMP would support these activities in Kirehe in pursuit of the Project's overriding aim of promoting profitable sustainable small-scale farming in the District. In particular, the equitable resolution of the issue of access to and use of land brought under irrigation is a necessary condition of success. In addition to viable management arrangements, farmers need adequate title to their land rights for legal and planning purposes.

114. The project would enable all farmers benefiting from poverty reduction interventions to have access to land with registered rights (statutory /customary), and all land in the project area, especially land targeted for specific investment interventions, to be registered. The work would be done by GoR cadres, whose capacities would be strengthened during KWAMP implementation.

115. A land tenure implementation programme would be designed for each watershed within the process of generating WMP. In each WS, communities would be made aware of the importance of land tenure and the requirements under the Land Law to have all land registered. Maps, spatial and attribute data on land would be assembled as a prerequisite for the participatory identification and adjudication of statutory land, leading to the participatory demarcation and registration of land. GIS technology would be utilized for the exercise. As an interim measure, a temporary certificate of ownership could be issued for the comfort of beneficiaries pending the compilation of registers of land and the preparation and issuance of leases/titles by GoR. The whole process is not protracted once a WS has a functioning CLGS and draft WMP in place.

116. These processes will be the responsibility for the District Land Bureau (DLB, for leases) and the National Land Centre (NLC, for title registration), based on data generated by a private surveying team (service provider). KWAMP would provide training for concerned DLB and NLC staff and the direct costs of the concentrated land registration process in Kirehe. Emphasis of training will be around Land Management Information Systems, modern geomatics engineering tools, legal and regulatory tools and land administration. In addition to training needs, infrastructure requirements for building District capacity will be identified.

117. District staff would be supported professionally by external quality control and technical supervision. Provision is included for the conduct of a participatory review of land ownership, led by local elected leaders (including grass root leaders) to ensure objectivity, to guide the implementation and, if justified, to instigate preparations for replication by the District management in other areas not under KWAMP.

118. Water use management. With due regard to the early experience of PAPSTA and the mixed record of smallholder irrigation initiatives in neighbouring countries, KWAMP is committed to the creation of effective local management structures to operate the irrigated farmland to be developed in Kirehe under the *Agricultural intensification* component. The budget for the planned management capacity-building activities for the subsector sums to 15% of the total investment in engineering studies, structures and works, reflecting the imperative for strong institutions to ensure sustainability.

119. Given the lack of experience with anything but the most rudimentary forms of water harvesting, storage and application among the potential users and, for historical reasons, the absence of technical cadres in the District, it is necessary to mobilize and support community-based management entities around each selected irrigation scheme at the same time as building up a qualified and proactive technical unit in Kirehe for the medium term.

120. As a condition precedent for irrigation investments, KWAMP would assist the District authority with the creation at the outset of a Water Users' Association (WUA) for each potential scheme, to be involved in the planning, oversight of construction and subsequent operation and management of the installed system. By design, each WUA would operate within the purview of a CLGS, with a strong probability that some farmers would be in both entities, but the entities are different in nature, purpose and legal personality. Unlike the public/private CLGS with a broad remit of responsibilities for the WS, the WUA are private sector entities concentrated on the sustained operation of water control infrastructure to ensure profitable agricultural enterprises.

121. The ambition of KWAMP is, from a low base and within a few years of intervention, to establish effective WUAs able to operate without external assistance and to mobilize funding for system maintenance and repairs. This is an entry strategy to ensure sustainability, not an exit strategy to be devised at mid-term. The ambition translates into a concerted and extended effort to build up the competence and confidence of water users through:

- training of WUA leaders, members and trainers in the technical, legal and business aspects of irrigation management, including short courses, workshops and study tours. While the area covered by each WUA is relatively small, the number of water users involved would be comparatively large requiring more technical and management skills to achieve desirable results; and
- mentoring and backstopping of the emerging WUA without interfering with their decision-making, planning and handling of market risks.

122. Each new WUA will have some of its most difficult work to do right during the start-up period for a new scheme, exactly the time when the institutions are at their weakest. With external guidance and support, the WUAs have to sort out equitable and consensual land allocation arrangements that reflect the *status quo* with regard to legal title to access to productive land, consolidate holdings to permit optimal water use, resolve any water rights issues and accommodate the GoR policy to redistribute a proportion of the improved land to the landless. These matters can be settled only by the farmers themselves in return for the considerable public investments in structures and technical assistance. It is important that KWAMP does not hurry the process or, worse, set it aside in pursuit of project targets for construction. Nonetheless, it would support government in formulating legislation for the formation and formalization of WUAs. *At grant negotiations, government provided assurances that it would seek parliamentary approval for this law during the first two project years.*

123. Although contractors would be used for the once-and-for-all start-up activities, including community awareness-raising and the mobilization and initial training of WUA, the key to success in the medium term rests with the technical staff operating at District and Sector level to instil good management practice in the new FO. KWAMP would set up a District Irrigation Unit in Kirehe, a development not anticipated during the decentralization reforms of 2006. Nationally, a WUA Support Section would be set up with three posts – WUA Support Section Head (Water Management Specialist), WUA Organization Specialist and Irrigation Technician – and the teams would be provided with appropriate transport and equipment, training and specialist technical assistance. It is anticipated that the Kirehe District Irrigation Unit will become a model for irrigation development in the country.

Component 2: Agricultural intensification

2.1: Value chain development

124. Under KWAMP, the market is seen to be the driver of increased incomes from agriculture and livestock husbandry, and so measures will be taken:

- to step up the real demand for products that Kirehe farmers are producing or could produce;
- to assist farmers to respond to market signals in terms of product specifications, quality and primary processing requirements;
- to seek profitable opportunities for value addition in Kirehe; and
- to move towards more organized modes of production in the context of farming as a business based on contracts.

125. In short, all project efforts to intensify agriculture in the District would be regarded as part of value chain development, in which production is stimulated by demand and the producers are alert to market opportunities as they arise. Whilst the value chain encompasses all the private sector actors from primary producers to ultimate consumers, this first subcomponent concentrates on the relatively small number of “upstream” economic operators, including processors, transporters and traders. The approach combines an increase in the value of trade taking place (potentially benefiting all the “links” in the chain) with the strengthening of the economic, social and organizational capacities of the poor to give them a fair share of the profits generated. The interventions would be expected to result in:

- an increase of incomes of the target groups due to value-addition for marketed commodities;
- established value-chains that are supplied by FO in the District to markets elsewhere; and
- empowered smallholder FO that operate within the established value-chains.

126. Through baseline surveys of commodity chains in the selected WS, KWAMP would identify and select a number of promising pro-poor commodity chains and then, through stakeholder workshops and participatory approaches, concentrate on the selection, mapping and analysis of six commodity chains for upgrading. An action plan would be developed by stakeholders’ “actor-cluster platforms” for value-chain development for each targeted commodity, with a general presumption of a shift to contract arrangements within market chains. “Business development plans” would be devised including:

- attention to some or all of the facility and capacity development issues of: input supply; storage, grading and processing of agricultural produce; marketing of products; and market information and intelligence; and

- ways and means to strengthen and establish market relationships between chain actors.

127. Value-chain clusters would be created around the selected commodity chains bringing together value-chain actors and support service providers. The value-chain clusters would: sustain relationships between chain actors, particularly between the smallholder FO and “upstream” enterprises; steer implementation of the action plans through motivating member organizations to develop proposals to be submitted for funding; provide an exchange and learning platform for members; and offer a policy consultation platform for national and local authorities on enabling measures for commodity and value-chain development.

128. KWAMP would support the implementation of the refined business development plans for upgrading commodity chains through training and experience-exchange activities and through the establishment and operation of a *Value Chain Development Fund* lodged with a financial institution. The fund would match exactly the private sector capital raised from credit suppliers or own-funds through its “Emerging Value Chain Development” window, and would provide 25% of the required funding through its “Established Value Chain Development” window. These funds would enable and promote the construction of input shops and collection points in Kirehe and the start-up of value-addition activities such as storage, grading and processing.

129. Requests for grants from the *Value Chain Development Fund* would have to fulfil several conditions: demonstrated market demand; a contribution to realizing KWAMP’s objectives; be based on the commodity sub-sector action plan (as endorsed by the actor-cluster platform); demonstrate the innovative, “added value” and income-generating character of the activities; make clear how target groups will benefit; demonstrate that applicants have the basic capacities to implement the plan; define ownership and management modalities of equipment and/or infrastructure involved; and show its contribution to agricultural intensification in the District.

130. In all cases, active processor groups and rural enterprises would benefit from advice and coaching for business management that would strengthen their business management capacities and link them – at their request – with specialized technical assistance for the appropriate use and maintenance of the equipment.

131. KWAMP would seek to improve farmers’ access to pertinent market information and intelligence both to guide their seasonal enterprise selection and to improve their bargaining situation when dealing with traders. Market information points could be developed in conjunction with the CCI. Specially appointed members and staff from local FO would benefit from training and coaching in market information management to strengthen their capacities to access and analyze market trends.

132. Smallholder FO and private entrepreneurs involved in the management and use of the various facilities (input shops, collection points for agricultural produce, processing equipment and market information centres) under the approved and financed plans would benefit from yearly workshops to be organized by the Project to exchange management experiences and stimulate innovation (such as credit modalities) in the different fields of work.

133. The District staff responsible for these activities – particularly the officers in charge of Planning and of Economic Development would be supported by a fulltime local Value-Chain Development Officer and visiting national and international specialists.

2.2: Crop and livestock intensification

134. The transformation of subsistence crop cultivation into farming as a business depends on increasing agronomic and economic efficiency, with gains in both productivity and profitability. With farmers’ behaviour driven increasingly by real market signals, as expected through the value-chain development interventions described above, KWAMP would promote greater agronomic efficiency through community-based research and extension, advice, improved planting materials and the distribution of improved animals. The project would contribute to the achievement of Government policy in developing integrated crop-livestock systems appropriate to prevailing conditions in Kirehe.

135. With increasing population pressure on natural resources under stress in the District, intensification translates into the consolidation of sustainable farming systems that make optimum use of limited resources with the maximum use of waste and by-products to minimize the need for costly fertilizer and energy. In addition to promoting conservation techniques and the recycling of nutrients on-farm, KWAMP would introduce the use of biogas to reduce the consumption of fuelwood in the District.

136. Intensification of crop production. The project would promote the establishment of community-based extension services with the operation of communication and knowledge management using the PPMEL approach with farmer organizations interfacing with ISAR and the *Rwanda Authority for the Development of Agriculture* (RADA). Manuals of farmers' best practices on agricultural conservation would be produced and distributed to leading farmers as a guide for implementing the techniques and sensitizing fellow farmers. Farmer-field schools (FFS) would support training and demonstration activities.

137. The improvement of planting materials (hardy cultivars) for rainfed cropping would be conducted, with on-farm trials and the production of a resource book. Twelve seed multiplication enterprises (cooperatives) would be set up with access to a revolving fund and contracted to RADA to supply the best performing planting materials to the Kirehe farmers.

138. Integrated crop/animal husbandry systems. There remains a shortfall in the livestock numbers required for the integrated crop/animal husbandry systems deemed appropriate for the agro-climatic conditions in the District. KWAMP would remedy the situation with the restocking of "backyard" dairy cattle, goats and pigs whilst raising the overall quality of the livestock through the introduction of pregnant improved heifers, Ankole bulls, improved goats and pigs, and artificial insemination services. The transfers would be effected using the tried-and-tested "solidarity chain" mechanism, which accords with the GoR policy of "One Cow to Every Poor Family". It is estimated that 2 422 farm families would receive a crossbred cow during the life of the project, and the chain should continue thereafter.

139. The restocking would be backed up with training in integrated crop/livestock systems, pilot livestock input/output activities and community-based animal health interventions. Various forage plants species would be introduced and developed.

140. The increase in "backyard" livestock ownership provides an important opportunity for the introduction of appropriate and affordable biogas technology. Low-cost household biogas plants would be introduced to link agricultural and livestock production through improved fertiliser, with side benefits of sustainable cooking and lighting energy and the liberation of women's working time. Plants successful elsewhere would be subjected to adaptive field research and then supplied to interested poor households at a nominal price.

2.3: Irrigation development

141. Water management, including drainage and rainwater management as well as irrigation, can provide an opportunity for both intensification – through increases in both cropping intensity and yields – and diversification. However, if it is to be viable and sustainable, water management needs to be cost-effective, reliable, developed in response to market opportunities and provided as part of a comprehensive package that ensures farmers' access to water, empowers them to engage with markets, and enables them to use yield-enhancing inputs profitably.

142. Rwanda's theoretical potential for irrigation amounts to only 11% of its cultivated area, indicating that irrigation alone could reduce poverty only for a minority of the population. This suggests that improving non-irrigated, purely rainfed cropping is imperative. In-field rainwater management – such as the various forms of conservation agriculture – intended to increase effective rainfall, could help farmers to stabilize and even increase dryland crop yields. The irrigation development proposed under KWAMP is set firmly in the whole watershed/conservation farming context and is regarded as only one of several means to engendering profitable small-scale farming to reduce poverty.

143. Irrigation development planning and design activities. As set out in subcomponent 1.2 above, the project would conduct consultative enquiries to identify potential sites for irrigation development (with due regard to physical access for eventual inputs and outputs) and to develop a *District Water Management and Irrigation Plan* followed by a comprehensive *Watershed Management Plan* for each selected catchment area. To inform future planning exercises, the project would establish weather stations and river gauging stations at suitable locations in the District to collect climatic and hydrological data on regular basis.

144. To conform to the law and ensure that potential adverse environmental impacts are minimized and opportunities enhanced for multiplier effects, an *Environmental Impact Assessment* (EIA) will be carried out during the first project year so that the resultant recommendations are incorporated in the design of irrigation and drainage schemes, as appropriate. In all cases and particularly for wetlands, the EIA would:

- review the diverse environmental functions and services provided by the resource;
- ensure that the EIA recommendations build on the National Environmental Action Plan and the lessons drawn from past/ongoing wetland development initiatives in Rwanda; and
- in consultation with the farmers, consider alternative livelihood options to rice production.

145. Irrigation and water harvesting schemes. Subject to participatory identification of suitable sites for viable and sustainable development, the project would carry out improvements on approximately 1 000 ha of marshland and 1 000 ha of new hillside irrigation, employing to the extent possible simple technologies with low investment and operating costs.

146. Interventions in marshlands would focus exclusively on sites where low-cost improvements, such as drainage and/or flood protection, might bring real water control benefits. Typical hillside schemes would involve the construction of mini-dams, ponds or cisterns and distribution systems to provide supplementary irrigation for commands of up to approximately 60 ha of arable lands with a slope of less than 12%.

147. Emphasis would be placed on development of schemes that can be developed and become fully operational during the project years. For sustainability, the schemes developed would be gravity-fed with appropriate technologies that:

- are technically, financially and environmentally sound investments with low cost per hectare and prospects for achieving high returns;
- have low operation and maintenance costs per hectare that are affordable by the beneficiaries;
- meet the pro-poor and gender eligibility criteria established for the project; and
- reflect the wishes of WUA/beneficiary groups willing to participate in planning and implementation activities and contribute 15% of the cost of the works in kind or in cash.

148. The schemes would be designed and constructed in consultation with and the participation of the beneficiary WUA by competent engineering service providers and construction contractors selected competitively. Operation and Maintenance Manuals would be prepared for each irrigation scheme and translated into local languages.

2.4: Soil and water conservation

149. The planned intensification of agriculture in Kirehe, including the introduction of irrigation, is to take place in an area already under pressure and subject to soil and water losses and diminishing fertility. KWAMP would seek to complement the investments in farming efficiency with measures to reverse the negative trends and conserve the natural resource base for the future. Within each watershed, the CLGS would manage a multiyear programme of purposeful and technically sound conservation measures to be carried out by farmers and communities, both on and off-farm. The objective would be to stabilize and protect around 25 000 ha of farmland by progressive terracing, contour trenches and anti-erosive hedging of farmland through the planting of agroforestry trees and cuttings of *Penisetum*.

150. Based on the Watershed Management Plans, consultations will be held with farmers and other stakeholders with a view to identifying and assessing areas affected by soil erosion as well as other areas prone to it, and to developing criteria and prioritizing areas for the establishment of soil and water conservation (SWC) structures. Farmers would be made aware of and trained in SWC conservation techniques and technologies, including farm planning, which would be addressed in farmer field schools. A SWC resource manual would be compiled and distributed to farmers.

151. Fieldwork will be conducted on the selected watersheds in accordance with the model adopted under PAPSTA. Once appropriate SWC structural measures have been identified and planned, the communities will implement the works during less busy times in the agricultural year through public works schemes, to be carried out with World Food Programme (WFP) food-for-work resources and the mobilization of local labour from the most needy members of the communities. Through self-selection, participants in food-for-work projects are chosen during meetings with qualified persons from the communities involved. This targeting of the poor helps to address short- to medium-term hunger while laying the foundations for sustainable food security through the creation of productive assets.

152. Once the watershed anti-erosion structures works are in place, they would be protected as appropriate by tree and hedge planting. Upwards of 11 million plants and cuttings would be procured by KWAMP for this purpose, necessitating the establishment of community-based tree nurseries and hedge plant cuttings banks as new permanent businesses in Kirehe.

Component 3: Feeder roads

153. With the exception of one fine metalled road passing through Kirehe to cross the Kagera River to Tanzania, the road network in the District is poor and access problematic, particularly during the rains. KWAMP would assist the District to restoration and/or establish year-round road links between producers and markets, thereby reducing transport costs for agricultural inputs and outputs, reducing losses in marketed commodities and increasing potential trade in perishables. Small-scale agriculture and livestock husbandry is, and will remain, the principal economic activity for Kirehe, and operators need serviceable roads. It is expected that commercial traffic counts will go up on the improved roads, with increased interest from traders and other incoming economic operators, and that farmers' enterprise selections would reflect increased confidence in marketing prospects.

154. Improved roads would also benefit communities by providing easier access to health, education and social facilities, in part by encouraging public transport development to more remote areas.

155. Feeder road rehabilitation. A participatory planning process would be conducted within the ambit of the District Development Plan to identify economically-justified improvements to the feeder road network. The interaction with farming communities, local authorities and other stakeholders would be informed by studies comprising a situation analysis of the Kirehe feeder road network and a preliminary costing and economic analysis of candidate roads in a District-wide "long list". The works required to bring a section up to a *maintainable state*, the benchmark for the project, are likely to range from single water crossings through selective upgrading up to new construction. The multi-year road upgrading plan would concentrate on the WS subject to KWAMP investments and development activities, but – in the nature of transport networks – would ensure continuity in the links created.

156. The project would balance value-for-money considerations with the need to spread the benefits of improved access to as many communities as possible. In this light, the aim for each section selected as having high priority would be to deliver the critical minimum of inputs required to achieve year-round access. In this light, the "length of road improved" is an intermediate target on the way to increases in the commercial and other use of the roads.

157. For preliminary planning and budgeting purposes, subject to modification in the light of project investigations and the accurate unit costs revealed in the first round of tenders for improvement works, KWAMP aims to:

- rehabilitate 70 km of feeder roads requiring major works and a further 60 km of access roads in deprived areas requiring partial works;
- construct 60 km of short access roads to storage facilities; and
- carry out spot improvements on short road sections.

158. This level of activity would cover most of the feeder roads in Kirehe over the life of the project. KWAMP would use labour-intensive methods in road construction and improvement to maximize local employment and skills transfer opportunities. As the responsible executing agency, the experience would provide the still-new District administration with the capacity to manage and supervise contractors. The substantial volume of work would also promote emerging medium-scale contractors in the private sector.

159. Road maintenance capacity. The need for the costly and concentrated investment in the majority of the feeder roads, as set out above, is predicated partly by the climate, terrain and poorly-developed economy of Kirehe, but mainly by a complete lack of maintenance of the existing network. Earth and gravel roads in such areas are prone to very rapid deterioration and require regular maintenance and attention to faults as they develop. The problems associated with surface water damage and flooding can be minimized with systematic light maintenance, including the clearing of culverts and drains.

160. The (national) Road Maintenance Fund (RMF) became operational in 2000 with responsibility for financing road maintenance (works, control, technical and financial auditing). The RMF was intended to negotiate and sign yearly contracts with districts and SME for routine maintenance works to be delivered through SME or community-based work (*umuganda*) but has been constrained financially. The 2006 reforms effectively decentralized maintenance services to the Districts. KWAMP is oriented to assist with the realization of the new set-up.

161. Directly for the feeder roads improved by KWAMP, but also for the whole network in the future, the project would assist the District to build up the managerial and technical capacity to undertake the proper and perpetual maintenance of feeder roads in Kirehe. The commitment to make maintenance a high priority and mainstream business of local Government would be a precondition of the investment programme in order to avoid the rapid deterioration of restored road links and a reversion to the unsatisfactory situation that has prevailed in recent years.

162. To this end, the project would train District staff and contractors in the planning and execution of effective maintenance programmes mainly through mentoring and “learning by doing”. The District would develop a robust and fully-funded community-based road maintenance programme. Starting from a very low base, the (new) District Road Maintenance Unit would be provided with key items of equipment for own use and hiring out to contractors, including a grader, compactor and small truck. All uses of the machinery would be conditional upon timely payment of the hire fees into the district road maintenance fund, by both private contractors and the district authorities.

163. The planned feeder road maintenance would provide regular employment opportunities for communities on their “local” roads, an approach that builds up a strong sense of ownership. Women and men would have equal access to the periodic road maintenance work, which would be taken on mainly by the more motivated of the unemployed and poor households.

Component 4: Project Coordination

164. Building on the recent and ongoing experience of PAPSTA, KWAMP would enable the three substantive components to be implemented smoothly over seven years by delivering professional support services. Unlike PAPSTA, which has six pilot zones scattered across the country, KWAMP activities are concentrated in one District and the project is able to attach advisers directly to their counterpart technical units in the decentralized structures. Whatever their contract arrangements, the advisers should be – and be seen to be – working for and with their formal counterparts within and outside government structures, rather than regarded as “KWAMP staff”.

165. The remaining administrative and managerial functions can and should be carried out by a minimal and ephemeral *Project Coordination Unit* (PCU) with staff deployed in Kigali or Kirehe as appropriate. For reasons of economy and efficiency, Kigali staff of the KWAMP PCU would be blended into an enlarged PAPSTA PCU, with the current PAPSTA Coordinator taking on a dual role. In Kirehe, the KWAMP Field Coordinator would maintain a minimal *Field Coordination Office* in the immediate vicinity of the offices of the Mayor and the Chief Executive Officer.

166. These arrangements are intended to reinforce the fact that KWAMP is a GoR project with some major responsibilities for implementation deputed to the temporary, low profile PCU. The PCU would behave more as a business than as a public service unit in relying on a cascade of results-based service contracts and *Memoranda of Understanding* (MoU) with third parties for the delivery of services.

167. Governance, liaison and contract management. As the executive arm of GoR and the National Steering Committee (NSC), the PCU would be responsible for the technical briefing of, receiving policy guidance from and carrying out the instructions of the NSC. The PCU would represent the project in all appropriate fora and conduct effective liaison with central and local Government entities, private sector stakeholders and development partners.

168. With a project design that relies heavily on contracts and agreements, there is a premium on efficiency in the procurement and management of supply and service contracts, including supervision of public and private sector contractors and service providers. This major part of the responsibilities of the PCU extends to the administrative management of the technical assistance (TA) personnel assigned to technical units.

169. Planning, reporting and financial management. The PCU would conduct project planning and budgeting activities, mainly through the Annual Workplan and Budget exercise towards the end of each financial year. Within the overall direction of the project, flexibility is required in modifying plans in response to changing conditions rather than a slavish adherence to set physical targets. Within the bounds of common sense and fiscal prudence, the PCU should review and modify plans proactively rather than making a virtue of “troubleshooting” as the primary management tool.

170. The project would compile periodic progress reports, including a project completion report, as agreed with GoR, IFAD and cofinanciers. To the extent possible, KWAMP should collaborate with the MINECOFIN generic monitoring system presently under preparation. Reports should follow the component structure of KWAMP and concentrate on outcomes rather than inputs. The analysis of management lessons learned in responding to unforeseen events and shocks would be very valuable, as would the orderly follow-up of the findings of baseline surveys.

171. The PCU would manage project accounts and funds, and ensure that cash crises are avoided by submitting regular withdrawal applications to financiers and applying effective financial control mechanisms. Transparency is highly desirable in dealing with large amounts of public money, placing a premium on internal spot checks and audits (in addition to the mandatory annual external audits).

172. Monitoring and evaluation. (See section IV.C below on approach and methodology.) The M&E System will aim at monitoring and evaluating performances of the KWAMP activities, their impact on the small farmers’ living conditions, as well as the impact as regards institutional reinforcement within the revalorization of the agricultural sector and capacity building for responsible structures so as they better assume their new roles and functions within the context of modernizing the sector. The system will have to be careful by evaluating only real useful information. Only information responding to decision makers’ imperatives to achieve the objectives of sustainable impact will be considered.

173. Although KWAMP would have a fulltime M&E Expert supported by an Assistant M&E, external reviewers would be contracted for some of the set-piece studies to ensure a fresh and neutral assessment. The project would organize:

- baseline and corresponding impact surveys;
- ad hoc enquiries into innovative aspects of the project;
- a mid-term review at the end of Project Year 3; and
- a project completion evaluation, if required.

174. From the outset, M&E activities should engage with the high order goals of KWAMP, namely the creation of sustainable income-generating activities, including farming, and the reduction of poverty within Kirehe. Given the well-known analytical difficulties associated with the attribution of benefits to particular project investments or interventions and with identifying plausible proxies to gauge poverty reduction, it remains crucial to the whole design that the planned impact on poverty in the target area is gauged.

175. It will be necessary at the start to ensure that all KWAMP stakeholders have the same understanding of the objectives, approach and fundamental concepts of the project. Sensitizing sessions will thus be organized during the first days of the project in order to expose and discuss ideas together, notably: the logical framework, participative monitoring and evaluation, the poverty eradication objective, notion of improving living conditions, participation of target groups (especially the more vulnerable), and equity between sexes. This will then allow better to evaluate aspects as part of the M&E system based on a common understanding.

IV. IMPLEMENTATION AND INSTITUTIONAL ARRANGEMENTS

A. Institutional development and outcomes

176. The project would contribute to the institutional development and strengthening of Kirehe District and Sectors cadres in fulfilling their new responsibilities for planning, coordinating and monitoring rural investment activities, as well as of the residual specialized MINAGRI agencies. The CCIIs are envisaged as permanent public/private agencies linking producers with service providers and filling some of the gaps left with the curtailment of Government outreach and technical support provision.

177. The creation and support of CLGS for managing and supervising the implementation of planned project activities would ensure the quality control of contracted services and sound use of allocated resources, in line with GoR's intentions to create a SWAp in the agricultural sector.

178. At the producer level, KWAMP would support the setting up of various local economic interest groups including WUAs, farmers' organizations and primary cooperatives. These groupings are significant in terms of their potential progression into units able to engage with markets and as manifestations of GoR's wish to empower the people with influence over their lives and the opportunity for collective action to escape poverty.

179. Further up the market chains, the project would contribute to the steady increase of small contractors, traders, transporters and specialist service providers emerging in the private sector. From a value-chain development perspective, these operators are seen as very much part of the solution rather than part of the problem. Rightly, Government is concentrating on the provision of core "public good" services, such as animal disease surveillance, and leaving production, processing and trade to the private sector. It is neither possible nor desirable for producers to take on all the roles played by the members of value chains. The interdependence of the operators makes it imperative that all parties are happy with their part of the deal, which fact protects those at the end of the chain from systematic exploitation.

B. Collaborative framework

Main implementing agencies and their roles

General implementation precepts

180. The project would be implemented over a period of seven years on the basis of the following principles and modalities.

- The project would be demand-driven and respond to specific requests emanating from selected communities.
- Selected projects and activities would be aligned and integrated into the local development plans of the Sectors and the District.
- Communities and farmer groups would be supported by grants for the implementation of small projects emanating from them.
- The PCU would ensure joint management of project resources with the four CLGSs, in conformity with IFAD and GoR procedures and regulations.
- The M&E system would be participatory and would build up a dynamic of learning and knowledge sharing. The focus would be on building up local capacities, starting with farmers.
- The project would ensure that targeted groups were addressed effectively, in particular, that activities designed for specific vulnerable groups were carried out, and that impact assessments were conducted and documented.
- The majority of project activities would be contracted out to the best-qualified professional, commercial and not-for-profit entities in the private sector and to specialist public institutions.
- Within the spirit of out-sourcing, the contract culture would apply to all project staff, whose services would be subject to regular performance assessments.

Key implementing agencies

181. Over a period of about thirty years and under the coordination of MINECOFIN, IFAD has developed strong partnerships with MINAGRI, MINALOC, MINICOM and – concerning issues related to the environment (soil and water) and land tenure – with MINIRENA. In addition, IFAD has entered into working partnership arrangements with NGOs and the private enterprises. In parallel, IFAD supports the decentralization process and works closely with decentralized authorities in order to empower local government to implement project activities. It is now forging close partnerships with apex FOs to enable them to become the voice of the rural poor in policy processes.

182. **MINAGRI**, which is also the implementing agency for PAPSTA, would have the overall responsibility for project implementation. The ministry is responsible for national agricultural policy formulation, coordination and monitoring, while provinces and – increasingly – districts are in charge of implementing the policies through local planning and coordination mechanisms.

183. Many of MINAGRI's former field operations are now entrusted to three parastatal agencies created with the aim of supporting the delivery of extension services to farmers in response to requests. These are the Rwanda Authority for the Development of Agriculture (RADA) for agriculture, the Rwanda Animal Resources Development Authority (RARDA) for livestock, and the Rwanda Horticulture Development Authority (RHODA) for horticulture. The first two collaborate closely with PAPSTA as service providers. They would be prime participants in the PPMEL approach to be established under KWAMP. MINAGRI has also embarked on preparing stronger coordination mechanisms aimed at developing a SWAp.

184. **Project management** would be delegated by MINAGRI to the existing PCU currently implementing PAPSTA, with the following main responsibilities:

- financial and administrative management of project resources;
- planning of project activities;
- service and supply contracting and procurement processes;
- coordinating the activities of the various project partners;
- supervision, monitoring, evaluation and documentation of all activities;
- formulation of the *Annual Work Programme & Budget* (AWPB) and progress reports; and
- communication and outflow of project information and achievements.

185. **MINIRENA** is responsible for the environment, water and land tenure – all of which would be of importance to this project. Coordination in the area of environment would be through the Rwanda Environmental Management Authority (REMA), mainly for impact assessment and environmental monitoring. In the water domain, the PSTA foresees the elaboration of coordinating mechanisms between MINIRENA, which is mainly responsible for human consumption, and MINAGRI, which is responsible for water in agriculture. The development of legal and policy frameworks covering all water-related issues is under consideration. Under *Land tenure security*, in its field activities KWAMP would address the issues of land consolidation, which is the domain of MINAGRI, and the redistribution of improved land to the landless, which falls under the jurisdiction of the districts and MINIRENA. Modes of operation would need to be devised accordingly.

186. **Kirehe District.** Within the decentralization process, the District of Kirehe would be the main executing agency of KWAMP, being the institution responsible for consultation, including local participatory planning and M&E, as well as the *Feeder roads* component. Project activities and priority sectors would be in line with the DDP. The project would work closely with district staff to build up their individual and corporate capacities.

187. **Professional organizations.** The Farmer Organizations, which are organized by commodities, are becoming increasingly vocal and representative but are still constrained by a lack of skills, illiteracy, weak internal democracy and limited capital mobilization. Further development is needed to secure vertical market linkages, incorporating rural producers, facilitating financial intermediation and allowing the representation of farmers' interest in policy processes.

188. The project would involve and entrust responsibilities to FOs and their apex organizations, building on PAPSTA activities to strengthen their capacities. Existing partners within the FO forum would most-likely become part of the implementation process, including the two most prominent agencies engaged respectively in the development of marshlands and rice intensification/marketing, and in the promotion of cooperatives in agricultural and animal production as well as in inputs supply and produce marketing.

189. **NGOs.** National and international NGOs can bring local experience on community development and technical matters, and are used widely in Rwanda as service providers for technical support and advisory services to producers, (such as sensitization, organization, capacity-building, livestock importation and genetic improvement, promotion of appropriate technologies, and the development of private-sector supply chains). In many areas, the PCU may contract NGOs for the implementation of project activities. Innovative approaches successfully experimented by NGOs would be extended to the rest of the project.

190. A **Watershed Management Committee (CLGS)** would be set up for each selected watershed, similar to the existing CLGS in the PAPSTA-supported watershed in Gatore and Gahara sectors. These CLGSs would work closely with sector development committees (known as CDCs) and with FOs and various other associations. They would be responsible for the implementation of work plans, quality control related to contracted services, and the use of allocated resources. They would be the primary decision-makers, as long as their decisions do not conflict with the basic principles, approach and modalities of the project or the district and sector priorities, as set out in the DDP.

191. The CLGSs would be supported by the technical team based in District headquarters at Kirehe and by the contracted service providers, each in its own domain of intervention. The specialized experts based in Kigali would also provide technical backstopping as required.

192. The composition of the CLGS would follow the same model as for PAPSTA, with a membership having gender balance and including stakeholders, representatives of farmers and vulnerable groups. The CLGS would normally meet on a monthly basis, which is considered sufficient for project management purposes. However, *ad hoc* meetings may be called as required. The CLGS would be represented in the management committees of the CCIs and delegate one representative to be a member of the district steering committee.

Steering Committees

193. The piloting of KWAMP would be carried out by a District Steering Committee, which would be chaired by the Mayor and made up of a limited number of members representing the farmers, FOs and local institutions from the public and private sectors participating in the project. The committee would meet at least twice yearly, once to review the draft AWPB and again at mid-year to review implementation progress. It would be responsible for the technical oversight of the implementation of the AWPB and the project's integration into the district structure. At the national level, overall oversight and strategic guidance would be added to the responsibilities of PAPSTA's existing National Steering Committee (NSC), which would be expanded by the District Mayor as representative of the District Steering Committee.

Pre-project activities

194. Starting before project approval by the IFAD Executive Board, four activities would be implemented by PAPSTA as pre-project activities for KWAMP in preparation for project implementation: (i) the preparation of the District watershed and irrigation plan; (ii) the preparation of additional implementation manuals for the Community Capacity Building Fund, the community competitions, the revolving fund for seed multiplication cooperatives and the district road maintenance fund; (iii) the preparation of the first AWPB; and (iv) the baseline survey for the project. The activities would be completed before project effectiveness. Under the initial IFAD grant, an amount of about USD 250 000 would be made available under retroactive financing arrangements to reimburse PAPSTA for the expenses. During that period, PAPSTA staff would also review and update PAPSTA's operational, financial management and M&E manuals to reflect joint modalities, and the District Steering Committee would be formed.

Supervision and Mid-Term Review

195. The project would be supervised directly by IFAD. Supervision missions would be organized on a yearly basis, with the full participation of government (MINAGRI, MINECOFIN) and project cofinanciers (WFP, DED), complemented by short follow-up missions six months later. The PCU would interact directly with IFAD's Country Portfolio Manager for all functions related to supervision work.

196. An in-depth Mid-term Review Mission would be organized by GoR and IFAD in 2011/12. This mission would also conduct a Project Completion Review of PAPSTA and decide how KWAMP might continue to disseminate the innovations introduced and to replicate successful approaches and achievements. Cofinanciers of the project would participate in the review. The mission would also review progress in implementation of the SWAp.

Work Planning and Budgeting

197. The project would use Annual Work Plans and Budgets (AWPBs) covering the detailed annual planning of activities, implementation responsibilities, procurement processes and physical results targeted. The AWPBs would be principally based on WMPs and previous implementation experience. The PCU would prepare the drafts, adjust them based on discussions with representatives from the district administration, the CLGSs and key implementing partners in annual review meetings, and submit them for review to the District Steering Committee and for approval to the NSC. Eventually the AWPBs would be submitted for IFAD no-objection before 15 December each year. Being a flexible instrument, the AWPB may be amended during the course of a year provided the review, approval and no-objection process is followed.

198. An initial AWPB would be prepared during the pre-project period, partly based on the draft 18-month procurement plan included in Working Paper 14. Subsequent AWPBs would also contain detailed information on the project's physical and financial progress in the previous year, relative to targets.

Technical partners in implementation

199. Three international agencies intend to be technical partners of GoR with IFAD in contributing to the implementation and funding of important designated components of KWAMP, (see Table 4 in Section V.C below). The arrangements reflect the perceived comparative advantages of the agencies.

200. The World Food Programme (WFP), if funding permits, would lead the SWC activities under *Agricultural intensification* by organizing and financing the erosion control structures within the selected watersheds. This work would be accomplished through Food-for-Work arrangements targeted on vulnerable households and food deficit areas. WFP is a sister specialised agency of IFAD in the UN.

201. German Development Service (DED) would contribute to KWAMP mainly through the provision of a long-term Farmer Organization Adviser to work with the rice farming service provider on the subcomponent *Crop and livestock intensification*.

202. All three agencies' contributions to the project would be fully reflected in both project AWPBs and project reports. They would provide their contributions in the form of parallel co-financing, for WFP and DED as in-kind contributions. Both WFP and DED would communicate the value in US Dollar equivalent of their actual annual contributions to the PCU, by 15 August for the Half-yearly Report, by 15 November for the AWPB and by 15 February for the Annual Report.

Links with complementary projects

203. As recommended in the *Paris Declaration on Aid Effectiveness*, the project would establish collaboration and harmonize its approach with other projects acting in the target area or in the same field of activities. In this light, KWAMP would ensure that its implementation is linked with other donor-financed projects including:

- The World Bank financed RSSP II relative to its support to irrigation development, including in two marshlands in Kirehe district;
- the AfDB financed PAIGELAC, which supports fish farming and natural resources management around the lakes of Kirehe District;
- the national land tenure reform programme implemented by MINIRENA and supported by DfID (including pilot land titling activities for rainfed farmland in Kirehe District); and
- the forthcoming national project of irrigation in Eastern Province, currently planned by the Government.

204. The project would maintain close ties with other externally-supported interventions in the country by “like-minded” donors that share a strong commitment to the IFAD corporate slogan, *enabling the rural poor to overcome poverty*.

Integration within the IFAD country programme

205. KWAMP will take advantage of the experience and the technical/human resources of the other four on-going IFAD-supported projects in Rwanda. The complementarity with PAPSTA is evident (approach and strategy, managerial links, territorial proximity and common design features) since the new project would constitute another pillar of PSTA accomplishment. Other innovative activities and participatory strategies will be tested to enable the scaling-up to effective transformation of agriculture and achievement to a SWAp for the agriculture sector.

206. The need to diversify farmers' income-generating activities, on- and off-farm, and promote farmer organisations (mainly cooperatives) will naturally induce partnerships and knowledge sharing with PPPMER II for the promotion of rural small- and micro-enterprises, upstream and downstream from agricultural production, and with PDCRE for its experience of private sector/farmers organisations partnerships in economic activities, (primarily processing cash crops for value addition). Further complementarity with PDCRIU will be built around implementation of the *Support to agricultural transformation* subcomponent and the *Feeder roads* component, to share experience on the best approach to follow and capacity-building tools to use.

C. Results-based Monitoring and Evaluation

207. The KWAMP project M&E activities will be integrated into those of PAPSTA, where the same unit, strengthened by additional staff, would be responsible for M&E activities. RIMS indicators are already integrated into this system. The existing PAPSTA system would be generally used and adjusted to the additional activities, results and impacts of KWAMP. It would be therefore related to the MINAGRI Management Information System.

208. The project will use PAPSTA's M&E manual, enriched by sections on M&E in the four additional implementation manuals to be produced specifically for the project. In addition, once the expanded M&E system has been fully functional for about one year (which is expected in PY3), it will be expanded on a pilot basis by the Participatory Planning, Monitoring, Evaluation and Learning (PPMEL) approach in about three watersheds to test participative feedback loops. PPMEL involves identifying problems, solutions, threats and opportunities for formulating and implementing a course of development action. It involves assessing the results of changes through an adoptive learning process in partnership with multiple stakeholders, such as community members and groups, FOs, NGOs and others, each of which is affecting, or is affected by, the decisions or actions taken and the impacts being assessed.

209. The project would use indicators consistent with PAPSTA indicators, the MINAGRI Management Information System and RIMS. Its system of collecting and forwarding data would be highly participatory, and involve a two-way data flow between the PCU/district authorities and the participating communities. All documents and forms reaching the community level would be translated into all forms translated into Kinyarwanda. M&E responsibilities have been described in terms of who should collect which data, how often, who would analyse the data and how the feedback would work. This evolving system would need to grow in harmony with overall MINAGRI data use systems as the ministry moves towards a SWAp.

V. PROJECT BENEFITS, COSTS AND FINANCING

A. Summary benefit analysis

210. **Benefits.** The project would result in a number of main benefits:

- i) Appropriate local development solutions ensured through high levels of local participation in the form of better local governance, and active community and farmer organisations.
- ii) Better land tenure security through registered land rights, which provides a basis for medium- and long-term investment in land.
- iii) Strengthened women's status in rural areas through increased participation in managing local affairs and better access to productive factors such as land, inputs, markets and knowledge.
- iv) Improved input supply and produce marketing through operational farmer groups and cooperatives that would be integral parts of value chains with improved information, stronger negotiating positions and secure contracts.
- v) Development of storage and processing activities by private enterprises and farmer cooperatives would create wider and more absorptive markets as well as off-farm employment opportunities for the landless, women and others.
- vi) Intensification and diversification of agricultural production, mainly with high-value cash crops, would lead to improved on-farm production and greater earnings for farmers, resulting in better incomes and food security for the rural poor. These benefits would go hand-in-hand with improved access to agricultural knowledge, technology and information.
- vii) Greater livestock production and off-take, leading to higher incomes and improved soil fertility (through more manure), which would in turn increase agricultural production.

viii) Stabilised soil regimes at high productive levels through investments aimed at arresting soil loss and improving water management.

ix) Reduced commercial transaction costs through better road access.

211. **Beneficiaries.** Of the 610 villages in Kirehe District, some 375 would benefit directly or indirectly from the new project. Not all villages would receive the same level of services, however. A selective approach would be followed when allocating project resources and services to benefit directly the following groups: households exploiting less than 1.0 ha, women heads of household, and the landless. A selective approach would also be applied in areas with high agricultural potential, where the project would concentrate on productive and economic development activities; and in less well-endowed areas, where the focus would be on SWC and improved agricultural practices for rainfed agriculture intensification.

212. Of the project target group of 48 000 households, the project would reach about 22 500 direct client households and 10 000 indirect beneficiary households.

213. Estimating a population of about 1 500 households per participating watershed, the project would reach some 22 500 direct client households in the 15 participating watersheds. Assuming that most of the watershed inhabitants are part of the target group, the direct clients would make up about 47% of all targeted households. These households would benefit from actions aimed at improved on- and off-farm production and marketing, erosion control, improved management of water resources and integrated livestock production in the agricultural system. The combined effect would be an increase in agricultural production and incomes, and in better nutrition. The target group's organizational capacity within community bodies would be strengthened and their knowledge improved.

Table 2: Estimated Project Outreach

Activity	No of client households
CCI outreach for capacity building	20 000
Regularization of land tenure	21 000
Value chain development	7 500
Seed multiplication cooperatives	600
Irrigation support	20 000
Animal restocking	5 347
Biogas producers	2 000
Soil and water conservation	22 500
Total (not counting overlaps)	22 500

214. Of the direct client households, it is estimated that about 20 000 households would benefit from investments in marshland and hillside irrigation. The same households would benefit from capacity building through the Community Capacity Building Fund, from having their land rights registered and from soil and water conservation works on their land. Managed by the CCIs, about 400 training activities with 100 participants each would be carried out, with each beneficiary taking part in two activities on average. For soil and water conservation, about 0.2 ha would be protected per client household.

215. Other subgroups of direct client households include those participating in value-chain development, seed multiplication, animal restocking and biogas production. As a rough estimate, for an investment of USD 100 000 from the Value Chain Development Fund, some 300 households would participate in a contractual marketing link. The seed multipliers would be organised in cooperatives of about 50 farmers cultivating a total of about 5 ha each for producing quality seeds. Animal restocking client households include both recipients of animals purchased by the PCU and those of redistributed offspring.

216. The main indirect benefits would be the use of the improved feeder road system by persons from outside the participating watershed. Commercial activities would also benefit the population of the thus better-connected villages and increase private-sector involvement in the economy.

217. **Economic and financial analysis.** A number of indicative economic activities that may be supported by the project were identified during the early design process, with six models representing likely income-generating activities for project funding, using relatively conservative parameters for both outputs and inputs.

218. The main results of the financial analysis show: (i) a significant increase in gross and net returns from each model for the “with-” and “without-project” situation; and (ii) high benefit/cost ratios illustrating the worthiness of the investments. The net present value after financing ranges from USD 23 to USD 3 824, with internal financial rates of return from 29% to 185%. The analysis showed that the models were more sensitive to changes in both yield and price assumptions than to variations in investment and operating costs.

219. The economic analysis at the early design stage projected an internal economic rate of return (ERR) for the project of 16.8%. These returns were tested against changes in benefits and costs and for various lags in the realization of benefits. In relative terms, the ERR is equally sensitive to changes in costs and in benefits. In absolute terms, these changes do not have a significant impact on the ERR and economic viability is not threatened by either a 20% decline in benefits or a 20% increase in costs. Both a 20% drop in total project benefits and an increase in total project costs by the same proportion would reduce the base ERR to about 10.1%.

B. Summary cost estimates

220. The total investment and incremental recurrent project costs, including contingencies, are estimated at USD 49.3 million (RWF 33 billion). Physical and price contingencies make up 8% and foreign exchange about 20% of the total project costs. Taxes amount to approximately USD 1.2 million. Funds allocated to project management total USD 2.33 million or about 5% of project base costs. Summary tables and detailed cost tables are presented in Annex 3 and Working Paper 11.

Table 3: Project costs by component

Component	Project Costs		% of Base Costs
	RWF million	USD '000	
1. Local institutional development	3 558	6 468	14%
1.1 Support to agricultural transformation	2 038	3 705	8%
1.2 Water and land use management	1 520	2 763	6%
2. Agricultural intensification	16 143	29 350	64%
2.1 Value chain development	1 672	3 040	7%
2.2 Crop and livestock intensification	3 518	6 397	14%
2.3 Irrigation development	6 996	11 392	25%
2.4 Soil and Water Conservation	4 687	8 522	19%
3. Feeder roads	4 074	7 407	16%
4. Project coordination	1 286	2 339	5%
Total Baseline Costs	25 060	45 564	100%
Physical Contingencies	1 513	2 750	6%
Price Contingencies	6 379	1 014	2%
Total Programme Costs	32 951	49 328	108%

Note: Arithmetic sums may not correspond with their parts due to rounding.

221. Cost-wise, the largest activities are the productive investments by the project. The Irrigation development subcomponent, the Soil & Water Conservation subcomponent, the Feeder roads component and the Crop & livestock intensification subcomponent constitute 25%, 19%, 16% and 14% of the total project costs respectively.

C. Project financing: IFAD, cofinanciers, Government, partners and beneficiaries

222. The project would be funded mainly by IFAD, WFP and the government of Rwanda. IFAD would provide two grants: an initial one of USD 20.5 million (41%), and a second one of USD 6.3 million (13%) for irrigation activities for the second half of the project once additional funds are made available. The WPF contribution (USD 8.1 million or 17%) would finance food-for-work activities under the *Soil and water conservation* sub-component. The German Development Service would finance USD 0.5 million in kind for technical.

223. The total GoR contribution is estimated at USD 9.5 million (19%), to be provided by central government (USD 7.6 million or 15%) and Kirehe District (USD 1.9 million or 3%). Central government would mainly finance the Feeder roads activities, for which *assurances were provided by government at grant negotiations*. The Kirehe district government will finance the recurrent costs after PY4 of the additional staff and operating in the district headquarters the CCIs and the CLGS, for which *assurances were provided by government at grant negotiations*. It will also finance the full maintenance costs of the roads rehabilitated under the project. Approximately USD 3.1 million (6%) would be provided by the beneficiaries (participating households and farmers), mainly as contributions to livestock development and irrigation small-scale infrastructure investments. In addition, USD 1.3 million (3%) would be provided by the private partners participating in the value chain development activities. The following table provides a summary financing plan.

Table 4: Project Financing Plan

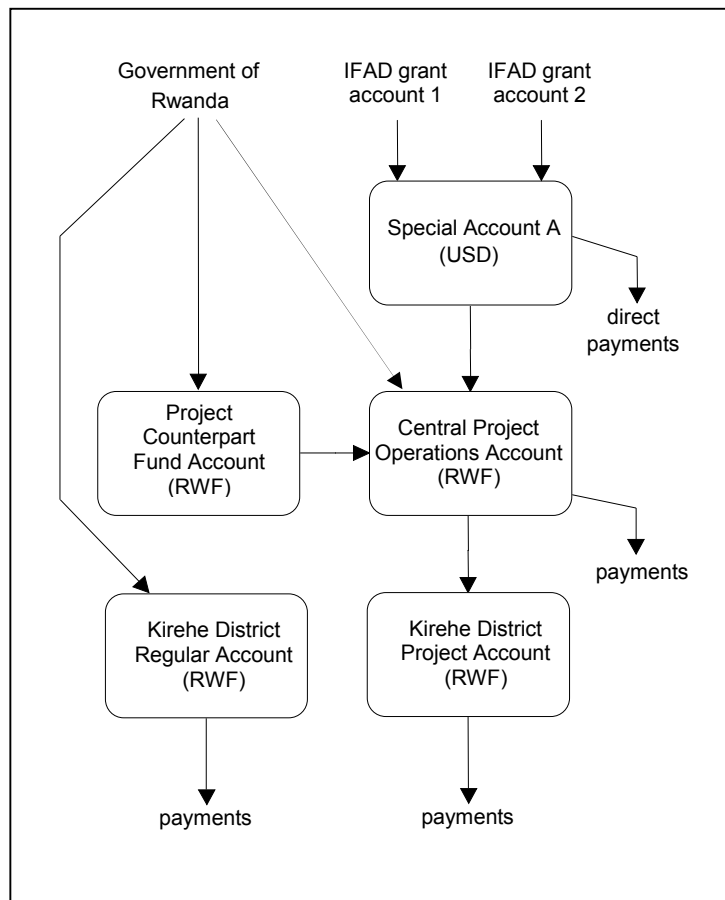
Financier	Amount (USD '000)	%
IFAD, of which:	26 770	54.2%
<i>initial grant</i>	20 446	41.4%
<i>second grant</i>	6 324	12.8%
World Food Programme	8 130	16.5%
German Development Service	511	1.0%
Beneficiaries	3 123	6.3%
Private sector	1 250	2.5%
Rwanda Government, of which:	9 544	19.4%
<i>central government</i>	7 589	15.4%
<i>district government</i>	1 955	4.0%
Total	49 328	100.0%

224. **Retroactive financing.** Under the initial IFAD grant, an amount of about USD 250 000 will be made available under retroactive financing arrangements, as four activities will be implemented by PAPSTA in preparation for project implementation, namely: (i) the preparation of the District watershed and irrigation plan; (ii) the preparation of additional implementation manuals; (iii) the preparation of the first AWPB; and (iv) the baseline survey for the project.

225. **Disbursements.** The flow of funds (see Figure 1) will take into account government procedures for financing public expenditure and the experience from other MINAGRI-administered projects, especially PAPSTA. All Project accounts will be situated in a commercial bank acceptable to IFAD.

226. For both its grants, IFAD will open a grant account each from which all disbursements in support of the project will be made. Direct disbursements to suppliers of goods and services can be made from these accounts upon request by the designated representative of Government.

Figure 1: Flow of Funds for the Project



227. **USD Special Account** will be opened by MINAGRI during the pre-project period, to be operated by the PCU. The account will be established, operated and replenished in accordance with IFAD guidelines. All IFAD projects funds except direct payments by IFAD will flow through this account. IFAD will – upon request by the designated representative of government – deposit the authorised allocation of USD 1.5 million into the USD Special Account. All withdrawal applications for disbursements from the IFAD grant accounts will be directed to IFAD through its Nairobi office.

228. **Other Central Project Accounts.** The Project Counterpart Fund Account and the Central Project Operations Account will also be opened by MINAGRI during the pre-project period. They will be established, operated and replenished in accordance with government procedures, to be specified in the project financial procedures manual. The Project Counterpart Fund Account will receive all central government counterpart funds for the project. The Central Project Operations Account will be operated by the PCU, and receive funds from the Project Counterpart Fund Account and the Special Account.

229. **District Accounts.** The Kirehe District Regular Account already exists. It receives Government allocations for district expenditure. The Kirehe District Project Account will be opened during the pre-project period. It will be established, operated and replenished in accordance with government procedures, to be specified in the project financial procedures manual. It will receive funds from the Central Project Account. Both district accounts will be operated by district authorities.

VI. PROJECT RISKS AND SUSTAINABILITY

A. Risk analysis

Assumptions

230. Central level. The overarching assumption is that the current economic and social stability would continue at the same steady pace as during the last decade, and that the reconciliation process, which is making good progress, and the end of the *Gacaca* trials would open the door for more hope for social stability. GoR's strengthened determination to fight poverty and strong donor support to the EDPRS makes it clear, however, that a number of strategic decisions have yet to be translated into concrete action. These mainly concern the participation of civil society, farmer empowerment and progress towards gender equity in the rural world, and implementation of the land tenure legal framework to allow the landless and young people to gain access to land.

231. The PSTA has been adopted recently as a cornerstone of the new EDPRS. The agriculture sector budget allocation has been slightly increased. It is assumed that implementation of the PSTA will be effective and that financial allocations and the global medium-term expenditure framework will give an optimum share to the agriculture sector.

232. The decentralization process is moving ahead with determination in terms of policy and structural implementation. It is assumed that the will continue and that the devolution of power will be properly funded. The present set-up allows for considerable transfer of authority to the district, thereby bringing the decision-making process closer to the population concerned. Human and financial resources are still lacking but the project would aim to help fill any gaps encountered. It is assumed that the decentralization policy will be sustained by availability of human and financial resources at the sector and district levels.

233. District and local levels. The participatory approach is the basic and fundamental paradigm of the project. It constitutes the vehicle through which community development would take place. Its effectiveness has been widely demonstrated in Rwanda, in particular through almost two years of experience of PAPSTA. In this context, it is assumed that: (i) the targeted communities would be mobilized and adhere to the principles of the holistic watershed basin approach; and (ii) national and district authorities would facilitate FO participation in rural economic development.

234. Project implementation. It is assumed that there would be effective collaboration with national and district authorities in creating a conducive environment for community participation, that service-providers with good quality would be available, and that private-sector actors would be prepared to participate in developmental activities and contribute to plans for developing commodity chains.

235. For SWC it is assumed that: (i) the population would be mobilized for the physical works; (ii) the introduction of new techniques in conservation farming and of new species would be successful, and (iii) the Government would adopt the principles of integrated water resources management and subsidiarity in basin/sub-basin planning.

236. In the area of agricultural water management, it is assumed that: (i) suitable sites would be found for viable small-scale irrigation in marshlands and on hillsides as well as suitable sources of surface or groundwater; (ii) adoption of an intensive production system for hillside irrigation would succeed; (iii) appropriate irrigation combined with the use of yield-enhancing inputs would be found to be profitable by farmers; and that (iv) a qualified business-oriented service provider (contractor, NGO or not-for-profit organization) capable of developing private sector supply chain would be found.

237. In value chain development, it is assumed that (i) private partners with appropriate qualifications, rural business interests and probity would be available and that rural financial services would be accessible when needed to smallholder farmers and SMEs increasing their economic activities in response to project interventions; (ii) national strategies for input/service supply and development of commodity subsectors exist; (iii) capacity for multi-stakeholder platform facilitation would be available; and that (v) lucrative and accessible markets would be identified.

Project responses to potential risks

238. The risks are a corollary to the above assumptions and stem from their non-realization. The funding partners, including the Government, would need to address them and to mitigate any adverse impact on project activities.

239. In the area of global policy and strategy, IFAD and its partners would continue their efforts to promote policy dialogue on issues related to poverty and decentralization, and to support the implementation of existing strategies, including the strategy for women's advancement and the formulation of new strategies and legislation in the area of agricultural water and watersheds management. In particular, the development partners would press for the adoption of WUA legislation and the effective implementation of land policy in order to ensure improved access for women and landless people to marshlands.

240. At the district level, donors supporting the decentralization process would join efforts to ensure that (i) district and sector staff are trained and their capacities increased; (ii) a conducive environment is created by district authorities for the development of economic functions of local FOs and private-sector involvement; and (iii) newly-established watershed community organs are integrated into the local consultation and decision-making process.

241. Project team capacity to handle the intervention should be ensured and rigour exercised during the selection of service providers and contractors. The integration of KWAMP and PAPSTA is not expected to raise any risk factors. The low literacy rate will affect the understanding and conduct of PPMEL. Vital experiences and knowledge of the community on previous successes and calamities may not be well documented or available to the implementers. Such knowledge would be of great value in designing, planning and implementing risk-reduction measures such as food and seed storage, hazard zone identification and project management as a whole.

242. For watershed management activities, the participation of communities is not considered to pose any risk, given the positive PAPSTA experience, so long as the farmers are made aware and are conscious of all aspects of watershed development, including sustainability. Selection of cultivars and other vegetative plants that may contribute to infestation and the spreading of plant diseases should be taken into consideration.

243. Many activities under the development of commodity chains are demand-driven. This requires sufficient capacity to express demand (by farmers, processors and traders) and to translate these demands into relevant support. In a private sector context, the subcomponent accords a strategic role to the economic operators in the market chain, and so depends on their contributions and willing participation. Economic feasibility and tangible results are needed quickly if they are to be kept on board.

244. For irrigation development, the priority to be given to Water Users' Associations is to be underlined as well as concerns over recruiting qualified service providers to support the new institutions.

Possible negative impacts and mitigating measures

245. The development of new marshlands or hillside irrigation, unless carefully planned, could compromise the availability of water for downstream users, including downstream irrigation users. It could also compromise the fragile marshland ecosystems. All proposed subprojects would be subjected to an environmental impact assessment by the REMA.

246. There could also be an increase in vector-borne diseases (bilharzia and malaria) as a result of new irrigation, although health centres in the project areas have not yet reported any cases of bilharzia.

247. Careless development of intensified agriculture may lead to the exploitative use of natural resources. Growth is likely to lead to a greater use of fertilizer and pesticides. However, potential negative effects would be counterbalanced by the promotion of sound and sustainable natural resources management and the project's focus on increasing soil fertility. Great care would be taken in the process of identifying possible sites and scope for hillside irrigation development.

248. The project would develop a strategy for implementing mitigation measures based on:
- the conduct of systematic EIAs for all activities that have an impact on the environment;
 - training and awareness raising of communities, through PPMEL, on the need to adopt sustainable farming and environmental protection practices. These would include a code of best practice in the use of fertilizers, pesticides and other harmful chemicals; and
 - guidelines to be provided to all project partners and service providers on how to take account of environmental risks and hazards in the formulation of subprojects.
249. Despite its focus on watershed management and SWC, the project would fall under Category A of IFAD's *Administrative Procedures for Environmental Assessment* because it is likely to involve wetland development (including small-scale water control). However, the project could be considered as bordering on Category B because the area of wetland to be developed under the various subprojects would amount to a maximum of 1 000 ha in more than 20 subprojects, out of a total wetland area of 7 700 ha in Kirehe District and 194 000 ha in Rwanda. Moreover, more than half the possible 1 000 ha is already under traditional rice cultivation and its further development would not necessarily increase the risk of negative environmental impacts. Nevertheless, a draft order by the Minister responsible for the environment specifies that an EIA is required for any project (or subproject) that involves agricultural development in wetlands, as well as any project/subproject involving the construction of a public dam for water conservation or "rainwater harvesting" for agricultural activities.

B. Exit strategy and post-project sustainability

250. The exit strategy for KWAMP would be built into the project design as an "entry strategy". All substantive interventions would be implemented by the appropriate local agencies from the start, with support, training and capacity-building as needed to ensure a seamless continuation of income-generating and asset protecting activities into the future. Great emphasis is placed on the institution-building needed to underpin the project; the subcomponents *Support to agricultural transformation* and *Water and land use management* are purposely placed first in KWAMP to signal the intention to incorporate sustainability into the local economy.
251. Where new posts are generated in the public service, they may be paid for up to four years from project funds but would be lodged in the budgets of the concerned institutions. The project would provide professional management and other necessary services to implement the once-off developmental activities, which capacities would not need to be handed over. In the same direction, the project would not disturb the pattern of real costs, financial risks and incentives in the emerging markets through unsustainable subsidies.
252. The project is concentrated on making a reality of decentralization by fostering authentic community-based management structures to take control of the deployment of limited resources and making the District and Sectoral authorities the main implementers.
253. The provision of intensive support to each community watershed development plan would be based on explicit agreements reached between the parties, to instil the basics of the "contract culture" that prevails in market economies. At the heart of the design is the belief that proper environmental behaviour, efficient agriculture and the shift to "farming as a business" are most likely to come about if they are clearly economically rational and in the best interests of the beneficiaries. The best training, particularly with the introduction of irrigation systems that require management by the users, is "learning by doing" and observing competent practitioners in action. KWAMP will resist the temptation to micromanage productive activities, particularly when mistakes are made.
254. Mobilization of community financial resources would be encouraged to build up sustainability. The mainstreaming of SWC execution through Rwandese implementing partners, supplemented by capacity building in management and operation is expected to establish a solid basis for post-project sustainability.
255. The feeder road programme emphasises the imperative to establish and operate orderly maintenance arrangements within the District as a prerequisite for post-improvement sustainability.

VII. INNOVATIVE FEATURES, LEARNING AND KNOWLEDGE MANAGEMENT

A. Innovative features

256. The main innovative features of the Kirehe Community-based Watershed Management Project are:

- Institutional arrangements that would be shaped and led by local actors and provide a conducive environment for adapting and using technology innovations (SWC techniques, improved livestock development and value-addition of agricultural produce) including CCIs, the community capacity building fund, community competitions, and water user associations and; a strong management role for the district administration.
- The discharge of developmental duties by the responsible District authority through the competent management of contracts with service providers and suppliers, in contrast to the old-style direct delivery of services.
- The integration of more productive and commercialized agricultural production within an approach based on sound and sustainable resources management.
- An unswerving commitment to enabling farmers to respond to opportunities in real markets, with economic activities and investments in Kirehe driven by demand rather than supply.
- The application of proven agricultural technology options, specifically, hillside irrigation, that would enhance productivity while ensuring sustainable natural resource management under the difficult biophysical and socio-economic conditions found in Kirehe District.
- Establishment of local platforms around selected commodities that would enhance value-chain development through strengthening linkages between chain actors and demand-driven support services (such as research and development, business promotion) for capacity building. These platforms would strengthen the role of the district in local economic uplift and generate innovative arrangements for value-chain development rather than working from blueprints and would allow to interact with the targeted farmers as private sector operators rather than as “beneficiaries”.
- The introduction of the PPMEL concept as a community-based methodology for sharing responsibilities, adopting commonly agreed options of development, putting in place a watershed-based participatory M&E system, and recording, documenting and sharing experience and information.
- Integrated management arrangements that build up joint systems and management structures rather than temporary, supernumerary ones, and that support the Government’s endeavour to implement a SWAp in the agricultural sector.

B. Project knowledge products and learning processes

257. KWAMP is committed to installing robust fully-functional local management structures in a short period, including entities for district and sectoral planning, WS planning, shared agricultural water use, the operation of CCIs, and development funds. These initiatives reflect GoR’s wish to empower the people, promote the healthy development of the private sector and to locate decision-making squarely with stakeholders and local communities. The outcome is expected to be knowledge of immediate importance to other Districts that do not have the advantage of access to the professional capacity-building resources of KWAMP. Multi-user irrigation, in particular, is a new challenge in Rwanda, and GoR is keen to refine rapidly the rules of engagement for WUAs, both internally and with private and public sector agencies.

258. KWAMP is oriented to realize the economic and legal service delivery activities of the District, which institution has embarked only-recently on its independent existence.

259. As described in the section on results-based M&E, the PPMEL approach should contribute to the learning process and capacity building of all project stakeholders – from rural community,

implementation partners, Government to donors. The CCIs established for each watershed would be important tools for knowledge sharing at the grass roots and national levels.

C. Regional knowledge networking

260. The immediate source of technical knowledge for KWAMP would be the learning of PAPSTA, which is already tackling several of the same areas of intervention in pilot areas all over the country, (albeit with a different management profile).

261. Further afield, KWAMP would seek to derive best practice from regional centres of excellence and relevant IFAD-supported projects, particularly on the technical approach and methodology to be adopted in labour-based road improvements and maintenance, community-based watershed management investments, and demand-led value chain development. The managerial, outsourcing and financial aspects of decentralization would be informed with reference to the experience of other countries that have made an earlier start on the far-reaching reform process.

262. The project would utilize the resources of the regional organization *Improved Management of Agricultural Water in Eastern & Southern Africa* (IMAWESA) in the quest for the most appropriate irrigation and water management technologies for the specific conditions of the WS in Kirehe. Based in Nairobi, IMAWESA has been set up explicitly to enhance the development impact of public and private investments in smallholder agricultural water management in the region. It seeks to use evidence based on the experiences of projects, research and the farmers themselves, to influence global, regional, national as well as sectoral policy, leading to improved access to, management of, and increased investment in agricultural water for food security and wealth creation.

Annex 1. Contents of the Project Life File

PRIOR DOCUMENTS

2007 COSOP – both English and French
Country Programme Evaluation Report
EDPRS
PSTA
CPPR

WORKING PAPERS

14. Project Area, Target Group and Targeting
15. Local Institutional Development
16. Soil & Water Conservation and Crop Intensification
17. Livestock Development
18. Agriculture and Agricultural Water Development
19. Value-Chain Development
20. Farmers Organizations and Co-operatives
21. Food for Work
22. Feeder Roads
23. Land Tenure Security
24. Programme Costs and Financing
25. Environmental Screening and Scoping Note
26. Monitoring & Evaluation Processes

REFERENCE DOCUMENTS

- A. Country Portfolio of Loans and Grants
- B. SWAp Road Map

MISSION DOCUMENTS

- A. COSOP Finalisation Mission TOR
- B. COSOP Finalisation Mission Aide Mémoire – June 2007
- C. KWAMP Early Design Mission TOR
- D. KWAMP Early Design Mission Aide Mémoire – December 2007
- E. KWAMP Final Design Mission TOR
- F. KWAMP Final Design Mission Aide Mémoire – April 2008

CONSULTATION DOCUMENTS

PDT Minutes – inception – 12 September 2007
PDT Minutes – early design – 26 November 2007
ICFG Minutes – early design – 27 September 2007
CPMT Minutes – mid design – 1 March 2008
CPMT Minutes – final design – 18 April 2008

Annex 2. Updated Logical Framework

Kirehe community-based watershed management project

Intervention logic	Performance questions and target indicators	Monitoring mechanisms and information sources	Assumptions
Goal			
Reduction in rural poverty in Kirehe District.	<ul style="list-style-type: none"> ▪ Evolution of RIMS basic socio-economic impact indicators (% of households with improvement in household assets ownership index, Prevalence of child malnutrition: Millennium Development Goal 1 [MDG]). ▪ Rate of reduction in the prevalence of extreme poverty (MDG). ▪ 15 000 households that have improved food security (RIMS). ▪ 30 000 individuals receiving project services, by gender (RIMS). 	<ul style="list-style-type: none"> ▪ National statistics. ▪ Ministry of Finance reports on PIP implementation. ▪ EDPRS M&E reports. ▪ Socio-economic surveys (baseline, mid-term and final). 	<ul style="list-style-type: none"> ▪ Economic and social stability. ▪ Decentralization policy sustained by availability of human and financial resources. ▪ MINAGRI's gender strategy approved. ▪ GoR remains determined to combat poverty.
Component purposes			
Development of sustainable profitable small-scale commercial agriculture in Kirehe District.	<ul style="list-style-type: none"> ▪ Increased level of marketed production of crops and livestock products. ▪ Operation and maintenance of affordable irrigation facilities. ▪ Steady improvement in the natural resource base in the participating watersheds. 	<ul style="list-style-type: none"> ▪ MINAGRI and district reports. ▪ Agriculture surveys and statistics. ▪ Project reports. ▪ Annual multiple stakeholders participatory assessment of project progress. 	<ul style="list-style-type: none"> ▪ MTEF allocates an optimum share to the agriculture sector. ▪ Effective implementation of PSTA. ▪ Implementation of the National Land policy.

Outputs			
<p>1. Strong public and private local institutions with effective planning and management capacity in the natural resource sector.</p> <p>Permanent institutions capable of supporting profitable smallholder agriculture in Kirehe:</p> <ul style="list-style-type: none"> • Decentralized structures. • Community focal points for the promotion of economic activities. • Farmer organizations. 	<ul style="list-style-type: none"> ▪ Local Government cadres capable of supplying crucial “public good” services to economic operators, including support and mentoring for water user associations. ▪ Farmers and livestock keepers have access on request to technical advice, training and support on production and marketing issues. ▪ Single enterprise primary cooperatives functioning as a business, focused on service provision to members. ▪ Farmers’ interests represented in District planning and KWAMP support activities. 	<ul style="list-style-type: none"> ▪ MINAGRI reports. ▪ Reports of Co-operatives. ▪ District progress reports. ▪ District Development Plans. ▪ Project reports. ▪ <i>Ad hoc</i> surveys. ▪ DED progress reports. 	<ul style="list-style-type: none"> ▪ Devolution of power will be properly funded. ▪ Dynamism of decentralization process maintained. ▪ Human and financial resources available. ▪ FO participation in rural economic development facilitated. ▪ Low literacy rate will affect the conduct of PPMEL. ▪ Conducive environment for community participation.
<p>Effective water and land use planning and management practices adopted to enable agricultural intensification that conserves the natural resource base:</p> <ul style="list-style-type: none"> • Watershed planning and management. • Regularization of land tenure. • Water use management. 	<ul style="list-style-type: none"> ▪ 15 permanent public/private watershed management institutions – <i>Comité Local pour Gestion et Supervision</i> (CLGS) in place. ▪ 15 coherent Watershed Management Plans developed, amended as needed and implemented. ▪ 21 000 farmers have adequate title to their land rights for legal and planning purposes. ▪ Effective Water Users’ Associations (WUAs) able to operate without external assistance and to collect funds from members for system maintenance and repairs. 	<ul style="list-style-type: none"> ▪ Proceedings of CLGS. ▪ Watershed Management Plans. ▪ Records of resolution of disputes. ▪ Land Registry. ▪ District and MINAGRI reports. 	<ul style="list-style-type: none"> ▪ Targeted communities adhere to the principles of the holistic watershed basin approach. ▪ Newly-established watershed community organs are integrated into the local consultation and decision-making process.

<p>2. Increased efficiency in agricultural and livestock production with a positive effect on the natural resource base.</p> <p>Increase in volume and profitability of trade in agricultural and livestock products:</p> <ul style="list-style-type: none"> • Direct action to link farmers to markets through analysis, training and awareness, physical facilities and advice. • Inclusive approach bringing farmer organizations into the organization and management of business. 	<ul style="list-style-type: none"> ▪ Evidence of change in practices of farmers’ organizations in seeking to meet market demands in terms of variety, quality, volumes, timing, packaging and related issues. ▪ Preparedness of market operators to pre-finance producers under supply contracts to ensure production. ▪ Marked increase in real demand for and number of intermediaries interested in agricultural output of Kirehe. 	<ul style="list-style-type: none"> ▪ Trade statistics. ▪ District reports. 	<ul style="list-style-type: none"> ▪ Strategies for input/service supply and development of commodity subsectors exist. ▪ Lucrative and accessible markets would be identified.
<p>Crop and livestock production intensified:</p> <ul style="list-style-type: none"> • Productivity and profitability gains. • Development of integrated crop-livestock systems appropriate to prevailing conditions in Kirehe. • Use of biogas to reduce consumption of fuelwood. 	<ul style="list-style-type: none"> ▪ 3 000 households have received passed-on animals from other beneficiaries. ▪ Sustainable farming systems that make optimum use of limited resources. ▪ Maximum use of waste and by-products to minimize the need for costly fertilizer and energy. ▪ Behaviour driven increasingly by real market signals. ▪ 1 500 households regularly operating a biogas fermenter 	<ul style="list-style-type: none"> ▪ MINAGRI and project reports. ▪ Surveys of energy use. ▪ Trade statistics. 	<ul style="list-style-type: none"> ▪ Conducive environment is created for the development of economic functions of local FOs and private-sector involvement.
<p>Farmland brought under irrigation:</p> <ul style="list-style-type: none"> • Substantial improvement in the reliability of crops. • With complementary uplift of management skills and agronomic practices, the potential to shift to more profitable crops in response to market opportunities. • A strong incentive to cooperate with other users of shared resources to form enterprises that are more efficient. 	<ul style="list-style-type: none"> ▪ 20 000 households make full utilization of 2 000 ha of irrigated command area. ▪ The introduction of second crops where the water supply permits. ▪ 5 000 farmers individually or in concert shifting to higher value crops once they become confident with the irrigated agronomy. 	<ul style="list-style-type: none"> ▪ District and MINAGRI statistics. ▪ Crop and livestock surveys of annual production. ▪ Trade statistics. ▪ Registration of new enterprises based in District. 	<ul style="list-style-type: none"> ▪ Intensive rice-cultivation system succeeds. ▪ Appropriate irrigation with yield-enhancing inputs found to be profitable by farmers.

<p>Soil and water resources conserved:</p> <ul style="list-style-type: none"> • Farmers aware of and trained in conservation techniques. • Appropriate tree and hedge planting materials available for collaborative action on watershed protection. 	<ul style="list-style-type: none"> ▪ 20 000 ha of purposeful and technically sound conservation measures undertaken by farmers. 	<ul style="list-style-type: none"> ▪ District reports. ▪ WFP progress reports. ▪ Multi-year surveys. 	<ul style="list-style-type: none"> ▪ Introduction of new techniques in agriculture conservation and of new species successful. ▪ GoR adopts principles of integrated water resources management and subsidiarity in WS planning.
<p>3. Physical access to markets. Restoration and/or establishment of year-round road links between producers and markets:</p> <ul style="list-style-type: none"> • Reduction in transport costs for agricultural inputs and outputs. • Reduced losses in marketed commodities and increased potential trade in perishables. 	<ul style="list-style-type: none"> ▪ Commercial traffic counts double on the improved roads, with increased interest from traders and other incoming economic operators. ▪ Farmers’ enterprise selections reflect increased confidence in marketing prospects. 	<ul style="list-style-type: none"> ▪ District reports. ▪ Traffic surveys. ▪ Trade statistics. 	<ul style="list-style-type: none"> ▪
<p>Proper maintenance of feeder roads in Kirehe:</p> <ul style="list-style-type: none"> • Avoidance of deterioration of restored road links. • Regular employment opportunities for communities. 	<ul style="list-style-type: none"> ▪ 100% of the project rehabilitated feeder roads are maintained annually by local Government from own budget. ▪ Communities develop a strong sense of ownership in their local access roads. ▪ Women and men have equal access to the periodic road maintenance employment opportunities. 	<ul style="list-style-type: none"> ▪ District budgets. ▪ District reports. ▪ Project reports. 	<ul style="list-style-type: none"> ▪ Proper funding levels for District’s annual and period maintenance programme.
Activities	Key inputs	Costs	Assumptions
<p>1. Local institutional development. 1.1 Support to agricultural transformation.</p> <ul style="list-style-type: none"> • Decentralized structures. 		<p>(USD 6.47 million) USD 3.7 million</p>	
	<ul style="list-style-type: none"> ▪ Support for key development posts in (new) Kirehe District cadre. ▪ Establishment of GIS capability in Kirehe. ▪ Training of District and Sector planning and technical staff. 		<ul style="list-style-type: none"> ▪

<ul style="list-style-type: none"> • Community Centres for Innovation. 	<ul style="list-style-type: none"> ▪ Construction and equipping of three permanent “Community Centres for Innovation” responding to requests for advice and extension services. ▪ Financial support for staff and operating costs for inception period. ▪ Operation of Community Capacity Building Fund for identified training needs, particularly for women. ▪ Village-based resource persons to act as links to CCI. ▪ Community competitions to provide incentives for greater efficiency in farming. 		<ul style="list-style-type: none"> ▪ Capacity for multi-stakeholder platform facilitation available.
<ul style="list-style-type: none"> • Farmer organizations. 	<ul style="list-style-type: none"> ▪ Training of primary cooperatives as businesses. ▪ Comprehensive training in accounting and management for UCORIRWA. ▪ Capacity building for Cooperative Unions in Kirehe (Coffee, rice, animal production, maize and fish). ▪ Support for lobbying and advocacy activities of national farmers’ union (the <i>Imbaraga</i>). 		<ul style="list-style-type: none"> ▪
1.2 Water and land use management.		USD 2.8 million	
<ul style="list-style-type: none"> • Watershed planning and management. 	<ul style="list-style-type: none"> ▪ Establishment of baseline scenario for watershed planning and management. ▪ Selection of 15 watersheds surrounding potential irrigation development sites. ▪ Mapping exercise to identify the extent and present land use in target watersheds. ▪ Establishment of permanent public/private institution (CLGS) to manage each watershed. ▪ Training for CLGS members. ▪ Inventory of physical, economic and social attributes of each watershed as the foundation of a holistic Watershed Management Plan (WMP). ▪ Drafting of 15 WMP by technicians and proofing by CLGS and communities. 		<ul style="list-style-type: none"> ▪ Farmers made aware of all aspects of watershed development.
<ul style="list-style-type: none"> • Regularization of land tenure. 	<ul style="list-style-type: none"> ▪ Training of District Land Bureau and National Land Centre staff. ▪ Participatory demarcation and registration of productive land ownership and tenure. ▪ Preparation of land tenure documents. 		<ul style="list-style-type: none"> ▪ Effective implementation of Land Policy.

<ul style="list-style-type: none"> • Water use management. 	<ul style="list-style-type: none"> ▪ Creation at the outset of a WUA for each potential scheme, to be involved in the planning, oversight of construction and subsequent operation and management of the installed system. ▪ Resolution of water rights issues. ▪ Training of the WUA in the technical, legal and business aspects of irrigation management. 		<ul style="list-style-type: none"> ▪ WUA legislation adopted. ▪ Qualified service providers recruited to support the new institutions.
<p>2. Agricultural intensification</p> <p>2.1 Value chain development.</p>	<ul style="list-style-type: none"> ▪ Baseline surveys of commodity chains in the selected WS. ▪ Selection, mapping and analysis of six commodity chains for upgrading, through stakeholder workshops. ▪ Action plan developed by stakeholders’ “actor-cluster platforms” for value-chain development for each targeted commodity. ▪ Shift to contract arrangements within market chains. ▪ Development of basic facilities and capacities for upgrading commodity chains (training). ▪ Establishment of <i>Value Chain Development Fund</i>. ▪ Construction of input shops and collection points. ▪ Value-addition activities (storage, grading and processing). ▪ Market information and intelligence facilities. ▪ Exchange and learning workshops. 	<p>(USD 29.4 million)</p> <p>USD 3.0 million</p>	<ul style="list-style-type: none"> ▪ Private-sector actors prepared to participate in developmental activities and contribute to plans for developing commodity chains. ▪ Qualified business-oriented service provider capable of developing private sector supply chain would be found. ▪ Stakeholders have sufficient capacity to express their demands. ▪ Economic operators willing to participate.
<p>2.2 Crop and livestock intensification.</p>	<ul style="list-style-type: none"> ▪ Improvement of planting materials for rainfed cropping, with on-farm trials and the production of a resource book. ▪ 12 seed multiplication enterprises (cooperatives) to operate on contract to RADA. ▪ Operation of communication and knowledge management using the PPMEL approach with farmer organizations interfacing with ISAR and RADA. ▪ Livestock improvement by introduction of 1 000 in-calf heifers, 100 Ankole bulls and 3 400 heads of smallstock. ▪ Training in integrated crop/animal husbandry systems. Animal health interventions. ▪ Installation of 2 000 household biogas plants. 	<p>USD 6.4 million</p>	<ul style="list-style-type: none"> ▪ Partners with high-level qualifications and probity available.

2.3 Irrigation development.	<ul style="list-style-type: none"> ▪ Field investigations of watersheds with potential for irrigation, with regard to physical access for eventual inputs and outputs. ▪ Identification and design of up to 2 000 ha of new irrigation development on hillsides and in marshland, employing to the extent possible the technologies with the lowest operating costs after construction (such as rainwater harvesting, gravity systems, drainage and/or flood protection). ▪ Construction by contractors of irrigation schemes with contributions in kind from WUA. 	USD 11.4 million	<ul style="list-style-type: none"> ▪ Suitable sites found for viable small-scale irrigation. ▪ Sources of surface or groundwater located. ▪ Risks of compromising availability of water downstream. ▪ Danger of damaging fragile marshland ecosystems. ▪ Possibility of spreading vector-borne diseases.
2.4 Soil and water conservation.	<ul style="list-style-type: none"> ▪ Assessment and criteria-setting for water conservation structural measures. ▪ Watershed protection works. ▪ Protection of anti-erosion structures through tree planting. ▪ Establishment of community-based tree nurseries. ▪ Establishment of hedge plant cuttings bank. ▪ Training in farm planning and in soil and water conservation (SWC) technologies. ▪ Operation of farmer field schools in the context of SWC. ▪ Compilation and distribution of SWC resource manual for farmers. 	USD 8.5 million	<ul style="list-style-type: none"> ▪ Population would be mobilized for the physical works. ▪ Selection of cultivars contribute to infestation and the spreading of plant diseases.
3. Feeder roads <ul style="list-style-type: none"> • Feeder road rehabilitation. 	<ul style="list-style-type: none"> ▪ Participatory planning process within the District Development Plan. ▪ Rehabilitation of 130 km of feeder road in deprived areas, using labour intensive methods. ▪ Construction of 60 km of short access roads to storage facilities. ▪ Spot improvements of short road sections. 	USD 7.4 million	<ul style="list-style-type: none"> ▪ Adherence to use of labour-based construction technologies.
<ul style="list-style-type: none"> • Road maintenance capacity. 	<ul style="list-style-type: none"> ▪ Development of robust and fully-funded community-based road maintenance programme. ▪ Training of District staff and contractors on planning and execution of effective maintenance. ▪ Key items of equipment for (new) District road maintenance unit. 		<ul style="list-style-type: none"> ▪ Equitable rationing of labour opportunities for local communities.

<p>4 Project coordination</p> <ul style="list-style-type: none"> • Governance, liaison and contract management. 	<ul style="list-style-type: none"> ▪ Procurement and management of supply and service contracts, including supervision of public and private sector service providers. ▪ Administrative management of technical assistance (TA) personnel assigned to technical units. ▪ Technical briefing of and policy guidance from National Steering Committee. ▪ External liaison with central and local Government entities, private sector stakeholders and development partners. 	<p style="text-align: center;">USD 2.3 million</p>	<ul style="list-style-type: none"> ▪ Service-providers with good quality would be available. ▪ Project team capacity to handle the intervention should be ensured.
<ul style="list-style-type: none"> • Planning, reporting and financial management. 	<ul style="list-style-type: none"> ▪ Project planning and budgeting. ▪ Compilation of periodic progress reports, including a project completion report, as agreed with GoR, IFAD and cofinanciers. ▪ Management of accounts and regular drawdown of funds. ▪ Conduct internal and external audits. 		<ul style="list-style-type: none"> ▪
<ul style="list-style-type: none"> • Monitoring and evaluation. 	<ul style="list-style-type: none"> ▪ Baseline and corresponding impact surveys. ▪ <i>Ad hoc</i> enquiries into innovative aspects of the project. ▪ Mid-term review at the end of Project Year 3. ▪ Project completion evaluation, if required. 		<ul style="list-style-type: none"> ▪

Annex 3. Project Cost Summary

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Components Project Cost Summary

	(RWF Million)			(USD '000)			%	% Total
	Local	Foreign	Total	Local	Foreign	Total	Foreign Exchange	Base Costs
A. 1. Local institutional development								
1.1 Support to agricultural transformation	1 514.9	522.8	2 037.7	2 754.3	950.5	3 704.9	26	8
1.2 Water and land use management	1 175.1	344.7	1 519.8	2 136.5	626.8	2 763.3	23	6
Subtotal 1. Local institutional development	2 690.0	867.5	3 557.5	4 890.9	1 577.4	6 468.2	24	14
B. 2. Agricultural intensification								
2.1 Value chain development	1 342.3	329.4	1 671.8	2 440.6	599.0	3 039.6	20	7
2.2 Crop and livestock intensification	3 247.9	270.3	3 518.2	5 905.3	491.4	6 396.6	8	14
2.3 Irrigation development	4 947.8	1 317.7	6 265.5	8 996.0	2 395.8	11 391.7	21	25
2.4 Soil and Water Conservation	3 868.3	819.0	4 687.3	7 033.3	1 489.1	8 522.4	17	19
Subtotal 2. Agricultural intensification	13 406.3	2 736.4	16 142.7	24 375.1	4 975.2	29 350.3	17	64
C. 3. Feeder roads	3 184.6	889.0	4 073.6	5 790.2	1 616.3	7 406.5	22	16
D. 4. Project coordination	975.2	311.1	1 286.3	1 773.1	565.7	2 338.7	24	5
Total BASELINE COSTS	20 256.1	4 804.0	25 060.1	36 829.3	8 734.5	45 563.8	19	100
Physical Contingencies	1 206.2	306.3	1 512.5	2 193.1	557.0	2 750.1	20	6
Price Contingencies	5 084.8	1 293.8	6 378.6	807.5	206.7	1 014.3	20	2
Total PROJECT COSTS	26 547.1	6 404.2	32 951.2	39 829.9	9 498.3	49 328.2	19	108

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Expenditure Accounts Project Cost Summary

	(RWF Million)			(USD '000)			% Foreign Exchange	% Total Base Costs
	Local	Foreign	Total	Local	Foreign	Total		
I. Investment Costs								
A. Civil Works	11 074.0	2 768.5	13 842.6	20 134.6	5 033.7	25 168.3	20	55
B. Investment Fund	2 468.4	-	2 468.4	4 488.0	-	4 488.0	-	10
C. Vehicles	175.2	205.7	380.9	318.6	374.0	692.5	54	2
D. Equipment and Materials	74.9	224.7	299.7	136.2	408.6	544.8	75	1
E. Training and Studies	2 411.0	448.9	2 859.9	4 383.7	816.2	5 199.8	16	11
F. Technical Assistance								
International TA	-	1 015.1	1 015.1	-	1 845.6	1 845.6	100	4
National TA	623.0	-	623.0	1 132.8	-	1 132.8	-	2
Subtotal Technical Assistance	623.0	1 015.1	1 638.1	1 132.8	1 845.6	2 978.4	62	7
G. Service Contracts	2 396.7	-	2 396.7	4 357.6	-	4 357.6	-	10
Total Investment Costs	19 223.3	4 662.9	23 886.2	34 951.5	8 478.0	43 429.5	20	95
II. Recurrent Costs								
A. Salaries and Allowances	860.4	-	860.4	1 564.3	-	1 564.3	-	3
B. Operation and Maintenance	172.4	141.1	313.5	313.5	256.5	570.0	45	1
Total Recurrent Costs	1 032.8	141.1	1 173.9	1 877.8	256.5	2 134.3	12	5
Total BASELINE COSTS	20 256.1	4 804.0	25 060.1	36 829.3	8 734.5	45 563.8	19	100
Physical Contingencies	1 206.2	306.3	1 512.5	2 193.1	557.0	2 750.1	20	6
Price Contingencies	5 084.8	1 293.8	6 378.6	807.5	206.7	1 014.3	20	2
Total PROJECT COSTS	26 547.1	6 404.2	32 951.2	39 829.9	9 498.3	49 328.2	19	108

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Expenditure Accounts by Components - Totals Including Contingencies
(USD '000)

	1. Local institutional development		2. Agricultural intensification				3. Feeder roads	4. Project coordination	Total
	1.1 Support to agricultural transformation	1.2 Water and land use management	2.1 Value chain development	2.2 Crop and livestock intensification	2.3 Irrigation development	2.4 Soil and Water Conservation			
I. Investment Costs									
A. Civil Works	248.5	-	-	2 218.5	10 640.5	8 129.5	7 044.6	82.8	28 364.5
B. Investment Fund	210.0	-	2 000.0	1 850.2	-	427.8	-	-	4 488.0
C. Vehicles	214.8	18.1	-	30.9	-	-	433.3	4.5	701.6
D. Equipment and Materials	175.6	137.5	-	-	91.3	-	20.5	127.5	552.4
E. Training and Studies	1 577.6	1 168.5	145.4	94.3	1 753.9	208.9	48.8	517.0	5 514.5
F. Technical Assistance									
International TA	492.9	276.2	587.7	66.8	122.6	-	111.4	224.6	1 882.1
National TA	76.1	387.0	188.5	-	143.8	143.8	61.0	152.8	1 153.0
Subtotal Technical Assistance	569.0	663.2	776.2	66.8	266.4	143.8	172.4	377.4	3 035.1
G. Service Contracts	-	814.1	152.9	2 464.6	-	515.8	501.7	-	4 449.1
Total Investment Costs	2 995.4	2 801.5	3 074.5	6 725.3	12 752.1	9 425.8	8 221.3	1 109.3	47 105.2
II. Recurrent Costs									
A. Salaries and Allowances	661.8	-	-	-	-	-	-	948.0	1 609.9
B. Operation and Maintenance	174.9	52.9	-	-	-	-	-	385.3	613.1
Total Recurrent Costs	836.7	52.9	-	-	-	-	-	1 333.4	2 223.0
Total PROJECT COSTS	3 832.1	2 854.4	3 074.5	6 725.3	12 752.1	9 425.8	8 221.3	2 442.6	49 328.2
Taxes	151.4	159.0	22.9	383.9	13.7	77.4	277.7	95.1	1 181.1
Foreign Exchange	980.3	646.6	616.8	546.0	2 669.9	1 667.7	1 779.5	591.5	9 498.3

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Project Components by Year -- Totals Including Contingencies
(USD '000)

	Totals Including Contingencies							Total
	2009	2010	2011	2012	2013	2014	2015	
1. Local institutional development								
1.1 Support to agricultural transformation	765.1	692.2	622.0	689.6	487.6	375.6	200.0	3 832.1
1.2 Water and land use management	1 419.1	746.1	205.3	156.4	162.1	90.4	74.9	2 854.4
Subtotal 1. Local institutional development	2 184.2	1 438.3	827.3	846.0	649.7	466.1	274.9	6 686.5
2. Agricultural intensification								
2.1 Value chain development	34.0	435.0	606.1	613.5	627.7	626.6	131.6	3 074.5
2.2 Crop and livestock intensification	299.3	1 013.7	1 181.1	1 401.8	1 438.3	768.7	622.5	6 725.3
2.3 Irrigation development	328.3	708.7	1 865.7	3 660.0	4 279.9	1 272.0	637.4	12 752.1
2.4 Soil and Water Conservation	1 400.8	1 906.2	2 248.7	2 053.8	1 769.4	26.0	20.9	9 425.8
Subtotal 2. Agricultural intensification	2 062.4	4 063.7	5 901.6	7 729.1	8 115.2	2 693.3	1 412.5	31 977.7
3. Feeder roads	297.7	1 168.4	2 425.3	2 134.7	1 313.3	441.7	440.2	8 221.3
4. Project coordination	456.7	250.0	305.3	233.8	437.0	346.0	413.8	2 442.6
Total PROJECT COSTS	5 001.0	6 920.4	9 459.4	10 943.6	10 515.3	3 947.1	2 541.4	49 328.2

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Expenditure Accounts by Years -- Totals Including Contingencies
(USD '000)

	Totals Including Contingencies							Total
	2009	2010	2011	2012	2013	2014	2015	
I. Investment Costs								
A. Civil Works	1 452.3	3 151.0	5 976.8	7 415.0	7 149.7	1 919.3	1 300.4	28 364.5
B. Investment Fund	66.5	890.9	1 003.7	980.0	1 021.9	495.0	30.0	4 488.0
C. Vehicles	290.7	249.0	25.5	35.9	36.1	36.3	28.2	701.6
D. Equipment and Materials	231.9	127.1	38.7	61.0	84.4	6.7	2.6	552.4
E. Training and Studies	1 269.4	758.5	840.9	984.6	979.5	438.2	243.4	5 514.5
F. Technical Assistance								
International TA	399.5	358.2	360.7	317.7	154.7	155.6	135.7	1 882.1
National TA	305.4	261.8	229.3	109.5	87.0	87.5	72.4	1 153.0
Subtotal Technical Assistance	704.9	620.0	589.9	427.3	241.7	243.2	208.1	3 035.1
G. Service Contracts	782.2	863.5	735.1	770.4	589.8	393.6	314.6	4 449.1
Total Investment Costs	4 797.8	6 660.0	9 210.6	10 674.1	10 103.0	3 532.3	2 127.2	47 105.2
II. Recurrent Costs								
A. Salaries and Allowances	110.9	167.4	168.5	184.2	324.3	326.3	328.2	1 609.9
B. Operation and Maintenance	92.2	93.1	80.2	85.2	87.9	88.5	85.9	613.1
Total Recurrent Costs	203.2	260.4	248.8	269.5	412.3	414.7	414.2	2 223.0
Total PROJECT COSTS	5 001.0	6 920.4	9 459.4	10 943.6	10 515.3	3 947.1	2 541.4	49 328.2

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Components by Financiers
(USD '000)

	IFAD initial grant		IFAD 2nd grant		WFP		DED		Beneficiaries		Private Sector		Central Government		District Government		Total		For. Exch.	Local (Excl. Taxes)	Duties & Taxes	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%				
A. 1. Local institutional development																						
1.1 Support to agricultural transformation	2 788	72.7	-	-	-	-	471	12.3	20	0.5	-	-	151	4.0	402	10.5	3 832	7.8	980	2 700	151	
1.2 Water and land use management	2 625	92.0	-	-	-	-	-	-	-	-	-	-	202	7.1	27	0.9	2 854	5.8	647	2 049	159	
Subtotal 1. Local institutional development	5 413	81.0	-	-	-	-	471	7.0	20	0.3	-	-	353	5.3	429	6.4	6 687	13.6	1 627	4 749	310	
B. 2. Agricultural intensification																						
2.1 Value chain development	1 802	58.6	-	-	-	-	-	-	-	-	1 250	40.7	23	0.7	-	-	3 075	6.2	617	2 435	23	
2.2 Crop and livestock intensification	4 862	72.3	-	-	-	-	41	0.6	1 439	21.4	-	-	384	5.7	-	-	6 725	13.6	546	5 795	384	
2.3 Irrigation development	4 818	37.8	6 324	49.6	-	-	-	-	1 596	12.5	-	-	14	0.1	-	-	12 752	25.9	2 670	10 068	14	
2.4 Soil and Water Conservation	1 219	12.9	-	-	8 130	86.2	-	-	-	-	-	-	77	0.8	-	-	9 426	19.1	1 668	7 681	77	
Subtotal 2. Agricultural intensification	12 700	39.7	6 324	19.8	8 130	25.4	41	0.1	3 035	9.5	1 250	3.9	498	1.6	-	-	31 978	64.8	5 500	25 979	498	
C. 3. Feeder roads	-	-	-	-	-	-	-	-	67	0.8	-	-	6 628	80.6	1 526	18.6	8 221	16.7	1 779	6 164	278	
D. 4. Project coordination	2 332	95.5	-	-	-	-	-	-	-	-	-	-	110	4.5	-	-	2 443	5.0	591	1 756	95	
Total PROJECT COSTS	20 446	41.4	6 324	12.8	8 130	16.5	511	1.0	3 123	6.3	1 250	2.5	7 590	15.4	1 955	4.0	49 328	100.0	9 498	38 649	1 181	

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Disbursement Accounts by Financiers
(USD '000)

	IFAD initial grant		IFAD 2nd grant		WFP		DED		Beneficiaries		Private Sector		Central Government		District Government		Total		For. Exch.	Local (Excl. Taxes)	Duties & Taxes
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%			
Civil Works	4 811	17.0	5 344	18.8	8 130	28.7	-	-	3 103	10.9	-	-	5 451	19.2	1 526	5.4	28 364	57.5	5 673	22 692	-
Investment Fund	3 238	72.1	-	-	-	-	-	-	-	-	1 250	27.9	-	-	-	-	4 488	9.1	-	4 488	-
Vehicles, Equipment and Materials	597	47.6	-	-	-	-	-	-	-	-	-	-	657	52.4	-	-	1 254	2.5	793	55	406
Training, Technical Assistance, Studies and Service Contracts	10 071	77.5	980	7.5	-	-	511	3.9	20	0.2	-	-	1 389	10.7	27	0.2	12 999	26.4	2 756	9 559	684
Salaries and Allowances	1 280	79.5	-	-	-	-	-	-	-	-	-	-	-	-	330	20.5	1 610	3.3	-	1 610	-
Operation and Maintenance	449	73.2	-	-	-	-	-	-	-	-	-	-	92	15.0	73	11.8	613	1.2	276	245	92
Total PROJECT COSTS	20 446	41.4	6 324	12.8	8 130	16.5	511	1.0	3 123	6.3	1 250	2.5	7 590	15.4	1 955	4.0	49 328	100.0	9 498	38 649	1 181

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Local/Foreign/Taxes by Financiers
(USD '000)

	IFAD initial grant		IFAD 2nd grant		WFP		DED		Beneficiaries		Private Sector		Central Government		District Government		Total	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
I. Foreign	3 678	38.7	1 289	13.6	1 626	17.1	471	5.0	678	7.1	-	-	1 407	14.8	349	3.7	9 498	19.3
II. Local (Excl. Taxes)	16 767	43.4	5 035	13.0	6 504	16.8	41	0.1	2 444	6.3	1 250	3.2	5 002	12.9	1 606	4.2	38 649	78.4
III. Taxes	-	-	-	-	-	-	-	-	-	-	-	-	1 181	100.0	-	-	1 181	2.4
Total Project	20 446	41.4	6 324	12.8	8 130	16.5	511	1.0	3 123	6.3	1 250	2.5	7 590	15.4	1 955	4.0	49 328	100.0

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Disbursements by Semesters and Government Cash Flow
(USD '000)

	Financing Available							Costs to be Financed			
	IFAD initial grant	IFAD 2nd grant	WFP	DED	Beneficiaries	Private Sector	District Government	Total	Project Costs	Cash Flow	Cumulative Cash Flow
	Amount	Amount	Amount	Amount	Amount	Amount	Amount				
1	1 628	-	560	64	1	-	-	2 253	2 500	-248	-248
2	1 628	-	560	64	1	-	-	2 253	2 500	-248	-495
3	1 730	-	807	64	105	88	-	2 793	3 460	-667	-1 162
4	1 730	-	807	64	105	88	-	2 793	3 460	-667	-1 829
5	2 077	-	975	64	230	125	34	3 504	4 730	-1 225	-3 054
6	2 077	-	975	64	230	125	34	3 504	4 730	-1 225	-4 280
7	2 381	469	899	64	410	125	113	4 461	5 472	-1 011	-5 290
8	2 381	469	899	64	410	125	113	4 461	5 472	-1 011	-6 301
9	1 177	1 860	823	-	464	144	253	4 720	5 258	-538	-6 839
10	1 177	1 860	823	-	464	144	253	4 720	5 258	-538	-7 377
11	715	555	-	-	212	144	288	1 915	1 974	-58	-7 435
12	715	555	-	-	212	144	288	1 915	1 974	-58	-7 493
13	515	278	-	-	140	-	290	1 223	1 271	-48	-7 541
14	515	278	-	-	140	-	290	1 223	1 271	-48	-7 590
Total	20 446	6 324	8 130	511	3 123	1 250	1 955	41 739	49 328	-7 590	-7 590

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Allocation of Grant Proceeds

IFAD initial grant
(USD '000)

	Suggested Allocation of Grant Proceeds		Total Project Cost						Average Disbursement %			Grant Amounts					
	Grant Amount	Disbursement (%)	Total Project Cost			Average Disbursement %			Unallocated			Allocated					
			Total	Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total	Local	Foreign			
1. Génie civil	4 374	17	28 364	22 692	5 673	17	17	17	4 811	437	350	87	4 374	3 499	875		
2. Fonds d'investissement	3 238	72	4 488	4 488	-	72	72	-	3 238	-	-	-	3 238	3 238	-		
3. Véhicules, équipements & matériels	597	48	1 254	461	793	48	12	69	597	-	-	-	597	53	544		
4. Formation, assistance technique, études et contrats de service	9 909	77	12 999	10 242	2 756	77	79	70	10 071	162	133	29	9 909	8 004	1 906		
5. Salaires et indemnités	1 280	80	1 610	1 610	-	80	80	-	1 280	-	-	-	1 280	1 280	-		
6. Entretien et fonctionnement	427	73	613	337	276	73	63	86	449	21	10	11	427	201	226		
Unallocated	621	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Total	20 446	41	49 328	39 830	9 498	-	-	-	20 446	621	493	128	19 825	16 275	3 550		

Grant amounts financed by IFAD initial grant.

IFAD 2nd grant
(USD '000)

	Suggested Allocation of Grant Proceeds		Total Project Cost			Average Disbursement %			Grant Amounts						
	Grant Amount	Disbursement (%)	Total	Local	Foreign	Total	Local	Foreign	Unallocated			Allocated			
									Total	Total	Local	Foreign	Total	Local	Foreign
1. Génie civil	4 858	19	28 364	22 692	5 673	19	19	19	5 344	486	389	97	4 858	3 887	972
2. Fonds d'investissement	-	-	4 488	4 488	-	-	-	-	-	-	-	-	-	-	-
3. Véhicules, équipements & matériels	-	-	1 254	461	793	-	-	-	-	-	-	-	-	-	-
4. Formation, assistance technique, études et contrats de service	964	8	12 999	10 242	2 756	8	7	8	980	16	12	3	964	747	217
5. Salaires et indemnités	-	-	1 610	1 610	-	-	-	-	-	-	-	-	-	-	-
6. Entretien et fonctionnement	-	-	613	337	276	-	-	-	-	-	-	-	-	-	-
Unallocated	502	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	6 324	13	49 328	39 830	9 498	-	-	-	6 324	502	401	100	5 822	4 634	1 189

Grant amounts financed by IFAD 2nd grant.

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Procurement Arrangements
(USD)

	Procurement Method										Total
	International Competitive Bidding	Local Competitive Bidding	Consulting Services: QCBS	Consulting Services: LCS	Local Shopping	Direct Purchase/Negotiations/Single Tender	Force Account	Community Participation in Procurement	Other	N.B.F.	
A. Civil Works	-	21 236 978.7 (5 344 028.2)	-	-	82 830.0	-	-	-	-	7 044 648.3	28 364 457.0 (5 344 028.2)
B. Investment Fund	3 141 587.3	-	-	-	-	-	-	1 346 394.5	-	-	4 487 981.8
C. Vehicles	-	268 247.7	-	-	-	-	-	-	-	433 326.4	701 574.1
D. Equipments and goods	-	398 931.1	-	-	132 977.0	-	-	-	-	20 501.3	552 409.4
E. Service Contracts	-	2 078 178.2	-	-	2 078 178.2	-	-	-	-	501 707.6	4 658 064.1
F. Technical Assistance and Training /a	-	-	4 398 292.5 (539 012.3)	399 844.8 (49 001.1)	107 596.6	-	-	2 399 068.6 (294 006.7)	799 689.5 (98 002.2)	236 208.2	8 340 700.3 (980 022.3)
G. Salaries and Allowances	-	1 207 406.9	-	-	-	-	402 469.0	-	-	-	1 609 875.8
H. Operation and Maintenance	-	153 274.2	-	-	306 548.4	153 274.2	-	-	-	-	613 096.9
Total	3 141 587.3	25 343 016.8 (5 344 028.2)	4 398 292.5 (539 012.3)	399 844.8 (49 001.1)	2 708 130.3	153 274.2	402 469.0	3 745 463.2 (294 006.7)	799 689.5 (98 002.2)	8 236 391.9	49 328 159.4 (6 324 050.5)

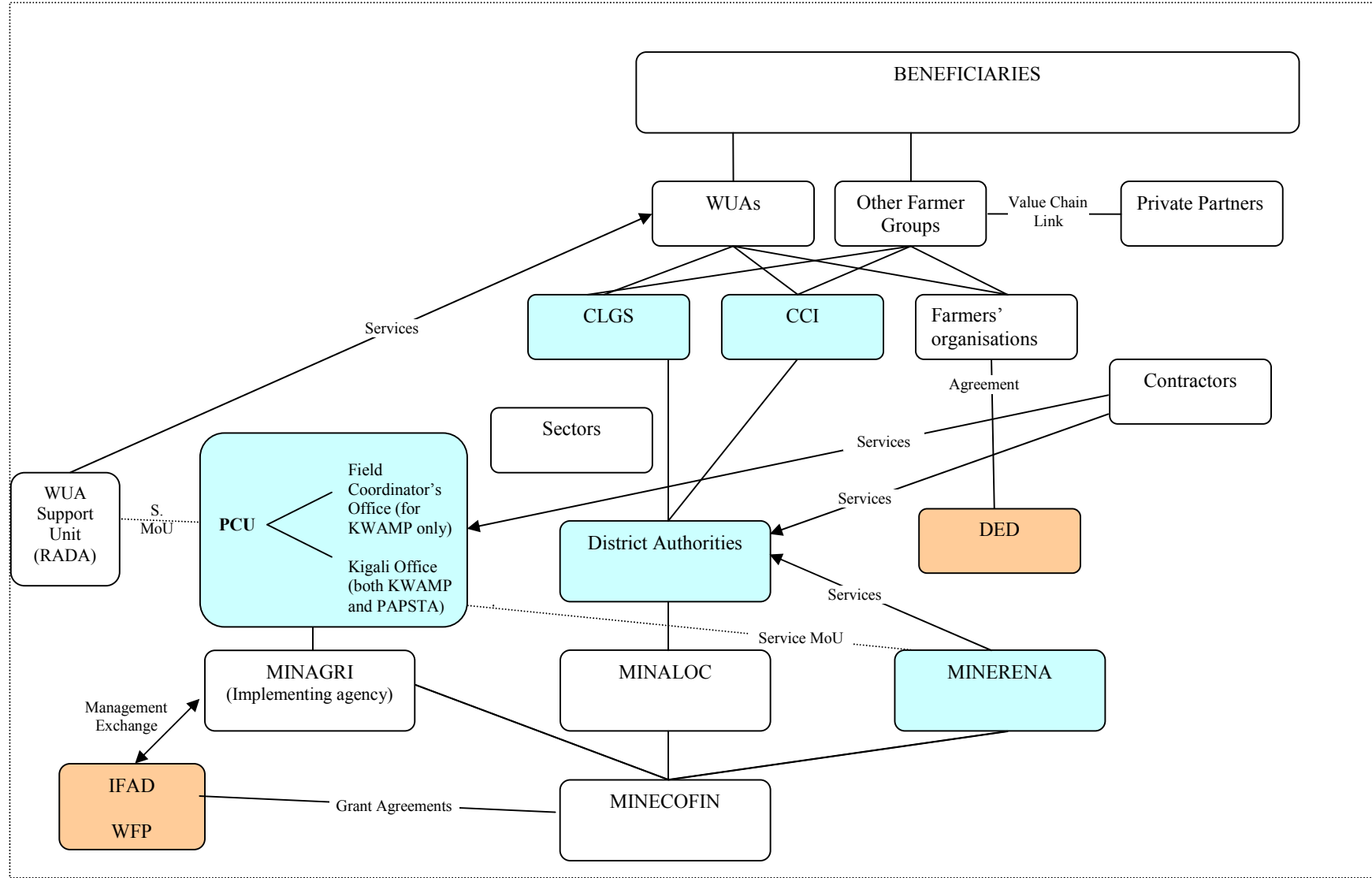
Note: Figures in parenthesis are the respective amounts financed by IFAD 2nd grant
/a other to be replaced by United nations agencies

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Procurement Accounts by Years
(USD)

	Totals Including Contingencies							Total
	2009	2010	2011	2012	2013	2014	2015	
1. Civil Works	1 452 286.0	3 151 012.2	5 976 838.2	7 414 953.3	7 149 668.6	1 919 290.5	1 300 408.1	28 364 457.0
2. Investment Fund	66 463.6	890 945.5	1 003 654.5	980 009.1	1 021 909.1	495 000.0	30 000.0	4 487 981.8
3. Vehicles	290 658.0	248 959.9	25 477.8	35 882.9	36 098.2	36 314.8	28 182.4	701 574.1
4. Equipments and goods	231 905.7	127 056.0	38 726.3	61 001.0	84 366.7	6 744.2	2 609.5	552 409.4
5. Service Contracts	811 672.8	910 966.8	798 695.9	810 880.0	612 443.4	398 844.3	314 560.9	4 658 064.1
6. Technical Assistance and Training /a	1 944 861.3	1 331 018.0	1 367 255.0	1 371 384.3	1 198 557.4	676 139.0	451 485.3	8 340 700.3
7. Salaries and Allowances	110 918.3	167 366.2	168 537.1	184 209.0	324 331.9	326 277.9	328 235.5	1 609 875.8
8. Operation and Maintenance	92 232.9	93 077.0	80 245.4	85 248.1	87 925.5	88 453.0	85 915.0	613 096.9
Total	5 000 998.7	6 920 401.6	9 459 430.2	10 943 567.7	10 515 300.7	3 947 063.7	2 541 396.8	49 328 159.4

^a other to be replaced by United nations agencies

Annex 4. Organizational Organogram



Annex 5. Project Implementation Manual

EXISTING MANUALS

- PAPSTA Procedures Manual – Main Document (March 2006)
- PAPSTA Procedures Manual – Annex 1: Financial and Accounts Procedures (February 2006)
- PAPSTA Procedures Manual – Annex 2: Procurement Procedures (February 2006)
- PAPSTA Procedures Manual – Monitoring & Evaluation (April 2006)

MANUALS TO BE PRODUCED

- KWAMP Procedures Manual – Community Capacity Building Fund (pre-project)
- KWAMP Procedures Manual – Community Competitions (pre-project)
- KWAMP Procedures Manual – Revolving Fund for Seed Multiplication Co-operatives (pre-project)
- KWAMP Procedures Manual – District Road Maintenance Fund (pre-project)

Annex 6. Key Files

Key file 1 – Rural poverty and agricultural/rural sector issues

Priority areas	Affected groups	Major issues	Actions needed
Agricultural and livestock productivity	All farmers	<ul style="list-style-type: none"> • Unsustainable cultivation on marginal land because of demographic pressure. Soil erosion and loss of fertility, weak control of water management. • Use of rudimentary cropping practices, limited use of fertilisers as well as integration of agriculture and livestock; • Low productivity of local breeds, poor animal health, limited access to improved inputs, reduction of grazing areas. • Public extension system is inefficient due to lack of human, material and logistics resources, it is not demand-driven neither gender-sensitive. NGOs provide most of extension services but lack coordination and accountability, while farmer organisations increasingly offer technical advice to members. Other support services (veterinary pharmacies, marketing services, distribution and transport) still insufficient. • The budget for the Ministry of Agriculture and animal resources remains very low. 	<ul style="list-style-type: none"> • To combine long-term soils restoration with short-term poor farmers’ needs, by considering agricultural production as an entry point to promote environmental protection. • Develop and increase the marshland cropping area, work out an irrigation development masterplan. • In conformity with PSTA objectives, ensure integration of agriculture and livestock. • Put in place the national strategy on fertilisers through an MoU to be signed with BRD and national strategy on seeds. • Call for proposals on demand driven agriculture support service and based on partnerships between public and private service providers, including farmer organisations. • Develop a national policy for the provision of demand driven research and development services, support and advisory services to smallholders. • Contribute to a significant increasing of the agriculture budget.
Land tenure security	Landless smallholders farmers and woman	<ul style="list-style-type: none"> • 10% of the population are landless and 30% rent land due to small size of their farming. • About 75% own less that 1.0 ha of land. The total farming area represents only about 30% of the arable size of Rwanda. • Smallholder farmers need secured land ownership to invest in soil restoration and purchase inputs. 	<ul style="list-style-type: none"> • Promulgate the decree on enforcement of the new land law. • Carry out these measures on a wide consultation assuring the land tenure security to poor smallholders particularly to women headed households and other vulnerable groups.

Priority areas	Affected groups	Major issues	Actions needed
Access to financial services	All small-scale producers	<ul style="list-style-type: none"> • Microfinance policy was adopted by the Government but enforcement measures are not yet in place. • Limited access to credit services for rural poor. The formal banking sector does not provide suitable financial services to rural smallholders who mostly do not have required collateral. • Large number of MFIs with limited institutional capacities. • Lack of non-financial service providers for small-scale producers capacity building on loan accessibility procedures and micro -credit management. • The existing agricultural guarantee facility is not sufficiently utilised. 	<ul style="list-style-type: none"> • Set up an institutional and political conducive environment to sustainable provision of financial services in rural area. • Strengthen the capacities of MFIs and related networks to provide adequate financial services to agriculture production for smallholders. • Promote the development of linkages between MFIs and the formal banking sector. • Explore new promising credit instruments using farmer's organisations, private sector and MFIs. • Reinforce non financial service providers' capacity. • Implement the agricultural guarantee facility.
Off-farm sector	Off-farm small and micro enterprises	<ul style="list-style-type: none"> • To reduce pressure on land, there is a need to find other sources of income in addition to agriculture, but off-farm activities are very limited. • Lack of enabling environment for private sector. • Low professional skill and education levels. • Lack of access to technologies. 	<ul style="list-style-type: none"> • Support the strengthening of rural small- and micro-enterprises in technical, managerial and marketing skills. • Promote service provision in training and advisory services adequate to rural enterprises. • Support the development of the rural construction sector. • Promote medium enterprises that create rural employment or provide new market outlets for agricultural products.
Professional organisations	Farmers and other small-scale producers	<ul style="list-style-type: none"> • Lack of technical, managerial and negotiating skills. • Weak internal democratic processes. • Limited capital mobilisation. 	<ul style="list-style-type: none"> • Strengthen the capacity of professional organisations to provide services to their members at a reasonable price, to develop partnerships with public and private stakeholders and to participate in policy-making and monitoring their implementation. • Promote the organisation of small-scale producers along commodity chains. • Promote the development of professional organisation networks from local level to national level.
Decentralisation	Local governments, CDCs and all citizens	<ul style="list-style-type: none"> • Lack of financial resources at district level. • Shortage of competent district staff and limited capacities especially in planning and monitoring and evaluation. • Lack of partnership linkages between executing agencies (RADA and RARDA) and districts. • Limited coordination of various stakeholders at district and sector level. 	<ul style="list-style-type: none"> • Strengthen the institutional capacities for district and sectoral CDCs so that they can promote pro-poor local development. • MoU between executing agencies (RADA, RARDA) and districts. • Develop the capacities of producer organisations and other groups of interests (including vulnerable groups) to participate in local decision-making processes.

Priority areas	Affected groups	Major issues	Actions needed
Institutional development of MINAGRI	MINAGRI staff	<ul style="list-style-type: none"> • Weak capacity of collecting, analysis, processing and disseminating statistic data. • Limited number of qualified resources. • Weak capacity to translate formulated policies into concrete programmes for implementation. • Insufficient coordination between central services and districts. 	<ul style="list-style-type: none"> • Strengthen the institutional capacities of MINAGRI to implement the PSTA. • Promote dialogue among the stakeholders of the agricultural sector. • Set up a monitoring and verification mechanism for the implementation of the Strategic Plan and of the future agriculture SWAp. • Define roles of central and decentralised services in the PSTA implementation.
Inclusive rural development	Women, especially women-headed households, landless peasants and HIV/AIDS affected families	<ul style="list-style-type: none"> • National policies do not incorporate inclusive strategies or mechanisms for women and other vulnerable groups. • Lack of clear strategies targeting women and other vulnerable groups in rural institutions (MINAGRI and extension services). • Woman and other vulnerable groups are poorly represented in decision-making of farmers' organisations. 	<ul style="list-style-type: none"> • Promote, at national and decentralised levels, the formulation of concrete strategies to address the constraints of the most vulnerable in connection with the implementation of the PSTA. • Ensure district development plans (PDD) take into account the expressed needs of women and vulnerable groups. • Strengthen districts, communities (cells, sectors), professional organisations, women groups and other stakeholder's capacities in PDD preparation.

Key File 2 – Organisations’ capabilities matrix (strength, weaknesses, opportunities and threats)

Organisation	Strengths	Weaknesses	Opportunities/Threats	Remarks
MINAGRI	<ul style="list-style-type: none"> • The Strategic Plan for Agriculture Transformation is the reference document used as a basic tool for planning in the agriculture sector. • Plans for SWAP design. • Alignment of MTEF to PSTA from year 2006. • Set up of executing agencies (RADA, RARDA, RHODA) in the framework of MINAGRI restructuring. 	<ul style="list-style-type: none"> • Insufficient budget for the agriculture sector. • Limited number of qualified staff. • Weak capacity for collecting, analysing, processing and disseminating statistical data. • Weak capacity to translate formulated policies in concrete programmes for implementation. • Insufficient coordination between central services and districts. • Insufficient expertise from executing agencies personnel in some domains. 	<p><u>Opportunities</u></p> <ul style="list-style-type: none"> • EDPRS gives high priority to agriculture development. • Large donor support to the sector. <p><u>Threats</u></p> <ul style="list-style-type: none"> • Lack of systematic measures to hiring competent staff to work with Technical Assistants and take over from them when they leave. 	<ul style="list-style-type: none"> • Increase MINAGRI budget. • Strengthen the planning, coordination and monitoring & evaluation capacity of MINAGRI personnel. • Strengthen the executing agencies’ capacities and their linkage with personnel at decentralised level.
MINECOFIN	<ul style="list-style-type: none"> • Public investment coordination and project implementation by CEPEX. • Co-ordination of public aid finances by the External Finance Unit. • Co-ordination of other ministries planning activities by the Planning Unit of MINECOFIN. • Long term investment plan (LTIP) in place. • Qualified personnel backstopped by technical assistance. 	<ul style="list-style-type: none"> • Insufficient coordination of too many departments under MINECOFIN. • High turn over CEPEX personnel. • Inexperienced staff from CEPEX due to recent restructuring process. 	<p><u>Opportunities</u></p> <ul style="list-style-type: none"> • Good financial management performances of MINECOFIN attract considerable external investments. • Good management from the Rwanda Revenue Authority allows the GoR to contribute significantly to its budget. <p><u>Threats</u></p> <ul style="list-style-type: none"> • CEPEX personnel high turnover might reduce its capacities to coordinate public investments and project implementation support. 	<ul style="list-style-type: none"> • Increase and strengthen the human resources capacity of different department of MINECOFIN and steady CEPEX personnel.

Organisation	Strengths	Weaknesses	Opportunities/Threats	Remarks
MINALOC	<ul style="list-style-type: none"> • MINALOC plays a key role in terms of coordination between public institutions at central level and decentralised structures (districts and sectors). • Strategic Plan for Community Development, decentralisation, and for institutional capacity development in place. • Set up of implementation tools for the Community Development Strategic Plan (CDF, HIMO, Ubudehe). • Establishment of the National Decentralisation Implementation Secretariat (NDIS) for the decentralisation strategy implementation... 	<ul style="list-style-type: none"> • Weak capacity to coordinate decentralised entities. • High turnover of personnel involved in the decentralisation process. • Lack of ownership of the decentralisation process by public and community institutions at low level. • Insufficient budget for MINALOC. • Shortage of human resources and qualified staff. • Weak capacity for collecting, analysing, processing and disseminating statistical data. 	<p><u>Opportunities</u></p> <ul style="list-style-type: none"> • Knowledge gathered allows MINALOC effectively to play a focal-point role in decentralisation for national institutions and external development partners. • Important support of development partners to the decentralisation process. 	<ul style="list-style-type: none"> • To conduct an institutional analysis so as to develop a career development strategy in MINALOC.
MINICOM	<ul style="list-style-type: none"> • MINICOM has set policies and strategies for all sectors: Commerce, Industry, tourism, and cooperatives serving as investment tools in the sector. • Establishment of executing agencies (RIEPA, RBS, ORTPN, CAPMER) and soon the cooperative Office in the framework of MINICOM restructuring. • Existence of OCIR Café, OCIR Thé and RPSF (Rwanda Private Sector Federation), as well as Development Business Centres (BDS) which are active in the export area. 	<ul style="list-style-type: none"> • Insufficient budget for MINICOM. • Shortage of human resources and qualified staff. • Unattractive salaries causing high personnel turnover. • Weak capacity of collecting, analysing, processing and disseminating of statistical data. • Weak capacity to translate formulated policies into concrete programmes for implementation. • Insufficient coordination capacity between central services and districts. • Insufficient expertise from executing agencies' personnel in some intervention domains. 	<p><u>Opportunities</u></p> <ul style="list-style-type: none"> • EDPRS gives high priority to agricultural development. • Rwanda joined COMESA and East African Community in July 2007. • Promotion of high quality handicrafts products for the international markets. <p><u>Threats</u></p> <ul style="list-style-type: none"> • Local products suffer from high competition following the removal of entry tax for imported products from COMESA. 	<ul style="list-style-type: none"> • Increase MINICOM budget. • Strengthen the human resources capacity of MINICOM. • Strengthen the executing agencies capacities and their linkage with personnel at decentralised level. • Establishment of incentive measures for national investments.

Organisation	Strengths	Weaknesses	Opportunities/Threats	Remarks
MINITERE	<ul style="list-style-type: none"> • Establishment of the Minister of State's office in charge of lands and environment. • Ratification by the GoR of many international conventions for environmental safeguards. • Organic law establishing the Rwanda Environment Management Authority (REMA). • Mandatory environmental impact assessment for all investment projects. • Establishment of Forests' Office. • Political decision on regulating tree-cutting. • Afforestation planting in all sectors. • Political decision on moving back agricultural investments of marshland river and lakes shores. 	<ul style="list-style-type: none"> • Insufficient budget for MINITERE. • Lack of qualified personnel in the environment domain. • Weak capacity for collecting, analysing, processing and disseminating statistical data. • Weak capacity to translate formulated policies into concrete programmes for implementation. • Insufficient coordination capacity between central services and districts. 	<p><u>Opportunities</u></p> <ul style="list-style-type: none"> • EDPRS includes environmental aspects in all sectors. • Many donors willing to invest in the environment sector. • Political commitment to environmental protection. <p><u>Threats</u></p> <ul style="list-style-type: none"> • Environment protection is not yet in the population culture, which limits ownership of environmental protection policies by the communities at low level. 	<ul style="list-style-type: none"> • Invest in environmental awareness and education at community level • Strengthen the planning, coordination and monitoring & evaluation capacities in all sectors • Strengthen REMA technical capacities of REMA and its representatives at decentralised level.

Organisation	Strengths	Weaknesses	Opportunities/Threats	Remarks
Local governments	<ul style="list-style-type: none"> • Range of decentralised competences including agriculture, land allocation and commerce. • Participatory structure at various levels (cell, sector and district CDCs). • Establishment of the Common Development Fund to channel financial resources to local governments. • Performance contracts signed between districts and the President of the Republic. • Transfer to districts of an important portion of government budget. • Alignment of district budgets to central services budget, including MINAGRI. 	<ul style="list-style-type: none"> • Limited base of financial resources. • Lack of qualified personnel at district level and limited capacities especially in the areas of planning and monitoring & evaluation. • Lack of partnership linkages between executing agencies (RADA and RARDA) and districts. • Co-ordination inefficiency between different stakeholders at district and sector level. • Limited involvement of civil society (notably professional organisations) in the local development plans. 	<p><u>Opportunities</u></p> <ul style="list-style-type: none"> • Several funded projects contribute to capacity-building at decentralised level and to the provision of socio-economic infrastructures. <p><u>Threats</u></p> <ul style="list-style-type: none"> • Lack of financial resources and capacities hamper fulfilment of assigned objectives to districts in the performance contracts framework. 	<ul style="list-style-type: none"> • Provide a framework and instruments (local development plans) for coordinating interventions at local level and develop public/private linkages. • Sign MoUs between executing agencies and districts for capacity development at decentralised level.

Organisation	Strengths	Weaknesses	Opportunities/Threats	Remarks
Professional organisations (POs)	<ul style="list-style-type: none"> Numerous and dynamic POs. Emerging apex organisations. National network of farmers' organisations (ROPARWA), comprising farmers' associations (IMBARAGA, INGABO) and cooperative unions around commodity chains (UCORIRWA, RWASHOSCCO, UDAMACO, IMPUYAKI), the National Artisans Chamber. Establishment of an internal audit function to ensure transparency. Adoption of a strategic plan comprising the farmers' forum initiative. Organisation of FOs around commercial activities and commodity chains with union structures for advocacy. Integration of women in decision making platforms. 	<ul style="list-style-type: none"> Lack of farmers' structures for common management of natural resources (water). Very limited participation of POs in decision making processes at central and decentralised level. Scattered technical, managerial and negotiating competences Difficulties of coordination and communication between grassroots unions and management organs. Lack of engagement in regional integration challenges, and international commercial agricultural negotiations. Lack of financing mechanisms for Pos in the agriculture sector. Lack of women's and other vulnerable groups' participation in decision-making. 	<p><u>Opportunities</u></p> <ul style="list-style-type: none"> PSTA recognises PO key role and MINAGRI is open to develop PO consultation mechanisms. The integration of Rwanda into EAC offers a consultative framework for POs with others in the region. Consideration of farmers' forum to reinforce platform's role. <p><u>Threats</u></p> <ul style="list-style-type: none"> Lack of regulatory frameworks for some aspects (natural resources management). Over-bureaucratic registration formalities. Lack of habit in associating civil society organisations in policy-making processes may hamper strong and regular participation. 	<ul style="list-style-type: none"> POs are the main IFAD partner in the promotion of pro-poor rural growth. These POs need to improve their governance systems to be more inclusive of women and other vulnerable groups in decision-making processes.
Private sector	<ul style="list-style-type: none"> Emerging agro-industrial sector financed from domestic investment. Considerable progress in the government enterprise privatisation. Exports have doubled during the period 2002-05. 	<ul style="list-style-type: none"> Limited access to infrastructure (electricity, transport services, communication networks) for rural entrepreneurs, enabling the emergence of private sector. Low level of education and competencies for rural small and medium enterprises. Lack of access to performing technologies. Limited organisation of traders and rural enterprises. 	<p><u>Opportunities</u></p> <ul style="list-style-type: none"> High potential to develop off-farm activities. Planned increase of agricultural productivity should generate demand for non-agricultural goods and services. <p><u>Threats</u></p> <ul style="list-style-type: none"> Low profitability for the agricultural sector compared to other sectors, which a limiting factor for investment. Perception of country's lack of stability hampers foreign investment in agribusiness. 	<ul style="list-style-type: none"> Strengthen rural entrepreneurs' capacities and develop supporting infrastructure to private sector.

Organisation	Strengths	Weaknesses	Opportunities/Threats	Remarks
Financial institutions	<ul style="list-style-type: none"> • Large pool of MFIs across the country. • Extended rural network of Union des Banques Populaires du Rwanda (cooperative bank).. • Network of MFIs (Rwanda Microfinance Forum) willing to promote increased MFI capacities and to harmonise approaches. 	<ul style="list-style-type: none"> • Fragile banking sector, unwilling to take risks in agriculture sector. • Limited involvement of UBPR in rural sector. • Weak capacities of MFIs and lack of connection with formal banks. 	<p><u>Opportunities</u></p> <ul style="list-style-type: none"> • Microfinance policy soon to be approved. • Evolving attitude of National Bank of Rwanda (NBR) towards MFIs. • Interest of POs in developing financial services. • Emerging credit schemes associating farmer organisations, agribusiness and MFIs. <p><u>Threats</u></p> <ul style="list-style-type: none"> • Restrictive interpretation of NBR instruction on microfinance may prevent development of community-based savings and loans schemes. 	<ul style="list-style-type: none"> • MFIs are currently the main source for providing credit access in IFAD project areas.
NGOs	<ul style="list-style-type: none"> • Strong financial support from international donors. • Key role in rural areas, particularly with regard to extension, empowerment of the rural poor, marketing and microfinance. 	<ul style="list-style-type: none"> • Limited accountability. • Insufficient coordination with local and national authorities. 	<p><u>Opportunities</u></p> <ul style="list-style-type: none"> • NGOs regarded as major development partners. <p><u>Threats</u></p> <ul style="list-style-type: none"> • NGOs activities end with the closure of their external financing due to lack of own resources. 	<ul style="list-style-type: none"> • NGOs are main source for provision of extension services, contingent on donor funds availability.

Key file 3 – Complementary Donor Initiative/Partnership Potential

Donor/ Agency	Nature of project/programme	Project/programme coverage	Status	Complementarity/synergy potential
Belgium	Development of seed production. Support to extension services.	Nationwide. Nationwide.	Ongoing.	<ul style="list-style-type: none"> • Linkages with UCRIDP with regard to seed production and involvement of farmer organisations. • Possible synergies with PAPSTA.
	Lutte contre les ravageurs. Horticulture value chain development. Reforestation.	Nationwide.	Pipeline.	
Canada/ILO	Programme de Développement Local à Haute Intensité de Main d'Oeuvre.	Job creation through decentralised development of infrastructure.	2004-08.	<ul style="list-style-type: none"> • Linkages with PPPMER-II: promote sector of rural construction.
DFID	Support to agricultural transformation.	Technical assistance and institutional support. Possible focuses: agriculture, land, HIMO, Common Development Fund.	Yet to be defined.	<ul style="list-style-type: none"> • Synergies with National Agricultural Policy Support Project (institutional support to MINAGRI). • Possible cofinancing.
FAO	Programme for the development of rice production.		Under formulation.	<ul style="list-style-type: none"> • Complementarities with the pilot component of the National Agricultural Policy Support Project.
WFP	PRRO.	Nationwide.	Ongoing.	<ul style="list-style-type: none"> • Collaboration with PAPSTA and new project for “Food for Work” activities.
European Union	Decentralised programme for poverty reduction (9th EDF).	Modernise rural sector by improving economic and institutional environment, increasing income, diversifying activities, developing infrastructure.	2004-06.	<ul style="list-style-type: none"> • Synergies with National Agricultural Policy Support Project (institutional support to MINAGRI).
	STABEX/support to production and marketing of export crops (coffee, tea and new crops).		Until 2006 or 2007.	<ul style="list-style-type: none"> • Knowledge sharing with Cash crop Project.(PDCRE).
Netherlands	Agriculture development.	Support to farmer organisations and commodity chain organisations. Support to ISAR (research institution).	End 2005. Yet to be defined.	<ul style="list-style-type: none"> • Synergies with National Agricultural Policy Support Project (institutional support to MINAGRI). • Possible cofinancing.
	CATALIST.	Mobilizing and organizing private input suppliers as well as farmer organizations for fertilizer supply around intensification and marketing projects of particular crops.		<ul style="list-style-type: none"> • Synergies with National Agricultural Policy Support Project. • Possible cofinancing.

Donor/ Agency	Nature of project/programme	Project/programme coverage	Status	Complementarity/synergy potential
	Support to decentralisation.	Technical and financial assistance to Common Development Fund, institutional support to MINALOC, strengthening of provincial capacities, support to Rwandese Association of Districts.	2005-09.	<ul style="list-style-type: none"> • Synergies with UCRIDP (decentralised infrastructure development), particularly with regard to CDF involvement. • SNV, which provides methodological assistance to project, is a Dutch-based NGO cofinanced by Dutch government.
	Contribution to Programme de Développement Local à Haute Intensité de Main d'Oeuvre.	Job creation through decentralised development of infrastructure.	2005-07.	<ul style="list-style-type: none"> • Linkages with PPPMER-II: promote sector of rural construction.
	Support to a national programme for soil and water conservation.			<ul style="list-style-type: none"> • Knowledge sharing with agricultural development projects, and particularly with National Agricultural Policy Support Project.
USAID	Assistance à la Dynamisation de l'Agribusiness au Rwanda (ADAR).	Technical assistance to agribusiness enterprises to increase productivity, and access markets and financing.	2001-06.	<ul style="list-style-type: none"> • Linkages with Cash Crop Project's component on product diversification and UCRIDP to develop partnerships between smallholders and agribusiness.
World Bank	Rural Sector Support Programme.	Rehabilitation of marshland and hillside areas, integrated management of critical ecosystems, promotion of commercial and export agriculture, support to public extension, infrastructure development, off-farm activities.	2001-17.	<ul style="list-style-type: none"> • Knowledge sharing with agricultural development projects, and particularly with National Agricultural Policy Support Project. • Complementarities with PPPMER. • Synergies with PAPSTA in the RSSP remaining phases.
African Development Bank	Projet d'appui au développement de l'élevage bovin laitier (PADEBL). Projet d'appui à l'aménagement intégré et à la gestion des lacs (PAIGELAC). Projet d'appui au développement agricole du Bugesera (PADAB), including the introduction of water harvesting techniques.	Nationwide. Nationwide. Bugesera.	Ongoing. Ongoing. Ongoing.	<ul style="list-style-type: none"> • Synergies with PDRCIU and PAPSTA. • Synergies and eventually collaboration with KWAMP. • Synergies and eventually collaboration with KWAMP.

REPUBLIC OF RWANDA

**KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT
(KWAMP)**

**PROGRAMME DESIGN DOCUMENT
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WORKING PAPER 1

PROJECT AREA, TARGET GROUP AND TARGETING

REPUBLIC OF RWANDA

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ABBREVIATIONS AND ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
CCI	Community Centre for Innovation
CDLS	District AIDS Committee
CLGS	Local Watershed Management Committee (<i>Comité Local pour Gestion e Supervision</i>)
CNLS	National Commission for Fighting HIV and AIDS
COSOP	Country Strategic Opportunities Programme
DDP	District Development Plan
EDPRS	Economic Development and Poverty Reduction Strategy
EICV	Households Living Conditions Survey (<i>Enquête Intégrale sur les Conditions de Vie des Ménages</i>)
GoR	Government of Rwanda
GDP	Gross Domestic Product
IFAD	International Fund for Agricultural Development
HIV	Human Immunodeficiency Virus
KWAMP	Kirehe Community-based Watershed Management Project
mt	Metric Ton
NWC	National Women’s Council
PAPSTA	Support Project for the Strategic Plan for the Transformation of Agriculture
PSTA	Strategic Plan for the Transformation of Agriculture
USD	United States Dollar
M&E	Monitoring and Evaluation
MINAGRI	Ministry of Agriculture
MINALOC	Ministry of Local Government, Community Development and Social Affairs
MINECOFIN	Ministry of Finance and Economic Planning
PAIGELAC	<i>Projet d’appui à l’aménagement intégré et à la gestion des lacs</i>
PDRCIU	Umutara Community Resource and Infrastructure Development Project
RSSP	Rural Sector Support Programme
RWF	Rwanda Franc
USD	United States Dollar
VCT	Voluntary Counselling and Testing
WMP	Watershed Management Plan
WUA	Water Users Association

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I. NATIONAL POVERTY CONTEXT

1. Rwanda is a small, landlocked country in Eastern Africa, with a surface area of 26 340 km² and a population of just over 9 million people (2005). In 2002, women represented about 54% of the total population of the country and 56% of the active population (above 15 years of age), partly due to the large number of male victims during the genocide of 1994.

2. Rwanda has registered good economic performance during the past decade, with real GDP growth of over 10% per year during 1996-2000 and 6.4% during 2001-2006. According to the latest Household Living Conditions Survey (EICV-II), the proportion of the population living below the poverty line was 56.9% in 2005/06, down from 60.4% in 2000/01, while 36.9% still lived in extreme poverty. The Comprehensive Food Security and Vulnerability Analysis of 2006 indicates that 52% of households are food insecure or highly vulnerable to food insecurity. Bicycle ownership has increased from 7% to 13%, and radio ownership from 36% to 53% of the population. The percentage of households owning any livestock rose from 60% to 71%. However, though the percentage of the population living in poverty has fallen, the total number of Rwandans living in poverty has increased from around 4.8 million in 2000/01 to 5.4 million in 2005/06 due to population growth. Over 90% of the country's poor live in rural areas. The main causes of poverty are identified as lack of land, poor soils, droughts and weather conditions, and lack of livestock.

3. The benefits of growth are not distributed evenly, and the incomes of the poorest 20% of the population have stagnated. The incidence of poverty ranges from 50% in Eastern Province to 67% in Southern Province, the only region where the number of poor has increased. The incidence of poverty among Female-Headed Households (FHH) is higher and was 60% in 2005/06. These households correspond to 25% of the total population and they are potentially more vulnerable to food insecurity. While women work seven hours a week less than men in their economic activities, they perform 20 hours of work more than men in running their homes and families.

4. Rwanda is listed as a country with low human development, and in terms of its human development index it is ranked 158 out of 177 countries in the 2006 human development report. Poor people have difficulty in accessing health services: only 20.1% of people in the poorest quintile who are sick see a medical practitioner, partly due to the distance to medical facilities. The infant and under-five mortality rates stand at 69 and 122 per 1 000 live births, respectively. About 45% of children suffered from stunting, a sign of chronic malnutrition. The rural poor are more affected by illiteracy (38% against 31% in urban areas), while illiteracy among rural women is highest, 43% compared to 31% for rural men. Progress has been made with educating rural children, and the primary school net enrolment rate has reached 86%. However, at secondary school level the net

enrolment rate is only 10%. Around 64% of the population have access to safe drinking water, and firewood remains the main source of energy for 98% of the rural population, which contributes to deforestation and land degradation.

5. Agricultural activities constitute the main source of food and income for 80% of working adults – for women this is 86%. Agricultural production is essentially by smallholder farmers who cultivate less than 1 ha of land with simple farm implements and very low inputs use, growing traditional food crops (leguminous crops, cereals, roots and tubers, banana), and keeping small numbers of livestock. Food crops account for 92% of the cultivated area. High value crops such as tea and coffee are grown by only a small number of farmers.

6. Landholdings are small as a result of the high population density, the national average is 0.76 ha (2000) per household, and the pressure on land is increasing with population growth. About 2% of cultivating households do not own any land, while more than 25% cultivate less than 0.2 ha. Around half of cultivating households (representing 4.5 million people in 2005/06) cultivate less than 0.5 ha¹. This situation is likely to worsen since 60% of the population is below 20 years of age. There is a continuing threat of further fragmentation and degradation of arable land as a result of high population pressure and soil erosion.

7. The majority of rural women are involved in most agricultural activities, but men tend to control cash crops such as tobacco, coffee, banana plantations and vegetables, while women are more involved in food crops (cereals, tubers, beans, peas and maize). Although women account for some 70% of agricultural production, they have less property and capital than men and have less access to support services and markets. Vulnerable households (headed by women, widows, the elderly, and children) represent 43% of all households and are more likely to be food insecure. The most vulnerable category of the rural population comprises those with no land or those who cultivate less than 0.2 ha, which is inadequate to feed an average family. Evidence from the EICV survey shows that the incidence of poverty is highest (91%) in households whose main source of income is agricultural wage labour. FHHs, youths and families with members suffering from HIV/AIDS are an important part of this risk category.

8. The fight against rural poverty is an integral part of Vision 2020, the government's long term development strategy prepared in 2003. The objectives include transformation of the rural economy through modernization of the agricultural sector and achieving a reduction of the incidence of poverty by 30%. By 2020, agricultural production should have tripled, export related activities should have quadrupled and the proportion of the population depending on agriculture should have been reduced to 50% of the total population.

9. The reduction of rural poverty and the development of agriculture were addressed in the previous Poverty Reduction Strategy Paper (PRSP) which covered the period 2001-2005. However, financial allocations were more heavily concentrated in social sectors such as health and education, with the agricultural sector receiving only 0.2% of the budget. While the agricultural sector has recorded positive growth, it only achieved 4.8% annual growth during 2001-2006 compared to the annual target of 7%. In 2006/07, the government undertook a series of studies in order to evaluate the performance of the first PRSP. It was found that major constraints related to agriculture include poor access to inputs and financial services, increased erosion and a reduction in soil fertility, as well as the effects of drought, leading to a stagnation in agricultural production.

10. A new Economic Development and Poverty Reduction Strategy (EDPRS), covering the period 2008-2012, has been prepared, which expects the annual GDP growth rate to rise from 6.5% to 8.1% by 2012. Emphasis has been placed on productive sectors and particularly on agriculture, which is one of the EDRSP priorities and will receive 6.9% of the budget. The primary objective of the

¹ EDRSP figures. According to EICV-I figures quoted in the PSTA, about 11.5 % of households have no land to cultivate, and 43% of the households have less 0.5 ha of land.

agricultural sector is to contribute to the increase and diversification of household incomes, while ensuring food security for the entire population. In agriculture, the main programmes include the intensification of production systems in crop cultivation and animal husbandry; building the technical and organisational capacity of farmers; promoting commodity chains and agribusiness; and strengthening the institutional framework of the sector. Environmental and land priorities include the rehabilitation of degraded areas, land tenure security through the planning and management of land registration and rational land use, soil and water conservation, reforestation, and adaptation and mitigation against the impact of climate change. The area protected against soil erosion is expected to rise from 40% of the agricultural land area in 2006 to 100% in 2012. The area under irrigation is planned to increase from 15 000 to 24 000 hectares. The EDPRS acknowledges that attaining many of its targets, such as those relating to crop output levels and the use of inputs in agriculture, will depend in large part on the private sector, and that the government will have to provide an environment that is conducive to business.

11. In addition, the plans for the agricultural sector and rural poverty reduction have been elaborated in the Strategic Plan for the Agricultural Transformation (PSTA), which was approved by government in 2005 and runs through 2008. Stakeholders identified two fundamental issues for local agricultural development: (i) intensification and diversification of production systems; (ii) quality and proximity of services available to producers. The PSTA aims to transform current systems of subsistence agriculture into more intensive agriculture with market orientation, and with particular attention to sustainable management of soils and water resources. For that purpose, it proposes an integrated approach bringing together the local administration, producers and the private sector. Despite the emphasis on agricultural commercialization and the development of commodity chains, the strategy also takes the needs of poor smallholders into account, by supporting the increase of food production, and by integrating the needs of women and vulnerable groups. The plan indicates that MINAGRI intends to implement a programme for development of small-scale irrigation, under which support will be given to small-scale pilot irrigation projects at community level.

II. THE PROJECT AREA

A. Geographical Targeting and District Selection

12. Kirehe District is a new district, created as a result of the administrative reforms of 2005, and poverty data is not available at district level in recent poverty and food insecurity assessment reports, neither for old nor for new districts. The incidence of poverty, a common starting point for geographical targeting, was therefore not the primary consideration when the project area was defined. Instead, the starting point was the fact that irrigation development is one of the strategic approaches to agricultural development and poverty reduction identified by government in the EDRSP and PSTA, and KWAMP was seen as an opportunity to implement this strategy on a small scale and, through the experience that would be gained under the project, pave the way for irrigation development countrywide. This priority is also reflected in the COSOP for Rwanda, which identifies two projects to be formulated, the first mainly to address irrigation and soil and water conservation opportunities.

13. During formulation, the focus was therefore on identifying areas where water is a severely limiting factor for agriculture, but where the topography is conducive for irrigation development and where there is also considerable scope for agricultural development using untapped water resources such as lakes, streams, and marshlands. Five districts that could meet these criteria, Kirehe, Bugesera, Nyanza, Nyamagabe and Nyagatare were visited by the formulation mission at the request of government.

14. Kirehe District has been found to be the most appropriate choice, for the following reasons.

- The district has a good potential for agricultural development and intensification. The area has a potential for high-value crops and dairy production, some of which is already being exploited.
- Crop yields and farmers are clearly affected by the levels and patterns of rainfall, dry spells during and lack of water outside the rainy seasons, as well as by water availability in valleys and marshlands.
- There is an adequate presence of lake and river water resources, marshlands, and areas suitable for water harvesting, representing a potential for productive investments in irrigation.
- The district has diverse agro-ecological zones, available land and suitable topography, where various irrigation and soil and water conservation technologies could be developed, tested and scaled up.
- Access from the district to the main market in Kigali is 2½ hours over a good tarmac road, and Kirehe is a border district, with the potential for export to Burundi and Tanzania.
- Irrigation and soil and water conservation feature as priorities in the District Development Plan for Kirehe District (see Working Paper 2 for more detail).
- Poverty is widespread. The 2005/06 Households Living Conditions Survey indicates that some 50% of the population of Eastern Province live below the poverty line, with a depth of poverty of 36%². Furthermore, about 29% of the district population live in extreme poverty: their total consumption expenditure falls even below the cost of the minimum food basket. Kirehe is also a resettlement district, with many poor immigrants starting with nothing.
- In Kirehe District, four out of the twelve Sectors have a food insecurity score of 2 on a scale of 1 to 6, where 1 represents highly food insecure.
- In response to increasing risks of food insecurity, households – particularly the poorest – consume seed stocks, sell or rent out land, sell goats and poultry, and envisage (temporary) migration in search of alternative sources of food and income, especially during the dry seasons. Periods of food shortage between cropping seasons have become longer and affect the health and nutrition status of children in particular.
- There is scope for cooperation with other pro-poor investments and projects, such as the Support Project for the Strategic Plan for the Transformation of Agriculture (PAPSTA) supported by IFAD, which already has experience with a watershed management approach in Kirehe District; with the AfDB-financed *Projet d'appui à l'aménagement intégré et à la gestion des lacs* (PAIGELAC) which addresses soil and water conservation needs around the lakes in the district; and with the Rural Sector Support Programme (RSSP) financed by the World Bank, which also deals with irrigation. The experience gained under the IFAD-supported Umutara Community Resource and Infrastructure Development Project (PDRCIU), also in Eastern Province, can assist KWAMP, especially regarding roads infrastructure.

15. The project would therefore concentrate its resources on selected watersheds with a potential for irrigation development within the twelve Sectors of Kirehe District. Although PAPSTA is already operating in the Gatore and Gahara Sectors, the project would retain these Sectors in its area of operations because PAPSTA is limited to one small watershed, Rwabutazi. Strong integration between the two projects would be pursued given the similarity in objectives and approaches. The

² The average level of income of those who live below the poverty line is 36% below the poverty line.

Community Centre for Innovation (CCI), to be established under PAPSTA, would also serve a third Sector covered by KWAMP.

16. KWAMP would in principle cover the entire district, although project interventions would be phased and would gradually build up over the first three years of implementation. From a logistics point of view, it would be preferable to start work in adjacent rather than scattered Sectors. However, the focus of the project is on watersheds rather than administrative units, which would be selected based on the following considerations:

- potential for irrigation development;
- level of (sub)catchment degradation and the need for natural resources conservation;
- the scope for agricultural intensification and production of marketable produce;
- the level of interest and commitment shown by the inhabitants regarding irrigation development and watershed protection.

B. Kirehe District Profile

17. Kirehe District, covering an area of 1 225 km², is located in the south-western corner of Rwanda, 133 km from the capital Kigali. The district borders Tanzania in the east and shares a border with both Tanzania and Burundi in the south. The Kagera river forms a natural boundary with Tanzania. The district is a result of the administrative reforms of 2005 and constitutes a combination of the old districts of Rusumo, Rukira and Nyarubuye. Kirehe District is made up of 12 Sectors, 60 Cells and 610 Villages. The population of the district is estimated at about 292 000 inhabitants in 55 400 households (see Table 1), of which 28% are FHHs. The population growth rate for the district is 2.9% per annum, and about 63% of the population is below 35 years of age³.

Table 1. Kirehe District Population

Sector	Male-Headed Households	Female-Headed Households	Total Households
Gahara	4 057	1 527	5 584
Gatore	3 635	1 497	5 132
Kigarama	3 599	1 429	5 028
Kigina	2 916	1 080	3 996
Kirehe	2 908	1 141	4 049
Mahama	2 798	939	3 737
Mpanga	3 774	1 501	5 275
Musaza	3 191	1 203	4 394
Mushikiri	3 243	1 428	4 671
Nasho	3 343	1 228	4 571
Nyamugari	3 761	1 387	5 148
Nyarubuye	2 773	1 047	3 820
Total	39 998 (72%)	15 407 (28%)	55 405 (100%)

Female-Headed Households include 7 231 widows.

Source: Kirehe District Profile

18. During a recent survey under PAPSTA, three areas were distinguished in terms of general topography. Towards the centre and west of the district, there is an area with hills and small marshlands in valley bottoms, characterized by rainfed cultivation on the hillsides and wetland cultivation in the marshlands. This area has potential for lower hillside irrigation from high reservoirs

³ An indication of the large number of youths; in the EDPRS, 'youth' is defined as persons aged between 14 and 35 years.

and further development of the marshlands. A second area comprises land that is gently sloping downwards towards the swamps surrounding the Kagera river in the south and the southeast. This area has good watersheds with a potential for the damming of streams, water harvesting, and irrigation with open canals and furrows. The third area is made up of flat lands west of the Kagera river located in the northeast of the district, incorporating several lakes. This area has no significant watershed and the main opportunities for irrigation are found in using groundwater and water from the lakes. The mean altitude in the district is 1 500 m.

19. The district is located in a semi-arid zone with temperatures typically in the range of 20-24 °C, with maxima reaching 26-29 °C. There are alternating dry and rainy seasons during the year, with a short dry season from January until mid-March, a long rainy season from mid-March until mid-June, a long dry season from mid-June until mid-October, and a short rainy season from mid-October until the end of the year. Rainfall can be highly irregular, with an annual average of 800-900 mm. The soils are of good quality and suitable for cultivation, but declining soil fertility and erosion are affecting agricultural productivity, while land scarcity prompts people to cultivate on steep slopes.

20. There is one good quality tarmac road in the district, which starts from the border with Tanzania and continues to Kigali. Feeder roads that interconnect the Sectors and link them to the tarmac road are under the responsibility of the district. With a few exceptions, the last time that these roads were rehabilitated is more than 15 years ago, and they are generally in poor condition. Given the fact that 38% of rural communities live more than 5 km from the nearest market, while for 13% this is 10 km, difficult market access represents a serious constraint for the circulation of goods and persons.

21. The economy of Kirehe District is largely agricultural: 31% of the households rely exclusively on agriculture and don't have any livestock, 4% are exclusively engaged in animal production, while 35% have mixed farming systems including crop production and some livestock. Only 3% of the rural population get their income from non-agricultural activities.

22. Agricultural production is mostly for subsistence, principal crops include banana, beans, maize, cassava, sweet potato, sorghum, vegetables, rice and fruits, with banana, beans and rice as important marketable crops. Banana is the major staple food and represents 63% of the total food production in the district (2005). Only 3% of farmers in the district are engaged in mainly market-oriented production, while some 35% of farmers regularly have a surplus for sale. The use of inputs is low, only 5% of households use improved seed while the use of chemical fertilizer is negligible. Low prices for marketable produce are considered an important constraint for agricultural development in the district.

23. Wetlands are used for additional food production during the dry seasons, around 350 ha are currently cultivated while another 365 ha have been identified as having potential for production but have not yet been cleared. These wetlands are often exploited using traditional farming methods and are used to grow maize, rice, legumes, sweet potatoes and beans. Less than 1% of the smallholder farmers in the district are involved in wetland cultivation.

24. Livestock activities⁴ in the district are dominated by around 12 000 traditional cows, which are kept by the better off households. There are smaller numbers of grade cows and mixed breeds, nearly 1 000 in total. Farmers in Kirehe District keep about 400 000 traditional goats, 15 500 pigs and 14 400 sheep, while there are an estimated 2 400 improved goats. Beekeeping is another important source of income: around 6 800 kg of honey is produced annually from some 1 000 mainly traditional beehives.

⁴ There are serious inconsistencies between the Kirehe District Profile and the DDP, both of 2007, regarding the numbers of livestock. The DDP reports 36 000 local cows, 40 000 goats, 1 900 pigs and 2 100 sheep.

25. There are about 100 cooperative societies in the district, many of which have been recently established, and five cooperative unions. These include some 50 commodity-specific agricultural cooperatives, which focus on maize, coffee, rice, banana, fisheries, honey, and livestock. The larger cooperatives have more than 1 000 members. The financial sector is poorly developed, there is one bank located in the district capital, the Banque Populaire, while several micro-finance institutions are reported to be active in the district. The main vehicle for rural financial services, however, are traditional savings and credit groups.

26. The Comprehensive Food Security and Vulnerability Analysis of 2006 divided the country in Food Economy Zones, and according to these zones, Kirehe District is located partly on the Buganza-Gisaka Plateau, where 21-25% of the households are food insecure, and partly on the Eastern Curve, where 31-35% of the households is food insecure. Four Sectors in the east of the district, Nasho, Mahama, Nyamugali and Mpanga, have a relatively high level of food insecurity according to this analysis.

27. About 80% of children of schoolgoing age are actually attending school, but this can be as low as 60% in some parts of the district. The illiteracy rate is reported as 17.3% for men and 23.1% for women. Ten health centres and two dispensaries cover the twelve Sectors in the district, while the nearest referral hospital is in Kibungo, outside the district boundaries. Nevertheless, access to the nearest health facility is 7 km on average, which is a long distance for the rural population considering the poor condition of the roads and the lack of transport. About 75% of childbirths occur at home, and the infant mortality rate in the district is 126 per 1 000 live births.

28. About 54% of the population in the district have access to a safe source of water (piped water, protected wells or cisterns) for domestic use, while the distance to the nearest source of water is more than 2 km for 20% of the population. About 7% of households spend more than one hour per day fetching water. Firewood is the principal source for cooking, which is used by 94% of the population.

III. THE TARGET GROUP AND TARGETING

A. The Project Target Group⁵

29. Households that own land and that depend on their own agricultural production as a principal source of livelihood, but have less than 1 ha of land for cultivation, would constitute the primary target group of the project. Direct targeting would be applied where possible to the distribution of specific project benefits, such as newly developed irrigated land and improved livestock, although other activities, especially soil and water conservation, involve the whole community. These households depend on rainfed agriculture and would not belong to the 1% or so of farmers who currently have access to wetlands for cultivation outside the rainy seasons. They would generally not own any cattle, although they may have some smallstock and poultry. They grow a modest range of food crops and may have some surplus for sale during good years, but they are food insecure during years of poor rainfall. These households have little or no savings and would look for alternative sources of food and income outside the cropping season and during periods of food insecurity. Irrigated agriculture would represent a major opportunity in this respect. Some 80% of the households in Kirehe District or about 41 000 households fall in this category (see Table 2).

⁵ Please refer to the key file on the target group, priority needs and programme responses.

Table 2. Land Ownership in Kirehe District by Sector

Sector	Landless households	Households with less than 0.5 ha	Households with 0.5-0.99 ha	Households with more than 1 ha	Total Households
Gahara	12%	45%	32%	11%	5 584
Gatore	10%	48%	32%	10%	5 132
Kigarama	15%	25%	52%	8%	5 028
Kigina	13%	32%	40%	15%	3 996
Kirehe	10%	38%	34%	18%	4 049
Mahama	16%	20%	55%	9%	3 737
Mpanga	15%	22%	56%	7%	5 275
Musaza	10%	36%	40%	15%	4 394
Mushikiri	8%	48%	33%	12%	4 671
Nasho	12%	32%	29%	27%	4 571
Nyamugari	19%	15%	47%	18%	5 148
Nyarubuye	11%	42%	34%	13%	3 820
Total	13%	34%	40%	14%	55 405

Source: Kirehe District Profile

30. A special target group is made up of around 7 000 households or 13% of all households in the district that do not own land for cultivation, including many youths who have failed to obtain any land partly because the law has abolished land subdivision into plots of less than one hectare. Members of these households typically work for others as casual labourers, or they rent land for cultivation from those with larger landholdings. However, productivity would be low because they lack the means to acquire farm inputs. These households have at most some smallstock or poultry, but often have no livestock at all. They are bound to be food insecure during certain periods of the year.

31. Female-Headed Households, when they fall in either of the above two categories, face additional constraints, such as labour constraints caused by the lack of a male partner and inadequate representation of their interests in community structures and farmers' organizations, and are likely to be among the poorest households⁶. The needs of these women would be given special attention under the project. There would be approximately 11 500 FHHs with less than 1 ha of land and about 2 000 FHHs among the landless.

32. HIV/AIDS affected households are an important subset of households with chronically ill members, which face moderate to severe labour constraints, fall sick often and face high medical bills, are under threat to lose household assets and access to factors of production, and are often stigmatized in their community. These households are among the poorest in the community and the needs of these households would also be given special attention under the project.

33. While the number of households that meet the target group criteria of having less than 1 ha of land or being landless amounts to some 48 000 households, it must be noted that these households are spread throughout the district. However, the majority of project interventions would take place within selected watersheds or (sub) catchment areas that surround sites with a potential for irrigation development. While specific sites have not yet been identified, an initial estimate of what the project could reasonably cover within the resources and time available has been made.

⁶ Vulnerability studies in Rwanda defined households headed by women, widows, women with husbands in prison and divorced and abandoned women as the first four of eight main vulnerable groups in the country. The fifth vulnerable group are the land-poor, including the landless and those whose soil is of poor quality, while the sixth vulnerable group are households with chronically ill members (often as a result of HIV/AIDS).

34. The watershed in the PAPSTA pilot zone, which covers about 21 000 ha and 1 800 households, has been taken as a model, and it is estimated that under KWAMP another 15 watersheds of similar proportions could be developed⁷. On the assumption that the proportion of households that have less than 1 ha (74%) of land or that are landless (13%) is the same as at district level, this means that the actual number of project beneficiaries would consist of some 20 000 households with less than 1 ha of land, of which 5 600 would be FHHs, and 3 500 landless households, of which 1 000 would be FHHs, or 23 500 households in total⁸.

Table 3. Summary of the Project Target Group

Average number of households per watershed	Total number of households in 15 selected watersheds	Total number of households in 15 selected watersheds with less than 1 ha	Total number of landless households in 15 selected watersheds	Total number of directly benefiting households in 15 selected watersheds
1 800	27 000	20 000	3 500	23 500
		including 5 600 FHHs	including 1 000 FHHs	including 6 600 FHHs

B. Poverty Assessment and Poverty Focus

35. When watersheds where the project is likely to be implemented have been identified, one of the first activities is the preparation of a Watershed Management Plan (WMP, see Working Paper 2). This involves establishing the approximate boundaries of a catchment or sub-catchment area surrounding a potential irrigation site or collection of sites, followed by a series of survey and planning activities including an inventory and mapping exercise covering physical resources; a baseline survey focusing on social status, economic activities and institutions; village meetings to discuss problems, opportunities and possible solutions; drafting of a WMP; and a stakeholders workshop at catchment level to discuss the draft WMP.

36. This inventory work would include a poverty assessment, aimed at identifying the poor and poorest sections of the community, their characteristics and priorities, and the number of people in special interest groups including the landless, FHHs and HIV/AIDS affected households. During village meetings and a workshop at watershed level, the poverty focus of the project would be discussed, and agreement would have to be negotiated with the community on the following:

- household that benefit from project interventions where direct targeting is possible (e.g. livestock distribution) would be smallholders with less than approximately 1 ha of land;
- the number of beneficiaries from irrigation development would be maximized by allocating plots of about 0.1 ha to households that are part of the project target group and that do not have irrigated land, which would require appropriate scheme design and a land redistribution exercise at community level with the assistance of the project;
- the project would direct certain interventions (e.g. food for work) at particularly poor special interest groups, to ensure their participation in project activities and structures, and to ensure that adequate benefits reach the poorest and most vulnerable community members.

37. Project implementation would not proceed until agreement has been reached with the community on the WMP, which will form the basis for most project interventions, and on the core target group of the project. During monitoring and evaluation, the project would assess whether

⁷ In reality, the project may end up working in a larger number of smaller watersheds or fewer larger watersheds, but the grand total of the area covered (up to 2 000 ha of irrigation and some 300 000 ha of catchment area) and the number of benefiting households would be of the same order of magnitude.

⁸ The number of benefiting households of some project interventions, such as road rehabilitation and soil and water conservation measures, may be higher.

interventions that are subject to direct targeting reach beneficiaries who have small landholdings. Using participatory methodologies such as wealth ranking, the extent to which different project interventions have reached the special interest groups that the project is trying to assist will be assessed on a regular basis and in preparation for the mid-term review.

C. Targeting the Landless

38. The landless represent 13% of the total population in the project area, or about 3 500 households. In independent poverty studies and in the EDPRS, the landless who depend on agricultural wage labour or renting land are identified as one of the most vulnerable groups. The highest priority for these households, which generally do have the necessary labour capacity and experience with farming, is access to land of acceptable quality that they can cultivate. They would therefore be given priority access to irrigated land developed under the project, and the related support services on agricultural intensification. If irrigated land is allocated to the landless slightly more than proportionately⁹, all 3 500 households could be provided with 0.1 ha of land for irrigated agriculture¹⁰. While they would still have to look for additional sources of income because this is not enough land to sustain an entire family, it would represent a major step forward in securing the livelihoods and improving the food security situation of these households.

39. Labour-intensive methods would be used for the work on the smaller feeder roads that would be rehabilitated under the project, and for the construction of soil and water conservation structures in the watersheds, such as terraces. The in-kind payment that one labourer receives for a day of work under WFP food for work arrangements, which are proposed to be used under KWAMP, is enough to feed a family of five, and this is an attractive proposition for landless households that are used to engage in casual labour for their survival. The local committee or community representatives who normally select the beneficiaries under this kind of scheme would therefore give special attention to the landless in the project area.

40. Even if they do not own any land apart from the small plot they occupy to live on, the landless are able to engage in non-space consuming activities such as keeping a few goats, chicken or rabbits, mushroom growing, natural resource utilization, managing tree nurseries, and handicrafts. The project would support these types of economic activity in two ways. First, the landless would be given special attention under the livestock subcomponent, when improved goats, pigs and cocks would be distributed for the genetic improvement of small animals. They could be either primary beneficiaries or could receive animals as a result of the system of passing-on offspring that would be applied. Second, the landless would be encouraged to apply, as groups of people who are engaged in the same income generating activity, for training support under the Community Capacity Building Fund.

D. Gender Targeting

41. The Government of Rwanda has given considerable attention to gender issues especially since 1998. Different studies on gender disparities have been carried out. A new constitution became effective in 2003, as well as a new civil code, heritage law and land law, conferring the same rights on men and women. A national gender policy was defined in 2004 as well as a strategy for its

⁹ The proportion of landless households is 14.9% of the target group, the absolute number is 3 500 households. With 2 000 ha of irrigated land developed under the project, divided as plots of 0.1 ha, only 17.5% or 350 ha of the newly developed land would have to be allocated to the landless to provide each household with one plot. If 1 500 ha of irrigated land is developed, this percentage rises to 23.3%.

¹⁰ Landlessness would, however, not automatically mean getting access to an irrigated plot: households would have to meet other criteria, such as having the labour capacity, the farming experience, the interest in farming and the commitment to work jointly with others that are required to ensure effective utilization of the land.

implementation. A gender legal action plan was put in place to promote women rights, and a number of laws with discriminatory characteristics against women were identified and modified. The progress that Rwanda is making is reflected in the indicators for Millennium Development Goal No. 3, promoting gender equality, which are as follows (2006/07):

- gender gap in literacy: 0.2%;
- gender gap in primary education: 0%;
- gender gap in secondary education: 12%;
- females in tertiary education: 39%;
- females in decision making positions: 47.%;
- seats held by females in parliament: 48.8% of seats.

42. The EDPRS lists various measures to ensure that gender issues receive adequate attention. The most important is the requirement that gender issues are budgeted for and are integrated into sector and district development plans. Gender-disaggregated data will be tracked to allow identification of the differential impact of policies and service delivery on men and women. The capacity of line ministries will be strengthened to enable them to carry out their responsibilities regarding gender equality.

43. The government has established a National Women’s Council (NWC), which is defined in the constitution, with the mandate to monitor the government’s agenda on gender. The NWC is made up of elected committees representing women’s interests at Cell, Sector, District, Provincial and National level. The committees meet once a month to address issues affecting women and they represent women’s interests in different fora. The coordinator of the committee at District level, for example, is a member of the District Council and the Joint Action Forum (see Working Paper 2), while at Cell and Sector level they are represented in the Community Development Committees.

44. In spite of the progress made, many challenges remain. The incidence of poverty among FHHs is higher than the national average and they are more likely to be food insecure. Illiteracy among women is more than 10% higher than among men. Certain social constraints continue to hinder implementation of the principle of gender equality in rural areas: married rural women continue to be considered as a minority group placed under the authority of their husbands, having no property ownership or control over household income, and no authority over their children. While the legislative framework is conducive, knowledge of the new laws is not widespread, which affects their execution. Rwanda has eliminated gender disparities in primary education in terms of attendance, but girls are lagging behind in terms of completion rates and on exam scores, and gender disparities emerge after the third grade, as well as in upper secondary schooling and higher education. Much violence against women, such as rape and domestic assault, goes unreported and hence unpunished.

45. There remain problems with the Land Law: women who are not legally married have no legal entitlement to their husband’s land. Efforts by local communities to encourage couples to legalize their marriages are bearing fruits in this respect. Fewer FHHs own livestock compared to male-headed households. The level of involvement of women in non-agricultural activities in rural areas is also much lower than that of men.

46. The wide range of activities under KWAMP offers various opportunities to give attention to the needs of women. Gender targeting under the project would concentrate on three priority areas, which are further described below:

- giving women equal access to productive resources and income generating activities;
- incorporating the interests of women in capacity building opportunities and knowledge management under the project;
- the equal representation of women in decision making and institutions under the project.

47. The principal productive resource to be made available under the project would be newly irrigated land. With FHHs representing nearly 30% of the target group households, they would be expected to benefit proportionally, which means that 30% of the beneficiaries of irrigation development would be FHHs. As a result, nearly 2 000 FHHs that have the necessary capacity and interest would own land under irrigation by the end of the project. The same principle would apply regarding other tangible benefits under the project: the distribution of improved livestock and of agricultural inputs for intensification of farming activities would both be done proportionally to FHHs.

48. Another resource that the project would make available is in-kind payment for manual labour under the Food For Work scheme to be implemented by WFP, for the work on small feeder roads and soil and water conservation structures. Experience has shown that women are as interested and as able as men to carry out this type of work, while the chance that the food that is given will actually benefit the entire household is bigger when it is given to women. The target would therefore be to recruit 50% women, including but not limited to women from FHHs, for these labour-intensive works.

49. Capacity building is another key activity under KWAMP. To remove some of the cultural obstacles and bias that women face in accessing information and training opportunities, the project would strive to recruit an equal number of women among the key people that deliver this type of service: the contact farmers or *personnes ressources* at village level and the animators in the CCIs (see Working Paper 2). The panels that judge community competitions in the various watersheds would also consist of an equal number of men and women.

50. The Community Capacity Building Fund would make small grants available for training, workshops and study tours aimed at increasing the benefits obtained from agriculture and livestock activities, which would be demand driven, would be based on formal requests from farmers, and would be approved through a competitive process. The groups that apply for training would normally be mixed groups, and the number of women members is taken into consideration in the scoring system that would be used to evaluate the requests. In addition, 10% of the funds would be reserved for requests by women groups, which could be related to any production or marketing activity, including activities typically carried out by women groups, such as the joint cultivation of vegetables, seed multiplication, basket making, as well as the general capacity development of women's savings and credit groups, training for women leaders, etc.

51. KWAMP would support various types of farmers' organizations: Water Users' Associations that are important for distribution of water resources and the management of irrigation infrastructure; cooperative societies that play a key role in the marketing of produce and the commercial success of agricultural activities; and the CLGS, which would be responsible for allocation and management of water resources at catchment level, as well as for the implementation of other aspects of the WMP, especially soil and water conservation activities. The project's target would be to have at least 30% women among the leadership of these institutions, and assistance would be provided for women to be effective leaders through capacity building activities that incorporate women's specific interests.

52. Efforts would be made to ensure that training for staff at higher levels, such as training for staff in the district administration and for government staff at national level, is also gender sensitive. During staff recruitment, for the project's technical assistance as well as of service providers, women would be encouraged to apply. Monitoring and evaluation would consider the benefits that are delivered to women from a quantitative point of view, by using gender-disaggregated indicators, and from a qualitative view, by assessing through case studies how women and FHHs are better off as a result of project interventions. At the level of project management, the Coordinators of the four CCIs would be the project's focal point for gender aspects. Project management would also involve representatives from the NWC at district level in key activities, such as annual review workshops.

E. HIV/AIDS and Targeting

53. Although the HIV prevalence rate in the age group of 15-49 years is reported to be only 3%, HIV/AIDS features prominently in the EDPRS. Each sector is responsible for carrying out AIDS interventions, while most activities will be implemented by the districts, given the decentralized nature of government. The number of health centres with integrated facilities for Voluntary Counselling and Testing (VCT) and prevention of mother to child transmission will increase, as well as antiretroviral combination therapy coverage for those with advanced infection. The education sector will target children in the critical 12-18 years age group in schools to reduce transmission, and will promote peer education and engagement of parents outside the classroom. People living with HIV and young people will be involved in advocating preventative measures and promoting behaviour change, especially through peer education. Public campaigns will be organized aiming at reducing the stigma attached to HIV/AIDS.

54. Efforts to control the HIV/AIDS epidemic in Rwanda are coordinated by the National Commission for Fighting HIV and AIDS (CNLS), which is revising its strategy to bring it more in line with the EDPRS. Districts have a District AIDS Committee (CDLS) and one focal person for HIV/AIDS, which will be increased to two persons in the newly formed larger districts, such as Kirehe District. These persons have been trained and have a motorcycle. Their tasks include assisting projects, NGOs, cooperatives and other institutions to integrate HIV/AIDS messages in their activities. Priority areas include:

- care and treatment;
- condom utilization;
- behaviour change communication;
- mitigation of economic impact.

55. KWAMP would contribute to the last three of these priorities. Relevant messages about HIV/AIDS would be integrated in project activities, such as in the terms of reference of contracted service providers, and the information given to people employed under labour-based roads rehabilitation and construction of soil and water conservation structures. The project would involve the district focal person on HIV/AIDS in increasing the awareness of the project's *personnes ressources* (see Working Paper 2) at village level, so that they can act as peer educators. Newly constructed Community Centres for Innovation (CCI, see Working Paper 2), which will be focal points for training events and knowledge management under the project, would be used for condom distribution, to make information materials about HIV/AIDS available, and as sites for occasional VCT services.

56. The programme would also pursue possibilities for mitigating the economic impact of HIV/AIDS. This could involve strengthening the social function of farmers' associations and cooperatives, under which members who are faced with problems such as labour shortages or medical bills can be assisted, and by supporting local savings schemes that can form a safety net for rural households. Local associations of people living with HIV/AIDS, of which there are several in each Sector, would be given access to the Community Capacity Building Fund (see Working Paper 2). Households affected by HIV/AIDS would be given priority in participating in Food for Work activities, and would benefit from appropriate income generating activities that take labour and other constraints into account, such as kitchen gardens, pineapple growing, tree nurseries, smallstock and poultry rearing.

F. Summary of Targeting Mechanisms

57. The different elements of the targeting approach under the project have been summarized in Table 4 below.

Table 4. Summary of KWAMP targeting mechanisms

Geographic targeting	<ul style="list-style-type: none"> ▪ Kirehe District has been selected primarily because of its poor rainfall affecting agriculture and its irrigation potential. Nevertheless, poverty is widespread and one-third of the district is highly food insecure. ▪ Categories of the poor, their numbers and priorities, would be analyzed at watershed level as part of studies in preparation for a Watershed Management Plan.
Enabling measures	<ul style="list-style-type: none"> ▪ Project implementation would not proceed until agreement has been reached with the community on the Watershed Management Plan and the target group. ▪ The landless, as groups of people engaged in the same activities, and women groups would be encouraged to make use of the Community Capacity Building Fund. ▪ Relevant messages about HIV/AIDS would be integrated in project activities, e.g. in the terms of reference of service providers, and under Food For Work activities. ▪ The social function of farmers' associations and cooperatives, which can assist members who face labour shortages or medical bills, and local savings schemes that can form a safety net, would be strengthened.
Empowerment and capacity-building measures	<ul style="list-style-type: none"> ▪ The project would strive to recruit an equal number of women among the key people that deliver services: <i>personnes ressources</i> at village level and animators in the CCIs. ▪ The panels that judge community competitions would consist of an equal number of men and women. ▪ The project would aim for 30% women among the leadership of the various farmers' organizations, and training would be provided for women to be effective leaders. ▪ During staff recruitment, women would be encouraged to apply. ▪ The CCI Coordinators would be the project's focal point for gender aspects, for which they would liaise with project management. Representatives from the NWC would be involved in key activities, such as annual review workshops. ▪ The project would equip the <i>personnes ressources</i> to act a HIV/AIDS peer educators.
Direct targeting	<ul style="list-style-type: none"> ▪ Women would make up 50% of labourers recruited for Food For Work; the landless and households affected by HIV/AIDS would be given special attention. ▪ Improved goats, pigs and cocks would be distributed proportionally to FHHs (30%) and the landless and households affected by HIV/AIDS would be given special consideration. ▪ Attempts would be made to provide all able and interests landless households with an irrigated plot through slightly more than proportional land allocation. ▪ 30% of newly developed irrigated land would be allocated to FHHs. ▪ 10% of Community Capacity Building Fund would be reserved for women's groups. ▪ Local associations of people living with HIV/AIDS would be given access to the Community Capacity Building Fund. ▪ Appropriate income generating activities that take labour and other constraints of HIV/AIDS affected households into account would be promoted. ▪ CCIs would be used for condom distribution, to make information materials about HIV/AIDS available, and as sites for occasional VCT services.
Procedural measures	<ul style="list-style-type: none"> ▪ The poorest households may face difficulties regarding the community contribution to the development of irrigation infrastructure. This would be resolved at community level, through exemptions or otherwise, when the implementation modalities for a specific scheme are worked out.
Monitoring targeting	<ul style="list-style-type: none"> ▪ The project would assess whether the principle that beneficiaries of project interventions which are subject to direct targeting have small landholdings is adhered to. ▪ Using participatory methodologies, the extent to which project interventions have reached the special interest groups that the project is trying to assist will be assessed on a regular basis and in preparation for the mid-term review. ▪ Monitoring and evaluation would consider the benefits that are delivered to women by using gender-disaggregated indicators, and through case studies on how women and FHHs are better off as a result of project interventions.

REPUBLIC OF RWANDA

KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT

(KWAMP)

**PROGRAMME DESIGN DOCUMENT
FINAL DESIGN**

WORKING PAPER 2

LOCAL INSTITUTIONAL DEVELOPMENT

REPUBLIC OF RWANDA

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(KWAMP)

**PROGRAMME DESIGN DOCUMENT
FINAL DESIGN**

WORKING PAPER 2

LOCAL INSTITUTIONAL DEVELOPMENT

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ABBREVIATIONS AND ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
CCI	Community Centre for Innovation
CDF	Common Development Fund
CLGS	Local Watershed Management Committee (<i>Comité Local de Gestion et de Supervision</i>)
DDP	District Development Plan
DIP	Decentralisation Implementation Programme
GIS	Geographic Information system
HIV	Human Immunodeficiency Virus
IFAD	International Fund for Agricultural Development
KWAMP	Kirehe Community-based Watershed Management Project
MINAGRI	Ministry of Agriculture
MINALOC	Ministry of Local Government, Community Development and Social Affairs
NDIS	National Decentralization Implementation Secretariat
PAPSTA	Support Project for the Strategic Plan for the Transformation of Agriculture
RWF	Rwanda Franc
USD	United States Dollar
WMP	Watershed Management Plan
WUA	Water Users Association

REPUBLIC OF RWANDA

KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT

(KWAMP)

**PROGRAMME DESIGN DOCUMENT
FINAL DESIGN**

WORKING PAPER 2

LOCAL INSTITUTIONAL DEVELOPMENT

I. BACKGROUND

1. The first phase of decentralization (2001-2003) in Rwanda resulted in the establishment of a legal framework for local administrative units: Local Government Councils have been established and given a legal mandate; local leaders have been elected at all levels; one third of elective positions are guaranteed for women; central government transfers are made to local governments for operations and development activities; operational guidelines for local government financial management and public tendering exist; and a community development policy and a national programme for strengthening good governance are in place. The Common Development Fund (CDF) provides a new source of finance for the districts, and will gradually move from project funding to budget support. However, various constraints were identified at the end of the first phase that requires further attention, including:

- low capacity at all levels (e.g. Community Development Committees, District Councils);
- an incomplete sectoral decentralization process;
- limited funding and delayed disbursements;
- weak institutional coordination at all levels;
- inadequate appreciation of the principles and values of decentralization among elected leaders and other actors.

2. Rwanda is therefore in the process of implementing a second phase of its process of decentralization, described in the Rwanda Five-Year Decentralisation Implementation Programme (DIP 2004-2008). This second phase is focused on entrenching decentralized local governance, with special attention to facilitating greater participation of citizens in decision making, planning and implementation of development programmes; facilitating greater allocation of resources to local governments and grass root structures; and allowing better coordination of interventions. The process is coordinated by the National Decentralization Implementation Secretariat (NDIS) in the Ministry of Local Government, Community Development and Social Affairs (MINALOC).

II. RATIONALE FOR LOCAL INSTITUTIONAL DEVELOPMENT

3. There is scope for the project to contribute to the ongoing decentralization process, especially in terms of capacity building. Kirehe District is a new district, created as a result of the administrative reforms of December 2005, and consisting of a merger of the old districts of Rusumo, Rukira and Nyarubuye. The district is administered by an elected District Council, and managed on a day-to-day basis by an Executive Committee. Technical departments are under the responsibility of an Executive

Secretary (see Annex 1). Kirehe District has gone through a bottom-up planning process during 2007 and has produced its first District Development Plan (DDP) for 2008-2012.

4. As acknowledged in the DIP, decentralized organs are new and relatively weak, and considerable capacity building is needed. The district depends heavily on recurrent and CDF funding from central government, and the local revenue base is limited. Sectoral decentralization of services without a serious disruption in service delivery is a major challenge. Central ministries, such as the Ministry of Agriculture (MINAGRI), are to provide sectoral technical support and capacity building to decentralised entities, such as the agricultural staff at district level.

5. Agriculture in Eastern Province, including Kirehe District, is affected by dry spells during rainy seasons and lack of water outside the rainy seasons. The availability and quality of water resources is further threatened by the effects of climate change and the degradation of catchment areas. Improving people's livelihoods by harnessing scarce water for agriculture therefore requires an integrated approach to irrigation development and protection and management of catchment areas. However, there is little or no experience with such an approach in the district, and the support capacity needed for the long term sustainability of irrigation schemes and watershed management is lacking.

6. Sustainable irrigation development in Kirehe District therefore requires creating the capacity of local institutions to manage and sustain both irrigation schemes and catchment areas. The project would invest in the capacity building of such institutions at different levels. Water Users Associations (WUA), responsible for the management of water resources and irrigation infrastructure at scheme level would be supported (see Working Paper 5 on agricultural water institutions and irrigation). Cooperative Societies, responsible for crop production, marketing and the commercial success of irrigation, would also be supported (see Working Paper 7 on farmers' organizations).

7. This paper describes capacity building efforts focused on three additional local institutions, as well as a watershed-based planning process that would be carried out under the project. First, the technical capacity of the district to support irrigation and watershed management in the long term and monitor the performance of related service providers would be strengthened. Second, Community Centres for Innovation (CCI) would be established as multipurpose service centres that function as a platform for service delivery to farmers by multiple institutions. Third, local watershed management committees would be established for the integrated management of water and other natural resources in watersheds where irrigation development takes place.

III. SUPPORT TO DISTRICT INSTITUTIONS

A. Local Development Planning and KWAMP

8. The Kirehe Community-based Watershed Management Project (KWAMP) will contribute to the implementation of the DDP for Kirehe District. The DDP was elaborated during May-June 2007, through a process of consultations and priority setting with the district population at Village, Cell, Sector and District level¹. This process resulted in the identification of ten priority problems per Sector, which the DDP aims to address over the coming five years.

9. The general objective of the DDP is to provide an instrument that reflects the vision of the district, in terms of its efforts to improve the living conditions of the population of the district. The specific objectives of the DDP are:

¹ Administratively, Rwanda is divided in Provinces, Districts, Sectors, Cells and Villages. In 2005, the administrative structure of the country was changed. There are now four Provinces, the City of Kigali and 30 Districts. Below the Districts there are 416 Sectors (*imirenge*), 2 150 Cells (*akagari*) and 14 975 Villages (*imidugudu*). Kirehe District is located in Eastern Province and has 12 Sectors, 60 Cells and 612 Villages.

- to equip Kirehe District with a document that contains the main problems identified by the population and the proposed solutions;
- to put at the disposal of various development partners a reference document that facilitates their interventions;
- to harmonize international and national development efforts with the vision of the district.

10. The DDP acknowledges that the economy of the district is based primarily on crop and livestock production, and that other sectors such as manufacturing, dominated by local artisans, trade and services are of minor importance. Besides rainfed production, agriculture includes some 350 ha of marshland cultivation, where production of maize, rice, vegetables, sweet potatoes and beans takes place. This production is seasonal due to poor water management. The livestock sub-sector is dominated by cattle, goat and poultry rearing, while there is also considerable potential for bee keeping. Agricultural development in general and the use of marshland in particular are identified as priorities in most of the district, as shown in Table 1 below. The compilation of priority problems at district level includes the following, relevant for KWAMP:

- lack of a master plan for the use and occupation of land (priority no. 1)
- agriculture and livestock keeping (priority no. 5)
- marshland management (priority no. 8)
- cooperative development (priority no.13)

11. According to the DDP, a prerequisite for district development is a master plan, including a topographical map, soil map and geological map, that identifies fertile zones, facilitates crop selection, and assists with land consolidation: grouping the population in rural centres and freeing up land for agricultural production. Based on a problem analysis, the district has made development of modern agriculture and livestock keeping the first of its three pillars of development. Under this pillar the following proposed interventions are included for agriculture: 10 000 ha of terracing; developing at least 1 000 ha of irrigation; constructing 50 valley dams and two river dams; introducing improved marshland management covering 913 ha and protecting their basins; promoting improved inputs supply in each Sector as well as storage and processing of agricultural commodities; and increasing the number of agricultural cooperatives. Regarding livestock, activities include implementing the “one cow per family” policy, construction of three slaughterhouses, improved fodder production on some 15 000 ha, promoting artificial insemination, and cooperative development. These district priorities, in particular the proposed activities focused on retention of rainwater and irrigation on hillsides, provide the context for the implementation of KWAMP.

Table 1. Selected development priorities from the Kirehe DDP

Sector	Priority area	Priority No	Location
Kirehe	Modern agriculture and livestock keeping	3	Entire Sector
	Undeveloped marshlands	5	Rwesero, Nyabigega, Nyabikokora
	Processing of banana products	8	Nyabigega
Kigina	Aforestation and erosion protection	6	Entire Sector
	Modern agriculture and livestock keeping	7	Entire Sector
	Agro-pastoral inputs	8	Entire Sector
Mahama	Modern market	4	Kamombo
	Aforestation	6	Saruhembe, Buhange and Mahama
	Provision of agricultural inputs	7	Munini
	Irrigation	8	Entire Sector
Mpanga	Irrigation	2	Nasho
	Erosion protection and afforestation	3	Entire Sector
	Modern cattle keeping	7	In seven cells
Nyarubuye	Agricultural cooperatives	6	Mareba, Nyabitare, Ntarutunga
	Breeding bulls	7	In every village
Musaza	Modern agriculture	5	Entire Sector
	Cooperatives	6	Entire Sector

	Agricultural processing (banana, pineapple)	9	Entire Sector
Nasho	Improved cattle	4	Entire Sector
	Aforestation	5	Rugoma, Ntaruka, Kagese
	Good quality seeds	6	Entire Sector
	Irrigation	7	Entire Sector
	Erosion protection	8	Entire Sector
Mushikiri	Modern agriculture and livestock keeping	5	Entire Sector
	Marshland management	7	Karuma-Binoni-Gasharazi
Kigarama	Availability of agricultural inputs	6, 7, 9	Entire Sector
	Modern market	8	Entire Sector
	Land management	10	Entire Sector
Nyamugali	Modern agriculture and livestock keeping	2	Entire Sector
	Erosion and environmental protection	9	Entire Sector
Gahara	Marshland management	5	Gahara
	Modern market	6	Gahara
	Fishing in Lake Nyabugongwa	7	Nyakagezi
Gatore	Modernize coffee and banana crops	5	Entire Sector
	Modern animal husbandry	6	Entire Sector
	Environmental protection	7	Entire Sector

B. District Involvement and Project Support to the District

12. The project would fall under the District Council for all major decisions affecting implementation, in particular selection of watershed areas to be developed and roads to be rehabilitated. The district would also be involved in monitoring the project as part of its task of monitoring the implementation of the DDP, and would ultimately be depended on for long-term support to interventions and local institutions beyond the life of the project. The project would provide support in order to ensure that the district can effectively fulfil these roles. For the sake of information exchange and coordination with other development partners in the district, the KWAMP Operations Manager would participate in meetings of the Joint Action Forum at district level.

13. The process of selecting specific sites where KWAMP will engage in irrigation development and related watershed protection and management, is an important element of making the DDP operational. First, a general scoping exercise would result in a prioritized inventory of potential watersheds based on the need and technical potential for irrigation development and natural resource conservation, considering topography, soils, water resources and habitation. Some of this work has already started through a contract under PAPSTA. Second, these potential irrigation sites and surrounding watersheds would be submitted to the District Council, through the Executive Committee (see Annex 1), for discussion and approval. Third, a process of detailed data collection and participatory planning would take place in the selected watersheds, which would include an inventory of natural resources, but would also look at economic considerations, such as the condition of roads and distance to markets, and social considerations, such as the poverty characteristics in an area and the number of landless people who could benefit from new irrigable land. This process would include consultations on problems, opportunities and solutions to problems with the local population, and would lead to draft Watershed Management Plans (WMP). Fourth would be the implementation of WMPs in selected watersheds, including detailed design and implementation of irrigation schemes; establishment and capacity building of WUAs; and supporting activities focused on soil and water conservation measures, agricultural intensification, organizational development, and roads rehabilitation.

14. In order to ensure the sustainability of project interventions, district staff responsible for implementation of the DDP would be involved in monitoring activities of KWAMP and would be expected to provide long-term support. The project would enhance the capacity of the district to successfully carry out these activities in a number of ways. First, the district would require the capacity for continued support to and oversight of service providers related to multiple irrigation

schemes covering some 1 500 to 2 000 ha beyond the life of the project. At present such capacity is lacking, and to address this constraint, three new positions would be created². The first position is that of Irrigation Technician, who would be concentrate on the technical aspects of irrigation in the district. The second position is that of Irrigation Management Officer, who would deal with WUAs and general farmers' organization. Both these staff members would report to the In-charge of Agriculture, who falls under the Director of Economic Development in the district. The third position would be that of Natural Resources Officer, who would be responsible for soil and water conservation and management of natural resources in the watersheds surrounding the irrigation developments, and also for supporting local watershed management committees, called CLGS (*Comité Local pour Gestion e Supervision*). This staff member would report to the In-charge of Environment, who is under the Director of Infrastructure in the district.

15. These positions would be filled by relatively inexperienced persons who are willing to live and work in the district, and who would be trained and would gain the necessary experience during the life of the project³. Initially, KWAMP would pay salaries for these staff members at a level that is comparable to the salary levels in local government. After project completion, these positions would be absorbed in the local government system. The project would provide these staff members with computers, and with motorcycles as means of transport. From the fifth year of the project, the district would be expected to take responsibility for the costs of these positions.

16. Second, the project would use a Geographic Information System (GIS) for the mapping and monitoring of watersheds, land utilization and natural resources, which would be under the responsibility of the newly created position of Natural Resources Officer. While this GIS capability would initially be used primarily for project sites, it would be an important tool for the management of natural resources in the district as a whole in the longer term. Project support would include provision of a set of equipment (computer, printer and global positioning system), GIS software, and Technical Assistance for the training of staff members in the use of this system.

17. Finally, the project would provide funds for the training of relevant district staff at District and Sector level, which could include short training courses within the district, national and international study tours, and attending short training courses outside the district. Topics that would be given attention would include participatory needs assessment and planning; new agricultural and livestock technologies; soil and water conservation technologies; support to water users associations and CLGSs; support to cooperative societies; and value chain development and marketing.

18. The following positions are earmarked as having priority to benefit from training under the project: the In-charge of Agriculture and the In-charge of Cooperatives under the Director for Economic Development; the In-charge of Environment under the Director of Infrastructure; the In-charge of Planning under the Director for Economic Planning; the In-charge of Topography under the Director of Lands; and the newly created positions of Irrigation Technician, Irrigation Management Officer and Natural Resources Officer. At lower levels, the In-charge of Agriculture in each Sector would be the primary beneficiaries of training. The need for training would depend on the stage of development of the project, and would be determined on an annual basis in discussion with the District Authorities. The Director of Human Resources would be the focal point for staff development, while the project would assist in identifying trainers for capacity building and where relevant training opportunities can be found outside the district.

² See Annex 2, 3 and 4 for draft terms of reference.

³ Staff turnover, often an issue, may require replacement of these persons and additional training during the life of the project. Attempts should be made to select people who are committed to development of the district and who are comfortable living and working there.

IV. COMMUNITY CENTRES FOR INNOVATION

C. Establishment of CCIs

19. The Support Project for the Strategic Plan for the Transformation of Agriculture (PAPSTA), supported by IFAD, is being implemented in six pilot zones in the country. One of the pilot zones is in Kirehe District, located partly in Gahara and partly in Gatore Sector, and consists of a watershed covering hillside and marshland areas totalling some 21 000 ha (see Annex 5). Activities under PAPSTA include crop improvement (wetland and rainfed), soil and water management, livestock integration, and capacity building in the watershed area. The experience gained with watershed development and management under PAPSTA has informed the design process of KWAMP, and some of its elements would be replicated.

20. Under PAPSTA, one Community Centre for Innovation (CCI) is being established in Kirehe District, covering Gahara and Gatore Sectors and a third Sector that is yet to be identified⁴. The reason for establishing such a centre is the fact that neither local government nor the private sector, for example cooperatives, have adequate and strategically located physical facilities that can serve as a central point for the dissemination and exchange of information, meetings for the coordination of watershed management and other development initiatives, and capacity development and learning activities. These types of centres are foreseen in Rwanda's Economic Development and Poverty Reduction Strategy (EDPRS), as part of the initiative to work with the private sector to launch a decentralised extension service for the agricultural sector. Examples of functions and activities that would take place in this CCI include the following:

- meetings by cooperative leadership and temporary office space for cooperative societies;
- meetings and record keeping by the CLGSs;
- making available information and publications that are relevant for agricultural producers and their organizations in the district, especially on irrigation, soil and water conservation, and market-oriented production;
- training sessions for cooperative societies, water users' associations, CLGSs, women groups, *personnes ressources*, and other stakeholders involved in watershed utilization and management;
- coordination and interface meetings for different project components;
- a base for service providers to work from when they are supporting any of the watersheds;
- facilitating market linkages between producers and traders and disseminating market information;
- occasional voluntary counselling and testing for HIV/AIDS.

21. Under KWAMP, three more CCIs would be established along the same lines, covering the remaining nine Sectors in the district. The project would fund the construction of the premises where the CCIs would be located, which would include adequate office space for administrative purposes, a conference hall for meetings and training activities that can host at least 100 participants, a small library, a computer room, a store and toilet facilities. New construction is considered necessary, because the district has very few existing buildings that could be rehabilitated and used as CCIs, while the strategic location of the CCIs in relation to watersheds and farming communities is of paramount importance, and should not be compromised by giving preference to existing buildings that may not be in an appropriate location. Provision has also been made for the necessary furniture and office equipment, including computer equipment and audiovisual equipment that would be used for training and promotional activities, to be powered by solar panels in the absence of electricity in the area.

22. Each centre would include four staff positions. A Coordinator would manage the facility, and would have overall responsibility for all CCI activities that respond to farmers' needs, including annual planning, meetings, training, information collection and dissemination, farmer competitions, as

⁴ This third Sector would be either Kirehe Sector or Musaza Sector, both of which are adjacent to Gatore Sector.

well as maintenance of the facility and equipment and staff supervision. The second position is that of Animator, of which there would be two per CCI, which means that one Animator would cover two watersheds. The primary responsibility of these Animators would be training needs assessment of farmers and their organizations, delivery of training under the Community Capacity Building Fund, and management of the network of contact farmers at village level (both are described below). A Secretary would be responsible for administrative support and the day to day running of the centres. These staff members would be recruited through a competitive selection process.

23. The CCIs would be facilities that belong to the district: multi-purpose service centres that provide meeting space and host events for communities, cooperatives, committees, service providers and other stakeholders, including those that have an interest in and are supportive of the watersheds covered by KWAMP. The CCI Manager would therefore report to the Executive Secretary of the district. The Coordinator and the Animators would be provided with motorcycles by the project, which would also provide for the operational costs of the centres and the transport facilities during the first four years of the project.

24. Operationally, however, the CCIs will be community managed. Each CCI will have a *conseil d'administration* meeting twice a year and responsible for approving the centre's AWPBs and its annual reports, and a *comité directeur* meeting once a month and responsible for approving the applications for the Community Capacity Building Fund and judging the community competitions. These arrangements are in line with the provisions for CCIs under PAPSTA. The district mayor will send a representative to act as member of the *conseil d'administration* and of the *comité directeur*, both of which will be chaired by an elected community-based CLGS member. Following approval by the *conseil d'administration*, the AWPB will be submitted to the District Steering committee for approval.

25. In line with the current trend towards decentralization, including increased resource allocation to and revenue collection by the districts, it is expected that the staff salaries and operational costs of the CCIs would eventually be covered by the district, starting in the fifth year of the project. The centres would also be expected to cover at least part of their operational costs by charging for services and facilities, for example hosting meetings by and providing administrative support to cooperative societies, training sessions organized by other development institutions, computer use, and dissemination of market information.

D. Community Capacity Building Fund

26. The Community Capacity Building Fund is a grant facility of USD 1.0 million, with the purpose of responding in a flexible manner to capacity building requirements at community level. Two types of training can be distinguished under KWAMP. First, there is training that is essential for the functioning of the project itself, such as training for district staff and training for CLGSs. These training activities are included in the project budget as separate line items. Second, there is training related to economic opportunities that arise for farmers and their organizations, aimed at obtaining increased benefits from agriculture and livestock activities, for example through training in milk processing or training in new rice cultivation techniques. These types of training would be demand driven, would be based on formal requests from farmers, would be approved through a competitive process, and would be financed under the Community Capacity Building Fund.

27. The beneficiaries of the fund would be the rural poor and their organizations within or directly related to the watershed areas covered by the project. Once a watershed has been selected and a Watershed Management Plan has been prepared, the CCI Manager and the Animators would carry out a rapid assessment of the local organizations that exist, their functions, capacity and training needs. Base on the findings, the project would prepare a pamphlet together with a simple application form, both in the local language, to be used for making requests for capacity building. The availability

of funding for training activities would be made widely known through this pamphlet, the CCIs and the CLGSs.

28. The use of the fund would be limited to training-related activities (formal training, demonstrations, workshops, study tours) and would not provide for materials such as agricultural inputs or productive investments, for which the beneficiaries should access credit funds. The Animators of the CCI would assist local organizations within a watershed area, ranging from small and informal groups of producers and women groups to the larger cooperative societies, to articulate their training needs and fill the application form. The total available budget for training activities would be USD 200 000 per year, of which 10% would be earmarked for the support of women in the project area – for example, training aimed at the integration of women leaders, or support to the economic activities of women groups. The ceiling per training activity would be set at USD 10 000, and with an estimated average cost per activity of USD 2 500, some 80 training activities per year or 20-30 per CCI could be accommodated. The CCI would be authorised to sign contracts up to FRW 300 000, while larger contracts will need the co-signature by the District Executive Secretary before becoming effective.

29. The requests for training would be evaluated by the CCI Manager using an eligibility scoring system, a draft of which is provided in Annex 4, and requests would be prioritized on a monthly basis using this scoring system. Some examples of activities that could be considered for funding are a training in yogurt production for the owners of dairy cows; a market research study tour for rice producers to identify and compare potential markets, and make contact with traders; support to groups of landless farmers who receive goats, in animal husbandry and shed construction; a study tour for members of a Water Users Association to other watersheds in the district; recruitment of a specialist in pineapple production and processing for a group that has started growing this crop; a training in on-farm storage for groups of maize growers; basic administration and financial management for a women's group producing handicrafts; and demonstration of the construction of specific soil and water conservation structures. All training activities would be aimed at improving productive activities and would be focused on the rural poor living in any of the watersheds covered by the project.

30. Once a month, the CCI Manager would submit a summary of the applications for the Community Capacity Building Fund to the *comité directeur* of the CCI, together with the results of the scoring. In its monthly meeting, a quorum of the *comité directeur* would decide on the proposals through an approval system requiring a 2/3 majority (at least 67 % of the votes). The *comité directeur* may only approve applications up to the annual limit defined in the AWPB. Upon approval, the CCI Manager would prepare the contracts for signature by the chairperson of the *comité directeur*. Contracts of FRW 300 000 or more would then be communicated to the District Executive Secretary for approval before being submitted for signature by the chairperson of the *comité directeur*.

31. Once a request has been approved, the CCI staff would seek a suitable trainer or institution that could provide the necessary service, and in case several candidates have been found, a preferred candidate would be selected jointly with the leadership of the group that has made the request. The CCI staff would prepare a contract describing the key outputs that the service provider would be expected to deliver, and payment would be made based on the actual delivery of those outputs, to be confirmed by the beneficiaries. Alternatively, in case the requesting farmers' organization has sufficient management capacity, the funds for an approved training activity could be made available directly to the organization which could then do its own procurement, supervised by the CCI staff. However, field observations suggest that such capacity does not yet exist in Kirehe District and that this approach would not be appropriate, at least not during the initial years of the project. Nonetheless, funds raised by CCIs as payment for services rendered will be placed on a bank account held by the CCI. The project implementation manual (PIM) will describe the procedures for use, accounting, internal control and audit of this CCI account.

E. Village-Based Resource Persons

32. The CCIs will function as multipurpose service centres aimed at increasing capacity of and delivering benefits to farmers and farmers' organizations, in general throughout the district and in particular in the selected KWAMP watersheds. Given the increasing role that contracted service providers play in capacity building and extension services, the CCIs would also function as a platform that can be used by both public and private sector operators to carry out their activities.

33. Following the example of PAPSTA, KWAMP would use contact farmers, referred to as *personnes ressources*, to facilitate technology transfer to farmers in the watersheds where the project is operational. There would be about 20 such *personnes ressources* per watershed, who would be selected from among the more advanced farmers in a village by the community, because of their reputation as farmers and because of the respect they have in the community. These *personnes ressources* would be a useful entry point for service providers when it comes to the dissemination of information, for example on new soil and water conservation technologies, and the introduction of new inputs, for example improved seed. They would implement the new technologies on their own farms and would take it upon themselves to train neighbouring farmers in the same. They would also be used by the CCI staff to spread information on upcoming events and on the available resources in the centres, such as a visiting specialist or new market information.

34. These *personnes ressources* would work on a voluntary basis and would not be paid, but they would receive tangible benefits in the form of new types of inputs and training under the project, and they would be provided with a bicycle to facilitate their efforts to disseminate information and promote good practices in the community. Their main motivation, however, would be their improved social standing and the opportunity to be of assistance to the rest of the community.

F. Community Competitions

35. Building on the experience that has been gained under several projects⁵ dealing with local irrigation development and soil and water conservation in Latin America, KWAMP would introduce the concept of community competitions to stimulate the adoption and adaptation of new technologies introduced under the project. This is an innovative approach in support of extension efforts that would be tested during the life of the project.

36. The principle behind these competitions is that the spread of new technologies and good practices can be accelerated considerably if, besides efforts to convince farmers of their importance, there is an additional motivating factor for adoption. This motivating factor would consist of prizes for the best or most widespread implementation. Such prizes could be given to individual households, but this has many complications regarding the selection of winners in an unbiased manner, and would not be appropriate, at least not during the initial years of the project. The other approach is prizes that are awarded at community level.

37. These competitions would be started in the second year of the project and would continue until project completion. They would be held at watershed level, between the villages that are located within a specific watershed. Three themes would be selected at the beginning of each year, by the CCI in discussion with the CLGS, related to aspects that are receiving particular attention under the project during that year. Such themes could be, for example: the number and quality of progressive terraces constructed; the maintenance of irrigation infrastructure (cleanliness of canals and drains, state of repair of structures); the overall yield of irrigated rice; or the number of households that have received

⁵ The methodology was piloted during the 1980s under the Rural Development Project in Micro-Regions (PRODERM) in Peru, financed by the European Union and Dutch Development Aid, and later adapted under various other development projects in the region, including IFAD-supported projects such as MARENASS in Peru.

goats through the passing-on system and the condition of these goats. Specific criteria for assessment with scores would be defined by the CCI with assistance from the project. In addition to replication of technologies and good practices introduced under the project, these criteria could also touch on the best local adaptation and innovation related to such technologies and practices. These themes, the principles of the competition and the prizes would be widely publicized at the beginning of the year.

38. Once the themes are decided, the CCI staff would prepare the invitations to participate in the competitions, and distribute them widely within the target watersheds. The invitations would specify the criteria and weights to be used in judging the performance of the participating villages. An example of an invitation from Peru is included in Annex 3 of this working paper.

39. The judgement would be carried out by a jury composed of two representatives from each participating village, one man and one woman, who would be selected by the villagers themselves. At the end of the year, these people would jointly spend one or more days visiting each village to carry out their assessment, and would pass their judgement using the predefined criteria. The representatives of any particular village would not participate in the assessment in their own village. The end result would be a total score on a scale of 1 to 10 for each village under each theme.

40. Once the results are out, the CCI staff would organise an award ceremony at watershed level, where a first and second prize would be given for each of the three themes. These would be certificates and cash prizes, for example of USD 600 and USD 200 for the first and second prize. The prizes would be given to the village for investment in an activity or structure that benefits the entire community, such as the local school, public latrines, or a breeding bull, or to be distributed to some of the poorest community members, for example through the purchase of some chicken or farm tools. The overall management of these competitions and the funds would be under the responsibility of the CCI Manager, under the oversight of the *comité directeur* of the CCI.

V. WATERSHED DEVELOPMENT PLANNING AND MANAGEMENT

A. Watershed Development Planning

41. The project area of KWAMP comprises selected watersheds that surround the sites where there is potential for the development of irrigation, such as marshland or hillside irrigation. Sustainable operation of these irrigation sites requires sustainable management of the surrounding watersheds⁶. This subcomponent would therefore aim to establish integrated Watershed Management Plans (WMP) and an effective, decentralized institution for each watershed, the CLGS, for the implementation of these plans. For planning purposes, it has been assumed that project activities would be started in about five watersheds per year for a period of three years, until about 15 watersheds containing some 23 500 households have been reached⁷.

42. The first step in the planning process would be to establish the approximate boundaries of the catchment or sub-catchment area surrounding a particular potential irrigation site or collection of sites. Within the identified area, a series of survey and planning activities would subsequently take place leading up to the preparation of a detailed WMP, including the following:

- an inventory and mapping exercise covering the physical resources in the catchment area (land, water, other natural resources, roads, other structures);
- a baseline survey focusing on social status, economic activities and institutions;

⁶ The definition of watershed can vary greatly – most of Kirehe District forms part of the watershed for the Kagera river, for example – but watershed in the context of KWAMP refers to the catchment or sub-catchment area immediately surrounding irrigation schemes, the condition and management of which directly influences the functioning of these schemes, in particular regarding the quality and availability of water.

⁷ See Working Paper 1 under Target Group.

- village meetings to discuss problems, opportunities and possible solutions;
- drafting of a WMP by technical specialists;
- stakeholders workshop at catchment level to discuss the draft WMP;
- establishing the institution that will oversee the implementation of the WMP.

43. The overriding interest of the inventory of physical resources would be to know about the availability of water in the (sub)catchment area. This would involve the physical assessment of existing types and numbers of water resources such as streams, springs, lakes and ponds, marshes, and potential overland flow that could be used for water harvesting. Consultations would have to be held with the local population about the varying condition of these resources throughout the year, to get an impression about base flow and the drying up of resources, and about peak discharges and possible flooding. The exercise would also involve an assessment of the different types of water use, for agriculture, livestock and domestic use, the number of water users for each usage, and whether there are any existing methods of water allocation and distribution. Finally, an inventory would have to be made of the sites within the (sub)catchment where different forms of water harvesting and irrigation development could take place. The output would be a map showing water sources, inflow into and outflow out of the (sub)catchment area, water distribution systems, and potential irrigation sites, together with a description of the water sources and their variability throughout the year, the water users and types of water usage, and the potential for irrigation development. This work would be carried out by a water management/irrigation specialist.

44. In addition to water, other natural resources would also be assessed including soil types and their distribution, and the different types of vegetation such as grassland, trees and shrubs. This assessment would include physical features of the terrain, such as slopes, rock formations, density of the vegetative cover, and the types and severity of erosion. Apart from physical assessment, the local population would be consulted on the various forms of natural resource utilization in the area, which may range from grass for thatching and soils for brick making to medicinal plants. The output would be maps showing soils, vegetation and physical landscape features, a description of the existing natural resources in the (sub)catchment area, a description of natural resource utilization, a description of the way in which these resources, especially soils, would affect irrigation development, and a description of the environmental problems that have been observed in the (sub)catchment area and that would have to be addressed. This work would be carried out by a natural resources specialist.

45. Besides natural resource utilization, economic activities in the (sub)catchment area would primarily consist of agriculture and livestock keeping. Two specialists on agriculture and livestock development would make an inventory of the different types and varieties of crops grown, estimated areas cultivated, inputs used, yields obtained, processing and marketing arrangements, types and number of animals kept, methods of animal husbandry, animal products obtained, and animal off-take for domestic use and for sale. These two people would also assess existing infrastructure related to and influencing the marketing of produce and products, including types of storage, processing methodologies and equipment, and roads. Consultations would be held with the local population on the various characteristics of their economic activities and the problems they face. The output would be maps showing land use for agriculture and distribution of animals, as well as physical features such as roads and bridges.

46. An institutions specialist would prepare an inventory of existing organizations in the (sub)catchment area, including informal farmers' associations that jointly buy inputs, cultivate an area or sell crops; more formal farmers' organizations, mainly cooperative societies; marketing channels for agricultural produce including local and external traders; savings and credit groups; women groups; local government structures; types of traditional leadership; and any form of organization for the protection and management of communal resources and infrastructure including water, soils, pasture, forests and roads. This person would also carry out a poverty assessment, aimed at identifying: the poor and poorest sections of society and their characteristics; and the approximate number of people in special interest groups such as the landless, female-headed households, HIV/AIDS affected households, and child-headed households. The output would be a description of

the main organizations in the (sub)catchment area and their functions, and a poverty assessment that is important regarding the project's target group and targeting mechanisms.

47. As outlined above, this inventory would be carried out by a team of five local specialists, supported by a GIS specialist for the preparation of maps. The exercise would take about one week of field work per watershed, involving a combination of physical observation and consultations with the local population. Various participatory methodologies would be used, ranging from the simple participation of local people during field assessments, to the use of Participatory Rural Appraisal tools such as seasonal calendars to obtain information on the variation of water resources, crop production and livestock activities, and market prices during a year. A second week would be spent on processing the data and report writing.

48. After the inventory has been completed, the work would be continued by two of the persons involved, the water management/irrigation specialist and the natural resources specialist. The next activity would be to present the results from the inventory to the population of a watershed, followed by a discussion with the community on problems, opportunities and possible solutions to problems related to natural resources and economic activities in the (sub)catchment area. This would be done through meetings at village level within the watershed, for which it is assumed that one-day meetings in on average five villages per watershed would be held. The maps and background data collected during the inventory would be used for reference purposes during the discussions. The output would be an overview of problems, opportunities and solutions to problems as identified by the community – including references to a lack of water, the need for irrigation, and the condition of natural resources in the area.

49. The water management/irrigation specialist and the natural resources specialist would then take the inventory data, the views of the technical specialists and the views expressed by the community, and would spend about one month to combine all the information in an integrated draft WMP. This may involve some additional data collection and additional consultations. The draft WMP would consist of a description of the (sub)catchment area and its condition, with maps; the problems that have been identified by both technical specialists and the community; the possible solutions that KWAMP as a project could support, such as irrigation development, the introduction of improved soil and water conservation techniques, intensification of rainfed farming, and livestock integration; and conditions that would have to be met, for example community contributions to investment, participation of women, and land redistribution to ensure that the landless gain access to irrigated land. The WMP would be discussed at watershed level with community representatives who have been selected during the preceding village meetings, during a workshop of 2-3 days. Modifications would be made as needed. The output would be agreement on the WMP and an action plan that lays down the way forward. In case there are contentious issues or disagreements, additional consultations would have to take place until an agreement is reached, which is a prerequisite for other project interventions in the watershed to start.

50. WMP preparation would in principle be contracted out to an institution that is able to assemble a team consisting of the necessary specialists for this work⁸. Alternatively, individual consultants could be contracted who would join as a team under the supervision of the Operations Manager of KWAMP. The project would provide transport for the team in the form of hired vehicles. The first time this exercise is carried out, the project would recruit an international land and water resources management specialist, for the first two weeks and for another two weeks towards the end. During the first two weeks, this specialist would spend one day to prepare for the field inventory work with the team, ensuring that all the necessary data that is to be collected has been assigned to different

⁸ The cost for the entire process in one watershed is estimated at USD 19 125, made up as follows: a team of six specialists in the field for one week and processing data for another week (6 x USD 1 500 fees and USD 50 DSA for six persons during five days); two specialists for one month of subsequent village meetings, WMP preparation and watershed workshop (2 x USD 3 000 fees and USD 50 DSA for two persons during ten days); costs of a watershed level workshop (USD 500); and 15 days of vehicle hire at USD 75 per day.

people, discussing the methodologies to be used in the field, and assisting in the preparation of data collection formats. The specialist would then accompany the team to the field to provide guidance and on-the-job coaching. Towards the end of the entire exercise, the same specialist would return for another two weeks, to assist the water management/irrigation specialist and the natural resources specialist in finalizing the first WMP document, which would serve as a model for subsequent watersheds.

B. Local Watershed Management Committee

51. Implementation of the WMP would start under KWAMP but would continue beyond the life of the project. The WMP would also have to be reviewed on a regular basis and would be amended as needed, based on experience gained during its implementation and changing conditions in the watershed. This points to the need for management of WMP implementation by the community, for which a local oversight structure would be established: the local watershed management committee or CLGS (*Comité Local de Gestion et de Supervision*).

52. The CLGS would not be established to facilitate project activities, as seems to be the case at least to some extent under PAPSTA, but would be primarily concerned with the implementation of the WMP. This means that they would focus mainly on water management at watershed level and on the implementation of soil and water conservation activities. The membership of the CLGS would therefore consist of one representative from each WUA in the watershed, and representatives from other water user groups (e.g. livestock producers, borehole committee); village representatives concerned with water for domestic use and with the management of other natural resources; representatives of any other groups dealing with natural resources, for example groups managing tree nurseries; representatives of cooperative societies that operate in the watershed; and representatives of special interest groups, including women and youth.

53. The aim would be to have an equal number of men and women members, including among the executive leaders that the CLGS would elect. As a community institution the CLGS would be independent from government, although government staff, such as the In-charge of Agriculture and the Executive Secretary at Sector level could join as co-opted members, to offer technical advice or assist in problem resolution.

54. The CLGS would send selected members for an inspection tour of the watershed on a regular basis, and would meet afterwards to hear their report. These tours would be used to assess the water availability in the (sub)catchment, the condition of roads especially those rehabilitated under the project, whether different water users adhere to the rules and regulations in the WMP, and whether management systems (both physical infrastructure and management tools such as rotation schedules) are functioning properly. The condition of the watershed in terms of erosion and the implementation of soil and water conservation measures would also be assessed. In addition, the CLGS would have ad-hoc meetings as necessary to address any conflict over water or the use of other natural resources, and in response to calamities such as flooding or landslides in the area. Finally, there would be an annual workshop to review and amend the WMP.

55. The project would provide resources for training and study tours for the CLGS, and funds for the annual review workshops. Training would focus on water management at watershed level, soil and water conservation techniques, and general organization and management aspects. Study tours would cover any costs related to inspection tours in the watershed and would accommodate visits to other watersheds in the district, in order to learn and exchange experience among CLGSs. In addition, the CLGS would be eligible to request for other types of training under the Community Capacity Building Fund, just like any other farmers' organization in the watershed areas.

VI. BENEFITS, BENEFICIARIES AND IMPACT

56. District staff, CCIs and CLGSs will provide support services which are an essential part of ensuring that irrigation and other development activities in the district are sustainable. When this is achieved, the benefits of the interventions described here would reach all the beneficiaries of irrigation development under the project: with an estimated area under development of 2 000 ha and an average plot size of 0.1 ha, this would be at least 20 000 households.

57. District staff who effectively support irrigated agriculture and soil and water conservation would deliver direct benefits, in their ongoing support to farmers' organizations, and indirect benefits, as they supervise and ensure the quality of service delivery by private service providers in the district. This would result in successful operation of WUAs and long-term benefits from irrigated agriculture. The CCIs would be a focal point for service delivery and information exchange that would benefit farmers in a number of ways: by providing facilities for meetings and training; by improving access to information; and by facilitating the operations of local farmers' organizations as well as service providers. The number of farmers who would benefit from these multipurpose centres would eventually be larger than just the members of irrigation schemes developed under KWAMP, but this number is difficult to estimate in advance. The CLGS plays a key role in the sustainability of irrigation development in two ways: (i) by ensuring that water is properly and equitably managed at watershed level; (ii) by ensuring that the (sub)catchment area surrounding irrigation schemes is well protected with soil and water conservation measures, through the implementation of a WMP.

VII. RISKS AND ISSUES

58. The core target group of KWAMP consists of poor rural households with less than 1 ha of land, with special attention to the landless, poor female-headed and HIV/AIDS affected households. The benefits of intensification of agricultural production and the higher value of irrigated land should reach as many of the rural poor as possible. This implies allocation of relatively small plots of land under irrigation: proposed is about 0.1 ha per household. There is a risk that the necessary equitable land redistribution process would not be put in place and that a selected few would receive larger plots of land. The project should address these issues by making land redistribution a precondition for irrigation development and should capture this in WMPs.

59. Decentralization has increased the autonomy and responsibilities of the districts, which do not always have the necessary capacity to effectively discharge of these responsibilities. Smallholder irrigation is relatively new to Rwanda and there is no capacity at district level to ensure the long term sustainability of irrigation development. The project would put in place various structures aimed at managing irrigation schemes and surrounding catchments, and to facilitate service delivery to farmers. To ensure their effective operation beyond the life of the project, integration of these structures into local government would be necessary, and there is a risk that this may not happen. By demonstrating the need for and effectiveness of this new capacity, and through the gradual handing over of responsibility, the project will ensure that the necessary integration takes place.

60. There is a risk that the project would be implemented in isolation from the established local government structures in the district. To build ownership, the project would integrate its activities as much as possible in local government structures during implementation, and all major decisions, such as watershed and roads selection, should be submitted to the District Council for review and approval.

61. There is a risk that the project would proceed with implementation prematurely, especially physical infrastructure. To avoid this, implementation should not be allowed to proceed before an inventory of natural resources and a process of participatory planning at watershed level have taken place, a WMP has been prepared, and agreement has been reached with the community on such a WMP, which would form the basis for most project interventions. There is also a risk that WMPs are

implemented in an inflexible manner. To avoid this, the plans should be reviewed and amended at least annually, based on experience gained with implementation and changing watershed conditions.

62. For the proper implementation of a WMP, a CLGS would be put in place. There is a risk that such committees focus on assisting with the implementation of project activities, instead of concentrating on natural resource management, especially of water. To avoid this risk the composition of the CLGS should reflect this focus, and they should be independent from government, although government may provide technical support.

Annex 1. Kirehe Local Government Structure

District Council: legislative body at district level, which coordinates and approves major activities.	
Joint Action Forum: consultative body including district authorities, Community Development Committee representatives, development partners, civil society representatives.	
District Management (Executive Committee)	<ul style="list-style-type: none"> ▪ Mayor ▪ Vice Mayor for Finance, Economics and Development ▪ Vice Mayor for Social Affairs and Gender ▪ Executive Secretary
District Units under the Executive Secretary	<ul style="list-style-type: none"> ▪ Director of Economic Development <ul style="list-style-type: none"> ○ In-charge of Agriculture <ul style="list-style-type: none"> ➢ <i>Water Management Officer (initially a KWAMP position)</i> ➢ <i>Water Management Field Facilitators (initially KWAMP positions)</i> ➢ <i>Irrigation Technician (initially a KWAMP position)</i> ○ In-charge of Cooperatives ○ <i>Value-chain Development Officer (initially KWAMP position)</i> ▪ Director of Infrastructure <ul style="list-style-type: none"> ○ In-charge of Environment <ul style="list-style-type: none"> ➢ <i>Natural Resources Officer (initially KWAMP position)</i> ○ In-charge of Infrastructure ▪ Director of Economic Planning <ul style="list-style-type: none"> ○ In-charge of District Planning ○ Budget Officer ○ Accountant ○ Tax Collector ▪ Director of Land <ul style="list-style-type: none"> ○ In-charge of ICT ○ In-charge of Topography ▪ Director of Health ▪ Director of Education, Youth, Culture and Sports ▪ Director of Human Resources
Sector Level (12x)	<ul style="list-style-type: none"> ▪ Executive Secretary ▪ In-charge of Agriculture ▪ In-charge of Social Affairs ▪ In-charge of Population Affairs ▪ Accountant
Cell Level (60x)	<ul style="list-style-type: none"> ▪ Executive Secretary

Note: details are only shown for those units and positions that are most relevant for the project.

Annex 2. Draft Terms of Reference

Position 1

Draft Terms of Reference for Irrigation Technician

Job description

The Irrigation Technician is responsible for providing support to the planning, execution and maintenance of the irrigation schemes in the district, regarding both marshland and hillside irrigation. During the initial years, the focus will be on watersheds covered by the Kirehe Community-based Watershed Management Project (KWAMP), but later on the Irrigation Technician will cover the entire district. The Irrigation Technician reports to the In-charge of Agriculture in the district.

Main Tasks

- Provide general support to the feasibility studies, planning and tendering of irrigation works in the district;
- Provide oversight and supervision for the installation or rehabilitation works on irrigation schemes in the district, and issue works completion certificates;
- Provide technical advice to both the district staff and the water user associations (WUAs) on the maintenance of irrigation schemes;
- Liaise with the Water Management Officer and the Water Management Field Facilitators to ensure that the WUAs' water management activities in the irrigation schemes are efficient and sustainable;
- Regularly review the state of repair of the irrigation works in the district.

Qualifications and Experience

The Irrigation Technician is expected to have a diploma in a field of studies related to civil engineering. A minimum of two years of prior work experience is required, preferably in rural areas and directly dealing with irrigation infrastructure. No prior experience in smallholder managed irrigation is required; capacity in this area will be created through short training courses and study tours. The ability and interest to work in the field with contractors and local farmers is a prerequisite. At least basic computer skills are important for this position.

Position 2

Draft Terms of Reference for Water Management Officer

Job description

The Water Management Officer is responsible for providing support to Water Users Associations and other types of farmers' organizations in the district regarding the proper allocation and distribution of water resources in watersheds, marchlands and other areas where water is used for productive purposes, as well as providing support in the general area of organization and management of organizations dealing with water resources. During the initial years, the focus will be on watersheds covered by the Kirehe Community-based Watershed Management Project (KWAMP), but later on the Water Management Officer will cover the entire district. The Water Management Officer reports to the In-charge of Agriculture in the district.

Main Tasks

- Provide general support to the organization and management of Water Users Organizations (WUA) in the district;

- Provide general support to the organization and management of local committees for watershed management (CLGS) in the district;
- Liaise with service providers, NGOs and other institutions and monitor the quality of organizational development activities under projects that are implemented by such institutions;
- Regularly review the functioning of the leadership structures, rules and regulations, basic administrative systems, membership meetings and effectiveness in the field of WUAs and CLGSs.

Qualifications and Experience

The Water Management Officer is expected to have a diploma in a field of studies related to rural development or the social sciences. A minimum of two years of prior work experience is required, preferably in rural areas and directly dealing with smallholder farmers. No prior experience in water management is required; capacity in this area will be created through short training courses and study tours. The ability and interest to work in the field with local farmers' organizations is a prerequisite. At least basic computer skills are important for this position.

Position 3

Draft Terms of Reference for Water Management Field Facilitator

Job description

The Water Management Field Facilitator is responsible for providing support to Water Users Associations and individual farmers in the district regarding the proper technical design, functioning and maintenance of irrigation infrastructure. During the initial years, the focus will be on watersheds covered by the Kirehe Community-based Watershed Management Project (KWAMP), but later on the Water Management Field Facilitator will cover the entire district. The Water Management Field Facilitator reports to the In-charge of Agriculture in the district.

Main Tasks

- Assist in the identification and survey work of potential sites for irrigation development and water harvesting;
- Act as the focal point for all irrigation activities in the district;
- Ensure that the District Development Plan is regularly updated regarding irrigation activities in the district;
- Monitor the performance of service providers and contractors, regarding the design and implementation of simple, small-scale irrigation infrastructure;
- Assist farmers in the district by designing simple structures for water harvesting or gravity-fed irrigation that can be used by individuals or small groups for supplementary irrigation and off-season crop production, and oversee the construction of such structures;
- Advice on and assist farmers and farmers' organizations in the district with the repair of damaged structures;
- Together with agricultural staff, advice on water distribution and rotation schedules for different types of irrigation systems and crops.

Qualifications and Experience

The Water Management Field Facilitator is expected to have a diploma in an agricultural, civil works or water-related field of studies. A minimum of two years of prior work experience is required, preferably in rural areas and directly dealing with smallholder farmers. No prior experience in irrigation is required; capacity in this area will be created through short training courses, study tours and on-the-job coaching. The ability and interest to work in the field with local farmers' organizations is a prerequisite. At least basic computer skills are important for this position.

Position 4

Draft Terms of Reference for Natural Resources Officer

Job description

The Natural Resources Officer is responsible for providing support to Local Watershed Management Committees and other types of farmers' organizations in the district regarding the proper utilization and protection of natural resources, as well as for providing support in the general area of organization and management of organizations dealing with natural resources. During the initial years, the focus will be on watersheds covered by the Kirehe Community-based Watershed Management Project (KWAMP), but later on the Natural Resources Officer will cover the entire district. The Natural Resources Officer reports to the In-charge of Environment in the district.

Main Tasks

- Act as the focal point for all soil and water conservation activities in the district;
- Ensure that the District Development Plan is regularly updated regarding soil and water conservation activities in the district;
- Liaise with service providers, NGOs and other institutions (e.g. World Food Programme) and monitor the quality of soil and water conservation activities under projects that are implemented by such institutions;
- Monitor the use of natural resources by the district population and ensure that any usage that has an unacceptable negative effect on soil and water conservation efforts is acted upon;
- Liaise with and assist farmers' groups that deal with the management natural resources, for example groups that manage tree nurseries and groups that build radical terraces;
- Work with the agricultural officers in the district to ensure that they promote proper agricultural practices from a soil and water conservation standpoint;
- Operate the district's Geographic Information System (GIS).

Qualifications and Experience

The Natural Resources Officer is expected to have a diploma in an area of studies related to agriculture, forestry or natural resources management. A minimum of two years of prior work experience is required, preferably in rural areas and directly dealing with natural resources management. No specific experience in natural resources management at watershed level is required; capacity in this area will be created through short training courses, study tours and on-the-job coaching. The ability and interest to work in the field with local farmers' organizations is a prerequisite. At least basic computer skills are important for this position.

Position 5

Draft Terms of Reference for the Value-Chain Development Officer

A Value-Chain Development Officer will be recruited on a full-time basis by the Kirehe district authorities. He/she will be stationed at Kirehe and report to the Director of Economic Development of the District.

During the initial years, the Value-Chain Development Officer will provide methodological and technical support to the implementation of the Value-Chain Development Component of the Kirehe Community-based Watershed Management Project (KWAMP), but later on the responsibilities will cover the entire district.

His/her tasks will be to:

- Support the preparation and implementation of the comprehensive action plans for the selected commodity chains;
- Strengthen District capacities to coordinate and monitor value-chain development activities.

- Monitor the implementation of the joint activity and business development of the key chain actors;
- Identify the capacity strengthening needs of smallholder organizations and rural micro-enterprises for value-chain development and commercial activities;
- Prepare of contract packages and selection of service providers for supporting smallholder organizations and rural micro-enterprises;
- Supervise the quality of services provided by contracted service providers for strengthening enterprise management capacities of smallholders and rural entrepreneurs for input supply;
- Participate in value-chain mapping and selection of pro-poor value-chains;
- Support actor-clusters in preparing value-chain development action plans;
- Assist smallholder farmer organizations and rural enterprises in identifying market opportunities, developing quality and hygiene standards and assurance systems, and developing marketing systems.
- Coordinate the collection and analysis of data for the Project's Monitoring and Evaluation system, particularly concerning activity and business development plans.

The Officer will also develop and sustain relationships with national stakeholders, notably with:

- National umbrella organizations and networks of the key stakeholders involved in the selected commodity chains to facilitate their back up for the implementation of the action plans;
- Public sector, non-profit and/or private service providers for capacity strengthening of smallholder organizations and rural enterprises to engage in value-chain development and commercial activities;
- Rural finance institutions for mobilizing potential sources for the financing of value-chain development activities and facilitating access of smallholder organizations and rural enterprises to these sources;
- Other projects and initiatives in value-chain development, including IFAD-supported projects.

Qualifications and Experience

The basic requirements for this function are: (i) detailed knowledge of farming systems and marketing channels in Rwanda; (ii) experience with agri-business development in rural areas, project management systems and working with the private sector; and (iii) capacity to develop relationships with other organizations operating in the same area and sub-sector. The ability and interest to work in the field with local farmers and entrepreneurs is a prerequisite. At least basic computer skills are important for this position.

Annex 3. Example of an Invitation for a Community Competition, Peru 2007-08

LA MUNICIPALITÉ DE CHALLABAMBA,
 L'ASSOCIATION RUNAMAKI et SERMANU INVITENT LES COMMUNAUTÉS DU
 DISTRICT DE CHALLABAMBA À PARTICIPER AU **DEUXIÈME** CONCOURS

«PACHAMAMA RAYMI»

du 1^{er} septembre 2007 au 1^{er} février 2008

**Qui s'occupe le mieux
 de la Pachamama?**

IMPORTANTES PRIX

Communautés invitées: Lambrampata, Lali, Chimur, Pachamachay, Utucani, Jesús María, Lucuybamba, Sahuay, Solan, Televan, Callanga, Chacllabamba Alta.

Les meilleurs remporteront des PRIX!	1^{er} prix	2^{ème} prix	3^{ème} prix
Meilleures communautés	750 soles	500 soles	250 soles
Meilleures communautés pour la gestion des prairies et des parcours	750 soles	500 soles	300 soles
Meilleures familles du district pour la gestion des prairies et des parcours	300 soles	250 soles	200 soles
Meilleurs conseils communaux	400 soles	300 soles	200 soles
Meilleurs jurés	500 soles	400 soles	300 soles
Meilleurs promoteurs de la santé	400 soles	300 soles	200 soles
Familles du district qui ont planté le plus d'arbres	750 soles	500 soles	300 soles
Écoles qui ont planté le plus d'arbres et de plantes vivrières	500 soles	400 soles	300 soles
Œuvre artistique sur l'histoire du peuple ou de la communauté (théâtre, tissu, dessin, chanson, histoire écrite, etc.)	300 soles	250 soles	200 soles

PRIX pour les familles lauréates de CHAQUE communauté

Nombre de familles participantes	1^{er} prix	2^{ème} prix	3^{ème} prix	4^{ème} prix	5^{ème} prix	6^{ème} prix	7^{ème} prix
15 à 30	350 soles	250 soles	200 soles	50 soles	40 soles	30 soles	30 soles
31 à 45	350 soles	300 soles	250 soles	150 soles	50 soles	40 soles	30 soles
46 à 60	450 soles	300 soles	250 soles	200 soles	100 soles	50 soles	40 soles
61 et plus	450 soles	350 soles	300 soles	250 soles	150 soles	100 soles	50 soles

En outre, le projet remettra des PRIX SUPPLÉMENTAIRES (de 30 sols chacun) pour que 40% des familles participantes reçoivent un prix!

Le projet décernera aussi des diplômes à toutes les familles participantes qui auront obtenu le score minimal de 80 points.

INSCRIPTIONS AVANT LE 15 SEPTEMBRE 2007 DÉPÊCHEZ-VOUS! Inscription gratuite

Inscription des communautés: l'autorité communale s'inscrira auprès de DEXCEL-Perù ou auprès du coordonnateur ou de l'un de ses assistants.

Inscription des familles: les femmes doivent s'inscrire en tant que représentantes de leur famille auprès des autorités communales ou auprès du coordonnateur ou de l'un de ses assistants.

Pachamama Raymi est un projet de la municipalité de Challabamba et de l'association néerlandaise Leren van Elkaar. DEXCEL-Perù organise Pachamama Raymi pour le compte de l'association RUNAMAKI.

Règles et fonctionnement du concours

PACHAMAMA RAYMI est le nom de la fête que nous organisons pour récompenser les familles et communautés qui se sont le mieux préparées à accueillir et célébrer la Pachamama.

QUE DOIT FAIRE LA COMMUNAUTÉ POUR GAGNER UN PRIX?

La communauté doit inscrire les familles et améliorer l'organisation des pâturages, des canaux et des chemins, entre autres. Le succès dépend de tous, c'est-à-dire des efforts, du zèle, des sacrifices, du dévouement, de la passion et de l'engagement de chaque famille.

Chaque communauté devra élire deux jurés: un homme et une femme. Les jurés auront pour mission de communiquer les informations relatives au concours à leur communauté et de noter les familles d'une autre communauté.

LES THÈMES POUR LES COMMUNAUTÉS	
CONCOURS ENTRE COMMUNAUTÉS	Score maximal
Communauté – divers 40	
1. Plans de la communauté et assainissement réglementaire	10
2. Art, œuvres d'agrément, ramassage des ordures, signalisation communale et décharge contrôlée	10
3. Apport au projet commun des communautés Pachamama Raymi	10
4. Soutien aux mères célibataires, aux veufs/veuves, aux orphelins et aux handicapés	10
Santé et éducation 80	
5. Programmes d'éducation et de garde, écoles primaires et secondaires	10
6. Lutte contre l'alcoolisme moyennant des sanctions infligées au sein de la communauté	10
7. Recensement des violences familiales et lutte contre les violences familiales moyennant des sanctions infligées au sein de la communauté	10
Promotion de la santé	50
8. Recensement de tous les enfants et contrôle mensuel de leur état nutritionnel	10
9. Programmes de vaccination et rappels de vaccination des enfants et des adultes	10
10. Programmes de santé (planification familiale, santé buccale, etc.)	10

11. Soutien à l'élimination des parasites	10
12. Administration et maintien de l'ordre	10
Ressources naturelles 50	
13. Aménagement des pâturages et prévention des incendies	10
14. Dans les terrains de pâturage: arrosage saisonnier, exploitation des sources et mise en valeur des terrains marécageux	10
15. Mise au repos des terrains où la végétation est le plus clairsemée (pas de pâturage)	10
16. Plan de reboisement, réserver une surface importante à cet effet	10
17. Récolte d'une quantité suffisante de semences d'arbres	10
Infrastructure 30	
18. Si la communauté a de l'eau potable: entretien, développement et désinfection des réserves d'eau. Si elle n'a pas de système d'approvisionnement en eau potable, elle sera évaluée sur les démarches entreprises auprès des services concernés afin de s'en doter.	10
19. Développement de l'irrigation et de l'irrigation saisonnière (par <i>huacho</i> ⁹)	10
20. Entretien des chemins, des écoles, des <i>tambos</i> ¹⁰ , plantation d'arbres d'ombrage le long des chemins, entretien des autres infrastructures de la communauté	10
Score maximal total	200

QUE DOIT FAIRE LA FAMILLE POUR GAGNER UN PRIX?

Les familles participantes devront améliorer les conditions de leur exploitation agricole, de leur bétail et de leur habitation et veiller à l'assiduité scolaire de leurs enfants, entre autres thèmes visés dans le règlement du concours.

Nous devons tous nous préparer à fêter la Pachamama et veiller à ce que tout soit en ordre!

LES THÈMES POUR LES FAMILLES	
CONCOURS ENTRE FAMILLES	Score maximal
Familles – Divers 20	
1. Art et dessin: le présent et l'avenir de la famille, de l'exploitation agricole et des animaux...	10
2. Assiduité scolaire, programmes d'alphabétisation, instruction des parents par leurs enfants...	10
Santé 40	
3. Aliments consommés par la famille (légumes frais, lait, viande, œufs, poisson...)	10
4. Contrôle mensuel des parasites chez les enfants et les adultes	10
5. Examen mensuel avant et après l'accouchement ou planification familiale	10
6. Vaccination des membres de la famille	10
Activités 40	
Production, qualité et vente d'un ou de plusieurs produits (<i>chuño</i> ¹¹ , <i>charqui</i> ¹² , fromage, jambon, viande salée et séchée, miel, pain, objets d'artisanat, poisson fumé ou séché, mobilier, café, cacahuètes grillées et autres produits, tourisme chez l'habitant et autres activités)	
7. >> Entrepôt ou autre lieu de stockage des produits	10
8. >> Qualité des produits	10
9. >> Présentation des produits	10

⁹ Terrain cultivé en terrasse.

¹⁰ Relais ou entrepôts ou gîtes aménagés le long des routes ou des chemins.

¹¹ Spécialité à base de pomme de terre.

¹² Viande de lama déshydratée.

10. >> Administration, organisation de la production et de la vente	10
Ressources naturelles	140
11. Amélioration de l'irrigation et de l'irrigation saisonnière et efficacité de la gestion des ressources hydriques	10
12. Préservation des sols	10
Amélioration des animaux d'élevage (cobayes, brebis, bovins, etc.):	
13. >> Composition du cheptel (nombre de femelles par mâle)	10
14. >> Qualité des reproducteurs	10
15. >> Élimination des femelles non fertiles et des mâles non reproducteurs	10
16. >> Qualité des environnements (granges, étables, mares, etc.)	10
17. >> Registre relatif à la reproduction, aux maladies et aux traitements administrés	10
18. >> Réserves d'aliments suffisantes pour tous les animaux (marais, pâturages irrigués, foin et autres réserves)	10
19. Fumier, humus, compost et biol (engrais organique liquide) en quantité suffisante et de qualité	10
20. Entreposage des récoltes (toutes cultures)	10
21. Entreposage, qualité et variété des semences de toutes les espèces cultivées	10
22. Qualité de l'aménagement des vergers, des potagers et des jardins: fruits, légumes plantes médicinales et fleurs	10
23. Cueillette de semences de plantes de pâturage et semis; clôture et semis d'espèces de pâturage sur des terrains au repos	10
24. Plantation de jeunes arbres, cueillette de semences d'arbres et semis (arbres fruitiers, arbres à bois de construction et à bois de chauffe)	10
Infrastructure 20	
25. Amélioration de l'habitat • Foyer doté d'une cheminée efficace. Qualité du sol, des soupentes, de la toiture, de la literie, des meubles et du pavement et dispositifs contre les insectes.	10
26. Aménagement, ordre, hygiène et assainissement.	10
Score maximal total 260	

Le jury accordera des points supplémentaires si les fruits et légumes cultivés sont principalement d'origine locale.

Le prix PRAIRIES sera décerné à la communauté affichant la meilleure gestion des prairies. Le résultat de la gestion des prairies s'observe sur le terrain au vu des éléments suivants: qualité des pâturages, drainage et mise en valeur des marécages, présence d'une surface suffisante de pâturages verts irrigués (familiaux ou communaux) pendant la période sèche, remplacement d'arbustes par des arbres, délimitation des prés ou des *astanas* (secteurs de pâturage), utilisation disciplinée des pâturages, bergeries, abris, abreuvoirs et autres dispositifs pour le bétail, etc.

Des accords consignés sur des registres et l'exécution de ces accords font foi de l'organisation pastorale, des amendes et des sanctions prévues pour les contrevenants, entre autres dispositions organisationnelles.

Des **Prix PROMOTION DE LA SANTÉ** seront attribués aux participants du district ayant obtenu le plus de points dans les rubriques correspondantes mentionnées plus haut.

Prix du JURÉ: le juré qui obtiendra le score le plus élevé remportera un **Prix du Juré** (les jurés ne peuvent pas obtenir ce prix collectivement). Pour calculer le score pour le Prix du Juré, on additionne le score obtenu par la famille du juré et le score qu'il a obtenu au titre de l'appui à sa communauté (score maximal pour cet appui: 150).

Prix du CONSEIL COMMUNAL: le juré évaluera l'engagement du Conseil et les résultats obtenus au titre de l'amélioration de la communauté sous tous ses aspects.

Participation à un projet commun: plusieurs communautés peuvent décider d'entreprendre des activités ensemble, comme par exemple la construction de *tambos* (gîtes) le long des chemins, d'un foyer pour les enfants scolarisés en cycle secondaire à Paucartambo, la création d'une association de vente d'objets d'artisanat, etc.

Jury du concours entre familles

Au moment de son inscription, la communauté devra désigner deux jurés: un homme et une femme. L'ensemble des jurés des différentes communautés composent le Conseil des jurés.

Les jurés seront en contact avec les organisateurs du concours, ils participeront à des échanges, orienteront leur communauté et siégeront dans les jurys qui évalueront les familles, hormis dans leur propre communauté.

Le Conseil des jurés désigne les membres de chaque jury qui sera chargé de noter une communauté et les familles appartenant à cette communauté. Aucun membre du jury ne peut juger sa propre communauté ni des membres de sa famille.

Le Conseil des jurés peut inviter des observateurs à assister à l'évaluation et à apprécier ainsi le travail accompli. Aucune autre instance n'est habilitée à inviter des observateurs.

Le président du jury sera élu par le Conseil des jurés.

Attributions du jury

Le jury a pour tâche de noter les familles et les communautés, sur la base des critères et barèmes indiqués dans ce fascicule. Les décisions du jury ne peuvent être contestées ni être l'objet d'un quelconque litige.

Dans certains cas, le jury peut disqualifier une communauté. Par exemple:

- si elle ne réunit pas le nombre minimal de 15 familles en compétition;
- si elle ne remplit pas l'une des autres conditions décrites dans ce fascicule;
- autres motifs.

Une disqualification devra, pour être prononcée, réunir les deux tiers des voix du Conseil des jurés. Aucune autre instance n'est habilitée à disqualifier une communauté participante.

LES RÉSULTATS

Après avoir évalué les familles, le jury remettra les résultats aux Comité des jurés pour que celui-ci vérifie le score obtenu, immédiatement après la fin du processus d'évaluation. Les résultats seront prononcés et la liste des familles lauréates sera annoncée par voie de radiodiffusion. Un procès-verbal relatif à l'évaluation et aux résultats sera inscrit dans les registres correspondants de la communauté et du jury.

Le Conseil des jurés publiera la liste des communautés lauréates dans un délai maximal de quatre jours après la fin du processus d'évaluation et informera par écrit la municipalité ainsi que SERMANU et DEXCEL-Perú.

Remise des prix et clôture

La remise des prix et la clôture du concours entre familles auront lieu à l'occasion d'une cérémonie publique à l'endroit ou aux endroits désigné(s) par le Conseil des jurés.

Apprendre grâce aux meilleurs

L'école de la vie enseigne en infligeant des coups et vous conduit sur le chemin de la sagesse.
Vous serez vieux quand vous aurez enfin atteint la sagesse.

Il y a une autre école, qui consiste à «apprendre grâce aux meilleurs», en assimilant l'expérience de ceux qui ont pratiqué l'agriculture et l'élevage avant vous ou mieux que vous. Dans cette école, on peut apprendre en peu de temps et en prenant moins de coups.

LAQUELLE DE CES DEUX ÉCOLES PRÉFÉREZ-VOUS?



***Pachamama Raymi est un projet de la municipalité de Challabamba.
L'association «Aprender de los Mejores» DEXCEL-Perú exécute ce projet
pour le compte de l'association RUNAMAKI.***

La Pachamama, la terre nourricière, agréera votre respect, vos offrandes et vos efforts pour prendre soin d'elle. Elle vous apportera abondance et prospérité.

Oficina Proyecto Pachamama Raymi
DEXCEL-Perú
Pavitos 567 (interior), Cusco, Pérou
tél.: 084-236540
courriel: immerzeel@dexcel.org
www.dexcel.org

La Pachamama, la Madre Tierra, recibirá vuestro respeto,
ofrendas, y esfuerzos para cuidarla.
Ella le dará abundancia y prosperidad.

Oficina Proyecto Pachamama Raymi



Pavitos 567 (interior), Cusco
084-236540
e: immerzeel@dexcel.org
www.dexcel.org



Annex 4. Draft Scored Eligibility Criteria for Community Capacity Building Fund

Review Criteria for Training Requests			
N°	Description	Rules for scoring	Max %
A. Social			
1	Land Ownership	a) Percent of members who have land but less than 1 ha: less than 50% = not eligible; 50-74% =3; 75-100% =5 b) Percent of members who are landless: 10-49% =3; 50-100% =5	10
2	Gender	Female membership: no women members =0; 1-10% of the members are women =2; 11-30% of the members are women =4; 31-50% of the members are women =7; 50% or more of the members are women =10	10
3	Youth	Proportion of younger members, under 35 years: no youth members =0; 1-10% of the members are youths =2; 11-20% of the members are youths =4; 21-30% of the members are youths =6; 31-40% of the members are youths =8; more than 40% of the members are youths =10	10
Sub-total			30
B. Technical			
4	Known viability	The proposed subject matter of the training (technology, process) is existing and working successfully in the area, with groups of a similar capacity level as the requesting group.	20
Sub-total			20
C. Economic			
5	Returns	The proposed subject matter of the training (technology, process) can be expected to lead to significant increased financial returns for the members of the requesting group (increased yields/output, value added) within one year.	30
Sub-total			30
D. Organization			
6	Management	The group has well functioning leadership, as evidenced by structured group activities as follows: a) Regular meetings (at least monthly) =10 b) Effective rules and regulations (operating procedures) =10	20
Sub-total			20
Total			100

This is a model that aims to illustrate the principle of scored eligibility criteria. As part of preparatory activities during the first year of project implementation, this tool and its use should be discussed and modified as necessary.

REPUBLIC OF RWANDA

KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT

(KWAMP)

**PROGRAMME DESIGN DOCUMENT
FINAL DESIGN**

WORKING PAPER 3

SOIL AND WATER CONSERVATION AND CROP INTENSIFICATION

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ANNEXES

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EXECUTIVE SUMMARY

1. Rwanda is an extremely poor country, 90% of its population relying on agriculture for its livelihood. Subsistence farming is the dominant agricultural activity. The average farm size not exceeding 0.6 ha, on which farmers cultivate only food crops for self-consumption. Soil erosion, an irregular rainfall pattern, poor soils and eroded steep slopes have further aggravated the low productivity levels. Furthermore, the unreliable water supply, poor irrigation methods and lack of market opportunities have led to food insecurity and general poverty.

2. In Kirehe District, constraints faced by farmers include declining agricultural productivity, uncertain land tenure security, poor water management and irrigation, climatic change, weak support services and limited access to markets.

2. The present project has been formulated in response to the Government's strategy for improving soil fertility and productivity through adoption of sustainable soil and water conservation (SWC) programmes, and increasing the quality and quantity of watershed services, especially to face climatic changes that now threaten Rwanda as well. Thanks to these efforts, it is expected that farm productivity will increase, that people living in the watershed community will earn higher incomes and that market opportunities will open up.

3. To reach these objectives of the project, the overall strategy will be to adopt an effective participatory, community-based mechanism to implement and manage a watershed system. This will complement and support an integrated approach to sustainable SWC, improve soil fertility and increase agricultural productivity, which will result in market-oriented crop intensification and diversification. The adoption of a series of sustainable structural measures is planned to at least minimize or arrest soil erosion. Identification, development and replication of good practices, and implementation of appropriate sustainable vegetative conservation practices to increase both crop production and farmers' incomes; and the building up and strengthening of the capacity of poor farmers and their organizations in SWC planning, monitoring, evaluation and learning approaches, and in scaling up their development initiatives and potentials.

4. In implementing the above-mentioned strategy, a series of activities will be undertaken in the watershed community, specifically: (i) watershed planning and management, involving the development and implementation of an effective, decentralized and highly participatory watershed management system to ensure project success and sustainability; (ii) SWC structural development, to determine the volume of areas saved from erosion and number of farmers using the technology in project area farms; (iii) crop intensification, diversification and management: this will involve an assessment of the resource base, building up the capacity for training farmers to adopt SWC measures on their farms (planting hardy cultivars, tree planting, etc.); (iv) community-managed extension services: farmer organizations (FOs) will manage extension services that document farmers' best practices and SWC measures, and develop participatory tools for farm planning, implementation and monitoring; establishment of farmer-field schools (FFSs) to demonstrate best SWC practices; and a funding mechanism replenished by internal savings and a fund-mobilization scheme developed and implemented by FOs, with a clear operational framework and policy guidelines to use it for local needs.

5. A vitally important aspect of the project is the participatory planning, monitoring, evaluation and learning (PPMEL) approach, which will institutionalize such activities in every aspect of the project. The farmers will participate in each and every step, thereby continually increasing their knowledge of how the organization visualizes the future, planning and working to achieve it and continually learning from the changes occurring. In this way, new knowledge will be documented, analysed and reproduced for further learning in the vertical and horizontal level of the organization, through popular mediums of communication.

6. The project supported activities will be structured around the community. With the help of sector representatives and/or other service providers such as ROPARWA or an experienced NGO, FOs will develop a community development plan (CDP) based on individual farm and community

needs. The CDP will enable FOs to enter into contractual agreements with the project coordination unit (PCU) through sector- and district-level authorities. The project is expected to assist the updating process of the district plan and support system implemented by the sector authorities. PCU staff would work closely with district and sector officials. RADA and ISAR will provide technical expertise based on requests from district and sector officials and the PCU field unit. For additional technical expertise, which are not met by the two mentioned institutions, non-governmental organizations will be called in.

7. The expected project output will be to transform subsistence farming into a system of market-oriented, intensified and diversified farms using community-managed SWC measures, to increase the capacity of farmers to cope with predictable hazards and risks during abnormal weather conditions, especially since this region of Africa has been identified as being most vulnerable to climatic change, and ultimately to improve the quality of life of rural poor in the District of Kirehe.

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I. INTRODUCTION

1. This working paper, describes the situation of Rwanda's agricultural sector in general and in Kirehe District in particular and describes the integrated soil and water conservation (SWC) project. This document sets out the strategy and processes involved in: (a) watershed planning and management; (b) community-managed extension mechanisms; (c) SWC structural development; and (d) crop intensification, diversification and management. The activities, the strategy and the system of managing communications, knowledge and lessons learned from previous experience, as well as constraints/potential in the area, are also outlined in this paper.

II. GEOGRAPHICAL CONTEXT

2. **National context.** Rwanda is one of the poorest countries in Africa. Some 57% of the population of 9.5 million (2005) lives below the poverty line and 28% are considered food - insecure during some months of the year.

3. Agriculture is the backbone of Rwanda's economy, with almost 90% of the population dependent on the sector for its livelihood. Agriculture accounts for 36% of total gross domestic product. Farmers occupy average holdings of 0.6 ha or less, mostly on eroded slopes.

4. In many areas of Rwanda, farming is fraught with uncertainties owing to irregular rainfall patterns, poor soil and eroded steep slopes. With the limited resource base and growing pressure on the land, the challenge is to arrest soil erosion and render the land more productive thus enabling farmers to feed an average family size of six from their 0.6 ha farms. Soil productivity and management is of key importance.

5. **The District of Kirehe** is situated in the south-eastern part of the low eastern agro-ecological zone of Rwanda and covers a land surface of 1,266 km². The district is divided into 12 sectors (*imirenge*) — Gahara, Gatore, Rusumo, Kigina, Kirehe, Mahama, Mpanga, Musaza, Mushikiri, Nasho, Nyamugari and Nyarubuye — and includes 60 cells and 610 villages.

Kirehe District has a population of approximately 292,000 rural people, or 55,000 households of which women head 28%. Most of the population works in the agricultural sector, with 13% of all households being landless.

6. Most farmers practise subsistence agriculture. To satisfy their food needs, they cultivate crops such as bananas, beans, corn, cassava, sweet potato, sorghum, other vegetables, rice and fruit trees. Bananas account for 63% of all production recorded in 2005.
7. Agricultural productivity in the district is affected by climatic changes, particularly drought in the hills and floods in the marshes. Lack of agricultural inputs and insufficiency of manure from livestock further exacerbate the problem.
8. The district is affected by irregular rainfall patterns and a relatively high incidence of poverty and food insecurity. It comprises a number of different ecological zones where various technologies could be scaled up. Based on agro - ecological zoning by the Food and Agriculture Organization of the United Nations (FAO) and the agro-climatic zone map of Rwanda (on a scale of 1:250,000, indicating the elevation ranges, average annual rainfall and agro-climatic category), the district has two major agro - ecological zones: humid and sub-humid.
9. The humid agro - ecological zone is characterized by moist lowland (500-1500m) and moist mid-highland (1,500-2,300m), with average annual rainfalls varying from 900mm to 1,400mm and a growing period of 7-12 months. Soils are usually acidic and easily degraded in the absence of vegetative cover. Root and tree crops could be grown in these areas.
10. The sub-humid agro - ecological zone is characterized by dry lowland (500-1500m) and dry mid-highland (1500-2300m), with an average annual rainfall of 900mm and a growing period of 6-9 months. Nutrient absorption in these areas is less common and soil degradation is caused by erosion and loss of soil structure. A wide variety of food and forage crops, including maize, cassava, sorghum, leguminous forages, etc., grow easily in this area.
11. Given the agro - ecological characteristics of the area, with the presence of lake and river water resources and potential for productive investment in irrigation, the district is well geared to meet the challenges of agricultural development and intensification. Small and medium processing enterprises, with good potential for high-value crops and dairy production, are present in the area. Kirehe is a border district, with good potential for exports to Tanzania and Burundi.
12. The average altitude is 1,500m. Average temperatures are 20-24°C, rising to a maximum of 26-29°C. There are four seasons: small rainy season; small dry season; heavy rainy season; and the great dry season.
13. The small rainy season runs from September to mid-December, with estimated precipitations amounting to 27% of the annual rainfall, and is usually the growing period for beans, maize, potato, sorghum and many other crops. The small dry season runs from December to mid- February, when rain is very rare and beans, corn and sweet and Irish potatoes are harvested. The heavy rainy season runs from mid-February to end-May, with an estimated precipitation of 40% of the annual rainfall. The great dry season begins in June and ends in August. However, these seasons do not have regularity, as disturbances occur that contribute to considerably reduced agricultural production, especially in the basin area of Kirehe.
14. The Akagera River is the major source of water, but water is a major problem for the majority of the population living in the interior of the district. The people of Gatore often travel more than 10km in search of it, while in average 4km are needed.
15. Kirehe District's ecosystem has a remarkable diversity, and provides a habitat for different flora and fauna.
16. Since 90% of the population rely primarily on agriculture for their food needs on farms averaging 0.6 ha, mostly on eroded slopes, it is essential that soil erosion is arrested. There is also the need to render the land more productive to feed an average family of six. Increasing land productivity

requires that the capacity of farmers and their communities be strengthened in both technical and management aspects. There is also a need to improve market access and diversification.

17. Considering that the intensification of agriculture is a vehicle for economic development, it is imperative that SWC interventions be undertaken. That being the case, implementation of an integrated SWC project is a concrete response. This will be approached through a community - owned integrated watershed management system.

18. Justification for undertaking a participatory, community-owned and -managed integrated SWC project is to be found in the vital role played by farmers and community organizations in ensuring sustainability. The project will give priority to ensuring the active participation, empowerment and ownership of development interventions by farmers, community organizations and other stakeholders.

19. Over several decades, farmers and community organizations have developed many ‘best practices’ and innovations in farming and SWC as a result of past projects carried out by MINITERE, Ministry of Agriculture and Animal Resources (MINAGRI), Helpage, World Vision, German Agro-Action, and the Rwandan Institute of Agronomic Sciences (ISAR). These SWC best practices will be used as a tool for a community-managed extension system and documented into manuals to be used by farmers to train fellow farmers in SWC technology.

III. LESSONS LEARNED FROM PREVIOUS EXPERIENCES

20. The project will build on lessons learned from previous interventions in Rwanda. These include:

- Community ownership is the key to ensure the success and sustainability of projects. To prepare the communities and farmers for their role in project direction setting, implementation, monitoring and evaluation (M&E) and capacity-building is of vital importance.
- The pace, capability, perspective and culture of communities and organizations must be considered. Their response to development efforts will be more meaningful if they can relate to and see these efforts as truly relevant and responsive to their individual and community needs.
- Facilitators of change in the communities must acknowledge that while farmers are sophisticated resource managers, they need to be reoriented towards a decision-making process that is macro in perspective.
- Communities need to be made aware of the impact of erosion on their production levels and of the interrelatedness between the two.
- Farmers should be able to decide on options appropriate to their farms.
- Agreement on project objectives is essential among stakeholders and key players.
- Major capacity constraints at various levels will need to be carefully examined and addressed.
- Risk analysis and risk reduction measures should be given due importance to ensure project success and sustainability.
- There is growing acknowledgment of the watershed as a unit of planning in SWC to ensure optimum use and preservation of soil and water resources.
- Watershed management is important in terms of meeting global challenges. Prime soil resources are finite, non-renewable over the human timeframe, and prone to degradation through misuse and mismanagement. Rapid population growth accentuates stress on finite soil resources and increases the risk of soil and environmental degradation. Principal reasons for addressing the issue of sustainable management of soil and water resources in the

watershed context include: (a) decrease in per capita arable land area, (b) natural resource degradation, (c) desertification, (d) water scarcity, and (e) food insecurity and the greenhouse effect.

IV. CONSTRAINTS AND POTENTIALITIES IN TARGET AREAS

21. The shift to a community-led and -owned integrated SWC project is expected to bring about capacitating, sustainable and transformative development in Kirehe District.
22. The enabling environment in the district, including the support of officials, bodes well for implementing the planned interventions. The proposed project activities will also complement existing government initiatives.
23. The main constraints to project implementation are as follows:
 - 1) *Declining agricultural productivity.* Rapid population growth has led to land fragmentation; land scarcity prompts farmers to expand cultivation on marginal land, where erosion and loss of soil fertility reduce productivity levels.
 - 2) *Land tenure security.* A large percentage of households rent land because the land they own is insufficient to support the family or because they have no land at all. Land disputes are widespread and are seen as a major obstacle to sustainable peace.
 - 3) *Poor water management and irrigation.* Agriculture is mainly rainfed and therefore subject to irregular rainfall. Irrigation is mostly carried out on about 60,000 ha of reclaimed marshlands. Hillside irrigation is not yet practised.
 - 4) *Climate variability.* Farmers are greatly affected by climatic change, which has a serious impact on farmers' cropping patterns. Consequently, seeds are often consumed instead of being planted, thus leading to a lack of planting material.
 - 5) *Poor support services.* Extension services are available to less than 15% of rural households. The services lack resources, are not gender-sensitive or demand driven, and focus exclusively on agricultural techniques.
 - 6) *Poor access to markets.* Although Rwanda has a dense network of rural roads, many are in a bad state of repair.
 - 7) *Lack of community ownership of projects.* Individual farmers, organizations and communities need to be recognized as owners of the development initiatives undertaken in their localities. Their active participation and involvement in vision- and goal-setting, project implementation and M&E must be accorded high priority.

V. PROPOSED INTERVENTION

A. Rationale

24. The project aims to address, among other things, Kirehe District's over-reliance on subsistence farming, low crop yields and incomes, increasing pressure on available land, erratic rainfall patterns caused by climatic change, and greater environmental degradation (such as soil erosion and deforestation), as well as crop intensification and diversification, and access to market and credit.
25. This project will complement government strategies and Strategic Plan for the Transformation of Agriculture Programs aimed at agricultural diversification and intensification; diversification of household incomes; commercialization of agriculture and its integration into national and regional

economies; sustainable management of natural resources, particularly soil and water; capacity-building for producers and their organizations; capacity-building for the private sector; creating an enabling environment for agricultural transformation; creating an enabling environment for investment in agriculture; transforming the role of government (MINAGRI), in line with decentralization and promotion of the private sector; and addressing the issues of gender and vulnerability in an equitable manner. Specifically, the project aims to:

- i. promote participatory planning, identification and management of watershed areas in the target communities;
- ii. adopt SWC measures that will arrest environmental degradation and soil erosion, such as sustainable farming practices and planting of hardy cultivars;
- iii. develop community-managed extension services;
- iv. create market linkages through value-chain formation; and
- v. boost productivity and incomes, both of individual farmers and throughout the entire district.

26. To ensure community ownership of the project, as well as its continuity and sustainability, a PPMEL mechanism will be developed as a vital component of the project.

B. Strategy

27. The overall strategy will be to institute efficient, effective and participatory, community-based watershed management mechanisms. These mechanisms will complement and support an integrated approach to sustainable SWC and improve land fertility and production, thereby resulting in market-oriented crop intensification and diversification.

Support strategies are as follows:

- Implementation of physical works (sustainable structural measures) to minimize and/or arrest soil erosion, improve the soil fertility, increase the soil water-holding capacity, and inhibit surface run-off and land degradation
- Identification, development and promotion of best farming practices and implementation of appropriate, sustainable agriculture conservation practices to increase farmers' crop production and incomes under decreased rainfall conditions.
- Building up and strengthening the capacity of poor farmers and their organizations for SWC planning, M&E and learning approaches, and scaling up their development initiatives and potential.

C. Activities

Component I: Local Institutional Development

28. The development of local institutions pertains to providing support to decentralized structures, the development of community centres for seeking innovations, providing support to farmer institutions and watershed planning and management.

29. Local institutional development in the context of watershed planning and management emphasizes the significance of the participatory approach from the sector level. It necessitates strengthening capacity in the areas of development planning, implementation and M&E.

Watershed Planning and Management (part of subcomponent 1.2)

30. This subcomponent would aim at establishing an effective, decentralized watershed management system. The system would be built on a sound watershed management plan to be developed and implemented in a highly participatory manner to ensure success and sustainability of project activities. The watershed management approach would also set the framework for enhancing collective and coordinated actions from different horizons (farmers, government, NGOs, etc.) and promote equity in accessing natural resources and governance. The following activities would be carried out:

- *Establish a baseline scenario for watershed planning and management.* This would consist in an assessment of the biophysical and hydrological environment to define watershed management units and boundary delineation. It would be complemented by other surveys carried out under other components, including baseline surveys and participatory poverty mapping. The baseline scenario will also help to define the framework for organizing development activities involving land and water resources, and stakeholder participation.
- *Selection of watersheds.* Clear criteria to set priorities for watershed development would be defined through a stakeholder consultation process. At least five watersheds would be developed every year for a period of three years, until 610 communities and 40,000 households from the 12 sectors of Kirehe have been reached within a period of six years. Priority would be given to sectors with the highest levels of food insecurity.
- *Land tenure pilot action* to secure sustainable access to the refurbished watersheds for project target groups, mainly the landless and women. This ‘formal’ allocation should encourage the population to invest in agricultural intensification and natural resources conservation.
- *Development of watershed management plans.* Watershed management plans (WMP) for the selected watersheds would be formulated by the local communities based on a set of inputs related to defining biophysical, legal, institutional and socio-economic frameworks through a well documented participatory learning and consultation process (maps, photographs, proceedings, etc.). Workshops would be organized in order to share additional inputs and comments with stakeholders. These comments would be incorporated into the final draft submitted for approval by the CLGS and project management.
- *Watershed management institutionalization.* In each watershed, a committee would be set up to draft an agreement for the creation of a watershed management body in a democratic manner that ensures representation of vulnerable groups (women and young people) and of various sectors covered by the identified watershed community. The committees’ main functions would include coordinating and monitoring the implementation of the WMPs. Consultations would be organized with relevant stakeholders to agree on roles and the functions of the proposed instrument. An operations manual with a clear and defined structure, systems and procedures, would be developed.

31. The above-mentioned activities will be carried out in a participatory manner, with the support of the service provider hired to implement SWC activities; and under the supervision and with the facilitation of the project implementation unit. The project will also provide technical expertise in watershed planning and in Geographical Information Systems (GIS) by providing for 10.5 person-months of national technical assistance.

Component 2: Agricultural Intensification

Subcomponent 2.4 – Soil and Water Conservation

32. This subcomponent will focus on physical works, structural approaches and activities in SWC. This will involve determining the volume of cubic metres saved from erosion, numbers of farmers using the technology, and land areas covered by SWC practices in the watershed community.

Activities to be undertaken are as follows:

Assessment and criteria-setting for water conservation structural measures

33. Based on the watershed management plan, consultations will be held with farmers and other stakeholders with a view to identifying and assessing areas affected by soil erosion as well as other areas prone to it, and to developing criteria and prioritizing areas for the establishment of SWC structures within the watershed Development and implementation of SWC structural measures.

34. Once an area is identified for the SWC works, the designs and technologies needed — based on the biophysical, slopes, hydrological and soil erosion assessment — will be developed and used by farmers to select the SWC options appropriate to their individual needs.

35. Subsequently, the project would organise training seminars for the farmers on farm planning, risk assessment and SWC measures. The more progressive individual farmers will be encouraged to draw up their own farm maps, which will indicate existing farming practices, seasonal calendars, crop yields and income, and household labour distribution in relation to on- and off-farm activities. These maps will serve as baseline information for farmers. Based on the training and these maps, farmers will visualize the future state they would like to reach, and plan changes that would lead to higher yields and income, by arresting soil erosion and promoting conservation farming practices to improve soil fertility. Moreover, local monitors (relais villageois) would determine the number of actual adopters of SWC measures and the areas they cover to feed it back to the project M&E system.

36. Fieldwork will be conducted on the selected watersheds in accordance with the model adopted under the Support Project for the Strategic Plan for the Transformation of Agriculture (PAPSTA). The watershed plan will guide the soil protection work, to be carried out with World Food Programme (WFP) food-for-work resources, and the mobilization of local labour from the most needy members of the communities.

Protection of anti-erosion structures

37. Given the agro - ecological conditions obtaining in Kirehe, it is proposed to establish forage trees such as *Glyricidia*, *Calliandra*, *Crevelia*, *Acacia meanci* and *Leucaena diversifolia* along the trenches and other anti-erosion structures. Apart from *Glyricidia*, all the other plants can be bought easily in Rwanda. It will depend on the farmers' choice, which of the mentioned forage trees he will plant in his field. Therefore 50% of the plants to be produced will be *Glyricidia* and the remaining 50% a mix of the ones mentioned above. Therefore the costs for one produced tree ready to be transplanted are calculated as an average of 30 FRW.

38. One part of the plants would be produced through a network of nurseries associations similar to that established by PAPSTA. Based on the mission's findings, 11.250.000 agro-forestry plants (500 per farm) will be needed for 0,2 ha farm hedging per household and for protecting SWC structures in the area occupied by 22.500 households. According to the ongoing geographic inventory in Kirehe District, the area can be divided into three sub-zones. A) The gentle slopes towards the Akagera river. B) The north eastern relatively flat area where big watersheds are rare. C) The hilly central western part of the district. According to this different topography the distribution of the proposed tree nurseries is unequal. There will be a relative concentration of tree nurseries run by associations in the hilly central part, since there erosion pressure is the highest.

39. The size of the needed tree nurseries depends on various factors like the area to serve for being transplanted (inclusive the number of households, the inclination of the area), water availability and soil type to mention only the most important. Another practical factor is the transport of the ready to be planted tree seedlings to the final destination of planting. The bigger the tree nursery, the bigger normally the transport distance to the final planting spot. Practical experience has shown that there is a substantial loss of tree seedlings the longer the distance to be carried. Therefore it is suggested to run a mix of small - association based - tree nurseries with home based private tree nurseries. Distance between production and planting plot becomes shorter and individual farmers generally care better for their own plants.

40. A small tree nursery produces around 50.000 plants per year. A household tree nursery accommodates in average around 500 plants. If 80 % (9.000.000) of the 11.25 million plants needed is being produced by small nurseries of an average of 50.000 plants, there is a need to create 60 tree nurseries which will operate for three years.

41. The following table shows the phasing of the number of tree nurseries operating under the project.

	2009	2010	2011	2012	2013	Total
In 5 first watersheds	20	20	20			60
In 5 other watersheds		20	20	20		60
In 5 other watersheds			20	20	20	60
Total: 15 watersheds	20	40	60	40	20	180

In 2009 the first twenty tree nurseries would be created in the first five watersheds Where the project intervenes. Seven people of each tree nursery would receive a two day training on tree nursery management in this year. In 2010 another twenty new tree nurseries in five different watersheds would be created and seven members of each new tree nursery would receive a two day training. In this year (2010) the members of the thirty tree nurseries created in 2009 would receive a refresher training of one day. This activity would go on up to 2014, when the last lot of 40 tree nurseries would get their last refresher course of one day each.

42. The well proven PAPSTA approach would be copied, where tree nursery associations would get the seeds, the needed equipment and sufficient training through the project. The well established tree seedlings would be purchased by the project from the associations for an agreed price (presently 18 RWF) and given out to farmers, who have done soil conservation activities.

43. The remaining 20 percent (2.250.000) fodder tree plants would be produced by home based private tree nurseries. These farmers would get seeds after having attended training sessions for the putting up of a tree nursery. After successfully attending those trainings he would receive 500 seeds of different fodder trees free of charge by the project. Practical experience has shown, that banana leaves can replace plastic sacs for the seedlings on a small scale production level. The individual farmer interested in producing tree seedlings has normally equipment to care for his nursery. Therefore there is no need to equip him further.

44. The 2.250.000 trees would be produced in 4.500 home based tree nurseries, producing each 500 trees. Therefore 4.500 farmers have to be trained in groups of thirty people each. That would mean 150 training sessions have to be organised. It is suggested that the organisation of the training sessions follows the creation of the tree nursery associations. The newly established tree nurseries could be used to show the farmers how to organize a tree nursery. In 2009 each group would receive a two day training on tree nursery management. In 2010, the 2009 created group would get a one day refresher training and the 2010 established groups would begin with their two day training course and so on. This training activity would go on up to 2014, when the last lot of 16 one day refresher training sessions would take place.

The following table indicates the training sessions for farmers who establish a home based tree nursery

	2009	2010	2011	2012	2013	Total
In 5 first watersheds	17	17	16			50
In 5 other watersheds		17	17	16		50
In 5 other watersheds			17	17	16	50
Total: 15 watersheds	17	34	50	33	16	150

45. Those 4.500 farmers, who would create a home based tree nursery, would be trained by the already trained members of the tree nurseries. The project would be responsible for the organisation of those training sessions.

46. Four community cutting banks (parcs à bois) of *Glyricidia* of two ha each will be established in Kirehe district to make cuttings available to farmers on the long run. For this purpose, a supply contract with the association which is the owner of the 12 ha *Glyricidia* plantation (parc à bois) in the PAPSTA pilot zone in the Gahara and Gatore sectors will be signed. Here, 100.000 cuttings have been planted in December 2006 to January 2007 with an estimated 50% mortality rate due to drought. It is estimated that in 2009/2010 600.000 cuttings can be obtained from this plantation over 2 years. This will be enough to plant the 8 ha of four cutting banks of 2 ha each. The estimated costs are 100 FRW per cutting.

47. The tree nursery production activities would start around Mai/June with putting the seeds in the filled small plastic sacs. But these activities would be preceded by the construction of the physical structures, the organisation of seeds and equipment and training activities. In Oct/Nov the plants would then be ready to be transplanted to their final destination, to use the small rainy season to get established.

48. The ideal time to plant *Glyricidia* cuttings is August, right at the onset of the main rainy season to make sure that most cuttings survive. After two to three years the well established plants can be used for cuttings.

49. A contract with a service provider being specialized in soil and water conservation techniques, will be established to organize and supervise the above mentioned activities. (see cost break down in Table 1).

Support to farmers and establishment of a *Pennissetum* cuttings bank (*banque de boutures*)

50. Farmers implementing SWC measures will receive project support for on-farm densification of the hedging system by the planting of grass strips on the edges and crop separation lines, with *Glyricidia* and *Pennissetum* cuttings obtained through their participation in the cuttings banks and in agricultural intensification activities. An association will produce enough *Pennissetum* to cover the needs for protecting and stabilizing the edges of progressive terraces and to plant sufficient areas to produce the required quantity of forage to feed the improved cows to be introduced or obtained through artificial insemination. For this purpose, the project will contract an association for the establishment of 2 ha of *Pennissetum* in each of the 11 sectors. (Gatore is already covered by PAPSTA). The same system as for the agroforest trees would be put in place (provision of training, inputs, planting material and purchases of cuttings at RWF 5/cutting).

Training in farm planning and SWC technologies

51. The farmers in identified areas will attend training/seminars on farm planning and risk assessment, and on SWC techniques. To ensure that these processes are carried forward, the following activities will be carried out:

- (1) Identification and training of 300 farmer trainers (preferable the relais villageois) in SWC techniques during the life of the project. In 2009 one hundred farmers would be trained to

become farmer facilitators and will, in turn, train others in farm planning and risk assessment as well as in SWC technology. In 2010 another 100 farmers would be trained. Finally in 2011 other 100 farmers would receive training from the newly employed “chargé pour les ressources naturelles” at district level.

- (2) Through the farmer-to-farmer approach, the farmers thus trained will train fellow farmers to establish SWC structures such as progressive terracing, hedging, trash lines, trenches, contour bunds and conservation tillage, for a total of around 40,000 farmer households in Kirehe. Of these households, 47% cultivate less than 0.5 ha, only 2% own more than 1 ha and 7,000 are without land — the majority rent the land they work on. The SWC works and practices will cover around 25,000 ha within the planned six-year life of the project.
- (3) Participating farmers will be monitored by the community; the information collected will be used as an input for the CDP.

52. Physical infrastructure for SWC will be implemented using the successfully employed PAPSTA model, which is based on implementing the proposed physical works under community works with the involvement of sector authorities. WFP food-for-work resources will be used and support provided by a service provider responsible for all participatory activities connected with implementation of the watershed management and development plan.

53. Training activities will be carried out in conjunction with the establishment of a community-managed extension mechanism developed under subcomponent 2.2. Training will be provided through service providers and community centres for innovation (CCIs), using community capacity-building fund resources. The project will provide funding for didactic equipment and for the production of manuals and brochures.

Assessment of the resource base

54. In cooperation with the farmers, an assessment will be made of available (and appropriate) agriculture conservation practices for SWC and agricultural productivity. The practices thus identified will be included in a farmers’ resource book of farmers’ best practices on SWC and agricultural conservation practices will be produced and distributed. These books have to be illustrated with comments in the local language Kinyarwanda. Farmer-field schools will support training and demonstration activities.

55. The following are some of the agriculture conservation practices involved in SWC:

- Cover crops: this includes investigating the sequential and intercropping system and crop characteristics, e.g. maize and beans, and, in areas with coffee, black pepper.
- Improving organic matter by crop rotation, applying manure, using biomass for fertilizer and green manure from the hedges, mostly leguminous trees such as *Glyricidia sepium*, *Calliandra*, *Cassia*.
- Mulching from locally-available planting material.
- Grass barrier strips, such as *Pennissetum purpureum*, *Panicum maximum*.
- The above options will be presented to the farmers, who will decide which to use, incorporate them into their farm plans and apply them on their farms. On top of that locally developed agricultural conservation practices should be identified and, if need be, improved to be included as well in the farmer’s resource book. The end-view is that farmers should adapt conservation practices for crop intensification and diversification. This will be achieved through the farmer-to-farmer approach.

56. About 5,000 copies of the farmers’ resource book on farmers’ best practices in SWC and agriculture conservation will be reproduced and distributed to farmers to guide them in applying such

techniques on their farms and for disseminating the options of other farmers. The 40,000 households targeted under the project will have access to this information through CCIs, FOs, neighbouring farmers and the project office.

57. The contents of the manual will primarily originate from 40 farmers from different agronomic zones and identified as having best practices, through a series of workshops and documentation. It may also include technology appropriate to certain areas and slopes. Examples of such technology are given below:

- a. Vegetative measures. Cover crops — investigating the sequential and intercropping system and crop characteristics, practices on improving organic matter such as crop rotation, applying manure, green manure such as leguminous crops and trees, mulching, and planting grass barrier strips such as *Pennisetum purpureum*, *Panicum maximum*.
- b. Physical measures — bench terracing, trenches (*Fanya Juu*), trash lines, roadbeds and furrows, conservation tillage, zero or minimum tillage.
- c. Also included are guidelines for farm planning, including a cropping calendar and farm risk assessment to help farmers reduce the hazards associated with climatic change.

58. To accompany, supervise and correct the activities in the water and soil conservation component, an international consultant would be available for one month in each of the first three years of the projects' life.

59. One study tour is planned to a country with more experience in conservation agriculture for smallholders. This tour would be organised by the CPU of KWAMP. It is suggested that seven people participate: one district official, one person from service provider for SWC and the five most performing farmers in SWC.

Crop Intensification (part of subcomponent 2.2)

60. Irregular rainfall affects farmers' cropping patterns and yields. Seeds intended for planting are very often consumed during periods of food shortages. To avoid any shortage of planting material, varieties adapted to climatic change will need to be imported. There is also a wealth of experience available in Africa in developing SWC technologies and establishment of community-managed extension mechanisms. The latter are built-in among farmers organizations (FOs) to answer the needs of farmer beneficiaries. Through the FOs, extension programmes with clear policies and operational frameworks will be developed to ensure sustainability of the project once it has closed.

Improvement of planting material

61. Hardy genetic planting material such as roots and tubers that can adapt to climatic change will be identified, multiplied and distributed to vulnerable farmers. Cultivars resilient to water shortages are more in demand as they reduce the risk of poor harvests. Those cultivars are either already identified by some farmers and to be tested in other environments in the district, or to be brought in by RADA from the off-farm research trials. For this purpose, three on farm trials per year with hardy cultivars will be carried out – in each agro-ecological zone one. This will be closely supervised by RADA personnel on the ground according to a results-based service MOU with RADA.

62. A reference book produced following an inventory of hardy cultivars will feature desirable genetic plants and their agronomic characteristics as well as their socio-economic and nutritional importance. This inventory book, being developed with the assistance of a local NGO or consultant, will help farmers plan for planting desirable resilient crops. To make sure that this book is well understood by the farmers, it will be illustrated with comments in the local language Kinyarwanda. Furthermore, hardy genetic plant resources will be identified by farmers and presented at the community centre, where farmers discuss the promising features of planting material among themselves and exchange seed.

63. Seed and seedling exchanges, production and nurseries within and across farming communities will be promoted under the project, to meet the need for planting material to support hedging and tree planting.

Seed multiplication

64. To provide more opportunities for greater profits and better farm productivity/ techniques, seed improvement and multiplication is necessary to reduce/minimize the additional costs of farm inputs. In line with this, installing a seed management mechanism at the community level is considered vital because it will provide farmers with better access to a variety of inexpensive quality seeds and may lead to the production of sufficient improved seed to satisfy local community needs.

65. Twelve seed multiplication cooperatives will be created to multiply and sell higher yielding seed to farmers to help them increase their farm resource base. It is expected that each cooperative will cultivate about five hectare. After being explained the approach, those cooperatives will receive improved seeds and other needed inputs (e.g. fertilizer) on contract through RADA. After harvest, the full price, being the value of the seeds and the inputs, is paid back to RADA. The surplus of those improved seeds is sold to other farmers at a small premium. The cooperatives can use the same seed for multiplication for two years, since then the genetic superiority of the seeds is gone. In the third year they have to buy again from RADA, using partly the cash they made through the sale of the produced improved seeds to other farmers.

66. To supply the twelve seed multiplication cooperatives with seed and fertilizer, revolving funds will be made available to the cooperatives through RADA for about 5 ha of seed multiplication. These funds will be roughly USD 12.000, broken down in the following:

Maize seeds

50kg/ha x 400FRW/ha = 20.000FRW/ha
 20.000FRW x 5ha = 100.000FRW
 100.000FRW x 12 Cooperatives= 1.200.000FRW

Fertilizer:

NPK:
 200kg/ha x 290FRW/kg = 58.000FRW/ha
 58.000FRW/ha x 5ha = 290.000FRW
 290.000FRW x 12 Cooperatives.....= 3.480.000FRW

Urea Nitrogen

100kg/ha x 320FRW/kg = 32.000FRW/ha
 32.000FRW/ha x 5ha = 160.000FRW
 160.000FRW x 12 Cooperatives.....= 1.920.000 FRW

Total: 6.600.000 FRW = 12.000 \$US (1\$US = 550FRW)

67. Each year the cooperatives can buy other types of seeds, according the needs of the population. If in the first year they began with for example maize, then, going on another two years multiplying maize, they could buy beans in the second year, going on multiplying this seed another two years. Following this principle, those seed multiplication cooperatives play a vital role in responding to the farmers' needs for improved seeds of different type.

68. To make sure that the genetic purity in the multiplication is being guaranteed, which is the precondition for higher yields, RADA has to accompany the cooperatives technically very closely through six staff on the ground. In this respect the project signs a results-based service MOU with RADA, stipulating the tasks of those five additional staff (one is already on the ground paid by the

PAPSTA project), which will be paid by the project for the project life of seven years and then be integrated into the RADA structure. The coordination person (focal point) within the RADA structure will as well receive support from the project to carry out his tasks. For financial break down of this contract between RADA and the project (see table 2).

69. The first two years the project will directly arrange contract questions with RADA and assist the cooperatives to work out their contract arrangements with RADA. In the light of transferring more responsibility gradually to the District, it would be the in charge of co-operatives on District level being responsible for these arrangements starting from 2011. He would be then the one as well responsible to organize the inputs (seeds and fertilizer) for the cooperatives in time.

70. The careful choice of land for the seed multiplication cooperatives should be accompanied by the RADA technician to make sure that fertilizer demand is not too high, since it has to be paid back. Water supply is a critical issue. Therefore land with a good water retention should be preferred. Possibly land which had undergone some soil conservation activities could be preferred. Irrigation is only advised, if there is enough water for two harvests per year. And even then, economical calculations have to be carried out first to make sure no other crop is more profitable in the off season production. According to the “Water Harvesting and Hillside Irrigation Project (WHIP) results, the costs of irrigation are better justified for having a second harvest for perennial crops e.g. coffee.

71. The aim of these seed multiplication cooperatives is to provide a service for farmers through a profitable seed multiplication process. Therefore they need training in planning, management and internal organisation. Particular training and information is needed in financial aspects, linking them up as well to rural financial institutes. This will be the responsibility of the Technical Assistant and the local expert being made available through the German Development Service, DED (see Working Paper “Role of Farmers’ Organisations).

Development of participatory tools for PPME approach

72. Participatory tools for PPME approach will be developed to guide the community and stakeholders in undertaking project activities. These will set out step-by-step procedures for ease of understanding and adaptation, using local languages and indigenous knowledge to avoid confusion.

73. The PPME approach at the community level will be used to generate individual farm maps; produce CDPs describing the current situation and expectations for the future; and identify gaps and needs. It will be possible to access indicators of the success of interventions through the PAPSTA impact monitoring system and, more importantly, at the farmer level. Success stories relating to change will be reflected in updated farm maps.

Establishment of farmer-field schools to demonstrate best practices in SWC

74. Farmer-field schools will be the powerhouse of learning based on the identified life-relevant learning agenda for the agro-climatic zones involved. Climatic change is apparent, and its harsh, direct impact on farmers is already felt throughout the whole of Africa. In the context of SWC, the learning agenda on adaptive mechanisms to reduce impact on the farmers’ biophysical and socio-economic cultural environment is relevant and appropriate as a theme in the farmer-field schools and CCIs. Since farmer-field schools will be directly linked both to CCIs and to SWC activities, the project envisages setting up such schools in areas where CCIs are established. A number of these schools will be established in areas where application of SWC technology will be quickly disseminated through the CCI to other farmers in the watershed communities. This activity will be accompanied by a project contracted ISAR staff (see table for a results-based service MOU with ISAR). Some of the related capacity-building activities may be funded through the Community capacity-building fund.

Communication and knowledge management

75. Rwanda has a very low literacy rate (65.3% in 2005). In fact, ignorance has been cited as one of the three major causes of poverty. In response to this reality, one very important impact expected of the project will be to increase knowledge and empower project beneficiaries. Hence, communication and knowledge management is very important.

76. A vital part of the project in this regard is the PPMEL approach, which institutionalizes planning, monitoring, evaluation and learning in every aspect of the project. The beneficiaries participate in every step and thereby continually increase their knowledge of how the project works, learn from the changes occurring and contribute to its planning. Moreover, new knowledge is documented, analysed and reproduced for further vertical and horizontal learning, through popular and adequate mediums of communication.

77. This communication and knowledge will be systematically handled by the management information system (MIS), built into the network of different stakeholders and linked to PAPSTA and MINAGRI systems.

78. Through effective management of communications and knowledge, project partners and donor agencies will learn from best practices and about change to serve as new inputs in their future project interventions. Through this approach, learning deepens and widens, empowering every project actor and stakeholder. This leads to empowerment of the FO and ownership both of the process and the project itself, which surely will guarantee project success. (See Appendix 3 on PPMEL approach of the entire project.)

79. In carrying out the above-mentioned activities, the project will: (i) provide three months of international expertise to support project staff, RADA, ISAR and other service providers in the development of agriculture conservation techniques to be disseminated through farmer-field school sessions and direct training of trainers and study tours; (ii) finance purchases of planting material (seed); (iii) finance a results-based service MOU with RADA and ISAR for extension development activities, including seed multiplication cooperatives and the organization of farmer-field schools; (iv) establish a results-based service MOU with ISAR to carry out research and testing of planting material to and set up a revolving fund with RADA for multiplication of improved planting material by seed multiplication associations.

VI. EXPECTED OUTCOMES

80. The aim of the project is to improve the quality of life of rural poor in the project areas, and increase ability to cope with predictable hazards and risks during abnormal weather conditions. More specifically, local communities are expected to be empowered and their institutional and organizational capabilities enhanced.

A. Expected Changes

- ❖ Fifteen watershed communities managed; quality watersheds established. This will translate into the need for greater water harvests to sustain crop intensification and increase production on a larger-scale economy. Opportunities for market-based production of surplus crops and higher income for farmers will be guaranteed. Farmers' vulnerability to the disastrous effects of climatic change will be minimized.
- ❖ Exposure of farms to sweeping climatic change lessened. This will be achieved by transforming 25,000 ha of farmland into progressive terracing, by planting different trees, 11.25 million agroforest seedlings and 60,000 cuttings of elephant grass (*Pennisetum*).
- ❖ Adaptability of farmers to cope with climatic change increased through crop intensification, diversification and management. Multiplication of seeds of hardy cultivars undertaken in 12 areas and mixed seed distributed in 610 villages. Sound agricultural measures practised, such

as organic farming, afforestation, conservation of hardy cultivars, radical terracing, trenching, hedging, cover cropping and intercropping (e.g. maize-bean intercropping), mulching and hedging, crop development, and other SWC interventions within and beyond the six-year period of the project.

- ❖ Changes over time documented in accordance with the PPMEL approach. This will enable farmers to realize their ownership and control of the processes and, ultimately, of the project. Over time, the community will be empowered and will gain independence, self-reliance and sustainability.

B. Expected Benefits

- ❖ Setting up an appropriate body to manage watershed communities will increase the agricultural production of rural poor and result in increased incomes that may be used for investing in additional farm inputs, additional tools and equipment and lead to greater efficiency and productivity. The increased income may be also used for other entrepreneurial activities, such as livestock and poultry raising, small stores, farmer and community savings programmes, education and health.
- ❖ Every household will have an area for fuel wood and fodder for their farm animals.
- ❖ As a result of plant genetic resource conservation, availability of sustainable technology and increased farm production, both farmers and the entire community should be able to store more seed and food crops, thus increasing their capacity to withstand climatic shock.
- ❖ Sustainable SWC practices help to arrest soil erosion and, combined with soil fertility enhancement, may increase soil productivity, reduce pressure on forest cover (even providing an opportunity to expand it), sequester and reverse carbon emissions to the environment, and significantly contribute to reversing climatic change.
- ❖ Crop production will be intensified on individual farms thanks to availability of hardy cultivars and mixed seed to watershed communities. Farm production will be increased and both the farmers and the entire community will be able to store more seed and food crops, thus increasing their food security and capacity to withstand risks and hazards. Moreover, beneficial micro organisms, decomposers such as earthworms, and availability of natural plant food will be increased. Progressive terraces will minimize infestation and soil erosion. On the economic side, there should be a reduction in production costs, health hazards and risks to the environment.
- ❖ PPMEL approach should lead to increased knowledge, opportunities, efficiency, effectiveness, confidence and empowerment both of individuals and the community to finally manage watersheds and realize their ambition.

C. Impact, including the environment

- ❖ Adoption of sustainable SWC and farm practices in watershed communities will ensure increased soil fertility, sustainable water management, less pressure on forest cover, and even an opportunity to expand, sequester and reverse carbon emissions to the environment, thereby making a significant contribution to averting climatic change.
- ❖ Environmental awareness and availability of sustainable farming practices such as terracing and other structural measures will reduce soil erosion, land degradation, and siltation of rivers and lakes.
- ❖ Adopting organic agriculture practices, such as using animal manure, composting, alternative pest management, indigenous micro organisms, and rice intensification systems will greatly reduce water use, dependence on chemical fertilizer and pesticides, and thereby, among others things, contribute to reducing risks associated with climatic change, health hazards, and poisoning of the food chain.

- ❖ Creation of a watershed management body and strengthening of rural institutions, FOs and communities will ensure forest protection and rehabilitation, and contribute to arresting degradation of the general environment, especially with regard to factors affecting climatic change.

D. Risk Analysis

- ❖ According to an assessment (2007) undertaken by the Intergovernmental Panel on Climate Change, “Africa is one of the most vulnerable continents to climate change and climate variability, a situation aggravated by the interacting of ‘multiple stresses’, occurring at various levels, and low adoptive capacity.” In view of this, it is important to consider the following risks to project implementation:
 - ❖ In selecting the watershed areas to be developed, community acceptance and transparency must be assured. People need to understand the importance of the watershed and its contribution to development, both in the communities and within the country, and even to climatic change. In this way, socio-political conflicts may be eliminated.
 - ❖ Structural approaches in SWC must be given importance by technical people and the stakeholders to ensure safety from dangers such as land- and mud-slides. On the human side, displacement will be avoided.
 - ❖ Care should be taken to avoid selecting cultivars and other vegetative plants that may contribute to infestation and the spreading of plant disease.
 - ❖ The low literacy rate affects the understanding and conduct of PPMEL. Vital experiences and lessons acquired by the community with regard to previous calamities may not be extensively documented. These lessons may be of value in designing, planning and implementing risk-reduction measures such as food and seed storage, hazard zone identification and project management as a whole.

ANNEX I: Definition of a watershed

A watershed is defined as a delineated area with a well-defined topographic boundary and water outlet. It is a geographic region within which hydrological conditions are such that water becomes concentrated within a particular location, e.g. a river or a reservoir, by which the watershed is drained. Within the topographic boundary or water divide, a watershed comprises a complex of soils, landforms, vegetation and land uses. The terms watershed, catchments and basin are often used interchangeably.

Hydrologic processes (e.g. infiltration, runoff, seepage flow and evaporation-transpiration) within a watershed are interlinked and appropriately assessed within its confine. Being the basic hydrologic unit, water from outside cannot enter the watershed and that from within leaves it from a well-defined point; properties of the watershed determine the nature and rate of fluvial processes. A watershed may range in size from a few hundred square meters to millions of square kilometres. It may be simply one with a first-order stream, or a complex conglomerate comprising a network of drainage channels.

When the watershed is drained by a single stream and the underlying geological strata provide an impermeable base, measurements of water flow and dissolved and suspended loads in runoff provide an ideal condition to study the mass balance of water and nutrients under specific land-use conditions. Since fluvial processes are governed by watershed characteristics (e.g. slope gradient and length, vegetation cover, soil types and management), controlling erosion and minimizing risks of water pollution require an understanding of hydrologic processes at the watershed scale. Soil degradation, a physical process driven by socio-economic and political forces, recognizes only the natural water divide rather than social, ethical and political boundaries. Therefore, success and failure of erosion control and other processes depend, to a large extent, on whether or not control measures are implemented at a watershed scale or not.

The importance of watershed management to meet global challenge

The prime soil resources of the world are finite, non-renewable over the human timeframe, and prone to degradation through misuse and mismanagement. Rapid increase in global population, especially in several developing countries of Africa and Asia, accentuates stress on finite soil resources and exacerbates risks of soil and environmental degradation. Principal reasons for addressing the issue of sustainable management of soil and water resources in the watershed context include the following.

Decrease in per capita arable land area

Natural resources degradation

Desertification

Water scarcity

Food insecurity and the greenhouse effect

Source: p4, “Integrated Watershed Management in the Global Ecosystem”, Rattan Lal, 1999

ANNEX 2: References

- IFAD. Republic of Rwanda, Country Strategic Opportunities Programme, September 2007.
- IFAD, Inception Report on Irrigation, Soil and Water Management Project, September 2007.
- Republique du Rwanda, Province de l'est, District de Kirehe, Monographie du District de Kirehe, October 2007.
- FAO Corporate Document Repository: Soil-related constraints in major farming systems of agroecological zones of sub-Saharan Africa,
<http://www.fao.org/Wairdocs/ILRI/x5488E/x5488e05.htm>
- Integrated Watershed Management: Lessons from Three Ecological Zones of Rwanda, Institut des Sciences Agronomiques du Rwanda (ISAR), September 2007
- AIDE MÉMOIRE, Strengthening Implementation of the Rwanda Agriculture Strategy and Action Plan, September 2007
- Land Reform, Governance and the Environment: The Case of Rwanda. C. Huggins and H. Musahara, African Centre for Technology Studies (ACTS), 2004
- Land Use, Soils Loss and Sustainable Agriculture in Rwanda. D. Clay and L. Lewis, 1996
- Environmental Profile of Rwanda. Dr. F. Twagaramugu
- Sloping Agricultural Land Technology, <http://www.pcarrd.dost.gov.ph/cin/AFIN/salt.htm>
- Soil and Water Management, Zimbabwe Farmers Union (ZFU) and Department for Agricultural Technical and Extension Services (AGRITEX)
- FAO. Methods and Materials in Soil Conservation

REPUBLIC OF RWANDA

KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT

(KWAMP)

**PROGRAMME DESIGN DOCUMENT
FINAL DESIGN**

WORKING PAPER 4

LIVESTOCK DEVELOPMENT

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REPUBLIC OF RWANDA

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LIVESTOCK DEVELOPMENT

I. INTRODUCTION

1. The present working paper (WP 4) is a contribution to the design document of the Kirehe watersheds management project (KWAMP) in Rwanda to be funded by IFAD, as set out in the Country Strategic Opportunities Programme presented to the Executive Board in December 2007.

II. BACKGROUND

A. Key Government Policies towards the Agricultural Sector

2. Rwanda is one of the most densely populated countries in Africa, with 90% of the population dependent on agriculture for their livelihoods. Average rural population densities in the main agricultural areas are in the range of 300-600 persons/km². Farm sizes average only about 0.6 ha, often fragmented amongst several parcels; many households manage with less, with as little as 0.4 ha. Population pressure has encouraged people to move onto steeper slopes. Lands of 16-40% slope cover nearly 45% of the country.

3. Rwanda's current agricultural status and orientation for the future entails primarily the stepping up of activities to develop and promote intensive crop and livestock production systems. To that end, the Government has launched an agricultural development strategy - the Strategic Plan for Agricultural Transformation (PSTA) under the ongoing Economic Development and Poverty Reduction Strategy (EDPRS).

4. The EDPRS (2008-2012) constitutes Rwanda's medium-term economic development plan. The policy sets forth strategies and investments to be made to achieve development objectives; the agricultural sector has been defined as one of its priority sectors. Its aim is to increase economic growth and reduce poverty from the current level of 57% to 46%.

5. Four higher-level indicators have also been drawn up for the agricultural sector, to be realized during the EDPRS implementation period. These are:

- A 7% annual real rate of growth in agricultural gross domestic product (GDP);
- A 4% annual real growth rate in per capita agricultural GDP;
- A 20% decrease in the number of persons reporting agriculture as their main source of income; and
- A 50% reduction (i.e. to 16%) in the proportion of the population receiving less than the minimum food requirements.

6. The agricultural policy objective, targets and programmes of the EDPRS are fully aligned with the goals of the Comprehensive Africa Agricultural Development Programme and Vision 2020-Umurenge. More specifically, the EDPRS target for the sub-sector is to increase the rate of rural households with livestock from 71% in 2006 to 85% in 2012.

7. The PSTA was adopted in January 2005 to provide a comprehensive framework for operationalization of the NAP. It forms the framework for investment planning and budgeting in the agricultural sector both for the Government and, increasingly, for most development partners active in the sector. Regarding the livestock sub-sector, the PSTA target is to increase the number of households receiving cows from 3.500 in 2006-07 to 11.000 in 2008 and 95.000 in 2010. In March 2006, the Government launched a seven-year programme, presently co-financed by IFAD and DFID, to support implementation of the PSTA (PASTA).

8. The KWAMP and similar projects prepared for implementation of the PSTA will be used to ensure that the Government's programme of investment in agriculture is planned in a systematic and coordinated manner and in consistency with long-term national development objectives¹. The KWAMP is accommodative to, and is open for, formation of synergies with other government, private-sector, civil-society and development partners' initiatives and projects in the sector.

9. The attractiveness of the proposed project is to be found not only in its ability to combine agricultural innovations in increasing crop and livestock productivity by bringing all stakeholders together in an innovative platform, but also in its emphasis on sustainable NRM, efficient markets and institutional arrangements.

III. AN OVERVIEW OF LIVESTOCK PRODUCTION IN RWANDA

10. Cattle, goats, sheep, pigs, local chickens and rabbits greatly contribute to the socio-economic well-being of smallholder farmers in Rwanda. An ever-increasing proportion of rural households own livestock, with 71% recorded in 2005/06 – a significant increase from the 60% of households reported as owning livestock in 2000/01. Since then, there has been a noticeable increase in the proportion of households owning livestock – 43% now own goats, 25% own cattle and 33% have chickens.

11. There is a thin line between crop and livestock farmers in Rwanda. Both groups are often involved in either crop or livestock farming or in combination, implying interactions and forms of cooperation between the two sub-systems. More broadly, farmers in Rwanda frequently follow plural strategies and develop different farming activities in different locales in an integrated manner.

12. Integrated crop-livestock systems internalize environmental costs, making them less damaging and more beneficial to the natural resource base and to the farm economy. Therefore, the main challenge facing the Government is to optimise the benefits of integrating livestock and crops, and forage and tree browse at the farm level.

13. The 2005 livestock population in the country, as shown in Table 3, mainly comprised local breeds with low production potential. For example, improved breeds constitute only 14% (1% purebred dairy cattle and 13% cross-breed dairy cattle x local Ankole) of the total cattle population. Other livestock species (goats, pigs and the local chicken) are mostly composed of indigenous breeds.

¹ It stresses the fact that, "It is crucial that Rwanda's day-to-day macroeconomic policy maintain its focus on longer-term development".

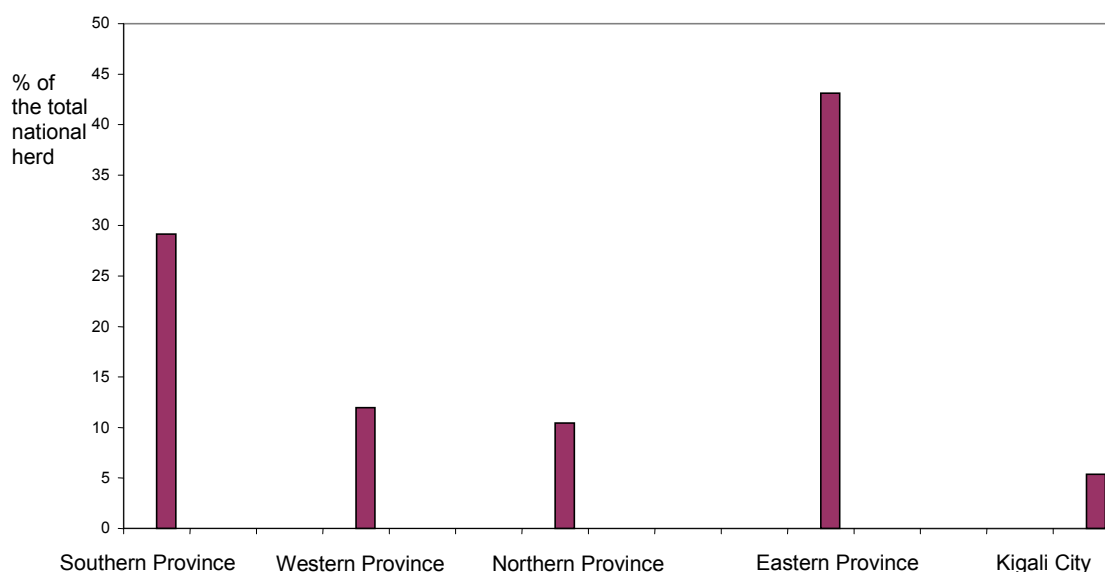
Table 1: Evolution of Rwanda's Livestock Population (2000-2005)

Type of livestock	YEAR					
	2000	2001	2002	2003	2004	2005
Cattle	755,123	814,124	960,450	991,697	1,006,572	1,079,206
Goats	756,502	916,753	919,785	1,270,903	1,263,962	1,266,355
Sheep	232,724	266,539	300,600	371,766	686,837	689,556
Pigs	177,220	197,081	207,783	211,918	326,652	456,041
Poultry	2,043,077	1,277,706	1,055,644	2,432,449	2,482,124	2,943,703
Rabbits	338,616	495,290	488,629	498,401	643,927	565,696

Source: The World Bank, 2006: Agriculture Sector Policy Note - Background Study 1.

14. The distribution of cattle in all provinces is also shown in Figure 2. In rural areas of Rwanda, as in many other countries, farmers with cattle are considered to be wealthy. As such, every farmer aims at owning a cow. The majority of cattle in Rwanda are kept in the traditional sector. However, unlike in conventional commercial cattle production systems (with high off-take rates), the traditional cattle system's goal is the production of milk, meat and manure for family use. Clan and society's upkeep and livestock off-takes are very low because of the social aspects of the production system.

Figure 2. Percentage distribution of cattle in Rwanda by province



15. Goats are kept by the majority of farmers in rural areas. In 2006, the goat population is estimated at 2,828,442, 98% of which are local breeds and 2% are improved breeds. Most of the goats are indigenous species kept mainly for meat production, mostly in the traditional sector.

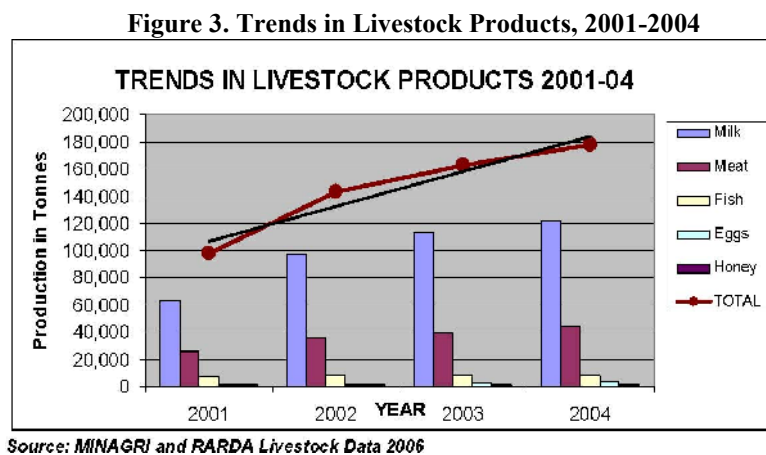
16. The goat, often known as the poor man's cow, has many advantages: it involves a low initial capital investment, is highly resistant to disease and is fed on grass and shrubs. Goats are found in each region of Rwanda, with the Eastern Province leading (about 30% of the total goat population in Rwanda).

17. The number of sheep was estimated at 810,469 in 2006. Of these, 44,246 (5.57%) are improved breeds. Sheep are located mainly in Northern Province, which boasts about 28.4% of the total number. In 2006, there were 476,149 pigs: Gisenyi had the most (77,169 pigs, or 16.2%) followed by Butare with 75,271 pigs or 15.8%. Rwanda has 517,237 rabbits and 1,921,709 chickens.

18. Most of the chickens kept in Rwanda are of indigenous type, with their inherent poor productivity and slow growth rates. They are usually managed under an extensive scavenging system of production and are resistant to disease.

19. Apart from their inherently low potential for meat and egg production, the productivity of local birds is seriously limited by frequent outbreaks of epidemic diseases, particularly Newcastle Disease (NCD). Available data for 2006 show that, over a period of six months, chickens produced a total of 12,785,962 eggs.

20. Recent trends in the production of different livestock products (milk, meat, fish and eggs) are as shown in Figure 3.



B. The Central Role of Livestock in Agricultural Intensification in Rwanda

21. To meet the increasing demand for livestock products (milk, meat and eggs) by the growing human population, Rwanda's agricultural policy advocates the adoption of the intensive livestock production system and practices for cattle, particularly dairy cattle, and for small ruminants, pigs and poultry.

22. As it embarks on the intensification of agriculture under PSTA, the Government's strategy is to improve the quality of different livestock species through importation of purebreds, cross-breeding using artificial insemination (AI) and natural methods where AI is not available, improved feeding management technologies and general management, as well as value addition through processing.

23. At the current level of agricultural productivity amidst a shrinking natural resource base, intensification of agricultural systems in Rwanda is inevitable. Success, therefore, demands a new development approach that combines the use of improved agricultural technologies (crop and livestock), skills development and the establishment of farmer institutions such as cooperatives and rural physical and financial infrastructures.

24. If the intensification programme is to succeed, comprehensive outreach programmes may be needed to link livestock keepers with the public and private sectors in order to facilitate the smooth transfer of necessary skills and technologies. It will also call for deliberate efforts and marketing incentives, including higher prices for livestock products, as a marketing strategy to encourage farmers to invest in modern livestock husbandry practices.

C. Constraints in the Livestock Subsector

25. Livestock production in Rwanda is beset by many problems, key of which are:

- Serious lack and inefficient use of all types of livestock feeds
- Lack of good-quality livestock types suited to conditions in Rwanda
- Lack of improved fodder and pasture seed
- Lack of land, especially grazing land
- Lack of veterinary, livestock breeding and extension delivery services
- Overgrazing and land degradation, especially in Eastern Province
- Poor planning, execution and delivery of farmer-oriented research
- Uncoordinated rural livestock development projects
- Poor farmer organization and livestock marketing

26. Major diseases affecting livestock production in Rwanda are FMD, east coast fever, mastitis, and contagious pleuro-pneumonia (CBPP). As a general rule, transboundary diseases do not pose a serious threat thanks to close collaboration between the Rwanda Animal Resources Development Authority (RARDA) and other regional institutions in neighbouring countries.

27. As far as Kirehe District concerned, the major diseases affecting livestock production and marketing include parasitic, respiratory and tick borne diseases, particularly theileriosis, CBPP, rift valley fever and trypanosomiasis. Most important poultry diseases include NCD and fowl pox.

28. The most important disease affecting pig production is east african swine fever. Small ruminant health problems emanate from CBPP, helminthes and foot rot for both sheep and goats. Unfortunately, the epidemiology and economic impact of most of these animal problems in Rwanda are not yet well understood.

29. Neonatal mortality, reproductive disorders and nutritional/micronutrient deficiencies are management diseases compounded by nutritional inadequacies and have the most important health impacts on the livestock of the poor.

30. Other constraints include poor rural infrastructure, energy deficits and lack of or poor enforcement of existing policies governing the use of important common-pool resources. Poor access to financial services further aggravates the situation.

D. Opportunities in the Livestock Subsector

31. Despite the aforementioned constraints, there is a strong potential for livestock development through a number of improved technologies and animal husbandry practices, especially in the areas of intensive and integrated crop-livestock management, improved research and extension services, farmer organization, financial and credit support to farmers and agro-enterprise development.

32. Opportunities to better understand how agricultural policies, institutional reorganization and market-led development interaction need to be exploited for improved rural agricultural production and productivity. This may be achieved by applying new approaches and partnerships beyond traditional development. Research and extension methods are also available but need to be harnessed.

E. The ‘One Cow to Every Poor Family’ Programme

33. For further growth and intensification through zero grazing in the dairy subsector, the project will complement the Government’s rural development activities under the ‘One Cow to Every Poor Family’ Programme, which involves distributing improved heifers to poor households that currently own no cattle. The Government, in partnership with NGOs, is running the programme. Partners include RARDA, NGOs (Heifer Project International (HPI), Send A Cow to Rwanda), the private sector, local government and other MINAGRI projects, e.g. the PADEBL and many others. The primary goal of the above programme is to increase household incomes and reduce malnutrition, particularly among children and other vulnerable groups.

34. Specific indicators for this subprogramme are that:

- 650,000, all poor, households are beneficiaries by the end 2016;
- increased milk consumption, from 18 litres/person/year to 30 litres/person/year by 2012; and
- reduced levels of child malnutrition, from 43% to 0% by end of 2016

35. Under the same programme, the genetic merit of dairy cows for milk production will be improved through application of modern reproductive technologies. The national AI service delivery will be strengthened for more efficiency and effectiveness so that by 2011 more than 50% of all dairy cows are bred artificially.

36. The AI field services have been decentralized; more inseminators are being trained or re-trained and deployed at the secteur level across the country. By the end of the project, the proportion of dairy cattle with high genetic potential for milk production will have risen from 14% to about 20%.

37. Other activities under this component involve improvement of livestock extension services and expansion of animal disease-control measures. The latter include delivery of vaccines and other veterinary services to raise the annual level of immunization against major endemic diseases such as FMD, tuberculosis, brucellosis, and black quarter from 18% to 80% and reduce the prevalence of tick-borne diseases among cattle from 80% to around 45%. At least 25 border disease-control posts and seven quarantine posts will be established and operational by 2011.

IV. LIVESTOCK PRODUCTION IN KIREHE DISTRICT

38. Under the mixed farming system of Kirehe District, crop-livestock integration offers a promising opportunity for intensifying agricultural production and for increasingly ecological integrity so as to have a positive impact on livelihoods and NRM. For example, crop residues from the ongoing maize intensification programme could be used as feed for cattle and small ruminants. At the same time, their manure could be used to fertilize the soil, thereby improving soil structure and water infiltration, substantially reducing soil erosion and ultimately raising crop productivity per unit of land.

39. Poverty rates differ within and among the 12 secteurs of Kirehe District, and estimates of poverty need to take account of livestock’s contribution to household incomes. In a recent study, cattle were ranked highest in terms of importance to the poor in the mixed agro-pastoral system of Eastern Province. Poultry, particularly local chickens, are the species most widely kept by the poor and also the most numerous from the household to national levels.

40. For a large number of resource-poor households in the district, livestock is therefore a major source of income and security. Livestock provides food and contributes directly to sustainable intensification of crop-livestock farming systems in the face of increasing population density. By

keeping livestock, crop farmers are able to add value to low-value surplus and waste food, use labour more efficiently, spread risks and add value to their assets.

41. There seems to be a great variance, however, between the livestock population data provided by the agronomist and that published in the Monographie du District de Kirehe of October 2007 (Table 4) and the District Development Plan. For the purpose of this project, the figures were adopted, as they were more up-to- date. However, they will have to be validated during the project design mission.

Table 4: Large and small livestock breeding in Kirehe District

Species	Cattle		Poultry	Rabbits	Goats	Sheep	Pigs
	local	improved					
Number of animals	36,056	981	56,176	13,32	39,725	2,070	1,891

Source : *Rapport de l'unité développement économique et promotion de l'emploi, 2007*

V. PROPOSED ACTIVITIES

A. Rationale

42. Integration of livestock and crops in the smallholder farming system has long-term tangible, indirect, non-monetary, environmental and social benefits. Direct benefits are in terms of farmyard manure from livestock (estimated at 2-3 tons per cow per annum), that allows for better yields and recycling of nutrients and thereby greatly reducing expenses for inorganic fertilizer. Direct benefits of integrating livestock into the existing farming system include regular incomes from sale of livestock and livestock products such as milk and eggs, compared with seasonal income under the mono-crop or mixed-crops-only systems. Consumption of livestock products (milk, meat and eggs) contributes to household nutrition and food security.

43. Integration of livestock into the mixed farming system of Kirehe District will be achieved by adoption of innovative 'business un-usual' approaches that explicitly rely on and emphasize the intensification of crops and livestock and use of appropriate agricultural technologies and practices. Adoption of improved livestock technologies will be supported by the development of efficient and improved market systems that are easily accessible to farmers, and diversification of farm enterprises without compromising nutrition and food security in the rural areas.

44. The attractiveness of the proposed 'business un-usual' approach of KWAMP to agricultural development is to be found not only in its ability to combine improved livestock technologies and livestock husbandry practices, and the involvement of farmers and other stakeholders in innovation platforms, but also in its emphasis on aspects of good resource management, functioning markets and supportive policies.

B. Objectives

45. The broad objective of the proposed activities is to enhance productivity of the mixed farming production system of Kirehe District through introduction of improved animals into the integrated crop-livestock-natural resource management production system.

C. Expected Outputs

46. The project outputs will contribute directly to achieving the MDGs targets by 2015 and those of Vision 2020-Umurenge. Specific outputs from the livestock subcomponent are expected (Annex 1)

1. Livestock improvement

- The number of households receiving crossbred cows via the solidarity chain system will increase up to 2,422 by the end of the project.
- Provision of improved Ankole bulls will enhance the productivity (growth rate, etc.) of local cattle, which are smaller in stature.
- The chances of survival of the local breed of cattle will be strengthened, thus contributing to the preservation of Ankole cattle, recently declared as an endangered breed by FAO.
- The genetic potential of indigenous animals for meat and milk production will be enhanced through cross-breeding, using the semen of suitable breeds.

2. Natural resource management

- 2 000 households will have access to household biogas fermenters producing renewable gas for home cooking of lighting as well as quality fertiliser in the form of improved manure.

3. Capacity building for farmers.

- Farmer's capacities will be enhanced through participatory approaches, training sessions, study tours, and public investments in marketing infrastructures (cattle markets, milk collection and processing, abattoirs, etc.).

47. The activities will also contribute to achieving the following developmental impacts:

- Increased resource productivity, i.e. return to the land, water, labour, capital and tropical livestock units.
- Increased diversification of agricultural and other natural resource-based enterprises, income generating activities.
- Improved quality of technical support services to farmers, including environmental ones.
- Behavioural changes among actors along the different livestock value chains that empower farmers and their organizations, input suppliers, private sector, research organizations, policy-makers, extension service providers and consumers to play their roles effectively.

VI. BENEFICIARIES

48. The primary beneficiaries of the proposed project will be small-scale farmers (men and women) in the mixed farming system in Kirehe District.

49. Secondary beneficiaries will be local and central governments (increased tax base), milk haulers, milk processors, retailers and consumers.

50. The overall impact of the proposed project will be positive in economic, social and environmental aspects, especially to the most vulnerable community groups such as women, children, the infirm, including those affected by HIV/AIDS, and the elderly.

VII. ACTIVITY STRATEGY

51. The activity will be based on the integration of livestock into the existing farming system in Kirehe District by improving the quality of different livestock species, according to farmers land capacities and using a participatory approach such as the solidarity chain system for household restocking². Due to the lack of grazing land in Kirehe District, as in the rest of Rwanda, ruminant animal productivity can only be increased through (i) modernization and intensification, by integrating improved cattle, small ruminants and pigs into the existing crop-farming systems; (ii) using the abundant crop residues, particularly rice straw, maize stover and bean chaff, as animal feed; and (iii) inclusion of high-quality forages trees, leguminous and legumes in ruminant rations.

52. Value- addition through processing of animal products would be supported separately through the value chain development sub-component.

VIII. ACTIVITIES STRUCTURE AND ENTRY POINT

53. The livestock activities consist of: (i) livestock improvement; and (ii) biogas introduction. On-farm participatory livestock development activities will be initiated by carrying out surveys using participatory techniques with groups of farmers, including focus groups disaggregated by gender, age and wealth. The data obtained will be used to identify farmers' constraints, needs, perceptions and preferences for integrated productivity-enhancing packages.

54. Special attention will be paid to the indigenous knowledge of men and women on all aspects of livestock management, breeding and natural pasture species found in the project area. Data obtained will be used to modify and improve the design of planned project activities

A. Livestock Improvement

55. Genetic improvement is key to increasing productivity per animal It is proposed that 1,000 head of improved pregnant dairy heifers will be purchased for distribution to eligible poor farmers using the heifer solidarity chain system. The same criteria used under the PAPSTA will be applied. Eligible farmers should have a minimum of 0.5 ha of land, of which 0.2 ha should be reserved for forage production. The farmers should contribute to the construction of cowsheds. Women-headed households will be given priority. The exact number of livestock needed for distribution to selected farmers will be determined during the design mission. The figures given in Table 5 exclude male progeny.

56. Local animal breeds have desirable adaptive traits such as resistance to disease and harsh environments. Kirehe District has a large number of local cattle, goats, pigs and other livestock species. Indigenous livestock breeds, particularly the Ankole breed, should be protected against extinction in the near future due to the unprecedented speed for modernization of livestock through cross-breeding with exotic bloodlines.

57. For this reason, 200 Ankole bulls will be made available to farmers via the solidarity chain system. Farmers eligible under this scheme are not eligible to cross bred cattle, due to their lack of land. They will receive manure to fertilize their fields, and will fatten up their animals and sell them on the local market for beef as part of the beef cattle intensification programme.

58. Genetic improvement for small ruminants will be achieved by importing and distributing 200 Boer bucks and 200 improved boars. In addition, 2 000 local she-goats and 1 000 female local pigs

² The solidarity chain system has been successfully tested in Rwanda under PAPSTA and other projects.

will be purchased and distributed to the beneficiaries using the solidarity chain system. The same criteria used under the PAPSTA will be applied.

59. Table 5 shows the projected number of livestock by species from Project Year 2 of the project up to Project Year 6.

Table 5. Projected number of livestock up to the end of the project

Species	Type	2009	2010	2011	2012	2013	2014	2015	Total
In calf heifers (cross-breeds)	project-purchased	-	250	250	250	250	-	-	1 000
	passed-on	-		113	113	169	276	300	969
	Total	-	250	363	363	419	276	300	1 969
Goats (local females)	project-purchased	-	500	500	500	500	-	-	2 000
	passed-on	-		333	600	1000	1400	1800	5 133
	Total	-	500	833	1 100	1 500	1 400	1 800	7 133
Pigs (females)	project-purchased	-	250	250	250	250	-	-	1 000
	passed-on	-		167	300	550	750	900	2 667
	Total	-	250	417	550	800	750	900	3 667

Assumed technical coefficients

1. Calving interval – 1.5 years
2. Kidding interval – 1 year
3. Farrowing interval – 114 days
4. Weaners per sow – 6
5. Mortality rate – 10% for all species

60. The activity would be contracted out by the PCU to an experienced service provider in PY2 when the first farmers with improved fodder would be ready to fulfil the eligibility criteria. The service provider would be required to base animal husbandry and veterinary experts in Kirehe district for the period of the contract in order to provide the necessary training to the client farmers, who would form livestock production groups for easier access to technical advice, veterinary inputs, and markets. service providers with marketing experience of livestock products, that would be in a position to also assist the client households in accessing related value chain development support from the project, would be given a preference in the contracting procedure.

B. Biogas introduction

61. Based on the biogas experience in Rwanda with collective installations in institutions such as schools, and the many zero-grazing animals that would be held by smallholder farmers next to their homesteads, the project would pilot the introduction of household biogas fermenters. These would allow the households to link agricultural and livestock production through improved fertiliser, with side benefits of sustainable cooking and lighting energy and the liberation of women's working time.

62. Using experience and expertise from West Guangxi Province in China, some 2 000 low-cost household biogas plants would be promoted through partial subsidies. For sustainability and reduced costs, locally masoned units dimensioned for the dung produced by 1 cow or about 5 goats would be promoted. These would be expected to produce enough biogas to prepare 1 meal per day or to provide lighting in the evening. Each unit would cost about USD 250 base costs, including simple lighting equipment. The units would be erected by local masons trained by master masons, with the client household providing unskilled assistance. Some 50% of the monetary costs would be provided by the client household in cash, the other 50% would be the subsidy by the project.

63. The activity would be implemented through a biogas service provider with low-cost household biogas experience and preferably links to Southern China biogas experts. The service provider would be contracted by the PCU on a performance-based contract. The activity would start with a biogas design study in PY3, that would look into the experience gained thus far by the upcoming National Programme on Domestic Biogas in Rwanda to be implemented by SNV and GTZ, as well as other relevant experiences in the country and the region. If required, the study would then adapt the West Guangxi fermenter model to Rwandan conditions and test it under real conditions in Kirehe District.

64. In PY4, when a sizable number of households have acquired zero-grazing animals through the project, the service provider would promote awareness of the household biogas technology amongst livestock farmers in Kirehe District, including the financing modalities, and start training sufficient numbers of local masons in the construction of the fermenters. Using the trained masons, the service provider would then construct about 2 000 fermenters for interested client households. These masons would be available in the district after project completion to build additional fermenters and repair existing ones. The clients would also be trained by the service provider in the use of the fermenters and the biogas, and regular follow-up visits would ensure that problems get solved and that the clients get comfortable with the new routines.

65. In PY6, the PCU would contract an independent impact study to assess the progress of the activities, the impact on the clients' agriculture and livestock production systems, changes to their workload and the clients' use of the biogas. It would also look at the upscaling potential of the activities.

IX. MONITORING AND EVALUATION

X. Monitoring and evaluation, that is, the continuum of observation, supervision, information gathering, documentation, critical analysis, recommendation and assessment to the aim of managing for impact, will be inbuilt and form an important integral part of these activities. Specific indicators (including RIMS ones) are presented in Working Paper 13.

REPUBLIC OF RWANDA

KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT

(KWAMP)

**PROGRAMME DESIGN DOCUMENT
FINAL DESIGN**

WORKING PAPER 5

AGRICULTURE AND AGRICULTURAL WATER DEVELOPMENT

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CURRENCY EQUIVALENTS

Currency	= Rwandan Franc (RWF)
USD 1	= RWF 545 (April 2008)

ACRONYMS AND ABBREVIATIONS

AfDB	African Development Bank
DFID	Department for International Development (United Kingdom)
EDPRS	Economic Development and Poverty Reduction Strategy
EIA	Environmental Impact Assessment
EICV	Enquête Intégrale sur les Conditions de Vie des Ménages au Rwanda (In-depth survey of the living conditions of households in Rwanda)
FAO	Food and Agriculture Organization of the United Nations
FAOSTAT	FAO agricultural statistical database
GDP	Gross Domestic Product
ICRAF	World Agroforestry Centre
IFPRI	International Food Policy Research Institute
INADES	Institut National Africain pour le Développement Economique et Social (African Institute for Economic and Social Development)
ISAR	Institut des Sciences Agronomique du Rwanda (Rwanda Institute of Agriculture and Scientific Research)
KWAMP	Kirehe Community-based Watershed Management Project
M&E	Monitoring and Evaluation
MINAGRI	Ministry of Agriculture and Animal Resources
NAP	National Agricultural Policy
NBI	Nile Basin Initiative
NGO	non-governmental organization
O&M	operation and maintenance
PAPSTA	Project for Support to the Strategic Plan for the Transformation of Agriculture
PRSP	Poverty Reduction Strategy Paper
RADA	Rwanda Agricultural Development Agency
ROPARWA	Network of Farmers' Organizations of Rwanda
RSSP	Rural Sector Support Programme
UCORIRWA	Union des Coopératives Rizicoles du Rwanda (Union of Rice Producer's Cooperatives of Rwanda)
WHIP	Water Harvesting and Irrigation Project
WUA	water user association

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AGRICULTURE AND AGRICULTURAL WATER DEVELOPMENT

I. INTRODUCTION

1. Rwanda is one of the poorest countries in the world, with per capita income of only USD 245 per annum. More than half (52%) of all Rwandans live in extreme poverty, as measured by the international standard of USD 1 per day in income, and more than three out of every four people live on less than USD 2 per day. At least 60% live below the national poverty datum¹. Poverty in Rwanda is concentrated in the rural areas and is strongly associated with working in agriculture, whether on one's own farm or as a hired agricultural labourer.

2. This working paper briefly describes the agriculture sector in Rwanda² as a background to the agricultural water and irrigation sub-sector. It then describes the latter sub-sector in terms of its institutional framework, water resources, development to date and the potential for further development, referring as appropriate to relevant recent technical studies on the subject. The paper goes on to describe the project area and options for agricultural water development (especially irrigation), before continuing with a description of the rationale, objectives, design considerations, activities, estimated costs, implementation arrangements and expected results for the interventions proposed. Lists of documents consulted and persons met are in Appendices 1 and 2, respectively.

II. THE AGRICULTURE SECTOR

A. Agriculture in the Economy

3. In Rwanda, agriculture is the most important sector in terms of contribution to gross domestic product (GDP), employment and foreign exchange earnings. Its contribution to growth is even larger when multiplier effects are taken into account. Agriculture also contributes significantly to national food self-sufficiency: over 90% of all food consumed in the country is produced domestically.

4. The agriculture sector currently accounts for about 42% of GDP in real terms. However, this is likely to be an underestimate because it is difficult to measure the large amount of food that is

¹ The *Enquête Intégrale sur les Conditions de Vie des Ménages au Rwanda* (EICV) uses two consumption poverty measures, based on estimated minimum requirements (taken as 2 500 Kcal per adult equivalent per day): (a) a food poverty line RWF 45 000 (USD 81) per adult equivalent per year and (ii) an overall poverty line of RWF 64 000 (USD 116) per adult equivalent per year. Both were based on January 2001 prices. The food poverty line was estimated on the basis of the cost of a basket of foods that satisfied reasonable calorie and protein requirements and reflected the average consumption pattern of the poorest 60% of the population. The overall poverty line was obtained by adding an allowance for non-food requirements, estimated on the basis of the average proportion of household budget devoted to non-food items by persons whose food expenditure was around the food policy line.

² For this purpose the paper draws heavily on: *Promoting Pro-Poor Agricultural Growth in Rwanda: Challenges and Opportunities*. World Bank. 2007.

produced and consumed at home. In recent years, the sectoral share of agriculture in the national economy has fluctuated around a modest upward trend although climatic fluctuations have caused considerable year-to-year variability around this trend.

5. In 2005, approximately 90% of the economically active population was employed in agriculture. Despite government efforts to encourage migration of labour out of agriculture to relieve pressure on the country's severely constrained land resources, agriculture remains the main source of employment.

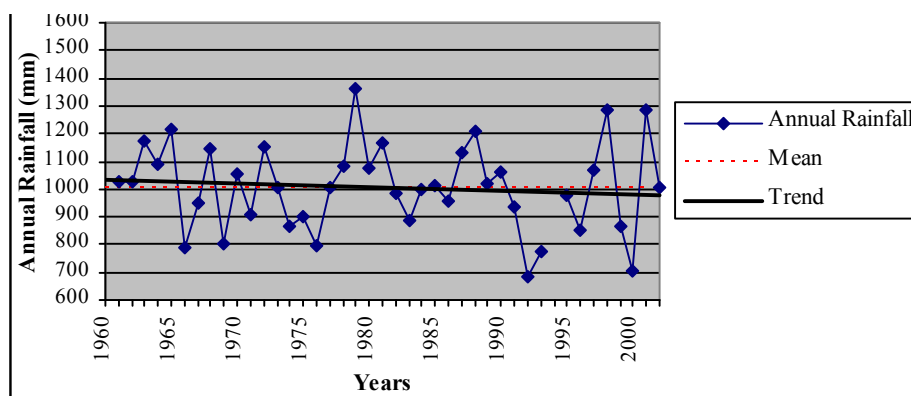
B. Climate, Climate Change and Agroecological Zones

6. Rwanda's climate is strongly influenced by altitude. Although MINAGRI has defined 12 agroclimatic zones¹ these may be considered as falling within three major altitudinal regions, namely, (a) the lowlands of the east and south-east, where altitude varies from 1 000 m to 1 500 m; (b) the middle altitudes of the central plateau, which vary from 1 500 m to 2 000 m; and (c) the highlands of the west, which rise to more than 4 500 m (Map 1). Mean annual precipitation is highest in the west of the country, amounting to more than 1 600 mm in some places, and progressively decreases to 800-900 mm in the lower altitudes of the east (Map 2). Conversely, mean annual temperatures are lowest in the west and increase to more than 21°C in the east (Map 3).

7. Most of the country enjoys two rainy seasons a year, generally from February to May and from mid-September to December/January. According to the Agro-Ecological Zones mapping system² of the Food and Agriculture Organization of the United Nations (FAO), most of the country falls within the moist sub-humid agroecological zone. However, the scale of the mapping used by FAO is very small and masks the relative dryness of the east and southeast.

8. It is widely believed that climate change is causing increased rainfall variability, a reduced growing period and consequent disruption of agricultural production activities, although there are few data to support this perception. Before 1994, Rwanda was covered by a network of 195 rain gauge stations, but today, with exception of six, all stations together with historical data have disappeared. However, the availability of data for Kigali airport suggests that this might have been an unnecessarily bleak assessment and that it could be worth searching for other data.³ Long-term (1961-1993 and 1995-2002) data for Kigali airport, which is situated on the border of the lowlands and middle altitudes of the country, indicate a slight downward trend in annual rainfall and slightly increasing rainfall variability – which would no doubt increase towards the lower rainfall in the lowlands of the east (Appendix 3). However, to make any assessment of how this phenomenon is affecting cropping and yields would require analysis of daily rainfalls, which is beyond the scope of this paper.

Figure 1: Annual Rainfall at Kigali Airport, 1961-1993 and 1995-2002



Source: Mission, using data provided by MINAGRI

¹ These are based on the classification proposed by Verdoot, A and van Ranst, E. 2003. *A large-scale land suitability classification for Rwanda*. University of Ghent.

² See: <http://www.fao.org/farmingsystems/FarmingMaps/SSA/02/LG/index.html>

³ Ebony Enterprises, 2007

C. Land Resources and Land Use

9. Compared with many countries in sub-Saharan Africa, Rwanda's natural resource endowments are highly favourable for agriculture. The temperate climate, relatively plentiful, bi-modally distributed rainfall, and predominantly fertile volcanic soils make for high agricultural potential. On the other hand, the generally hilly terrain poses a challenge (Map 4).

10. Rwanda's population density – approximately 355 inhabitants per km² – is the highest in Africa and one of the highest in the world¹. According to FAO, approximately 1.94 million ha of the country's 2.47 million ha of total land area are currently used for agricultural purposes. Of this, 1.47 million ha are planted to annual or perennial crops, the remainder being taken up by forests, national parks, pastures and urban areas². The availability of agricultural land has declined over time as the population has grown (at 4.4% per annum between 1994 and 2004) and the land frontier has remained static. The average landholding now amounts to about 0.4 ha per rural household, with 40% of rural households holding less than 0.3 ha (the International Food Policy Research Institute (IFRPI) using EICV³ data, 2006, cited in World Bank 2007). Most agricultural land is held by individuals under a customary tenure system, the exception being marshland – which is vested in the State and administered by the newly decentralized district authorities.

11. When well managed, Rwanda's soils have good humus content and high fertility. However, few of them are currently so managed: deforestation, overgrazing and intensive cultivation, often on extremely steep slopes, have led to serious soil erosion throughout the country, and it is estimated that 39-51% of agricultural land is already moderately or severely degraded⁴.

D. Farming Systems, Cropping Patterns and Productivity

12. Rwanda's agriculture is dominated by small-scale, subsistence oriented family farming units and approximately 1.4 million rural households depend on agriculture as their main source of livelihood. Crops are usually produced under dryland farming conditions using mostly family labour and few or no purchased inputs (improved seed, fertilizer and crop protection chemicals). The use of machinery or even draught animals is very limited. Approximately 60% of households also keep animals for milk, eggs and meat. These animals are mostly local breeds and are raised using traditional low-input extensive grazing methods – although in the case of cattle, the dwindling availability of pasture land is causing a shift to zero-grazing with cut fodder supplemented by grain and/or roots and tubers.

13. There are two distinct agricultural seasons: the main Season 'A', which corresponds with the main rainy season from February to May; and Season 'B', which corresponds with the short rains from mid-September to December/January. The dry season from June to August is often referred to as Season 'C' and is generally considered as the off season, although some households with access to water (mainly in the marshlands) use this period to grow vegetables, and there is always some farm activity to prepare for the coming Season 'B'. Food crops dominate the area planted: in 2005, roots and tubers accounted for the largest share of total cropped area (26%), followed by bananas (22%), cereals (21%), pulses (21%), fruits and vegetables (5%) and oilseeds (3%). Traditional export crops accounted for only 3% of total cropped area, including coffee (2%), tea (1%) and pyrethrum (<1%) (Figure 1). The average cropping intensity for annual crops was 194%. Using the classification proposed by Dixon et al⁵, the farming system could best be described as highland perennial to root crop.

¹ The population density of India, for example, is only marginally higher at 358 people/km². That for sub-Saharan Africa as a whole is 30 people/km² (FAOSTAT data 2000-2003).

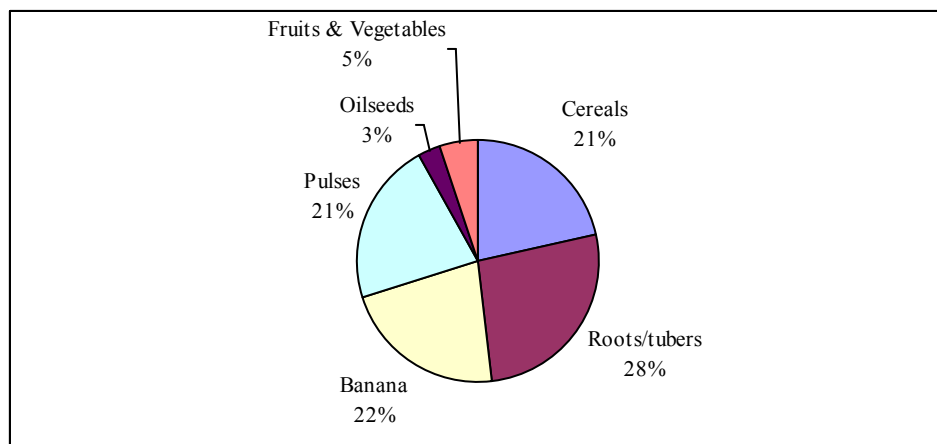
² FAOSTAT

³ *Enquête Intégrale sur les Conditions de Vie des Ménages au Rwanda*

⁴ Government of Rwanda and FAOSTAT data cited by World Bank 2007.

⁵ Dixon, J & Gulliver, A with Gibbon, D. 2001. *Farming Systems and Poverty*. FAO and World Bank. Rome and Washington DC.

Figure 2: Area Shares of Main Crops, 2005



Source: MINAGRI and Ministry of Finance and Economic Planning data cited in World Bank 2007

14. Food crop yields in Rwanda are generally low by global, and even regional, standards (Table 1). Thus, despite high cropping intensities, labour productivity remains low.

Table 1: Average Food Crop Yields, Rwanda and Selected Other Countries in the Region

	Rwanda	Burundi	Uganda	Kenya
Maize	0.81	1.07	1.77	1.40
Sorghum	1.01	1.30	1.48	0.68
Rice (paddy)	2.60	3.30	1.44	3.78
Wheat	0.84	0.85	1.69	2.51
Cassava	6.65	8.82	13.34	9.83
Irish potato	8.65	2.67	6.94	8.35
Sweet potato	5.81	6.68	4.34	9.80
Banana	na	5.33	4.56	12.77
Groundnuts (in shell)	0.60	0.73	0.67	1.76
Soybeans	0.54	0.75	1.11	na
Dry beans	0.64	0.91	0.65	0.40
Peas (dry)	0.57	0.70	0.57	na

Source: FAOSTAT data cited in World bank 2007

E. Agricultural Support Services

15. Agricultural research is carried out mainly by the Rwanda Institute of Agriculture and Scientific Research (ISAR). Following the loss of many senior scientific staff during the genocide, ISAR has gradually rebuilt its capacity. However, more capacity-building is still required and, for the time being, ISAR continues to operate with the help of foreign experts while a cadre of Rwandan scientists undergoes graduate training both within and outside the country.

16. In the past, agricultural extension was the responsibility of MINAGRI. The apparent ineffectiveness of the national service, however, led to it being scrapped in 1998 and responsibility for extension being devolved to the local level. Public extension services then all but disappeared, to be replaced by a patchwork of project-funded extension initiatives the coverage of which is far from complete and technical quality highly variable. With the exception of tea and coffee producers, most Rwandan farmers today have very limited contact with extension agents.

17. Access to financial services by rural households is also very limited. Two government-supported banks, the Rwanda Development Bank and the Rwanda Union of People's Banks, offer financial services to agricultural customers, but the volume of rural lending by these banks amounted to less than 2% of bank loans in 2003. With use of formal credit being so limited, rural borrowers have responded by turning to a range of semi-formal and informal lending sources, including savings and credit associations, government/donor-funded project financing instruments and local moneylenders.

Nearly two thirds of rural households rely on personal savings and an additional 10-12% rely on loans from relatives (*Enquête Intégrale sur les Conditions de Vie des Ménages au Rwanda* 2001, cited in World Bank 2007). Poor farmers who are unable to meet the collateral requirements needed to secure credit through the formal banking sector are more likely to gain access to credit through membership of a producer association or cooperative – although such organizations often depend on external donor support to sustain their operations.

F. Markets

18. Domestic markets for food crops are generally underdeveloped. Marketing chains are informal and often fragmented, with produce changing hands several times as it moves from farm gate to the final consumer. Farmers sell produce to rural assemblers at the farm gate or to rural traders located in local assembly markets who then transport it to urban wholesalers. In turn the latter supply urban retailers, who break loads down into small lots for resale in market stalls or small neighbourhood shops.

19. Marketing margins for domestically produced food crops are high compared with those of other countries in Africa, reflecting not so much a lack of competition among intermediaries as high marketing costs, particularly in respect of transport. However, these margins have come under pressure in recent years as a result of increased competition and the spread of mobile telephone services that facilitate flows of market information.

G. Agricultural Policy and the Strategic Plan for the Transformation of Agriculture

20. Government's policy objectives for the agricultural sector are set out in the Vision 2020 document published in 2000, and its 2001 Poverty Reduction Strategy Paper (PRSP¹) that set a target for the sector of 5-8% annual growth over the short- and medium-term. However, in 2004, when it had become clear that this target was not being met, the Government formulated a National Agricultural Policy (NAP) building on Vision 2020, as well as a Strategic Plan for Agricultural Transformation (PSTA) by which the policy would be operationalized.

21. The objective of the PSTA is a "Sustainable contribution to poverty alleviation and economic growth through improved productivity, creation of added value, diversification of income-generating opportunities, and the preservation and conservation of natural resources" (PSTA logframe). The ten strategic thrusts are

- agricultural diversification and intensification
- diversification of household incomes
- commercialization of agriculture and its integration into the national and regional economies
- sustainable natural resources management, notably of soil and water
- capacity-building for producers and their organizations
- capacity-building for the private sector
- creating an enabling environment for agricultural transformation
- creating an enabling environment for investment in the agricultural sector
- transforming the role of government (MINAGRI) in line with decentralization and promotion of the private sector
- equitably addressing issues of gender and vulnerability

22. The PSTA defined four broad programme areas and 17 subprogrammes that are now reflected in the Government's Medium-Term Expenditure Framework at the national and district levels (Table 2)

¹ About to be superseded by the Government's Economic Development and Poverty Reduction Strategy (EDPRS).

Table 2: PSTA Programmes and Subprogrammes

Programme 1: Intensification and Development of Sustainable Production Systems

SP11: Sustainable Management of Natural Resources and Soil and Water Conservation
SP12: Integrated Livestock Systems and Intensive Animal Husbandry
SP13: Marshland Development
SP14: Irrigation Development
SP15: Supply and Utilization of Improved Production Inputs
SP16: Food Security and Risk/Vulnerability Management

Programme 2: Capacity-building for Producers and their Organizations

SP21: Promotion of Farmers' Organizations and Capacity-Building for Producers
SP22: Reforms of Service Provision to Producers and Rural Innovation
SP23: Research for Agriculture and Livestock Development
SP24: Rural Financial Systems and Agricultural Credit

Programme 3: Promotion of Commodity Chains and Agribusiness

SP31: Promotion and Development of Horticulture and Commodity Chains
SP32: Processing and Value-Addition for Agricultural and Animal Products
SP33: Supporting Rural Infrastructure for Agricultural Development
SP34: Creation of an Enabling Business Environment and Enterprise Promotion

Programme 4: Institutional Development

SP41: Refinement of the Legal and Regulatory Framework
SP42: Reforms and Institutional Support to Public Services
SP43: Coordination, Monitoring and Evaluation of the Agricultural Sector

III. THE AGRICULTURAL WATER SECTOR

A. Institutional Framework

Policies

23. In May 2000, the Government of Rwanda adopted its Decentralization Policy to ensure political, economic, social, managerial, administrative and technical empowerment of local populations to fight poverty by participating in the planning and management of their own development processes.

24. Policy for agricultural water is enunciated in the NAP, the Sectoral Policy on Water and Sanitation and the National Environment Policy, all published in 2004. Agricultural water development and management, including 'water harvesting' and irrigation, is central to the objectives of the NAP for poverty reduction and food security. It is seen as a prerequisite, along with the use of improved inputs (seed, organic or inorganic fertilizer, pesticides and the like) and cultural practices, for intensification, diversification, and commercialization and, thereby, increased household incomes.

25. The NAP envisages enabling communities, through participatory processes, to take greater responsibility for planning and managing their own agricultural development, the strengthening of farmer organizations (FOs) and connecting them with markets, as well as greater involvement of civil society and the private and non-governmental organization (NGO) sectors. It specifically focuses on the need to improve the economic status of women and youth.

26. The water policy states, among its general policy objectives, that water must be considered as an economic good and that its development and use for agricultural purposes is key to Government's poverty reduction strategy. In line with the Dublin principles¹, it envisages, inter alia, the 'whole catchment' approach to planning and management, both through participatory approaches and adoption of the principle of subsidiarity. It further recognizes that Rwanda must cooperate with its neighbouring countries in the management of the Nile Basin waters.

¹ The 1992 Dublin Statement on Water and Sustainable Development called for an integrated, intersectoral approach to water management and allocation, and emphasized: (a) the need for a 'whole catchment' approach to development and subsidiarity in planning and decision-making; (b) the pivotal institutional role of women; (c) basic human rights to clean water and sanitation at an affordable price; and (d) the need for economic efficiency in water use.

27. The environmental policy, so far as it affects agricultural water development and use – including so-called ‘rainwater harvesting’, the use of wetlands and irrigation – is simply to ensure that water is used in the various economic and social sectors without endangering the environment. In addition, it is policy to control socio-economic activities likely to affect the climate and to regularly monitor climate change.

28. Apart from the above, the National Land Policy of 2004 and the National Policy on Promotion of Cooperatives of 2007 are also highly relevant, the former because it proposes land titling, the development of land markets, land consolidation to “facilitate service provision and improved productivity” and regulations for the sustainable use of marshlands (which would remain under State ownership); the latter because it has implications for enabling farmers to organize themselves to access technology, seasonal finance and input/output markets, and to manage water (see also Working Paper 7).

Legal Framework

29. The policies for land and the environment were translated into new laws in 2005. That for the promotion of cooperatives awaits publication in the government gazette and that for water resources awaits Senate approval before being passed to the Chamber of Deputies.

30. Organic law determining the use and management of land. Under the new Land Law, the Minister responsible for agriculture, in conjunction with the local authorities and the respective land owners, may approve the consolidation of small plots of land in order to improve land management and productivity – the implication being that consolidation should be voluntary and subject to compensation if appropriate. The law goes on to say that each landholder would be entitled to retain rights over his or her piece of land. While providing for such consolidation, the law also prohibits the subdivision of any parcel of agricultural land of 1 ha or less. In accordance with stated policy, marshlands would remain under State ownership and exploited only with the consent of the Minister responsible for the environment. These new laws could be obviously significant if land acquisition and reallocation or the use of marshlands were envisaged for agricultural water development and irrigation. But much would depend on the supporting regulations, which as yet remain to be prepared.

31. Organic law determining the modalities of protection, conservation and promotion of the environment. The Environment Law provides, inter alia, for certain projects, including dams and irrigation projects, to be subjected to environmental impact assessment (EIA) before implementation. An EIA is required to describe any mitigation measures required, and how they would be monitored during and after the project. It is to be submitted to the Rwanda Environmental Management Authority (REMA).

32. Water Bill for conservation, protection and management of water resources. The Water Bill provides for the creation of a national water commission composed of (a) representatives of the State, (b) nationally elected public and private-sector water users, and (c) persons with professional or scientific competence in water resources management. The commission would be “consulted” on national-level water projects or provincial projects of a “large character”. The Bill also provides for the establishment of an inter-ministerial committee for water under the Prime Minister’s Office. It further provides for a hierarchy of basin¹ and sub-basin “committees”, each assisted by an executive secretariat and composed in equal parts of the “administration’s” representatives, elected representatives of the local decentralized communities and representatives of the different categories of water users, together with co-opted persons with competence in the water domain. Each sub-basin committee would be responsible for preparing and updating as necessary a master plan for water resources management in its respective sub-basin and submitting this to the basin committee, while the

¹ There would be two such basin committees – i.e. one for Lake Kivu Basin and one for the Kagera Basin – and numerous sub-basin committees. The area of a sub-basin is not specified: it could cover a catchment area of more than 1 000 km², in which case there would be about 15 such sub-basins, or the basins could be broken down into even smaller sub-sub-basins. A watershed would generally be regarded as a ‘sub-sub-sub-basin’ and would probably cover a catchment area of less than 100 km². The proposed project would adopt a ‘sub-watershed’ or ‘micro-watershed’ as its unit of planning, which for simplicity is referred to as “watershed” in this report.

basin committees would be responsible for preparing a consolidated plan (presumably for submission to the Minister). The Bill also provides for “local water associations” (or water user associations (WUAs), authorized to receive fees in return for services provided, to be established. All public water is vested in the State. Its use is subject to temporary use permits, presumably issued by the Minister. The Bill provides for full recovery of operation and maintenance (O&M) costs from the users and, if possible, partial recovery of the investment costs in the form of water charges. Again, how all these provisions would operate in practice would depend on the regulations – which, it was understood, are still to be drafted.

33. On transboundary water, Rwanda is a member of the **Nile Basin Initiative (NBI)**, which was formally launched by the riparian states¹ in February 1999 to achieve sustainable socio-economic development through the equitable utilization of, and benefit from, the common Nile Basin water resources. The initiative provides an institutional mechanism, a shared vision, and a set of agreed policy guidelines to provide a basin-wide framework for cooperative action. The policy guidelines define the following as the primary objectives of the NBI:

- to develop the Nile Basin water resources in a sustainable and equitable way to ensure;
- prosperity, security, and peace for all its peoples;
- to ensure efficient water management and the optimal use of the resources;
- to ensure cooperation and joint action between the riparian countries, seeking win-win gains;
- to target poverty eradication and promote economic integration;
- to ensure that the initiative results in a move from planning to action.

34. The respective ministers responsible for water affairs have recently concluded negotiations on the cooperative framework on the use of Nile waters. However, the clause on water security and recognition of prior appropriation of rights is still to be agreed; this matter has now been referred to the respective heads of state for their consideration, before the framework agreement is signed.

35. For the purpose of the agricultural water developments proposed under the proposed Kirehe Community-based Watershed Management Project (KWAMP), once the details of these are finalized they should be notified to the Nile Secretariat in Entebbe for endorsement by the member states.

36. **Bill for the establishment, organization and functioning of cooperative organizations.** The Cooperatives Bill provides for the following categories of self-governing cooperatives:

- production and marketing cooperatives;
- commercial and consumer cooperatives;
- service cooperatives;
- multi-purpose cooperatives.

37. Three or more cooperatives may join together to form a cooperative union; three or more cooperative unions may join together to form a cooperative federation; and three or more cooperative federations may join together to form a cooperative confederation – otherwise referred to as an apex cooperative organization – at the national level.

Organizations

38. Organizations involved in agricultural water consist of (a) central government organizations; (b) decentralized local government organizations; (c) community-based and civil-society organizations (including cooperatives); and (d) private-sector organizations and NGOs.

39. Central government organizations include MINAGRI and the Ministries of Natural Resources; Local Government, Community Development and Social Affairs; Infrastructure; and Trade and Industry. The activities of these ministries are generally limited to policy and regulatory functions.

¹ The riparian states (in alphabetic order) are: Burundi, Democratic Republic of Congo, Egypt, Ethiopia, Kenya, Rwanda, Sudan, Tanzania and Uganda. Eritrea currently has observer status.

40. **Rwanda Agricultural Development Agency (RADA)** was recently established as an autonomous agency with a board of directors appointed by the Prime Minister is now responsible, at the national level, for:

- contributing towards the growth of agricultural production through development of appropriate technologies;
- providing advisory, outreach and extension services to stakeholders in agriculture, including provinces, districts, NGOs, farmers, FOs and private entrepreneurs, to allow them to modernize the sector within the framework of Vision 2020, the PRSP, the NAP and the PSTA.

41. This responsibility extends to agricultural water development and management. However, while RADA has a soil and water management unit (along with other units for seed production, crop production, rice development, crop protection and post-harvest management), it has only two professional staff – a soil conservation specialist and a rural engineer. Thus, although it is able to contract out for services, RADA's own capacity is extremely weak and, in effect, no central government agency *per se* exists to support agricultural water development and management.

42. At the decentralized local government level, all technical departments are administratively responsible to the district mayors. The responsibilities of such staff include: (a) research and extension, including on-farm demonstrations and farmer training; (b) coordinating development project activities; (c) monitoring and evaluation (M&E); and (d) technical support to the local authorities and their elected officers. District-level staff currently has limited capacity to address the needs of agricultural water development and management.

43. A large number of primary cooperatives are active in agriculture and rural finance. Agricultural production cooperatives have apparently been encouraged to establish themselves crop-specifically, whereas cooperatives involved in rice production in the marshlands appear to be better established than those for other, mainly dryland, crops, which are as yet rather scattered and fragmented. The rice cooperatives, in particular, have received financial and technical assistance from a number of projects, including the IFAD-assisted Support to Strategic Plan for the Transformation of Agriculture Project (PAPSTA). Farmers interviewed reported, for example, that their cooperatives had provided them with extension support and seasonal finance. Rice cooperatives have also formed a cooperative union – the Union of Rice Cooperatives of Rwanda (UCORIRWA) – to represent them at a national federation of cooperative unions yet to be formed. Apart from their extension and credit functions, the rice cooperatives are important because they also take responsibility – in the absence until now of any formal water user groups or associations – for scheme O&M through their respective water management committees. In addition there are a number of farmers' unions (such as IMBARAGA and INGABO), as well as the Network of Farmers' Organizations of Rwanda (ROPARWA¹), which is financed by the Netherlands and seeks to provide business extension services for cooperatives².

44. A number of local and international NGOs operating in the agricultural sector – such as the Institut National Africain pour le Développement Economique et Social (INADES) – also play a key role in the promotion of farmer participation. These NGOs could assist in training and facilitating the future involvement of farmers in water institutions, such as the proposed 'local water associations' (i.e. WUAs) and sub-basin/basin committees.

B. Potential for Agricultural Water Management and Development

45. Rwanda's total renewable water resources amount to 9 500 million m³. Its estimated total physical potential for irrigation is 165 000 ha, or 10.9% of its currently cultivated area. The area developed to date for irrigation amounts to only 8 500 ha. However, there are approximately 94 000 ha of cultivation in non-equipped wetlands and valley bottoms, where there are limited (mostly traditional)

¹ Both ROPARWA and UCORIRWA are represented on the national steering committee for PAPSTA.

² For more detail on FOs in Rwanda, see Working Paper 7.

arrangements for water control (FAO 2005¹). Hence the total water-managed area of Rwanda is estimated at 102 500 ha. Thus, the theoretical potential for new development is of the order of 62 500 ha, although it should be noted that this figure takes no account of any topographical or economic limitations to such development. Apart from this, there is of course potential for improving water control, and hence productivity, on the 94 000 ha of land cultivated in non-equipped wetlands and valley bottoms.

46. Most of Rwanda's irrigation development is thought to be in surface irrigation systems in valley bottoms, utilizing surface water. It is, however, reported² that some 130 ha of 'hillside' irrigation (i.e. irrigation developed on the uplands, rather than in valley bottoms) has been developed in Karongi District in the high-rainfall highlands of the Western Province of the country (Map 5).

C. Government Strategy for Future Development of the Sub-sector

47. The key elements of PSTA in respect of agricultural water development are: (a) introducing and widely disseminating 'water harvesting'³ for irrigation purposes while minimizing the damage caused by heavy rains and run-off; (b) increasing the development and more effective use of marshlands for production of high-value crops; and (c) introducing alternative technologies for use of various sources of water for hillside and lowland irrigation. And all this is to be carried out within the overall PSTA framework of commercialization, transformation, creation of an enabling environment for investment, and gender equity.

D. Relevant Ongoing Projects

48. Soil conservation and agricultural water development is supported by a number of ongoing projects, including:

- *Rural Sector Support Programme (RSSP)*. A 14-year, three-phase, USD 168 million World Bank-assisted programme. Its first phase, started in 2001, is currently drawing to a close and the second is expected to commence in early-2008. The objective of the programme is to rehabilitate and develop infrastructure on 25% of the currently farmed marshland, or about 20 000 ha, over the 14-year period. By end-October 2007, rehabilitation of 2 450 ha marshland had been completed and works on another 430 ha were in progress. In addition, rehabilitation of 65 ha of hillside irrigation in Bugasera and Karonge (in the west of the country) had been completed and work was in progress on rehabilitating another 50 ha in Karonge. A number of the marshland schemes depended on construction of a new dam; costs varied from USD 3 400/ha to USD 8 100/ha without a dam and from USD 6 000/ha to USD 26 600/ha with a dam. However, where farmers were prepared to take responsibility for on-farm improvements, the costs were reduced to as little as USD 2 200/ha without a dam.
- *Bugasera Agricultural Development Support Project (PADAB)*. A six-year USD 18.7 million African Development Bank (AfDB)-assisted project that was started in January 2007. Its objectives are to reduce the impact of drought in Bugesera District by irrigating 650 ha, on which rice and high-value crops would be cultivated in two seasons per year, together with soil conservation and 'water harvesting' on 5 000 ha.
- *Inland Lakes Integrated Development and Management Support Project (PAIGELAC)*. The thrust of the AfDB-assisted project is poverty reduction through improvements to fisheries and aquaculture. Of relevance is its support for the integrated management of 25 000 ha of inland lakes and conservation of 35 000 ha of their respective watersheds, including in Kirehe.

¹ FAO. 2005. *Irrigation in Africa in Figures*. AQUASTAT Survey – 2005. FAO Water Report 29. Rome

² Bekele-Tessema, A & Ngabonziza, P. 2007. *Water Harvesting and Hillside Irrigation Project – WHIP*. Final Draft, Main Report. MINAGRI. Kigali

³ 'Water harvesting' in this context is clearly intended to refer to water development for irrigation (i.e. the diversion and/or storage and conveyance of water for irrigation).

- *Support Project for the Strategic Transformation of Agriculture (PAPSTA)*. The project is intended, amongst other activities, to support pilot hillside irrigation schemes in each of the former districts of Bukonya, Budaha and Karaba, and ranging in size between 15 and 60 ha. The pilot schemes were to be based on simple, gravity-fed designs that could be easily managed by the FOs. Various options for water management by the FOs were also to be piloted. However, these activities have not yet started in early 2008.
- *Transboundary Agro-ecosystem Management Programme for the Kagera River Basin (Kagera TAMP)*. This five-year programme is to be implemented in the four riparian states of Rwanda, Burundi, Tanzania and Uganda. In Rwanda, it will cover the six districts of Nyagatare, Kayonza, Kirehe, Bugesera, Kamonyi and Rulindo. Its objectives will be to: (a) address the causes of land degradation and restore ecosystem health and function, and (b) improve the livelihoods of rural communities through more productive and sustainable resource management practices that are technically feasible and socio-economically viable. The programme cost is estimated at USD 13.0 million, to be financed by a USD 5.0 million grant from the Global Environment Facility (GEF) and contributions from the respective governments, the United Nations Environment Programme (UNEP) and FAO. It was presented to the GEF Council in late-June 2007.

E. Recent Agricultural Water Development Studies, Reports and Proposals

49. In addition to the AfDB-funded master plan study for marshland development, soil conservation and watershed protection¹, MINAGRI has commissioned a number of studies and reports on agricultural water development as set out in this section.

50. **Rainwater Harvesting**. The only documentation seen for this work consists of two MS Powerpoint slide presentations entitled, respectively, *Rainwater Harvesting in Rwanda* and *Best Practices of Rainwater Harvesting*, both of which were apparently prepared under a technical assistance assignment to RADA by the Eastern and Southern Africa regional office of the World Agroforestry Centre (ICRAF) in Nairobi. These documents purport to demonstrate that irrigation (using so-called ‘blue’ water) is difficult in Rwanda because of high pumping costs and the risk of flood damage in valley bottoms, and that a better strategy would be to invest in improving rainfed agriculture by developing so-called ‘green’ water (i.e. rainfall). They then go on to refer briefly to in situ water conservation techniques and conservation farming and, much more extensively, to run-off harvesting from small and micro catchments (including rooftops). However, during its fieldwork, while the current mission was shown a number of micro catchment run-off harvesting schemes; it was shown no stand-alone sites where in situ rainwater management had been introduced.

51. Inspection of the run-off harvesting sites revealed two things. Firstly, despite the suggestion that what had been developed was ‘green’ water, the main purpose of the various interventions was actually small-scale water storage of ‘blue’ water for irrigation. Secondly, although the mission’s field visits were carried out in the second half of November – i.e. at the peak of the rainfall, and, hence, run-off season – there was no water in any of the micro dams the mission visited². Moreover, the micro dams included no apparent arrangement for spillage, so that once full their embankments would be overtopped, eroded and, unless constantly repaired, eventually washed away. Indeed, at one of the sites, the intervention had apparently resulted in some gully erosion, which had clearly not been intended (Figure 3)³.

¹ Hydroplan *et al.* 2002. *Schéma Directeur d’Aménagement des Marais, de Protection des Bassins Versants et de la Conservation des Sols: Rapport Global Définitif Phase 1*. Direction du Génie Rural et de la Conservation des Sols, Ministère de l’Agriculture, de l’Élevage et des Forêts. Kigali

² Admittedly, none of the micro dams seen had yet been lined as intended with plastic sheeting; nevertheless some rainfall should have been stored.

³ The micro dam can be seen at the right of the photograph (mid-way up the frame). The photograph also shows *fanya juu* (or ‘progressive’) terracing works and infiltration pits, or ‘zay’, to the left and down-slope of the micro dam. Gully erosion can be seen through the middle of the treated land, from right to left.

Figure 3: ‘Water harvesting’ and soil conservation intervention implemented by ICRAF in Kirehe District



52. Apart from the apparent technical problems referred to above, it was understood that schemes of the type shown in Figure 3 had cost RWF 1.7-2.0 million per 0.125 ha. This equates to approximately RWF 15 million (or USD 27 000) per ha, which is extremely high for any kind of agricultural water development and would make such interventions highly unlikely to be replicable by smallholder farmers. Furthermore, it was understood that high capital costs would be accompanied by high operational costs, because the intention was to pump the water from the micro dams by means of manually operated rope and washer pumps¹.

53. **Land husbandry, Water harvesting and Hillside irrigation (LWH) project.** This initiative is intended to respond to the EDPRS target of increasing the area under irrigation on hillsides from 130 ha to 1 820 ha by 2012, and to do so by means of ‘water harvesting’ and irrigation command area development. The term ‘water harvesting’ refers in this case to the proposed construction of small and medium-size storage dams for hillside irrigation schemes. It is used to refer to water development for irrigation. The November 2007 report also mentions the need for in situ ‘water harvesting’ (i.e. in situ rainwater management).

54. According to the March 2008 proposal, in phase 1 the project will include the construction of 32 earth dams, which are to be located in 10 districts (not including Kirehe District). The dams are intended mainly for dry season irrigation of 3 100 ha of perennial crops, including coffee, tea, avocado, mango, pineapple, cooking banana and leguminous fodder crops. In phase 2, another 69 dams would be constructed to irrigate an additional 6 900 ha. The report assumed that irrigation of such crops would result in a doubling of yields.

55. Whereas the EDPRS target was apparently 1 820 ha of hillside irrigation by 2012, the LWH target is now 3 100 ha for phase 1, for completion within the same period. All but two of the proposed sites are to extend to 100 ha of irrigation development; the remaining two are intended to be 50 ha. Zoned earth and rockfill embankment dams are proposed, of a maximum effective height of 15 m and an average storage capacity 370 000 m³, based on a catchment area of 2-3 km². Basin or furrow irrigation is proposed, supplied by gravity through a network of buried PVC pipes. The report envisages that, depending on hillside slope, the land intended for irrigation would have to be treated by either (a) grass strips and/or trash lines for a slope of 0-5%, or (b) ‘progressive terracing’ (or *fanya juu*) for a slope of 5-13% and ‘radical’ (or ‘bench’) terracing for slopes of 13-55%.

¹ These are notably fragile devices. A better solution would have been to include an outlet pipe in the micro dam so that water could be abstracted by gravity.

56. The report proposes considerable capacity-building, for farmers, district-level and headquarters staff (mainly for RADA), as well as long-term technical assistance, and gradually handing over to national and district implementation teams.

57. Total project costs are currently estimated at USD 200 million, broken down as shown in Table 3. It includes soil and water conservation activities costing about USD 65 million. For phase 1, the estimated cost of dams and water supply to field edge amounts to a unit cost of USD 10 500 per ha, although this may be an underestimate since it would almost certainly be necessary to provide additional dead storage for sediments. The estimated cost for soil conservation and in-field irrigation works amounts to about USD 1 800 per ha.

Table 3: Estimated Costs of the LWH Project (USD million)

Budget/project components	Project cost by component		
	Phase 1	Phase 2	Total
(A) Infrastructure, input and Support Services:			
A1. Project coordination and facilitation including ATPA expenses	5.20	2.5	7.7
A2. Organizing, training, and coordination of beneficiaries	7.9	0	7.9
A3. Implementation of comprehensive land-husbandry technologies (30,250 ha)	56.7	0	56.7
A4. Water catchments protection and development	0.7	1.57	2.27
A5. Water-harvesting and conveyance	32.52	72.18	104.7
A6. Hillside command area management and irrigation on 10,000 ha land	5	11.2	16.2
A7. M&E and up-scaling best bet approaches	2.21	0	2.21
B1) Training and strengthening staffs and institutions	2.32	0	2.32
Total	112.55	87.45	200.00

Source: LWH Project, March 2008

58. In the November 2007 proposal of a stand-alone 3 200 ha irrigation project, the total cost of USD 60 million equated to USD 18 750 per ha, which compared well with actual costs on the RSSP (see paragraph 48). However, if the ‘overhead costs’ (of capacity-building, extension, M&E and project coordination) were ignored, the unit cost fell to USD 15 425¹. The report provided a valuable indication of what might be involved in hillside irrigation and what it might cost. However, on a note of caution, the study on which this report is based was at a reconnaissance level only. The report also rightly notes the importance of ensuring that hillside irrigation development should not be allowed to adversely impact on the fragile ecosystems of the marshlands – including those already cultivated. Much more detailed work is required, on a scheme-by-scheme basis, to assess technical and economic feasibility as well as environmental sustainability. In particular, the hydrology of proposed sites would need closer examination because, since although the report estimate of crop water requirements looks reasonable enough, run-off coefficients and run-off appear overestimated, which would mean that the catchment areas and dams envisaged could be undersized. New markets may have to be found for some of the proposed crops (such as pineapple, mango and avocado). Also, the assumption that providing dry season irrigation would result in a doubling of yields would need to be confirmed.

59. **Proposed Strategy for Future Irrigation Development in the Republic of Rwanda.** A team of two engineers from India, who visited Rwanda in October 2006 under a technical cooperation framework agreement between India and the Common Market for Eastern and Southern Africa, prepared this report. The purpose of the visit was to study the various irrigation options that could be adopted in Rwanda. The engineers recommended, inter alia:

¹ On this basis the indicative budget of USD 5 million suggested prior to formulation for irrigation development under KWAMP would permit the construction of some 324 ha, which, at an average irrigated farm size of, say, 0.2 ha, would benefit some 1 600 households.

- preparation of basin and sub-basin master plans for integrated water resources development;
- based on the above, preparation of ‘time-bound’ irrigation development plans (i.e. five-year development plans);
- formulation of a ‘national water policy’;
- marshland development, including the construction of large, medium and small irrigation dams for regulated irrigation supplies, as well as flood protection bunds and drainage;
- improved water management for upland or hillside areas, including – on steep slopes – *in situ* rainwater management to increase infiltration rates and reduce run-off, thereby to increase the effectiveness of rainfall for dryland crops through deep ploughing, profile modification, mulching and the like, as well as field bunding, land-levelling, contour bunds/terraces (or ‘progressive’ terracing) and bench (or ‘radical’ terracing); and, on gentle slopes, constructing micro dams for seasonal storage and dry season irrigation;
- a national awareness programme on soil conservation;
- strengthening agricultural extension services under RADA;
- pumped irrigation from lakes;
- assessment of the groundwater potential of the country;
- re-establishing the hydrological network for the country’s river basins/sub-basins;
- formation of a central dams and irrigation design organization within MINAGRI in Kigali;
- establishing a water and land management institute, initially in Kigali and later in each province to provide training for engineers and farmers;
- establishing a national flood control monitoring and management unit;
- setting up an Independent department for surveys and mapping.

60. These are generally sound recommendations. However, as will have been noted, a national policy for water already exists and the preparation of basin and sub-basin plans is foreseen under the new Water Bill. Time-bound irrigation master plans would be presumably developed organically from these basin and sub-basin plans. Marshland development has been under way for some years under the RSSP and awareness of the need for soil conservation is already acute in Rwanda. The rationale for setting up an independent survey and mapping department is not clear, since responsibility for survey and mapping already rests with the Directorate of Lands. Therefore, given Rwanda’s other pressing needs, Government’s priority for increased reliance on private-sector service providers and MINAGRI’s foreseen policy and regulatory function, it is difficult to see the need for a public-sector dam and irrigation design organization or how it would fit within MINAGRI. The remaining recommendations are, however, worth keeping in mind, especially those concerning improved rainwater management for dry-land cropping, pumped irrigation from lakes, an assessment of groundwater potential and re-establishment of the hydrological network (to which could be added the agro-meteorological network).

61. **Study for Irrigation Master Plan in Rwanda.** This is a 15-month study funded by the Government for identification of suitable areas for irrigation and preparation of design and tender documents for 2 000 ha. MINAGRI signed a contract with a consulting engineering firm in April 2007 and the first-phase report of the study, which covered an assessment of the potential and options for irrigation development in Rwanda, was submitted in November 2007. Notably, it concluded that the potential for irrigation was considerably higher than reported by FAO 2005, although its assessment appears to be based more on land suitability rather than the availability of water. Perhaps significantly, it also set an upper slope limit of 13% for irrigation.

62. *Studies on Proposed Improvement of Kibaza and Rwabutazi Marshlands.* These studies on two potential marshland improvement projects were commissioned and carried out for PAPSTA, providing an important reference for the current mission in respect of the type of development proposed in marshlands and their costs. From a brief reading, the report for Kibaza proposes improvements to a 34.4 ha traditional marshland rice irrigation system in Bugasera District, including construction of a new earth embankment dam of 55 000 m³ capacity (Table 17 of the report). The total cost of

improvements is estimated at RWF 236 million (USD 429 000), which equates to USD 12 470 per ha and compares well with the costs being typically incurred under the RSSP (paragraph 48) for schemes with a dam¹.

63. The report for Rwabutazi covers proposed improvements to a 72 ha traditional marshland rice irrigation system in Kirehe District. The proposed works in this case do not include a dam. The total cost of improvements is estimated at RWF 206 million (USD 375 000), including on-farm works, which equates to USD 5 202 per ha and compares well with the RSSP costs for schemes without a dam (paragraph 48)².

64. So far as could be seen, in neither case were the reports clear about the benefits that would be derived from the proposed interventions (to permit a basic benefit-cost assessment), nor were they clear about the numbers of people who would benefit.

65. **Pilot Water Harvesting Project in Nyagatare.** The KWAMP design team visited an ISAR research site in Nyagatare District to see water-harvesting activities at first hand. The main activity had actually been the manual construction by the community of a small earth dam of 20 000 m³ capacity intended for irrigation of approximately 2 ha. A sand filter had been also built into the downstream face of the dam for potable water supplies. However, at the time of the visit (late-November) the dam had not filled in two years of operation and remained empty. The research officer explained that, for the design, he had assumed a run-off coefficient³ of 15% and that the catchment area was about 4 km² with an average rainfall of 800-900 mm/year. The researcher confessed that he was baffled by the failure of such a small dam to fill (as indeed was the mission)⁴. Nevertheless, although no water was available for the sand filter to function as intended, it is an innovative feature that might be usefully replicated on other small dams in future.

66. Apart from the dam, ISAR had been trialling ‘progressive’ terracing on a 10% slope, for which it had been paying the community RWF 261 000 (USD 393) per ha.

F. Opportunities and Challenges in the Agricultural Water Sub-sector

Gravity-Fed Hillside Irrigation

67. There is clearly an opportunity to expand gravity-fed hillside irrigation for dry-season irrigation of high-value crops, although it appears that run-of-river irrigation on any scale may be possible only in the highlands to the west of the country and on the Lake Kivu escarpment. Elsewhere, and particularly in the drier zones of the east and south-east, dry-season irrigation may depend on the construction of new dam storage, which generally involves significant costs. Also, since the dominant slope gradient for most of the country exceeds 6% (Map 4), ‘progressive’ or even ‘radical’ terracing of the proposed irrigable land may be required in many cases, as foreseen in the LWH report, adding further to the costs.

68. The LWH report identifies 32 possible sites for dam and irrigation schemes throughout the country for phase 1 of the LWH project, for a total irrigated area of 3 100 ha. If these sites are subsequently

¹ However, it was not clear from the report what purpose the dam would serve: the report itself estimates the gross irrigation requirement at 37 700 m³/ha/year, with a monthly peak of 6 250 m³/ha in August (Table 11 of the report). Assuming that inflow ceases at end July but that at this time the dam is then full, a dam of 55 000 m³ capacity would presumably be able to supply only 55 000/6 250 = 8.8 ha in August, rather than the 34.4 ha intended. It may well be that this structure is intended to operate as a polder, but this was not clear from the report (at least not from the French). Unless it has been misinterpreted by the mission, the report estimate of gross irrigation requirement seems very high indeed: using data for Kibungo and FAO CROPWAT, the mission estimated a gross irrigation requirement for double-cropping paddy (transplanted on 1 February and 1 September, respectively) at only 21 600 m³/ha/year (Appendix D). This could have significant cost implications. It is suggested that the report estimates and intended hydrological operation of the reservoir be checked.

² However, gross irrigation requirements for double-cropping paddy were estimated in the report at only 15 100 m³/ha/year (report Table 12), compared with more than double this figure for Kibaza. This, too, needs to be checked.

³ The run-off coefficient is the percentage of rainfall that runs off from a catchment to form surface flow.

⁴ The assumption of 15% for the run-off coefficient seems reasonable enough. It might be worth checking the catchment area.

found to be technically and environmentally feasible, as well as economically viable, their development could benefit some 15 500 farming households (assuming an average holding of, say, 0.2 ha per household).

69. The challenge now is to procure the expertise required to carry out the necessary feasibility studies, detailed designs and construction supervision – for which the need for sound engineering cannot be over-emphasized. Thereafter the challenge will be to identify further viable sites for development, with a suitable dam site and sufficient run-off from its catchment area – development of which would not compromise downstream users – together with irrigable land that is preferably gently sloping at the most (to avoid the need for terracing).

Pumped Irrigation from Lakes and Rivers

70. There is also a significant opportunity to develop irrigation from the abundant water resources of the country's numerous lakes and rivers. Provided irrigable lands can be found around these lakes and rivers with slopes of less than 6%, terracing would not be required. This would keep the costs down¹. Irrigation schemes could be as small as household gardens, supplied by manual pumps, to individually or group-operated market gardens, supplied by small petrol-powered pumps, to larger units supplied by diesel-powered or even electrically-powered pumps – such as the large-scale commercial farms apparently envisaged by Ebony Enterprises 2007. Irrigation systems could be simple surface irrigation systems, including hose and basin, up to centre-pivot systems, depending on the resources and capacity of the operators. The numbers of farming households that would benefit from such development could run into the tens of thousands and perhaps more.

71. For any kind of development larger than individual household gardens, however, there would be two main challenges: markets and O&M – the latter because of the absence of an agency that would be able to support farmers' groups in keeping pumps supplied with fuel and for pump repairs when necessary². Of these two, if profitable markets could be found, sustainable arrangements for O&M could be probably developed – particularly if market-linkages were developed in which the processor or marketer was prepared to provide technical support services in return for a guaranteed throughput of produce (a situation that might conceivably arise if Ebony Enterprises' report results in large-scale commercial irrigation development for high-value crops)³.

Groundwater Irrigation

72. The prospects for groundwater irrigation in Rwanda are largely unknown – as noted by the 2006 report by Indian consultants referred to in paragraph 59. Indeed, no signs were seen (on any of the field visits) of any groundwater irrigation at all, even in valley bottoms throughout the country where shallow groundwater might be expected to be available (although the use of groundwater for domestic water supplies is common in rural areas). It may well be the case that the valley bottoms contain such deep deposits of clay that aquifers are not available at depths that can be exploited by manual or small centrifugal pumps – or it may just be that such pumps have not been available in the past.

73. However, if groundwater were to be found at a reasonably shallow depth (say 6-7 m), it could be used for irrigation by communities with no access to other irrigation supplies. And it could be developed at comparatively low cost – i.e. of the order of USD 1 000-2 000 per ha, including project overhead costs, such as the cost of pump promotion/market development by a contracted NGO. Again, the numbers of farming households benefiting from investment in groundwater irrigation could run into the tens of thousands, since the average garden size may be no more than 0.1 ha. The first challenge would be to establish whether or not such groundwater supplies are available.

¹ Ebony Enterprises 2007 estimated costs of USD 5 000 per ha for furrow irrigation, but this may not have included the cost of a pumping station and pipeline, which could add a further USD 1 500 per ha. Ebony also estimated the cost of on-farm works (i.e. excluding the cost of water supply to field edge) at USD 5 000-7 000 per ha for drip and sprinkler irrigation.

² The one lakeside irrigation scheme visited was the RADA-operated Gashora Irrigation Scheme, where the pump was found to be broken down and awaiting spares.

³ See Working Paper 6: Value-Chain Development.

Marshland Irrigation

74. Although marshland development is already supported under the RRSP, this is intended to develop only 25% of the currently farmed marshland in the country. Since FAO 2005 indicates that there are 94 000 ha of marshland under cultivation in Rwanda, but with only rudimentary water control, it would appear that after allowing for the area to be improved by the RSSP, there would still be a further potential 70 000 ha that could be improved. Improvements might involve only drainage or flood protection – which could be achieved at comparatively low cost – or full water control with dam storage. Since land holdings in the marshlands tend to be much smaller than dryland holdings – in the range of 0.1-0.25 ha per household – as many as 700 000 farming households could potentially benefit from such improvements. The challenge is to identify sites that could be improved at a cost that would be justified by the incremental benefits.

In-field Rainwater Management for Dryland Crops

75. As discussed, there are an estimated 1.47 million ha currently under cultivation to annual or perennial crops in Rwanda. Only 8 500 ha of this land is under full or partially controlled irrigation, with a further 94 000 ha in non-equipped cultivated wetland and valley bottoms. There are, therefore, some 1.37 million ha of cultivated land depending solely on rainfall and on which productivity is below potential, partly because of unreliable rainfall. Thus, even if or when Rwanda's potential for irrigation is fully developed, production on approximately 93% of the cultivated land would, if nothing changes, remain subject to the vagaries of the climate. If climate change persists, the livelihoods of up to 3.4 million households could be at risk.

76. Whilst viable opportunities for poverty reduction through investment in irrigation must be taken up, it would appear even more important that any opportunities that exist for improving water management for rainfed crops must also be seized – not just for reasons of equity, but also to maximize the potential for poverty reduction and economic growth by reaching as many people as possible. In-field rainwater management¹ (such as the various forms of conservation agriculture) intended to increase the effectiveness of rainfall rather than adding to it as in irrigation, could become an important means of stabilizing and even increasing crop yields. Conservation agriculture can involve a range of techniques, from mulching and cover crops to deep ripping (as suggested by the report referred to in paragraph 59) and minimum or zero tillage.

77. It must be borne in mind, however, that techniques such as deep ripping are inappropriate in farming systems with no access to draught power. And a brief review of conservation agriculture in IFAD 2007² indicated that in-field rainwater management needs to be part of a comprehensive package that enables farmers to access and use yield-enhancing inputs as well as to profitably market their produce, otherwise adoption is poor. The challenge, therefore, is to make investment by farmers worthwhile by identifying technologies appropriate to Rwandan farming systems and ensuring that farmers have ready access to input and output markets.

'Water Harvesting'

78. The term 'water harvesting' often means different things to different people, depending on their background or discipline. For the present paper, water harvesting (or rainwater harvesting or run-off harvesting) is defined as the collection and concentration of run-off, with or without storage, for use in irrigating crops (although harvested water may be also used for other purposes). Water harvesting is therefore simply water development for irrigation, whatever the scale. It should not be confused with in-field rainwater management – which is intended to reduce run-off to increase the effectiveness of rainfall. Opportunities for the development of run-off for irrigation have been discussed above.

¹ This term is chosen deliberately to distinguish this kind of water management from 'water harvesting' which is often used to cover a multitude of water development options, including, as seen from the preceding text, small and medium-sized dams.

² IFAD. 2007. *Agricultural Water Development for Poverty Reduction in Eastern and Southern Africa*. Zero Draft. Rome.

79. Since (for whatever reason) they do not appear to have succeeded yet, the water harvesting schemes promoted by ICRAF (and ISAR in Nyagatare) should be carefully evaluated – technically and financially – before constructing any more.

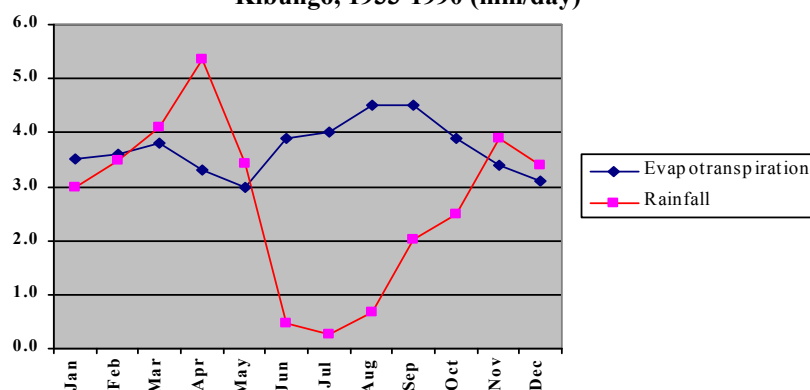
IV. THE PROJECT AREA AND ITS POPULATION

A. Agro-ecological Zones and Climate

80. Kirehe District is located partly in the middle altitudes (1 500-2 000 m) and partly in the lowlands (i.e. below 1 500 m – Maps 1 and 5). Most of the district lies in the Eastern Plateau agricultural zone while the remainder, in the so-called ‘eastern curve’, lies in the Eastern Savannah. The more humid Eastern Plateau is considered suitable for a wide range of crops, including rice, groundnut, sorghum, banana, sweet potato, maize and cassava. The drier Eastern Savannah is less suitable for banana, sweet potato, beans and cassava.

81. Mean annual rainfall varies from less than 900 mm in the lowland Eastern Savannah to 1 000 mm in the Eastern Plateau (Map 2). Climate data were difficult to obtain and fragmented: the nearest representative climate station for which data were available is at Kibungo in Ngoma District, approximately 13 km from Kirehe District headquarters and at an altitude of 1 580 m. Mean annual rainfall at this station for the period 1933-1990 (i.e. well before any effects of climate change would have been noticed) was 985 mm, compared with mean annual evapotranspiration of 1 335 mm. Evapotranspiration exceeded rainfall from mid-May to end-October (Figure 4), corresponding roughly with Season ‘C’. However, as will be seen, this does not necessarily mean that irrigation is required for successful cropping in Seasons ‘A’ and ‘B’ – at least not in the middle altitudes.

Figure 4: Mean Monthly Rainfall and Evapotranspiration at Kibungo, 1933-1990 (mm/day)



Source: Mission, based on MINAGRI data

B. Existing Agriculture

General

82. Some 39 000 households are engaged in agriculture or livestock or both, including 2 280 households that are engaged in marshland or valley bottom cultivation. In 2007 sorghum accounted for the largest share of the area planted in Seasons ‘A’, ‘B’ and ‘C’ combined (50%), followed by dry beans (39%), banana (24%) and maize (17% – maize cultivation was especially promoted by Government in 2007). Most of the sorghum and bananas are produced for industrial purposes, i.e. for beer-making. Vegetables and rice, which are grown in the valley bottoms and marshlands, account for only 3% and 4%, respectively, of the area planted in the three seasons combined (Table 4 and Figure 5). The average cropping intensity in 2007 was 160%, but increases to 186% if perennial crops are excluded. The use of existing agricultural land is therefore already intensive.

Table 4: Crops Planted in Kirehe District by Season in 2007

Main Crops	Season 'A'		Season 'B'		Season 'C'		Year	
	Area Planted (ha)	Share of Area Planted (%)	Area Planted (ha)	Share of Area Planted in Season 'A' (%)	Area Planted (ha)	Share of Area Planted in Season 'A' (%)	Area Planted (ha)	Total Share of Area Planted in Season 'A' (%)
Maize	2 030	10.8	1 071	5.7	121	0.6	3 222	17.1
Sorghum	3 282	17.4	6 148	32.7	-	-	9 430	50.1
Beans	5 746	30.5	1 463	7.8	71	0.4	7 280	38.7
Soya	122	0.6	4	0.0	-	-	126	0.7
Groundnut	93	0.5	22	0.1	-	-	115	0.6
Sweet potato	634	3.4	740	3.9	106	0.6	1 374	7.3
Irish potato	142	0.8	106	0.6	-	-	248	1.3
Cassava	637	3.4	378.5	2.0	235	1.2	1 250	6.6
Peas	55.5	0.3	26.9	0.1	-	-	82	0.4
Rice	355	1.9	355	1.9	-	-	710	3.8
Vegetables					500	2.7	500	2.7
Banana	4 563	24.3					4 563	24.3
Coffee	1 154	6.1					1 154	6.1
	18 812	100.0	10 315	54.8	1 033	5.5	30 053	159.8

Note: Vegetables also grown in the marshlands in the short dry season from January to March

Source: Kirehe District Monographie 2007

Dry-land Crop Yields

83. While cropping intensity is high, yields are relatively low owing to negligible use of yield-enhancing inputs¹ and, possibly, rainfall variability. Yields of the main rainfed crops reported by the district appear on the high side and may have represented targets rather than 'actuals' (e.g. the quoted maize and bean yields of 2 t/ha, which are fairly high for smallholder production under rainfed conditions). The yields quoted for paddy (6 t/ha) may also have been the sum of two seasons' yields.

84. Mission estimates for the yields of the main dry-land crops, based on MINAGRI and FAOSTAT data cited in World Bank 2007, are shown in Table 5.

Table 5: Estimated Yields for the Main Dryland Crops (existing technology)

Crop	Estimated Yield (t/ha)
Maize	0.8
Sorghum	1.0
Beans	0.6
Soya	0.5
Groundnut (unshelled)	0.7
Sweet potato	5.8
Irish potato	8.7
Cassava	6.7
Peas	0.6
Banana	6.8
Coffee (washed)	0.7

Source: Mission estimates

Dryland Cropping Patterns and Crop Water Requirements

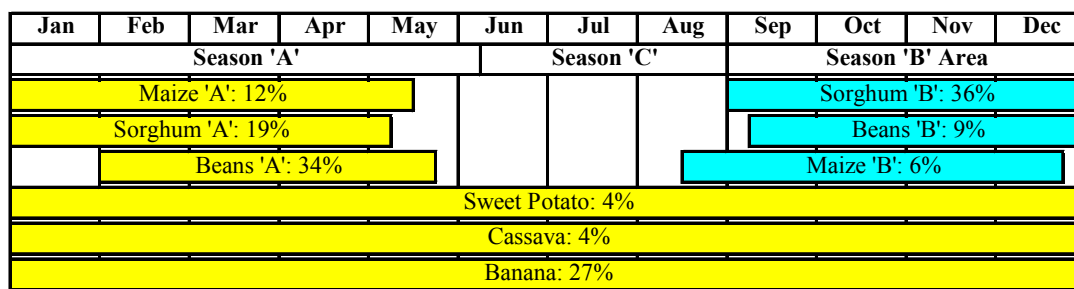
85. An indicative cropping pattern for a typical dry-land farm is shown in Figure 5. This assumes that the sweet potato crop would stay in the ground for the whole year and would be harvested as and when required for consumption or marketing. Analysis of the water requirements for maize, sorghum, beans

¹ The former Kibungo Province, which included Kirehe, was reported as the third lowest user of improved inputs – in terms of the percentage of households using inputs – out of the then 12 provinces, at 1.8% (IFPRI calculations using EICV data, 2006, cited in World Bank 2007).

and cassava in Season ‘A’, using monthly climate data for Kibungo, indicated that effective rainfall was more than adequate over the season, although some minor dry spells did occur, and that no irrigation would be necessary in the average year (Appendix 4). Less-than-average rainfall would of course result in less-than-average yields for these crops¹.

86. The analysis for bananas indicated that irrigation would be desirable from end-May to end-November, which may explain why this crop is often planted in places with a reasonably constant flow of groundwater, such as river and lakesides, seepage lines, drains and ditches.

Figure 5: Indicative Dry-land Cropping Pattern Showing Area Planted to Main Crops by Season (% of cultivated area)



Source: Mission

87. The analysis for maize, sorghum, beans and cassava in Season ‘B’, however, indicated that maize would be short of about 110 mm of water from October through November; sorghum would be short of about 57 mm; beans about 75 mm; and cassava more than 190 mm short (although the nature of this crop is that it bides its time in the ground until more favourable conditions arise before maturing). It can be concluded that Season ‘B’ is slightly marginal for rainfed cropping in the Eastern Plateau of Kirehe District, and in the Eastern Savannah it is almost certainly much more marginal.

88. Thus it is likely that dry-land crop yields in Season ‘B’ would be inferior to those obtained in Season ‘A’ for maize and beans. Nevertheless, in the absence of better data at this time, the yield estimates in Table 5 can be taken as averages across both seasons (e.g. a maize yield of 0.8 t/ha in Season ‘A’ and another 0.8 t/ha in Season ‘B’). To the level of accuracy permitted by the data, these yields can be taken as representative across both agro-climatic zones. However, banana would yield 6.8 t/ha for the year and, similarly, sweet potato and cassava would yield 5.8 t/ha and cassava 6.7 t/ha for the year.

Water-Managed Cropping and Cropping Patterns

89. Information obtained from Phase I of the National Land Reform Programme within the Ministry of Lands, Environment, Forestry, Water, and Mines indicated that 570 ha (out of a gross total area 7 665 ha) of ‘wetland’ were currently cultivated in Kirehe (Appendix 5)². Data obtained from the district indicated that, of this area, 355 ha were used for cropping paddy and 500 ha for vegetable production. Field observations indicated that most cultivated marshlands were used for rice production in Season ‘A’ and some were also used for the same purpose in Season ‘B’, although at a much reduced intensity because of water shortages. Other valley bottoms were widely used for the cultivation of vegetables (such as tomato, aubergine and cabbages), sweet potato, maize (part of which would be sold as highly valued green cobs) and dry beans, on raised beds. Most such cultivation would take place in Seasons ‘C’ and ‘B’, when there would be insufficient water for a full crop of paddy but enough for these other crops. An indicative cropping pattern is shown in Figure 6.

¹ An analysis of yield response to water deficits was beyond the scope of this report and would require daily rainfall data, but a better indication of the adequacy of rainfall could be provided by using the 80% exceedance probability for monthly rainfall.

² The same data set indicated that the 570 ha were divided into 2 270 parcels – an average of 0.25 ha per parcel – but this needs to be confirmed because the results for every district were identical, which seems unlikely.

**Figure 6: Indicative Cropping Pattern in Marshlands and Other Valley Bottoms
(% of cultivated area)**

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Season 'A'					Season 'C'			Season 'B'			
Nurs	Paddy 'A' (80%)						Nurs	Paddy 'B' (40%)			
				Vegetables 'C' (10%)			Beans 'B' (20%)				
							Maize (20% of which 10% for cobs)				
Sweet Potato (10%)											

Source: Mission

90. The indicative cropping patterns in Figure 5 and Figure 6 should be verified at or before design. Design Mission estimates of the current yields for marshland and other valley bottom crops, based on the existing data are shown in Table 6.

Table 6: Estimated Yields for Marshland and Other Valley Bottom Crops (existing technology)

Crop	Estimated Yield per Crop (t/ha or cobs)
Maize (grain) ^a	0.8
Maize (cobs) ^a	5 000
Beans	1.0
Sweet potato	7.5
Vegetables	10.0
Rice (paddy)	2.6

a/ Total maize yield is sum of yields shown

Source: Mission estimates based on

MINAGRI and FAOSTAT data cited in World Bank 2007

C. Agricultural Water Potential and Development Options

Gravity-Fed Hillside Irrigation

91. Although the mission was not shown any obviously suitable sites for gravity-fed hillside irrigation, this does not mean they do not exist. What is now required is a desk study of available aerial photography and mapping, together with ground reconnaissance surveys, to establish the existence of suitable sites. Provided suitable economic sites and profitable markets can be found, there is good potential for gravity-fed hillside irrigation.

92. On the basis of the WHIP report, the typical costs for such schemes would be of the order of USD 18 750 per ha. For the present purpose it is assumed that the typical with-project cropping pattern on the irrigated plot would consist of pineapple, passion fruit, cooking/beer banana and a leguminous fodder crop such as alfalfa, in equal proportions. Indicative yields for these crops are in Table 7.

Table 7: Indicative Yields for the Main Crops Under Hillside Irrigation

Crop	Estimated Yield per Crop (t/ha)
Banana (cooking/beer)	13.6
Pineapple	30.0
Passion fruit	10.0
Leguminous fodder (green matter) ^a	40.0

a/ 40 t green matter converts to 7 t dry matter or a Starch Equivalent of 3.4 t, which is approximately equivalent to 2.7 t Unité Fourragère (UF)

Source: Mission estimates

Pumped Irrigation from Lakes, Rivers and Groundwater

93. Kirehe District is well-endowed with surface water in the Kagera River and in Lakes Rwampanga and Cyambwe in the north of the district. In addition, it is likely that there is exploitable groundwater in and around the fringes of all marshlands and other valley bottoms, although this remains to be proved. Pumped irrigation could be used for a wide variety of food and cash crops. However, the operational costs associated with pumping and lack of availability of spare parts and services makes it difficult for smallholder irrigators to maintain a successful operation on a sustainable manner. The use of treadle pump has been promoted through work for food programme by WFP in recent past in parts of the district without much success. The treadle pump owners interviewed indicated that they had experienced much difficulty operating and maintaining the pump both in terms of the intensive labour requirement and availability of spare parts and repair services. Mostly, showed no interest in purchasing a new pump, and were hesitant recommending it to their fellow farmers. RADA, the Government agency responsible for irrigation and MINAGRI are not promoting the use of treadle pumps in Rwanda, at least for the present time, and IFAD's current Country Strategic Opportunities Programme supports gravity-fed irrigation, only.

Water Management in Marshlands

94. According to the inventory prepared (from interpretation of satellite imagery) for Phase I of the National Land Reform Programme, there are 7 665 ha of marshlands in Kirehe District, of which only about 7% is cultivated. Most of the currently cultivated area of marshland is either non-equipped or is equipped with only rudimentary water control. There is, therefore, potential for improving water control in the area. There is also significant potential, subject to environmental clearance, for new development.

95. The District Development Plan 2008-2012 identifies three proposed development projects on currently cultivated marshlands in Kirehe: at Gina/Kirehe and Gatore Sectors, Gahara Sector and Nyarubuye Sector. The combined total area of these projects would be 400 ha and the total cost, estimated in the Plan, would be RWF 800 million (USD 1.45 million) or USD 3 640 per hectare.

96. A range of development options exists. Depending on the nature of the individual marshlands these may consist of flood protection only, or flood protection plus main drainage, or full water control with a dam. Interventions on existing schemes could be probably limited to improving flood protection and drainage, with any on-farm improvements carried out by the farmers themselves at their own expense. New developments would be similarly limited to land clearance, flood protection and drainage. Notional investment costs for these two types of interventions, based on the lower end of the range of costs being incurred on RSSP, are shown in Table 8.

Table 8: Notional Budget Costs for Marshland Development

Item	Budget Costs (USD/ha)	
	Existing Cultivated Areas	New Development
Land clearance	-	500
Flood protection and drainage	2 200	2 200
On-farm development (farmers' contribution)	100	100
Total	2 300	2 800

Source: Mission estimate based on RSSP costs

97. The marshlands currently cultivated in Kirehe District are essentially utilized in three different ways: (a) solely for rice cultivation, single or double cropped according to water availability; (b) mainly for rice cultivation in Season 'A', but with a reduced area given over to other crops, including vegetables – especially in Seasons 'B' and 'C'; and (c) mainly for vegetables and other crops, such as sweet potato and beans, grown on raised beds. For the present purpose it has been assumed that the cropping pattern shown in Figure 6 is typical of the without-project situation in cultivated marshlands.

98. The incremental benefits from only limited physical interventions would be correspondingly limited. However with improved agronomic practices promoted and disseminated by the project, yield increments of up to 75% could be reasonably expected. Anticipated with-project yields are shown in Table 9.

Table 9: Estimated With-Project Yields in Marshlands

Crop	Estimated Yield per Crop (t/ha or cobs)
Maize (grain) ^a	1.4
Maize (cobs) ^a	8 750
Beans	1.3
Sweet potato	13.0
Vegetables	17.5
Rice (paddy)	4.6

a/ Total maize yield is sum of yields shown. If no green maize sold grain yield would increase to 2.3 t/ha

Source: Mission estimates

99. In general, developed marshlands are managed by beneficiary cooperatives, set up and trained in the course of developing or rehabilitating the marshlands. These cooperatives are multipurpose profit making institutions that, in addition to collecting water fees and maintaining canals and farm roads, are responsible for a variety of other tasks such as procuring and distributing input, marketing, negotiating loans with the Micro Finance Intermediaries (MFIs) and participating in loan recovery. Within the cooperative, a water committee, or water users' group is responsible for operation and maintenance of the irrigation and drainage systems and collection of water charges. These water committees usually have limited authority and are not financially independent. Although some cooperatives have set-up special operation and maintenance accounts and the water charges are deposited in these accounts, yet the cooperatives have the power to withdraw from these accounts for more urgent uses as the need may arise. Having said that, cooperatives operating in the developed gravity-fed marshlands have, generally been able to recover their cost of annual operation and maintenance through collection of water charges.

In-field Rainwater Management for Dry-land Crops

100. As mentioned above, there is significant potential for achieving productivity and income gains by improving the effectiveness of rainfall through in-field rainwater management technologies – such as conservation agriculture combined with the use of yield-enhancing inputs. This prospect is dealt with in Working Paper 3. However, for the purpose of financial analysis, the typical investment costs can be taken as USD 150/ha, for which incremental dry-land crop yields may be as high as 100%.

V. PROPOSED INTERVENTIONS

A. Rationale

101. The agriculture sector is identified in the EDPRS and Vision 2020 as an engine of future poverty reduction and economic growth. The PSTA is a key pillar of Government's agricultural development strategy and aims to increase the incomes of the rural population by facilitating transformation from a subsistence economy to one that is geared to commercial production for both domestic and export markets.

102. However, access to land is a key constraint. Land availability has been declining over time and median dry-land farm size in the project area is now 0.6 ha per farming household, which at current yields is often barely sufficient to produce enough food for the household's own consumption, let

alone a surplus to market. At the same time there is little prospect for agricultural expansion in Rwanda.

103. Future agricultural growth and poverty reduction will therefore depend on intensification and diversification, although any significant intensification will depend on larger yields rather than greater cropping intensities. Reliance on rainfall alone however limits the prospects for intensification: while the long-term trend in mean annual rainfall is only slightly negative there is wide and possibly increasing variability, with severely dry years and dry spells within years. This discourages investment in yield-enhancing inputs and reduces cropping intensities.

104. Irrigation can provide an opportunity for both intensification – through increases in both cropping intensity and yields – and diversification. However, if it is to be viable and sustainable, irrigation needs to be cost-effective, reliable, developed in response to market opportunities and provided as part of a comprehensive package that ensures farmers’ access to water, empowers them to engage with markets, and enables them to profitably use yield-enhancing inputs.

105. Furthermore, water development for irrigation needs to be based on the whole catchment approach to planning, so as to (a) enhance the prospects for equitable, efficient development, (b) minimize the risk of conflicts between competing uses, and (c) avoid adverse environmental impacts – especially on marshlands (whether currently cultivated or not). Yet, although Government has recently published its new water policy and is currently considering a new Water Bill, water institutions – including WUAs and their apex bodies – have not yet been developed.

106. That said, Rwanda’s theoretical potential for irrigation amounts to only 11% of its cultivated area, indicating that while irrigation could reduce poverty it would never be able to do so for the majority of the population. This therefore suggests that improving non-irrigated, purely rainfed cropping is imperative. In-field rainwater management – such as the various forms of conservation agriculture – intended to increase effective rainfall, could become useful to Rwanda’s dry-land farmers for stabilizing and even increasing crop yields.

B. Objectives

107. Among the immediate project objectives are increased agricultural production and improved water use management in Kirehe District. In line with these objectives, the project would increase agricultural productivity and smallholder net incomes through developing irrigation infrastructure and empowering smallholder irrigators to form private water users associations and effectively participate in watershed planning and decision-making for basin allocation, obtain secure water rights and operate and maintain existing and proposed small-scale irrigation schemes and individual gardens on a sustainable and gender-equitable basis.

C. Design Considerations

108. In view of the strategic thrusts of the PSTA, project investments in agricultural water development should be:

- geared to intensification and diversification;
- self-sustaining at the subproject level;
- profitable at the farm level;
- environmentally neutral and gender equitable;
- accompanied by capacity-building for farmers and their organizations.

109. Investments should also be cost-effective so as to spread their benefits as widely as possible, as well as – bearing in mind the current weaknesses in technical support services – simple in design, with low O&M costs and minimum need for reliance on external support. Whilst the emphasis must be on maximizing agricultural incomes, there is also a need to intensify efforts for food production to ensure household food sufficiency – provided this can be achieved profitably.

D. Irrigation Development & Water Use Management Sub-components

Irrigation Development

110. **Marshland and hillside irrigation.** Subject to participatory identification of suitable sites for viable and sustainable development, the project would finance improvements on approximately 1 000 ha marshland and 1 000 ha of new hillside irrigation.

111. Interventions in marshlands would focus exclusively on sites where low-cost improvements, such as drainage and/or flood protection, might bring real water control benefits. Provided suitable sites can be found, the typical hillside scheme would involve the construction of mini-dams, ponds or cisterns and distribution systems to provide supplementary irrigation for mini and small scale irrigation schemes up to approximately 60 ha. Such schemes would be developed on arable lands with a slope of less than 12%. The project emphasis would be placed on development of smaller schemes that can be developed and become fully operational during the project years.

112. The schemes developed would be gravity-fed with simple technologies that: (i) are technically, financially and environmentally sound investments with low cost per hectare; (ii) have low operation and maintenance costs per hectare affordable by the beneficiaries; (iii) have prospects for achieving high returns on the investments, and (iv) meet the eligibility criteria established for the project (Appendix 6). The schemes would be developed based on demand of the beneficiary groups who are willing to participate in planning and implementation of schemes and contribute 15% of the cost of the works in kind, or in cash. The schemes would be designed and constructed in consultation with and participation of, the beneficiary groups by competent engineering service providers and construction contractors selected competitively. Provisions would also be made for preparation of Operation and Maintenance Manuals for each irrigation scheme and be translated into local languages.

113. **District Water Management and Irrigation Plan** – In accordance with the new Water Bill, water resources administration and management would be by a hierarchy of basin and sub-basin committees guided by water management plans to be prepared and updated regularly for each basin and sub-basin. A preliminary study has been carried out on watersheds falling within the Kirehe District under PAPSTA. The project would finance a complimentary study to: (a) identify the potential mini and small-scale irrigation sites suitable for development by the project; and (b) develop a water management plan for each catchment and sub-catchment area. The study would be based on an in depth review and analyses of the climatic conditions, rainfall patterns, and assessment of the availability and use of surface water resources, soils condition, soils fertility and topographic settings. In addition, surveys would be conducted focusing on socio-economic characteristics of the catchment/ sub-catchment area, identifying population centres and settlement patterns, the present agriculture and livestock keeping activities and production, access to markets and marketing potentials. Stakeholders' workshops would be held at catchment level to discuss and validate plans.

114. Effective use of water for irrigation requires data on climatic conditions, river and stream flows that are currently not being recorded in the Kirehe District. The project, therefore, would finance establishment of weather stations, river gauging stations at suitable locations to collect climatic and hydrological data on regular basis. Site selection and plan for installation and operation of these stations would be prepared as a part of the District Water Management and Irrigation Plan.

115. **Environmental Impact Study/ Assessments:** To ensure that potential adverse environmental impacts are minimized and that environmental opportunities are enhanced for multiplier effects an Environmental Impact Study will be carried out during the first project year so that the resultant recommendations are incorporated in the design of irrigation and drainage schemes, as appropriate. The study would assess: (i) the diverse environmental functions and services provided by the wetland –yet to be identified. Ensure that the EIA recommendations build on a systematic treatment of lessons drawn from the National Environmental Action Plan and past/ongoing wetland development initiatives in Rwanda; and (ii) alternative livelihood options vis-à-vis rice production, in which case the views of farmers involved would be sought in the identification and decision-making of the alternatives.

116. In accordance with the Organic Law on the Environment (Articles 67–69) and related guidelines, all irrigation development projects/ subprojects in the wetlands, or involving public dams or ‘rainwater harvesting’ are subject to environmental impact assessment, before permit for their implementation are issued. Therefore, the project would finance preparation of these EIAs as a part of the planning and design for development of these schemes.

Water Use Management Sub-component

117. **Water Users’ Associations (WUAs).** In the context of the new reform in administration and management of water resources in Rwanda, the Water Bill provides the legal base for formation of WUAs as legal entities to be responsible for operation and maintenance of irrigation and drainage systems and to set and collect water charges. The project would provide support for formation of WUAs to improve the management, performance and sustainability of irrigation and drainage systems to be developed under the project and to empower smallholder farmers to take charge of operation, maintenance and management of these systems. The WUAs would be formed as non-profit organizations with the power to regulate and control water use, collect water charges, impose penalties, settle disputes, enter into contracts, open and operate bank accounts, and institute and answer law suits. The legal base for establishment of associations as non-profit institutions currently exists under a separate law. International and national legal advisory services would be provided to MINAGRI to develop the required legal instruments (i.e. bylaws, model constitutions) to establish viable and functioning WUAs – not just in Kirehe District, but also in the country as a whole. The legal advisors would also review duties, responsibilities and authority of cooperatives’ water committees and propose measures to transform them into a financially independent organ of the cooperatives with the same responsibilities, organizational arrangement and authority as WUA and the power to set and collect water charges solely for investments in operation, maintenance, management and repair of the irrigation and drainages systems. The advisory services would commence soon after project effectiveness. *Assurances were obtained at grant negotiations that the required draft legislations for formation of WUAs would be proposed for approval of the Parliament during the first two Project Years.*

118. The project would assist farmers using water from a hydraulic unit who have a common interest in equitable and efficient use of water to join together, establish WUA and participate in planning, design and implementation of irrigation schemes supported by the project. WUAs would be responsible for irrigation systems within hydraulic units and would have three key functions: (i) operation and maintenance; (ii) setting and collecting fees and water charges; and (iii) resolution of conflicts among their members arising from the use of water. Depending on the size of irrigation command area, the WUAs would have up to a three-tire organisational structure; one for each level of tertiary, secondary and main canal. For small schemes, only a one-tire structure would be required. The proposed organisational structure of WUAs is shown in Appendix 7, Figure 1. The water committee of cooperatives formed on hydraulic units would have the same organizational structure. Membership of WUAs would be automatic and all irrigation water users owning or possessing land located in the irrigation scheme would be a member. Each member would have equal voting right in elections and decision makings to ensure that all farmers would have the opportunity to democratically elect their leaders and achieve equity and transparency in land and water allocation. All members would be obligated to follow rules and regulations set by management of WUAs adopted in consultation with, and approval of the majority. It is estimated that about 60 WUAs or cooperatives with eligible water committees would be formed during the course of project implementation.

119. In the absence of an adequate number of experienced staff at the district level, provisions would be made for recruiting services of a qualified service provider recruited competitively to assist irrigation water users organise themselves into WUAs, and to provide technical support and training for future operation, maintenance and management of the schemes. The services would be funded for the initial two years of project implementation during which time the project and district irrigation staffs would be supported and trained to take over the service provider’s responsibilities. The project staff would include water management officers and facilitators hired for duration of the project and staying on-post thereafter. After Project Year 4, the district authorities would take over the full

funding of these posts. In addition, international and national technical assistance would be provided (about 2 person-months and 1 person-month per year, respectively) to guide the process.

120. **Training and Capacity Building:** While the area covered by each WUA is relatively small, the number of water users involved would be comparatively large requiring more technical and management skills to achieve desirable results. Therefore, the project would provide a broad spectrum of training packages and study tours for leaders and members of WUAs to prepare them for their future tasks. This would include provision of practical training programmes supporting key activities of WUAs. These programmes would be tailored to and given at various stages of WUA development and would include such topics as: (i) farmer organisation; (ii) legal framework and preparation of bylaws; (iii) roles and responsibilities; (iv) management and accountability; (v) record keeping; (vi) water management/ irrigation scheduling; (vii) maintenance planning and implementation; (ix) water charges and fees; and (x) conflict management. The project would provide support for preparation of these training modules.

121. The irrigation staff at the District Irrigation Unit would be trained to (i) form new WUAs; (ii) train members and leaders of WUAs in O&M of the scheme and organization and management of their association. Study tours would be provided for relevant staffs of the District and key RADA irrigation staff at the national level.

122. **Water Users' Association Support Section:** At the national level, support would be provided for establishment of a small Water Users' Association Support Section within RADA to harmonize and streamline the process of formation of WUAs. This section would provide core support to the districts and WUAs, including development of national policy guidelines, preparing drafts and follow up legislation, preparing training materials and guidelines on formation and organization of WUAs and monitoring their overall performance. The section would consist of a WUA Support Section Head, a WUA Organisation Specialist and an Irrigation Technician.

E. Implementation

Organization and Management

123. The project would be housed in MINAGRI within the project coordination unit of PAPSTA. However, a Field Unit would be established in Kirehe through which an operations manager, who would report to the project coordinator of PAPSTA, would manage field activities. District Council would have overall responsibility for major decisions. Institutional arrangements are presented in the Main Report.

124. A District Irrigation Unit (DIU) would be established under the PCU Field Unit. Its role would be to guide and supervise service providers, consultants and contractors. DIU would have two main sections (i) Engineering and Technical Support and (ii) Water Management Support Services. The first section would provide technical support to assist District level staff, together with the beneficiary farmers, to undertake the necessary planning, design and implementation aspects of irrigation development under the project. The second section would provide the software services to enable communities to determine their needs and priorities and to assist them in farmer mobilisation; development of Water Users Association and preparation for WUA managed O&M and improved water management. Each section would be managed by a senior officer who would report directly to the DIU Manager. National and international technical assistance will be provided to both sections of the DIU to remedy deficient skills and to provide professional services, such as project planning, design and construction supervision, as well as formation and training of WUAs.

Implementation Arrangements

125. **Irrigation Development:** Implementation of the irrigation works will be carried out entirely by private consultants and contractors under direct supervision of the DIU. For preparation of planning and environmental reports, as well as engineering design, services of qualified private consulting firms

would be employed. The consultants must have extensive experience, qualified personnel, high reputation and history of good performance to be selected for the required services. The consultants would be selected through a competitive and transparent selection process.

126. A panel of experts established under the project composed of an international TA, senior staff, and key private sector specialists would review the planning, economic viability and soundness of the engineering design, as well as potential environmental impacts and mitigating measures of each irrigation scheme for approval.

127. Irrigation works would be carried out by private contractors engaged through competitive bidding processes based on quality and cost control mechanisms that are transparent to all involved and especially to the beneficiary users.

128. **Formation of WUAs:** Implementation of irrigation development works would be carried out in parallel with formation of WUAs, or eligible cooperatives (eligibility criteria to be developed by the PCU and included in the project implementation manual) and empowering of water users in three stages, including: (i) Initial Identification and Planning; (ii) Organisation and Preparation; and (iii) Implementation and Empowerment; as described below.:

129. **Stage 1: Initial Identification and Planning:** The process of selecting specific sites for the development of new marshland and hillside irrigation schemes has been in Working Paper 2.

130. Once a potential site is identified, a technical team would appraise the initial request from the farmers and evaluate the availability and adequacy of water and land resources and conformity of the selected site with the criteria established for project support. The schemes that meet these preliminary requirements would be further developed following a general participatory agreement signed between representatives of the farmers and the District Irrigation Unit. An “interim committee” would be elected by the farmers at a general meeting to represent their interest in scheme design and development and formation of WUA. The participatory agreement would include a clause for unforeseen technical and economic considerations that may abort the scheme for further development and indicate the need for the farmers participation in the planning and development of the scheme and their in kind contribution and commitment for future operation and maintenance of the scheme.

131. Once the general participatory agreement has been signed a full assessment of the site and the scheme would be made. This assessment would be carried out with participation and involvement of the farmers and would cover engineering, economic, social and environmental aspects of the irrigation development and would identify the overall farmer contributions and future responsibilities for operating and maintaining the scheme. The result of this assessment would be presented to the farmers. All parties would then agree to a specific approach to the irrigation development, including the type and approximate cost of the development. More detailed planning and design will be carried out during the next stage to confirm this assessment.

132. **Stage 2: Organisation/Preparation:** This stage would include all activities necessary to prepare both the farmers and the technical team for construction works. For the farmers it would include formation of a WUA to represent them and to sign an agreement on their behalf for participation, in-kind contribution and future operation, maintenance and management of the scheme. For irrigation development aspects, it would include surveys, designs and preparation of bills of quantities and cost estimates and tender documents. Studies would be conducted to satisfy the legal requirements for Environmental Impact Assessment’ (EIA) of new irrigation schemes.

133. The process of formation of WUAs would begin with promotion of the concepts of improved water management, farmer empowerment and advantages of formation of farmer-managed, self-sustained WUAs. Local leaders and interested water users from various parts of the schemes would receive basic information about these concepts through periodic contacts by the project and NGO staffs, group discussions and audio-visual presentations, or media. They will also be familiarised with the role and responsibilities of WUA, and how they organise and operate.

134. Subsequently, water users from different parts of the scheme would be invited to a meeting (or several meetings) in which the project support, overall concepts of irrigation system improvements, cost recovery and WUA programme is explained by the local leaders, officials and the project staff. Leaflets and other handouts would be distributed among meeting participants and adequate time would be allowed for discussions. At a final meeting, the water users would be invited to cast their vote on formation of WUA and election of officers to prepare the required draft bylaws and internal regulations for approval of the members.

135. A model constitution of WUAs will be provided and the basic rules and procedures for operation of WUA will be explained to the officers and village elders. At a later date, these leaders will spend considerable time evolving the draft of their own statute for operating and maintaining the scheme. The draft constitution will be widely circulated and discussed at a general meeting of water users for approval. The concerns and views expressed by the water users will be addressed, and if necessary, another meeting is called to ratify the constitution.

136. Upon formation, WUAs would be assisted to register as legal entities in accordance with the law. Leaders of WUAs would be trained to organise participation and contribution of their respective members. Once the WUA has been formed and applied for registration and the designs, cost estimates have been completed; a participatory agreement for the small and mini-scale schemes would be signed with clearly defined duties and responsibilities of the parties and a timetable for their implementation.

137. The draft agreements, written in both the local and official languages, would outline the rights and obligations of each party and would be presented to the WUAs and the District for discussion and comments. The final draft agreement would be prepared with due consideration of views expressed by the WUAs and the District. The agreement would clearly outline the construction activities that will be the responsibility of the project and where farmer assistance is required. A final participatory agreement will be drawn up and signed by all parties at a General Meeting of the farmers.

138. ***Stage 3: Implementation and Empowerment:*** This stage includes procurement and award of construction contract and construction of the irrigation facilities and the empowering of the WUA to take charge of its administrative and management responsibilities to operate and maintain the system.

139. During implementation stage, the WUA leadership would be briefed on procurement process and invited to every phase of procurement pertaining to their schemes to establish transparency in the process. The WUA leadership would be trained to monitor the construction works, identify and assist in resolving problems which may arise between the private contractors and water users, understand the process and procedures for construction scheduling and assessment of damages to private land or property during the construction. The construction schedule would be discussed with the WUA leadership to allow water users make any necessary contingency plans for cultivating their land. Similarly, changes in the construction schedule would be made with the prior consensus of the WUA leadership and the water users that are directly involved.

140. The WUA leaders will receive training prior to the contractor hand-over of the completed works. Training would be in irrigation scheduling, operation and maintenance, record keeping, and financial management and setting up accounting system and procedures for collection of water charges. Members and officers of the association would be trained in improved irrigation practices, land levelling, and other on-farm improvements.

141. Upon completion of the works, technical staff, contractor representative and leaders of the newly formed WUAs would walk through the completed works to identify any shortcomings that need to be taken care of by the contractor prior to the final hand-over of the completed works to the WUAs. The hand-over of each part of the irrigation system would be formally documented with signatures of the official representatives of the District and WUAs.

F. Monitoring and Evaluation

142. The progress and impact of the proposed activities under the Component would be monitored by the project as presented in the Main Report. The performance and impact monitoring indicators, consistent with IFAD's Results and Impact Monitoring System (RIMS), recommended for the project monitoring and evaluation system are set out in Appendix 2 of Working Paper 13.

G. Estimated Costs

143. The total base costs for irrigation development water use management and subcomponents are estimated at approximately USD 11,125 million, of which USD 1,423 million would be provided for water use management and USD 9,982 million for irrigation development (see Working Paper 11). As already noted, the prospective users of irrigation schemes would need to finance 15% of the investment costs of these schemes – in cash or in kind.

H. Expected Results

144. The subcomponent would be expected to advance the development of water institutions, not only in Kirehe District but also in Rwanda as a whole, since it would contribute to refining the country's legal framework for water and to establish the proposed national water commission and basin/sub-basin authorities. It would also bring some 2 000 ha under new or improved irrigation, which could benefit up to 20 000 households participating directly as irrigators.

I. Sustainability

145. As mentioned earlier, the designs for irrigation schemes would use simple low-cost technology suitable for management by farmers with the minimum of external support. The adoption of participatory planning, design and construction methods through decentralized authorities would be expected to generate local ownership and commitment to sustainability.

APPENDICES

APPENDIX 1: LIST OF DOCUMENTS CONSULTED

Acland, J.D. 1971. *East African Crops*. London. Longman.

Bekele-Tesemma, A and Prime, N. 2007. *Water Harvesting and Hillside Irrigation Project (WHIP)*. Proposal for Donor Grant. Final Draft Main Report.

Dixon, J & Gulliver, A with Gibbon, D. 2001. *Farming Systems and Poverty*. FAO and World Bank. Rome and Washington DC.

EAC & SIG. 2007. *Rapport de l'Etude d'Impact Environnemental (E.I.E): Realisation de l'Etude d'Execution des Travaux d'Aménagement du Marais de Rwabutazi dans la zone de Kirehe*. Projet d'Appui au Plan Strategique pour la Transformation de l'Agriculture (PAPSTA). Kigali

EAC & SIG. 2007. *Rapport Definitif de l'Avant Project Detaille (A.P.D): Realisation de l'Etude d'Execution des Travaux d'Aménagement du Marais de Kibaza dans la zone de Bugesera*. Projet d'Appui au Plan Strategique pour la Transformation de l'Agriculture (PAPSTA). Kigali.

EAC & SIG. 2007. *Rapport Definitif de l'Avant Project Detaillee (A.P.D): Realisation de l'Etude d'Execution des Travaux d'Aménagement du Marais de Kibaza dans la zone de Bugesera*. Projet d'Appui au Plan Strategique pour la Transformation de l'Agriculture (PAPSTA). Annexes. Kigali

EAC & SIG. 2007. *Rapport Provisoire de l'Avant Project Detaille (A.P.D): Realisation de l'Etude d'Execution des Travaux d'Aménagement du Marais de Rwabutazi dans la zone de Kirehe.* Projet d'Appui au Plan Strategique pour la Transformation de l'Agriculture (PAPSTA). Kigali.

Ebony Enterprises, Ltd. 2007. *Study for Irrigation Master Plan in Rwanda*. Herzliya Pituach, Israel.

FAO. 1977. *Crop water requirements*. Irrigation and Drainage Paper 24. Rome.

FAO. 2005. *Irrigation in Africa in figures: Aquastat Survey – 2005*. FAO Water Report 29. Rome

Government of Rwanda. 2005. *Organic Law Determining the Modalities of Protection, Conservation and Promotion of the Environment in Rwanda*. Official Gazette No 04/2005 of 08/04/2005. Kigali.

Government of Rwanda. 2005. *Organic Law Determining the Use and Management of Land in Rwanda*. Kigali

Government of Rwanda. Undated. *Law determining the Establishment, Organization and Functioning of Cooperative Organizations in Rwanda*. Kigali.

Government of Rwanda/Province du Kibungo. 2005. *Reunion de Presentation du Plan Strategique 2006-2008 de la Province de Kibungo*. Kibungo

Groupement HYDROPLAN Ingenieur GmbH-SHER Ingénieurs Conseils sa. 2002. *Schéma Directeur d'Aménagement des Marais, de protection des Bassins Versants et de la Conservation des Sols*. Rapport global définitive phase 1. Annexe 2. Etude hydrologique. Kigali.

Groupement HYDROPLAN Ingenieur GmbH-SHER Ingénieurs Conseils sa. 2002. *Etude du Schéma Directeur d'Aménagement des Marais, de protection des Bassins Versants et de la Conservation des Sols*. Rapport global définitive phase 1. Annexe 3. Etude environnementale. Kigali

Groupement HYDROPLAN Ingenieur GmbH-SHER Ingénieurs Conseils sa. 2002. *Etude du Schéma Directeur d'Aménagement des Marais, de protection des Bassins Versants et de la Conservation des Sols*. Rapport global définitive phase 1. Annexe 4. Etude agro économique. Kigali

Groupement HYDROPLAN Ingenieur GmbH-SHER Ingénieurs Conseils sa. 2002. *Etude du Schéma Directeur d'Aménagement des Marais, de protection des Bassins Versants et de la Conservation des Sols*. Rapport global définitive phase 1. Annexe 6. Schéma d'aménagement de marais. Kigali

- Groupement HYDROPLAN Ingenieur GmbH-SHER Ingénieurs Conseils sa. 2002. *Etude du Schéma Directeur d'Aménagement des Marais, de protection des Bassins Versants et de la Conservation des Sols*. Rapport global définitive phase 1. Annexe 7. Etude sur la protection des bassins versants et la conservation des sols. Kigali.
- Huggins, C and Musahara, H. 2004. *Land Reform, Governance and the Environment: The Case of Rwanda (DRAFT)*. Workshop on Biodiversity, African Governance and Land Reform. African Centre for Technology Studies (ACTS), Kenya.
- ILACO B.V. 1981. *Agricultural Compendium for Rural Development in the Tropics and Subtropics*. Elsevier. Amsterdam, Oxford and New York.
- IFAD and DFID. 2007. *Supervision and Output-to-Purpose Review (OPR) Report*. Support Project for the Strategic Transformation of Agriculture; Strengthening Implementation of the Rwanda Agricultural Strategy and Action Plan. IFAD Report No 671 RW-DSR 01. Rome
- IFAD. 2005. *Project d'Appui au Plan Stratégique de Transformation de l'Agriculture*. Rapport de Pré Evaluation. Volume II: Documents du Travail.
- IFAD. 2005. *Projet d'Appui au Plan Stratégique de Transformation de l'Agriculture*. Rapport de Pré Evaluation. Volume I: Rapport Principal. Rome
- IFAD. 2007. *Agricultural Water Development for Poverty Reduction in Eastern and Southern Africa*. Zero Draft. Rome
- IFAD. 2007. *Republic of Rwanda Country Strategic Opportunities Programme (COSOP)*. Confidential Report No 1930-RW. Rome
- Kirehe District. 2007. *Monographie du District de Kirehe*. Kirehe.
- Kirehe District. 2007. *Plan de Developpement Quinquennal (2008-2012) du District de Kirehe*. Kirehe.
- Ministry for Agriculture and Animal Resources. 2007. *National Strategy for the Utilisation of Fertilizers in Rwanda*. Kigali
- Ministry of Agriculture and Animal Resources. 2005. *Projet d'Appui au PSTA: Etude Socio-Economique – District de Rusumo*. Kigali
- Ministry of Agriculture and Animal Resources. 2007. *Project Proposal (Draft): Soil and Livelihoods Programme (SLIP)*. Kigali.
- Ministry of Agriculture and Livestock. 2004. *Document de Politique Agricole (National Agricultural Policy)*. Kigali
- Ministry of Finance and Economic Planning. 2000. *Rwanda Vision 2020*. Kigali
- Ministry of Lands, Environment, Forestry, Water and Mines. 2006. *Bill on Fixing Rules of Use, Conservation, Protection and Management of Water Resources*. Kigali
- Ministry of Lands, Environment, Forestry, Water and Mines. Undated. *Draft Ministerial Order Relating to the Requirements and Procedure for Environmental Impact Assessment*. Kigali.
- Ministry of Lands, Environment, Forestry, Water and Mines. Undated. *Ministerial Order Establishing the List of Works, Activities and Projects that (require) an Environmental Impact Assessment*. Kigali
- Ministry of Lands, Environment, Forestry, Water and Mines. Undated. *Draft Law Establishing the Rwanda Environment Management Authority*. Kigali.
- Ministry of Lands, Environment, Forests, Water and Mines. 2007. *Gestion durable des Terres au Rwanda*. Kigali
- Ministry of Lands, Environment, Forests, Water and Natural Resources. 2004. *Sectoral Policy on Water and Sanitation*. Kigali

- Ministry of Lands, Resettlement and Environment. Undated. *National Environment Policy*.
- Technical Centre for Agricultural and Rural Cooperation ACP-EU. 1999. *Managing water equitably, efficiently and sustainably for agricultural and rural development in sub-Saharan Africa and the Caribbean*. Synthesis Report on the CTA Seminar, Cordoba, Spain 1999.
- The Poverty and Environment Initiative and Rwanda Environment Management Authority. Undated. *Economic Analysis of Natural Resource Management in Rwanda*. Kigali
- The Poverty and Environment Initiative and Rwanda Environment Management Authority. Undated. *Pilot Integrated Ecosystem Assessment of Bugesera*. Kigali
- Unattributed, undated slide presentation. *Rainwater Harvesting in Rwanda*.
- Verdoot, A & van Ranst, E. 2003. *A large-scale land suitability classification for Rwanda*. University of Ghent.
- Water and Power Consultancy Services (India) Limited. 2006. *Proposed Strategy for Future Irrigation Development in Republic of Rwanda. (Final Report)*. New Delhi, India.
- World Agroforestry Centre. 2007. *Best Practices of Rainwater Harvesting*. Nairobi.
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APPENDIX 2: LIST OF PERSONS MET AND PLACES VISITED

A – KIGALI

Ministry of Agriculture and Animal Resources (MINAGRI)

B.P. 621 Kigali; Tel: +250 585008; Fax: +250 585057; E-mail: info@minagri.gov.rw
Web: www.minagri.gov.rw

Dr. Agnes Kalibata Minister of State, in charge of Agriculture

Rwanda's Agriculture Development Authority - RADA

Tel: 518632, 518631; Fax: 518632

Patrice Hakizimana General Director; phakizimana@minagri.gov.rw
Prime Head, Irrigation Department; cell: 08-303075

Support Project for the Agricultural Transformation Strategic Plan (PAPSTA)

B.P. 621 Kigali; Tel: 08493158; 584043, 55103315, 55108077; inf@papsta.org.rw

Ernest Ruzindaza, Acting General Secretary MINAGRI & Coordinator,
eruzindaza@minagri.gov.rw
Janvier Gasasira Coordinator, Pilot Actions

Rural Sector Support Programme (RSSP)

P.O. Box 6961, Kigali; Tel: 250-514448; Fax: 250-587-226

Geraldine Mukeshimana Project Coordinator; Geraldine@rssp.gov.rw
Cell: 08-301-751

Inland Lakes Integrated Development & Management Support Project (PAIGELAC)

P.O. Box 621 Kigali, Tel: 250-55-100-158; paigelac@yahoo.fr

Dusabemungu Gregorie Acting Coordinator (0886-65 53)
Ir Uwiragiye Flavien Project Developer (0885 77 12)

The World Bank

Blvd. De la Revolution, SORAS Building, Kigali, Phone: (250) 591 301; Fax: (250) 576885

Loraine Ronchi Resident Representative

World Food Programme

P.O. Box 1150 Kigali; Tel: +250-587611-15; Fax: +250-5876168/20/21: <http://www.wfp.org/>

Ahmed Zakaria, Deputy Country Director; +250-0830-3561
ahmed.zakaria@wfp.org

Nile Basin Initiative (NBI)

P.O. Box 6759, Kigali, Fax +250 580100;

Peter Kanyi Maina Sr. Economist; M & E Officer; Cell: 08-307334

Ministry of Commerce, Industry, Investment Promotion, Tourism & Cooperatives: (MINICOM); (250) 574725, 574734; Fax. (250) 575465

Nzakunda Joseph Member of Task Force on Cooperative;
Cell: 08-862650

Rwanda Union of Rice Growers Cooperative (UCORIRWA)

Tel: 250-08526347

Jonas Bauusarenshi

National Coordinator

COCA sarl

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Nzeyimana Valere

Rural Engineer; nzeyival@yahoo.fr

KIREHE DISTRICT

District Administration

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Nykuzumwami, Patrick

Rwema Jean Piene

Ntirenganja Boniface

Alphanse Sebudandi

Mayor; 08302231; nkupatri13@yahoo.fr

Executive Secretary; 08528407, rwermajean@yahoo.fr

Economic Planning 08-810688 ntirehanyaboni@yahoo.fr

Director of Infrastructure 08-581463; senalph@yahoo.fr

PAPSTA Project

B.P. 621 Kigali; el 08493158; inf@papsta.org.rw

Olivier Faida

Responsible Officer, Pilot Area, 08-493158; 05146673;

faidaolivier@yahoo.fr

Karabira Antoine

Executive Secretary

Hakizimana Daniel

Agronomist, Gohaes Sector

Claude

Agronomist, Gatore Sector

Munyakyanza Sebastien

President, Agriculture Intensification Cooperative

Mpumbya Leanaie

Rice Cooperative

Mukaduabe Tesee

Women Representative

Mukakabesttatto Juliettes

President, Pineapple Cooperative

Myecumi Celestion

Farmer, Peddle Pump Irrigator

APPENDIX 3: CLIMATE DATA FOR KIGALI AIRPORT AND KIBUNGO

Table 1: Annual Rainfall at Kigali Airport 1961-1993 & 1995-2002

Year	Annual Rainfall (mm)	% of Mean
1961	1 026	102
1962	1 028	102
1963	1 173	116
1964	1 089	108
1965	1 216	121
1966	789	78
1967	950	94
1968	1 147	114
1969	800	79
1970	1 053	105
1971	909	90
1972	1 154	115
1973	1 003	100
1974	865	86
1975	898	89
1976	794	79
1977	1 008	100
1978	1 081	107
1979	1 360	135
1980	1 074	107
1981	1 169	116
1982	988	98
1983	890	88
1984	1 000	99
1985	1 012	100
1986	954	95
1987	1 133	112
1988	1 208	120
1989	1 021	101
1990	1 059	105
1991	938	93
1992	687	68
1993	774	77
1994		
1995	980	97
1996	848	84
1997	1 065	106
1998	1 283	127
1999	869	86
2000	704	70
2001	1 287	128
2002	1 004	100
Mean	1 007	
STD	158	
CV (%)	16	

Source: MINAGRI

Table 2: Climate data for Kibungo (1933-1990)

Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Mean daily insolation (hours/day)	5.3	5.0	5.5	4.7	4.1	7.2	6.2	6.2	5.6	3.8	4.5	4.1	5.2
Mean monthly rainfall (mm)	92.5	97.5	127	158	106	14.1	7.8	21.1	60.3	76.8	117	105	985
Mean humidity (%)	77	78	78	84	85	71	62	55	60	79	78	81	74
Mean maximum temperature (°C)	25.1	25.1	24.9	24.3	24.0	25.4	24.7	27.1	27.8	24.5	24.8	25.0	
Mean minimum temperature (°C)	16.1	15.8	15.9	15.9	16.2	16.0	15.3	16.3	16.6	15.0	15.6	15.9	
Mean daily evapotranspiration (mm/day)	3.5	3.6	3.8	3.3	3.0	3.9	4.0	4.5	4.5	3.9	3.4	3.1	1 335

Source: MINAGRI

APPENDIX 4: CROP WATER REQUIREMENTS FOR RAINFED & IRRIGATED

CROPS IN KIBUNGO

Rainfed Crops – Season ‘A’

18/12/2007 CropWat 4 Windows Ver 4.3

Crop Water Requirements Report

- Crop # 1 : Season A MAIZE Kibungo
- Block # : [All blocks]
- Planting date : 1/1
- Calculation time step = 10 Day(s)
- Irrigation Efficiency = 100%¹

Date	ETo (mm/period)	Planted Area (%)	Crop Kc	CWR (ETm)	Total Rain (mm/period)	Effect. Rain	Irr. Req. (l/s/ha)	FWS
1/1	33.42	100.00	0.30	10.03	31.35	26.62	0.00	0.00
11/1	33.43	100.00	0.30	10.03	30.37	26.26	0.00	0.00
21/1	33.44	100.00	0.33	11.16	30.15	26.31	0.00	0.00
31/1	33.47	100.00	0.54	17.95	30.97	26.88	0.00	0.00
10/2	33.55	100.00	0.76	25.54	32.93	28.04	0.00	0.00
20/2	33.68	100.00	0.99	33.22	35.97	29.75	3.47	0.06
2/3	33.87	100.00	1.18	39.88	39.78	31.89	8.00	0.13
12/3	34.12	100.00	1.20	40.95	43.89	34.22	6.73	0.11
22/3	34.44	100.00	1.20	41.33	47.64	36.41	4.92	0.08
1/4	34.82	100.00	1.20	41.78	50.26	38.04	3.74	0.06
11/4	35.26	100.00	1.16	41.07	50.93	38.61	2.46	0.04
21/4	35.74	100.00	0.96	34.13	48.86	37.55	0.00	0.00
1/5	36.27	100.00	0.72	26.17	43.40	34.26	0.00	0.00
11/5	18.35	100.00	0.55	10.03	18.49	15.03	0.00	0.00
Total	463.86			383.25	535.00	429.87	29.30	[0.04]

* ETo data is distributed using polynomial curve fitting.
 * Rainfall data is distributed using polynomial curve fitting.
 * Effective rainfall calculated using average rainfall by USBR method

 C:\CROPWAT\REPORTS\KIREHE\MAIZE-A.TXT

Observations:

1. Peak irrigation requirement of 8 mm net in 10 days is negligible
2. Total irrigation requirement of 29 mm net over 140-day growing period also negligible

¹ Irrigation efficiency set at 100% because the analysis is intended to assess net, rather than gross, irrigation requirements.

Rwanda: Kihere Community-based Watershed Management Project (KWAMP) – Final Design
 WORKING PAPER 5: AGRICULTURE & WATER DEVELOPMENT
 APPENDIX 4: CROP WATER REQUIREMENTS FOR RAINFED & IRRIGATED

06/12/2007

CropWat 4 Windows Ver 4.3

Crop Water Requirements Report

- Crop # 1 : Season A SORGHUM Kibungo
- Block # : [All blocks]
- Planting date : 1/1
- Calculation time step = 10 Day(s)
- Irrigation Efficiency = 100%

Date	ETo (mm/period)	Planted Area (%)	Crop Kc	CWR (ETm)	Total Rain (mm/period)	Effect. Rain	Irr. Req.	FWS (l/s/ha)
				-----		-----		
1/1	33.42	100.00	0.30	10.03	31.35	26.62	0.00	0.00
11/1	33.43	100.00	0.30	10.03	30.37	26.26	0.00	0.00
21/1	33.44	100.00	0.41	13.71	30.15	26.31	0.00	0.00
31/1	33.47	100.00	0.61	20.42	30.97	26.88	0.00	0.00
10/2	33.55	100.00	0.81	27.18	32.93	28.04	0.00	0.00
20/2	33.68	100.00	0.98	33.01	35.97	29.75	3.26	0.04
2/3	33.87	100.00	1.00	33.87	39.78	31.89	1.98	0.02
12/3	34.12	100.00	1.00	34.12	43.89	34.22	0.00	0.00
22/3	34.44	100.00	1.00	34.44	47.64	36.41	0.00	0.00
1/4	34.82	100.00	0.98	34.03	50.26	38.04	0.00	0.00
11/4	35.26	100.00	0.84	29.70	50.93	38.61	0.00	0.00
21/4	35.74	100.00	0.69	24.75	48.86	37.55	0.00	0.00
1/5	18.07	100.00	0.58	10.48	22.61	17.70	0.00	0.00
Total	427.30			315.75	495.72	398.28	5.24	[0.00]

* ETo data is distributed using polynomial curve fitting.
 * Rainfall data is distributed using polynomial curve fitting.
 * Effective rainfall calculated using average rainfall by USBR method

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Observations:

1. Irrigation requirement of 3 mm net in 10 days is negligible.

Rwanda: Kihere Community-based Watershed Management Project (KWAMP) – Final Design
 WORKING PAPER 5: AGRICULTURE & WATER DEVELOPMENT
 APPENDIX 4: CROP WATER REQUIREMENTS FOR RAINFED & IRRIGATED

06/12/2007

CropWat 4 Windows Ver 4.3

Crop Water Requirements Report

- Crop # 1 : Season A DRY BEANS Kibungo
- Block # : [All blocks]
- Planting date : 1/2
- Calculation time step = 10 Day(s)
- Irrigation Efficiency = 100%

Date	ETo (mm/period)	Planted Area (%)	Crop Kc	CWR (ETm) -----	Total Rain (mm/period)	Effect. Rain -----	Irr. Req. -----	FWS (l/s/ha)
1/2	33.48	100.00	0.40	13.39	31.11	26.97	0.00	0.00
11/2	33.56	100.00	0.40	13.42	33.19	28.19	0.00	0.00
21/2	33.70	100.00	0.54	18.12	36.32	29.95	0.00	0.00
3/3	33.89	100.00	0.79	26.69	40.19	32.12	0.00	0.00
13/3	34.15	100.00	1.04	35.44	44.30	34.45	0.99	0.01
23/3	34.47	100.00	1.15	39.65	47.97	36.61	3.04	0.04
2/4	34.86	100.00	1.15	40.09	50.43	38.16	1.93	0.02
12/4	35.30	100.00	1.15	40.60	50.86	38.59	2.01	0.02
22/4	35.80	100.00	1.15	41.16	48.47	37.33	3.83	0.04
2/5	36.33	100.00	0.93	33.77	42.66	33.78	0.00	0.00
12/5	36.89	100.00	0.53	19.53	33.07	27.34	0.00	0.00
Total	382.43			321.86	458.56	363.48	11.80	[0.01]

* ETo data is distributed using polynomial curve fitting.
 * Rainfall data is distributed using polynomial curve fitting.
 * Effective rainfall calculated using average rainfall by USBR method

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Observations:

1. Peak irrigation requirement of 3.8 mm net in 10 days is negligible.
2. Total irrigation requirement of 12 mm net over 140-day growing period also negligible.

Rainfed Crops – Season ‘B’

06/12/2007

CropWat 4 Windows Ver 4.3

Crop Water Requirements Report

- Crop # 1 : Season B MAIZE Kibungo
- Block # : [All blocks]
- Planting date : 21/8
- Calculation time step = 10 Day(s)
- Irrigation Efficiency = 100%

Date	ETo (mm/period)	Planted Area (%)	Crop Kc	CWR (ETm)	Total Rain (mm/period)	Effect. Rain	Irr. Req.	FWS (l/s/ha)

21/8	41.17	100.00	0.30	12.35	10.73	10.22	2.13	0.02
31/8	41.15	100.00	0.30	12.34	13.66	12.95	0.00	0.00
10/9	41.00	100.00	0.33	13.68	17.07	15.88	0.00	0.00
20/9	40.73	100.00	0.54	21.84	20.86	18.89	2.95	0.03
30/9	40.33	100.00	0.76	30.70	24.77	21.82	8.88	0.10
10/10	39.81	100.00	0.99	39.26	28.49	24.48	14.77	0.17
20/10	39.18	100.00	1.18	46.13	31.72	26.72	19.41	0.22
30/10	38.44	100.00	1.20	46.13	34.22	28.40	17.73	0.21
9/11	37.62	100.00	1.20	45.15	35.80	29.44	15.70	0.18
19/11	36.74	100.00	1.20	44.08	36.42	29.83	14.25	0.16
29/11	35.82	100.00	1.16	41.74	36.12	29.63	12.11	0.14
9/12	34.89	100.00	0.96	33.34	35.08	28.94	4.40	0.05
19/12	34.01	100.00	0.72	24.56	33.56	27.95	0.00	0.00
29/12	16.73	100.00	0.55	9.14	16.11	13.54	0.00	0.00
Total	517.62			420.44	374.62	318.69	112.33	[0.10]

* ETo data is distributed using polynomial curve fitting.
 * Rainfall data is distributed using polynomial curve fitting.
 * Effective rainfall calculated using average rainfall by USBR method

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Observations:

1. Peak irrigation requirement of 19.4 mm net in 10 days (1.9 mm/day).
2. Total irrigation requirement of 112 mm net over 140-day growing period is less than 1 mm/day.

06/12/2007

CropWat 4 Windows Ver 4.3

Crop Water Requirements Report

- Crop # 1 : Season B SORGHUM Kibungo
- Block # : [All blocks]
- Planting date : 28/8
- Calculation time step = 10 Day(s)
- Irrigation Efficiency = 100%

Date	ETo (mm/period)	Planted Area (%)	Crop Kc	CWR (ETm) -----	Total Rain (mm/period)	Effect. Rain -----	Irr. Req. -----	FWS (l/s/ha)
28/8	41.17	100.00	0.30	12.35	12.73	12.11	0.24	0.00
7/9	41.06	100.00	0.30	12.32	16.00	14.98	0.00	0.00
17/9	40.82	100.00	0.41	16.73	19.70	17.98	0.00	0.00
27/9	40.47	100.00	0.61	24.68	23.60	20.96	3.72	0.04
7/10	39.98	100.00	0.81	32.38	27.41	23.72	8.66	0.10
17/10	39.38	100.00	0.98	38.59	30.82	26.11	12.48	0.14
27/10	38.68	100.00	1.00	38.68	33.56	27.96	10.71	0.12
6/11	37.88	100.00	1.00	37.88	35.43	29.20	8.68	0.10
16/11	37.01	100.00	1.00	37.01	36.34	29.78	7.22	0.08
26/11	36.09	100.00	0.98	35.29	36.30	29.75	5.54	0.06
6/12	35.17	100.00	0.84	29.64	35.46	29.19	0.45	0.01
16/12	34.27	100.00	0.69	23.74	34.05	28.27	0.00	0.00
26/12	16.82	100.00	0.58	9.76	16.40	13.73	0.00	0.00
Total	478.78			349.03	357.79	303.74	57.71	[0.05]

* ETo data is distributed using polynomial curve fitting.
 * Rainfall data is distributed using polynomial curve fitting.
 * Effective rainfall calculated using average rainfall by USBR method

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Observations:

1. Peak irrigation requirement 12 mm net in 10 days (1.2 mm/day).
2. Total irrigation requirement of 58 mm net over 130-day growing period is negligible (0.4 mm/day) indicating that response to irrigation would be minimal.

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Crop Water Requirements Report

- Crop # 1 : Season B DRY BEANS Kibungo
- Block # : [All blocks]
- Planting date : 12/9
- Calculation time step = 10 Day(s)
- Irrigation Efficiency = 100%

Date	ETo (mm/period)	Planted Area (%)	Crop Kc	CWR (ETm)	Total Rain (mm/period)	Effect. Rain	Irr. Req.	FWS (l/s/ha)
				-----		-----		
12/9	40.96	100.00	0.40	16.38	17.81	16.48	0.00	0.00
22/9	40.66	100.00	0.40	16.26	21.64	19.48	0.00	0.00
2/10	40.24	100.00	0.54	21.62	25.54	22.38	0.00	0.00
12/10	39.70	100.00	0.79	31.25	29.19	24.97	6.28	0.07
22/10	39.04	100.00	1.04	40.49	32.29	27.11	13.38	0.15
1/11	38.29	100.00	1.15	44.03	34.61	28.66	15.37	0.18
11/11	37.45	100.00	1.15	43.07	36.00	29.57	13.49	0.16
21/11	36.55	100.00	1.15	42.04	36.43	29.84	12.20	0.14
1/12	35.63	100.00	1.15	40.97	35.97	29.52	11.45	0.13
11/12	34.71	100.00	0.93	32.31	34.81	28.76	3.55	0.04
21/12	33.84	100.00	0.53	17.96	33.22	27.73	0.00	0.00
Total	417.07			346.39	337.50	284.51	75.72	[0.08]

* ETo data is distributed using polynomial curve fitting.
 * Rainfall data is distributed using polynomial curve fitting.
 * Effective rainfall calculated using average rainfall by USBR method

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Observations:

1. Peak irrigation requirement of 15 mm net in 10 days negligible.
2. Total irrigation requirement of 75 mm net over 110-day growing period also negligible (0.7 mm/day)

Perennial/Semi-Perennial Rainfed Crops

06/12/2007

CropWat 4 Windows Ver 4.3

Crop Water Requirements Report

- Crop # 1 : SWEET POTATO Kibungo
- Block # : [All blocks]
- Planting date : 1/1
- Calculation time step = 10 Day(s)
- Irrigation Efficiency = 100%

Date	ETo (mm/period)	Planted Area (%)	Crop Kc	CWR (ETm) -----	Total Rain (mm/period)	Effect. Rain -----	Irr. Req. -----	FWS (l/s/ha)
1/1	33.42	100.00	0.50	16.71	31.35	26.62	0.00	0.00
11/1	33.43	100.00	0.50	16.71	30.37	26.26	0.00	0.00
21/1	33.44	100.00	0.53	17.80	30.15	26.31	0.00	0.00
31/1	33.47	100.00	0.73	24.35	30.97	26.88	0.00	0.00
10/2	33.55	100.00	0.94	31.68	32.93	28.04	3.64	0.04
20/2	33.68	100.00	1.13	38.00	35.97	29.75	8.25	0.10
2/3	33.87	100.00	1.15	38.95	39.78	31.89	7.06	0.08
12/3	34.12	100.00	1.15	39.24	43.89	34.22	5.02	0.06
22/3	34.44	100.00	1.15	39.60	47.64	36.41	3.19	0.04
1/4	34.82	100.00	1.15	40.04	50.26	38.04	2.00	0.02
11/4	35.26	100.00	1.13	39.84	50.93	38.61	1.22	0.01
21/4	35.74	100.00	1.01	36.10	48.86	37.55	0.00	0.00
1/5	36.27	100.00	0.88	31.79	43.40	34.26	0.00	0.00
11/5	18.35	100.00	0.78	14.25	18.49	15.03	0.00	0.00

Total	463.86			425.07	535.00	429.87	30.39	[0.03]

 * ETo data is distributed using polynomial curve fitting.
 * Rainfall data is distributed using polynomial curve fitting.
 * Effective rainfall calculated using average rainfall by USBR method

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Observations:

3. Negligible irrigation requirement for this drought-resilient crop (30 mm net in 140 days).

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Crop Water Requirements Report

- Crop # 1 : CASSAVA Kibungo
- Block # : [All blocks]
- Planting date : 1/1
- Calculation time step = 10 Day(s)
- Irrigation Efficiency = 100%

Date	ETo (mm/period)	Planted Area (%)	Crop Kc	CWR (ETm) -----	Total Rain (mm/period)	Effect. Rain -----	Irr. Req. -----	FWS (l/s/ha)
1/1	33.42	100.00	0.40	13.37	31.35	26.62	0.00	0.00
11/1	33.43	100.00	0.40	13.37	30.37	26.26	0.00	0.00
21/1	33.44	100.00	0.52	17.32	30.15	26.31	0.00	0.00
31/1	33.47	100.00	0.73	24.51	30.97	26.88	0.00	0.00
10/2	33.55	100.00	0.95	31.75	32.93	28.04	3.72	0.04
20/2	33.68	100.00	1.13	38.01	35.97	29.75	8.26	0.10
2/3	33.87	100.00	1.15	38.95	39.78	31.89	7.06	0.08
12/3	34.12	100.00	1.15	39.24	43.89	34.22	5.02	0.06
22/3	34.44	100.00	1.15	39.60	47.64	36.41	3.19	0.04
1/4	34.82	100.00	1.15	40.04	50.26	38.04	2.00	0.02
11/4	35.26	100.00	1.11	39.13	50.93	38.61	0.52	0.01
21/4	35.74	100.00	0.87	31.09	48.86	37.55	0.00	0.00
1/5	36.27	100.00	0.60	21.87	43.40	34.26	0.00	0.00
11/5	18.35	100.00	0.40	7.40	18.49	15.03	0.00	0.00
Total	463.86			395.65	535.00	429.87	29.77	[0.03]

* ETo data is distributed using polynomial curve fitting.
 * Rainfall data is distributed using polynomial curve fitting.
 * Effective rainfall calculated using average rainfall by USBR method

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Observations:

1. Negligible irrigation requirement for this drought-resilient crop (30 mm net in 140 days).

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06/12/2007

CropWat 4 Windows Ver 4.3

Crop Water Requirements Report

- Crop # 1 : BANANA Kibungo
- Block # : [All blocks]
- Planting date : 1/1
- Calculation time step = 10 Day(s)
- Irrigation Efficiency = 100%

Date	ETo	Planted	Crop	CWR	Total	Effect.	Irr.	FWS
	(mm/period)	Area	Kc	(ETm)	Rain	Rain	Req.	(l/s/ha)
		(%)		-----	(mm/period)	-----		
1/1	33.42	100.00	0.40	13.37	31.35	26.62	0.00	0.00
11/1	33.43	100.00	0.40	13.37	30.37	26.26	0.00	0.00
21/1	33.44	100.00	0.40	13.37	30.15	26.31	0.00	0.00
31/1	33.47	100.00	0.40	13.39	30.97	26.88	0.00	0.00
10/2	33.55	100.00	0.40	13.42	32.93	28.04	0.00	0.00
20/2	33.68	100.00	0.40	13.47	35.97	29.75	0.00	0.00
2/3	33.87	100.00	0.40	13.55	39.78	31.89	0.00	0.00
12/3	34.12	100.00	0.40	13.65	43.89	34.22	0.00	0.00
22/3	34.44	100.00	0.40	13.78	47.64	36.41	0.00	0.00
1/4	34.82	100.00	0.40	13.93	50.26	38.04	0.00	0.00
11/4	35.26	100.00	0.40	14.10	50.93	38.61	0.00	0.00
21/4	35.74	100.00	0.40	14.30	48.86	37.55	0.00	0.00
1/5	36.27	100.00	0.40	14.51	43.40	34.26	0.00	0.00
11/5	36.84	100.00	0.42	15.38	34.20	28.13	0.00	0.00
21/5	37.42	100.00	0.52	19.56	21.29	18.59	0.97	0.01
31/5	38.00	100.00	0.64	24.30	5.25	4.97	19.33	0.22
10/6	38.58	100.00	0.76	29.17	0.00	0.00	29.17	0.34
20/6	39.14	100.00	0.87	34.15	0.00	0.00	34.15	0.40
30/6	39.65	100.00	0.99	39.23	0.00	0.00	39.23	0.45
10/7	40.12	100.00	1.09	43.66	0.00	0.00	43.66	0.51
20/7	40.51	100.00	1.10	44.56	1.11	1.07	43.49	0.50
30/7	40.83	100.00	1.10	44.91	5.10	4.65	40.26	0.47
9/8	41.05	100.00	1.10	45.15	7.72	7.18	37.97	0.44
19/8	41.16	100.00	1.10	45.28	10.20	9.69	35.58	0.41
29/8	41.16	100.00	1.10	45.28	13.03	12.39	32.89	0.38
8/9	41.04	100.00	1.10	45.14	16.35	15.28	29.86	0.35
18/9	40.79	100.00	1.10	44.87	20.08	18.28	26.59	0.31
28/9	40.42	100.00	1.10	44.46	23.99	21.24	23.22	0.27
8/10	39.93	100.00	1.10	43.92	27.78	23.98	19.94	0.23
18/10	39.32	100.00	1.10	43.25	31.13	26.32	16.93	0.20
28/10	38.60	100.00	1.10	42.46	33.79	28.12	14.34	0.17
7/11	37.79	100.00	1.10	41.57	35.56	29.29	12.28	0.14
17/11	36.92	100.00	1.10	40.61	36.37	29.81	10.80	0.13
27/11	36.00	100.00	1.09	39.07	36.25	29.71	9.35	0.11
7/12	35.08	100.00	1.00	34.91	35.34	29.11	5.80	0.07
17/12	34.18	100.00	0.89	30.60	33.88	28.16	2.44	0.03
27/12	16.78	100.00	0.82	13.76	16.31	13.67	0.09	0.00
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Total	1356.81			1073.45	961.26	794.48	528.35	[0.17]

* ETo data is distributed using polynomial curve fitting.
 * Rainfall data is distributed using polynomial curve fitting.
 * Effective rainfall calculated using average rainfall by USBR method

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Observations:

2. CROPWAT indicates that, with a peak irrigation requirement of 4.4 mm/day net in July and an annual irrigation requirement of 528 mm (5 280 m³/ha) net, this crop (and other semi-perennial/perennial crops) would respond to irrigation.

Irrigation Requirements for Paddy – Season ‘A’ (transplanted 1 February)

Month	Decad	Stage	Area (%)	Crop Coeff Kc	ETcrop (mm/day)	Percolation (mm/day)	Land Prep (mm/day)	Rice Reqmt (mm/day)	Eff Rain ^a (mm/dec)	Irr Reqmt (mm/day)	Irr Reqmt (mm/dec)
Jan	1	Nurs	10	1.20	0.38	0.2	1.6	2.2	2.4	1.89	18.9
Jan	2	Nurs/LP	30	1.16	1.20	0.5	7.5	9.1	7.7	8.35	83.5
Jan	3	LP	75	1.06	2.81	1.1	8.1	12.0	21.7	10.24	102.4
Feb	1	Initial	100	1.00	3.57	1.5	-	5.1	26.6	2.41	24.1
Feb	2	Initial	100	1.00	3.60	1.5	-	5.1	26.7	2.43	24.3
Feb	3	Init/Devt	100	1.01	3.69	1.5	-	5.2	23.3	1.56	15.6
Mar	1	Devt	100	1.02	3.81	1.5	-	5.3	31.7	2.15	21.5
Mar	2	Devt	100	1.04	3.95	1.5	-	5.4	33.8	2.07	20.7
Mar	3	Devt/Mid	100	1.05	3.81	1.5	-	5.3	39.2	2.07	20.7
Apr	1	Mid	100	1.05	3.64	1.5	-	5.1	38.9	1.25	12.5
Apr	2	Mid	100	1.05	3.46	1.5	-	5.0	41.6	0.81	8.1
Apr	3	Mid	100	1.05	3.36	1.5	-	4.9	37.5	1.11	11.1
May	1	Mid/Late	100	1.01	3.07	1.3	-	4.3	34.0	0.94	9.4
May	2	Late	100	0.93	2.71	0.9	-	3.6	31.4	0.48	4.8
May	3	Late	100	0.85	2.73	0.5	-	3.2	22.5	1.15	11.5
Total					458	180	172	808	419		389

^a Calculated using average rainfall and USBR formula

Source: Mission estimate using CROPWAT 7

Observations:

1. Net irrigation requirement 3 890 m³/ha, or say 8 640 m³/ha gross (assuming 45% overall efficiency).

Irrigation Requirements for Paddy – Season ‘B’ (transplanted 1 September)

Month	Decad	Stage	Area (%)	Crop Coeff Kc	ETcrop (mm/day)	Percolation (mm/day)	Land Prep (mm/day)	Rice Reqmt (mm/day)	Eff Rain ^a (mm/dec)	Irr Reqmt (mm/day)	Irr Reqmt (mm/dec)
Aug	1	Nurs	10	1.20	0.52	0.2	1.8	2.5	0.5	2.42	24.2
Aug	2	Nurs/LP	33	1.18	1.72	0.5	8.1	10.3	2.2	10.09	100.9
Aug	3	LP	78	1.13	3.92	1.2	8.1	13.2	8.2	12.37	123.7
Sep	1	Initial	100	1.10	4.95	1.5	-	6.5	14.4	5.01	50.1
Sep	2	Initial	100	1.10	4.95	1.5	-	6.5	18.2	4.63	46.3
Sep	3	Init/Devt	100	1.09	4.69	1.5	-	6.2	19.6	4.23	42.3
Oct	1	Devt	100	1.07	4.41	1.5	-	5.9	21.0	3.81	38.1
Oct	2	Devt	100	1.06	4.13	1.5	-	5.6	22.5	3.38	33.8
Oct	3	Devt/Mid	100	1.05	3.92	1.5	-	5.4	25.5	2.87	28.7
Nov	1	Mid	100	1.05	3.74	1.5	-	5.2	29.3	3.32	33.2
Nov	2	Mid	100	1.05	3.57	1.5	-	5.1	32.7	1.80	18
Nov	3	Mid	100	1.05	3.46	1.5	-	5.0	31.5	1.81	18.1
Dec	1	Mid/Late	100	1.01	3.23	1.3	-	4.5	30.3	1.45	14.5
Dec	2	Late	100	0.92	2.87	0.9	-	3.7	29.1	0.83	8.3
Dec	3	Late	100	0.84	2.72	0.4	-	3.2	28.2	0.34	3.4
Total					528	180	180	888	313		584

^a Calculated using average rainfall and USBR formula

Source: Mission estimate using CROPWAT 5.7

Observations:

1. Net irrigation requirement 5 840 m³ /ha, or say 12 980 m³/ha gross (assuming 45% overall efficiency).

2. Total gross requirement of 21 620 m³/ha for Seasons ‘A’ and ‘B’ combined.

Rwanda: Kihere Community-based Watershed Management Project (KWAMP) – Final Design
 WORKING PAPER 5: AGRICULTURE & WATER DEVELOPMENT
 APPENDIX 5: INVENTORY OF WETLANDS

APPENDIX 5: INVENTORY OF WETLANDS IN RWANDA

Province	District	Gross Area (ha)	Gross Wetland Area (ha)	Share of Gross Area (%)	Cultivated Wetland Area (ha)	Share of Wetland Area (%)
Eastern	Bugesera	128 981	21 921	17	5 052	23
"	Gatsibo	92 210	3 315	4	1 479	45
"	Kayanza	193 415	19 251	10	1 137	6
"	Kibungo (Ngoma)	86 724	9 649	11	1 401	15
"	Kirehe	118 375	7 665	6	567	7
"	Rwamagana	68 157	3 523	5	2 657	75
"	Umutara (Nyagatare)	191 900	5 801	3	3 100	53
Subtotal Eastern		879 762	71 125	8	15 393	22
Northern	Byumba/Gicumbi	82 903	1 608	2	1 039	65
"	Gakenke	70 365	1 745	2	1 743	100
"	Ruhengeri/Musanze	53 007	1 046	2	1 036	99
"	Rulindo	56 666	3 089	5	3 077	100
Subtotal Northern		262 941	7 488	3	6 895	92
Western	Cyangugu/Rusizi	95 784	3 815	4	3 518	92
"	Gisenyi/Rubavu	35 730	403	1	400	99
"	Karongi	99 246	411	0	1 206	293
"	Ngororero	67 859	348	1	348	100
"	Nyabihu	53 119	1 199	2	882	74
"	Nyamasheke	117 332	2 107	2	1 282	61
"	Rutsiro	115 662	354	0	307	87
Subtotal Western		584 732	8 637	1	7 943	92
Southern	Butare/Huye	58 119	5 022	9	4 999	100
"	Gikongoro/Nyamagabe	108 973	1 973	2	1 896	96
"	Gisagara	67 880	10 396	15	5 415	52
"	Gitarama	64 734	1 891	3	1 890	100
"	Kamonyi	65 515	4 918	8	3 169	64
"	Nyanza	67 175	6 172	9	4 034	65
"	Nyaruguru	100 968	4 609	5	4 284	93
"	Ruhango	62 641	3 503	6	2 895	83
Subtotal Southern		596 005	38 484	6	28 582	74
Kigali	Gasabo	42 896	2 440	6	2 381	98
"	Gasabo	16 661	2 582	15	1 518	59
"	Nyarugenge	13 387	2 052	15	1 714	84
Subtotal Kigali		72 944	7 074	10	5 613	79
Total		2 396 384	132 808	6	64 426	49

Source: MINITERE -- National Land Reform Programme Phase I (based on interpretation of satellite imagery)

**APPENDIX 6: ELIGIBILITY CRITERIA
FOR
DEVELOPMENT OF IRRIGATION AND DRAINAGE SCHEMES**

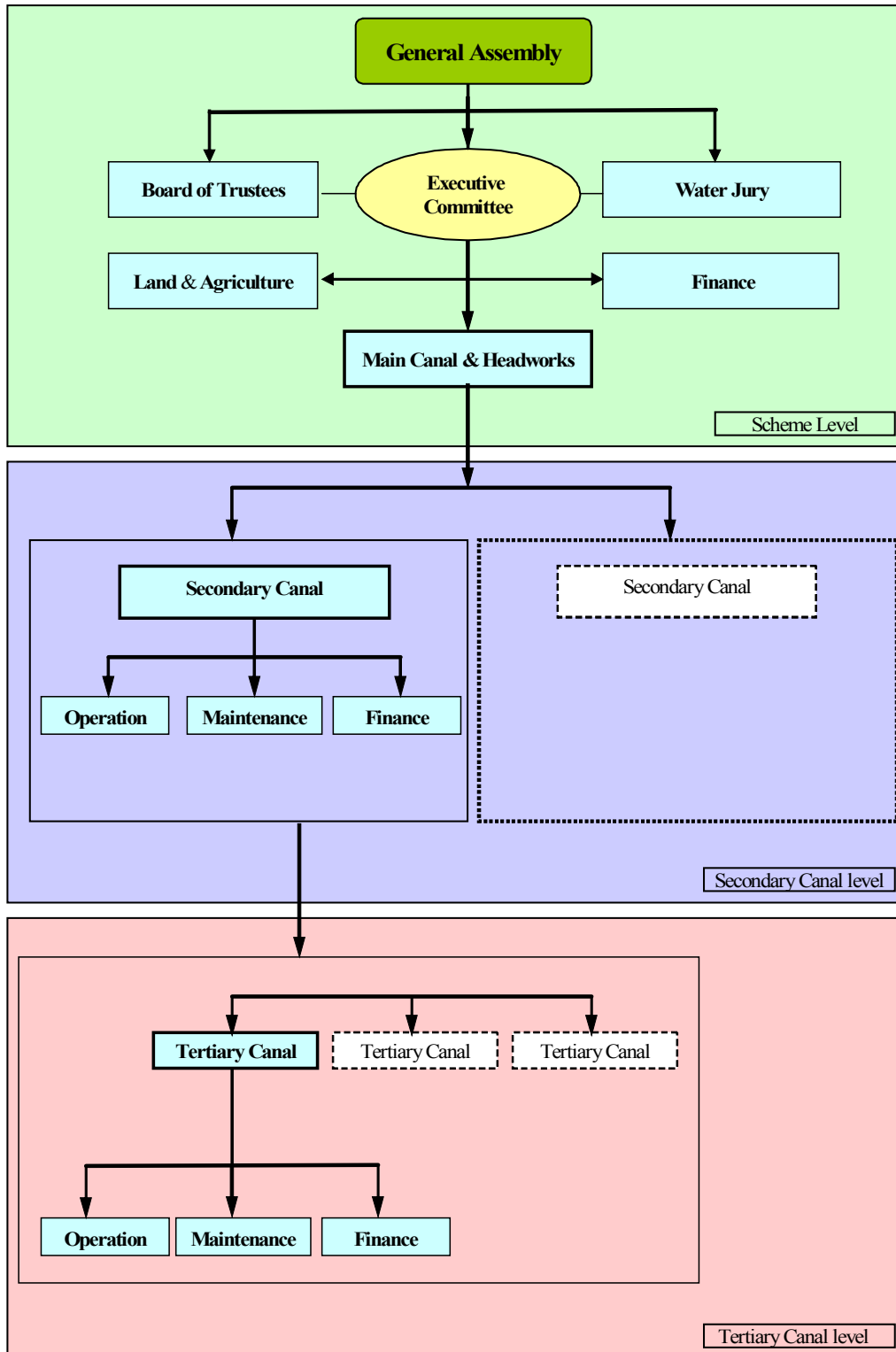
1. The project would support development of new marshland and hillside small scale irrigation based on the following criteria:

- (a) Irrigation is demanded by the beneficiary farmers; a large proportion of whom are among the project target group;
- (b) Beneficiaries are willing to form WUAs or cooperatives prior to scheme development and actively participate in all phases of the planning, design and construction;
- (c) Cooperatives should form financially independent water committees with the same responsibilities, organizational arrangement, and authority as independent WUAs to be responsible for irrigation water management with the power to set and collect water charges, solely for investments in operation, maintenance, management and repair of the irrigation and drainages systems.
- (d) Scheme development is initiated in response to WUA/ cooperative request and their formal commitments for participation and in kind contribution of 15%, as well as, future operation, maintenance and management of the scheme;
- (e) Proposed schemes should be socially, technically, financially and environmentally sound and sustainable and have the following characteristics:
 - (i) Gravity-fed small scale schemes with irrigable areas not exceeding about 60 ha;
 - (ii) Adequate and reliable supply of good quality water to irrigate at least 50 per cent of the command area, during the dry season;
 - (iii) Low capital cost per hectare, not exceeding the limit set by the Project Steering Committee from time to time with IFAD's prior consent;
 - (iv) Low recurrent cost per hectare affordable by WUAs,
 - (v) No outstanding disputes over land and water rights;
 - (vi) No dispute on right-of-ways and easements; and
 - (vii) Easy access to the market

2. Final selection of schemes will be made ensuring that eligible schemes would be: (i) technically, financially and environmentally sound investments with lower cost per hectare; (ii) lower operation and maintenance costs per hectare; and (iii) prospects for achieving higher returns on the investments. *Scheme specific economic analysis would be required for investments greater than US\$ 100 000.*

APPENDIX 7: ORGANIZATION OF WUAS

Figure 1 – Organization of WUAs



APPENDIX 8: ESTIMATED COST OF SERVICE PROVIDERS

Table 1: Estimated Cost of Preparation - District Water Management and Irrigation Plan

Descriptions	Month					Monthly Rates			Total Cost (USD)			
	1	2	3	4	Total	Salary	Allowance	Total	Salary	Allowance	Travel	Total
Salary & Allowances												
Team Leader - Water Resources Planner	1	1		1	3	7,500	3,600	11,100	22,500	10,800	3,000	36,300
Administrative Assistant/ Secretary/Typist	0	1	1	2	4	400	-	400	1,600	-		1,600
Coordinator	1	1	1	1	4	4,000	500	4,500	16,000	2,000		18,000
Facilitator		2	1		3	600	400	1,000	1,800	1,200		3,000
Sociologist (Local)		1	1		2	3,000	500	3,500	6,000	1,000		7,000
Hydrologist (Regional)		1	1		2	6,000	3,600	9,600	12,000	7,200	1,500	20,700
Irrigation Engineer (Regional)		1	1		2	6,000	3,600	9,600	12,000	7,200	1,500	20,700
Subtotal					20	27,500	12,200	39,700	71,900	29,400	6,000	77,900
Direct Expenses & Overhead						Daily		Monthly				
Pick-up Rental (incl driver + gas)	1	1	1		3	110		2,422				7,266
Printing and Material	1	1	1	1	4			1,000				4,000
Office expenses	1	1	1	1	4			500				2,000
Salary OH – Permanent Staff												-
Salary OH - Temp Staff												2,200
Office OH + Profit												69,860
Total Cost (USD)												163,226

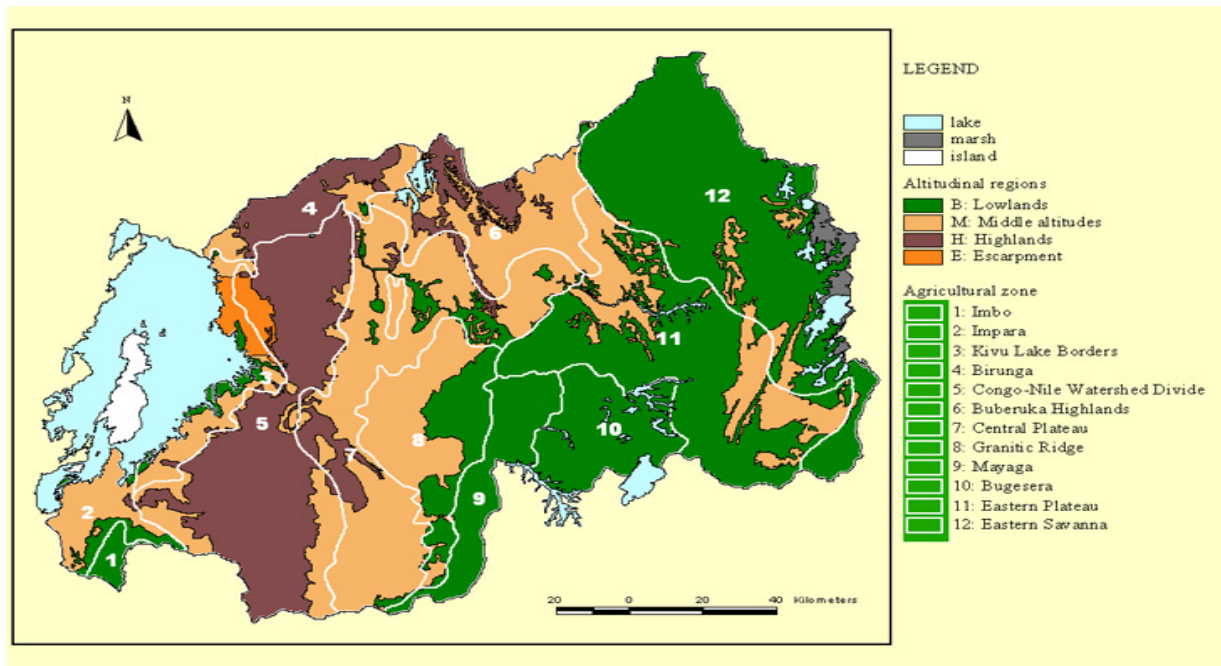
**Table 2: Estimated Cost of Service Provider
 For Formation and Training of WUAs**

Descriptions	Year 1							
	Staff		Monthly Cost			Annual Cost		
	No	Month	Salary	Allow	Total	Salary + Allow	Travel	Total
Project Manager	1	12	6,000	3,000	9,000	108,000	1,500	109,500
Administrative Assistants	1	12	400	0	400	4,800	0	4,800
Technical Assistance (International)	1	2	12,000	4,500	16,500	33,000	5,000	38,000
Field Coordinator	1	11	600	150	750	8,250	0	8,250
Farmer Organizations Specialist (WUA)	1	11	550	150	700	7,700	0	7,700
Water Management Officers	1	11	550	150	700	7,700	0	7,700
Field Facilitators	2	22	300	0	300	6,600	0	6,600
TOTAL		81	20,400	7,950	28,350	176,050	6,500	182,550
			Daily		Monthly	-	-	-
Pick-up Rental (including driver + gas)	1	12	110		3,303	39,633	-	39,633
Motorcycle O & M	4	44			275	12,110	-	12,110
Office expenses	1	12			1,000	12,000	-	12,000
Salary OH						17,605		17,605
								14,000
Total Cost – Year 1						257,398	6,500	277,898

Descriptions	Year 2							
	Staff		Monthly Cost			Annual Cost		
	No	Month	Salary	Allow	Total	Annual	Travel	Total
Project Manager	1	12	6,000	3,000	9,000	108,000	1,500	109,500
Administrative Assistants	1	12	400	0	400	4,800	0	4,800
Technical Assistance (International)	1	1	12,000	4,500	16,500	16,500	2,500	19,000
Field Coordinator	1	12	650	150	800	9,600	0	9,600
Farmer Organizations Specialist (WUA)	1	12	600	150	750	9,000	0	9,000
Water Management Officers	1	12	600	150	750	9,000	0	9,000
Field Facilitators	2	24	300	0	300	7,200	0	7,200
TOTAL		85	20,550	7,950	28,500	164,100	4,000	168,100
			Daily		Monthly	-		-
Pick-up Rental (including driver + gas)		12	110		3,303	39,633		39,633
Motorcycle O & M		48			275	13,211		13,211
Office expenses		12			1,000	12,000	-	12,000
Salary OH						16,410		16,410
								10,600
Total Cost – Year 2						245,354	4,000	259,954
Grand Total - Year 1 + Year 2						502,752	10,500	537,852

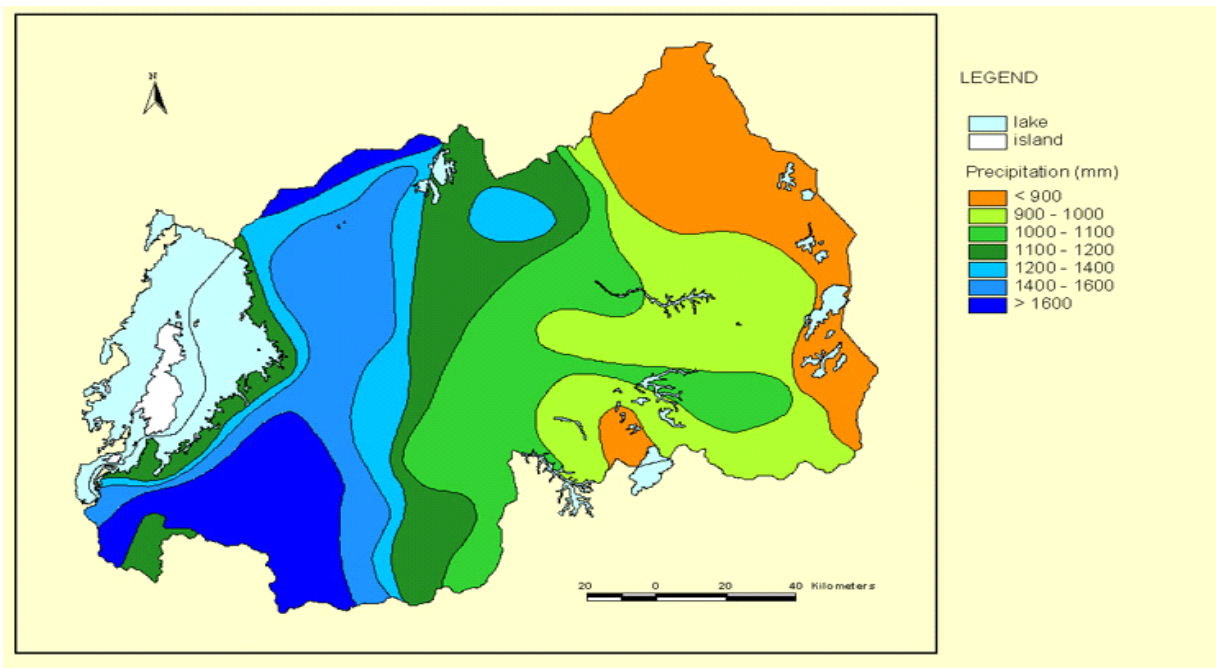
MAPS

Map 1: Altitudinal regions



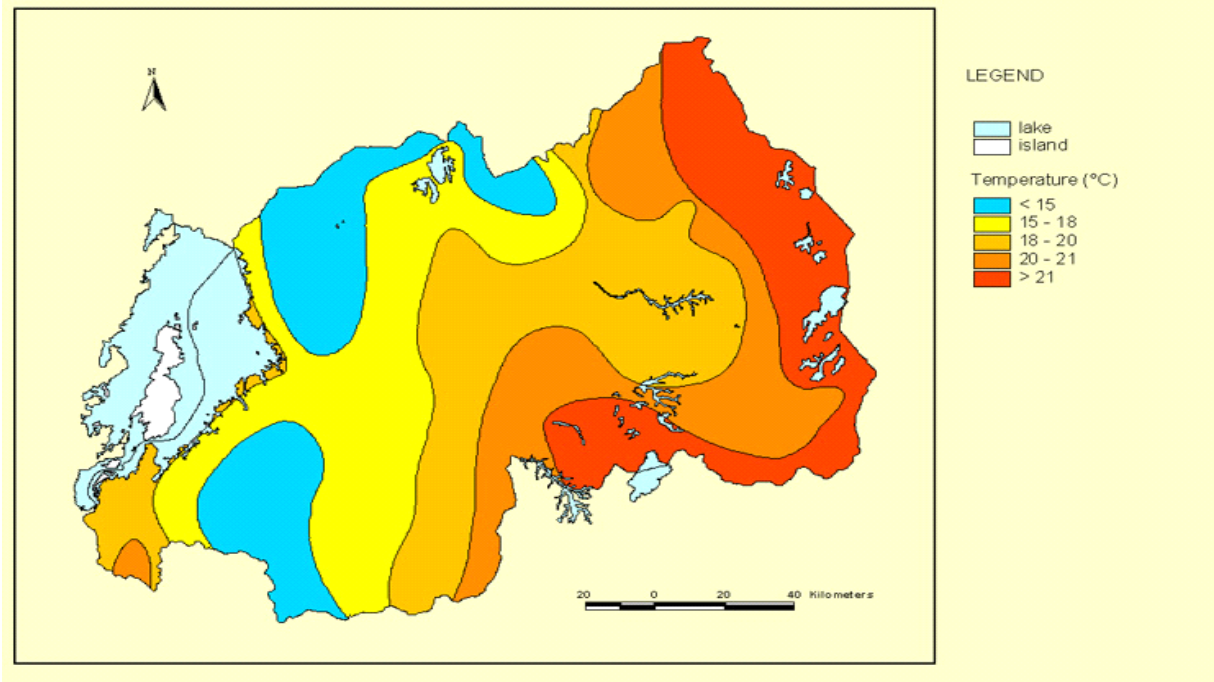
Source: MINAGRI

Map 2: Rainfall distribution



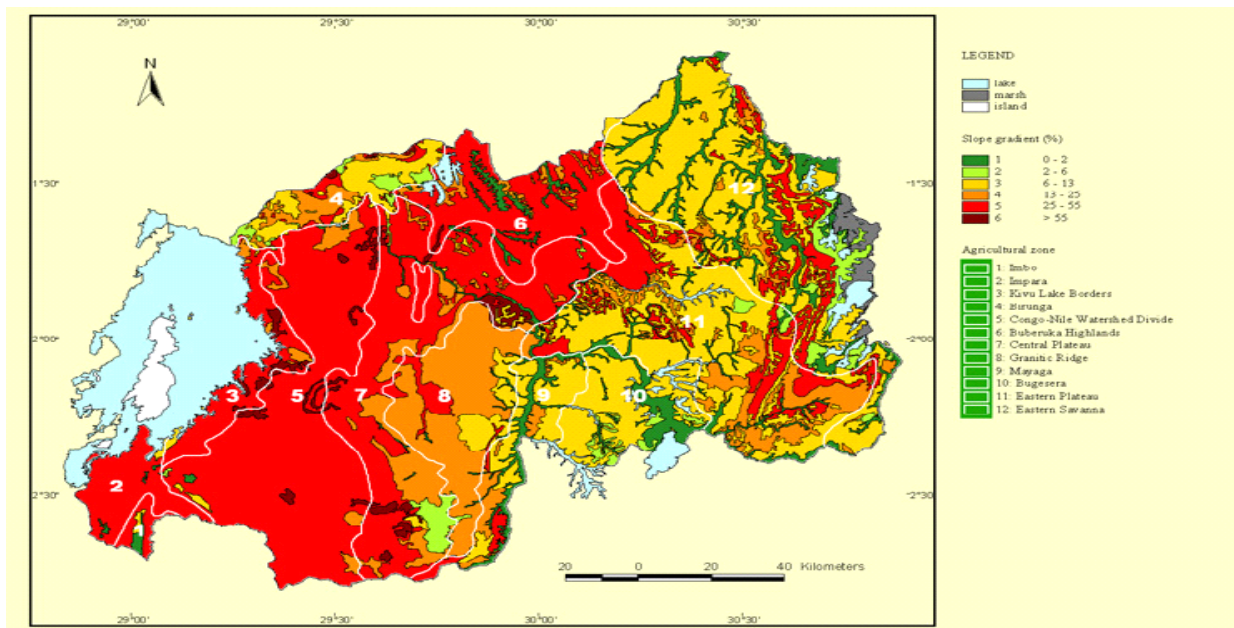
Source: MINAGRI

Map 3: Temperature distribution



Source: MINAGRI

Map 4: Dominant slope gradient



Source: MINAGRI

REPUBLIC OF RWANDA

KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT

(KWAMP)

**PROGRAMME DESIGN DOCUMENT
FINAL DESIGN**

WORKING PAPER 6

VALUE-CHAIN DEVELOPMENT

REPUBLIC OF RWANDA

KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT

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VALUE CHAIN DEVELOPMENT

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Annex 3: Logical Framework for value Chain Development

LIST OF ABBREVIATIONS

BPR	Banque Populaire du Rwanda
BRD	Banque Rwandaise de Développement
CAPMER	Support Centre for Small and Medium Enterprises
DDP	District Development Plan
GoR	Government of Rwanda
IFAD	International Fund for Agricultural Development
INADES	Institute for Social and Economical Development
ISAR	Institut des Sciences Agronomiques du Rwanda
KWAMP	Kirehe Community-Based Watershed Management Project
M&E	Monitoring and Evaluation
MFI	Micro-Finance Institutions
MINAGRI	Ministry of Agriculture and Animal Resources
PAPSTA	Projet d'Appui au Plan Stratégique pour la Transformation de l'Agriculture
PCU	Project Coordination Unit
PPPMER	Projet de Promotion des Petites et Micro-Entreprises Rurales
PSF	Private Sector Foundation
PSTA	Plan Stratégique de la Transformation de l'Agriculture
PY	Project Year
RADA	Rwanda Agricultural Development Authority
RARDA	Rwanda Animal Resources Development Authority
REELP	Rural Livelihoods and Economic Enhancement Programme (Malawi)
RHODA	Rwanda Horticulture Development Authority
RSSP	Rural Sector Support Programme
SCAPEMA	Strengthening Support Capacity for Enhanced Market Access and Knowledge Management (East and Central Africa)
ToR	Terms of Reference
VCD	Value Chain Development
WFP	World Food Programme
WP	Working Paper

REPUBLIC OF RWANDA

KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)

PROJECT DESIGN DOCUMENT

Working Paper 6

VALUE-CHAIN DEVELOPMENT

I. INTRODUCTION

1. This Working Paper is part of the Project Design Report (September 2008) of the Kirehe Community-Based Watershed Management Project (KWAMP) in Rwanda.

II. POLICY AND INSTITUTIONAL FRAMEWORK

A. National policies

2. Vision 2020 remains the main orientation for the GoR in the realm of socio-economic development of Rwanda. The **Vision 2020** aims to transform Rwanda from a low-income country into a middle-income country by the year 2020. This ambition would be realized around six so-called pillars: (i) good governance and a capable state; (ii) human resource development and a knowledge-based economy; (iii) a private sector-led economy; (iv) infrastructure development; (v) a productive and market-oriented agriculture; and (vi) regional and international economic integration. Concerning agriculture, the vision aims to “replace subsistence farming by a fully monetized, commercial agricultural sector by 2020” through promoting agricultural intensification and market-orientation in order to “achieve growth rates of 4.5 % to 5% per year”. Vision 2020 acknowledges that “even if Rwanda’s agriculture is transformed into a high value/high productivity sector, it will not, on its own, become a satisfactory engine of growth. There has to be an exit strategy from reliance on agriculture into secondary and tertiary sectors”.

3. Agriculture was central in the first Poverty Reduction Strategy (2002) which was followed by the **Economic Development and Poverty Reduction Strategy (EDPRS 2008 – 2012)**. The EDPRS contains three so-called flagship programmes (i) “Growth for Jobs and Exports”; (ii) “Vision 2020 *Umurenge*”; and (iii) “Governance”. The “Governance” flagship programme seeks to improve governance in various areas, including empowering citizens to participate and own their social and economic development. The “Vision 2020 *Umurenge*” programme aims to eradicate extreme poverty by 2020 through pilots in one of the poorest *Imirenge* in each rural district. The “**Growth for Jobs and Exports**” flagship programme would make the Rwandan business environment more competitive for enhanced private sector growth. Public investments are targeted to address key constraints on growth (e.g. reducing the operational costs of business, enhancing innovation, strengthening the financial sector). These investments are expected to induce private investments and enhance productivity in the agricultural sector.

4. The EDPRS again confirms the central role of agriculture in economic growth and poverty reduction. The **Strategic Plan for Agricultural Transformation (PSTA)** forms the framework for enhancing agricultural development through four operational programmes: (i) intensification and development of sustainable production systems; (ii) support to the

professionalisation of rural producers and their organizations; (iii) promotion of commodity chains and agri-business development; and (iv) institutional development. The PSTA aims to make a “sustainable contribution to poverty alleviation and economic growth through improved productivity of production factors, creation of added value, diversification of income-generating opportunities, and the preservation and conservation of natural resources”.

5. Under the third PSTA programme – **promotion of commodity chains and agri-business development** - the GoR will, in line with the EDPRS, improve the investment climate, so that Rwandan exports become more competitive in regional and world markets. This includes activities in three key areas: (i) improvement of product quality; (ii) acquisition of agricultural input by farmers’ cooperatives; (iii) and facilitating access to markets. Each of these elements is part of value-chain development. Districts will be encouraged to develop selected commodity chains for adding value to agricultural products. This requires improvements in rural infrastructure (e.g. the construction and rehabilitation of feeder roads) to lower the costs of accessing markets. The GoR will also assist the private sector in establishing other necessary infrastructure for the storage, transport, and processing of agricultural produce.

6. All three policy documents attribute key roles to the “**private sector**” and “**agricultural producers**” while approaching them differently: the former as private entrepreneurs who operate as economic agents and the latter mainly as collective entities (households, associations, cooperatives, etc.) that apparently would – according to the documents - lack such an economic attitude. Both stakeholder groups though comprise enterprises which are privately owned (not controlled by the state) and run to make profit (money) for improving the livelihood conditions of their members and ensuring sustainability of the enterprise.

7. National policies and strategies have also been developed for specific agricultural sub-sectors. The National **strategy for the use of fertilizers** (2007) defines six strategic interventions: (i) joint national mobilization of the use of fertilizers; (ii) professionalization of the marketing network; (iii) improvement of the access to financing; (iv) rational use of fertilizers; (v) promotion of the use of travertine (liming); and (vi) promotion of the use of organic fertilizers.

8. The National **microfinance policy** (2006) aims to “create an enabling environment for Micro-Finance Institutions (MFIs) that are capable of delivering development objectives, through financial and non financial services to rural and urban, economically active, poor and low income people”. It particularly pursues to: (i) establish an environment that is conducive for the healthy development of the microfinance sector; (ii) encourage the development of sustainable and professional MFIs offering a range of quality products and services; (iii) facilitate increased access to financial services, especially for vulnerable social groups (i.e. women); (iv) increase the financial and investment capacity of individuals; (v) mobilise resources to ensure equitable distribution of financial institutions and resources; (vi) facilitate job creation and employment; and (vii) promote the emergence of a national expertise in the field of microfinance.

B. Institutions

9. The **Ministry of Agriculture and Animal Resources** (MINAGRI), which is the hosting Ministry for KWAMP, is responsible for developing national sector and sub-sector policies, planning, coordination, monitoring and evaluation of implementation activities. MINAGRI has four implementing agencies: ISAR (agricultural research), RADA (agricultural extension), RARDA (livestock development) and RHODA (horticulture

development). All these agencies, with the exception of RHODA, are traditionally oriented on agricultural production and to a much lesser extent on storage, processing and marketing of produce.

10. In 2005 the GoR implemented a decentralization reform that changed the administrative structure of the country which is now divided into four Provinces, the City of Kigali and thirty **Districts**. Each District contains three more levels of administration: Sectors (416 in total for all Districts), Cells (2,150) and Villages (14,975). Currently the emphasis is on shifting responsibilities to the District level in order to improve service delivery at this level and enhance participation of local authorities and communities in decision-making on local economic development. Each District elaborated a **District Development Plan (DDP)**, which is a mix of national and local priorities and contains a section on agricultural development. This allows MINAGRI to earmark funds for District agricultural development. **Local government performance contracts** have been introduced to enhance implementation of the DPPs through increasing the accountability of local governments (the District Mayor) to the central government (the President of Rwanda).

11. National policies attribute a key role to the private sector and farmer organizations. There is a thriving **agro-processing sector** in Rwanda (e.g. dairy (milk) and horticulture, fruit juices). The private sector is represented at the national and District levels by the Private Sector Foundation (PSF). Most small and medium enterprises are members of PSF although its programme is focused on developing regional and international markets which require substantial investments and therefore are primarily accessible for larger enterprises. Enterprises benefit from technical assistance of the Support Centre for Small and Medium Enterprises (CAPMER) which provides technical assistance for training of management staff of both private enterprises and agricultural cooperatives with a focus on enterprise development. PSF also plans to open business support centres at the District level.

12. Farmers in Rwanda have a long tradition of organizing themselves at the local level in multi-functional associations for accessing production factors. Well-functioning **farmer cooperatives and federations** have been established around cash crops (e.g. coffee, tea, Irish potato, rice). At the national level farmer syndicates and networks (i.e. INGABO, IMBARAGA and ROPARWA) were created to give farmers a voice in agricultural policy making. A new law on cooperatives is under preparation which seeks to enhance the legal basis of farmer associations. Presently, farmer associations, cooperatives, etc, are invited to register themselves with local and national authorities and provide themselves with a legal status (cooperative, non-profit association, trade union, etc.) that corresponds with their aims and activities.

13. Farmer organizations in Rwanda receive support from numerous donors and NGOs, either through multi-year projects or grants for small projects or specific activities. Support to farmer organizations in Rwanda is also provided through two well-established Rwandan non-profit organizations, the IWACU Centre (1984) and the African Institute for Social and Economical Development (INADES-Formation, 1977). The IWACU Centre provides training and action-research for institutional development, organizational strengthening and entrepreneurial development of cooperatives and associations. INADES-Formation particularly focuses on farmer organizations and their capacity strengthening in technical and managerial areas as well as the area of advocacy.

III. THE DISTRICT OF KIREHE

A. Agro-ecological zones

14. The District of Kirehe (East Province), with a land surface of 1.226 km², is situated in the South East part of Rwanda, in the Low Eastern Lands agro-ecological zone. Average annual rainfall oscillates between 800 and 1.000 mm per year. **Soils** are normally deep and well-drained, and, because of intensive farming, **their fertility status is low**. The climate has four distinct seasons which allow farmers to harvest twice a year: at the end of the short rain Season A (from mid-October till the end of December) and the long rain Season B (from mid-March till mid-June). The District can be divided into two agro-ecological zones: (i) the Eastern part, at an altitude of 1.350 m, with low, undulating plains that border the Akagera river (separating the District from Tanzania); and (ii) the Western part, at 1.500 m, that comprises hills, slopes and plains.

B. Agriculture and livestock keeping

15. According to the Monograph of the District of Kirehe, the main crops cultivated in the district are: bananas (35% of the cultivated area in the 2007 season B); sorghum (20%); maize (5%); rice (1%); beans (17%); peas (1%); soybeans (1%); cassava and sweet potato (each 6%); Irish potato (3%); yam and taro (1%); and fruits and vegetables (3%). In the Season A of 2007, farmers planted some 10.000 ha of maize with inputs (seeds, fertilizer) and technical support from RADA as well as the District authorities for supplying an industrial processing unit in Kigali. According to District authorities the targeted production was only achieved for about 60% because of spells of drought.

16. The District Monograph also provides data on livestock in the district: about 13.000 heads of large cattle (cows); 53.000 heads of small cattle (goats and sheep); 15.000 pigs; and 300.000 poultry animals (2007). The same source indicates that 39% of the households raise livestock, either in combination with crop farming or not, without specifying the type of livestock keeping involved. Some 30% of the households is only involved in crop farming. Beekeeping is still done by traditional techniques: some 1.000 traditional beehives and only 53 improved beehives have been counted in the District.

17. The economy of the District is entirely based on local agricultural and livestock production. Rainfed farming remains the main source of food and income for the smallholder farmers of the District. Valleys and marshlands are increasingly cultivated as part of strategies to expand planted areas and cope with variability in rainfall patterns. The total area under rainfed and irrigated agriculture is estimated at 30.000 ha (according to a 2007 FAO survey) which represents some 25% of the total surface of the District.

C. Farmer organizations and agribusinesses

18. Although District authorities have few reliable data on the degree of organization of rural communities, the general estimate is that there are about a hundred known (and registered) associations and cooperatives in various economic sub-sectors. An estimated 50% of the associations and cooperatives operate in the agricultural sector, mainly around access to land (e.g. marshlands and valleys), and production and marketing of produce. According the Monograph of the District of Kirehe, some 4% of the households in the district are member of a farmer association. The level of participation is somewhat higher in Sectors where marshlands have been managed and access is organized through farmer associations. There is no adequate information on the actual functionality of these organizations.

19. Smallholder farmers sell surplus food crop production (bananas, sorghum, maize and beans) on local markets of village and the District capital and to traders from larger urban

centres. Cash crops in the District include coffee (almost 5% of the 55.405 households), Irish potato (6% of the area planted), rice (1% of the area planted), and fruits and vegetables (3% of the area planted). Secondary and tertiary sector activities (e.g. industries and services) in the District are weakly developed besides small trade and handicraft. There are two coffee washing stations, of which one is currently operating, and some small processing units that are being run on a cooperative basis with support of the IFAD Rural Small and Micro-enterprise Promotion Project (PPMER).

D. Poverty and food insecurity

20. The Monograph and Kirehe DDP provide detailed data on the size of holdings of the 55.405 households in the District (see Main Report, Table 1). However, handling these data asks for caution since the Monograph doesn't define "with"; the surface of land being used by the household's members or the land actually possessed by the household. Furthermore, the situation varies across the District's Sectors and land tenure practices such as renting in and renting out land are elements of livelihood strategies. According to the Monograph, some 15% of the households rent in land while about 12% rent out land.

21. Landless households sell their labour to earn an income or might rent in land to produce food crops. Households having less than 0,5 ha (the majority of households in the District) are almost entirely oriented on subsistence agriculture, have some small cattle, sell their labour and rent in land for household food security and income. Households having more than 0,5 ha and less than 1 ha of land basically follow the same strategy and sell surplus of food crop production in good years and grow some cash crops on small plots. Households having more than 1 ha have large cattle and combine food crop and cash crop production for incomes.

22. The size of farmer holdings and agricultural production are related: total production per household and per member of household increase with its size. This has consequences for food security at the household level and the possibilities to market production surplus. According to a World Food Programme (WFP) survey in 2006, 18% of the population in the Districts of the East and South Provinces faces food insecurity. Reasons being forwarded are: crop yields being affected by rainfall patterns as well as by water availability in valleys and marshlands, inadequate supply of sound seed material, and problems of pests.

23. Poverty is also related to the size of the holding: data from national surveys indicate that households living below the poverty line are significantly more represented in the category that has less than 0,3 ha of land. The District's Monograph states that 48% of the men and 50% of the women in the District without specifying the criteria for "poor".

E. The Kirehe District Development Plan

24. According to the Kirehe District Development Plan, the ten priority problems in the district are: lack a master plan of the use and occupation of land; lack of an overall scheme for habitat and town planning; insufficiency of basic infrastructures (energy, roads); lack of family planning; persistence of traditional agriculture and livestock raising practices; difficult access to drinking water; bad roads and damaged bridges; marshland not being managed; lack of offices for the Sector administration; and lack of modern market infrastructure.

25. The Kirehe DDP is based on "three pillars: (i) installation of the basic infrastructures and the establishment of a main scheme for occupation and land use for developing a modern agro-pastoral sector; (ii) installation of the basic infrastructures (energy, roads) combined with an increase in the agro-pastoral production and private investment in processing and handicraft are key elements for the development of a dynamic private sector; and (iii) the development of a dynamic tourist sector that generates income to the local population but also

brings foreign currencies to the country economy. The Ministry of Agriculture, in collaboration with Districts, identified the following potential crops for intensification in the District of Kirehe: maize (with a target of 20.000 ha) in combination with soybean; and coffee (172 ha). The Kirehe DDP also mentions diversification of crops through the promotion of oil palm, patchouli, vanilla, milk and meat, and honey.

IV. CONSTRAINTS FOR VALUE-CHAIN DEVELOPMENT

A. Pre-selected commodities

26. During the KWAMP formulation mission six commodities for possible value-addition in the District of Kirehe were identified: **maize, rice, cassava, milk, honey, fruits (banana, pineapple, passion fruit) and vegetables**. These commodities are ‘grown and known’ in the district and value-addition has a potential pro-poor effect since the crops are grown by the majority of smallholder farmers in the District. The list is not exclusive; other commodities (such as essential oils distilled from patchouli) are currently subject of innovative arrangements between private sector and farmer organizations (which were encountered during the field visits). Overview tables (with the exception of fruits and vegetables because of the lack of available documented information) are presented in tables in Annex 4.

27. These commodities can be divided into **three groups**: (i) commodities that can easily be processed in place (maize, rice and cassava) to give **semi-processed products** (e.g. flour), not yet ready for consumption; these products are usually stored, transported and traded in bulk; (ii) commodities that are **entirely processed** (wild honey, fruits and milk), ready for consumption (e.g. table honey, yoghurt and fruit juices); these products require appropriate processing and packaging techniques and equipment for e.g. health security reasons; and (iii) commodities that as such are ready for consumption (vegetables); these are usually **low-volume, high-value crops** that require suitable handling, storage and transport mechanisms. There is little or no value addition of the pre-selected commodities going on in the District.

28. **Maize** is a crop that is particularly grown in the North, North-west and Central parts of Rwanda, and best suited for the middle altitude regions. However, maize can be easily grown in the other regions of Rwanda, when adapting varieties and cropping techniques. More than half of the national production comes from the North and West Province while the East and South Province contribute for about 20% and respectively 15% to national production. Maize is mainly grown during the short rainy season (season A). It is a typical smallholder food crop that is grown by farmers on plots on hillsides and by farmer associations and cooperatives in the marshlands in the middle and low altitude regions. Maize is above all sensible to droughts.

29. National production of maize is presently not covering the demand in Rwanda and imports come from neighbouring countries, particularly Uganda, which also influences domestic market prices. Maize is being marketed as either fresh maize (cobs), dried maize (cobs and grains) or as flour (produced by small and industrial mills). Trade of fresh maize is a typical activity of rural women. Since maize is a staple food and freshly consumed and marketed, storage and processing facilities as well as collective marketing (through cooperatives) in rural areas are poorly developed. Surplus production is being marketed by farmers individually or through cooperatives. Some farmer cooperatives have contracts for supplying mills that are managed by cooperatives or the private sector. Industrial processing units in urban centres presently import maize for producing flour. One NGO-supported cooperative mill developed and branded a maize flour-proteine-vitamine mix (“Sosoma”) which it successfully marketed in the social sector (e.g. school feeding programmes). Currently initiatives are taken by private mills to develop contract farming models, including

input supply and advisory services, which are promoted by the Government in its aim to promote maize production as an import substitution.

30. Challenges to develop a maize value chain are: manage maize's sensibility to droughts (particularly in the East of Rwanda); enhance availability of and access to improved seeds; develop appropriate storage and processing facilities for (small) farmer groups; increase storage capacity at industrial processing units; improve technologies for oil extraction from maize sprouts; provide working capital to cooperatives for marketing of maize; and be competitive with imported maize (often grown on larger farm holds in Uganda, using animal traction and machineries, and therefore more profitable than in Rwanda).

31. **Rice.** After its introduction in the 1950's, rice is now grown in all regions in Rwanda where marshlands and valleys are accessible or have been managed for improved irrigation structures and techniques. Since land in valleys and particularly in marshlands, is owned by the state and handed out to farmers by local authorities, rice growing is mostly organized through farmer cooperatives. In 1999, most of the local rice grower cooperatives, which are all quasi-exclusively organized around irrigation schemes and/or milling units, were united in the National union of rice grower cooperatives of Rwanda (UCORIRWA). In 2004 the Union had about 20 member associations and cooperatives, and thereby represents an estimated number of 40.000 farmer households (about 200.000 people). It is estimated that an average association/cooperative member grows 20 are of rice. Rice production got an important impulse from the Government through public investments in management of marshlands, support for rice grower cooperatives and the privatization of mills.

32. In 2006 the Government of Rwanda approved the privatisation of the Gikongo (District of Gikongo) and Rwamagana (District of Rwamagana) rice mills to ICM Agribusiness (Australia) and of the Bugarama (District of Cyangugu) rice mill to associations of rice growers grouped into the Bugarama Rice Production Cooperative (CPRB), which is also a member of UCORIRWA. ICM proposed a staged investment in rice production in Rwanda which is based on private equity investment, partnerships and co-ownership arrangements with farmer organizations. Farmer cooperatives are to become shareholders in the corporate farms and mills and participate in management decisions and receive dividends from the transparent operation of the business.

33. National rice production is currently not covering the in-country demand, although considerable progress in increasing production has been made over the last years. The rice that is being grown by smallholders is marketed (60% of the production), consumed by household members or used as seed material for the next season (40%). Marketing of rice takes place either through farmer cooperatives or through the private sector. Some of the cooperatives also mill rice while other cooperatives sell paddy rice to private traders who have their own mills or again sell to large mills. Private millers and the larger cooperatives often provide loan facilities to the farmer for inputs through their associations and cooperatives, deducted from rice sale revenues.

34. The main issues that need to be addressed for enhancing value addition of rice are: secure land rights; adequate water control and management; maintenance of irrigation works including water use fees; develop and distribute resistant and high-yield varieties; improve quality of seeds and accessibility of quality agricultural inputs; enhance accessibility of input supply; improve crop management; make processing equipment available; develop appropriate conditions for processing (storage, drying and milling); and improve the quality of milled rice (i.e. mix of varieties, humidity).

35. **Cassava.** The most important root and tuber crops grown in Rwanda are cassava, sweet potatoes and Irish potatoes. Cassava is mainly grown in the middle and lower altitude regions

of the country. During the last years, cassava production was severely affected by the cassava mosaic virus. In response, agricultural research and extension services in collaboration with farmer organizations have introduced and distributed sound seedling of resistant varieties. Cassava is not a demanding crop (concerning soil fertility levels), is drought resistant and can be harvested during all seasons. The South Province contributes for 45% to the national production while the East and North Province contribute for respectively 30% and 20%.

36. Cassava is a subsistence crop as well as a cash crop. Larger farms may attribute an important surface to cassava production for marketing. With the strong demand for new varieties, production and marketing of cassava cuttings has become highly profitable for larger holdings. Cassava products being marketed include: fresh tubers, chips, flour, and, to a lesser extent, leaves. Because of population growth and the declined production, there is a sustained demand for cassava tubers, chips and flour in Rwanda. Marketing of chips is organized through individual farmers, wholesale traders based in rural areas and urban centres, and retail traders who are based in urban centres. Many traders have their own small processing units in urban centres for the production of flour. Only one industrial processing unit is currently operating in Rwanda: a cooperative which also supplies members with sound planting material. Few farmer associations and cooperatives organize marketing of cassava tubers and chips. Yet, because of the growing demand, farmer groups do increasingly organize collect points to facilitate bulk supply to traders.

37. Despite the flourishing markets for cassava products, enhanced value-addition still remains a challenge because of: limited availability of sound planting material; post-harvest handling that is considered laborious by farmers (technologies); poor quality of (semi-) processed products; inappropriate storage facilities for chips and flour; and lack of appropriate technologies for storage and processing.

38. **Milk.** Dairy farming in Rwanda is organized in two main production systems: (i) by livestock keepers in the East Province (about 55% of the country's cattle) where households may have up to 50 heads of cattle; and (ii) by smallholder farmers, with 1 to 15 cows per household (45% of the country's cattle), in the densely populated areas. Smallholders used to graze their cattle on communal lands and now apply zero-grazing. Data on milk production and consumption in Rwanda are not coherent. The national production is estimated to vary between 50.000 and 120.000 tonnes while the in-country demand is estimated to attain 500.000 tonnes.

39. The deficit was till 1999 covered by imports of raw and processed milk from Uganda until the Government tried to prohibit imports of milk as part of a series of measures to promote the country's dairy sector. Only an estimated quarter of the milk production in Rwanda is marketed, of which again less than a quarter is being processed (e.g. pasteurized milk and yoghurt). There are numerous livestock keeper associations and cooperatives which organize the collect and marketing of milk, and some of them, principally in the Umatara (Eastern Province), manage simple cooling units and trucks for transport to Kigali. Modern processing is mainly ensured by small and medium enterprises which produce pasteurized milk, yoghurt and cheese. They are either supplied by cooperatives or commissioned intermediaries ("bicycle boys") to collect milk, which are part of a network of small and large collection points. Yet, interviews and documents indicate that all milk processing units operate below their processing capacity. The reason forwarded is that marketing of raw milk, or of the traditional semi-processed milk is still permitted, despite the risks for public health. This doesn't allow the development of a market for fully processed products.

40. Value addition of milk is challenging because of the highly perishable character of milk and the complexity of the marketing system. It requires addressing issues such as: feeding and watering of cattle; improvement of cattle through breeding; hygiene and quality of milk (there

is no systematic control); inefficient marketing systems (which are rather scattered); processing units operating without using their full capacity (e.g. the milk that is being supplied is not responding to hygiene and quality criteria; competition with milk that has been semi-processed in a traditional way); and enhanced market information (national and regional).

41. **Honey.** Although few quantitative data are available on honey and wax, the production levels and volumes that are being marketed, beekeeping is considered to be a potential for value-addition and income generating activity for households. Beekeeping is encountered in Rwanda in all regions where natural or planted forest is present, where it is mostly based on traditional techniques, although some beekeeper associations have modern hives. Yet, according to the field interviews, considerable efforts were made before the 1994 genocide to modernize this sub-sector. It is striking that, according to a 2004 local survey, one-third of the members of beekeeping associations are women. However, optimal use of modern hives requires the procurement of modern equipment for the primary processing of honey.

42. Processing of honey is mainly done for local production of banana-based liquor or producing table honey, and is operated by associations, NGOs and some small enterprises; the latter are also involved in the production of fruit juices, which is often their core business. Because of the lack of adequately processed honey, honey is being imported from neighbouring countries. Only an estimated half the national production of honey is being marketed and less than 10% has been processed (2003). This indicates that there is a domestic market for honey and that enhanced competitiveness of beekeeping in Rwanda is a challenge. Support to beekeeping is mainly ensured through NGOs, which often are also involved in marketing operations and may have distorting effects. Consequently, linkages between beekeepers associations and markets tend to be poorly developed.

43. Challenges to develop the beekeeping sub-sector include: collect and analyse reliable data on production and marketing of honey in order to assess the success for value-chain development; develop and disseminate appropriate production, storage and handling techniques; develop efficient marketing systems; improve hygiene and quality of end-products (handling and packaging technique); and enhance competitiveness with imported honey (quality and regular supply).

44. **Fruits and vegetables.** Only few quantitative data are available concerning production and domestic markets of fruits and vegetables. They are grown everywhere in Rwanda, although the Eastern part of the country contributes less to the national production. Yet, this changes now with the passion fruit disease that is ravaging the Northern part of the country. Fruits, particularly passion fruit and a pineapple, are either grown by large holders (orchards) and smallholders (plots or scattered on the farm). Production of passion fruit requires nurseries for producing plants and a tuterage system. Trees are productive for a maximum of three years and then new ones need to be planted. Vegetables (i.e. cabbage, tomato, onion, egg plant) are mainly grown in marshlands and valleys on small plots, where individuals or often associations have obtained plots for growing rice or vegetables.

45. Fruits and vegetables are essentially destined for direct consumption and are marketed through local and urban markets. Vegetables are mainly marketed by individuals (up to 70% of the marketed volume in the North and South; 2003) and to a lesser extent through associations. These associations sell to traders or urban-based associations of women traders who are particularly active in this sub-sector.

46. There are thriving processing enterprises and cooperatives in Rwanda which produce fruit juice, marmalade and alcoholic drinks. The fruit processing sector in Rwanda is dominated by three enterprises (Urwibutso, Shema Fruits and Inyange), which organize their

own supply, mainly in the North and South Provinces. These enterprises sell their products (e.g. bottled juices), to supermarkets, restaurants and hotels with which they established supply contracts. Fruits, mainly passion fruits and pineapple, are supplied to the processing enterprises through: (i) large holder fruit growers through which supply is reliable and cost effective (economy of scale); (ii) agents that have been commissioned to scout regions and buy with smallholder cooperative, and who operate at their own risk and benefit; and (iii) direct supply by smallholder cooperatives, which is considered less reliable (e.g. in-time and quality supply) and less efficient (low volumes and high transport costs).

47. For both fruits and vegetables, the Government of Rwanda, through RHODA, has established an ambitious programme to promote exports to international (niche) markets of high-value/low-volume products. Initiatives are currently taken to implement this programme with private enterprises around Kigali because of the costs for transport. Many of the challenges that promoting production and processing for export is facing are equally valid for developing domestic markets, which are considered accessible for smallholders: enhance access to quality inputs; develop and disseminate adequate technologies and equipment for small scale irrigation; development of storage infrastructure (e.g. cold chambers) and processing techniques; procurement of packing material; and reduction of transport costs.

B. Production and processing

48. Production and processing related constraints primarily relate to the **insufficient use of appropriate technologies** (“traditional agricultural practices” according to the DDP) for improving both productivity and quality of agricultural produce and products that match market demands and consumer preferences. The main production related constraints concern: water control and management (for growing rice); management of crops’ sensibilities to droughts (crop varieties and cropping techniques; the case of maize); and control of pest and diseases. As for processing, key issues are: storage facilities (both storage capacity and conditions); processing techniques and equipment; and quality and hygiene of (semi-) processed (end) products.

49. These constraints are to be further specified for those commodities that would be selected under the KWAMP project for support to value-addition activities. More important, specific local factors that hamper the full use of these technologies need to be identified. Two major factors explain the insufficient use of technologies: (i) **lack of proximity service providers** that can provide smallholder farmers in the Kirehe district with up-to-date information on appropriate technologies and (ii) **weak, unsustainable linkages between smallholder farmers in the district and domestic and regional markets**. In fact, these factors are linked: the current marketing practices of smallholder farmers fail to provide them with stable and sufficient incomes in order to form themselves an attractive market for input and service providers.

C. Input supply

50. Besides these technology constraints, there is a range of constraints that hamper value-chain addition and require institution building of both chain actors (i.e. producers, processors, transporters and traders) and input and service providers.

51. **Agricultural input supply is not organized**. Farmers in the district use little or no improved inputs (seeds, quality mineral fertilizers, pesticides). According to the District’s Monograph, the portion of households which uses improved seed material is about 5%. Farmers often use their own seed material while supply of quality seed material is weakly organized in the District. In times of food insecurity, seed stocks are used for feeding the household. In general, use of mineral fertilizers by smallholder farmers is also weak (0,5% of

the households) or absent whereas this is urgently needed in a situation where soil depletion is ongoing. Except for ad hoc initiatives by the District authorities, e.g. the maize planting initiative -which seems to lack a sustainable basis - no private sector input suppliers operate within the district, although some farmers through contract farming for processing industries in Kigali (e.g. tomato) obtain seeds and fertilizers on a credit basis.

D. Marketing of produce

52. **Lack of collective marketing capacities and market intelligence.** Farmers do market the surplus of their production and sell cash crops on local markets that are thriving. However, the majority of farmers are not active members of farmer associations and cooperatives that would provide an opportunity to offer bulk quantities of produce and products and negotiate prices with traders. These practices make that farmers compete among themselves which leaves them in a weak position when facing traders. Nor does it allow for creating sustainable linkages with markets and reducing transaction costs. Rwanda is a small country with relative short distances between supply (rural areas) and demand (urban markets). Yet, farmers do have little or no up-to-date information on market prices to anticipate marketing and negotiate prices. Coverage by telecommunication networks (mobile phone, internet) is limited.

E. Financial services

53. **Insufficient support for accessing financial services.** Farmers still do have limited access to financial services despite the fact that MFIs operate in the district. The *Banque Populaire du Rwanda* (BPR) has three branch offices in the district (Mutumba, Rukira and Rusumo) which offer financial services to rural entrepreneurs and farmers. Data from the 2005 annual report of the Union of BPR indicate that services to farmers and livestock breeders steadily increased during the last years. They form nation-wide 43% of the membership of the BPR while accounting for 26% of the volume of deposits made (savings) and 13% of the volume of outstanding loans. Micro-enterprises (traders and craftsmen) form 13% of the membership and account for 27% of outstanding loans. There are still barriers for smallholder farmers and their organizations to access loans.

54. Experiences from the both BPR and the *Banque Rwandaise de Développement* (BRD; through its Fund for investing in commodity chains, FIFA) indicate that there are barriers at three levels: lack of information of rural enterprises, including farmer organizations, on procedures to access financial services; inadequate procedures by banks to facilitate access; insufficient innovative and viable projects for enterprise development by farmer organizations as well as inadequate financial management by these same organizations. Specific support mechanism (e.g. guarantee funds, investment facilities, audits) and accompanying measures, such as information, skill development for formulating and submitting demands and financial management, and more 'flexible' procedures help to overcome these barriers. Yet, bankable projects basically need to present promising and sustainable market opportunities, including links with other private sector agents, and solid enterprises, either cooperatives or private companies, which can support and manage the conditions for lending.

55. **Adequate financial products for value-chain transactions.** Rural finance institutions usually develop their products and services based on a partial analysis of one of the elements of the value-chains without linking them. A comprehensive analysis (size of operations, transactions involved, risks and profits) allow banks and other to (i) adapt services and products to their clientele and (ii) support (resourcing) financing arrangements between value-chain actors; e.g. warehouse receipts, leasing, invoice factoring.¹ Experiences with such innovative products are currently going on well-established commodity-chains such as coffee.

¹ See documentation and presentations of the *Rural and Agricultural Finance Workshop*, organized by MINAGRI from April 15th – 18th, 2008 in Kigali.

For example in the IFASD-supported Smallholder Cash and Export Crop Development Project (PDCRE), the project establishes a credit system for the members of the primary societies of tea and coffee growers, whereby repayment of loans to growers will be guaranteed by the processing factories.

F. Infrastructure

56. The constraints concerning infrastructure in the district are twofold: (i) the **bad state of the feeder roads** and (ii) **insufficient infrastructure for adequate storage and ‘bulking’** of agricultural inputs and outputs. Deficient infrastructure hampers the in-time supply of quality products and further reduction of transaction costs for marketing. Infrastructure particularly enhances trade and linkages with markets when combined with an effective and efficient organization (i.e. handling of inputs and outputs) of the supply of farm and livestock products. This should allow for making a return on the investments in infrastructural works.

G. Organization and collaboration

57. **Insufficient social capital of local farmer organizations.** Despite the number (about 50) of officially acknowledged smallholder farmer associations and cooperatives in the district, many of them are weakly organized. They neither maintain relationships with other associations and cooperatives that operate within the same economic sub-sector nor do they belong to apex organizations that provide services to their member organizations or fulfill advocacy and lobbying functions, or do they link with third-party service providers.

58. **Lack of business skills.** More important, many local farmer organizations were not primarily created around sound economic activities that provided hands-on learning experiences for both leaders and members. Therefore, entrepreneurial skills, such as simple cost-price calculations, are insufficiently developed at the level of both farmer organizations and farm enterprises. This hampers sound decision-making on the planning of investments for market-oriented farming or developing a simple business development plan. Currently no service providers operate in the district to develop these skills of farmers and their leaders.

59. **Insufficiently developed market relationships.** In the pre-selected commodity sub-sectors (notably maize, cassava, milk, fruits and vegetables), marketing in the district is loosely organized: selling and buying takes place on local markets between individuals. There are no sustained marketing relationships between smallholders and the private sector that would provide a local economic development opportunity. Individual farmers, in short of cash money, sell to the first bidders on the market. Farmer associations and cooperatives lack (financial) mechanisms to buy from their members on a pre-funding basis and do not have the skills to negotiate higher prices for quality, bulk products.

H. Facilitation of value-chain development

60. Initiatives are undertaken in the district to strengthen commodity chains; e.g. input supply through District authorities and RADA for growing maize, marshland development supported by Rural Sector Support Project (RSSP) for growing rice, support by the IFAD-supported *Projet de Promotion des Petites et Micro-Enterprises Rurales* (PPMER) for micro-enterprise development in the processing sector. Each of these initiatives addresses one operation or actor in the commodity or value-chain without integrating other operations and chain actors in their analysis and coordinating the related activities.

61. **Lack of collaboration and learning between service providers.** A key institutional issue is that there is very little coordination and collaboration (e.g. in the form of platforms and fora) between technical support services, business development services and the financial

sector. ‘Service packages’ that are adapted to the clientele, promote rural entrepreneurship in the sub-sector, and contribute to sustained relations between value chain actors are absent in the district.

62. Furthermore, while many initiatives in value-chain development are undertaken in Rwanda at different levels, facilities to exchange experiences and learn from each other are hardly developed, even among the IFAD projects that operate within this area. Numerous studies have been/are being undertaken within the commodity sub-sectors which identify constraints and opportunities and define possible solutions. Blue prints for value-chain development though do not exist; it is basically a process of learning-by-doing between chain actors.

63. **Insufficient capacity at the District level.** The national policy and institutional context in Rwanda is conducive for establishing linkages between smallholder farmers and markets and for enhancing value-addition. A challenge is their implementation at the local level where District authorities are to play a key role in delivering services to enhance implementation of national policies. They consequently are provided with the necessary human resources. District staff is young and ambitious and eager to get hands-on experience with enabling local economic development while avoiding the distortion of sustainable marketing practices.

V. PROJECT PRINCIPLES

A. Approach

64. The approach adopted under this Subcomponent of KWAMP is guided by three basic principles: (i) act in response to demand-driven, market-based opportunities; (ii) take advantage of competitive, area-based strengths of the District of Kirehe; and (iii) strengthen local institutions and organizations that facilitate value-chain development. The key constraints faced by smallholders – the target group of KWAMP - which hamper them in taking full advantage of these opportunities and strengths should be tackled in such a way that market-oriented agricultural intensification contributes to improved, sustainable livelihoods of smallholder farmers.

65. **Demand-driven, market-based opportunities** for agriculture produce. Such opportunities are shaped by: (i) an increasing need for food (quantity; e.g. maize, rice and cassava) and attention for food security and safety (quality; e.g. milk) in Rwanda; and (ii) the development of domestic and regional (or even international) markets for commodities (e.g. fruits and vegetables). It is expected that Rwanda will face the challenge of responding to a growing need for quantity and quality food as a population growth of 2,7% per year in both rural and urban areas is expected for the next coming years, including an increase of the portion of urban population that changes its food habits (e.g. entirely processed products and low-volume, high-value products, such as fruits and vegetables).

66. **Area-based competitiveness.** Domestic markets, regional markets (East and Central Africa), and international markets each have their specific requirements, depending on the commodities, and reaching them depends on the competitiveness of the Kirehe district. Although for some specific commodities Rwanda is competitive at the regional level, international markets are more difficult to reach for smallholder farmers because of the requirements, and hence investments needed, and the competition with other countries in the region. Competitiveness of the district for the three groups of the pre-selected commodities should be carefully assessed in terms of resources, assets and capacities available.

67. **Local rural institutions and organizations** play a key role in the processes that link ‘demand’ (markets) elsewhere in Rwanda or the region, and ‘supply’ (area) by the district. The enhanced capacities of institutions (District authorities), organizations (smallholder organizations as well as private enterprises) would allow for creating an enabling environment for local economic development and determine in which way smallholder farmers would take a greater, equity share of the returns and benefits.

B. Rationale

68. Improving agricultural production as such is not enough to enhance income generation of rural households. Effective poverty reduction in rural areas requires **strengthening linkages of smallholder farmers with markets and empowering their organizations**, so they can sell their produce and enhance equity of the benefits among chain actors. It then enhances the **returns on agricultural intensification investments** and consequently improves incomes. Agricultural intensification is to be linked to value-addition of selected commodities in order to allow smallholder farmers to boost their marketable production and take a greater share of markets.

69. Access to markets is only pro-poor when it contributes to increasing the incomes of the poor smallholder farmers as well as enhancing their economic control, that is, a renewed power balance in the commodity chain. It consequently requires **the strengthening of the economic, social and organizational capacities of the poor**. The increase of control and capacities refers to the ability of smallholders to implement appropriate activities of value addition and protect themselves from the competitive pressures that threaten prices and incomes.

C. Objectives and expected outcomes

70. The **general objective** of this Subcomponent of KWAMP would be to increase incomes and food security of smallholder households through intensification and value addition of their on-farm production. **Specific objectives** would be to: (i) develop value-chains of on-farm production through more efficient input supply, and transport, storage, processing and marketing of agricultural outputs; and (ii) increase the share by smallholder farmers of value-addition through strengthening the linking, handling and bargaining capacities of smallholder organizations.

71. **Expected impact and outcomes** would be: (i) significant increase of incomes of the target groups due to value-addition of commodities that are marketed; (ii) established value-chains that are supplied by farmer organizations in the district to markets elsewhere; and (iii) empowered smallholder farmer organizations that operate within the established value-chains.

D. Targeting

72. Value-chain development of agricultural and livestock commodities requires the participation of farmer households that have a minimum of assets, in this case land and cattle, to integrate value-chains. These households make up **about 75% of the households of the District of Kirehe**; they do not include the landless (about 12%) and large holders (more than 1 ha; about 11%). Among the targeted households not all of them will grow the definitely selected commodities.

73. The proposed strategy and activities would aim to touch a maximum of smallholder households through: **particular attention for the poorest and women** when defining criteria for selecting commodities and **developing the appropriate value-addition activities**; reaching and including households through **strengthening the representativeness and**

accountability of farmer associations and cooperatives; and making supplementary efforts to create basic conditions for enhancing input supply and marketing of produce that would benefit all rural farmer communities.

E. Strategy

74. The strategy to reach the objectives comprises: (i) participatory mapping of commodity chains and development of action plans; (ii) support for the development of basic capacities and facilities for upgrading commodity chains; (iii) establishment and operation of a value-chain development fund; and (iv) facilitation of sustained relationships and learning-by-doing between chain actors.

75. Value-addition is an elaborate and time-consuming process that requires **focusing for ensuring impact**. It is therefore essential to select commodity chains that have a potential for pro-poor value-addition. The inventory of pre-selected commodities provides a basis for this work (see Section IV-A on the constraints for value-chain development). The list is not limited since the analysis of watersheds to be managed by the Project and support for related agricultural intensification, together with information of market opportunities, could lead to the identification and selection of other, ‘novel’ low-volume, high-value crops that could be grown under smallholder irrigation schemes.

76. The selected commodity chains and their mapping would provide the basis for the formulation of **comprehensive action plans** for upgrading each commodity chain. These action plans would define strategies to address those constraints that hamper value-addition in general and more specifically for the benefit of smallholder farmers. According to the analysis of the key constraints for value-chain development support would be provided for both **facility (‘hard ware’) and capacity (‘soft ware’) development**: (i) input supply; (ii) storage, grading and processing of agricultural produce; (iii) marketing of products; and (iv) market information and intelligence.

77. The comprehensive action plans would be the framework for value-chain development for each of the selected commodities. Consequently, farmer organizations and private rural enterprises would, with appropriate support from service providers and through a series of introduction workshops, develop and implement **joint activity and ‘business development plans’**. These plans fundamentally would (i) address the four above-mentioned key issues of facility and capacity development and (ii) strengthen and establish market relationships between chain actors.

78. These joint plans would be submitted to rural finance institutions in the District of Kirehe to apply for financing of the necessary investments to make. Financing and investment capacities of smallholders and their organizations in the district are weakly developed. Therefore a **Value-Chain Development Fund**, to be established by the Project, would supply **matching grants** in order to give an extra boost when applications have been duly approved by the rural finance institutions. The Project would therefore emphasize the application of rules and regulations as applied by the private sector in order to enhance a culture of enterprise development and ensure sustainability of activities.

79. Involvement of the private sector in value-chain development is essential for sustaining relationships with smallholder farmer organizations and providing them with information on market access. Therefore the Project would support **continuous interaction between key value-chain actors** through (i) providing matching grants for joint activity and business development plans and (ii) the formation of so-called multi-actor, value-chain clusters. These platforms would fulfill two key functions: (i) develop sustained market relationships between

value-chain actors within the framework of the comprehensive action plans and (ii) enhance learning-by-doing and learning-by-interaction between chain actors and service providers.

80. Throughout the implementation of the strategy, **empowerment of smallholder farmer organizations** through facility and capacity development would receive continuous attention. Empowerment would evolve around: (i) increased control over activities such as input supply, storage, grading etc. of agricultural produce; (ii) linking with private entrepreneurs who supply markets; and (iii) enhanced participation in the governance and management processes within the value-chain (e.g. the definition of grades and standards).

VI. PROJECT ACTIVITIES

A. Selection and participatory mapping of commodity chains and action plans

81. **Baseline surveys of commodity chains.** During the studies of three selected, representative series of watersheds, a baseline survey of the pre-selected commodity chains would be conducted. These include commodities that are already grown in the district as well as novel commodities with a potential to be grown in the selected watersheds. The survey would investigate, assess and document (i) the natural, human and institutional resource base of the area; (ii) the actual and potential volumes, prices and marketing conditions of the commodities; and (iii) key stakeholders involved (chain actors and support services) and their requirements for accessing the commodity markets. The baseline survey thus would deal with both the supply (production) and demand (market) opportunities and requirements of each of the crops and/or livestock products. This would allow for a first matching exercise that would rank commodities. Three baselines surveys would be conducted by contracted service providers for each of the three series of watersheds which would be representative for the diversity of situations within the District of Kirehe.

82. **Selection of commodity chains for upgrading.** Representatives of the key stakeholders involved in the commodity chains would gather during a first series of workshops to conduct a participatory selection among the commodity chains that were investigated. Workshop participants would represent: (i) registered farmer organizations; (ii) private enterprises with a proven track record; (iii) support services (agricultural research and extension, business development services, rural finance institutions, etc.); and (iv) national and District authorities.

83. The workshop participants would review the commodity chains against the agro-ecological characteristics of the District, their economic and market potential, and the assets and capacities of value-chain actors, notably the local smallholder farmers as well as traders and processing enterprises from the district or elsewhere who get their supply from the district.² Selection of commodity-chains would be a two-step process: (i) demand-driven market-based opportunities would be the first criterion for selecting commodity chains; and (ii) their potential for poverty reduction would also be considered.

84. Pro-poor criteria would include: (i) high outreach for the commodity in the District; (ii) high opportunity for smallholder participation (large number of smallholders producing the commodity); (iii) low barriers to engage in production and processing (skills and technologies required); (iii) high opportunity for women to enter the chain; (iv) high opportunity for organizing smallholder farmers for collective, economic activities; and (v) high potential for creating jobs along the chain.

² See for a methodological approach: *Territorial Approach for Rural Agro-enterprise Development*, available at http://www.ciat.cgiar.org/agroempresas/ingles/manual_series.htm

85. For each of the three series of representative watersheds, a two-day workshop would be organized that gathers some 50 participants. The three (3) workshops would be facilitated by a value-chain service providers, a local institution that is trained and coached by an international institution, which would operate together under a partnership arrangement. Each workshop is expected to select a maximum of two commodities: one ‘established’ commodity chain (i.e. semi-processed bulk products) and one novel, so-called ‘emerging’ commodity chain (i.e. highly processed or high-value produce; see Section IV-A). Due to commonalities between the series of watersheds – the District is relatively small - the number of ‘established’ commodity chains could be reduced to two in total.

86. **Mapping and analysis of the selected commodity chains.** Once the commodity chains have been selected, a second series of multi-stakeholder workshops would map and analyze the selected commodity chains to prepare their upgrading to value-chains. The additional necessary data and information would be collected by the value-chain service providers. Data and information would include: (i) chain actors and their functions; (ii) markets; (iii), volumes and prices along the chain; (iv) support services for chain actors; and (v) policies and institutional environment. The workshop participants would validate the data and information and identify opportunities and constraints at each level for value-chain development. The same workshop would define activities to be undertaken to tackle institutional, organizational and technical issues of value-addition.

87. The value-chain mapping and analysis would pay particular attention to poverty and social inclusion (e.g. gender) aspects: actual roles of social groups in production, processing and trading; their access to and control over resources and benefits; positive and negative impact of value-addition on different social groups; and barriers for social groups to fully participate in and benefit from value-addition activities.

88. **Action plan for value-chain development.** This second workshop would produce a comprehensive action plan to address the key constraints and opportunities for value-addition for each targeted commodity. These action plans would be the frameworks for all future activities of value-chain development. They would be implemented through (i) capacity strengthening of smallholder farmers and their organizations (with support of the Capacity Building Fund under the Local Institutional Development Component A of KWAMP) and (ii) development of rural entrepreneurship of farmer organizations and rural enterprises (with support of the Value-Chain Development Fund; see Section VI-C).

89. Three (3) mapping/analysis and action plan workshop would be organized with some 50 participants each. These three-day workshops would be facilitated by the two (international and national) value-chain service providers. Each workshop is expected to work on one ‘established’ commodity chain (i.e. semi-processed bulk products) and one novel, ‘emerging’ commodity chain (i.e. highly processed or high-value produce). A maximum of six (6) action plans could be produced. However under the prevailing conditions it is recommended to limit this by restricting the number of selected ‘established’ commodity chains to two.

90. During the implementation of this the group of activities value-chain actors would work together for a first time. So-called **value-chain clusters** (or platforms) – equal in number to the number of selected commodity chains - would then be created around the commodity chains bringing together key value-chain actors and support service providers. Value-chain clusters would be facilitated by the value chain service providers, in close collaboration with Value-Chain Development Officer at the District level (see Section VI-D).

B. Development of basic facilities and capacities for upgrading commodity chains

91. **Introduction workshops.** Through a series of introduction workshops, each actor-cluster platform and its member organizations would get knowledge and develop basic skills for the elaboration of joint activity plans and business development plans and get information on the procedures submitting proposals to the rural finance institution which works in close collaboration with the Value-Chain Development Fund.

92. The joint activity plans and business development plans that would enhance the development of facilities as well as their management by chain actors for: (i) supply of improved inputs (fertilizers, pesticides and veterinary drugs – input of seeds and plant material is organized under KWAMP Subcomponents A and B for Agricultural intensification); (ii) storage, grading and processing or any other value-addition activity; (iii) marketing of produce; and (iv) market information and intelligence.

93. Each actor-cluster platform – a maximum of six (6) – would benefit from an introduction workshop that would bring together some 30 participants each. Both the facilitation of introduction workshops and the development of activity and business development plans would benefit from the support by service providers with proven experience in participatory business development planning in order to enhance ownership by local actors. Although primarily related to the selected commodity sub-sectors, the support of the Project for the infrastructural facilities included in such plans would also be beneficial to other community-based organizations.

94. **Input supply and marketing of produce.** This involves the rehabilitation/construction of input supply shops and collect points of agricultural produce as part of activity plans and/or business development plans. These infrastructures would be owned by local farmer organizations or local traders and managed one or both of them for ‘bulk’ supply of agricultural inputs and outputs.

95. Key conditions to fulfill for local farmer organizations or traders to benefit from funding by the Project would be: (i) proven linkages between farmer organizations and private input suppliers and (ii) defined ownership and management of the infrastructure. For defined ownership, the involved farmer organizations and/or local traders would have to be a legal entity and comply with rules and regulations concerning the ownership of infrastructure.

96. Based on demand, the Project – through the Value-Chain Development Fund – would also finance the construction of input shops and collect points (about one in each of the 12 Sectors of the district would be expected). The local farmer organizations as well as local traders would benefit from support and coaching for input shop and/or collect point management by contracted service providers that would (i) facilitate linking smallholder farmer organizations and private input and output traders, (ii) strengthen the required management capacities of local farmer organizations and/or private traders, and (iii) test and develop innovative credit modalities (e.g. contract farming, warehouse receipts) between the key partners around these facilities.

97. **Value-addition activities (storage, grading and processing).** Value-addition activities would for the most part refer to specific improved storage, grading and processing practices and related equipment that require considerable investments. Such storage facilities would go beyond the above-mentioned collect points for bulk supply of agricultural outputs. The required investments are to be part of business development plans which could be submitted by processor groups and/or rural micro-enterprises for support to the Value-Chain Development Fund.

98. A first key condition to fulfill for benefiting from funding by the Project would be the defined ownership and management of the infrastructure and/or equipment. The beneficiaries would therefore have to be a legal entity. A second key condition would be that the required investment is supported by a full-fledged plan that (i) justifies the investment, (ii) specifies the markets and marketing partners, (iii) defines the volumes to be marketed, their expected prices as well as the expected returns on investments made, and (iv) identifies the required capacities for enterprise development and business management.

99. Although it is difficult to estimate how many such facilities would be developed, a provision of 6 larger, storage/processing units is made under the VCD Fund. The processor groups as well as the rural enterprises would benefit from advice and coaching for business management by contracted service providers that would (i) strengthen their business management capacities and (ii) link them – at their demand - with specialized technical assistance for the appropriate use and maintenance of the equipment.

100. **Market information and intelligence.** Market information and intelligence are essential for smallholder farmer organizations to strengthen their position in value-chains. So-called market information facilities (centers) could be part of the joint business development plans under condition that they have to (i) integrate the Community Innovation Centers, which would have internet facilities to access websites with market information, and (ii) be managed by specially trained (staff) members from local farmer organizations.

101. In close collaboration with KWAMP Component Farmer Organizations, specially appointed members and staff from local farmer organizations would benefit from training and coaching in market information management by contracted service providers. This would strengthen their capacities to access and analyze market information.

102. **Exchange workshops.** Smallholder farmer organizations and private entrepreneurs involved in the management and use of the above-mentioned facilities (i.e. input shops, collect points for agricultural produce, processing equipment, and market information centers) under the approved and financed plans would benefit from yearly workshops to be organized by the Project to exchange management experiences and stimulate innovation (e.g. credit modalities) in the different fields of work.

C. Establishment and operation of a Value-Chain Development Fund

103. A Value-Chain Development Fund would provide matching grants for the implementation of joint activity and business development plans in order to promote value-chain development in the district. The grants would match the credits from rural finance institutes to support the implementation of joint activity and business development plans (i.e. investments for infrastructure and equipment, and training and coaching activities for strengthening enterprise management capacities).

104. The VCD Fund is divided into two windows: (i) the ‘established value-chain’ window, and (ii) the ‘emerging value-chain’ window. For each window a total provision of USD 1 million has been made.

105. Grants of the VCD Fund would have to be combined with credits provided by rural micro-finance institutions, such as the *Banque Populaire du Rwanda* (BRD). This modality is designed in order to avoid a distorting effect of financing by the Project in the rural micro-finance system and avoid risks that ‘free’ infrastructure and equipment are not being used for the intended purposes, or even sold. The grants therefore would particularly target the strengthening of management capacities items of the plans.

106. **Established value-chain window.** This window supports value-chains, for which considerable experience is available in Rwanda and/or the District of Kirehe and in which local actors are already involved, yet require additional capacities. It refers to commodities such as maize, rice and cassava that are usually supplied in bulk and require rather simple, basic infrastructure, equipment and techniques for value-addition which are available and have proven their performance. Chain actors run few risks when engaging in such value-addition activities.

107. This window would support the implementation of both **joint activity plans** and **joint business development plans** that are submitted by local smallholder farmer organizations and at least one other private, chain actor. Plans would clearly indicate the involvement of various chain actors and the benefits to be expected at the different levels. Facilities would involve: (i) construction of ‘bulk’ agricultural input and output facilities (under joint activity and business development plans), and (ii) market information centres and procurement of equipment of more than USD 5.000 per unit (under business development plans) and support for strengthening management capacities. Plans would go beyond a total of USD 25.000 with a maximum of USD 100.000 each. These grants would have an implementation time-span of 3 – 4 years.

108. **Emerging value-chain window.** This window refers to commodities, such as certain fruits, legumes and milk, which are novel to the district and would be promoted as part of agricultural intensification, livestock development and management of irrigation schemes. There would be no or very little experience with them in Rwanda and/or the district and chain actors would run considerable risks when investing. Such commodities would therefore require testing and developing technologies and management practices for storage, processing and marketing.

109. This window would support innovation and capacity building for the development of ‘new’, emerging value-chains. The implementation of **joint activity plans** that are submitted by local smallholder farmer organizations and other chain actors would be supported by the grant. Such plans would involve the same activities as under the first window, yet on a smaller, more experimental scale. It finances the procurement and testing of equipment of less than USD 5.000 per unit, while the total budget of activity plans would not exceed USD 25.000. These grants would have an implementation time-span of 1 – 2 years.

110. **Two-stage procedure.** In order for the VCD Fund to receive sufficient, feasible applications for funding and initiate support for skill development in this field, a two stage application procedure would be applied: (i) concept notes that are an expression of interest and provide the key information, which, after approval, would lead to (ii) joint activity plans or fully developed joint business development plans. After the approval of expression of interests, the PCU would contract a service provider to support and coach applicants when developing their plans.

111. Expression of interest would provide basic information on: (i) demand-driven, market-based opportunities; (ii) links with the comprehensive commodity sub-sector action plans; (iii) the proposed activities and investments needed; (iv) the promoters and owners of the plan; and (v) the ownership and management of equipment and/or infrastructure involved.

112. **Basic conditions for applying to the VCD Fund.** Demands for grants (both windows) would fulfill several basic conditions: (i) demonstrate market demands; (ii) their contribution to realizing KWAMP’s objectives; (iii) be based on the commodity sub-sector action plan (that has been endorsed by the actor-cluster platform); (iv) demonstrate the innovative, “added value” and income generating character of the activities; (v) make obvious how target groups will benefit; (vi) demonstrate that applicants have the basic capacities to implement

the plan; (vii) define ownership and management modalities of equipment and/or infrastructure involved; and (viii) show its contribution to agricultural intensification in the district.

113. **Institutional embedding.** From the perspective of strengthening local (District) institutions to fully play their role in local economic development, arrangements for a sustainable, institutional embedding of the Fund would be required. For the time being, the VCD Fund would be managed (under a contract) by a rural finance institution that has the required knowledge and experience in this field. Options for future institutional embedding of the VCD Fund are: a trust fund managed by an association (follow-up of the actor-cluster platform), or a statutory body that would be placed under the tutelage of the District authorities.

114. **Governance and administration of the fund.** The VCD Fund would be managed by a local, rural finance institution, which would develop and disseminate operational guidelines as well as criteria for examination and approval of applications. This institution, contracted by the Project Coordination Unit (PCU), would incite smallholder organizations and partner chain actors to develop bankable, quality proposals through: organizing introduction workshops, and applying the two-stage procedure described above. PCU's particular support would be to contract service providers for the preparation of plans (see Section VI-B).

115. The local institution would call together a **Technical Committee** to examine expressions of interests as well as joint activity plans and business development plans. The Technical Committee would include representatives of the rural finance institution involved, MINAGRI, the PCU, District authorities (these would all be permanent members) and technical experts of each of the selected commodity sub-sectors, and meet three times a year. The technical experts may vary according to the commodities involved. The Technical Committee would have the mandate to directly approve expressions of interest and invite applicants to submit full plans. Full proposals (activity plans and business development plans) would need final approval by the rural finance institution, which provides credit for the implementation of the plan, to benefit from the matching grant by the VCD Fund.

116. Application, examination and approval procedures would be flexible and accessible for the target groups. Therefore **simple procedures and criteria for approval** need to be developed and communicated to the target groups together with the support that would allow for skill development in this field. Criteria would be developed by the local finance institution in collaboration with the PCU, other IFAD projects and service providers. These criteria would be a further refinement of the basic conditions mentioned above. This would lead to a list of criteria that would allow for assessment through scoring of the proposals submitted. The criteria would also include the criteria that are used by the rural finance institution when examining demands for credit. Proposals (activity plans and business development plans) would follow practical and proven formats that are elsewhere used in Rwanda (e.g. formats developed by CAPMER).

117. Approved activity and business development plans would be subject of a **tripartite agreement** between the rural finance institution, the principal applicant, which must be a legal entity, and the PCU. The principal applicant would conclude an agreement with its partners who may be informal entities. Applicants would sign a credit agreement with the rural finance institution according to the rules and regulations in effect. Release of the funds by the VCD Fund would be organized according to the agreed milestones in the plan which would be brought in line with reimbursement duties to the rural finance institution. An initial sum would be disbursed to allow for effective start of implementation; subsequent sums would be disbursed upon achievement of the milestones.

118. The rural finance institution and the Value-Chain Development Officer at the District level would be responsible for **monitoring and supervision** of the implementation of the funded plans. The technical monitoring reports would also be examined by the PCU that may conclude to orient the contracted service providers which provide training and coaching to the applicants and their partners.

119. **Support and disbursement procedures.** The Project would provide support, through contracting of service providers, for the development and implementation of the approved plans. This includes tailor-made training and coaching of applicants and their partners, as well as the organization of exchange and learning workshops. Provision of this type of support can be the result of specific requests from applicants and/or the initiative of the Project; e.g. when the Technical Committee recommends it after examination of the proposals. Financing of such contracted support would be a special line of the project's budget and not be included in the grant.

120. The rural finance institution would prepare a contract with the principal applicant before the initial disbursements. Contracts would be elaborated according to standard formats for the each of the windows and include: (i) a summary description of the plan and activities that would be financed; (ii) the responsibilities of the contracting parties; (iii) the amounts of funding provided through credit by the rural finance institution and matching grants of the VCD Fund; (iv) the milestones and related sums to be disbursed; (v) the accounting, reporting and audit requirements; (vi) the monitoring and supervision procedures; and (vii) the procedures for contract variations and termination before the planned ending.

121. The Value-Chain Development Officer would be responsible for technical monitoring and supervision and would advice the rural finance institution, District authorities as well as the PCU. The principal recipients would report quarterly to the PCU through brief reports and more extensive reports when achieving milestones or ending the implementation of the plan. Emphasis would be put on self—assessment methods for reporting and subsequent reorientation of activities.

D. Facilitation of sustained relationships and learning between chain actors

122. During the implementation of the first the group of activities key value-chain actors would work together for the first time to select priority commodity chains for upgrading, analyze these chains and develop comprehensive action plans. Value-chain clusters would then be created around the selected commodity chains bringing together value-chain actors and support service providers.

123. The value-chain clusters – a maximum of six (6) clusters - would fulfill several functions: (i) sustain relationships between chain actors, particularly between the smallholder farmer organizations and the private enterprises; (ii) steer the implementation of the action plans through motivating member organizations to develop proposals to be submitted to the Value-Chain Development Fund; (iii) provide an exchange and learning platform for members; and (iv) offer a policy consultation platform for national and local authorities on enabling measures for commodity and value-chain development.

124. **Monitoring and learning.** The value-chain clusters would function through a series of semester monitoring and learning workshops. After a first launch workshop that defines the basic rules for functioning, the regular learning and innovation workshops would follow the overall progress in implementation of the action plan, discuss the realization of activity and business development plans (cases) and exchange experiences around key issues.

125. It is foreseen that a series of final workshops at the end of this phase of KWAMP would identify best practices to be documented and disseminated. The (international and national) value chain service providers would provide assistance to these clusters and particularly strengthen their learning capacities through training and linking with similar initiatives in Rwanda and East and Central Africa (e.g. REELP In Malawi and SCAPEMA in East and Central Africa) as well as other international sources of knowledge and information.

126. **Policy consultation.** Over time, the value-chain clusters would become a forum that represents the actors of the commodity sub-sector and defends their interests at the District and national level. The Project would strengthen its role by supporting the participation of representatives of well-functioning clusters in national fora on policy dialogues, events such as agricultural shows, etc., and regional meetings. This would also offer opportunities to strengthen the relationships between chain actors around success stories of products.

127. Value-chain service providers, seconded by the District’s Value-Chain Development Officer, would help these clusters to learn from practice and from each other, and evolve towards policy consultation platforms. Other specific roles of the facilitators would be: (i) skill development of chain actors and Project staff for value-chain mapping and analysis, etc.; (ii) capacity strengthening – based on practical examples – for empowering smallholder farmer organizations in chains; and (iii) provide input from other sources of information and experience.

VII. IMPLEMENTATION ARRANGEMENTS

A. Phasing of activities

128. The activities under this Component would follow the general phasing of KWAMP activities which starts with the participatory diagnostic and planning of the management of three (3) series of watersheds – each series covering approximately five (5), representative watersheds – in respectively Project Year 1 (PY1), PY2 and PY3. It is essential that during these diagnostic and planning exercises both the marketing opportunities and the competitive advantages for the district are investigated and documented and the baseline situation is described. Multi-stakeholder workshops would select for each series of watersheds the commodity chains for upgrading and develop comprehensive action plans in the years that follow, PY2, PY3 and PY4.

129. The introduction workshops to launch the development of basic facilities and capacities for upgrading commodity chains would be organized in the same years, PY2, PY3 and PY4. These workshops would be the stepping stones for the development of joint activity and business development plans which would be available in the subsequent years PY3, PY4 and PY5. Their implementation would also start in PY3, PY4 and PY5. This would imply that the Value-Chain Development Fund would be fully operational in PY3 and its operational guidelines would have to be developed in PY2.

130. The basis for the value-chain clusters – around each of the priority commodity chains – would be established during the commodity selection and mapping workshops in PY2, PY3 and PY4. They would continue to function during the life time of the Project and beyond.

131. A general chronogram for implementing activities would be:

Groups of activities	PY1	PY2	PY3	PY4	PY5	PY6	PY7
Baseline surveys							
Selection and participatory mapping of							

Groups of activities	PY1	PY2	PY3	PY4	PY5	PY6	PY7
commodity chains - action plans							
Development of basic facilities and capacities for upgrading chains – introduction workshops							
Development of basic facilities and capacities for upgrading chains – implementation of plans							
Establishment of a Value-Chain Development Fund - guidelines							
Operation of the VCD Fund – examination of plans by the TC							
Operation of the Value-Chain Development Fund – financing of plans							
Facilitation of sustained relationships and learning between chain actors							

B. Implementation arrangements

132. The implementation arrangements of activities under this Subcomponent are principally aimed at reinforcing national and, above all, District institutions and organizations to enable and drive local economic development. Therefore particular attention would be paid to (i) involving the **private sector** for establishing sustainable relationships with markets that are mainly situated outside the district and (ii) capacity strengthening of **District authorities, smallholder farmer organizations** and **local traders** to respond to market opportunities which could change overtime.

133. Implementation would involve four groups of actors: (i) the key local, institutional actors: District authorities, smallholder farmer organizations, private rural entrepreneurs and actor-cluster platforms; (ii) the Value-Chain Development Officer; (iii) the value-chain service providers ; and (iv) specialized service providers (including a rural finance institution).

134. The capacities of the local, institutional actors would be developed and strengthened, as described in the Section VI, to make them fully play their role in economic development. The **Value-chain Clusters** would become an institutional innovation. They are to steer and even drive value-chain development throughout the life-time of KWAMP and provide a platform for policy consultation (on the enabling environment) and expressing needs for capacity strengthening of its members (by service providers).

135. The PCU would recruit a **Value-Chain Development Officer** to be stationed at the District whose main tasks would be to: (i) support the preparation and implementation of the comprehensive action plans for the selected commodity chains, (ii) monitor and supervise the implementation of joint activity and business development plans as well as the quality of services provided by contracted, third parties and (iii) facilitate contacts between smallholder farmer organizations, private entrepreneurs and contracted service providers. The Officer would particularly focus on strengthening local institutions and organizations and liaise with the relevant District authorities (see draft TOR in Working Paper 2, Annex 2)

136. The Value-chain Clusters would be facilitated by **Value-chain service providers** in order to gain the necessary capacities to steer the value-chain development and become learning platforms. Such (private sector) multi-actor platforms are an institutional innovation in Rwanda. Therefore an international technical service provider would have to be involved to support learning and capacity building in this specific area (see Annex 2 of this Working Paper).

137. The **International Value chain service provider** would closely collaborate with a national technical value chain service provider – by preference an experienced, multi-stakeholder facilitator - whose capacities would have to be fully developed before the end of KWAMP. The international service provider – under the guidance of KWAMP’s steering structures and PCU - would: (i) provide training and coaching services at demand; (ii) coach the local value-chain cluster; (iii) provide relevant knowledge and information input in this field; (iv) facilitate liaison with similar IFAD supported activities un the region; and (v) assist in drawing and documenting lessons learnt from KWAMP experiences.

138. Implementation of the capacity strengthening of smallholder farmer organizations and rural entrepreneurs would be ensured by contracted, **specialized service providers** for: (i) management of facilities for input supply and marketing of produce; (ii) the development and implementation of business development plans (i.e. value-addition activities); and (iii) management of market information. These service providers would provide tailor-made services and ensure coaching of leaders and staff of smallholder organizations and rural entrepreneurs.

VIII. MONITORING AND EVALUATION

139. M&E of this subcomponent would be integral part of the overall KWAMP M&E framework. The collection and analysis of data for monitoring and evaluation purposes involves stakeholder groups: (i) PCU; (ii) District authorities; (iii) actor-cluster platforms; and (iv) smallholder organizations and private enterprises benefiting from KWAMP support. Each of them would have a specific role in collecting and analyzing data; this can be summarized as follows:

	Types of indicators	Collect	Analysis
Goal	Impact	PCU	PCU
Objectives 1 and 2	Outcome	PCU District	PCU District
Group of Activities 1	Outputs	Service providers	PCU District Value-chain clusters
Group of Activities 2	Outputs	Farmer organizations Service providers	PCU District Value-chain clusters
Group of Activities 3	Outputs	Farmer organizations Rural entrepreneurs Service providers	PCU Farmer organizations Rural entrepreneurs
Group of Activities 4	Outputs	Actor-cluster platforms Chain facilitators VCD Fund Technical Committee Rural finance institution Service providers PCU	PCU District Chain facilitators VCD Fund Technical Committee Rural finance institution

IX. RISKS AND PROJECT RESPONSES

140. The main risk that would be encountered during implementation of this Component of KWAMP would be the commitment of the private sector; its contribution and participation in the process is determining. It is therefore essential that tangible results are quickly generated to keep them on board. The Project would therefore (i) facilitate a smooth transition from planning to implementation and emphasize learning-by-doing; (ii) support both local smallholder organizations and private enterprises that are operating in the district; and (ii) develop lenient, quick and accessible procedures for submitting and examining proposals for the Value-Chain Development Fund.

141. Many activities of this component would be the result of stakeholder-driven and demand-driven support services. This requires sufficient capacity to express demands (farmers, processors and traders) and to translate these demands in relevant support (service providers). The Project would therefore invest in (i) organizing introduction workshops; (ii) contracting specialized chain facilitators; and (iii) recruiting a Value-Chain Development Officer. This last one would be also responsible for the ‘quality assurance’ of services provided by third parties.

142. Although the District of Kirehe is not subject of any other major project, collaboration and harmonization with other initiatives is essential in order to avoid ‘shopping around’ of the target group. The Project would therefore ensure participation of such stakeholder groups in the workshops, actor-cluster meetings, etc. and reinforce the capacity of the District Staff to engage development partners into exchanges of experience and policy debates.

143. Efforts would be made to establish partnerships with IFAD-supported projects for benefiting from their knowledge and experiences; e.g. the Smallholder Cash and Export Development Project (PDCRE) for strengthening smallholder cooperatives, agro-business development, creation of a trading house and accessing markets through quality products, the Rural Small and Micro Enterprise Project (PPPMER II) for enterprise development and credit facilities; and the Support Project for the Strategic Transformation of Agriculture (PAPSTA).

ANNEX 1: REFERENCES

- BPR (2006). *Annual Report 2005*. Union des Banques Populaires du Rwanda, Kigali.
- BRD (2007). *Rapport du fonds FIFAPI pour le deuxième semestre 2007*. BRD, Kigali.
- CEGEAC (2003). *Valorisation de la filière manioc. Installation des unités micro-industrielles de transformation de tubercules de manioc en farine et amidon dans la province de Gitarama*. Projet d'investissement rural. Province de Gitarama, Gitarama.
- Chemonics International (2002). *Developing the horticultural export industry in Rwanda*. Progress report May-June 2002. Projet ADAR, Kigali.
- COGEC (2004). *Etude sur l'organisation des circuits de collecte et de commercialisation du manioc dans la région d'Amayaga*. INGABO, Gitarama.
- CRISER (2005). *Analyse de la structure des prix du riz dans la province de Butare*. Cahiers du CRISER No. 2 Février 2005. UNR, Butare.
- District of Kirehe (2007). *District development plan of Kirehe (2008 – 2012)*. Kirehe.
- Fané, I. et al. (2004). *Les systèmes de production de la pomme de terre au Rwanda. Propositions d'actions de recherche et de développement dans les provinces de Ruhengeri et Gisenyi*. Série de Documents de Travail ICRA no. 122. ICRA/ROPARWA/ISAR, Montpellier/Kigali.
- Frohmdar, R. (2000). *Horticultural exports: prospects and constraints*. Agricultural Analysis and Design. Working Document series no. 5. AAD, Kigali.
- Fusillier, C. et S. Rwamasirabo (2006). *Evaluation des Projets PROP-RWA et PIFA*. Rapport d'évaluation. IRAM. RNE. Kigali.
- Gafaranga, J. (2006). *Problématique de la filière pomme de terre dans les domaines des intrants, des techniques pots-récolte et dans l'écoulement de la production*. IMBARAGA, Ruhengeri.
- Government of Rwanda (2002). *Poverty reduction Strategy Paper*. Kigali.
- Habimana, J. (2005). *Business plan pour l'exportation du fruit de la passion*. Projet ADAR, Kigali.
- Henry, D. and D. Picha (2000). *Processing and packaging of Rwandan agricultural products*. Agricultural Analysis and Design. Working Document series no. 8. AAD, Kigali.
- MINAGRI (2004). *Plan Stratégique pour la Transformation de l'Agriculture*. Document principal. MINAGRI, Kigali.
- MINAGRI (2007). *Strategy for the use of fertilizers*. MINAGRI, Kigali.
- MINECOFIN (2000). *Rwanda Vision 2020*. MINECOFIN, Kigali.
- MINECOFIN (2006). *National Microfinance Policy*. MINECOFIN, Kigali.
- Makumana, J. (2002). *The chemical fertilizer market in Rwanda*. Agricultural Policy Development Project. Research Report no. 18. ATB Associates, Betscheda.
- Minega Rwigema, J. B. (2004). *An analysis of the non-traditional agricultural export potential for Rwanda. A case of flowers*. Thesis. University of Western Cape. Western Cape.
- Mutijima, A. et J. Kayumba (2005). *Analyse de la demande solvable et étude de rentabilité économique des productions semencières*. MINAGRI/AFSR/CTB, Kigali.
- Ngiruwonsanga, G. (2003). *Milk production and marketing in selected sites of Umutara and Gitarama provinces*. Dairy Cattle Development Support project, MINAGRI, Rwanda.
- PRODEV Consult (2005a). *Etude diagnostique rapide de la filière épices*. Programme de promotion des PME de l'agribusiness orientées vers la transformation des produits non-

- traditionnels au Rwanda. CAPMER, Kigali.
- PRODEV Consult (2005b). *Etude diagnostique rapide de la filière miel*. Programme de promotion des PME de l'agribusiness orientées vers la transformation des produits non-traditionnels au Rwanda. CAPMER, Kigali.
- PRODEV Consult (2005c). *Etude diagnostique rapide de la filière banane frecinette*. Programme de promotion des PME de l'agribusiness orientées vers la transformation des produits non-traditionnels au Rwanda. CAPMER, Kigali.
- PSF (2005). *Rwanda Private Sector Federation Strategic Plan 2005 – 2007*. PSF, Kigali.
- RARDA (2007). *National Beekeeping Strategic Plan 2007 – 2012*. Draft. MINAGRI, Kigali.
- Republic of Rwanda (2007). *Economic Development and Poverty Reduction Strategy 2008 – 2012*. Kigali.
- RHODA (2006). *Rwanda Horticulture Development Authority Business Plan 2006 – 2011*. MINAGRI, Kigali.
- RIEPA (2006). *Export Guide*. Rwanda Investment and Export Promotion Agency, Kigali.
- Sautier, D., H. Vermeulen, M. Fok and E. Biénabe (2006). *Case studies of agro-processing and contract agriculture in Africa*. RIMISP, Santiago, Chili.
- Shem, M. (2002). *Diagnostic mission for the production of hygienic milk for export in Rwanda*. Chemonics International, Kigali.
- Temu, A. E. and N. W. Marwa (2007). *Changes in the governance of global value chains of fresh fruits and vegetables: opportunities and challenges for producers in Sub-Saharan Africa*. South Centre, Geneva.
- Terpend, N., J. Kayumba et E. Ntaganda (2007a). *Diagnostic et élaboration du plan de développement national de la filière maïs*. CODEA/ROPARWA, Kigali.
- Terpend, N., J. Kayumba et E. Ntaganda (2007b). *Diagnostic et élaboration du plan de développement national de la filière manioc*. CODEA/ROPARWA, Kigali.
- UCORIRWA (2004). *Etude diagnostique des coopératives associations rizicoles*. UCORIRWA, Kigali.
- Vaillant, F. (2001). *Analyse des opportunités de développement du secteur de la transformation des fruits et légumes au Rwanda*. CIRAD-FLHOR, Montpellier.
- World Bank (2006). *Promoting pro-poor agricultural growth in Rwanda: challenges and opportunities*. Document No. 39881-RW. World Bank, Washington.

ANNEX 2: DRAFT TERMS OF REFERENCE FOR VALUE CHAIN SERVICE PROVIDERS

The Kirehe Community-Based Watershed Management Project (KWAMP) aims to contribute to the implementation of Rwanda's Strategic Plan for Agricultural Transformation (PSTA). It addresses the challenge to provide agricultural intensification and natural resource management in the District of Kirehe with a market-orientation basis that would guide the required investments and ensure future returns through improved incomes of smallholder farmers.

The value-chain development approach is widely known and applied in Rwanda as part of the implementation of PSTA. Under the Value-Chain Development Component, KWAMP innovates through linking area-based agricultural intensification with sector-based value-chain development through facilitating value-chain clusters. These multi-stakeholder clusters have two key functions: (i) develop sustained market relationships between value-chain actors within the framework of the comprehensive action plans for the selected commodity chains and (ii) enhance learning between chain actors and service providers. **Technical service providers for the facilitation of value-chain development in the District of Kirehe** will be contracted by KWAMP.

Learning would be a key element through organizing and facilitating the clusters of the selected commodity chains which have a potential for pro-poor value-addition. A specialized, international value chain service provider would partner up with a Rwandan counterpart organization in order to strengthen national capacity in the field of stakeholder-driven value-chain development.

In collaboration with a national technical service provider, the **international value-chain service provider** would:

- Provide methodological support to guiding the actor-cluster platforms in the District of Kirehe through the process of upgrading the selected commodity chains to value-chains;
- Give support to the facilitation of learning-by-doing and learning-by-interaction of the actor-cluster platforms;
- Coach the national technical service provider and the Value-Chain Development Officer in strengthening their capacities as a chain facilitator;
- Organize final stocktaking and documentation of lessons learnt in value-chain development by KWAMP.

Specific activities to be undertaken by the international value chain service provider would be:

- Give assistance, at the demand, through training (e.g. value-chain mapping and analysis, development of action plans) during the start-up of the Component;
- Provide assistance, at the demand, through coaching the national value-chain cluster facilitator during the monitoring and learning workshops of the value-chain clusters during the full implementation of the Component;
- Supply relevant knowledge and information from other relevant sources and experiences on pro-poor value-chain development elsewhere;
- Facilitate liaison with similar IFAD supported activities in East and Central Africa;
- Facilitate writeshops for the documentation of lessons learnt in value-chain development by KWAMP.

The **national value-chain service provider** would:

- Guide the value-chain clusters in the District of Kirehe through the process of upgrading the selected commodity chains to value-chains;
- Facilitate the learning-by-doing and learning-by-interaction of the clusters;
- Assist the international service provider in organizing the final stocktaking and documentation of lessons learnt in value-chain development by KWAMP.

Specific activities to be undertaken by the national knowledge and capacity building organization would be:

- Organize and provide training (e.g. value-chain mapping and analysis, development of action plans) during the start-up of the Subcomponent;
- Supply relevant knowledge and information from other relevant sources and experiences on pro-poor value-chain development in Rwanda;
- Organize and facilitate the monitoring and learning workshops of the value-chain clusters;
- Organize and facilitate writeshops for the documentation of lessons learnt in value-chain development by KWAMP.

Expected outcome of the support to KWAMP by the two knowledge management and capacity building organizations would be:

- Strengthened national and local capacities to facilitate and support pro-poor value-chain development;
- Improved strategies for institution building for value-chain development and organizational strengthening of smallholder organizations and rural entrepreneurs;
- Systematical synthesis and analysis of experiences with value-chain development in Rwanda and the East and Central Africa region;
- Experiences with innovative financial products for smallholder organizations and rural micro-enterprises.

ANNEX 3: LOGICAL FRAMEWORK FOR VALUE-CHAIN DEVELOPMENT

Narrative Summary	Verifiable Indicators	Means of Verification	Assumptions and Risks
<p>Goal: Increase incomes and food security of smallholder households through value-addition of their on-farm production</p>	<ul style="list-style-type: none"> - % of rural households with increased incomes - % of rural households with increased food security 	<ul style="list-style-type: none"> - National poverty surveys - National and District statistics on rural economic activities - Project surveys on agricultural productivity and household incomes (baseline and after project closure) - Participatory M&E 	<ul style="list-style-type: none"> - Implementation of the Rwanda EDPRS - Continued quality implementation of the PSTA - Effective collaboration with other donors, projects and programmes working on the same topic - Sustained market demands for selected commodities
<p>Objective 1: Develop value-chains of on-farm production through more efficient input supply, transport, storage, processing and marketing systems</p>	<ul style="list-style-type: none"> - Number of value-chains developed - Increase of number of registered and functional smallholder farmer organizations in the selected commodity sub-sectors - Increase of number of rural enterprises operating in the District 	<ul style="list-style-type: none"> - Project M&E reports - Supervision reports - Project surveys on commodity sub-sectors - Commodity case studies 	<ul style="list-style-type: none"> - Enhanced implementation of national strategies for input supply and marketing - Effective collaboration with District authorities for creating a conducive environment - Commodities with value adding potential can be grown in the District (volume and yields)
<p>Objective 2: Increase the share by smallholder farmers of value addition through strengthen the linking, handling and bargaining capacities of their organizations</p>	<ul style="list-style-type: none"> - Number of smallholder farmer organizations operating in the selected commodity sub-sectors - Distribution of value-addition along the chain - Increase in prices of commodities (farm gate and post farm gate) 	<ul style="list-style-type: none"> - Project M&E reports - Project surveys on commodity prices along the value-chain - Commodity case studies 	<ul style="list-style-type: none"> - District authorities facilitate farmer organizations' and private sector participation in rural economic development
<p>Outputs Group of Activities 1: Selection and participatory mapping of commodity chains and action plans</p>			
Survey of pre-selected commodities	<ul style="list-style-type: none"> - Number of studies completed 	<ul style="list-style-type: none"> - Study reports 	<ul style="list-style-type: none"> - Availability of up-to-date and reliable data on markets
Commodities selected for value-	<ul style="list-style-type: none"> - Number of commodities selected 	<ul style="list-style-type: none"> - Reports of workshop meetings 	<ul style="list-style-type: none"> - Availability of a set of relevant

Narrative Summary	Verifiable Indicators	Means of Verification	Assumptions and Risks
addition			pro-poor selection criteria
Issues concerning value addition identified and addressed	- Number of issues identified in the action plans	- Reports of platform/workshop meetings - Activity reports of service providers	- Conducive environment created by National and District authorities - Private sector participates in the CLGSs
Comprehensive action plans for the selected commodities elaborated	- Number of action plans elaborated	- Documented action plans	- Facilitation capacity available - Private sector organizations prepared/committed to contribute
Outputs Group of Activities 2: Development of basic facilities and capacities for upgrading commodity chains			
Input supply facilities constructed and operating	- Number of facilities constructed and operational	- Project activity reports - Field visits	- Local authorities facilitating construction
Farmer organizations engaged in organizing improved input supply	- Volume of inputs handled by farmer organizations - Prices of inputs	- Project activity reports - Reports of farmer organizations - Participatory M&E	- Apex farmer organizations support and link with local organizations - Input supply networks available and operating - Use of inputs is found profitable by farmers
Marketing facilities constructed and operating	- Number of facilities constructed and operational	- Project activity reports - Field visits	- Local authorities facilitating construction
Farmer organizations engaged in organizing improved marketing	- Volume of produce handled by farmer organizations - Prices of produce	- Project activity reports - Reports of farmer organizations - Participatory M&E	- Apex farmer organizations support and link with local organizations - Use of collective marketing facilities is found profitable by farmers
Linkages established between farmers organizations and private enterprises for improved input supply/marketing of produce	- Number of agreements for co-management of facilities between farmer organizations and private enterprises - Number of contracts for input procurement/supply of produce	- Agreements and contracts - Reports of farmer organizations and private enterprises - Participatory M&E	- Lucrative and accessible markets identified
Market information centres put in place	- Number of market information systems put in place and functioning	- Project activity reports - District authority reports - Field visits	- Basic information and communication infrastructure in place and operating

Narrative Summary	Verifiable Indicators	Means of Verification	Assumptions and Risks
Market information analysed and used by farmers organizations	<ul style="list-style-type: none"> - Number of farmer organizations analysing and using market information system - Prices of products marketed by local farmer organizations 	<ul style="list-style-type: none"> - Reports of farmer organizations - Project activity reports - Case studies 	<ul style="list-style-type: none"> - Apex farmer organizations support and link with local farmer organizations
Outputs Group of Activities 3: Establishment and operation of a Value-Chain Development Fund			
Activity Plans successfully implemented	<ul style="list-style-type: none"> - Number of joint APs funded and implemented - Number of operating processing and trading units - Share of market prices for smallholders 	<ul style="list-style-type: none"> - Project activity reports (Fund) - Case studies - Participatory M&E 	<ul style="list-style-type: none"> - Client-friendly and attractive interest rates and disbursement modalities - Sound financial management by farmer organizations
Business Development Plans successfully implemented	<ul style="list-style-type: none"> - Number of BDPs funded and implemented - Number of operating processing and trading units - Share of market prices for smallholders 	<ul style="list-style-type: none"> - Project activity reports (Credit) - Case studies - Participatory M&E 	<ul style="list-style-type: none"> - Client-friendly and attractive interest rates and disbursement modalities - Sound financial management by farmer organizations
Outputs Group of Activities 4 : Facilitation of sustained relationships and learning between chain actors			
Commodity-specific value-chain clusters created and functioning (M&E and Learning)	<ul style="list-style-type: none"> - Number of operational value-chain clusters - Number of commodity sub-sector representatives participating in cluster activities 	<ul style="list-style-type: none"> - Reports of cluster/workshop meetings - Participatory M&E 	<ul style="list-style-type: none"> - Private sector organizations committed to participate in platforms
Joint Activity and Business Development Plans elaborated and submitted for funding	<ul style="list-style-type: none"> - Number of joint APs and BDPs submitted for funding 	<ul style="list-style-type: none"> - Documented joint APs and BDPs - Screening and activity reports of rural financing institutions - Reports of farmer organizations and private enterprises - Participatory M&E 	<ul style="list-style-type: none"> - Rural financing institutions available and accessible for smallholder farmers and private sector - Capacity for screening APs and BDPs available
Participation of cluster members in policy dialogue	<ul style="list-style-type: none"> - Number of policy fora in which participated 	<ul style="list-style-type: none"> - Reports of fora reports - Newspapers 	<ul style="list-style-type: none"> - Platform members are invited to policy fora
Capacities of farmer organizations	<ul style="list-style-type: none"> - Number of farmer organizations 	<ul style="list-style-type: none"> - Activity reports of training and 	<ul style="list-style-type: none"> - Farmer organizations and private

Narrative Summary	Verifiable Indicators	Means of Verification	Assumptions and Risks
and private enterprises for value-addition enhanced	and private enterprises benefit from training and coaching - Number of farmer organizations and private enterprises applying knowledge obtained through training	coaching service providers - Post training surveys - Participatory M&E	enterprises are able to express their capacity strengthening needs - Training and coaching service providers capable to translate needs into services to be provided

ANNEX 4: OVERVIEW OF THE PRE-SELECTED COMMODITY CHAINS

Maize:

Operations	Production	Collect	Processing	Trading
Chain actors	<ul style="list-style-type: none"> - Smallholder farmers - Associations and cooperatives of maize growers: organization of input supply (on a contract farming basis) and bulking for marketing 	<ul style="list-style-type: none"> - Collect by women groups (fresh maize) - Collect and marketing by cooperatives (dried cobs) - Collect and supply of processors by cooperatives - Collect by traders 	<ul style="list-style-type: none"> - Industrial mills (flour) managed by private sector: Kigali/MINIMEX (imports); Mukamira mills; and RDI/Umutara (imports) - Mills managed by cooperatives: COAMV - Mills (special flour mixes: SOSOMA and UNIMIX) managed by an association: DUHAMIC-ADRI - Small mills operated by individuals 	<ul style="list-style-type: none"> - Consumers - Boarding schools, prisons, etc. - NGOs and other organizations operating in the social sector (SOSOMA) - Germs for brewing beer (BRALIRWA)
Support services	<ul style="list-style-type: none"> - Research and extension services - Supply of improved seeds and inputs - Credits (for inputs) - Organization of producers 	<ul style="list-style-type: none"> - Credits - Organization of producers 	<ul style="list-style-type: none"> - Research - Credits 	
Service providers	<ul style="list-style-type: none"> - ISAR; RADA; BAIR; IMBARAGA - AFSR Project, SNS ; UNICOOPAGI; KAIGA (seed production) - PASAP Project; CATALIST Project; RDO NGO - Cooperatives - UBPR; MFI (CLECAM) - UGAMA NGO - MINIMEX and RDI: contracts with cooperatives (in-kind credits) 	<ul style="list-style-type: none"> - UBPR; MFI (CLECAM) - BAIR; IMBARAGA - PASAP Project; CATALIST Project; and RDO NGO 	<ul style="list-style-type: none"> - ISAR 	
Issues	<ul style="list-style-type: none"> - Varieties (adaptability to drought) - Organic and inorganic fertilization - Weakly developed demand-driven R&D services - Availability and organisation of agricultural input supply - Adaptation of financial products (input credit) 	<ul style="list-style-type: none"> - Storage capacity and technologies - Credit for marketing - Transport and infrastructure - Adaptation of financial products (marketing credit) - Financial management of cooperatives 	<ul style="list-style-type: none"> - Availability of processing equipment (cobs) - Storage capacity - Quality of supplied maize (humidity) - No use of maize sprouts - Reimbursement of (in-kind) credit; farmers sell on the local market since prices offered by MINIMEX are considered too low - Weak research capacity on processing 	<ul style="list-style-type: none"> - Competition with maize grown/imported from Uganda

Source: CODEA (2007) and interviews

Rice:

Operations	Production	Collect	Processing	Trading
Chain actors	<ul style="list-style-type: none"> - Smallholder rice growers - Rice grower associations and cooperatives: maintenance and management of irrigation works - Rice grower cooperatives: organisation of input supply, bulking of rice paddy (members of UCORIRWA) 	<ul style="list-style-type: none"> - Collect and supply of processing units by rice grower cooperatives - Collect by private traders 	<ul style="list-style-type: none"> - Small mobile units and larger rice mills managed by member cooperatives of UCORIRWA - Rice mills managed by private sector: ICM Rwanda agribusiness 	<ul style="list-style-type: none"> - Cooperatives through their counters - Wholesale private traders selling to retailers, public sector organizations and consumers
Support services	<ul style="list-style-type: none"> - Research and extension services - Supply of seeds, fertilizers and insecticides - Credits (inputs) 	<ul style="list-style-type: none"> - Training and capacity building 	<ul style="list-style-type: none"> - Investments and grants for procurement and upgrading of equipments 	
Service providers	<ul style="list-style-type: none"> - ISAR/SNS; RADA - PNR/WARDA/IRRI - ICM and UCORIRWA - International NGOs; MFIs 	<ul style="list-style-type: none"> - IWACU/CFRC; INADES - International NGOs 	<ul style="list-style-type: none"> - ICM; UCORIRWA - International NGOs 	
Issues	<ul style="list-style-type: none"> - Varieties (resistance and yields) - Quality of seeds and agricultural inputs - Availability and organisation of agricultural input supply - Crop management - Cooperative technical staff - Water control and management (works and techniques) - Maintenance of irrigation works - Misuse of water use fees (procurement of credit) - Secure land rights 	<ul style="list-style-type: none"> - Legal status of cooperatives - Administrative and financial management of cooperatives - Financial autonomy of cooperatives 	<ul style="list-style-type: none"> - Availability of processing equipment - Conditions of processing (storage, drying and milling) - Quality of milled rice: mix of varieties, humidity, fine-tuning of mills, and up-to-date knowledge. 	<ul style="list-style-type: none"> - Modalities for fixing prices - Quality of imported and locally produced rice (competition)

Source: CAPMER (2005) and interviews

Cassava:

Operations	Production	Collect	Processing	Trading
Chain actors	<ul style="list-style-type: none"> - Smallholders: food crop - Large holders: cash crop (> 1 ha) - Association and cooperatives of cassava growers: production of roots and/or cuttings (multiplication and distribution) 	<ul style="list-style-type: none"> - Collect and marketing of fresh roots and chips by producers - Collect and marketing by associations and cooperatives (e.g. COVEPAR) - Collect of mainly chips by traders - Large traders buying from small traders 	<ul style="list-style-type: none"> - Simple processing to chips by producers - Processing of chips into flour by traders - Processing by units managed by cooperatives (INGABO members) 	<ul style="list-style-type: none"> - Traders selling cassava flour to retailers and shops
Support services	<ul style="list-style-type: none"> - Production and distribution of cuttings - Certification of sound cuttings - Research and extension - Credits 	<ul style="list-style-type: none"> - Training and capacity building 		
Service providers	<ul style="list-style-type: none"> - ISAR - SNS; RADA (e.g. multiplication farms); INGABO - PEARL/SPREAD; PASAB; RSSP (Projects) - UBPR; MFI (CLECAM) 	<ul style="list-style-type: none"> - RADA; INGABO - PEARL/SPREAD; PASAB (Projects) 		
Issues	<ul style="list-style-type: none"> - Cassava Mosaic Virus threat - Varieties (resistant to other diseases) - Access to rural financing services - Management of cooperatives - Weakly developed demand-driven R&D services - Access to rural financing services - Availability of adapted financing services 		<ul style="list-style-type: none"> - Post-harvest handling (into chips - laborious and dangerous) - Conservation and storage techniques and equipment of chips and flour on farms and other processing sites - Quality of chips (humidity) 	<ul style="list-style-type: none"> - Competition with maize flour (produced with imported maize)

Source: CODEA (2007) and interviews

Milk:

Operations	Production	Collect	Processing	Trade
Chain actors	<ul style="list-style-type: none"> - Smallholder livestock keepers - Livestock keepers' associations/ cooperatives: organization of collection and marketing of milk - Large livestock keepers (large farms) 	<ul style="list-style-type: none"> - Small collectors; buying milk and transporting it to collection points - Large collectors; buying milk with small collectors - Collect centres (with cooling facilities) and/or processing/trading units 	<ul style="list-style-type: none"> - Main processing units for creamed milk, pasteurized milk and yoghurt): - Nyabisindu (public sector; Nyanza); Inyange (private sector; Kigali); Rubiziri (private sector; Kigali) 	<ul style="list-style-type: none"> - Several small cheese producing units - Retailing of processing products through shops, restaurants, etc.
Support services	<ul style="list-style-type: none"> - Research and extension - Supply of genetic material and stock - Training and capacity building - Credits - Infrastructure development (e.g. dams) 	<ul style="list-style-type: none"> - Training and capacity building 	<ul style="list-style-type: none"> - Control (hygiene) - Training and capacity building 	<ul style="list-style-type: none"> - Control (hygiene) - Training and capacity building
Service providers	<ul style="list-style-type: none"> - RARDA; ISAR; CNIA - PADEBL; RSSP; PDRCIU (Projects) - CAPMER - Heifer International; Send a Cow - MFIs 	<ul style="list-style-type: none"> - PADEBL; (RSSP) - (PDRCIU) 	<ul style="list-style-type: none"> - ORN - PADEBL; (RSSP); (PDRCIU) - CAPMER 	<ul style="list-style-type: none"> - ORN - (PADEBL); (RSSP); (PDRCIU)
Issues	<ul style="list-style-type: none"> - Feeding and watering - Production potential of Ankolé cow - Access to artificial insemination services - Access to rural financing services - Management of cooperatives - Market information 	<ul style="list-style-type: none"> - Scattered structure of milk collection (inefficiency) - Hygiene and quality of milk (no systematic control) - Contracting arrangements with suppliers and takers (conflicts) 	<ul style="list-style-type: none"> - Functioning of processing units under their capacity (20%): milk supplied is not responding to (hygiene and quality) criteria - Competition with milk that has been processed in a traditional way 	<ul style="list-style-type: none"> - Products of milk processing too expensive for most Rwandans - Competition with milk that has been processed in a traditional way

Source: CAPMER (2005) and interviews

Honey:

Operations	Production	Collect	Processing	Trading
Chain actors	<ul style="list-style-type: none"> - Smallholder beekeepers - Beekeeper associations and cooperatives: organisation of bulking and marketing of honey 	<ul style="list-style-type: none"> - Collect and supply of processors by cooperatives - Collect and supply through small traders; often commissioned by processors 	<ul style="list-style-type: none"> - Units managed by cooperatives: COVIBAR - Units managed by NGO-related business: ARDI - Private enterprise: Shema Fruits 	<ul style="list-style-type: none"> - Retailing shops, restaurants, etc.) - Trading companies: MIG and Mulenzi Suppliers
Support services	<ul style="list-style-type: none"> - Extension services - Training and capacity building - Micro credits 		<ul style="list-style-type: none"> - Training and capacity building - Credits 	
Service providers	<ul style="list-style-type: none"> - ADEPE; ARDI; URUNANA and SERUKA (NGOs?) - CAPMER; PPPMER II - MFI 		<ul style="list-style-type: none"> - CAPMER; PPPMER II - MFI 	
Issues	<ul style="list-style-type: none"> - Reliable data on honey production (compared to the region) - Beekeeping techniques - Post harvest handling and storage - Availability of technical support services for beekeepers (practices and equipment) - Access to rural financing services - Emerging, young cooperatives - Management of cooperatives - Linkages with private sector 	<ul style="list-style-type: none"> - Viability of collect centres (managed by cooperatives) - Scattered structure for collecting (inefficiency) - In-time, regular supply of products - Hygiene and quality of products supplied 	<ul style="list-style-type: none"> - Processing and packaging technologies (hygiene and quality of products) 	<ul style="list-style-type: none"> - Reliable data on marketing of honey - Competition with imported honey (regional and international) - Market operators being subvented with aid funds

Source: MINAGR/SNV (2007)

REPUBLIC OF RWANDA

KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT

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FARMERS ORGANIZATIONS AND COOPERATIVES

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IN KIREHE WATERSHED MANAGEMENT PROJECT

I Introduction

1. A first mission visited Rwanda on 4-24 November 2007 for the purpose of formulating the Kirehe Watershed Management Project. A second mission visiting Rwanda in April/May 2008 finalised the project design. The present working paper defines interventions of the KWAMP project to strengthen farmer organizations (FOs) and co-operatives in particular on different levels.

2. This document sets out the mission's observations and recommendations on the role of FOs and co-operatives, and, after the introductory chapter, is structured around three other chapters and annexes. Chapter II provides background information on FOs, in all their complexity. Chapter III sets out observations made during the mission's field visits and discussions with main stakeholders; particular attention was paid to PAPSTA, the framework and approach of which greatly influenced formulation of the project under reference. Chapter IV suggests ways by which FOs might interact with, support and draw benefit from the proposed project, as summarized in the logical framework given in Annex 1

3. It should be noted that this working paper is intended to complement information on the involvement of FOs in PAPSTA. Most methodological interventions described in DT6 PAPSTA are still valid.

Background: Farmer groups to address farmers' needs

4. Farmers have worked in groups for many years to reach a common goal that they would find impossible as individuals. A group is meant to facilitate access to specific services that meet a common need. For example, some groups have been formed for the purpose of gaining access to markets; others for managing irrigation systems and securing access to land; and yet others for the purpose of obtaining technical support from government or private service providers (Figure 1).

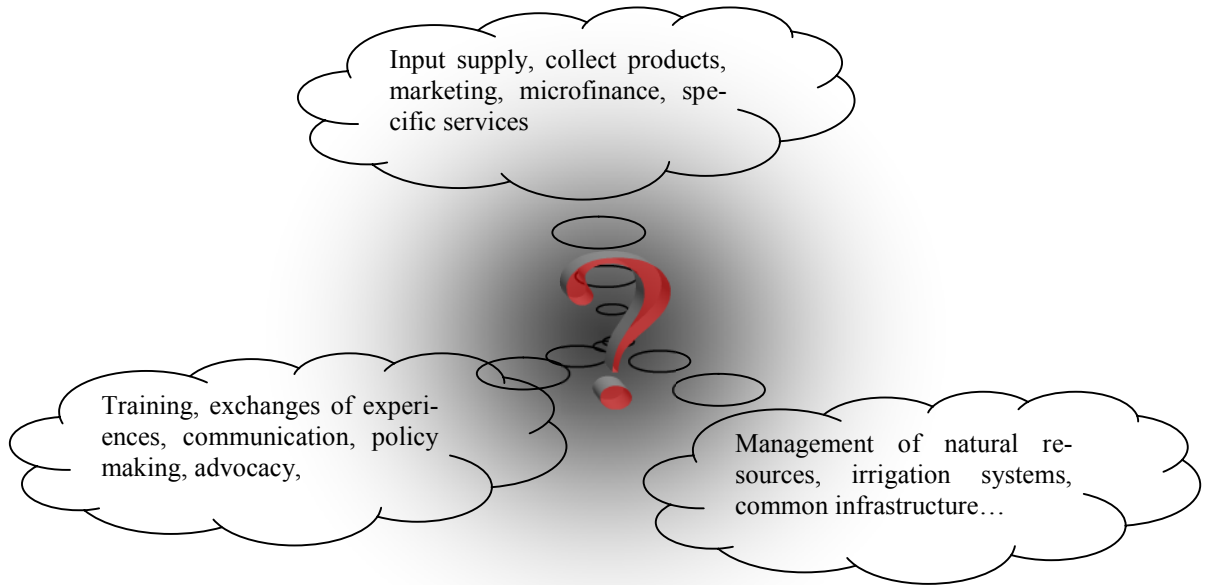


Figure 1: Different types of farmers' needs

5. Three main needs may be felt by individual farmers: for access to and management of information and knowledge; for access to and management of common goods; and for access to and management of economically-oriented services — all of which are intended to improve the way production processes contribute to more sustainable livelihoods. In order to meet these needs, farmers have organized themselves in a variety of ways

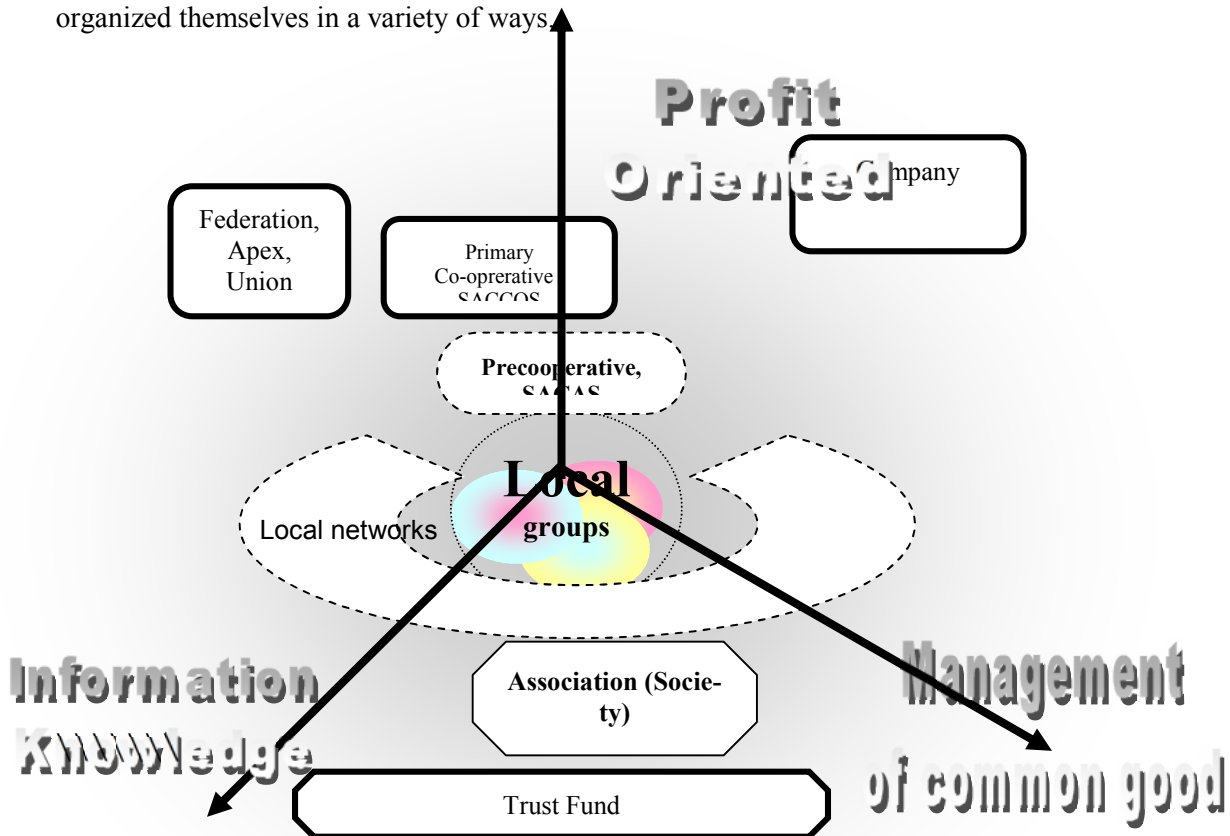


Figure 2: How farmers have organized themselves to meet specific needs

6. Figure 2 illustrates different formal and informal modalities by which farmers may be able to satisfy specific needs or a combination of needs. This shows that, to satisfy some of their basic needs, farmers may organize themselves into local farmer groups that may then join forces as local networks. But as the services provided by groups become more specific, farmer groups may evolve into formal organizations that remain interrelated within a local complex web. This may be referred to as horizontal linkage.

7. In the search for more knowledge and recognition, for better management of common goods, or for a better stake in commodity chains, farmers may organize themselves into unions, associations, cooperatives or even limited companies, which give them legal standing and allow them to better perform their respective functions.

8. These local but formal organizations may thereafter join up with sister organizations from other areas to form more complex organizations, in which members are no longer seen as individuals but as organized groups. This may be referred to as vertical linkage.

9. This dual structure – horizontal and generalist at the local level and vertical and specialized to go beyond the local level – allows the rural society and its members to play a more active role in the development and transformation processes that affect it.

II Growth of farmers' organizations in Rwanda

A. Focus on Primary Cooperative Societies

10. The National Policy on Promotion of Cooperatives in Rwanda distinguishes the following categories of self-governing cooperatives:

- production and marketing cooperatives;
- commercial and consumer cooperatives;
- service cooperatives;
- multi-purpose cooperatives.

11. Three or more cooperatives may join together to form a cooperative union; three or more cooperative unions may join together to form a cooperative federation; and three or more cooperative federations may join together to form a cooperative confederation – otherwise referred to as an apex cooperative organization – at the national level. The new Cooperative Act made it possible for local groups and organizations to be registered as cooperatives and to join unions of cooperatives at the district level, based on their respective activities and commodities.

12. According to the Cooperative Officer of Kirehe District, more than hundred primary cooperatives are active in agriculture, arts, handcraft, trade and rural finance. Agricultural production cooperatives have apparently been encouraged to establish themselves crop-specifically, whereas cooperatives involved in rice production in the marshlands appear to be better established than those for other, mainly dry-land, crops, which are as yet rather scattered and fragmented.

13. The dry-land agricultural cooperatives are active in cereal (maize 12), coffee (around 7), bananas (4) and pineapple (1). Furthermore there are three livestock cooperatives, seven in fisheries and twelve doing bee-keeping. However, management of these cooperatives is very poor and there seems to be uncertainty about their functions. The elected leaders, who are essential for guiding the cooperatives, are unable to do so. It appears that farmers may still be unaware of their power within the organizations and that they still have doubts about the cooperatives' abilities to provide them with efficient economical and technical services.

14. The rice cooperatives, in particular, have received financial and technical assistance from a number of projects, including the IFAD-assisted Support to Strategic Plan for the Transformation of Agriculture Project (PAPSTA). Farmers interviewed reported, for example, that their cooperatives had provided them with extension support and seasonal finance. Rice cooperatives have also formed a cooperative union – the Rwanda Union of Rice Cooperatives (Union des Coopératives Rizicoles du Rwanda, UCORIRWA) – to represent them at a national federation of cooperative unions yet to be formed.

15. According to the Cooperative Officer of Kirehe District, there are five cooperative unions in the district. They are in the following crops: Coffee, rice, animal production, maize and fish.

16. Since around January 2008 there is a farmers forum being created in Kirehe District, which enjoys the support of the "Projet Appui au Système National de Vulgarisation Agricole" (PASNVA), funded by the Belgians. The aim of that forum is to resolve the common problems of the five unions in the District. The forum has met already since its' creation four times. In these meetings the coordinator of the PASNVA project participated.

17. Primary cooperatives and their unions are an important tool for providing services to farmers in a commodity - chain support approach. Agreement should be reached with the private sector with regard to the cooperatives' role, so as to ensure that input supplies and post-harvesting operations speed up the production process and, at the same time, make sure that farmers keep a larger share of added value.

B. Supporting Farmers' Unions, from Member to National Federation Level

18. Former *intergroupements* have been disbanded following enactment of the Cooperative Act. However, some of their functions, mostly involving transversal services such as peer communication, training, dissemination of experiences and innovations, and capacity-building, are still not covered under the new arrangements.

19. In March 2007, the *Imbaraga* national farmers' union (FU) defined a new line for the union to focus on lobby and advocacy functions from the local to national levels. It was decided that the union's previous economically-oriented activities would henceforth be conducted by autonomous cooperatives. This change was accompanied by a decision to sensitize all Rwandese farmers to the benefits of becoming union members at the local level. Registered cooperatives may also join as corporate members.

20. Individual members first of all form rather informal interest groups that simply aim at facilitating communications and exchanges of information.

21. At approximately sector level (up to ten interest groups), the first official structure is created as a sector union (*section syndicale*). The sector union aims at bringing together sector-level farmer leaders and relaying their concerns and experience to district-level FUs (*syndicats*). District FUs form the *Imbaraga* national federation of FUs (*fédération syndicale*).

22. In Kirehe District, as in other districts of the region, in May 2007, *Imbaraga* facilitated a series of sensitization campaigns on the union's new direction. More than 60 farmer leaders immediately joined the structure as individuals, and a district leadership was elected. Members, both farmers and livestock-keepers, numbered 500 in 2007; the target for 2008 target is 3,000 (according to the Kirehe District chairperson of *Imbaraga*).

23. The district union does not yet have any assets. Venues for meetings are made available by corporate members (cooperatives), but the leaders claim there is a need to quickly find permanent premises because the lack of visibility may give rise to a lack of interest among members or misun-

understandings about the respective roles of each organization. The union has no permanent paid staff. Coordinators have been trained by the *Imbaraga* decentralized office at the regional level. Some coordinators even get around on bicycles.

24. At present, none of the sector sections are functioning and district leaders are still busy sensitizing farmers to the benefits of joining the union.

C. Farmers Organisations that Face Challenges

25. The new local context created by decentralization to the district and sector levels, as well as the Cooperative Act, represent a huge challenge to national FOs. As UCORIRWA has to do with rice cooperatives and *Imbaraga* deals with FUs, they both welcomed the transformation and accordingly reformed their own organizational structures, as described above. However, cooperatives and unions face different types of challenges.

26. Cooperatives are expected to focus on commodities and services directly related to their spheres of interest, mainly post-harvesting and marketing components. As they are also expected to be accountable and transparent in their management of funds and accounting practises, those capacities will need to be strengthened. In this respect up to 15 courses per year would be organised for cooperative managers and accountants of different cooperatives. Those courses are to be carried out by a specialised local NGO which is still to be defined.

27. For strengthening the cooperatives overall managerial capacity, including planning for marketing produce, organisation of inputs through the private sector, negotiation of contracts in general, internal organisation, including development of business plans and communication with members, up to 15 specialised courses per year would be carried out in the District by a specialised local organization. As said in working paper 3, the seed multiplication cooperatives should definitely benefit from some of these trainings to make sure improved seeds reach the farmers in the long run through those set ups.

28. Farmers' unions (*syndicats*) focus on rural people's interests and dignity. While their local organs are not yet as structured as primary cooperatives, farmers have considerable experience of forming local platforms or fora to discuss issues pertaining to agricultural and rural development (in some areas, that was the role of the former *intergroupements*); the FUs should build on this asset.

29. The challenges facing FUs have to do with ensuring the emergence of sectoral FUs that will, to the extent possible, bring together individuals involved in agricultural and rural development — persons willing to discuss issues, propose recommendations to local authorities and feed back information to their members, based on actual practices and experience.

30. Participatory planning and local communications skills will be central to undertaking functions that are meant to support an active, dynamic and innovative rural society.

31. In the context of a district-based pilot project, both types of structures — unions and cooperatives — may be useful for reaching out to farmers. It is not worthwhile for the project to develop its own beneficiary structure but rather to meet with FOs to explore how they can best benefit from each other.

32. The FOs must be involved in project implementation from the outset, and care should be taken to ensure that their participation is not prevented by delayed financial contributions because, as explained above, that might jeopardize the whole idea.

33. Contract negotiations should accordingly be held and with sufficient capacity (legal, administrative and financial) to be rapidly operational.

34. Under the proposed project, it is recommended that the PAPSTA set-up be duplicated at the Kirehe District level. For the purpose of project implementation, it will be important to ensure that account is taken of lessons of experience from PAPSTA.

UCORIRWA

35. The rice farming intensification service provider will be strengthened with comprehensive training in accounting and management. To the extent a service provider contract would be established, where one focal point and two facilitators will be paid throughout the projects lifetime to make sure this very important cooperative improves its' services to present and future new members. This staff will assist in both, organizational and planning questions of the cooperative and technical problems to be solved.

36. The German Development Service would as well support the rice farming intensification service provider and other primary cooperatives with an international Technical Assistant and a local expert for four years. Their engagement would be particularly in strengthening the management capacity, assisting in the participatory planning processes and developing business plans (see ToRs in Annex 4).

37. A federation of cooperatives should be in a position to carry out continuous internal audits on the cooperatives on the long run to enable them to provide high-quality services. But for a start, an external auditor is foreseen to assist in this regard through the service provider contract with the rice farming intensification service provider two days for each of the 10 cooperatives.

38. Other additional specific support could be obtained through the value chain development fund described in detail in working paper 6.

IMBARAGA

Lobbying and advocacy

39. *Imbaraga* recently played a key role in discussions on a number of crucial policy matters that affect the farmers (e.g. the Land Act), where it collected members' views and subsequently voiced them at appropriate national fora. Once the Act was enacted, *Imbaraga* actively participated in disseminating its contents to members, explaining how it would affect them. *Imbaraga* wishes to continue playing this crucial role in terms of fuelling national debates so that the farmers will better understand new laws and policies, and enlightening members as to consequences at the farm level.

40. To strengthen *Imbaragas* ' key role the project finances one workshop per sector for 50 participants. Furthermore two workshops on local union issues would be organised on District level twice per year. Here the idea is to bring together the sector unions leaders for exchanging information about activities carried out, problems faced, progress achieved and future planning envisaged. It is expected that *Imbaraga* plans and organizes those forums and submits tentative costs to the project's field unit.

41. Up to six intersector farmers exchanges per year would be organised by *Imbaraga* and paid by the project. Selected farmers would visit on the basis of "one guest one host" other farmers in a different sector. The aim of this activity is to learn from one another in understanding the problems the other farmer is facing in his work with *Imbaraga*.

42. With regard to the proposed project, the use and management of water by various users and interest groups within watersheds may well lead to the emergence of a specific type of organization aimed at ensuring equitable water distribution. Such a unique experience will be definitely worth sharing at the national level in order to learn from other experiences and make it possible to actively par-

ticipate with other stakeholders in drafting relevant policies. Relevant supporting activities of KWAMP are being described in working paper 5.

Monthly farmer sector forums

43. To these monthly organized national meetings two representatives, one representing farmer unions and one representing the farmers cooperatives in Kirehe District, would be sent to on KWAMP costs. These sector meetings have the aim to bring together individuals involved in agricultural and rural development —persons willing to discuss issues, propose recommendations to government authorities and feed back information to their members, based on actual practices and experience.

44. There will be a flexible fund for special training sessions for sector leaders based on demand. This fund provides up to six workshops per year. The respective sector union or cooperative can apply to the project and define a particular topic to be trained in. KWAMP then will in turn look for a suitable company, NGO or consultant to carry out this training.

Local facilitation of agricultural development processes

45. In the Strategic Plan for Agricultural Transformation (PSTA), it is acknowledged that “the participation of agricultural producers in the elaboration of policies that affect them is crucial”. The national farmers’ union has already identified how it can contribute to enhancing agricultural development within PSTA implementation, that is, by:

- strengthening partnerships between farmers and other stakeholders, public and private, at all levels: local, national and subregional; and
- developing lobbying and advocacy capacities on identified key issues affecting agricultural production processes.

46. Over the last two years, *Imbaraga* has received support from the Belgian Embassy in Rwanda for the purpose of implementing PSTA.

Lessons learnt from the PAPSTA experience

47. Under PAPSTA, FOs participate in supervision and monitoring mechanisms in a way that also supports their institutional development (DT6 PAPSTA). However, owing to delays in securing the necessary funds to support such participation, the FOs’ contribution has been mainly restricted to attending meetings of the national steering committee.

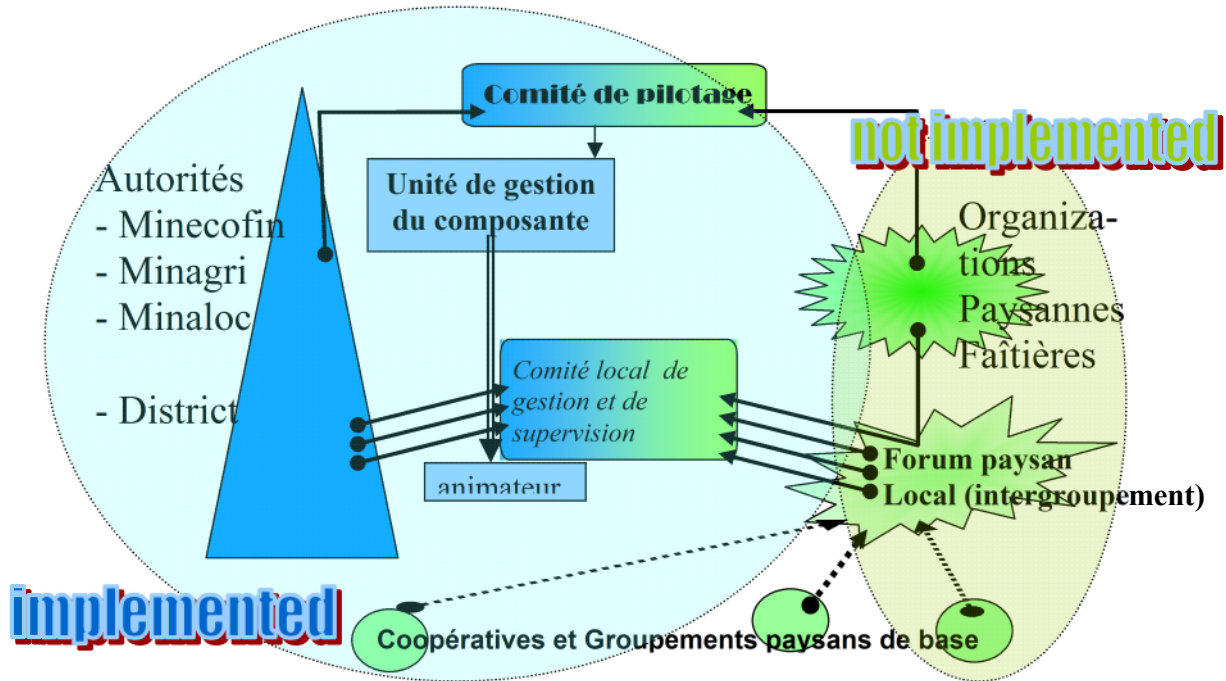
48. Since the six pilot areas were selected on the basis of agro-ecological criteria, most of the sites had only a few, or at best loose, links with national FOs. With no specific means at their disposal, it was difficult to concentrate other limited means on a rather small area.

49. In the pilot areas, local supervision committees (LSCs) were created with members nominated by the local authorities. However, farmer representatives on the committees may not have the means or legitimate right to report to national FOs that they may not even be aware of.

50. The former *intergroupement* structures have disappeared following implementation of the national policy on cooperatives, that mostly requires that any group with an economic activity should be registered as a single commodity-oriented cooperative.

51. It was previously proposed that local forums of farmer group leaders should be made responsible for linking local project implementation and monitoring to national FOs. Without these fora, national FOs seem to be rather cut off from the pilot sites.

52. When FOs were also identified as service providers on technical issues, e.g. UCORIRWA for SRI training, implementation of this type of activity was easier.



Effective participation of FOs in PAPSTA (during first year)

53. From a rapid survey in Kirehe District (where one of the pilot areas is located), it appears that delays that prevented institutional support from being provided to FOs have had consequences that are fairly common to many projects.

54. Since around January 2008 there is a farmers forum being created in Kirehe District, which enjoys the support of the "Projet Appui au Système National de Vulgarisation Agricole" (PASNVA). The aim of that forum is to resolve the common problems of the five unions in the District. The forum has met already since its' creation four times. In these meetings the coordinator of the PASNVA project (Belgium financed) participated.

55. The existence of such a local forum is very important to a formal means of interacting (e.g. rice growers, dairy cattle-keepers and nursery owners etc.). Otherwise farmer groups would develop what can best be described as a 'project syndrome', where they only refer to the project as their point of reference for whatever they need.

56. National FOs may not feel comfortable about trying to persuade local farmer leaders to join them once the project is already under way. On the other hand, since national FOs do not appear to be legitimized by their supposed constituency, they are requested to prove that they can be useful by the project itself and tend to draw this missing legitimacy from the delivery of technical services in the same way as any other service provider, as suggested by the project implementation team.

57. The risk is that national FOs appear to be the same as any other service provider, external to the beneficiary, and they also seem to impose matters in a top-down way that may be even more strongly rejected by local groups. The local farmer groups should undertake activities themselves, with support from national FOs.

58. The decision of the FUs to support the emergence of section unions (*sections syndicales*), grouped into unions (*syndicats*) at the district level, may provide a new avenue for reconnecting farmer group initiatives.

59. Another difficulty underestimated by PAPSTA had to do with the contracting process. Although the Government has a tendency to raise output-oriented contracts with people's organizations or with service providers, neither the national FOs nor government structures may have been sufficiently well prepared to embark in this process without professional support.

60. The decision to staff PAPSTA with a legal advisor in charge of contracts and procurement shows that the Government has realized the importance of such function. On their part, FOs also need such institutional support to enable them to process contracts efficiently. As a platform of national FOs, ROPARWA's willingness to develop an institutional engineering unit to support members in these matters is also a move in the right direction.

III. PROPOSALS FOR THE STRUCTURING OF ACTIVE COLLABORATION

61. As already acknowledged in the PSTA, FOs play a crucial role in transforming Rwanda's agriculture. These organizations demonstrate their strong commitment to and participation in the task, always bearing in mind the central role of farmers in the process. However, all these good intentions must place an impossible burden on national FOs. To intervene in a government pilot project in a given pilot area calls for specific means that national FO often cannot allocate to a single area unless it can contract out the necessary expertise.

62. In view of the above, the proposed intervention must be on two levels: (i) allow national FOs, through their staff and leaders, to facilitate local extension activities. Through such pilot participation at the local level, the national FOs can test and develop key approaches and methods for dissemination throughout their constituencies; (ii) through their participation in project supervision, the national FOs will share responsibilities, thus committing them and their members to work in a transparent manner.

FOs and centres for community innovations (see related working paper)

63. The centres for community innovations (CCIs) are intended to become permanent fixtures. Local FOs should be encouraged to use the CCI premises for training, workshops, meetings and other activities. In the first period, it might well be that FOs could be hosted in the CCIs until such time as they have their own premises.

64. Local farmer forums could particularly benefit from the CCIs and increase their visibility among the population to avoid the CCI being seen simply as a new, local administration building.

65. The FOs are to be understood as both commodity-oriented cooperatives and FUs (both being member-based), duly registered and affiliated to national apexes. Most leaders belong to both structures, where they play different and complementary roles: service delivery for cooperatives, extension, capacity-building, lobbying and advocacy for unions.

Overall objective

66. Related national FOs in Kirehe District provide permanent support and services for farmer activities related to irrigation, soil and water conservation, and commodity-chain development.

- Main commodity cooperatives (rice, maize, banana, pineapple, etc.) deliver services to members and belong to regional unions and national apexes
- Imbaraga FU is recognized as a district union (syndicat de district) with branches (sections syndicales) in all sectors.

Specific objective 1: local institutional development

Support emerging farmer groups to build up and join district-based FOs affiliated to both the cooperatives and FU national apexes in the following areas:

- Farmers Unions (sector)
- Soil conservation
- Water management
- Commodity chains
- *Farmers formed sector FUs that joined the district union (Imbaraga)*
- *Farmer groups register as service delivery-oriented commodity cooperatives and join the district union*
- *Water committees form and join water users' associations (WUAs) at the sector and district levels*

Output 1.1

Individual farmers in Kirehe District contribute in sector-level agricultural development issues and may voice their recommendations to the authorities and other stakeholders

- Kirehe District FU, with its 12 sectoral FUs, is an active member of the national farmers' union.
- Sector FUs hold regular consultations through local forums of FOs.
- Sector forum receives regular briefing from delegates in the LSCs
- Union members actively promote the emergence of organized farmer structures

Activities

- Support five sector-level farmer forums per year in order to organize inception workshops
- Organize two district-level workshops per year to bring together all sector union leaders to discuss selected issues
- Facilitate six intersector farmer exchanges per year (one guest, one host)
- Support two leaders per district to attend monthly farmer sector forums (one representing farmer unions and one representing farmers cooperatives)
- Design and organize special training sessions for sector leaders based on demand and need

Output 1.2.

Existing and emerging water committees have formed financially-viable, district-based WUAs capable of ensuring fair distribution of water resources and of maintaining and improving irrigation-related infrastructure

- Paramount structures managing agricultural water use at the watershed and district levels are registered and financially-viable.

Activities

- See subcomponent 2 on Irrigation

Output 1.3

Existing and emerging groups delivering economically-oriented services to farmers join district-based cooperatives and benefit from their services (input supply, commodity storage, processing and marketing, microfinance products)

- Commodity cooperatives (rice, bananas, maize, pineapple, vegetables) are registered, and their services are accessible to farmers

Activities

- See subcomponent 3 on commodity chain-related activities
- See service provider contract, budget and activities with rice cooperative union in Kirehe district (in Table 1 at the end)

Specific objective 2: organizational capacities

Build up capacity for local planning and organizational development of emerging and existing FOs to improve service delivery through accountable and transparent practices

- Farmer groups participate in designing local action and business plans for their core activities
- Registered FOs may present business plans and audited financial reports to their members during annual general meetings

Output 2.1

Farmer groups (particularly those delivering services against payment) base their management decisions on sound financial planning and accounting.

- Farmer group leaders supervise cooperative staff
- Farmer group leaders formulate action plans, taking account of previous year's outcomes
- Farmer groups hire staff capable of properly recording all transactions and producing sound accounting records

Activities

- Train 24 cooperative leaders in management and cooperative governance through a five days course which includes three modules by a local NGO
- Train 24 managers and accountants in bookkeeping and finance-related skills (e.g. business plans) through a five days course which includes three modules by a local NGO.

Specific Objective 3: national lobbying and advocacy

Document and disseminate lessons of experience and innovations (technical, economical, organizational, institutional) at the district level and beyond, through regional and national FOs.

- Innovation processes are documented and shared at the district level
- Lessons learned and processes are documented, and inspire reflection at the national level
- Adopted/adapted innovations are documented and disseminated at the national level

- District FU newsletter
- Regular articles in national newsletter
- National workshops on selected issues
- National FU develops mass media links (newsletters, radio, TV)

Output 3.1

At the district level, farmers have access to up-to-date information that reflects their contribution to farming-related activities

- A regular newsletter is produced by the district FUs, reflecting members' contribution

Activities

- Produce and disseminate a regular district newsletter

Output 3.2

- Regional and national FOs facilitate debates and produce recommendations inspired by lessons from district unions and cooperatives.
- Apex FOs improve links and communications channels with district unions
- District achievements are regularly published in national newsletters and radio programmes
- District-level lessons of experience inspire national debates on core issues

Activities

- Participate on national workshops and events on water-related issues
- Regularly publish contributions in national newsletter (from district newsletter)
- Regularly produce radio programmes on water-related issues with journalistic support

Output 3.3

National FOs document and publish together with journalists agricultural innovations based on farmers' achievements in technical, economical, organizational or institutional domains.

- Booklets on identified innovations are regularly published and disseminated
- All documents produced are posted on FO websites by journalists

Activities

- Participate in national campaigns supported by the publication and dissemination of printed material on water management-related issues
- Journalists document and publish information on selected project innovations and lessons of experience
- Professional journalists post documents on union websites

Specific Objective 4: Project monitoring

Support national FOs to genuinely participate in the project monitoring and evaluation (M&E) process

- National FO representatives are members of the project's national steering committee

The two existing national FOs and the national platform should continue to attend meetings of the national steering committee. To improve such participation, two members could be invited (but only one with voting power), one of whom should be directly involved in district-level project implementation.

- National FO representatives participate in district supervision committee
- National FOs provide institutional and organizational support to their district organs (internal auditing, project institutional engineering) on all project-related issues

Output 4.1

- FOs fully participate in project monitoring in a two-way flow of information: to air their constituencies' opinions as beneficiaries at steering committee level and to inform their respective organizations with regard to implementation progress.
- Good synergies between FOs' agendas and project implementation progress
- Farmers and their organizations jointly own project achievements

Activities

- The rice cooperative union in Kirehe district and the national platform attend project steering committee meetings
- Regularly monitor and review overall arrangements with consultant dealing with FO institutional development

Output 4.2

- National FOs implement all activities in a timely manner, in synergy with project activities
- Memoranda of understanding (MoU) and output-oriented contracts signed between the project and national FOs, defining scope of collaboration and expected outputs
- FO platforms assist FOs to monitor contract implementation (consultant role)

Activities

- FOs and their unions participate regular in forum on district level

Output 4.3

National FOs provide internal auditing services to members to improve the quality of their services

- Review of the district organs by national internal audit

Activity

- Provide internal audit services to district-based primary cooperatives by rice cooperative union in Kirehe district.

Table 1: Roles of Main Project Stakeholders

Stakeholder	Legitimacy	Role an responsibilities in the project
Local authorities (district, sector)	Democratic and local: elected by people from local registered area (district, sector)	Inform people on aim of the interventions Gather views from people regarding outcomes of the intervention Participate in the LSC Authorize payment for all local disbursements of funds, in accordance with rules and procedures
Farmer groups, primary cooperatives, interest groups, farmers' sector union	Member solidarity, indigenous knowledge and practical skills	Participate in sensitization campaigns and participatory planning process to enhance innovations Select delegates to attend local farmers' forum to report on and share experiences Sign output-oriented contracts to implement technical innovations
Local farmers' forum	Representation of all local FOs and communication with national FO in a given area	Regularly convene meetings among local farmer group leaders to discuss progress and exchange experiences about respective activities Select delegates to represent them in LSCs Indicate non-objection to members from FU attending forum Inform members on decisions taken by LSC, as reported by their delegates
National FOs	Representative at national level and active on specific issues affecting rural livelihoods.	Nominate representative on LSC in accordance with criteria jointly established with local farmers' forum Participate in local farmers' forum meetings and activities Regularly visit pilot areas to monitor implemented activities Facilitate organization of local forum through training Organize farmers' exchange visits with farmers from other areas in order to learn from all innovating aspects of intervention (technical, economical, organizational, institutional, financial) Lead lobby and advocacy campaigns on transversal cross-cutting issues (soil fertility, water management, inclusion of the most disadvantaged population groups) Collect and disseminate information on group activities, by their own methods, to access media (national newsletter, radio programmes, video document)
MINAGRI (MIS, ISAR)	PSTA initiator and implementer of related projects and programmes	

Annex 1: Collaboration with FOs in Kirehe Watershed Management Project

FOs are to be understood as commodity-oriented cooperatives and FUs, both being member based, duly registered and affiliated to national apexes. Most leaders belong to both structures, where they play different and complementary roles: service delivery for cooperatives, extension, capacity-building, lobbying and advocacy for unions.

Description	Indicators	Sources of verification	Assumptions
<p>Overall objective :</p> <ul style="list-style-type: none"> • FOs in Kirehe District provide permanent support and services to farmer activities related to irrigation, soil and water conservation, commodity chain development. 	<ul style="list-style-type: none"> • <i>Main commodity cooperatives (for rice, maize, banana, pineapple) deliver services to members and belong to regional unions and national apexes</i> • <i>Imbaraga FU is recognized as a district union (syndicat de district) with a branch (section syndicale) in all sectors.</i> 	<ul style="list-style-type: none"> • Annual financial and progress report from FOs 	<ul style="list-style-type: none"> • Apex FOs continue to develop activities in Kirehe District.
<p>Specific objective 1: local institutional development</p> <ul style="list-style-type: none"> • Support emerging farmer groups to build up and join district-based FOs affiliated to both the cooperatives and national apexes of FU in following areas: <ul style="list-style-type: none"> – FU (sector) – Water and soil management – Water irrigation – Commodity chains 	<ul style="list-style-type: none"> • <i>Farmers formed sector FUs that joined district union (Imbaraga)</i> • <i>Farmer groups register as service delivery-oriented commodity cooperatives and join district union.</i> • <i>Water committees form and join WUAs at sector and district levels</i> 	<ul style="list-style-type: none"> • Registration of organizations • Registration of members in each registered organization • Annual financial and progress reports by organizations 	<ul style="list-style-type: none"> • District authorities and staff support farmers organization registration and participation in local development processes
<p>Output 1.1.</p> <ul style="list-style-type: none"> • Individual farmers in Kirehe District contribute to agricultural development issues at the sector level and provide recommendations to authorities and other stakeholders 	<ul style="list-style-type: none"> • Kirehe District's FU, with its 12 sectoral FUs, is active member of <i>Imbaraga</i>. • Sector-level FUs hold regular consultations through local forum of FOs. • Sector forum receives regular briefing from delegates at LSC • Union members actively promote the emergence of organized farmer structures 	<ul style="list-style-type: none"> • Annual report by district FU • Minutes and attendance register of local development forum • Attendance register of LSC • Number of union members who are also members of other FOs 	<ul style="list-style-type: none"> • All local stakeholders and farmer groups participate in the local forum • Nominations to LSC decided by forum

Description	Indicators	Sources of verification	Assumptions
<p>Output.1.2.</p> <ul style="list-style-type: none"> Existing and emerging water committees form financially-viable district-based WUA capable of ensuring equitable distribution of water resources and of maintaining and improving irrigation-related infrastructure 	<ul style="list-style-type: none"> Paramount structures that manage agricultural water use at watershed and district levels are registered and financially viable. 	<ul style="list-style-type: none"> Registration register Annual audit report 	<ul style="list-style-type: none"> The Water Act provides for legal registration of WUA-type structures
<p>Output 1.3</p> <ul style="list-style-type: none"> Existing and emerging groups delivering economically-oriented services to farmers join district-based cooperatives and benefit from their services (inputs supply, commodity storage, processing and marketing, microfinance products) 	<ul style="list-style-type: none"> Commodity cooperatives (rice, banana, maize, pine-apple, vegetables) are registered, and farmers have access to their services 	<ul style="list-style-type: none"> Registration register Annual progress report approved at annual general meeting 	<p>Cooperatives respect basic principles of International Cooperative Alliance: membership-based (member-shareholder with one vote) and financially viable activities (profit-oriented)</p>
<p>Specific objective 2: organizational capacities</p> <ul style="list-style-type: none"> Build up capacities in local planning and organizational development of emerging and existing FOs to improve service delivery through accountability and transparency 	<ul style="list-style-type: none"> Farmer groups participate in designing local action and business plans for core activities Registered FOs present business plans and audited financial reports to their members during annual general meetings 	<ul style="list-style-type: none"> Business plans and financial reports 	<ul style="list-style-type: none"> FOs hold annual general meetings
<p>Output 2.1.</p> <ul style="list-style-type: none"> Farmer-innovators (<i>paysan relais</i>) actively participate in designing local development action plans aimed at addressing major challenges in NRM through sustainable and profitable farming practices. 	<ul style="list-style-type: none"> Sector unions designed an action plan 	<ul style="list-style-type: none"> Number of trained farmers-innovators Existence of local action plans at the sector union level 	<ul style="list-style-type: none"> Trained farmer-innovators are not sidelined by rest of community

<p>Output 2.2</p> <ul style="list-style-type: none"> Farmer groups (particularly those delivering services against payment) base their management decisions on sound financial planning and accounting. 	<ul style="list-style-type: none"> Farmer group leaders supervise cooperative staff Farmer group leaders formulate action plan taking account of previous year's outcome. Farmer group hire staff able to properly record all transactions and produce sound accounting records 	<ul style="list-style-type: none"> Number of farmer leaders trained Number of staff (managers, accountants) trained Annual audit report Annual action and business plans 	<ul style="list-style-type: none"> Trained farmers are not sidelined by group members Trained staff remain in the area
<p>Specific Objective 3: national lobbying and advocacy</p> <ul style="list-style-type: none"> Document and disseminate lessons of experience and innovations (technical, economical, organizational, institutional) at the district level and beyond through regional and national FOs. 	<ul style="list-style-type: none"> Innovation processes are documented and shared at the district level Lessons of experience and processes are documented and inspire reflection at the national level Adopted/adapted innovations are documented and disseminated at the national level 	<ul style="list-style-type: none"> District FU newsletter Regular articles in national newsletter National workshops on selected issues 	<ul style="list-style-type: none"> National FU develops mass media links (newsletter, radio, TV)
<p>Output 3.1</p> <ul style="list-style-type: none"> At the district level, farmers access up-to-date information on farming-related activities 	<ul style="list-style-type: none"> A regular newsletter is produced by the district FU, with contributions from members 	<ul style="list-style-type: none"> Number of newsletters distributed 	<ul style="list-style-type: none"> District FU authorized to publish newsletter
<p>Output 3.2</p> <ul style="list-style-type: none"> Regional and national FOs facilitate debates and produce recommendations based on lessons of experience from district FUs and cooperatives. 	<ul style="list-style-type: none"> Apex FOs improve links and communications channels with district FUs District achievements regularly published in national newsletters and radio programmes District-level lessons of experience inspire national debates on core issues 	<ul style="list-style-type: none"> Numbers of visits by national farmer leaders in district Number of farmer exchanges Core issues discussed at the national level in relation with district-level lessons 	<ul style="list-style-type: none"> National FOs structured to support bottom-up flow of information
<p>Output 3.3</p> <ul style="list-style-type: none"> National FOs document, (co)-publish and disseminate agricultural innovations based on 	<ul style="list-style-type: none"> Booklets on identified innovations regularly published and disseminated All documents produced posted on FO web- 	<ul style="list-style-type: none"> Number of issues produced Number of documents downloaded 	<ul style="list-style-type: none"> National FOs have a website

farmer achievements in technical, economical, organizational or institutional domains.	<ul style="list-style-type: none"> site Video document produced 	<ul style="list-style-type: none"> Number of videos 	
<p>Specific Objective 4: Project monitoring</p> <ul style="list-style-type: none"> Support national FOs to genuinely participate in project M&E process 	<ul style="list-style-type: none"> National FO representatives are members of project’s national steering committee National FO representatives participate in district supervision committee National FOs provide institutional and organizational support to their district organs (internal auditing, project institutional engineering) for all project-related issues 	<ul style="list-style-type: none"> Attendance register for steering committee meetings Attendance register for district meetings Signed contracts and MoU between project and FOs 	<ul style="list-style-type: none"> FOs are not sidelined by project staff
<p>Output 4.1</p> <ul style="list-style-type: none"> FOs fully participate in project monitoring in a two-way flow of information: to air their constituencies’ opinions as beneficiaries at steering committee level and to inform their respective organs on project implementation progress. 	<ul style="list-style-type: none"> Good synergies between FO agendas and project implementation progress Farmers and their organizations co-own project achievements 	<ul style="list-style-type: none"> Minutes of steering committee meetings FO newsletters 	
<p>Output 4.2</p> <ul style="list-style-type: none"> National farmers organizations timely implement all described activities in synergy with project activities 	<ul style="list-style-type: none"> MoU and output-oriented contracts signed between the project and national FOs defining scope of collaboration and expected outputs FO platform helps FOs monitor contract implementation (consultant role) 	<ul style="list-style-type: none"> Contracts paid according to service delivery National platform for institutional engineering support unit 	<ul style="list-style-type: none"> National platform for institutional engineering support unit active
<p>Output 4.3</p> <ul style="list-style-type: none"> National FOs provide internal auditing services to members to improve quality of their services 	<ul style="list-style-type: none"> Internal audit review of the district organs by national internal audit 	<ul style="list-style-type: none"> Audit unit report on activities (internal audit reports are confidential) 	

Annex 2: Termes de références

Termes de référence de Mr Thierry LASSALLE, pour la mission d'assistance technique du FIDA aux organisations membres du ROPARWA

1. Contexte

Le ROPARWA en bref

Le ROPARWA est un réseau des organisations paysannes initié en décembre 2003, par le syndicat des agri-éleveurs IMBARAGA, le syndicat des agri-éleveurs INGABO, le Bureau d'Appui aux Initiatives Rurales (BAIR) et le Forum des Organisations Rurales (FOR).

Depuis 2006, ROPARWA qui avait évolué jusqu'alors comme une agence d'appui et de gestion des programmes des Organisations Paysannes (OP) vient de se restructurer vers une plateforme nationale des organisations paysannes du Rwanda.

ROPARWA a désormais pour mission : (i) d'assurer la représentation et le plaidoyer pour les organisations paysannes membres ainsi que leur renforcement pour qu'elles puissent jouer un rôle actif dans la transformation du monde rural axée sur l'agriculture professionnelle et compétitive, et (ii) de conduire le mouvement paysan.

Le réseau a pour objectifs:

- Constituer un cadre de concertation de organisations membres en vue de promouvoir l'agriculture et l'élevage ;
- Représenter les organisations membres auprès des autorités, des bailleurs de fonds, et des autres personnes ou institutions ayant pour objectif de promouvoir l'agriculture et l'élevage
- Assurer le plaidoyer dans les domaines de l'agriculture et l'élevage au niveau national ;
- Renforcer les capacités des organes et du personnel des organisations membres ;
- Aider les organisations membres à améliorer leur gestion ;
- Donner des conseils constructifs aux organisations membres;
- Aider les organisations membres à se procurer des informations sur le fonctionnement des membres du réseau et leurs activités, ainsi que toutes les informations relatives à la promotion de l'agriculture et l'élevage en dehors du réseau ;
- Disposer des informations mises à jour en ce qui concerne l'agriculture et l'élevage ;
- Renforcer la préparation des projets et programmes partagés par les membres du réseau
- Faire connaître les activités du réseau et des organisations membres;
- Promouvoir la coopération du réseau avec d'autres organisations ou réseaux œuvrant dans le pays ou à l'étranger.

Pour le moment ROPARWA compte cinq membres effectifs qui sont BAIR, IMBARAGA, INGABO, UCORIRWA et IMPUYAKI.

Néanmoins, depuis 2006, le ROPARWA a amorcé un processus d'élargissement du membership pour devenir une plate forma nationale de plaidoirie et de lobbying et deux nouveaux membres ont déjà été admis à titre provisoire. Il s'agit des unions des coopératives UDAMACO (filière produits laitiers) et UNICOOPAGI (filières blé et élevage bovin).

Le ROPARWA est entrain de finaliser son plan stratégique 2008 – 2012 qui s'articule autour de 4 axes principaux :

- Le développement des filières agricoles ;

- Le financement et le refinancement des filières agricoles ;
- La gouvernance et le renforcement des capacités des membres ;
- Le plaidoyer et le partenariat avec d'autres acteurs du développement agricole.

Le ROPARWA et le PSTA

Les Organisations Paysannes ont été fortement impliquées dans l'élaboration du Plan Stratégique de Transformation Agriculture (PAPSTA) adopté par le gouvernement. Ce document de base au MINAGRI donne une grande place à l'implication des Organisations Paysannes dans l'octroi des divers services aux paysans en milieu rural.

ROPARWA et le FIDA

Le FIDA a fortement impliqué les organisations paysannes dans le processus d'élaboration du COSOP, spécialement en tant que membre actif du groupe consultatif permanent (ICFG) sur le COSOP.

Au cours du second forum des agriculteurs, tenu à Kigali le 8 juin 2007, à l'initiative du FIDA, les 26 représentants de deux plateformes nationales (CNAO et ROPARWA) ainsi que 7 organisations des agriculteurs (INGABO, IMBARAGA, BAIR, UCORIRWA, RWASHOSCCO, UDAMACO, IMPUYAKI) ont reconnu le bien fondé du processus de consultation entre le FIDA et les organisations des agriculteurs. Ces organisations ont reconnu que l'initiative du Forum Paysan était un outil adéquat pour ouvrir la communication entre les agriculteurs et bailleurs.

Le ROPARWA représente depuis le début du processus d'élaboration du COSOP est devenu une plateforme prometteuse pour promouvoir le dialogue entre le FIDA, les entités gouvernementales, les ONG et les OP œuvrant dans le secteur agricole.

L'appui du FIDA au mouvement paysan au Rwanda

Le processus du Forum Paysan est encore au stade de démarrage de même que la collaboration entre les OP d'une part, et avec le FIDA d'autre part. Après consultations avec le FIDA à l'occasion de l'élaboration du COSOP, il a été proposé de focaliser sur le partenariat à l'échelle nationale, laissant les dimensions régionales et internationales de la problématique à laquelle sont confrontées les OP à l'appui futur du FIDA aux OP.

La place des Organisations Paysannes dans le PAPSTA

Le Projet d'Appui au Plan Stratégique de Transformation Agricole (PAPSTA) financé par le FIDA et co-financé actuellement par le DfID avec des potentialités d'attirer d'autres co-financiers, appui, à travers des accords cadre spécifiques (MoU) les organisations agricoles faîtières (UCORIRWA, IMBARAGA, INGABO, ROPARWA) dans les domaines de :

- Evaluation des OP faîtières
- Appui au développement des associations de producteurs
- Renforcement des réseaux d'organisations professionnelles
- Organisations des campagnes de dissémination des expériences
- Formation des OP faîtières

Ces organisations sont actuellement membres du Comité de Pilotage du projet PAPSTA. Ils sont invités régulièrement dans les réunions et reçoivent les documents nécessaires qui requièrent l'appui du Comité.

Attentes des OP et du ROPARWA quant au nouveau projet d'irrigation

Comme développé dans le nouveau COSOP pour le Rwanda, les Organisations Paysannes gardent une place de choix. Le FIDA entend développer un nouveau projet dans le domaine de l'irrigation, protection et conservation des eaux et des sols. A l'instar des opportunités et des appuis donnés par le PAPSTA, les OP attendent du nouveau projet de servir de prestataires de services aux bénéficiaires, particulièrement pour les aspects de gestion de l'eau pour l'agriculture.

2. MISSION DU CONSULTANT

Afin de pouvoir s'intégrer effectivement dans le PAPSTA et dans le nouveau projet d'appui à l'irrigation, protection et conservation des eaux et des sols, le ROPARWA a présenté au FIDA une demande d'appui dans le domaine de *l'assistance technique et renforcement des capacités des Organisations paysannes* afin de :

- (i) permettre aux organisations paysannes de pouvoir contribuer efficacement à la mise œuvre les activités du PSTA en général,
- (ii) jouer leurs rôles significatifs dans le PAPSTA et le nouveau projet d'irrigation, protection et conservation des eaux et des sols dès sa phase de démarrage.

C'est dans ce contexte que le consultant Thierry LASSALE a été recruté.

La présente mission du consultant se déroule du 14 au 28/11/2007. Au cours de sa mission, le consultant devra mener les activités ci-après :

- Evaluation de la mise en application des recommandations de la mission exploratoire de juin 2007 quant à l'implication des OP dans le PAPSTA.
- Préparation des modèles de MOU entre le ROPARWA et le PAPSTA;
- Elaborer une proposition d'implication des OP dans la formulation du projet d'irrigation, ainsi que la rentabilisation des ouvrages d'irrigation et la gestion des eaux dans le cadre de la pérennisation du nouveau projet FIDA ;
- Définir les termes de références pour le consultant local.

3. RESULTATS ATTENDUS

Les principaux résultats attendus de cette mission d'assistance technique sont :

- (i) Un rapport d'évaluation de la première mission exploratoire avec des propositions concrètes en rapport avec l'orientation des OP pour pouvoir prendre les devants dans l'exécution du PAPSTA en présentant des projets et des services pertinents et conformes aux exigences des bailleurs et des besoins des bénéficiaires ;
- (ii) Des propositions concrètes de projets de MOU entre le PAPSTA et le ROPARWA ;
- (iii) Les termes de référence pour le consultant local sont disponibles.

4. PERIODE DE LA MISSION.

La mission va se dérouler du 14 au 28 novembre 2007.

5. FINANCEMENT DE LA MISSION

Les frais relatifs à cette mission seront supportés par le FIDA.

Toutefois, les frais de transport à l'intérieur du pays seront pris en charge par le ROPARWA

Annex 3: Role of Farmer Organizations, as Designed Under PAPSTA

First Remark: farmer innovations and replication of successful pilot actions

Remark 1.1: Diffusion of successful pilot actions on a wider scale depends on the following:

Learning process

1. Sensitization campaigns with local stakeholders will enhance demand-driven training programmes. Both FOs and identified local service providers will animate this process.
2. Local FOs will play an active part in implementing proposed innovations, with the necessary flexibility of adaptation to ensure their adoption. Both FOs and service providers supporting the process will maintain records of all learning-by-doing processes for consideration at various levels (individual, group, forum, nationwide, organization-wide). Main lessons of experience will be regularly disseminated (group and forum meetings, local bulletins, national FO newsletter).
3. Terms of reference of training modules, by service providers and FOs, are to be developed with a built-in system for incorporating lessons of experience. "Sandwich" programmes will be developed (trainees sent back to their farms to implement acquired knowledge before being allowed to attend a second session).
4. Farmer-to-farmer training is to be given a core place in the learning process, in various ways: field visits, on-farm learning, participation in training module design, tours to and from neighbouring farms. FOs and service providers will organize and facilitate such events on a regular basis.

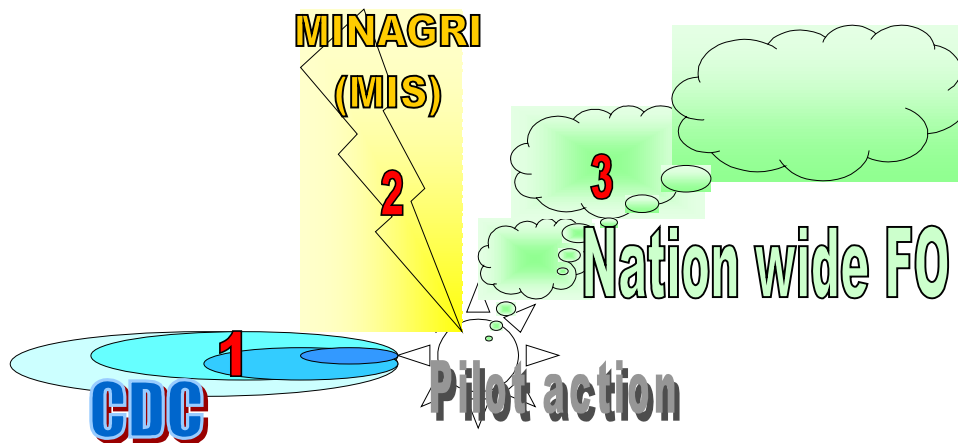
A reliable M&E with indicators of success

5. An M&E system relies on full stakeholder participation, mostly brought together at forums of local FOs (FLFOs), at least every two months.
6. The LSC will play a key role in supplying stakeholders with information on implemented action, translated into service contracts. This will take place during monthly meetings, when activities are reviewed and future action plans drawn up.
7. Each committee member will report on activities in which she/he is involved (hedging, cattle keeping, wetlands) and compare her/his information with that reported by technical staff.
8. For each activity, stakeholders will be consulted with regard to establishing a list of what they consider to be indicators of success. This will take place during the period of facilitation.

Dissemination of information and knowledge among beneficiaries as part of the MINAGRI transformation process

9. All components necessary to generate successful innovations must be set in such a way as to make their replication possible. This includes organizational and institutional arrangements where innovations are to be found.
10. Pilot activities are implemented by local farmer groups as agreed at FLFO level and supported by technical service providers under the supervision of an LSC composed of representatives of community development centres (CDCs), FLFOs and from a nationwide FO (and the pilot action site coordinator on its behalf). Three spheres of activity have been identified to replicate pilot actions:

11. First, horizontal replication, whereby neighbouring cells and sector stakeholders, attracted by the visual effects of the innovations, will request their local CDC to set up a similar arrangement to manage their watershed basin in an innovative manner.
12. Second, vertical replication, whereby successful innovations are documented in a process driven by MINAGRI's management information system, in close collaboration with local service providers. In a transparent manner, these service providers will give the ministry access to their methodology and collaborate in producing a wide range of reports and visual aids.
13. Third, transversal replication, whereby national FOs may take the two previous aspects: co-produce and disseminate acquired knowledge through various media (written and visual aids) and organize farmer exchanges with member farmers from distant areas.



Graph 1: Three ways of disseminating information necessary to replicate innovations.

Remark 1.2: Technological innovations

Avoid reproducing a blueprint model of a unique vegetal cover of the watershed basins

14. Since successful technical innovations are linked to local stakeholders' understanding of their environment, pilot actions will be preceded by a participatory rural appraisal (PRA) that focuses on the environment and current farming practices. The PRA will aim at ensuring that local stakeholders have a clear understanding of their environment, with all its strengths and weaknesses, and of the opportunities and challenges involved. This task will be entrusted to service providers.
15. The results of the PRA will be converted into visual aids that are easily available to local stakeholders, to ensure that they understand the logic of and the links between all activities.
16. Farmers will be equipped with a "basket" of possible innovations and select the solutions best adapted to their own systems, while not hampering the overall objective set by the community.

Build up joint capacities to identify and understand technical and social innovations at the local level, to be disseminated on a wider scale

17. The effective participation of FOs at the technical implementation level, and through a networking process on the one hand and in M&E on the other hand, will enable existing FOs to strengthen their technical, organizational and advocacy messages. Nationwide FOs will be supported to fulfil advocacy functions linked to the lessons learned from the project (soil and water management, wetland management).

Establish a platform for exchanges of knowledge based on existing institutional linkages rather than creating exogenous innovation centres or relying on activity reports.

18. FLFOs will constitute key platforms for exchanges.

19. Innovation centres will rely on the identification of all local stakeholders presently playing key roles in the generation and dissemination of information and knowledge. Their location will be identified with stakeholders in easily accessible centres that are already key points for informal exchanges and sharing of information (market places, health centres).

Remark 5.2 : project sustainability

Phase-out strategy

20. A phase-out strategy is at the very basis of the LSC constitution. The committee relies on existing institutions (CDC and FOs), the participation of which in the project decision-making process will even allow them to perform better once the project has come to an end. This mechanism will provide a unique local arrangement that can be created or dissolved as deemed necessary.

21. Contracts with service providers and local FOs will clearly stipulate timetables and service termination dates. During the M&E process, stakeholders will always bear in mind the need to avoid generating a new, non-sustainable service: it must be a facilitation process, but not replace the real local stakeholders, who must only draw their benefits from the innovation. FO local forums will be at the core of the M&E process.

22. Support contracts with nationwide FOs must ensure that they can fulfil felt project needs and strengthen existing capacities. The FOs should integrate these services as part and parcel of their mission through other programmes.

23. After several (3-4) years in a given area, the technical coordinator of the pilot site may be relocated to another area and her/his coordination duties progressively transferred to CDC staff members and/or MINAGRI extension agents.

Define the roles and duties of MINAGRI/MINALOC decentralized institutions compared with those of FOs

24. Decentralized institutions are located at the core of action to facilitate activities implemented by FOs. This reflects the dual, local legitimacy of both entities. The creation of a committee of dual origin to supervise all implementation and facilitation activities at local level recognizes their complementarities without relying on a new, exogenous structure cut off from any institutional accountability.

25. The CDCs are the responsibility of the district mayor and his deputy in charge of economic affairs. They represent the population and must always be in a position to explain project interventions to the population. Similarly, they can channel the opinions of the population to the committee.

26. FOs rely on a legitimacy based on technological, organizational and advocacy experience and knowledge. FO representatives are chosen from within the FLFOs in accordance with transparent criteria of experience (hedging, livestock keeping, marshland agriculture). The FLFOs will ensure that their representatives include a maximum of two men and at least one young person. Nationwide FOs will be represented by someone confirmed by the FLFOs.

Establish mechanisms to ensure that training addresses the needs of various target group categories

27. Proposed training modules will deal with terms of references set by the LSC and include a practical component. These training modules will clearly stipulate the target group and the trainee selection criteria set by the LSC.
28. Each beneficiary will agree to test and use the knowledge acquired to draw lessons for sharing with other group members and the FLFOs actively participating in monitoring the beneficiaries.
29. Each beneficiary will complete a two-part training evaluation form, the second part of which will be completed three months after the training has taken place.

Annex 4

DED Technical Assistance (TA)

Terms of Reference (draft)

Background: In Kirehe District there are more than hundred primary cooperatives active in agriculture, arts, handcraft, trade and rural finance. Agricultural production cooperatives have apparently been encouraged to establish themselves crop-specifically, whereas cooperatives involved in rice production in the marshlands appear to be better established than those for other, mainly dry-land, crops, which are as yet rather scattered and fragmented.

The dry-land agricultural cooperatives are active in cereal (maize 12), coffee (around 7), bananas (4) and pineapple (1). Furthermore there are three livestock cooperatives, seven in fisheries and twelve doing bee-keeping. However, management of these cooperatives is very poor and there seems to be uncertainty about their functions. The elected leaders, who are essential for guiding the cooperatives, are unable to do so. It appears that farmers may still be unaware of their power within the organizations and that they still have doubts about the cooperatives' abilities to provide them with efficient economical and technical services.

The rice cooperatives, in particular, have received financial and technical assistance from a number of projects, including the IFAD-assisted Support to Strategic Plan for the Transformation of Agriculture Project (PAPSTA). Farmers interviewed reported, for example, that their cooperatives had provided them with extension support and seasonal finance. Rice cooperatives have also formed a cooperative union – the Rwanda Union of Rice Cooperatives (Union des Coopératives Rizicoles du Rwanda, UCORIRWA) – to represent them at a national federation of cooperative unions yet to be formed.

There are five cooperative unions in the district. They are in the following crops: Coffee, rice, animal production, maize and fish.

Since around January 2008 there is a farmers forum being created in Kirehe District, which enjoys the support of the "Projet Appui au Système National de Vulgarisation Agricole" (PASNVA) financed by the Belgians. The aim of that forum is to resolve the common problems of the five unions in the District. The forum has met already since its' creation four times. In these meetings the coordinator of the PASNVA project participated.

The advisor would be working closely together with the KWAMP project. His counterpart organisation would be UCORIRWA.

Overall objective

Decentralized rural economies are promoted.

Specific objectives

Related national farmer organisations in Kirehe District provide permanent support and services for farmer activities related to irrigation, soil and water conservation, and commodity-chain development.

Main commodity cooperatives (rice, maize, banana, pineapple, etc.) deliver services to members and belong to regional unions and national apexes. Support local institutional development and strengthen organisational capacities

Support existing and emerging farmer groups to strengthen, to build up and join district-based cooperatives and unions.

The cooperatives are to be understood as commodity-oriented, duly registered and affiliated to national apexes. The idea is to assist in linking the interest of district level farmers organisations to regional and national level.

Activities

Strengthen the planning, accounting and management capacity of the primary cooperatives in Kirehe District.

Support the internal participatory planning process (priority-setting and resource allocation) and communication to members and involved stakeholders.

Assist in developing a business and strategic plan for each cooperative.

Assist in monitoring and assessment of services provided

Assist in contract negotiations (legal, administrative and financial) with projects, private enterprises and other stakeholders particularly concerning input supply, financing and credit facilities and marketing of produce.

Linking up to private and public research and extension services to get updated information on newly developed products and new methods.

Assist in initiating multi-stakeholder platforms on district level.

Method

In the framework of the District Development Plan (DDP), where there is a strong section on cooperative support (“1.2.1. Support in Professionalism of the Producers and Agricultural Co-operators”), the TA should work closely with the District together. This means he would as well participate in carrying out appropriate activities, mentioned in the DDP.

Since the rice grower cooperative is by far the best organised in Kirehe District it is recommended, that the TA should start working with them. A particular good practical start would be to link his activities to the value chain development fund under KWAMP, where specific activities are foreseen, based on a business plan. In a later stage the TA would as well concentrate on assisting particularly the existing farmers unions.

REPUBLIC OF RWANDA

**KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT
(KWAMP)**

**PROGRAMME DESIGN DOCUMENT
FINAL DESIGN**

WORKING PAPER 8

FOOD-FOR-WORK

REPUBLIC OF RWANDA

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(KWAMP)

**PROGRAMME DESIGN DOCUMENT
FINAL DESIGN**

WORKING PAPER 8

FOOD-FOR-WORK

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REPUBLIC OF RWANDA

KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT

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WORKING PAPER 8

FOOD-FOR-WORK

I. INTRODUCTION

1. Collaboration between World Food Programme (WFP) and IFAD projects began during the period 1999-2002 in connection with rice scheme rehabilitation interventions aimed at reclaiming marshlands that had fallen into disuse following the events of 1994.

2. At that time, collaboration between the two organizations was indirect as no discussions were held on the subject, and project proposals were prepared by the Department of Rural Engineering, Soil Protection and Conservation of the Ministry of Agriculture and Animal Resources (MINAGRI), without IFAD necessarily being involved. The system functioned rather well, however, and produced a number of positive results, including the reclamation/rehabilitation of several hundreds hectares of marshlands, both with WFP food aid through food-for-work (FFW) activities and IFAD funding. However, since this was a form of **indirect** cofinancing, neither party was aware, with any certainty, of the other's commitments.

3. The drawback to this type of collaboration was that, since there was no communication between the two organizations, any difficulties or bottlenecks went unresolved. Such problems can only be remedied through a joint approach, which is now being applied in all present and future initiatives.

A. Collaboration under the Support Project for the Strategic Plan for the Transformation of Agriculture (PAPSTA)

4. WFP/IFAD collaboration in the PAPSTA intervention commenced during the second half of 2006. Although there was no formal, direct discussion with IFAD with regard to PAPSTA, the project appeared to be well planned and its objectives and goals were clearly outlined. WFP also found the initiative to be in line with its main goal, that is, ensuring food security, and for that reason decided to collaborate in the initiative.

5. With the provision of 1,450 t of WFP food aid, soil protection and conservation activities in eight project sites contributed to achieving approximately 3,000 ha of protected land in different watersheds. These activities were undertaken in food-insecure areas; thus food aid was undoubtedly the most appropriate form of assistance, as it ensured that the target populations benefited.

6. With IFAD financing, technical expertise was contracted to oversee project implementation with the FFW labour force. The same technical team ensured timely reporting on project progress to the PAPSTA coordinator. He in turn endorsed and forwarded the reports to WFP, thereby prompting further deliveries of food aid to the FFW labour force.

7. Apart from technical expertise, IFAD also financed other non-food items necessary for project implementation. This is critical part of any project, because FFW alone cannot achieve the hoped-for results. Non-food items provided under the PAPSTA intervention included, among other things, seed, agricultural implements, and agroforestry tree species.

B. Lessons learned from PAPSTA experience

8. The quality of PAPSTA coordination without doubt played a pivotal role in enabling the project to achieve what it has to date. The design of activities to be carried forward with FFW support was handled by staff hired under PAPSTA, and subsequently endorsed by the coordinator and local district authorities. This represented a first, sound lesson with regard to the benefits of collaboration, since designing activities is a difficult task. In other words, the PAPSTA coordination team acted as a cooperating partner; without their assistance, project implementation would have been extremely difficult.

9. The second lesson worth mentioning is the way in which the FFW activities were supervised and the timeliness of progress reporting. The quality of supervision and reporting was always first class, further confirming the soundness of project supervision and coordination. Similar arrangements should be adopted for future initiatives of this type.

10. Last, but not least, participants' entitlement to food has always been assured. During the PAPSTA joint supervision, it was ascertained that all participants received the food to which they were entitled. Women participants informed members of the supervision mission that they valued such assistance as it made it possible for them to devote their time and energy to working on project activities while ensuring food was available for their families. It was also found that most women wishing to participate in the project were allowed to do so.

11. The importance of close links with farmer organizations, the population at large and local leaders cannot be over emphasized, inasmuch as these links made a significant contribution to PAPSTA's success in implementing different activities, including those carried out in collaboration with WFP.

C. Approach for future projects

12. Through self-targeting, participants in FFW projects are selected during meetings with qualified persons from the communities involved. These persons are authorized to draw up lists of participants, based on the following criteria:

- Households with little or no land holdings
- Households that lost their crops the previous season
- Households that were unable to farm their land the previous season, for whatever reason
- Recent returnees and newly-settled households
- Households recognized as very poor but not falling into one of above-mentioned categories
- Person fit for work and older than 18 years of age.

13. At these meetings, the heads of each selected household are listed by name, together with his/her ID card number and other details. During the selection process, measurements are taken and communicated to all attendees. At least 50% of the selected participants will be women. Any assets created under the project are for the community as a whole, but with women being allocated at least 50% of such assets.

14. It must be borne in mind that one of main objectives of FFW projects is that they are intended to address short- to medium-term hunger, while laying the foundations for sustainable food security through the creation of productive assets.

D. FFW project formulation and location

15. FFW project proposals are designed either by the project coordination unit (PCU) involved or other development-oriented body, under the guidance of the PCU and WFP. Guidelines for project formulation are provided by WFP.

16. Decisions on project locations are based on regular WFP reports, produced by the Vulnerability Assessment and Mapping (VAM) service. Account is taken of the food- security of each location when formulating FFW projects for submission to WFP.

17. Once the proposals are ready, they are validated by the PCU and project coordinator, and endorsed by the executive secretary of the relevant sector/district before being forwarded to WFP for final design report and approval. A project review committee at WFP reviews all such proposals. The WFP country director approves the projects recommended, subject to the availability of resources. Approved projects are sent back to the submitting body, which serves as cooperating partner, and to WFP. A field-level agreement is drawn up, setting out the rights and obligations of both the cooperating partner and WFP. Once signed, this document gives the green light for project implementation.

E. Kirehe District and information on vulnerability assessment and mapping

18. Kirehe District straddles two food-economy zones, the eastern curve and Buganza-Gisaka plateau, which means that the food-security situation differs in the two areas. The population of these areas have different methods of coping with food shortages. Rainfall patterns also differ. According to the Comprehensive Food Security and Vulnerability Analysis of April 2006, the current classification of Kirehe District sectors is as follows:

Sector	Rank
NASHO	2
MAHAMA	2
NYAMUGALI	2
MPANGA	2
MUSHIKIRI	4
NYARUBUYE	4
KIREHE	4
GATORE	4
GAHARA	4
KIGARAMA 2	4
MUSAZA	4
KIGINA	4

The ranking uses a scale of 1 to 6, whereby 1 is highly food-insecure and 6 is food- secure.

19. It is clear, therefore, that FFW activities are more appropriate in areas of food-insecurity because food helps participants to cope while creating their own productive assets. The sectors ranked 2 are the preferred candidates for FFW interventions, other things being equal.

II. MANAGEMENT, MONITORING AND EVALUATION AND FOOD DISTRIBUTION ARRANGEMENTS

20. The cooperating partner has responsibility for all activities at the project site. Joint (WFP, PCU, district and sectors hosting the project activities) monitoring activities are organized on a monthly basis.

21. The distribution of food is triggered off by progress reports submitted to WFP by the cooperating partner. After reviewing the reports, WFP arranges for food to be delivered to the project sites. The food distribution exercise is conducted and supervised by the cooperating partner, which reports back to WFP. Templates are provided by WFP for all reports to be submitted by the cooperating partner.

22. Project evaluations are conducted in accordance with the schedule set out in the main project documents. During project evaluation, the emphasis is on checking the food entitlements of beneficiaries, the assets created with WFP resources, and any positive changes brought about by such assistance.

A. WFP costs

23. FFW project proposals submitted to WFP should be based on the costs given below. These costs are updated as required.

No	Project type	Unit of measure	Mandays per 1 unit	Cost in food per 1 unit (Mt)	cost in US\$ per 1 unit**
1	Swamp reclamation-comprehensive	ha	3149	11.25	8,393
2	Land terracing	ha	1098	3.92	2,927
3	Erosion control with trenches	ha	109	0.39	290
4	Rain water harvesting with ponds and small dams	m3	1	0.0048	4
5	Access road rehabilitation	km	891	3.18	2,374
6	Tree planting & forest rehabilitation	ha	206	0.74	548
7	Potable piped water	km	504	1.80	1,343
8	Pest control: banana wilt	ha	330	1.18	879
9	Crop production, gardening & cattle	ha	1099	3.93	2,928
10	Contribution to shelter construction	house	232	0.83	618

B. FFW project milestones

24. The success of any FFW interventions depends directly on synergies created with other project components. Non-food items required for smooth implementation need to be made available in a timely manner, so that labourers can continue to work.

25. The potential for success is high because Rwanda is endowed with enough unskilled or 'ordinary' workers.

26. Mobilizing such labour in a productive manner is key to sustainable development. WFP food will play the role of an ‘enabler’ to make this happen.

REPUBLIC OF RWANDA

**KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT
(KWAMP)**

**PROGRAMME DESIGN DOCUMENT
FINAL DESIGN**

WORKING PAPER 9

FEEDER ROADS

REPUBLIC OF RWANDA
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT
(KWAMP)

PROGRAMME DESIGN DOCUMENT
FINAL DESIGN

WORKING PAPER 1

FEEDER ROADS

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ABBREVIATIONS AND ACRONYMS

ABEDA	Arab Bank for Economic Development in Africa
ADF	African Development Fund
AWPBs	Annual Work Programme and Budgets
CCIs	Community Centres for Innovation
CDF	Community Development Fund
CLGS	Comite locale de gestion et supervision
DIP	District Investment Plan
FFW	Food for Work
KWAMP	Kirehe Community Based Watershed Management Project
KM	Kilometre
HHs	Households
HIMO	Haute Intensité de Main-d'œuvre
MINECOFIN	Rwandan Ministry of Finance
MINALOC	Ministry of Local Government, Good Governance, Community Development and Social Affairs.
MININFRA	Ministry of Infrastructure
NTB	National Tenders Board
OPEC	Organisation of Petroleum Exporting Countries
PAPSTA	Strategic Plan for the Transformation of Agriculture
PCU	Project Coordination Unit
PDRCIU	Umutara Community Resource and Infrastructure Development Project (PDRCIU)
PDD	Plan de Développement de District
PRSP	Poverty Reduction Strategy Paper
RMF	Road Maintenance Fund
SFD	Saudi Fund for Development
TSPP	Transport Sector Policy Paper
UPPR	Planning, Policy and Capacity-Building Unit
WB	World Bank

KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)

PROJECT DESIGN REPORT

Working Paper 9

FEEDER ROADS

I. FEEDER ROAD NETWORK IN THE PROGRAMME AREA

A. Introduction

1. Creation of basic and supplementary infrastructure is an important factor in poverty reduction strategy. The agricultural sector, especially its commercial component cannot develop broadly and efficiently without the appropriate public infrastructure in place and maintained. Particularly in Rwanda, many rural entrepreneurial initiatives are restricted through scarce irrigation and pasture livestock watering systems, and badly degraded rural roads. Crop yields, livestock production and local commercial activities could be improved substantially and cropping pattern adjusted if such infrastructure were to be functional or in a good condition.

2. KWAMP has incorporated, within the Marketing component, a feeder road rehabilitation sub-component which would enhance: (i) markets access for agricultural and livestock products, inputs and household goods, (ii) access to basic social services, and (iii) regional integration. All of which would contribute to the overall project's objective of improving the livelihoods of the rural population.

B. Institutional Framework

3. Transport Sector is under the responsibility of the Ministry of Infrastructure of Rwanda (MININFRA), which is primarily responsible for the planning, coordination and implementation of the transport policies set out in the Transport Sector Policy Paper (TSPP) and Poverty Reduction Strategy Paper (PRSP). MININFRA operates through the assistance of the national agency of Planning, Policy and Capacity-Building Unit (UPPR) and other bodies which are involved in the management of the road network (i) the National Tender Board (NTB) which awards all goods, works and services contracts; (ii) the Road Maintenance Fund (RMF) responsible for financing road maintenance infrastructures; and (iii) the regional and local authorities in charge of managing their own rural road networks. In line with the decentralisation process, there is an on-going constructive dialogue between districts and the Ministry of Infrastructures concerning proposal of maintenance Programme, and turning to technical competences of MININFRA.

4. The Ministry of Economic Planning and Finance (MINECOFIN) is in charge of programming investment budgets, including those of transport infrastructure, and managing the financial resources of the sector. Since 2004, in line with Rwanda's process of decentralization, the RMF allocates 50% of its resources to local governments in the form of subsidies. At the same time, the maintenance responsibility of both unclassified main roads and the rural road network moved to the provinces and districts, respectively, and at national level from MINECOFIN to the Ministry of Local administration (MINALOC).

C. Road Network and Maintenance

5. Rwanda's road network of 14,000 km is spread over 27,000 square km of national territory, which makes it one of the densest network of rural roads in Sub-Saharan Africa.

6. The main roads link: (i) from the capital, Kigali, to the different provinces and to the borders of neighbouring countries, in particular Gatuma and Kagitumba (towards Uganda in the North), Rusumo (towards Tanzania in the East), Akanyaru, Nemba and Bugarama (towards Burundi and DRC in the South), Gisenyi (towards DRC in the West and North-West).

7. The network includes 5 408 km of classified roads (MININFRA's responsibility) and 8 500 km of unclassified roads (under the responsibility of districts and city councils). About 33% of the classified road network is in a good state, whereas unpaved classified roads are badly degraded (only 4% in a good state). Approximately 85% of the unclassified roads consist of feeder roads, which were either funded by development projects or created with community works to facilitate the access to markets and basic social services for the rural population. Their maintenance has been limited to local initiative.¹ The classified network is presented in the table 1 below:

Table 1: Rwanda's Classified Road Network (km)

Category of Roads	Primary		Secondary	Total	
	Paved	Earth	Earth	Paved	Earth
National roads of international interest	892	0	0	892	0
National roads of domestic interest	130	1700	652	130	2 352
National roads of Community interest	0	523	1 511	0	2 034
Sub-total	1 022	2223	2 163	1 022	4 386
Total network	3 245		2 163	5 408	

Source : MININFRA : Rwanda's Draft Transport Policy – March 2006

8. Rural Roads maintenance is not self-financing but need to be subsidised. This may explain the reluctance of local and foreign donors to invest in this type of infrastructure, particularly relevant in Rwanda where road maintenance costs are twice higher than that of most Sub-Saharan countries due to its irregular relief and geomorphologic conditions that change with seasons.

D. Road Maintenance Fund (RMF)

9. The Fund became operational in 2000. It is responsible for financing road maintenance (works, control, technical and financial auditing). The procedure for the disbursement of the funds is the follow: the manager of the fund draws up in conjunction with the provinces a yearly workplan, and signs a contract with the districts and SME for routine maintenance works which is delivered through SME or community-based work (*umuganda*). Until the effective setting up of the decentralized maintenance services, UPPR continues to oversee the provincial and district road network.

10. The fund has still inadequate resources to meet the needs of the whole classified road network and the country relies heavily on external financing through bilateral and multilateral donors. All donors in the sector are particularly concerned about reinforcing the institutional capacity for road management. During the past ten years, the government Rwanda has improved the transport system with the assistance of donor funds, through the implementation of transport infrastructure rehabilitation and construction programmes, but much still remains to be rehabilitated.

¹ Source: MININFRA: Rwanda's Draft Transport Policy – March 2006.

E. Relevant On-Going Projects

- The IFAD-financed Umutara Community Resource and Infrastructure Development Project (PDRCIU), USD 57 million. Ten year project includes finance for both public and private sector investment. Main programme components are: (i) Infrastructure and Livelihoods Development in a Decentralized Context, (ii) Rural Economic Transformation, and (iii) Programme Management. One of the specific objectives is to improve access by rural households to sustainable public infrastructure within an equitable, demand responsive and efficient district planning, resource management and administration system. One of the major outputs was the preparation of district development plans that represent the needs and priorities set by the communities.²
- ADF- Kicukiro - Kirundo road rehabilitation Project, USD 53 million, cofinanced by Saudi Fund for Development, OFID, ABEDA.
- ADF- OFID Gitarama-Ngororero-Mukamira road project, USD 23 million, 3-year project with 3 components: (i) Road Works, (ii) Institutional Support to Roads Department, and Project Management.³
- World Bank, Transport Sector Development Project of Rwanda. The objective of the project is to help the Government preserve part of Rwanda's paved road network and strengthen capacity in the transport sector. There are 4 components to the project: 1) Road rehabilitation and Maintenance which has 2 sub-components (a) Kigali-Ruhengeri Road Rehabilitation, and (b) Paved Road Maintenance and provision of technical assistance in support of supervision of said maintenance; 2) Sector Governance and Policy Support; 3) Sector Analysis and Planning Support; and 4) Project and Program Management Support.
- CIDA's fund rural development in Rwanda for 2005-2011 in line with the Labour-Intensive Local Development Program. CIDA supports the government rural infrastructure program National Investment Strategy (NIS) that places transport investments among the top three priorities of the country
- EU's financing of EUR 82 million for the rehabilitation the Kigali-Kayonza, Gitarama-Butare-Akanyaru and Ruhengeri roads that link the capital city of Kigali with Goma in the Democratic Republic of Congo.

II. MAIN CONSTRAINTS

11. A number of constraints can be identified that may negatively impact the implementation of feeder roads activities. One major constraining factor is the mountainous terrain and excessive rain fall erosion, particularly severe on the rural road network, and the high maintenance costs.

12. The lack of qualified and professional staff in the field at district level may result in poor planning of a feeder road programme, creating problems such as underestimation of costs, and inadequate maintenance provision. Of critical importance is the quality of preliminary studies and

² Umutara Community Resource and Infrastructure Development Project (Loan 537-RW)

³ Road Works: (i) Rehabilitation of the paved Gitarama-Ngororero road section (46.6 km), with quality control and supervision by an engineering consulting firm; (ii) Asphaltting of the Ngororero-Kabaya earth road section (30 km) and rehabilitation of the paved Kabaya-Mukamira road section (26 km), with quality control and supervision by a consulting firm; (iii) Improvement of 76 km of rural feeder road linking the Gitarama-Ngororero-Mukamira with quality control and supervision by a consulting firm; and (iv) Awareness seminar for communities on environmental protection, road safety and control of waterborne diseases (malaria and diarrhoea) and sexually transmitted diseases including HIV/AIDS. Institutional Support to Roads Department: (i) Technical assistance for the setting up of a road management system network and training of the staff of the Roads Department (RD) on its use; (ii) Equipment for the road database (RDB), and in-situ laboratory testing equipment; (iii) Advance training in data processing and languages for the RD staff.

works needed to avoid poor quality construction and consequent erosion shortly after the rehabilitation.

13. Communities lack the technical expertise to design effective yet simple drainage systems that would take run-off away from the surface of the road and thus avoid extensive waterlogged conditions. This will be overcome by holding training seminars with the district infrastructure technical staff conducting the training.

14. It would be crucial for rural road improvement activities to take these constraints into account and address them so as to develop joint district/community ownership and responsibility for planning, implementation and operation and maintenance.

15. Soils eroded from farmlands occasionally blocks road drains and sometimes run across the roads resulting in enhanced run-off over the road surfaces, which in turn wear the roads. It is expected that soil conservation measures will be a strong deterrent to this phenomenon.

III. FEEDER ROADS IN KIREHE DISTRICT

16. Feeder road development is clearly a pressing need in most areas of the district of Kirehe. Its District Development Plan (DDP: 2007) has drawn up a list of priority needs to be addressed by the next five years, and scarcity of basic infrastructures (access to water and road) is listed as number three. In the same plan, about 200 km were identified as road in need of rehabilitation and maintenance. The list of the roads is not yet comprehensive and would be amended during Programme implementation following the road selection criteria.

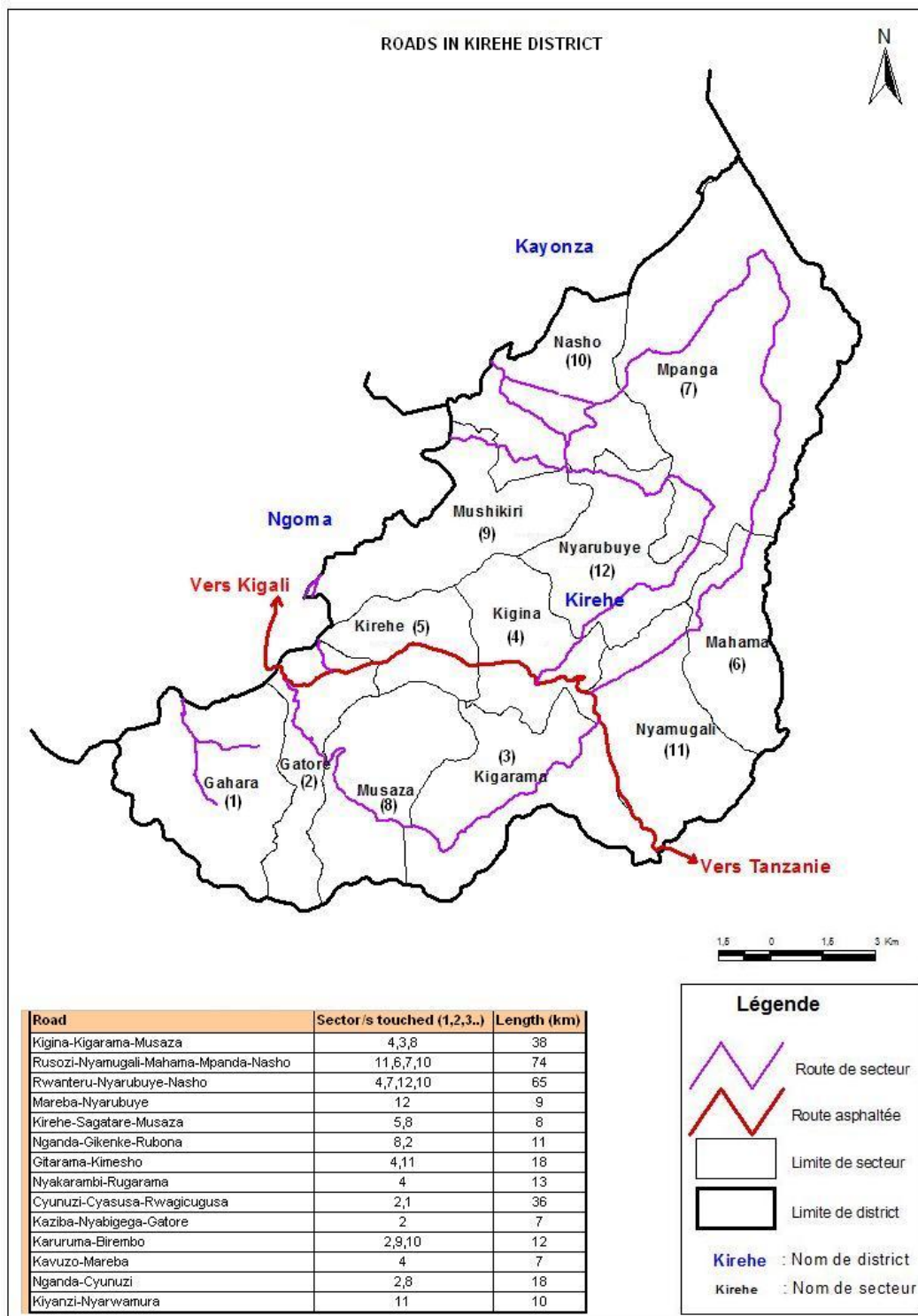


Table 1 District Feeder Road Inventory, January 2008

	Road	Sector/s touched (1,2,3..)	Approx. Length (km)	Approx. yr of rehab.	Approx. width (m)	Condition of road
1.	Kigina-Kigarama-Musaza	4,3,8	38	1985	5	Bad
2.	Rusozi-Nyamugali-Mahama-Mpanda-Nasho	11,6,7,10	74	1983	6	Bad
3.	Rwanteru-Nyarubuye-Nasho	4,7,12,10	65	1980	5	Bad
4.	Mareba-Nyarubuye	12	9	<1994	3	Bad
5.	Kirehe-Sagatare-Musaza	5,8	8	<1994	3	Bad
6.	Nganda-Gikenke-Rubona	8,2	11	<1994	4	Bad
7.	Gatarama-Kimesho	4,11	18	<1994	3	Bad
8.	Nyakarambi-Rugarama	4	13	<1994	3	Bad
9.	Cyunuzi-Cyasusa-Rwagicugusa	2,1	36	<1994	5	Bad
10.	Kaziba-Nyabigega-Gatore	2	7	<1994	3	Bad
11.	Karuruma-Birembo	2,9,10	12	<1994	4	Bad
12.	Kavuzo-Mareba	4	7	2007	6	Good
13.	Nganda-Cyunuzi	2,8	18	2005		Good
14.	Kiyanzi-Nyarwamura	11	10	2007	6	Good

Sector Reference

1 GAHARA	4 KIGINA	7 MPANGA	10 NASHO
2 GATORE	5 KIREHE	8 MUSAZA	11 NYAMUGARI
3 KIGARAMA	6 MAHAMA	9 MUSHIKIRI	12 NYARUBUYE

IV. PROPOSED INTERVENTIONS

A. Rationale

17. The poor state of infrastructure constitutes a major barrier to the country's economic growth as it reduces competitiveness of exports and discourages investment. The development of feeder roads connected to the main road will enable the rural populations in the project impact area to transport, their agricultural produce to the main road and the major commercial centres. An improved network will stimulate agricultural production and the promotion of small and medium enterprises as well as providing access to all-weather and all-year around road access and reducing transportation costs and produce losses. As a result of this, farmers and small rural entrepreneur's income will increase. The objective of this sub-component is in line with the priorities set out in the Transport Sector Policy Paper (TSPP) and the EDPRS which puts emphasis on the development of road infrastructure. Furthermore, most feeder roads in the district have not been maintained for nearly two decades and are in a state of disrepair resulting in a reduction of public transport vehicles.

18. For effective marketing of the increased agricultural and livestock production that would be generated by the project, feeder roads would be rehabilitated in strategic areas to be identified linked to intensification of specific watersheds. Road infrastructure responding to communities' demand would be identified, planned, implemented, and managed jointly by districts and sectors, cells and user groups. These works would be implemented with a similar organisational design to the road rehabilitated works supported by the Umutara Community Resource and Infrastructure Development Project (PDRCIU), involving the strengthening of the capacities of both district administration and private contractors.

B. Approach

19. Building on lessons learnt from PDCRIU, the approach would be based on demand-driven participatory processes, matched by unallocated resources to adapt to fast-changing environments (rather than pre-determined activities), and performance-based contracts which would promote an efficient use of limited resources. Particular focus will be placed on community mobilisation, replication of proven participatory and management approaches as well as improving on the experience of shared implementation responsibilities between beneficiaries represented by the local supervision management committees (CLGS), service providers (NGOs, private sector and national institutions) and decentralised authorities. In addition, the Feeder Roads component would place more emphasis on community capacity-building and local planning and advisory assistance would be provided by the Programme. Strengthening local planning capacities would also include developing the synergies between different interventions and donors activities.

20. The rural roads component will target areas likely to result in high impact of other interventions by the project. Priorities for road rehabilitation will thus be to select roads that will facilitate success of the agricultural intensification activities supported by the project, in a way that marketing of the surplus production can be transported with little post-harvest losses to the product and wear of the vehicles.

21. The improvements will target improvements of existing feeder roads using service providers (contractors). Wherever possible, feeder roads rehabilitated in clusters or ‘mini-networks’ that are part of an area wide development strategy would have a high impact, since these have better chances of attracting and retaining traffic than isolated road investments. In awarding contracts, preference would be given to proposals that employ – to the extent possible - labour-intensive works (*haute intensité de mains d'œuvre* - HIMO) that inject cash into local communities during the non-agricultural season.

C. Objectives

22. The objectives of, the component are to bring 190 km of feeder roads in the district to a state that provides all-weather and all-year road access and that allows regular maintenance works to be carried out on an annual basis, in support of synergies with other public interventions to promote production.:

D. Component Activities

Rural Road Rehabilitation

23. The types of interventions anticipated within this component will cover:

- (i) the rehabilitation of critical sections of feeder roads of high commercial relevance to the direct beneficiaries of the project’s agricultural or marketing interventions. Typical examples of eligible interventions would be roads connecting areas where irrigation schemes or supply chains are to be developed;
- (ii) the rehabilitation and to some extent new construction of access roads of up to 2 km length and of high commercial relevance to the direct beneficiaries of the project’s agricultural or marketing interventions. Typical examples of eligible interventions would be roads linking participating storage or processing facilities to the feeder road network;
- (iii) spot improvements on feeder and access roads in the district, such as small culverts, bridges crossing small streams, and the repair of flush outs of short road sections that

present major problems after rainy season, for example due to their extended waterlogged conditions.

24. *Full rehabilitation*: refers to the improvement of the entire road that allow regular maintenance works to be carried out on an annual basis such that access is safe and reliable all year round, and also that a smooth, often gravelled surface permits comfortable travel along the whole length.

25. *Spot (accessibility) improvements*: focuses on improvement of localised sites where access is lost, unreliable, at risk in the near future, or dangerous, but leaving those lengths of road where vehicles can pass safely and reliably all year round. The appearance of the road may be variable, but the quality of work carried out is high, and the work should be robust. This type of intervention is appropriate for the involvement of local communities and transfer of wealth locally, while specialized works are given out to contractors. This would cost approximately 30% of full rehabilitation and therefore cover 3 times the length of roads.

26. The civil works will involve full rehabilitation along existing alignments, and will consist of:

- a compacted base road with 6-m carriageway, and
- road side works such as side drains with stone pitching
- cross drainage works usually in the form of concrete culverts
- construction of embankment for swampy sections
- reshaping and re-surfacing of carriageway with gravel
- reconstruction of broken bridges
- 6-m wide cattle crossing ramps in selected areas accompanied by short fences to guide the livestock into the ramp

27. To the extent possible, the run-off from road drains would be used for additional irrigation of agricultural production. To this effect, the road plans would be coordinated with the irrigation support activities and may be linked to cisterns or small reservoirs operated by water user associations.

28. A well rehabilitated feeder road should have the following characteristics:

- The road provides access reliably all year round;
- Road condition is stable;
- Deterioration is unlikely in the near future under regular annual maintenance; and
- Surface roughness does not fall below walking speed.

29. A total of 190 km of road rehabilitation has been provided for in the project cost estimates. The amount and implementation of the roads proposed is an indicative figure that would be adjusted based on the economic potential of the roads, the demand from communities and the presentation by the district of separate investment plan for road segments.

30. The project would concentrate its road improvement efforts on the rehabilitation of critical sections and spot improvements so as to optimise the use of community and project resources. This would also avoid upgrading roads beyond a level that can be maintained by the district authorities.

Road Maintenance

31. Feeder road maintenance would be the full responsibility of the district administration. Based on an average annual maintenance cost of USD 2000 per km of rehabilitated road, the district would need to allocate gradually increasing amounts for maintaining the road network rehabilitated by the project. This would form part of project activities, and would amount to USD 380 000 in project year 6.

32. To promote a sustainable maintenance system, the project would support the district in developing a rolling yearly maintenance workplan and elaborating the budgets to match the financial resources required. Some USD 430 000 has been provided for in the project cost estimates to purchase road maintenance equipment (grader, compactor and a small tipping truck) to be owned and operated by the district. Road maintenance of the feeder roads is expected to take place every year. The equipment would be leased out complete with drivers at a fee to private contractors; revenue thus generated would flow into a to-be-established district road maintenance fund for use in maintenance.

33. In addition, USD 20 000 is allocated to equip district road maintenance brigades and sector road maintenance teams with small equipment such as pick axes, shovels, hand hoes, wheel-barrows and machetes. The district with the assistance of the PCU will ensure the organization and training of these brigades and teams. The district would use its funds to replace these tools on a regular basis.

34. The district road maintenance fund would be used exclusively for the maintenance of the road maintenance equipment and tools owned by the district, including that provided by the project. The current practice at district level (PDRCIU experience) is for the government to purchase tools for road brigades and pay them for their work on maintenance. A district-based committee, with PCU and civil society membership, would oversee the use of the fund.

35. In addition, communities would be responsible for minor but regular road maintenance works of the roads rehabilitated under the project away from the major feeder roads. Activities include clearing of drains and keeping the surfaces even with guidance from district infrastructure teams. These would be agreed with the communities and documented in the watershed development plans.

Activity identification and planning

36. Planning of the feeder road programme needs to be done thoroughly to avoid problems such as the selection of roads with poor economic potential, unmet expressions of community priorities, underestimation of rehabilitation costs, poor quality of construction, insufficient maintenance provision (see Annex 1 for prioritisation criteria). Planning would be based on a participatory process driven by economic opportunity and on the established district development plan. Communities jointly with the district staff would develop a proposal describing the interventions, the total inputs required and the items the community is willing to contribute. For each site involving community commitments, a statement of commitments with regard to operation and maintenance of the rehabilitated road should be included. Amateur maps would be drawn by community members assisted by the district authorities before the extent and type of intervention is agreed on, showing prominent landmarks and indicating the type of road degradation in the various locations. This map should remain property of the community.

37. Districts would set up an annual district road management plan, outlining which road works and the maintenance activities to be implemented during that year, including cost estimates and a financing plan. For this activity, the district would be assisted by short-term regional consultant engineers. The district submits its annual district road management plans to the PCU for inclusion in the Annual Work Plans and Budgets (AWPBs).

38. The selection of feeder roads would be done through a participatory planning process whereby the community and local authorities would identify expressed needs and priorities. A key criterion for the selection of feeder roads is where the road complements other key project components within KWAMP. The possibility of using labour based methods such as community cash for work is important since it gives income earning opportunities.

39. With regards to the identified roads to be rehabilitated, it is recommended, in line with PDCRIU guidelines, that the PCU and the district should take into consideration the following criteria:

- the size of population by area served;
- the total crop production by area served;
- the planned intensification activities in the participating watersheds, including prospective private sector engagement in value chain development; and
- the communities commitments in the proposed road rehabilitation and maintenance.

Implementation

40. Within the decentralization process, the district of Kirehe will be responsible for field coordination, assisted by the PCU. Jointly local administration and communities would be responsible for the implementation of rehabilitation works, including the coordination, transport of the workforce. The PCU would assist the community in finding skilled masons, contractors and other specialists as required. Project activities will be implemented with due account to the District Development Plan (DDP) and identification of priority sectors and activities will be in conformity with the DPP. The project will closely work with the district and sector staff and will help strengthening their capacities that are rather weak at present.

41. Labour-intensive works (*haute intensité de main d'œuvre* - HIMO) would be based on the approach successfully employed in PDCRIU and PAPSTA, which is based on implementing the proposed physical works under community works with involvement of sector authorities, using WFP's Food For Work resources and the support of a service provider who would be responsible for all participatory activities leading to the successful implementation of the agreed road investment Plan.

42. For the major feeder roads and specialised works such as construction of bridges, culverts and large drifts, full rehabilitation contracts will be given out. However, it will be necessary to have contribution from cells/sectors in kind (sand, gravel...). Prior to the start of financing of the feeder roads component, it is vital that the district, the province and the PCU agree on basic arrangements for the financing and implementation of maintenance.

43. So far the experience in PDCRIU and Kirehe suggest a rehabilitation speed of 1 to 2.5 km per month. It is vital that cluster contracts in KWAMP are issued so as to attain an output rate of about 6 km per month in project years 3 and 4 in order to realise completion of the works in project year 5 so as to match other interventions. The tendering and design process for each contract is estimated to last 6 months and needs to be started well in advance of the planned implementation.

Capacity building

44. The project will invest in a feeder road training programme that will include:

- short-term intensive training to district personnel on feeder roads management at the Ministry of Roads Training School in Kenya (Kisii);

- staff seminars in planning of feeder road rehabilitation and maintenance;
- on-the-job training of the chiefs of the roads maintenance brigades and sector teams in the techniques and organisation of basic road maintenance;
- conducting seminars for contractors in labour intensive construction techniques;
- providing manuals and training communities on the maintenance of feeder roads.

Completion and beyond

45. During the works and regularly thereafter, the District Engineer would pay maintenance follow-up visits to the sites together with the community members to appreciate the efforts, inspect the achievements and identify potential trouble spots that need particular attention. Short tabular reports would be submitted prepared by the District Engineer, signed off by the community representatives and submitted to the PCU following each visit.

E. Community Participation and Contributions

46. The local communities would participate in all stages of activity planning and delivery so as to ensure that infrastructure is delivered in accordance with their needs and requirements and a sense of ownership and responsibility for operation and maintenance is developed. In addition, communities would be responsible for the maintenance of access roads connecting producer areas to the feeder roads. The district would provide the necessary tools (pick axes, shovels, hand hoes, wheel barrows and machetes) that would be financed by the project. Possible community contributions include:

- in kind contributions of local materials (stones, sand, gravel) except transport
- voluntary joint unskilled labour (*umuganda*); and
- production of simple maps and reports for monitoring the works and road status.

F. Implementation Arrangements

Implementation Responsibility

47. The planning and implementation of feeder road rehabilitation activities would be entrusted jointly to the district and the communities within that district, with assistance provided by the PCU. The PCU would also allocate financial resources to the district; provide training and logistic support to the district. Frequent visits would be made by district staff during implementation to monitor the progress and assist in finding solutions to emerging difficulties. Furthermore, annual visits would be made by district staff to monitor maintenance activities after the rehabilitation has been completed.

48. **Road Committees.** Roads committees/subcommittees to be set up at the cell, sector and district levels would represent crucial bodies of the planning, implementation and maintenance of roads. The committees to be established - similar to those under PDCRIU - is presented below:

- District Road Committees (DRC) which will be responsible for the elaboration of the road construction/rehabilitation programmes based on sector and cells plans and submit them to the province; verify that presented programmes are in line with the budget and eligible for financing; organise the maintenance brigade teams; and manage the funds made available for road works.

- Sector Road Committees (RSCs) which will be responsible for elaborating road plans based on CCRC plans and submit them to the district; ascertain material requirements at cell level (sand, gravel...); organize the sector road maintenance; and mobilize the communities for the *umuganda*.
- Cell Consultative Road Committees (CCRCs) which will be responsible for consulting the communities and determining crucial road axes; mobilize the population for communal works, and collect the material required from the communities.

Surveys and Studies

49. Insufficient data is available on the feasibility and effectiveness of feeder road rehabilitation. The best approach towards achieving a stable condition of rural roads through community-driven rehabilitation and maintenance with assistance from the district authorities is sought. To this effect, it is anticipated that the first feasibility and road studies would be carried out in PY2, that construction/rehabilitation would be undertaken at the end of PY2 and completed in PY3 and that the last infrastructure investment to be constructed/rehabilitated would be completed in PY5.

50. Feeder Road Rehabilitation Study. It is recommended in PY1, the PCU would contract a national consultant (an economist with civil engineering expertise, assisted by a civil engineer) to conduct a thematic study on the impact and sustainability of feeder road rehabilitation with particular focus on realistic (i) estimation of costs; (ii) community participation, contributions and ownership; (iii) district authorities' contributions and involvement; (iv) the operation and sustainability of the district road maintenance fund (v) the condition of the various roads before, shortly after and a long time after the rehabilitation activities; and (vi) the impact on economic activities in the area serviced by the respective feeder roads.

51. The consultant conducting the feeder road rehabilitation study would present the findings in a report and draw conclusions as to the lessons learnt from the experience in community-based rehabilitation and maintenance. He/she would make proposals and recommendations so as to enhance the intervention's cost-effectiveness and sustainability.

Design and Construction

52. The district office of the Director of Infrastructure is understaffed and ill equipped to design roads. The district authorities will therefore outsource the services of a consultant to carry out detailed survey, assessment, design and preparation of bills of quantities for the improvement of the selected lengths of feeder roads that they prioritise. This typically costs 5% of the cost of construction.

53. Using the designs and estimates thus developed, the district authorities will then advertise for bids through the national tender board for construction to be undertaken by contractors, expected from Kigali, since the contracts are expected to have a value in excess of 200 000 USD, which is the ceiling for procurement at district level. Simultaneously, the district authorities will advertise for and recruit the services of a qualified engineer experienced in the supervision of feeder roads contracts; it is important that the qualified engineer should be available on full time basis. Such a person would be able to assure quality control and guide the contractor.

Maintenance of the feeder roads

54. The district authorities responsible for infrastructure will train, supervise and pay for the work to be done by road maintenance brigades. The district infrastructure department will generally carry out major maintenance on carriageway surfaces. The road brigades in a cell are expected to cover 5-10 km of feeder road. Within the brigade, 2 persons and will be able to maintain an aggregate of 1 km on regular basis and will need one set of tools per year. Using existing road maintenance

manuals, the infrastructure engineer assisted by 2-3 technicians will train the brigades in sites near their area of operation at zonal level. Each zone would be made up of 3-4 sectors. Copies of road maintenance training manuals will be provided for each cell for reference.

55. **Maintenance indicators:** The following maintenance indicators should be met:

Asset Class	Indicator	Performance Standard
Gravel surfaces	• Pot-holes	No potholes
	• Roughness	IRI < 12
	• Thickness of gravel layer	10 cm
Drainage system	Obstructions/Structures	No obstructions; Should allow for unhindered flow of water; Without damages and deformations
Right of way	Vegetation/ Foreign elements	< 15cm height; No foreign elements allowed

56. **Maintenance schedules:** Routine maintenance is assumed to take place every year after the year of rehabilitation. This is estimated to cost about USD 2 000 per year, to be financed fully from funds that the district would receive from the central government under the decentralisation policy. Government assurances that these works would be carried out regularly would be included in the project grant agreement.

57. In addition to the hand tools that the community will require, it is necessary to have maintenance manuals for feeder roads. It was reported that the Ministry in Charge of Infrastructure is in the process of preparing a Community Maintenance Manual for these types of roads. Using funds allocated for technical assistance and equipment, the project could assist in finalising and publishing the manual for use in Kirehe District.

Monitoring

58. Monitoring of feeder road rehabilitation activities would be the responsibility of the district administration. Data collection would be carried out jointly by the local administrations and communities in generating standardised tabular reports and simple maps indicating the condition of the critical sections of the road and the planned and performed maintenance works after the rehabilitation exercise and then on a yearly basis. The up-dates of the maintenance plan would document the state of the road and assist the communities in effectively planning and recording their maintenance activities. The district would set up and maintain a simple road inventory that would contain the information thus collected, and use it for road works planning. From this system, the district would prepare quarterly reports to the PCU, which would feed the information into its MIS.

59. The project would assist both local administrations and communities in these tasks, mainly through regular training, written feedback on the quarterly reports and additional information from the project MIS that would allow linking road status information with data on agricultural and marketing activities supported by the project.

G. Costs and Financing

60. Total subcomponent costs are estimated at USD 8.20 million, of which USD 6.35 million would be financed by the African Development Bank (AfDB). About USD 1.7 million would be financed by the district administration, and some USD 67 000 by the communities. The balance represents taxes to be financed by central government. For detailed cost estimates see Working Paper 11, Table 11.

61. The project will be divided into a number of contract lots to hasten the speed of construction:

- The aggregated unit base cost estimate for full rehabilitation of feeder roads are provisionally taken at 35,000 USD/km. Partial rehabilitation that deals with critical sections and minimal drains is estimated to cost 25 000 USD/km, whereas for short access road rehabilitation it is 12 000 USD/km (including 10% local contribution).
- Where drains are needed as separate works, the cost will be estimated in terms of volume (m³) of stone pitching in the drain, at 120 USD/m³, typically measuring 300mm (bottom) x 600—800mm (high) x 400—600mm (top) x 300mm wall thickness.
- Full survey and engineering estimates (estimated at 5% of investment cost) followed by competitive bidding will be undertaken prior to the implementation of each road work and this is expected to result in more realistic, market-based, costing of civil works. This process inclusive of procurement of consultant is expected to last 3—6 months;
- Supervision of the roads once contracted out will be carried out by professional roads engineers recruited on monthly contract (estimated at 5,000 USD/month for two engineers inclusive of facilitation for a period of 12 months). This cost is not separately indicated in the cost tables since a provision of 5% is made as overall supervision cost;
- Culverts over small water courses are most cost effective at access provision, because bridges add significantly to the cost of the improvements, especially for the provision of access.

62. **Cost Survey Procedure:** The cost may vary on different stretches of a road depending on the condition of the road prior to rehabilitation and the drainage challenges.

- Survey during the rains if possible
- Divide the entire road into sections
- Identify the problem type for each section
- Identify the vehicle types likely to use the road
- Record the Access Category of each section
- Estimate required quantities to treat the problem
- Transfer the unit cost for each treatment
- Calculate the total cost for each Access Category
- Calculate the costs of emergency access, spot improvements and full rehabilitation
- Incorporate costs into the Prioritization procedure

H. Benefits and Beneficiaries

63. The overall benefit is to contribute to the improvement of the living conditions of the people of the project impact area and to poverty reduction; build technical and operational capacities of the province and districts in the field of road rehabilitation and maintenance. Implementation of the project will contribute to strengthening regional economic integration, opening up rural areas with a high agro-pastoral potential in Rwanda.

64. It is estimated that about a conservative 20% of the 50 000 households of the district would benefit from the feeder road rehabilitation activities through improved access to markets for agricultural and livestock products, markets of inputs and household goods, enhanced availability of health and education services as well as better access to such facilities, a general increase in

economic activity including employment opportunities outside agriculture, an increase in the availability of public transport (especially collective taxis) and a reduction in the cost thereof.

65. Other benefits include the derived transport operating cost savings accruing to non-agricultural traffic users and the reduction in time for commuters compared to without project situation. Furthermore, labour-intensive works would generate employment opportunities, particularly for the rural population limiting the migration.

V. RISKS AND PROJECT RESPONSES

66. The main risk of this sub-component is the disruption of the maintenance after rehabilitation. The lack of maintenance would lead to a rapid deterioration of the roads' condition, and a consequent waste of project funding. The involvement and mobilization of the communities in the rehabilitation and a maintenance road plan of the roads must be clearly defined.

67. The project must ensure both full ownership of the civil works by the district administration and adequate capacity building for the district administration and the communities to manage the maintenance process effectively. The project would structure its infrastructure support such that the district capacities (both managerial and technical) to maintain the rural road network are sufficiently strengthened to address this risk.

68. Another risk is that the district road maintenance fund may be badly managed by the district administration. To address this risk, the PCU and project supervision missions would monitor the inflows and outflows closely and make recommendations so as to improve the management of the fund.

REPUBLIC OF RWANDA

**KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT
(KWAMP)**

**PROGRAMME DESIGN DOCUMENT
FINAL DESIGN**

**WORKING PAPER 10
LAND TENURE SECURITY**

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LAND TENURE SECURITY

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LAND TENURE SECURITY

I. SUMMARY

1. Evidence shows that increased security of tenure leads to investment in services. Secure land tenure and a free land market are some of the tools that can lead to higher levels of agricultural investment and productivity, providing a strong basis for national economic growth, development and poverty reduction.

2. In the KWAMP area, out of the 48 000 households expected to benefit from this project 17% are landless and 83% have less than one hectare of land. Although the specific watersheds to benefit from this project have not yet been identified, most of the land in the targeted areas will not be registered to meet statutory requirements. The envisaged intervention of the project regarding strengthening land tenure security is to facilitate statutory land registration for project beneficiaries. It is hoped that this approach of providing statutory land rights to beneficiaries will encourage more productivity and individual investment in activities on the land. The acquisition of land documents can also be used as collateral in the process of acquiring loans or credits from financial institutions. This approach should spark off economic activities that can truly contribute to poverty reduction in Kirehe district.

3. A pilot project has been designed and implemented by the Ministry of Natural Resources (MINIRENA) and Department for International Development (DFID) on land tenure regularization. One of the four pilot areas in the country was Mwoga cell in Kirehe district. During this process more than 2 000 parcels of land rights were recorded in a period of six weeks. The documents that were issued, however, were only certificates of confirmation of ownership. In KWAMP, much as the approach will be similar, especially in community participation in the adjudication and demarcation process; a document showing the land owner and geographical description of the parcel will be produced. This document is also called a deed plan. The land owner can then use this document to acquire a lease or full title. These activities are actually carried out by the National Land Centre and the District Land Bureau. The overall land that will be registered in KWAMP will be approximately 20 000 hectares, which is about two thirds of the entire proposed project area. This is because; it is likely that not all identified land in a particular watershed will benefit from proposed investment intervention. In addition, owners of more than one hectare of land will not be part of the target group. The projected costs for carrying out these activities are about USD 1 000 000. The costs will include preliminary studies and acquisition of digital spatial data (USD 200 000); land registration activities (USD 600 000), capacity building for district, sectors and cells involved (USD 140 000) and an administrative cost (USD 60 000).

4. For land tenure, in its field activities, the project will aim to include issues of land consolidation, which is the domain of MINAGRI, and redistribution of improved land to the landless, which falls under the jurisdiction of the districts and MINIRENA. Modes of operation would need to be devised accordingly.

II. BACKGROUND

A. Land tenure security

5. Emerging countries in Africa are continuing to experience increasing extreme poverty that is affecting national development and growth. The predominant economic activity for the majority of people in these countries, including Rwanda, is agriculture. Food production and security are increasingly being affected by spells of dry seasons, soil quality and run-off rain water. Investing in modern agricultural methods, including water irrigation and soil water conservation, may be methods to improve food production and security. In addition, the importance of having tenure security for the agricultural activities can also participate in increasing productivity and opening up options for credit opportunities. Land tenure is the way in which land is held and owned. Evidence shows that increased security of tenure leads to investment in services. Secure land tenure and a free land market are some of the tools that can lead to higher levels of agricultural investment and productivity, providing a strong basis for national economic growth, development and poverty reduction.

6. In Rwanda, we have public and private land ownership with the state having supreme powers to manage national land. Land in Rwanda is held under customary, leasehold and freehold tenure systems. Customary tenure is probably the oldest system of land holding especially in the rural area. In this type of tenure, land use is governed by customary and cultural values on traditional and hereditary rights to land. Leasehold tenure involves a contract and a grant of an estate in land for a specific period of time; plots of land are leased out to the public by the government. In freehold tenure, the interest in land goes on in perpetuity; the advantage of this type of tenure lies in the fact that it encourages investment and security.

7. One of the advantages of formal land tenure is that it gives the owner some form of security when a title is obtained on the land. In addition, land tenure: facilitates the economic transformation in both urban and rural sectors by encouraging multi-sectoral growth through increased investment in the productive sectors; it also encourages good land use practices. In good land use practices, promotion of land consolidation is prioritized in the main stream practices of Ministry of Agriculture and Animal Resources (MINAGRI) and the Ministry of Natural Resources (MINIRENA). Land consolidation is actually the process of putting together small plots of land and re-organizing them in order to manage the land efficiently for increased productivity.

B. Land Registration and Titling

8. The actual process of securing land tenure is through land registration and titling. Land registration is a system of documenting land rights that can take various forms, from a centralized system of land titles to a village based register of claims to land; group or individual claims. In practice, land registration is generally associated with the process of issuing formal land titles. There are other forms of land registration recognized in Rwanda that record existing customary, freehold and leasehold rights to land that may provide less security to land. Land registration systems vary in their level of sophistication and cost; demarcation and adjudication, publication and review, titling and registration, dispute resolution and administrative responsibilities for the procedures. Most registration systems combine both a plan or survey map, with recorded proof ownership and nature of rights held. The design therefore, of the process for registering land rights has direct implications for its effectiveness, in terms of costs of services, speed of operation, management and maintenance.

C. Legal and regulatory framework

9. The National Land Policy of February 2004 provides a platform for a secure and stable form of land tenure, and brings about a rational and planned use of land while ensuring sound land management and an efficient land administration. It provides policy guidelines on tenure, land management and guidelines on how demarcation of agricultural land (Section 5.5.9) can be carried out. It also describes the use and management of rural land (Section 6.0); issues that are directly linked to tenure requirements for KWAMP.
10. The Organic Land Law No 08/2005 of 14th July 2005, which is the basis of a legal framework for land management and administration.
11. Presidential order determining the structure, the powers and the functioning of the office of the Registrar of Land titles No 53/01 of 12th October 2006, which establishes the highest office that issues full ownership titles on land.
12. Presidential order determining the structure, the responsibilities, the functioning and the composition of the land commissions No 54/01 of 12th October 2006, which are the governing bodies over the decentralized units that are responsible for land administration and management.
13. Ministerial order determining the structure of land registers, the responsibilities and functioning of the district land bureaus No 001/2006 of 26th September 2006, which are the offices responsible for land administration and management.
14. Ministerial order on expropriation No 18/2007 of 19th April 2007.
15. Most recently approved (March 2008) Ministerial order determining procedures of land registration which also has a provision for a Land Tenure Regularization manual.
16. Draft Law proposing and determining the structure, responsibilities and functioning of the National Land Centre (NLC); although the law is still a draft, the NLC is provided for in the organic land law and clearly authorizes the Registrar of Land Titles to carry out NLC duties until such a time that it will be legally established.

D. Institutional framework

17. Although the Ministry of Natural Resources has Land in its attribution, the National Land Centre is the implementing agency for land legal framework. Under the Land Centre is the Registrar of titles, Land Commissions and the District Land Bureaus. The National Land Commission is responsible for providing guidance to the operations of the NLC.
18. The NLC is therefore a crucial implementer of land tenure related issues in KWAMP and will be at the centre of activities. The implementation of Land registration will be done by Kirehe DLB while the registration of titles will be issued by the Land Registrar in charge of the Eastern Province.
19. Close collaboration will be required with the Ministry of Agriculture, especially on land use and consolidation of agricultural land.

E. Land tenure situation in Kirehe district

20. The land tenure situation in the Project Area differs significantly from that found in many other areas of Rwanda. Average holdings are typically larger and less fragmented than elsewhere in the country and land disputes are relatively rare, although perhaps increasing. After 1994, Kirehe district experienced large numbers of returning families, especially from Tanzania and Uganda as new settlers. Subsequently, the land that the returning families were allocated was drawn from either the subdivision of existing holdings or from the allocation of previously unoccupied land. Today, five sectors in Kirehe district are undergoing compulsory land re-distribution for owners with more than 25 hectares of land; to increase the number of people owning land.

21. The land tenure types existing in Kirehe district are either: customary, statutory or informal tenure. The statutory tenure has land that was allocated by government which did not have a standard size. Since most of the returning families that were being resettled after 1994 were livestock keepers, parcel sizes were allocated according to cattle size. Other statutory tenure holders generally have land for agricultural use. A distinct group in the informal tenure includes two categories: people using individual land belonging to others illegally, and people using state-owned land without permission.

22. The ongoing form of land demarcation is done using natural features, for instance shrubs or live hedges, and ownership is communally known. There are some plots of land that have statutory documents. The ongoing land re-distribution is actually being carried out to produce geographical references and enough information to create deed plans.

23. The project area is targeting 15 watersheds of approximately 2000 hectares each. In the KWAMP area, out of the 48 000 households expected to benefit from this project 17% are landless and 83% have less than one hectare of land. Although the specific watersheds to benefit from this project have not yet been identified, one will find that most of the land in the targeted areas is not registered to meet statutory requirements.

24. For land tenure, in its field activities, the project would aim at including the issues of land consolidation, which is the domain of MINAGRI, and redistribution of improved land to the landless, which falls under the jurisdiction of the districts and MINIRENA. Modes of operation would need to be devised accordingly.

F. Organizational structure for land administration in Kirehe district

25. Kirehe district, like all other districts in Rwanda, has established a District Land Bureau (DLB) and the District Land Commission (DLC). Out of the four members who are supposed to make up the DLB, three have already been recruited; the land officer, the land administrator and the topographer. Notwithstanding, the DLB does not have adequate capacity to handle the land administration workload. There is no readily available means of transport to go to the field; many times the client who requires a service provides the transport too. This compromises the service delivery and capacity to carry out development control. In addition the DLB offices do not have the modern infrastructure that enables efficient service delivery in record time. This refers to computers and software to manipulate spatial data and provide land documents using technological inventions. In order to build the capacity of the DLB to be able to process leases for beneficiaries and clients in general, KWAMP will need to invest in capacity building. Capacity building in this case will include: empowering the DLB with tools for land administration, providing technology and basic logistics to equip the project with start-up facilities for sustainable service delivery.

26. The DLB technically reports to the DLC which offers guidance on land matters and is also responsible for land disputes. The part time DLC members have been nominated but considering that they do not necessarily need to have a land background, the DLC member will require undergoing some general training on land issues. It is hoped that MINIRENA will be looking to carry out such knowledge enhancing programs.

27. The sectors' and cells' land committees are responsible for land allocation at their respective administrative units. According to Kirehe district management, these committees have already been established in all twelve (12) sectors and sixty (60) cells. These committees will be very instrumental in delivering community participatory requirements in implementing land registration. Some limited and basic form of training will be offered to these committees to specifically handle project duties assigned. Modest field allowances will also be required to facilitate their participation in the land adjudication and demarcation process.

III. PROBLEM STATEMENT

28. In the KWAMP area, out of the total households expected to benefit from this project 17% are landless and 83% have less than one hectare of land. Although the specific watersheds to benefit from this project have not yet been identified, most of the land in the targeted areas will not be registered to meet statutory requirements. The envisaged intervention of the project regarding strengthening land tenure security is to facilitate statutory land registration for project beneficiaries. It is hoped that this approach of providing statutory land rights to beneficiaries will encourage more productivity and individual investment in activities on the land. The acquisition of land documents can also be used as collateral in the process of acquiring loans or credits from financial institutions.

29. The ultimate beneficiaries of KWAMP will be the rural poor in the identified watersheds; to improve their livelihoods, levels of income and food security. Provision of land tenure security for the beneficiaries is expected to contribute to poverty reduction in general, and to the specific success of KWAMP. The largest cohort of the rural poor is made up of households that have less than one hectare of land and whose cereal production does not cover the needs of the family. The number of such households is estimated at 48 000, corresponding to a total population of about 253 000 people and 87% of the District's population, based on an average of 5.3 persons per household. Geographically, they spread across the whole district and, from a social standpoint, all livelihood profiles. This socioeconomic category includes specific groups that need special, targeted activities and would be given priority because of their vulnerability. Potential project beneficiaries will be clearly identified during further project design activities.

IV. OBJECTIVES

30. The overall objective of KWAMP is to contribute to rural poverty reduction, as indicated by increased household food security and incomes, irrigation, increased soil and water conservation and secure access to productive land. This will be expected to provide increased agricultural production and natural resource conservation.

31. The specific objectives of ensuring land tenure security in KWAMP are: to strengthen tenure security of family owned/occupied land, mainly on the hill-sides and; to strengthen security of tenure of individuals and groups that access state-owned land in the cultivated wetlands.

V. PURPOSE

- The first and primary purpose of incorporating land tenure in KWAMP design mission is to increase the effectiveness of the proposed levels of investment to truly reduce rural poverty. It is considered among all stakeholders that land tenure is a crosscutting issue in all rural poverty reduction investments.

- The second purpose is to facilitate farmers benefiting from poverty reduction interventions access to land.
- The third purpose is to contribute to a framework of land registration in rural areas, defined by the legal and regulatory framework, as being a requirement for all national land.
- The fourth purpose is to contribute to capacity building requirements for district, sectors and cells land administration offices in project area for sustainable land registration interventions.

VI. RESULTS

32. The following results are intended to achieve the above purpose:

- Better project performance vested in the benefits of land tenure security;
- All farmers benefitting from poverty reduction interventions having access to land with registered rights (statutory /customary);
- All land under project area registered, especially land under specific investment interventions;
- Greater capacity installed within governmental organizations (especially local government) and civil society organizations to address land tenure needs.

VII. PROPOSED METHODOLOGY

33. This activity will support the development of cell-level maps within each watershed indicating patterns of land use and the identity of the people and households using individual parcels of land. This process of identification of uses of individual land will encompass both formal and informal land users. ¹Participatory community mapping techniques will be combined with basic survey approaches using Global Positioning Systems. For effective administration of these services, it is proposed to outsource the survey work and generation of documents that can facilitate registration to a service provider. Under the ownership of the district land bureau, the information generated will be referred for adjudication and registration of land ownership. The service provider will be expected to use this information, along with cadastral surveys to generate documents that can be a basis for leasing or titling; the official forms for formal land holding. It was envisaged that the information generated in this money will go a long way in facilitating land dispute resolution. The district land bureau, sector and cells land administration offices will require capacity building and modest logistics (like transport and eventualities allowances) during their required field interventions. For capacity building, it is expected that training courses, manuals and supporting tools such as handbooks, guidelines and other reference materials will be provided. Specialized training shall be provided to District Land Offices and Cell and Sector Land Committees in the use of maps for land demarcation purposes. Additional and detailed training will be given to district officers on how to handle land administration procedures in an efficient and effective manner to promote continuity of services. Some office material will be supplied (computers and related software) during this capacity re-enforcement program. Technical assistance (international and local) shall be required in the first three months to produce the preliminary documents as defined in this section, below. Close supervision and monitoring of activities will have to be maintained during the implementation phase, subsequent fifteen months, through technical assistance.

34. Kirehe district is characterized by three types of tenure that will be targeted during project execution. The different tenure will require different approaches leading to either full ownership of leasing arrangements. Informal land holding on state owned land will first require for state land to be

¹ Formal land occupancy refer to land with customary/statutory tenure and informal land occupancy refers to land being used/occupied without rights over it.

registered with title, followed by leasing. State land for agricultural use can only be leased to groups of people for a maximum of twenty years. Informal land holding on private owned land will also require for land to be registered under rightful owner, and then followed by issuance of user rights for an agreed period of time. This land can also be upgraded to beneficiary ownership if land transactions are carried out. In the case that the ownership of the land reverts to the beneficiary, then the land can be registered under full ownership. Customary land holding on the other hand can have two ways of registration; issuance of a certificate of ownership or a land title. The later is more credit friendly than the former since it is issued by the highest office of registration of titles. It is important to identify these different types of tenure needs in the preliminary preparations before field work commences.

VIII. ACTIVITIES

A. Preliminary preparation

35. Identification of project area: To this end the information available shows that the project will cover 15 watersheds across the district of Kirehe. Each watershed will comprise of at least 2000 hectares of land; with an approximate 1500 hectares, per watershed, directly benefiting from KWAMP investments in irrigation and soil and water conservation. This is the priority area for ensuring land tenure security. The actual identification and delimitation of the area has to be done under the development of watershed management plans as defined in the project design main report. Therefore, the project area has to be identified.

36. Identification of land use in watershed: This stage is very important since it ensures that the area to be registered conforms to designated land uses. The role of the district in designating these land uses is very crucial. The product of this activity will be an endorsed document describing the different land uses for every watershed.

37. Designing land tenure implementation program for each watershed: The first sub activity here will be the identification of land tenure needs in each watershed and providing exact estimates of land to be registered, per watershed. During this exercise, precise tenure types existing in the specified area will be determined and procedures manual for registration of each will be compiled. This process will also identify areas that will require land consolidation. The land tenure implementation program will also provide the duration, exact costs and phased implementation.

38. Identifying implementing partners: It is envisaged that the project implementation will be a joint effort involving government, United Nations agencies and other donors interested in the subsector of agriculture. For the implementation of the land tenure component, collaborative activities between MINAGRI, MINIRENA, MINALOC, the National Land Centre and related projects within the specified ministries will be required. In addition, the identification/selection of service providers will be required. It is expected that IFAD will be the main financier; additional financing organizations will have to be identified. This activity will be carried out under the auspices of the KWAMP project management team.

B. Watershed specific activities

39. Dissemination of importance of land tenure and requirements by the land law to have all land registered: This is a public awareness campaign for both local leaders and beneficiaries, which spells out the procedures for land registration and identifies the role of each in the process. In this activity, *imidugudu*², cell and sector leaders are sensitized to take centre stage in encouraging a positive

² *Imidugudu* are the smallest administrative units with an average of 100 households/house units

response among beneficiaries. At this stage the direct beneficiaries are informed of the benefits of registration and are encouraged to participate in the adjudication process.

40. Assembling maps, spatial and attribute data on land for watershed: In preparation for field work, it is important to collect as much information as possible on the land and land records. These preparations will require identification of existing land records, maps, any existing surveys/cadastral control points and existing vector and raster spatial data, if any. This stage can also be called a reconnaissance stage.

41. Participatory Identification and adjudication of statutory land: During this stage, beneficiaries together with local leaders participate in the process of identifying individual owners of parcels of land and the parcel limits. This process ensures a quick production of attribute data on land parcels that will later be recorded for certification. Public participation ensures authenticity of land data being recorded.

42. Participatory demarcation and registration of land: This process is where physical delimitations of plots of land are made from which unique co-ordinates are generated that describe the geographical location of the parcel³. This data is used in deed plan preparation.⁴ However, before proceeding to deed plan production which requires a lot of administrative land, a temporary certificate of ownership can be issued for the comfort of beneficiaries. It also serves to reward them for their participation with immediate ‘ownership’ returns.

43. Compilation of registers of land and preparation of leases/titles: The information thus far collected can be used to register land for leasehold or freehold ownership. The cadastral information and ownership data can now be used to prepare deed plans that can be processed for leases or full titles. This will largely depend on the existing holding on land: informal holding on state-owned land and individual land will automatically translate into leases unless land transactions occur. Customary land, on the other hand, can automatically be registered for full ownership, like all private individual land holdings. This process will by and large be the responsibility for the District Land Bureau (for leases), the National Land Centre (for title registration); basing on data generated by a private surveying team (service provider). It is also important to note that, any disputed land will have to first undergo scrutiny by the land commissions at relevant levels; in the event of an existing dispute, land cannot be registered.

44. Issuance of documents: Issuance of legal documents will solely be handled by the National Land Centre and its decentralized offices. However, issuance of these documents will require payment of a ‘registration fee’, prescribed by the Minister of Natural Resources upon consultations with the Minister of Finance and Economic Planning.⁵

C. Capacity building activities

45. Identifying specific capacity building needs at district, sectors and cells levels: During field visits to the district and sector of Gatore offices, capacity building needs were generally identified (refer to organizational structure in 2.0). However, detailed identification for specific training requirements, in material, time and relevant expertise, will be required for each target group defined.

³ The demarcation process will not include beaconing; natural existing boundaries will be maintained or proposed where absent and the co-ordinates marking the parcel boundary will be recorded.

⁴ A deed plan is a cadastral reference of a parcel showing location, ownership, co-ordinates and land use for the specified parcel. This is the document used to obtain titles. In the event of not issuing a title immediately, the deed plan can be a basis for a lease period.

⁵ This is provided for by the Ministerial order determining modalities of land registration; that has been cabinet approved though not yet published by the time this document was being prepared.

Emphasis of training will be around Land Management Information Systems, modern geomatics engineering tools, legal and regulatory tools and land administration. In addition to training needs, infrastructure requirements for building district capacity shall be identified. It is projected that the requirements will include at least three computers with sufficient capacity to handle and process spatial data, A4 and A3 printers, network cabling and an A0 plotter if possible.

46. Designing training program: The above activity will be followed by a time bound capacity building program that will also identify the required training instruments. Staff at DLB should receive more specific and intensive technical programs (between 2-8 weeks), while the DLC and sectors' and cells' land committees will receive general guidelines on legal and regulatory tools and land administration techniques (not more than 1 week).

47. Designing training manuals: Before training can commence, training manuals will have to be developed. These manuals will not only provide a framework for training, but will offer continuous support as reference material for the period beyond training.

48. Implementing training requirements: This activity is essentially the period for actual training and will be carried out either by a service provider or through technical assistance.

49. Purchasing infrastructure requirements: This activity includes procuring and provision of infrastructure requirements for capacity building of Kirehe district land bureau. Procurement services should be provided by the KWAMP project management and an agreement of maintenance should be arrived at with the district management.

D. Management and administration activities

50. The final land tenure security activity in the KWAMP area would comprise the management of the programme within the district, supported professionally by external quality control and technical supervision. The main management tasks would be the articulation of national and overall work programmes and budgets, the recruitment and supervision of Technical Assistance (TAs), service providers and the organization of dissemination and collaboration of activities among stakeholders. The effective discharge of these functions will be based on contract-based delivery systems working alongside local government offices responsible for land administration.

51. Provision is included for the conduct of a participatory review of land ownership, led by local elected leaders (including grass root leaders) to ensure objectivity, to guide the implementation and, if justified, to instigate preparations for replication by the district management in other areas not under KWAMP.

IX. COST ESTIMATES

52. The cost estimates provided in Table 5 of Working Paper 11 (Project Costs and Financing) are based on the activities already described. The following are further descriptive notes on Table 5:

- Acquiring base maps: This process involves purchasing of high resolution satellite images that undergo technical processing to produce base maps at a scale of 1/2000. These base maps are required for effective mass registration since they provide data on every existing feature on the ground (detail up to 3m coverage). Kirehe does not have such maps presently. The National Land Tenure Regularization Program in the MINIRENA has some satellite image data that covers up to three quarters of Kirehe District; hopefully the watersheds to be

identified will be covered by the available images. However, these images are still in their raw form and will require processing. The nearest place that has high resolution raster conversion machines is Nairobi. These activities will cost up to USD 100 000.

- **Technical Assistance:** In the preliminary preparations, TA will be required for at least 90 working days for the generation of all the embedded studies. The daily rate for a TA has been calculated at USD 500. Similarly, it is envisaged that during project implementation, TA will be required for quality control and supervision. This will cover 60 days in a period of 15 months of activities implementation; an average of four days per watershed. The 15 months were arrived at within an ambitious projection of covering a watershed (2000 hectares) per month.
- **Land registration activities:** The average of cost of surveying, demarcation and deed plan production per hectare has been projected for USD 30. This cost was arrived at by extrapolating costs incurred during the MINIRENA Land Tenure Regularization trials; to include component of private sector participation. USD 30 is a very nominal fee; this is because availability of base maps can allow mass ground coverage per day, especially on agricultural land. The unavailability of base maps will affect this value to go up by more than 200%.

APPENDIX 1

REFERENCE DOCUMENTS

All laws and implementing Instruments on land, land use, land tenure and land registration policy as indicated in section 2.3 of this document.

Department for International Development (DFID), MINITERRE: Overview of Rwanda's Land Policy and Land Law and Key Challenges for Implementation, Briefing Document, Prepared by Harold Liversage, February 2003.

DFID (2000): Evolving land rights, policy and tenure in Africa: Edited by Camilla Toulmin and Julian Quan

Republic of Rwanda 2004: National Settlement Policy

Republic of Rwanda, MINITERRE, DFID (2007 a): Phase 1 of the Land Tenure Reform Program for Rwanda; Developing the Strategic Road Map, January 2007.

Republic of Rwanda, MINITERRE, DFID (2007 b): Urban Land administration and tenure security in Rwanda, final report, Prepared by Geoffrey Payne, August 2007.

Republic of Rwanda, MINITERRE: Operations Manual for the Regularization of Land Tenure in Rwanda, Draft, February 2007.

IFAD 2004: Collaborative Action on Land Uses, Program Formulation, Phase 1: Niger and Uganda, Draft Version 4, April 2004

IFAD 2008: Kirehe Community-based Watershed Management Project, Project Design Project, Main Report, February 2008.

www.ifad.org/operations/pf: Resource documents on projects funded by IFAD in Rwanda

Land in Africa Market Asset of Secure Livelihood? Proceedings and summary of conclusions from the land in Africa conference held in London November 8-9, 2004; Edited by Julian Quan, Su Fei Tan and Camilla Toulmin.

REPUBLIC OF RWANDA

KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT

(KWAMP)

**PROGRAMME DESIGN DOCUMENT
FINAL DESIGN**

WORKING PAPER 11

PROJECT COSTS AND FINACING

REPUBLIC OF RWANDA
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT
(KWAMP)

PROGRAMME DESIGN DOCUMENT
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WORKING PAPER 11
PROJECT COSTS AND FINACING

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REPUBLIC OF RWANDA

KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT

(KWAMP)

**PROGRAMME DESIGN DOCUMENT
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WORKING PAPER 11

PROJECT COSTS AND FINACING

I. MAIN ASSUMPTIONS

1. **Introduction.** This section describes the assumptions underlying the derivation of project costs, estimated project costs and financing plan. Project costs are based on April 2008 prices.
2. **Project Period.** The proposed project would be financed over a seven-year period.
3. **Inflation.** The *Economist Intelligence Unit* and the Government have forecast an annual inflation rate averaging 7.3% for 2008, and 7.5% for the following years of expected project implementation. These estimates were used for this analysis.
4. **Exchange Rate.** Since March 1995, The National Bank of Rwanda's monetary and foreign exchange policy provides for a free floating exchange rate. The RWF is expected to depreciate slightly both nominally and in real terms against the USD largely as a result of an expected deterioration in the trade deficit and the strengthening of the dollar in the forecast period. The Base Exchange rate for this analysis has been set at RWF 550 to USD 1.00 up to project start-up, and at RWF 650:1 for the following years of expected project implementation. Programme costs are presented in both RWF and USD. Conversions from current USD values into RWF use the following constant purchasing power exchange rates:

Table 1: Constant Purchasing Power Exchange Rates (RWF/USD)

Up to Project Start-up	PY1	PY2	PY3	PY4	PY5	PY6	PY7
550	568	604	644	687	733	781	834

5. **Taxes and Duties.** The items to be imported for the project attract import and excise duties of varying proportions between 5 and 30%, and a value-added tax of 18% is levied on all imported goods and locally produced. A list of items and activities foreseen under the project along with their tax and excise duties are listed below:

Vehicle Taxes

- 18% VAT
- 30% import tax.

Equipment and Materials

- 18% VAT

International Technical Assistance

no taxes applied.

National Technical Assistance

no taxes applied.

Civil Works

exempt from VAT.

6. The Government would finance the cost of all taxes on goods procured under the project, or would waive the duties and taxes.

7. **Expenditure Accounts.** The expenditure accounts, together with the breakdown of taxes, physical contingencies and the average rates for foreign exchange used in the analysis are shown in Table 2 below. Physical contingencies have only been applied to items for which the required amounts could not reasonably be estimated such as all civil works and training. Under the PAPSTA, contractors undertaking civil works were exempt from VAT; a procedure that is expected to be continued under KWAMP.

Table 2: Expenditure Accounts

Description	Taxes	Physical Contingency	Foreign Exchange
Investment Costs			
A. Civil Works	0	15%	20%
B. Investment Fund	0	0	0
C. Vehicles	46%	0	100%
D. Equipment and Materials	19%	0	75%
E. Studies	15%	0	50%
F. Training	0	5%	20%
G. Contracts	15%	0	0
H. Technical Assistance			
International TA	0	0	100%
National TA	0	0	0
Recurrent Costs			
A. Salaries and Allowances	0	0	0
B. Operating and Maintenance	15%	5%	40%

8. **Food for Work Activities.** IFAD's partnership with WFP through food-for-work activities under the Support Project for the Strategic Transformation of Agriculture (PAPSTA) is expected to be continued under the proposed project. WFP's development projects pay workers with food to build vital infrastructure such as irrigation, terracing, soil and water conservation. A number of soil and water conservation activities under the project would be carried out by the community under the food-for-work programme in line with the procedures employed by PAPSTA. The PCU would submit food-for-work proposals to WFP based on the Annual Work Plans and Budgets (AWPBs) to be prepared based on WFP unit cost estimates. Selected current estimates are presented in the table 3 below.

Table 3: Food for Work unit costs

Activity type	Unit	Person-day per unit	Food per unit (t)	Cost per unit (USD)
Erosion control with trenches	ha	109	0.39	290
Tree planting & forest rehabilitation	ha	206	0.74	548

II. PROJECT COSTS

9. The total investment and incremental recurrent project costs, including physical and price contingencies, are estimated at USD 49.3 million (RWF 33.0 billion). Physical and price contingencies make up 8% of the project. The foreign exchange component is estimated at USD 9.5 million or about 19% of the total project costs. Taxes amount to approximately USD 1.2 million. Funds allocated to project management, totalling USD 2.4 million, or about 5% of the total project base costs. Summary tables and detailed cost tables are presented in Appendices I and II to this Working Paper.

Table 4: Project Costs by Component

Component	Project Costs		% of Base Costs
	RWF million	USD '000	
1. Local institutional development	3 558	6 468	14%
1.1 Support to agricultural transformation	2 038	3 705	8%
1.2 Water and land use management	1 520	2 763	6%
2. Agricultural intensification	16 143	29 350	64%
2.1 Value chain development	1 672	3 040	7%
2.2 Crop and livestock intensification	3 518	6 397	14%
2.3 Irrigation development	6 996	11 392	25%
2.4 Soil and Water Conservation	4 687	8 522	19%
3. Feeder roads	4 074	7 407	16%
4. Project coordination	1 286	2 339	5%
Total Baseline Costs	25 060	45 564	100%
Physical Contingencies	1 513	2 750	6%
Price Contingencies	6 379	1 014	2%
Total Programme Costs	32 951	49 328	108%

Note: Arithmetic sums may not correspond with their parts due to rounding.

Table 5: Project Costs by Expenditure Account

	(RWF Million)			(USD '000)			Foreign Exchange	Base Costs
	Local	Foreign	Total	Local	Foreign	Total		
I. Investment Costs								
A. Civil Works	11 074.0	2 768.5	13 842.6	20 134.6	5 033.7	25 168.3	20	55
B. Investment Fund	2 468.4	-	2 468.4	4 488.0	-	4 488.0	-	10
C. Vehicles	175.2	205.7	380.9	318.6	374.0	692.5	54	2
D. Equipment and Materials	74.9	224.7	299.7	136.2	408.6	544.8	75	1
E. Training and Studies	2 411.0	448.9	2 859.9	4 383.7	816.2	5 199.8	16	11
F. Technical Assistance								
International TA	-	1 015.1	1 015.1	-	1 845.6	1 845.6	100	4
National TA	623.0	-	623.0	1 132.8	-	1 132.8	-	2
Subtotal Technical Assistance	623.0	1 015.1	1 638.1	1 132.8	1 845.6	2 978.4	62	7
G. Service Contracts	2 396.7	-	2 396.7	4 357.6	-	4 357.6	-	10
Total Investment Costs	19 223.3	4 662.9	23 886.2	34 951.5	8 478.0	43 429.5	20	95
II. Recurrent Costs								
A. Salaries and Allowances	860.4	-	860.4	1 564.3	-	1 564.3	-	3
B. Operation and Maintenance	172.4	141.1	313.5	313.5	256.5	570.0	45	1
Total Recurrent Costs	1 032.8	141.1	1 173.9	1 877.8	256.5	2 134.3	12	5
Total BASELINE COSTS	20 256.1	4 804.0	25 060.1	36 829.3	8 734.5	45 563.8	19	100
Physical Contingencies	1 206.2	306.3	1 512.5	2 193.1	557.0	2 750.1	20	6
Price Contingencies	5 084.8	1 293.8	6 378.6	807.5	206.7	1 014.3	20	2
Total PROJECT COSTS	26 547.1	6 404.2	32 951.2	39 829.9	9 498.3	49 328.2	19	108

10. Cost-wise, the largest activities are the productive investments by the project. The Irrigation development subcomponent, the Soil and Water Conservation subcomponent and the Crop and livestock intensification subcomponent constitute 25%, 19% and 14%, respectively, of the total

project base costs. Another main activity will be the feeder road investments, which make up 16% of base costs.

III. FINANCING

11. The project would be funded mainly by IFAD, WFP and the government of Rwanda. IFAD would provide two grants: an initial one of USD 20.4 million (41%), and a second one of USD 6.3 million (13%) for irrigation activities for the second half of the project once additional funds are made available. The WFP contribution (USD 8.1 million, or 17%) would finance food-for-work activities under the Soil and Water Conservation sub-component. In addition, the German Development Service (DED) would finance the equivalent of USD 0.5 million in-kind for technical assistance to support farmer organization capacity building in the performance of critical service contracts.

12. The total government contribution is estimated at USD 9.5 million (19%), to be provided by central government (USD 7.6 million, or 15%) and by the Kirehe district government (USD 2.0 million, or 4%). Apart from financing foregone taxes and duties, the central government will finance most of the road rehabilitation activities under the project (USD 6.6 million), the salaries and allowances of the WUA Support Section in RADA after PY4 as well as the steering committee costs. The Kirehe district government will finance the recurrent costs after PY4 of the additional staff and operating in the district headquarters the CCIs and the CLGS, as well as the full maintenance costs of the roads rehabilitated under the project. Approximately USD 3.1 million (6%) would be provided by the beneficiaries (participating households and farmers), about half as contributions to the livestock development and the other half as contributions to small-scale irrigation infrastructure. In addition, USD 1.3 million (3%) would be provided by the private partners participating in the value chain development activities.

13. Under the initial IFAD grant, an amount of about USD 250 000 will be made available under retroactive financing arrangements, as four activities will be implemented by PAPSTA in preparation for project implementation: (i) the preparation of the District watershed and irrigation plan; (ii) the preparation of additional implementation manuals; (iii) the preparation of the first AWPB; and (iv) the baseline survey for the project.

14. Tables 6 and 7 below provide a summary by project components and disbursement accounts. Additional summary financing tables are provided in Appendix 1.

Table 6: Financing Plan by Components (USD thousand)

	IFAD initial grant Amount	IFAD 2nd grant Amount	WFP Amount	DED Amount	Beneficiaries Amount	Private Sector Amount	Central Government Amount	District Government Amount	Total Amount
A. 1. Local institutional development									
1.1 Support to agricultural transformation	2 788	-	-	471	20	-	151	402	3 832
1.2 Water and land use management	2 625	-	-	-	-	-	202	27	2 854
Subtot 1. Local institutional development	5 413	-	-	471	20	-	353	429	6 687
B. 2. Agricultural intensification									
2.1 Value chain development	1 802	-	-	-	-	1 250	23	-	3 075
2.2 Crop and livestock intensification	4 862	-	-	41	1 439	-	384	-	6 725
2.3 Irrigation development	4 818	6 324	-	-	1 596	-	14	-	12 752
2.4 Soil and Water Conservation	1 219	-	8 130	-	-	-	77	-	9 426
Subtotal 2. Agricultural intensification	12 700	6 324	8 130	41	3 035	1 250	498	-	31 978
C. 3. Feeder roads	-	-	-	-	67	-	6 628	1 526	8 221
D. 4. Project coordination	2 332	-	-	-	-	-	110	-	2 443
Total PROJECT COSTS	20 446	6 324	8 130	511	3 123	1 250	7 590	1 955	49 328

Table 7: Financing Plan by Disbursement Accounts (USD thousand)

	IFAD initial grant	IFAD 2nd grant	WFP	DED	Benefic.	Private Sector	Central Government	District Government	Total
	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount
Civil Works	4 811	5 344	8 130	-	3 103	-	5 451	1 526	28 364
Investment Fund	3 238	-	-	-	-	1 250	-	-	4 488
Vehicles, Equipment and Materials	597	-	-	-	-	-	657	-	1 254
Training, Technical Assistance, Studies and Service Contracts	10 071	980	-	511	20	-	1 389	27	12 999
Salaries and Allowances	1 280	-	-	-	-	-	-	330	1 610
Operation and Maintenance	449	-	-	-	-	-	92	73	613
Total PROJECT COSTS	20 446	6 324	8 130	511	3 123	1 250	7 590	1 955	49 328

IV. DISBURSEMENTS AND PROCUREMENT

A. Disbursements

15. The IFAD grants, as well as the other financing will be disbursed over a period of seven years. The estimated disbursement schedule for the IFAD loan would be against grant categories that would follow the categories established by the IFAD loan for PAPSTA. Disbursements from IFAD would be into a separate Special Account operated by the PCU. The use of certified Statements of Expenditures (SOEs) would be permitted. The authorised allocation of the Special Account would be USD 1.5 million (equivalent to the requirements for the first six months, minus the direct disbursements that can be expected). The financial procedures used by the project would be the same as those used for PAPSTA. No taxes and duties would be financed out of the proceeds of the IFAD grants.

B. Procurement

16. Procurement of goods and services financed by the IFAD grant would be subject to the provisions of IFAD's Procurement Guidelines.¹ Procurement of equipment, materials and vehicles would be bulked together, to the extent possible, and carried out by the PCU. Procurement methods would be specified in the grant agreement and determined for each contract in the AWPBs submitted for IFAD no-objection, in accordance with national procurement guidelines and in line with IFAD approved procedures.

¹ Currently the IFAD Procurement Guidelines, 2004.

Table 1. Decentralised structures (Comp 1.1 Support to Agricultural Transformation)
Detailed Costs USD

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Table 1. Decentralised structures (Comp 1.1 Support to Agricultural Transformation)
Detailed Costs (USD)

	Unit	Quantities								Unit Cost	Base Cost ('000)								Grant Category	Financing Rule
		2009	2010	2011	2012	2013	2014	2015	Total		2009	2010	2011	2012	2013	2014	2015	Total		
I. Investment Costs																				
A. Vehicles																				
Motorbikes (four stroke) /a	number	6	-	-	3	6	-	3	18	4.500	27.00	-	-	13.50	27.00	-	13.50	81.00	Cat. 3	IFAD_1
B. Office Equipment																				
Computers with printers	number	6	-	-	9	-	-	-	15	2.000	12.00	-	-	18.00	-	-	-	30.00	Cat. 3	IFAD_1
Laptop	number	4	-	-	4	-	-	-	8	2.500	10.00	-	-	10.00	-	-	-	20.00	Cat. 3	IFAD_1
Video-beamer	number	1	-	-	1	-	-	-	2	2.000	2.00	-	-	2.00	-	-	-	4.00	Cat. 3	IFAD_1
Communication equipment	lumpsum	1	-	-	1	-	-	-	2	5.000	5.00	-	-	5.00	-	-	-	10.00	Cat. 3	IFAD_1
Office furniture	lumpsum	6	-	-	3	-	-	-	9	500	3.00	-	-	1.50	-	-	-	4.50	Cat. 3	IFAD_1
GIS equipment /b	number	1	-	-	-	-	-	-	1	4.000	4.00	-	-	-	-	-	-	4.00	Cat. 3	IFAD_1
GIS software	set	1	-	-	-	-	-	-	1	2.182	2.18	-	-	-	-	-	-	2.18	Cat. 3	IFAD_1
Subtotal Office Equipment										38.18				36.50				74.68		
C. Training																				
Training of district and sector staff /c	lumpsum	1	1	1	1	1	-	-	5	36.364	36.36	36.36	36.36	36.36	36.36	-	-	181.82	Cat. 4	IFAD_1
D. National Technical Assistance																				
GIS Expert /d	pers-day	50	25	25	-	-	-	-	100	300	15.00	7.50	7.50	-	-	-	-	30.00	Cat. 4	IFAD_1
Total Investment Costs										116.55	43.86	43.86	86.36	63.36			- 13.50	367.50		
II. Recurrent Costs /e																				
A. Salaries and Allowances /f																				
Value Chain Development Officer	pers-year	1	1	1	1	1	1	1	7	7.500	7.50	7.50	7.50	7.50	7.50	7.50	7.50	52.50	Cat. 5	IFAD_1 for PY1-4; Distr.Govt. for PY 5-7
Water Management Officer	pers-year	1	1	1	2	2	2	2	11	7.500	7.50	7.50	7.50	15.00	15.00	15.00	15.00	82.50	Cat. 5	IFAD_1 for PY1-4; Distr.Govt. for PY 5-7
Water Management Field Facilitators	pers-year	2	2	2	4	4	4	4	22	3.400	6.80	6.80	6.80	13.60	13.60	13.60	13.60	74.80	Cat. 5	IFAD_1 for PY1-4; Distr.Govt. for PY 5-7
Irrigation Technician	pers-year	1	1	1	1	1	1	1	7	7.500	7.50	7.50	7.50	7.50	7.50	7.50	7.50	52.50	Cat. 5	IFAD_1 for PY1-4; Distr.Govt. for PY 5-7
Natural Resource Management Officer	pers-year	1	1	1	1	1	1	1	7	7.500	7.50	7.50	7.50	7.50	7.50	7.50	7.50	52.50	Cat. 5	IFAD_1 for PY1-4; Distr.Govt. for PY 5-7
Subtotal Salaries and Allowances										36.80	36.80	36.80	51.10	51.10	51.10	51.10	51.10	314.80		
B. Operation and Maintenance																				
Motorbike operating & maintenance	item-year	6	6	6	9	9	9	9	54	700	4.20	4.20	4.20	6.30	6.30	6.30	6.30	37.80	Cat. 6	IFAD_1 for PY1-4; Distr.Govt. for PY 5-7
Office operating & maintenance	item-year	1	1	1	1	1	1	1	7	3.000	3.00	3.00	3.00	3.00	3.00	3.00	3.00	21.00	Cat. 6	IFAD_1 for PY1-4; Distr.Govt. for PY 5-7
Subtotal Operation and Maintenance										7.20	7.20	7.20	9.30	9.30	9.30	9.30	9.30	58.80		
Total Recurrent Costs										44.00	44.00	44.00	60.40	60.40	60.40	60.40	60.40	373.60		
Total										160.55	87.86	87.86	146.76	123.76	60.40	73.90	741.10			

/a Includes replacements after 4 years.

/b Computer, map printer/plotter and GPS operated by Natural Resource Management Officer

/c Includes training for twelve sector staff and eight district staff plus refresher courses.

/d On-the-job training of the Natural Resources Management Officer and the Irrigation Technician.

/e To be financed by the District Administration in PY5 and thereafter.

/f The full-time positions are at local government salary level, to be integrated into the district staffing structure.

Table 2. Community Centres for Innovation (Comp 1.1 Support to Agricultural Transformation)

Detailed Costs USD

Republic of Rwanda

KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)

Table 2. Community Centres for Innovation (Comp 1.1 Support to Agricultural Transformation)

Detailed Costs (USD)

	Unit	Quantities							Unit Cost	Base Cost ('000)							Grant Category	Financing Rule		
		2009	2010	2011	2012	2013	2014	2015		Total	2009	2010	2011	2012	2013	2014			2015	Total
I. Investment Costs																				
A. Civil Works																				
Construction of premises for CCI	number	3	-	-	-	-	-	-	3	75.000	225.00	-	-	-	-	-	225.00	Cat. 3	IFAD_1	
B. Vehicles																				
Motorbikes (four stroke) /a	number	-	6	-	3	-	6	3	18	4.500	-	27.00	-	13.50	-	27.00	13.50	81.00	Cat. 3	IFAD_1
Bicycles for Personnes Ressources /b	number	100	100	100	-	-	-	-	300	100	10.00	10.00	10.00	-	-	-	-	30.00	Cat. 3	IFAD_1
Subtotal Vehicles											10.00	37.00	10.00	13.50	-	27.00	13.50	111.00		
C. Equipment and Materials																				
Computers	number	-	12	-	-	-	-	-	12	2.000	-	24.00	-	-	-	-	-	24.00	Cat. 3	IFAD_1
Laser Printer	number	-	3	-	-	-	-	-	3	727	-	2.18	-	-	-	-	-	2.18	Cat. 3	IFAD_1
Scanner	number	-	3	-	-	-	-	-	3	309	-	0.93	-	-	-	-	-	0.93	Cat. 3	IFAD_1
Digital camera	number	-	3	-	-	-	-	-	3	327	-	0.98	-	-	-	-	-	0.98	Cat. 3	IFAD_1
TV and DVD player	set	-	3	-	-	-	-	-	3	1.000	-	3.00	-	-	-	-	-	3.00	Cat. 3	IFAD_1
CCI furniture /c	set	-	3	-	-	-	-	-	3	1.818	-	5.45	-	-	-	-	-	5.45	Cat. 3	IFAD_1
Solar Panel /d	set	-	3	-	-	-	-	-	3	2.000	-	6.00	-	-	-	-	-	6.00	Cat. 3	IFAD_1
Library supplies	number	-	3	3	3	0.25	0.25	0.25	9.75	2.000	-	6.00	6.00	6.00	0.50	0.50	0.50	19.50	Cat. 3	IFAD_1
Publications (including bulletins)	amount										-	8.00	8.00	8.00	8.00	2.00	2.00	36.00	Cat. 3	IFAD_1
Subtotal Equipment and Materials											-	56.55	14.00	14.00	8.50	2.50	2.50	98.05		
D. Training and Studies																				
Community Capacity Building Fund	amount										175.00	175.00	175.00	175.00	175.00	125.00	-	1 000.00	Cat. 4	IFAD_1
E. Technical Assistance																				
International Coach for CCIs	pers-month	-	1	-	-	-	-	-	1	22.000	-	22.00	-	-	-	-	-	22.00	Cat. 4	IFAD_1
National Coach for CCIs /e	pers-month	-	6	3	3	-	-	-	12	3.750	-	22.50	11.25	11.25	-	-	-	45.00	Cat. 4	IFAD_1
Subtotal Technical Assistance											-	44.50	11.25	11.25	-	-	-	67.00		
F. Investment Funds																				
Community competitions /f	number	-	15	30	45	45	45	30	210	1.000	-	15.00	30.00	45.00	45.00	45.00	30.00	210.00	Cat. 2	IFAD_1
Total Investment Costs											410.00	328.05	240.25	258.75	228.50	199.50	46.00	1 711.05		
II. Recurrent Costs /g																				
A. Salaries and Allowances																				
CCI Manager (gérant)	pers-year	-	3	3	3	3	3	3	18	6.500	-	19.50	19.50	19.50	19.50	19.50	19.50	117.00	Cat. 5	IFAD_1 for PY1-4; Distr.Govt. for PY 5-7
CCI Animator	pers-year	-	6	6	6	6	6	6	36	4.400	-	26.40	26.40	26.40	26.40	26.40	26.40	158.40	Cat. 5	IFAD_1 for PY1-4; Distr.Govt. for PY 5-7
CCI Secretary accountant	pers-year	-	3	3	3	3	3	3	18	3.000	-	9.00	9.00	9.00	9.00	9.00	9.00	54.00	Cat. 5	IFAD_1 for PY1-4; Distr.Govt. for PY 5-7
Subtotal Salaries and Allowances											-	54.90	54.90	54.90	54.90	54.90	54.90	329.40		
B. Operation and Maintenance																				
Motorbike operating & maintenance	year	-	6	6	9	9	9	9	48	700	-	4.20	4.20	6.30	6.30	6.30	6.30	33.60	Cat. 6	IFAD_1 for PY1-4; Distr.Govt. for PY 5-7
Office operating & maintenance	item-year	-	3	3	3	3	3	3	18	1.500	-	4.50	4.50	4.50	4.50	4.50	4.50	27.00	Cat. 6	IFAD_1 for PY1-4; Distr.Govt. for PY 5-7
Building maintenance for CCIs	item-year	-	-	3	3	3	3	3	15	2.000	-	-	6.00	6.00	6.00	6.00	6.00	30.00	Cat. 6	IFAD_1 for PY1-4; Distr.Govt. for PY 5-7
Total Recurrent Costs											-	63.60	69.60	71.70	71.70	71.70	71.70	420.00		
Total											410.00	391.65	309.85	330.45	300.20	271.20	117.70	2 131.05		

/a Includes replacements after 3-4 years.

/b For 20 farmer-extensionists per watershed.

/c General furniture and equipment for offices, library and conference facility.

/d Includes panel, batteries etc.

/e For coaching and operational support for CCIs; includes allowances.

/f Includes prizes, travel for jury members and costs related to award ceremony (materials, drinks).

/g To be financed by the District Administration in PY5 and thereafter.

Table 3. Farmer Organizations (Comp 1.1 Support to Agricultural Transformation)
Detailed Costs USD

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Table 3. Farmer organizations (Comp 1.1 Support to Agricultural Transformation)
Detailed Costs (USD)

	Unit	Quantities								Unit Cost	Base Cost ('000)								Grant Category	Financing Rule						
		2009	2010	2011	2012	2013	2014	2015	Total		2009	2010	2011	2012	2013	2014	2015	Total								
I. Investment Costs																										
A. Vehicles																										
Motorbikes (four stroke) /a	number	-	2	2	-	-	-	-	4	4.500	-	9.00	9.00	-	-	-	-	18.00	Cat. 3	IFAD_1						
B. Workshops																										
Farmer organisation workshops (Kirehe district) /b	number	2	7	7	7	7	7	-	37	1.000	2.00	7.00	7.00	7.00	7.00	-	-	37.00	Cat. 4	IFAD_1 (50%); Beneficiaries (50%)						
C. Organisational Training /c																										
Cooperative leaders training /d	course	5	5	5	-	-	-	-	15	1.500	7.50	7.50	7.50	-	-	-	-	22.50	Cat. 4	IFAD_1						
Cooperative leaders coaching /e	pers-year	10	20	30	30	30	-	-	120	250	2.50	5.00	7.50	7.50	7.50	-	-	30.00	Cat. 4	IFAD_1						
Managers and accountants training /f	course	7	15	15	15	-	-	-	52	1.500	10.50	22.50	22.50	22.50	-	-	-	78.00	Cat. 4	IFAD_1						
Managers and accountants coaching /g	group-year	20	30	40	40	40	20	-	190	400	8.00	12.00	16.00	16.00	16.00	8.00	-	76.00	Cat. 4	IFAD_1						
Exchange visits between FOs /h	person	10	10	10	10	5	5	-	50	100	1.00	1.00	1.00	1.00	0.50	0.50	-	5.00	Cat. 4	IFAD_1						
Subtotal Organisational Training											29.50							48.00	54.50	47.00	24.00	8.50	-	211.50		
D. Technical Training /i																										
Managers & tech. staff training & coaching /j	amount										15.00	15.00	15.00	15.00	10.00	10.00	-	80.00	Cat. 4	IFAD_1						
Exchange visits between FOs /k	person	20	20	20	20	10	10	-	100	100	2.00	2.00	2.00	2.00	1.00	1.00	-	10.00	Cat. 4	IFAD_1						
Subtotal Technical Training											17.00							17.00	17.00	17.00	11.00	11.00	-	90.00		
E. International Technical Assistance																										
DED Farmer Organisation Adviser /l	pers-year	1	1	1	1	-	-	-	4	115.909	115.91	115.91	115.91	115.91	-	-	-	463.64	Cat. 4	DED						
Total Investment Costs											164.41							196.91	203.41	186.91	42.00	26.50	-	820.14		
II. Recurrent Costs																										
A. Operation and Maintenance																										
Motorbike operating & maintenance	item-year	-	2	4	4	4	4	-	18	700	-	1.40	2.80	2.80	2.80	2.80	-	12.60	Cat. 6	IFAD_1						
Total Recurrent Costs											-							1.40	2.80	2.80	2.80	2.80	-	12.60		
Total											164.41							198.31	206.21	189.71	44.80	29.30	-	832.74		

/a One motorbike each for the 4 best-performing farmer organisations in Kirehe district (except for the rice farming service provider, see table 8).

/b For workshops aiming at the elaboration of consensus on FO strategies, activities, as well as for joint planning and management reviews; costs are estimated averages; 50% of actual costs to be financed by the FO.

/c For primary cooperatives and their apex structures.

/d Each 10-day course involving 2 trainers and about 10-20 participants, possibly split into two 5-day modules.

/e For the service provider to provide specific on-site coaching to active cooperative leaders upon request.

/f Each 10-day course involving 2 trainers and about 10-20 participants from farmer groups, possibly split into two 5-day modules.

/g For the service provider to provide specific on-site coaching to active cooperative and farmer group managers and accountants upon request.

/h To stimulate contacts amongst FOs and between FOs and unions, etc.

/i Includes training and coaching for primary cooperatives and their apex structures in all aspects of their service delivery to their members.

/j Based on the FOs' operational plans and needs; to be held by the FOs themselves or external service providers.

/k To stimulate the exchange of concrete experiences and approaches amongst FOs.

/l For a specialised Farmer Organisation Adviser to be provided by DED in conjunction with the rice farming service provider contract (see sub-component 2.2).

Table 4. Watershed planning and management (comp 1.2 Water and Land Use Management)
Detailed Costs USD

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Table 4. Watershed planning and management (comp 1.2 Water and Land Use Management)
Detailed Costs (USD)

	Unit	Quantities							Unit Cost	Base Cost ('000)							Grant Category	Financing Rule		
		2009	2010	2011	2012	2013	2014	2015		Total	2009	2010	2011	2012	2013	2014			2015	Total
I. Investment Costs																				
A. Training and Studies /a																				
CLGS training and study tours - 1st year	allocation	5	5	5	-	-	-	-	15	1,000	5.00	5.00	5.00	-	-	-	-	15.00	Cat. 3	IFAD_1
CLGS training and study tours - ongoing	allocation	-	5	10	15	15	15	15	75	300	-	1.50	3.00	4.50	4.50	4.50	4.50	22.50	Cat. 4	IFAD_1 for PY1-4; Distr.Govt. for PY 5-7
Annual WMP review workshop	number	-	5	10	15	15	15	15	75	250	-	1.25	2.50	3.75	3.75	3.75	3.75	18.75	Cat. 4	IFAD_1 for PY1-4; Distr.Govt. for PY 5-7
Basin planning meeting	meeting	-	-	-	-	1	-	-	1	1,000	-	-	-	-	1.00	-	-	1.00	Cat. 4	IFAD_1
Subtotal Training and Studies											5.00	7.75	10.50	8.25	9.25	8.25	8.25	57.25		
B. Technical Assistance																				
International Coach for WMP preparation /b	pers-month	1	-	-	-	-	-	-	1	22,000	22.00	-	-	-	-	-	-	22.00	Cat. 4	IFAD_1
Local Team for WMP preparation /c	WMP	5	5	5	-	-	-	-	15	19,125	95.63	95.63	95.63	-	-	-	-	286.88	Cat. 4	IFAD_1
Subtotal Technical Assistance											117.63	95.63	95.63	-	-	-	-	308.88		
Total											122.63	103.38	106.13	8.25	9.25	8.25	8.25	366.13		

^a For annual allocations per committee.

^b For on-the-job coaching while working with field team on first watershed inventory, and with the water and NR specialists to finalize first (model) WMP.

^c Includes 6 experts for 2 weeks to prepare a watershed inventory, and 2 experts for 1 month to prepare a WMP, includes workshop, allowances and transport.

Table 5. Regularization of land tenure (comp 1.2 Water and Land Use Management)
Detailed Costs USD

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Table 5. Regularization of land tenure (comp 1.2 Water and Land Use Management)
Detailed Costs (USD)

	Unit	Quantities								Unit Cost	Base Cost ('000)								Grant Category	Financing Rule	
		2009	2010	2011	2012	2013	2014	2015	Total		2009	2010	2011	2012	2013	2014	2015	Total			
I. Investment Costs																					
A. Equipment and Materials																					
Base maps /a	set	1	-	-	-	-	-	-	1	100.00	100.00	-	-	-	-	-	-	100.00	Cat. 3	IFAD_1	
Desktop computers	set	3	-	-	-	-	-	-	3	2.000	6.00	-	-	-	-	-	-	6.00	Cat. 3	IFAD_1	
A3 Printer	number	1	-	-	-	-	-	-	1	1.500	1.50	-	-	-	-	-	-	1.50	Cat. 3	IFAD_1	
A4 Printer	number	1	-	-	-	-	-	-	1	1.500	1.50	-	-	-	-	-	-	1.50	Cat. 3	IFAD_1	
A0 Plotter	number	1	-	-	-	-	-	-	1	14.000	14.00	-	-	-	-	-	-	14.00	Cat. 3	IFAD_1	
Network equipment /b	set	1	-	-	-	-	-	-	1	4.000	4.00	-	-	-	-	-	-	4.00	Cat. 3	IFAD_1	
Other office equipment /c	set	1	-	-	-	-	-	-	1	10.000	10.00	-	-	-	-	-	-	10.00	Cat. 3	IFAD_1	
Subtotal Equipment and Materials																					
											137.00	-	-	-	-	-	-	-	137.00		
B. Training																					
Capacity building studies /d	lumpsum	1	-	-	-	-	-	-	1	40.000	40.00	-	-	-	-	-	-	40.00	Cat. 4	IFAD_1	
Training /e	lumpsum	1	-	-	-	-	-	-	1	40.000	40.00	-	-	-	-	-	-	40.00	Cat. 4	IFAD_1	
Subtotal Training																					
											80.00	-	-	-	-	-	-	-	80.00		
C. National Technical Assistance																					
Embedded studies	pers-month	3	-	-	-	-	-	-	3	3.750	11.25	-	-	-	-	-	-	11.25	Cat. 4	IFAD_1	
Initial quality control and supervision /f	pers-day	30	30	-	-	-	-	-	60	300	9.00	9.00	-	-	-	-	-	18.00	Cat. 4	IFAD_1	
Registration quality control and supervision	pers-day	90	70	-	-	-	-	-	160	300	27.00	21.00	-	-	-	-	-	48.00	Cat. 4	IFAD_1	
Subtotal National Technical Assistance																					
											47.25	30.00	-	-	-	-	-	-	77.25		
D. Studies																					
Land registration /g	ha	14 000	7 000	-	-	-	-	-	21 000	30	420.00	210.00	-	-	-	-	-	630.00	Cat. 4	IFAD_1	
Total Investment Costs																					
											684.25	240.00	-	-	-	-	-	-	924.25		
II. Recurrent Costs																					
A. Operating & Maintenance																					
Office operating	item-year	1	0.6667	-	-	-	-	-	1.6667	30.000	30.00	20.00	-	-	-	-	-	50.00	Cat. 6	IFAD_1	
Total Recurrent Costs																					
											30.00	20.00	-	-	-	-	-	-	50.00		
Total																					
											714.25	260.00	-	-	-	-	-	-	974.25		

^a For base maps at a scale of 1/2000 based on high-resolution satellite images.

^b Includes set-up of a small network of 3 computers.

^c Includes ink cartridges, digital data storage facilities, spatial and attribute data storage facilities, A0 paper rolls and stationery material.

^d These studies include a detailed identification of specific training requirements for Land commissions and DLB's; as well as the design of a training programme and training manuals.

^e For planning of training in land management information systems, geomatics engineering tools, legal and regulatory framework, land administration; and logistics for the training sessions.

^f For 60 person-days in a period of at least 15 months at an average of 4 person-days per watershed.

^g For 1 400 ha per watershed; includes surveying, demarcation and deed plan production; estimate based on extrapolation of costs incurred during the MINIRENA Land Tenure Regularization trials.

Table 6. Water use management (comp 1.2 Water and Land Use Management)

Detailed Costs USD

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Table 6. Water use management (comp 1.2 Water and Land Use Management)
Detailed Costs (USD)

	Unit	Quantities							Unit Cost	Base Cost ('000)							Grant Category	Financing Rule		
		2009	2010	2011	2012	2013	2014	2015		Total	2009	2010	2011	2012	2013	2014			2015	Total
I. Investment Costs																				
A. Vehicles																				
Motorbikes (four stroke) /a	number	4	-	-	-	-	-	4	4.500	18.00	-	-	-	-	-	-	18.00	Cat. 3	IFAD_1	
B. Contracted Studies																				
Preparation of WUA formation manual	number	1	-	-	-	-	-	1	15.000	15.00	-	-	-	-	-	-	15.00	Cat. 4	IFAD_1	
C. Technical Assistance /b																				
International TA - water institutions specialist /c	pers-month	2	-	-	-	-	-	2	22.000	44.00	-	-	-	-	-	-	44.00	Cat. 4	IFAD_1	
International TA - legal expert	pers-month	2	1	-	-	-	-	3	22.000	44.00	22.00	-	-	-	-	-	66.00	Cat. 4	IFAD_1	
International TA - water management expert /d	pers-month	2	2	2	2	2	2	14	10.000	20.00	20.00	20.00	20.00	20.00	20.00	140.00	Cat. 4	IFAD_1		
National legal expert	pers-month	2	1	1	1	-	-	5	3.750	7.50	3.75	3.75	3.75	-	-	18.75	Cat. 4	IFAD_1		
Subtotal Technical Assistance																				
D. Service Contracts and MOUs																				
1. Formation & training of WUAs /e	contract	1	1	-	-	-	-	2	268.926	277.90	259.95	-	-	-	-	-	537.85	Cat. 4	IFAD_1	
2. Media contributions /f	number	4	4	4	4	4	4	28	611	2.44	2.44	2.44	2.44	2.44	2.44	17.11	Cat. 4	IFAD_1		
3. Radio broadcasts /g	number	6	6	6	6	6	6	42	267	1.60	1.60	1.60	1.60	1.60	1.60	11.23	Cat. 4	IFAD_1		
4. WUA Support Section /h																				
Desktop computers	set	1	-	-	-	-	-	1	2.000	2.00	-	-	-	-	-	-	2.00	Cat. 4	IFAD_1	
Laptop computers	number	1	-	-	-	-	-	1	2.500	2.50	-	-	-	-	-	-	2.50	Cat. 4	IFAD_1	
Training equipment	number	1	-	-	-	-	-	1	7.000	7.00	-	-	-	-	-	-	7.00	Cat. 4	IFAD_1	
Office furniture	set	3	-	-	-	-	-	3	500	1.50	-	-	-	-	-	-	1.50	Cat. 4	IFAD_1	
Office equipment	set	1	-	-	-	-	-	1	1.000	1.00	-	-	-	-	-	-	1.00	Cat. 4	IFAD_1	
National TA to design the WUA monitoring system	pers-month	2.5	-	-	-	-	-	2.5	3.750	9.38	-	-	-	-	-	-	9.38	Cat. 4	IFAD_1	
Staff training	amount	-	-	-	-	-	-	-	-	3.00	3.00	1.50	1.50	1.50	1.50	13.50	Cat. 4	IFAD_1		
Study tours (international)	person	3	-	-	-	-	-	3	6.000	18.00	-	-	-	-	-	-	18.00	Cat. 4	IFAD_1	
Salaries & allowances - WUA Support Section Head /i	pers-year	1	1	1	1	1	1	7	7.500	7.50	7.50	7.50	7.50	7.50	7.50	52.50	Cat. 4	IFAD_1 for PY1-4; Centr.Govt. for PY 5-7		
Salaries & allowances - WUA Organization Specialist /j	pers-year	1	1	1	1	1	1	7	5.500	5.50	5.50	5.50	5.50	5.50	5.50	38.50	Cat. 4	IFAD_1 for PY1-4; Centr.Govt. for PY 5-7		
Salaries & allowances - Irrigation Technician /j	pers-year	1	1	1	1	1	1	7	3.300	3.30	3.30	3.30	3.30	3.30	3.30	23.10	Cat. 4	IFAD_1 for PY1-4; Centr.Govt. for PY 5-7		
Travel allowance	amount	-	-	-	-	-	-	-	-	3.00	3.00	3.00	3.00	3.00	3.00	21.00	Cat. 4	IFAD_1		
Office supplies and maintenance	item-year	1	1	1	1	1	1	7	3.600	3.60	3.60	3.60	3.60	3.60	3.60	25.20	Cat. 4	IFAD_1		
4WD vehicle hire	item-day	30	30	30	30	20	20	180	127	3.82	3.82	3.82	3.82	2.55	2.55	22.91	Cat. 4	IFAD_1		
Subtotal WUA Support Section																				
Subtotal Service Contracts and MOUs																				
E. Workshops & Meetings																				
National strategic planning workshops	workshop	1	-	-	1	-	-	2	2.550	2.55	-	-	2.55	-	-	-	5.10	Cat. 4	IFAD_1	
F. Training																				
Preparation of training modules /k	set	1	-	-	-	-	-	1	30.000	30.00	-	-	-	-	-	-	30.00	Cat. 4	IFAD_1	
Staff training /l	course	1	1	1	1	1	1	7	750	0.75	0.75	0.75	0.75	0.75	0.75	5.25	Cat. 4	IFAD_1		
WUA leaders training /m	course	-	2	6	12	14	4	2	495	-	0.99	2.97	5.94	6.93	1.98	0.99	19.80	Cat. 4	IFAD_1	
WUA members training /n	course	-	25	75	150	175	50	25	500	390	-	9.75	29.25	58.50	68.25	19.50	9.75	195.00	Cat. 4	IFAD_1
Trainer of Trainers /o	course	-	1	1	1	1	1	5	3.960	-	3.96	3.96	3.96	3.96	-	-	19.80	Cat. 4	IFAD_1	
Regional study tours (WUA leaders) /p	number	-	-	-	1	1	-	2	12.000	-	-	-	12.00	12.00	-	-	24.00	Cat. 4	IFAD_1	
Regional study tours (staff)	person	2	1	-	-	-	-	3	6.000	12.00	6.00	-	-	-	-	-	18.00	Cat. 4	IFAD_1	
Subtotal Training																				
Total																				
									42.75	21.45	36.93	81.15	91.89	26.19	11.49	311.85				
									546.84	360.92	92.95	139.72	142.88	77.18	62.48	1 422.97				

la For WUA establishment and training; to be provided to the WUA Service Provider; operating & maintenance costs in the service contract.

lb To be attached to the District Water Management Officer.

lc Two months first two year and afterwards two visits a year of three weeks each to facilitate devt of water institutions.

ld For expert/s in water management; under contract with FAO from the irrigation expertise centre to be established at Kigali.

le For a 2-year results-based contract with the WUA Service Provider, for details see WP 5, Appendix 8, Table 2.

lf Each contribution including about 4 pages in the apex newsletter or similar types of publications.

lg For the preparation of the radio broadcasts; the airing will be free-of-charge.

lh Under a results-based MoU with RADA.

li For a Water Management Specialist; to be financed by government in PY5 and thereafter.

lj To be financed by government in PY5 and thereafter.

lk See WP 5 for list of training modules.

ll Five days training per person for Project and District staff including training materials, accomodation and allowncnes.

lm Each course is for 15 participants and comprises three 3-day sessions.

ln Each course is for 50 participants and comprises three 2-day sessions.

lo Each course is for 10 participants and comprises three 5-day sessions.

lp For visits by 22 WUA leaders plus 3 district/sector staff to Tanzania - 6 day bus rental plus daily subsistence allowance.

Table 7. Value Chain Development (Comp. 2.1)

Detailed Costs USD

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Table 7. Value Chain Development (Comp. 2.1)
Detailed Costs (USD)

	Unit	Quantities							Unit Cost	Base Cost ('000)							Grant Category	Financing Rule
		2009	2010	2011	2012	2013	2014	2015		Total	2009	2010	2011	2012	2013	2014		
I. Investment Costs																		
A. Identification & Selection of Commodity Chains																		
1. Studies and Workshops																		
Study of commodity chains /a	number	1	1	1	-	-	-	3	7.50	7.50	7.50	7.50	-	-	-	22.50	Cat. 4	IFAD_1
Workshop to select pro-poor value-chains /b	pers-day	100	100	100	100	-	-	300	20	-	2.00	2.00	2.00	-	-	6.00	Cat. 4	IFAD_1
Value-chain mapping and analysis workshop /c	pers-day	150	150	150	-	-	-	450	20	-	3.00	3.00	3.00	-	-	9.00	Cat. 4	IFAD_1
Subtotal Studies and Workshops									7.50	12.50	12.50	5.00	-	-	-	37.50		
2. Technical Assistance /d																		
National TA - Value-chain expert	pers-month	1	2	2	2	-	-	7	3,750	3.75	7.50	7.50	7.50	-	-	26.25	Cat. 4	IFAD_1
Int'l TA - Value-chain expert /e	pers-month	1	1	1	1	-	-	4	22,000	22.00	22.00	22.00	22.00	-	-	88.00	Cat. 4	IFAD_1
Subtotal Technical Assistance									25.75	29.50	29.50	29.50	-	-	-	114.25		
Subtotal Identification & Selection of Commodity Chains									33.25	42.00	42.00	34.50	-	-	-	151.75		
B. Development of Selected Value-Chains																		
1. Information Workshops																		
Introduction Workshops /f	pers-day	60	60	60	-	-	-	180	20	-	1.20	1.20	1.20	-	-	3.60	Cat. 4	IFAD_1
Workshop on input shops & collect point management /g	pers-day	60	60	60	-	-	-	180	20	-	1.20	1.20	1.20	-	-	3.60	Cat. 4	IFAD_1
Workshop on business development planning /g	pers-day	60	60	60	-	-	-	180	20	-	1.20	1.20	1.20	-	-	3.60	Cat. 4	IFAD_1
Workshop on market information analysis /g	pers-day	30	30	30	-	-	-	90	20	-	0.60	0.60	0.60	-	-	1.80	Cat. 4	IFAD_1
Subtotal Information Workshops									-	1.20	3.60	4.20	3.00	0.60	-	12.60		
2. Service Contracts /h																		
Coaching input shops & collect point managers	contract	3	3	3	3	2	-	11	3,000	-	9.00	9.00	9.00	6.00	-	33.00	Cat. 4	IFAD_1
Coaching business managers	contract	3	3	3	3	2	-	14	3,000	-	9.00	9.00	9.00	6.00	-	42.00	Cat. 4	IFAD_1
Coaching market information managers	contract	3	3	3	2	-	-	8	3,000	-	9.00	9.00	6.00	-	-	24.00	Cat. 4	IFAD_1
Value-Chain Development Fund management /i	amount	1	1	1	1	1	-	5	10,000	-	10.00	10.00	10.00	10.00	-	50.00	Cat. 4	IFAD_1
Subtotal Service Contracts									-	19.00	28.00	37.00	37.00	28.00	-	149.00		
3. Technical Assistance /d																		
National TA - Value chain facilitator	pers-month	4	4	4	4	4	2	22	3,750	-	15.00	15.00	15.00	15.00	7.50	82.50	Cat. 4	IFAD_1
Int'l TA - Value chain coach	pers-month	2	2	2	2	2	2	12	22,000	-	44.00	44.00	44.00	44.00	44.00	264.00	Cat. 4	IFAD_1
Subtotal Technical Assistance /d									-	59.00	59.00	59.00	59.00	59.00	51.50	346.50		
Subtotal Development of Selected Value-Chains									-	79.20	90.60	100.20	99.00	87.60	51.50	508.10		
C. Facilitation of Value Chain Clusters /j																		
1. Workshops																		
Learning and innovation workshops /k	pers-day	180	360	450	450	-	-	1,890	20	-	3.60	7.20	9.00	9.00	-	37.80	Cat. 4	IFAD_1
Best practices writeshops /l	number	-	-	-	-	1	2	3	4,000	-	-	-	-	-	4.00	8.00	Cat. 4	IFAD_1
Best practices booklets /m	1000 copies	-	-	-	-	1	2	3	5,000	-	-	-	-	-	5.00	10.00	Cat. 4	IFAD_1
Publications (newspapers, radio, television)	lumpsum	3	3	3	3	2	-	14	500	-	1.50	1.50	1.50	1.00	-	7.00	Cat. 4	IFAD_1
Private sector participation in CLGS work /n	pers-day	8	8	8	8	8	8	56	30	0.24	0.24	0.24	0.24	0.24	0.24	1.68	Cat. 4	IFAD_1
Participation in national fora	pers-day	1	6	6	6	6	6	25	150	-	0.15	0.90	0.90	0.90	0.90	3.75	Cat. 4	IFAD_1
Participation in regional fora	pers-day	1	6	6	6	6	6	25	300	-	0.30	1.80	1.80	1.80	1.80	7.50	Cat. 4	IFAD_1
Subtotal Workshops									0.24	3.84	9.39	13.44	13.44	22.44	21.94	84.73		
2. Technical Assistance /d																		
National TA - Value chain cluster facilitator	pers-month	2	4	4	4	4	2	20	3,750	-	7.50	15.00	15.00	15.00	7.50	75.00	Cat. 4	IFAD_1
Int'l TA - Value chain cluster coach	pers-month	2	2	2	2	2	2	10	22,000	-	44.00	44.00	44.00	44.00	44.00	220.00	Cat. 4	IFAD_1
Subtotal Technical Assistance /d									-	7.50	59.00	59.00	59.00	59.00	51.50	295.00		
Subtotal Facilitation of Value Chain Clusters									0.24	11.34	68.39	72.44	72.44	81.44	73.44	379.73		
D. Value-Chain Development Fund																		
Emerging Value Chain window	lumpsum	-	200.00	200.00	200.00	200.00	200.00	-	-	200.00	200.00	200.00	200.00	-	-	1,000.00	Cat. 2	IFAD_1 (50%); Private Sector (50%)
Established Value Chain window	lumpsum	-	100.00	200.00	200.00	250.00	250.00	-	-	1,000.00	-	-	-	-	-	1,000.00	Cat. 2	IFAD_1 (50%); Private Sector (50%)
Subtotal Value-Chain Development Fund			300.00	400.00	400.00	450.00	450.00	-	-	2,000.00	-	-	-	-	-	2,000.00		
Total									33.49	432.54	600.99	607.14	621.44	619.04	124.94	3,039.58		

/a One study for each cluster of 5 watersheds (WS).
 /b For 2-day workshops for mapping/analysis/planning of 2 commodities per WS cluster.
 /c For 3-day workshops for mapping/analysis/planning of 2 commodities per WS cluster.
 /d To be attached to the District Value Chain Development Officer.
 /e For training and co-facilitation of pilot workshops to facilitate the identification and selection of commodity chains.
 /f Introductory workshops for established and emerging value-chains (on preparation of proposals for VCD Fund).
 /g Exchange workshops for chain actors that benefit from project-supported VCD activities or from support to business development planning.
 /h For specialized support and coaching; includes remuneration, travel and institutional overheads, if any; contracts may be bundled.
 /i For a financial management contract with a financial institution.
 /j Value chain clusters would consist of the actors participating in a specific value chain in a number of participating watersheds.
 /k Workshops (2 x 1 day/year; 30 people) to review progress of activities; workshops per WS cluster.
 /l To produce one book each.
 /m For editing, layouting and printing.
 /n Participation of private sector representatives (2 persons; 4 times a year) in important CLGS meetings; covers transport costs only.

Table 8. Crop and Livestock Intensification (Comp. 2.2)

Detailed Costs USD

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Table 8. Crop and Livestock Intensification (Comp. 2.2)
Detailed Costs (USD)

Unit	Quantities							Unit Cost	Base Cost ('000)							Grant Category	Financing Rule			
	2009	2010	2011	2012	2013	2014	2015		Total	2009	2010	2011	2012	2013	2014			2015	Total	
I. Investment Costs																				
A. Crop Intensification																				
1. Vehicles																				
Bicycles for Personnel Resources /a	number	-	-	60	80	80	80	-	300	100	-	-	6.00	8.00	8.00	8.00	-	30.00	Cat. 3	IFAD_1
2. Service MOU: FFS Support /b																				
ToT in conservation agriculture & FFS approach	course	6	12	12	-	-	-	-	30	1,750	10.50	21.00	21.00	-	-	-	-	52.50	Cat. 4	IFAD_1
Farmer Field Schools /c	session	12	24	24	24	24	24	24	156	2,000	24.00	48.00	48.00	48.00	48.00	48.00	48.00	312.00	Cat. 4	IFAD_1
Research and demonstration plots	number	12	24	24	24	24	24	24	156	1,000	12.00	24.00	24.00	24.00	24.00	24.00	24.00	156.00	Cat. 4	IFAD_1
ISAR specialist in FFS approach /d	amount	-	-	-	-	-	-	-	-	-	8.11	7.20	7.20	7.20	7.20	7.20	7.20	51.31	Cat. 4	IFAD_1
Subtotal Service MOU: FFS Support																				
3. Service MOU: Planting Material Adaptive Research /e																				
Identification and provision of hardy cultivars /f	lumpsum	1	-	-	-	-	-	-	1	10,000	10.00	-	-	-	-	-	-	10.00	Cat. 4	IFAD_1
Developing an inventory of hardy cultivars /g	number	1	-	-	-	-	-	-	1	10,000	10.00	-	-	-	-	-	-	10.00	Cat. 4	IFAD_1
Inputs for on-farm trials /h	plot	30	30	30	30	30	-	-	150	150	4.50	4.50	4.50	4.50	4.50	-	-	22.50	Cat. 4	IFAD_1
Technical training for seed multiplication cooperatives /i	amount	-	-	-	-	-	-	-	-	6.00	6.00	6.00	0.30	0.30	-	-	-	18.60	Cat. 4	IFAD_1
Incremental staff and transport /j	lumpsum	-	-	-	-	-	-	-	-	66.98	49.70	49.70	49.70	49.70	-	-	-	265.78	Cat. 4	IFAD_1
Subtotal Service MOU: Planting Material Adaptive Research																				
4. Other Service Contracts																				
Management training for seed multiplication cooperatives /k	amount	-	-	-	-	-	-	-	-	6.00	6.00	6.00	3.00	3.00	-	-	-	24.00	Cat. 4	IFAD_1
Rice farming intensification /l	amount	-	-	-	-	-	-	-	-	92.35	54.61	54.61	54.61	54.61	54.61	54.61	54.61	420.00	Cat. 4	IFAD_1
National expert for rice farming intensification /m	pers-year	1	1	1	1	1	1	1	7	11,694	12.47	11.56	11.56	11.56	11.56	11.56	11.56	81.85	Cat. 4	DED for PY1-4; IFAD_1 for PY 5-7
Subtotal Other Service Contracts																				
5. Agricultural Inputs																				
Revolving Fund for seed multiplication cooperatives /n	number	-	12	-	-	-	-	-	12	1,000	-	12.00	-	-	-	-	-	12.00	Cat. 2	IFAD_1
6. International Technical Assistance																				
Conservation Agriculture Specialist	pers-month	1	1	1	-	-	-	-	3	22,000	22.00	22.00	22.00	-	-	-	-	66.00	Cat. 4	IFAD_1
7. Workshops, Study Tours & Training																				
Conservation agriculture study tour /o	number	1	-	-	-	-	-	-	1	10,000	10.00	-	-	-	-	-	-	10.00	Cat. 4	IFAD_1
Workshops	workshop	1	1	1	-	-	-	-	3	2,550	2.55	2.55	2.55	-	-	-	-	7.65	Cat. 4	IFAD_1
Subtotal Workshops, Study Tours & Training																				
Subtotal Crop Intensification																				
B. Livestock Intensification																				
1. Civil Works																				
Sheds for purchased animals /p	number	-	550	550	533	533	-	-	2 166	273	-	150.00	150.00	145.36	145.36	-	-	590.73	Cat. 1	IFAD_1 (30%); Beneficiaries (70%)
Sheds for passed-on animals /q	number	-	-	367	611	763	864	576	3 181	273	-	100.09	166.64	208.09	235.64	157.09	-	867.55	Cat. 1	IFAD_1 (30%); Beneficiaries (70%)
Biogas digesters & lighting /r	number	-	-	-	500	500	500	500	2 000	250	-	-	-	125.00	125.00	125.00	125.00	500.00	Cat. 1	IFAD_1 (50%); Beneficiaries (50%)
Subtotal Civil Works																				
2. Animals for Solidarity Chains																				
In-calf heifers (cross-breeds)	number	-	250	250	250	250	-	-	1 000	1,500	-	375.00	375.00	375.00	375.00	-	-	1 500.00	Cat. 2	IFAD_1
Improved local bulls	number	-	50	50	-	-	-	-	100	545	-	27.27	27.27	-	-	-	-	54.55	Cat. 2	IFAD_1
Goats (local females)	number	-	500	500	500	500	-	-	2 000	27	-	13.64	13.64	13.64	13.64	-	-	54.55	Cat. 2	IFAD_1
Boer bucks	number	-	50	50	50	50	-	-	200	455	-	22.73	22.73	22.73	22.73	-	-	90.91	Cat. 2	IFAD_1
Pigs (females)	number	-	250	250	250	250	-	-	1 000	55	-	13.64	13.64	13.64	13.64	-	-	54.55	Cat. 2	IFAD_1
Improved boars	number	-	50	50	50	50	-	-	200	418	-	20.91	20.91	20.91	20.91	-	-	83.64	Cat. 2	IFAD_1
Subtotal Animals for Solidarity Chains																				
3. Studies																				
Restocking impact studies	number	-	-	-	1	-	-	1	2	15,000	-	-	-	-	-	-	15.00	30.00	Cat. 4	IFAD_1
Biogas design study	number	-	-	1	-	-	-	-	1	25,000	-	-	25.00	-	-	-	-	25.00	Cat. 4	IFAD_1
Biogas impact studies	number	-	-	-	-	-	1	-	1	15,000	-	-	-	-	15.00	-	-	15.00	Cat. 4	IFAD_1
Subtotal Studies																				
4. Service Provider Contracts																				
Animal solidarity chain support	lumpsum	-	-	-	-	-	-	-	-	-	100.00	130.00	150.00	150.00	100.00	50.00	-	680.00	Cat. 4	IFAD_1
Biogas introduction	lumpsum	-	-	-	-	-	-	-	-	-	-	-	75.00	75.00	75.00	75.00	-	300.00	Cat. 4	IFAD_1
Subtotal Service Provider Contracts																				
Subtotal Livestock Intensification																				
Total																				
297.48 992.30 1 141.40 1 333.78 1 360.24 704.01 567.46 6 396.65																				

la For a total of 300 farmer-extensionists trained by ISAR after about 2 years of effective work either with FFSs or as paysan relais.
 lb For a results-based service MOU with ISAR.
 lc Including inputs and small equipment
 ld For a breakdown of cost estimates see SWC working paper, table 3.
 le For a results-based service MOU with RADA.
 lf RADA would identify and purchase a small amount of base seeds for trials.
 lg To compile RADA's results of testing hardy cultivars.
 lh For 3 on-farm trials (with repetitions) per year; conducted by RADA in 3 different topographic units in Kirehe district.
 li Training to be carried out through a local NGO specialized in management for small cooperatives; the service provider would receive additional technical assistance from DED.
 lj For a breakdown of the estimate see Table 2, SWC working paper.
 lk Training to be carried out through a local NGO specialized in management for small cooperatives; the service provider would receive additional technical assistance from DED.
 ll Farmer capacity building by a specialised service provider, which is expected to receive technical assistance from DED (see table 3).
 lm To act as coordinator for the rice farming intensification service provider and counterpart to the int'l TA from DED (see table 3); financed by DED for 4 years; then included in service provider contract.
 ln For seed production inputs including improved seeds and fertilizer; funds to be supervised by RADA (for estimates see SWC working paper).
 lo Study tour for smallholders to countries with experience in conservation agriculture; one district official, one person from SWC service provider and the five most performing farmers in SWC.
 lp For both cattle (1 shed per head) and small stock (1 shed per 3 heads); IFAD to finance cement for flooring only; beneficiary financing for all other costs.
 lq Estimated for 2/3 of the animals that carry a passing-on obligation.
 lr Includes a 50% public subsidy financed by IFAD.

Table 9. Irrigation Development (Comp. 2.3)
Detailed Costs USD

Republic of Rwanda KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP) Table 9. Irrigation Development (Comp. 2.3) Detailed Costs (USD)																				
Unit	Quantities							Unit Cost	Base Cost ('000)							Grant Category	Financing Rule			
	2009	2010	2011	2012	2013	2014	2015		Total	2009	2010	2011	2012	2013	2014			2015	Total	
I. Investment Costs																				
A. Civil Works																				
Marshland irrigation schemes /a	ha	-	50	150	300	350	100	50	1 000	5.290	-	264.50	793.50	1 587.00	1 851.50	529.00	264.50	5 290.00	Cat. 3	IFAD_1 in PY1-4; IFAD_2 in PY 4-7 (85%); Beneficiaries (15%)
Hillside irrigation schemes /b	ha	-	50	150	300	350	100	50	1 000	4.120	-	206.00	618.00	1 236.00	1 442.00	412.00	206.00	4 120.00	Cat. 1	IFAD_1 in PY1-4; IFAD_2 in PY 4-7 (85%); Beneficiaries (15%)
Subtotal Civil Works											-	470.50	1 411.50	2 823.00	3 293.50	941.00	470.50	9 410.00		
B. Equipment /c																				
Flow measurement equipment	amount										-	15.00	15.00	-	-	-	-	30.00	Cat. 3	IFAD_1
River gauging stations	amount										-	5.00	5.00	5.00	-	-	-	15.00	Cat. 3	IFAD_1
Weather stations	amount										-	45.00	-	-	-	-	-	45.00	Cat. 3	IFAD_1
Subtotal Equipment											-	65.00	20.00	5.00	-	-	-	90.00		
C. Technical Assistance																				
International TA - irrigation engineer /d	pers-month	2	2	2	2	2	2	-	12	10.000	20.00	20.00	20.00	20.00	20.00	20.00	-	120.00	Cat. 4	IFAD_1 in PY1-4; IFAD_2 in PY 4-7
National TA - irrigation engineer /e	pers-year	1	1	1	1	1	1	1	7	20.049	20.05	20.05	20.05	20.05	20.05	20.05	20.05	140.34	Cat. 4	IFAD_1 in PY1-4; IFAD_2 in PY 4-7
Subtotal Technical Assistance											40.05	40.05	40.05	40.05	40.05	40.05	20.05	260.34		
D. Contracted Studies																				
District watershed & irrigation plan /f	number	1	-	-	-	-	-	-	1	163.266	163.27	-	-	-	-	-	-	163.27	Cat. 4	IFAD_1 in PY1-4; IFAD_2 in PY 4-7
Planning and design - irrigation & drainage schemes /g	amount										-	24.00	72.00	144.00	168.00	48.00	24.00	480.00	Cat. 4	IFAD_1 in PY1-4; IFAD_2 in PY 4-7
Environmental impact assessments /h	amount										110.00	10.00	10.00	10.00	10.00	10.00	-	160.00	Cat. 4	IFAD_1 in PY1-4; IFAD_2 in PY 4-7
Construction supervision /i	amount										-	40.00	120.00	240.00	280.00	80.00	40.00	800.00	Cat. 4	IFAD_1 in PY1-4; IFAD_2 in PY 4-7
Preparation of O&M manuals for schemes	pers-month	-	-	1.5	1.5	1.5	1.5	1.5	7.5	3.750	-	-	5.63	5.63	5.63	5.63	5.63	28.13	Cat. 4	IFAD_1 in PY1-4; IFAD_2 in PY 4-7
Subtotal Contracted Studies											273.27	74.00	207.63	399.63	463.63	143.63	69.63	1 631.39		
Total											313.32	649.55	1 679.17	3 267.67	3 797.17	1 124.67	560.17	11 391.73		

^a Includes on average USD 4 500 per ha financed by the project and the equivalent of about USD 790 per ha contributed by the beneficiaries.

^b Includes on average USD 3 500 per ha financed by the project and the equivalent of about USD 620 per ha contributed by the beneficiaries.

^c To be planned and designed under the study for the development of river basin water plan.

^d For expert/s in irrigation engineering design and construction; under contract with FAO from the irrigation expertise centre to be established at Kigali.

^e For a national expert in irrigation engineering design, construction and operation; to based in Kirehe attached to the District Water Management Officer.

^f Includes conducting a basin planning meeting to verify the plan; for detailed costs see WP5, Appendix 8, Table 1; under retroactive financing.

^g Estimated at 6% of the contracted construction cost.

^h Estimated at 2% of the contracted construction cost; includes a blanket EIA for small schemes and individual ones for larger schemes.

^i Estimated at 10% of the contracted construction cost.

Table 10. Soil and Water Conservation (Comp. 2.4)
Detailed Costs USD

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Table 10. Soil and Water Conservation (Comp. 2.4)
Detailed Costs (USD)

Unit	Quantities								Unit Cost	Base Cost ('000)							Grant Category	Financing Rule		
	2009	2010	2011	2012	2013	2014	2015	Total		2009	2010	2011	2012	2013	2014	2015			Total	
I. Investment Costs																				
A. Civil Works																				
Labour for embocagement (Food for work) /a	ha	3 500	5 000	6 000	5 500	5 000	-	-	25 000	290	1 015.00	1 450.00	1 740.00	1 595.00	1 450.00	-	-	7 250.00	Cat. 3	WFP
B. Plant Inputs																				
Agro-forestry plants /b	1000 plants	1 260	1 800	2 160	1 980	1 800	-	-	9 000	45	56.70	81.00	97.20	89.10	81.00	-	-	405.00	Cat. 2	IFAD_1
Glyricidia cuttings for the cuttings banks /c	1000 cuttings	300	300	-	-	-	-	-	600	18	5.40	5.40	-	-	-	-	-	10.80	Cat. 2	IFAD_1
Pennisetum cuttings for the cuttings banks /d	1000 cutting	480	480	360	-	-	-	-	1 320	9	4.36	4.36	3.27	-	-	-	-	12.00	Cat. 2	IFAD_1
Subtotal Plant Inputs																				
C. Technical Assistance																				
National TA - Soil and Water Conservation Adviser /e	pers-year	1	1	1	1	1	1	1	7	20.049	20.05	20.05	20.05	20.05	20.05	20.05	20.05	140.34	Cat. 4	IFAD_1
D. Community Service Contracts																				
Establishment of Pennisetum cuttings banks /f	ha	8	8	6	-	-	-	-	22	1.200	9.60	9.60	7.20	-	-	-	-	26.40	Cat. 4	IFAD_1
E. SWC Service Provider Contract																				
Identification of farmers with SWC best practices /g	amount	-	-	-	-	-	-	-	-	4.00	-	-	-	-	-	-	-	4.00	Cat. 4	IFAD_1
Compilation of farmers resource book on SWC	amount	-	1	-	-	-	-	-	1	5.000	-	5.00	-	-	-	-	-	5.00	Cat. 4	IFAD_1
Printing the farmers resource book on SWC	1000 copies	-	5	-	-	-	-	-	5	3.000	-	15.00	-	-	-	-	-	15.00	Cat. 4	IFAD_1
ToT of farmers on farmer approach to SWC	person	100	100	100	-	-	-	-	300	150	15.00	15.00	15.00	-	-	-	-	45.00	Cat. 4	IFAD_1
Training of members of tree nursery associations /h	pers-day	280	420	420	280	140	-	-	1 540	10	2.80	4.20	4.20	2.80	1.40	-	-	15.40	Cat. 4	IFAD_1
Training of tree nursery farmers /i	pers-day	1 020	2 550	4 020	3 480	1 950	480	-	13 500	10	10.20	25.50	40.20	34.80	19.50	4.80	-	135.00	Cat. 4	IFAD_1
ToT on farm planning and farm risk assessment /j	day	5	-	-	-	-	-	-	5	1.000	5.00	-	-	-	-	-	-	5.00	Cat. 4	IFAD_1
ToT for farmers on farm risk assessment & farm planning /k	day	10	-	10	-	-	-	-	20	200	2.00	-	2.00	-	-	-	-	4.00	Cat. 4	IFAD_1
Material for preparing farm maps /l	set	1	1	1	1	-	-	-	4	5.000	5.00	5.00	5.00	-	-	-	-	20.00	Cat. 4	IFAD_1
Staff and transport costs /m	amount	-	-	-	-	-	-	-	-	137.49	97.31	97.31	97.31	-	-	-	-	429.42	Cat. 4	IFAD_1
Subtotal SWC Service Provider Contract																				
Total																				
										1 292.60	1 737.42	2 031.43	1 844.06	1 571.95	24.85	20.05	8 522.36			

la Fully financed by WFP.
 lb A total of 9 million plants would be bought from tree nursery associations for an average price of FRW 30 each.
 lc To plant a total of 8 ha of community-managed Glyricidia cuttings banks.
 ld For 60,000 pennisetum cuttings for 5 FRW each to be planted per ha (for 22 ha).
 le For a national expert to based in Kirehe, attached to the District Natural Resource Management Officer.
 lf For contracts with communities to establish 11 cuttings banks of 2 ha each.
 lg To be carried out by sector and district-based agronomists.
 lh For 7 members for each association. For phasing of training sessions see SWC working paper.
 li For home-based tree nursery owners. For phasing of training sessions see SWC working paper.
 lj Training for 20 participants all included (Project team, district and sector agronomist on facilitating farm planning and farm risk assessment).
 lk For ToT for 20 paysan relais by CCI staff.
 ll For farmers to prepare participatory farm maps.
 lm See detailed calculation in SWC working paper, Table 1.

Table 11. Feeder Roads (Comp. 3)
Detailed Costs USD

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Table 11. Feeder Roads (Comp. 3)
Detailed Costs (USD)

	Unit	Quantities							Unit Cost	Base Cost ('000)							Grant Category	Financing Rule		
		2009	2010	2011	2012	2013	2014	2015		Total	2009	2010	2011	2012	2013	2014			2015	Total
I. Investment Costs																				
A. Civil Works - Rehabilitation																				
Feeder road rehabilitation - major improvement works	km	-	10	30	20	10	-	-	70	35.000	-	350.00	1 050.00	700.00	350.00	-	-	2 450.00	Cat. 3	Centr. Govt.
Feeder road rehabilitation to deprived areas - partial works	km	-	10	20	20	10	-	-	60	25.000	-	250.00	500.00	500.00	250.00	-	-	1 500.00	Cat. 1	Centr. Govt.
Short access roads to storage facilities /a	km	-	10	20	20	10	-	-	60	10.000	-	100.00	200.00	200.00	100.00	-	-	600.00	Cat. 1	Centr. Govt. (90%); Benef. (10%)
Spot improvements (culverts, drifts, cleansing)	amount	-	-	-	-	-	-	-	-	-	-	60.00	120.00	120.00	60.00	-	-	360.00	Cat. 1	Centr. Govt.
Subtotal Civil Works - Rehabilitation											-	760.00	1 870.00	1 520.00	760.00	-	-	4 910.00		
B. Civil Works - Maintenance																				
Road maintenance /b	km	-	-	30	100	160	190	190	670	2.000	-	-	60.00	200.00	320.00	380.00	380.00	1 340.00	Cat. 1	Distr. Govt.
C. Service Contracts																				
Preliminary studies /c	amount	-	-	-	-	-	-	-	-	-	-	38.00	93.50	76.00	38.00	-	-	245.50	Cat. 4	Centr. Govt.
Works supervision /d	amount	-	-	-	-	-	-	-	-	-	-	38.00	93.50	76.00	38.00	-	-	245.50	Cat. 4	Centr. Govt.
Subtotal Service Contracts											-	76.00	187.00	152.00	76.00	-	-	491.00		
D. Vehicles /e																				
Grader	number	-	1	-	-	-	-	-	1	200.000	-	200.00	-	-	-	-	-	200.00	Cat. 3	Centr. Govt.
Compactor	number	1	-	-	-	-	-	-	1	150.000	150.00	-	-	-	-	-	-	150.00	Cat. 3	Centr. Govt.
Small truck	number	1	-	-	-	-	-	-	1	80.000	80.00	-	-	-	-	-	-	80.00	Cat. 3	Centr. Govt.
Subtotal Vehicles											230.00	200.00	-	-	-	-	-	430.00		
E. Equipment																				
Small equipment for road maintenance	set	-	1	1	1	1	1	-	5	4.000	-	4.00	4.00	4.00	4.00	4.00	-	20.00	Cat. 3	Centr. Govt.
F. Training																				
ToT in feeder road management /f	person	-	-	3	-	-	-	-	3	7.000	-	-	21.00	-	-	-	-	21.00	Cat. 4	Centr. Govt.
Staff seminars in planning of feeder roads programmes	seminar	-	1	1	-	-	-	-	2	2.000	-	2.00	2.00	-	-	-	-	4.00	Cat. 4	Centr. Govt.
On-the-job training on maintenance /g	course	-	1	1	1	1	-	-	4	1.500	-	1.50	1.50	1.50	1.50	-	-	6.00	Cat. 4	Centr. Govt.
Labour-intensive construction seminars /h	seminar	-	1	1	1	-	-	-	3	1.500	-	1.50	1.50	1.50	-	-	-	4.50	Cat. 4	Centr. Govt.
Community training on feeder road maintenance /i	course	-	-	5	5	-	-	-	10	1.000	-	-	5.00	5.00	-	-	-	10.00	Cat. 4	Centr. Govt.
Subtotal Training											-	5.00	31.00	8.00	1.50	-	-	45.50		
G. Technical Assistance																				
International TA - roads engineer /j	pers-month	2	1	1	1	-	-	-	5	22.000	44.00	22.00	22.00	22.00	-	-	-	110.00	Cat. 4	Centr. Govt.
National TA - economist with civil engineering expertise /k	pers-month	3	-	-	-	-	-	-	3	3.750	11.25	-	-	-	-	-	-	11.25	Cat. 4	Centr. Govt.
National TA - civil engineer	pers-month	3	3	3	1	1	1	1	13	3.750	11.25	11.25	11.25	3.75	3.75	3.75	3.75	48.75	Cat. 4	Centr. Govt.
Subtotal Technical Assistance											66.50	33.25	33.25	25.75	3.75	3.75	3.75	170.00		
H. Studies																				
Roads impact & sustainability study	number	-	-	-	-	1	-	-	1	45	-	-	-	-	0.05	-	-	0.05	Cat. 4	Centr. Govt.
Total											296.50	1 078.25	2 185.25	1 909.75	1 165.30	387.75	383.75	7 406.55		

la Includes 10 % local in-kind contribution (labour, stones, etc.).

lb To be carried out or contracted by the district administration using its own funds.

lc Estimated at 5% of capital costs.

ld Estimated at 5% of capital costs.

le For equipment to be operated by the district and be hired out with drivers to contractors. Income would cover the maintenance costs of the equipment.

lf International Engineers' and Contract Supervisors' Course on Feeder Roads (Kisii, Kenya) - 6 weeks at USD 5 200 plus travel, Oct-Nov each year.

lg For chiefs, brigades and sector teams.

lh Seminars for contractors in labour-intensive construction techniques.

li Includes manuals.

lj To assist in preparing the first annual district road management plans.

lk For conducting the feeder road rehabilitation study.

Table 12. Project Coordination (Comp. 4)
Detailed Costs USD

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Table 12. Project Coordination (Comp. 4)
Detailed Costs (USD)

	Unit	Quantities							Unit Cost	Base Cost ('000)							Grant Category	Financing Rule		
		2009	2010	2011	2012	2013	2014	2015		Total	2009	2010	2011	2012	2013	2014			2015	Total
I. Investment Costs																				
A. Joint PCU /a																				
1. Equipment																				
Desktop computers	set	3	-	-	-	10	-	-	13	2,000	6.00	-	-	-	20.00	-	-	26.00	Cat. 3	IFAD_1
Laptop	number	3	-	-	-	6	-	-	9	2,500	7.50	-	-	-	15.00	-	-	22.50	Cat. 3	IFAD_1
Audiovisual equipment	set	1	-	-	-	1	-	-	2	5,000	5.00	-	-	-	5.00	-	-	10.00	Cat. 3	IFAD_1
Other office equipment	lumpsum	1	-	-	-	1	-	-	2	10,000	10.00	-	-	-	10.00	-	-	20.00	Cat. 3	IFAD_1
Office furniture	set	3	-	-	-	-	-	-	3	500	1.50	-	-	-	-	-	-	1.50	Cat. 3	IFAD_1
Subtotal Equipment																				
2. Studies and Impact Assessment																				
Baseline and Impact Studies /b	amount	-	-	-	-	-	-	-	-	20.00	-	-	-	10.00	-	-	10.00	40.00	Cat. 4	IFAD_1
Mid-term review and final impact survey	lumpsum	-	-	1	-	-	-	1	2	50,000	-	-	50.00	-	-	-	50.00	100.00	Cat. 4	IFAD_1
Thematic studies	amount	-	1	1	1	1	1	1	6	10,000	-	10.00	10.00	10.00	10.00	10.00	60.00	60.00	Cat. 4	IFAD_1
Audit	year	1	1	1	1	1	1	1	7	15,000	15.00	15.00	15.00	15.00	15.00	15.00	105.00	105.00	Cat. 4	IFAD_1
Subtotal Studies and Impact Assessment																				
3. Workshops																				
Steering Committee Meeting	number	1	1	1	1	1	1	1	7	2,000	2.00	2.00	2.00	2.00	2.00	2.00	14.00	14.00	Cat. 4	Centr. Govt.
Review meeting on Annual Workplan and Budget	number	1	1	1	1	1	1	1	7	2,000	2.00	2.00	2.00	2.00	2.00	2.00	14.00	14.00	Cat. 4	IFAD_1
IFAD Implementation regional workshop	person	3	3	3	3	3	3	3	21	2,500	7.50	7.50	7.50	7.50	7.50	7.50	52.50	52.50	Cat. 4	IFAD_1
Subtotal Workshops																				
Subtotal Joint PCU																				
B. Field Coordinator's Office																				
1. Civil Works																				
Office rehabilitation	amount	-	-	-	-	-	-	-	-	75.00	-	-	-	-	-	-	75.00	75.00	Cat. 1	IFAD_1
2. Vehicles																				
Motorbike (four stroke)	number	1	-	-	-	-	-	-	1	4,500	4.50	-	-	-	-	-	4.50	4.50	Cat. 3	IFAD_1
3. Equipment																				
Electrical generator	number	1	-	-	-	-	-	-	1	5,000	5.00	-	-	-	-	-	5.00	5.00	Cat. 3	IFAD_1
Computers with printers	set	3	-	-	-	3	-	-	6	2,000	6.00	-	-	-	6.00	-	12.00	12.00	Cat. 3	IFAD_1
Laptop	number	1	-	-	-	1	-	-	2	2,500	2.50	-	-	-	2.50	-	5.00	5.00	Cat. 3	IFAD_1
Photocopy machine	number	1	-	-	-	1	-	-	2	3,800	3.80	-	-	-	3.80	-	7.60	7.60	Cat. 3	IFAD_1
Video-beamer	number	1	-	-	-	1	-	-	2	2,000	2.00	-	-	-	2.00	-	4.00	4.00	Cat. 3	IFAD_1
Communication equipment	lumpsum	1	-	-	-	1	-	-	2	5,000	5.00	-	-	-	5.00	-	10.00	10.00	Cat. 3	IFAD_1
Office furniture	lumpsum	3	-	-	-	-	-	-	3	500	1.50	-	-	-	-	-	1.50	1.50	Cat. 3	IFAD_1
Subtotal Equipment																				
Subtotal Field Coordinator's Office																				
C. Training																				
Training for PCU staff /c	lumpsum	-	-	-	-	-	-	-	-	20.00	20.00	20.00	20.00	20.00	-	-	100.00	100.00	Cat. 4	IFAD_1
D. Technical Assistance																				
1. National TA																				
Preparation of the first AWPB /d	pers-month	2	-	-	-	-	-	-	2	3,750	7.50	-	-	-	-	-	7.50	7.50	Cat. 4	IFAD_1
Preparation of implementation manuals /e	number	4	-	-	-	-	-	-	4	10,000	40.00	-	-	-	-	-	40.00	40.00	Cat. 4	IFAD_1
IT set-up and maintenance /f	amount	-	-	-	-	-	-	-	-	10.00	3.00	3.00	3.00	3.00	3.00	3.00	28.00	28.00	Cat. 4	IFAD_1
National Technical Assistance /g	pers-month	4	4	4	2	2	2	2	20	3,750	15.00	15.00	15.00	7.50	7.50	7.50	75.00	75.00	Cat. 4	IFAD_1
Subtotal National TA																				
2. International TA																				
International Technical Assistance /g	pers-month	2	2	2	1	1	1	1	10	22,000	44.00	44.00	44.00	22.00	22.00	22.00	220.00	220.00	Cat. 4	IFAD_1
Subtotal Technical Costs																				
Total Investment Costs																				

Table 12. Project Coordination (Comp. 4) suite
Detailed Costs USD

II. Recurrent Costs																				
A. Joint PCU																				
1. Salaries and Allowances																				
Coordinator	pers-year	-	-	-	-	1	1	1	3	24.000	-	-	-	-	24.00	24.00	24.00	72.00	Cat. 5	IFAD_1
Irrigation Engineer	pers-year	1	1	1	1	1	1	1	7	20.049	20.05	20.05	20.05	20.05	20.05	20.05	20.05	140.34	Cat. 5	IFAD_1
Finance and Administration Officer	pers-year	-	-	-	-	1	1	1	3	20.049	-	-	-	-	20.05	20.05	20.05	60.15	Cat. 5	IFAD_1
Monitoring and Evaluation Expert	pers-year	-	-	-	-	1	1	1	3	20.049	-	-	-	-	20.05	20.05	20.05	60.15	Cat. 5	IFAD_1
Procurement Officer	pers-year	-	-	-	-	1	1	1	3	20.049	-	-	-	-	20.05	20.05	20.05	60.15	Cat. 5	IFAD_1
Contracts Manager	pers-year	-	-	-	-	1	1	1	3	20.049	-	-	-	-	20.05	20.05	20.05	60.15	Cat. 5	IFAD_1
Accountant	pers-year	-	-	-	-	1	1	1	3	20.049	-	-	-	-	20.05	20.05	20.05	60.15	Cat. 5	IFAD_1
Assistant Accountant	pers-year	1	1	1	1	2	2	2	10	8.925	8.92	8.92	8.92	8.92	17.85	17.85	17.85	89.25	Cat. 5	IFAD_1
Assistant M&E	pers-year	1	1	1	1	1	1	1	7	8.925	8.92	8.92	8.92	8.92	8.92	8.92	8.92	62.47	Cat. 5	IFAD_1
Security Guard	pers-year	-	-	-	-	1	1	1	3	1.618	-	-	-	-	1.62	1.62	1.62	4.85	Cat. 5	IFAD_1
Subtotal Salaries and Allowances																				
										37.90	37.90	37.90	37.90	172.69	172.69	172.69	669.65			
2. Operation and Maintenance																				
Office operation & maintenance /h	year										3.00	3.00	3.00	3.00	5.00	5.00	5.00	27.00	Cat. 6	IFAD_1
4WD vehicle hire	item-day	100	100	100	100	100	100	100	700	127	12.73	12.73	12.73	12.73	12.73	12.73	12.73	89.09	Cat. 6	IFAD_1
2WD vehicle hire	item-day	75	75	75	75	75	75	75	525	45	3.41	3.41	3.41	3.41	3.41	3.41	3.41	23.86	Cat. 6	IFAD_1
Subtotal Operation and Maintenance																				
										19.14	19.14	19.14	19.14	21.14	21.14	21.14	139.95			
Subtotal Joint PCU										57.03	57.03	57.03	57.03	193.82	193.82	193.82	809.61			
B. Field Coordinator's Office																				
1. Salaries and Allowances																				
Field Coordinator	pers-year	1	1	1	1	1	1	1	7	20.049	20.05	20.05	20.05	20.05	20.05	20.05	20.05	140.34	Cat. 5	IFAD_1
Secretary /i	pers-year	1	1	1	1	1	1	1	7	7.865	7.86	7.86	7.86	7.86	7.86	7.86	7.86	55.05	Cat. 5	IFAD_1
Administrative Assistant	pers-year	1	1	1	1	1	1	1	7	7.865	7.86	7.86	7.86	7.86	7.86	7.86	7.86	55.05	Cat. 5	IFAD_1
Subtotal Salaries and Allowances										35.78	35.78	35.78	35.78	35.78	35.78	35.78	250.45			
2. Operation and Maintenance																				
Office operation & maintenance /j	item-year										5.00	5.00	5.00	5.00	5.00	5.00	5.00	35.00	Cat. 6	IFAD_1
Motorbike operation & maintenance	item-year	1	1	1	1	1	1	1	7	700	0.70	0.70	0.70	0.70	0.70	0.70	0.70	4.90	Cat. 6	IFAD_1
4WD vehicle hire	item-day	200	200	200	200	200	200	200	1 400	127	25.45	25.45	25.45	25.45	25.45	25.45	25.45	178.18	Cat. 6	IFAD_1
Subtotal Operation and Maintenance										31.15	31.15	31.15	31.15	31.15	31.15	31.15	218.08			
Subtotal Field Coordinator's Office										66.93	66.93	66.93	66.93	66.93	66.93	66.93	468.53			
Total Recurrent Costs										123.97	123.97	123.97	123.97	260.76	260.76	260.76	1 278.14			
Total										442.27	442.27	442.27	442.27	1 278.14	1 278.14	1 278.14	6 338.74			

la The PCU would be providing joint coordination services for PAPSTA and KWAMP.

lb The baseline study in PY1 under retroactive financing.

lc Includes managerial and technical training (such as value chain development).

ld Under retroactive financing.

le For the implementation manuals for the Community Capacity Building Fund, the community competitions, the revolving fund for seed multiplication cooperatives and the district road maintenance fund; under retroactive financing.

lf IT services to set up and to service the IT equipment.

lg For flexi-TA to be used as and when required.

lh Includes stationery, utilities and cleaning services.

li To provide secretarial services to the Field Coordinator and all Technical Assistance under the project.

lj Includes stationery, utilities and cleaning services.

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Components Project Cost Summary

	(RWF Million)			(USD '000)			%	% Total
	Local	Foreign	Total	Local	Foreign	Total	Foreign Exchange	Base Costs
A. 1. Local institutional development								
1.1 Support to agricultural transformation	1 514.9	522.8	2 037.7	2 754.3	950.5	3 704.9	26	8
1.2 Water and land use management	1 175.1	344.7	1 519.8	2 136.5	626.8	2 763.3	23	6
Subtotal 1. Local institutional development	2 690.0	867.5	3 557.5	4 890.9	1 577.4	6 468.2	24	14
B. 2. Agricultural intensification								
2.1 Value chain development	1 342.3	329.4	1 671.8	2 440.6	599.0	3 039.6	20	7
2.2 Crop and livestock intensification	3 247.9	270.3	3 518.2	5 905.3	491.4	6 396.6	8	14
2.3 Irrigation development	4 947.8	1 317.7	6 265.5	8 996.0	2 395.8	11 391.7	21	25
2.4 Soil and Water Conservation	3 868.3	819.0	4 687.3	7 033.3	1 489.1	8 522.4	17	19
Subtotal 2. Agricultural intensification	13 406.3	2 736.4	16 142.7	24 375.1	4 975.2	29 350.3	17	64
C. 3. Feeder roads	3 184.6	889.0	4 073.6	5 790.2	1 616.3	7 406.5	22	16
D. 4. Project coordination	975.2	311.1	1 286.3	1 773.1	565.7	2 338.7	24	5
Total BASELINE COSTS	20 256.1	4 804.0	25 060.1	36 829.3	8 734.5	45 563.8	19	100
Physical Contingencies	1 206.2	306.3	1 512.5	2 193.1	557.0	2 750.1	20	6
Price Contingencies	5 084.8	1 293.8	6 378.6	807.5	206.7	1 014.3	20	2
Total PROJECT COSTS	26 547.1	6 404.2	32 951.2	39 829.9	9 498.3	49 328.2	19	108

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Expenditure Accounts Project Cost Summary

	(RWF Million)			(USD '000)			% Foreign Exchange	% Total Base Costs
	Local	Foreign	Total	Local	Foreign	Total		
I. Investment Costs								
A. Civil Works	11 074.0	2 768.5	13 842.6	20 134.6	5 033.7	25 168.3	20	55
B. Investment Fund	2 468.4	-	2 468.4	4 488.0	-	4 488.0	-	10
C. Vehicles	175.2	205.7	380.9	318.6	374.0	692.5	54	2
D. Equipment and Materials	74.9	224.7	299.7	136.2	408.6	544.8	75	1
E. Training and Studies	2 411.0	448.9	2 859.9	4 383.7	816.2	5 199.8	16	11
F. Technical Assistance								
International TA	-	1 015.1	1 015.1	-	1 845.6	1 845.6	100	4
National TA	623.0	-	623.0	1 132.8	-	1 132.8	-	2
Subtotal Technical Assistance	623.0	1 015.1	1 638.1	1 132.8	1 845.6	2 978.4	62	7
G. Service Contracts	2 396.7	-	2 396.7	4 357.6	-	4 357.6	-	10
Total Investment Costs	19 223.3	4 662.9	23 886.2	34 951.5	8 478.0	43 429.5	20	95
II. Recurrent Costs								
A. Salaries and Allowances	860.4	-	860.4	1 564.3	-	1 564.3	-	3
B. Operation and Maintenance	172.4	141.1	313.5	313.5	256.5	570.0	45	1
Total Recurrent Costs	1 032.8	141.1	1 173.9	1 877.8	256.5	2 134.3	12	5
Total BASELINE COSTS	20 256.1	4 804.0	25 060.1	36 829.3	8 734.5	45 563.8	19	100
Physical Contingencies	1 206.2	306.3	1 512.5	2 193.1	557.0	2 750.1	20	6
Price Contingencies	5 084.8	1 293.8	6 378.6	807.5	206.7	1 014.3	20	2
Total PROJECT COSTS	26 547.1	6 404.2	32 951.2	39 829.9	9 498.3	49 328.2	19	108

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Expenditure Accounts by Components - Totals Including Contingencies
(USD '000)

	1. Local institutional development		2. Agricultural intensification				3. Feeder roads	4. Project coordination	Total
	1.1 Support to agricultural transformation	1.2 Water and land use management	2.1 Value chain development	2.2 Crop and livestock intensification	2.3 Irrigation development	2.4 Soil and Water Conservation			
I. Investment Costs									
A. Civil Works	248.5	-	-	2 218.5	10 640.5	8 129.5	7 044.6	82.8	28 364.5
B. Investment Fund	210.0	-	2 000.0	1 850.2	-	427.8	-	-	4 488.0
C. Vehicles	214.8	18.1	-	30.9	-	-	433.3	4.5	701.6
D. Equipment and Materials	175.6	137.5	-	-	91.3	-	20.5	127.5	552.4
E. Training and Studies	1 577.6	1 168.5	145.4	94.3	1 753.9	208.9	48.8	517.0	5 514.5
F. Technical Assistance									
International TA	492.9	276.2	587.7	66.8	122.6	-	111.4	224.6	1 882.1
National TA	76.1	387.0	188.5	-	143.8	143.8	61.0	152.8	1 153.0
Subtotal Technical Assistance	569.0	663.2	776.2	66.8	266.4	143.8	172.4	377.4	3 035.1
G. Service Contracts	-	814.1	152.9	2 464.6	-	515.8	501.7	-	4 449.1
Total Investment Costs	2 995.4	2 801.5	3 074.5	6 725.3	12 752.1	9 425.8	8 221.3	1 109.3	47 105.2
II. Recurrent Costs									
A. Salaries and Allowances	661.8	-	-	-	-	-	-	948.0	1 609.9
B. Operation and Maintenance	174.9	52.9	-	-	-	-	-	385.3	613.1
Total Recurrent Costs	836.7	52.9	-	-	-	-	-	1 333.4	2 223.0
Total PROJECT COSTS	3 832.1	2 854.4	3 074.5	6 725.3	12 752.1	9 425.8	8 221.3	2 442.6	49 328.2
Taxes	151.4	159.0	22.9	383.9	13.7	77.4	277.7	95.1	1 181.1
Foreign Exchange	980.3	646.6	616.8	546.0	2 669.9	1 667.7	1 779.5	591.5	9 498.3

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Project Components by Year -- Totals Including Contingencies
(USD '000)

	Totals Including Contingencies							
	2009	2010	2011	2012	2013	2014	2015	Total
1. Local institutional development								
1.1 Support to agricultural transformation	765.1	692.2	622.0	689.6	487.6	375.6	200.0	3 832.1
1.2 Water and land use management	1 419.1	746.1	205.3	156.4	162.1	90.4	74.9	2 854.4
Subtotal 1. Local institutional development	2 184.2	1 438.3	827.3	846.0	649.7	466.1	274.9	6 686.5
2. Agricultural intensification								
2.1 Value chain development	34.0	435.0	606.1	613.5	627.7	626.6	131.6	3 074.5
2.2 Crop and livestock intensification	299.3	1 013.7	1 181.1	1 401.8	1 438.3	768.7	622.5	6 725.3
2.3 Irrigation development	328.3	708.7	1 865.7	3 660.0	4 279.9	1 272.0	637.4	12 752.1
2.4 Soil and Water Conservation	1 400.8	1 906.2	2 248.7	2 053.8	1 769.4	26.0	20.9	9 425.8
Subtotal 2. Agricultural intensification	2 062.4	4 063.7	5 901.6	7 729.1	8 115.2	2 693.3	1 412.5	31 977.7
3. Feeder roads	297.7	1 168.4	2 425.3	2 134.7	1 313.3	441.7	440.2	8 221.3
4. Project coordination	456.7	250.0	305.3	233.8	437.0	346.0	413.8	2 442.6
Total PROJECT COSTS	5 001.0	6 920.4	9 459.4	10 943.6	10 515.3	3 947.1	2 541.4	49 328.2

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Expenditure Accounts by Years -- Totals Including Contingencies
(USD '000)

	Totals Including Contingencies							
	2009	2010	2011	2012	2013	2014	2015	Total
I. Investment Costs								
A. Civil Works	1 452.3	3 151.0	5 976.8	7 415.0	7 149.7	1 919.3	1 300.4	28 364.5
B. Investment Fund	66.5	890.9	1 003.7	980.0	1 021.9	495.0	30.0	4 488.0
C. Vehicles	290.7	249.0	25.5	35.9	36.1	36.3	28.2	701.6
D. Equipment and Materials	231.9	127.1	38.7	61.0	84.4	6.7	2.6	552.4
E. Training and Studies	1 269.4	758.5	840.9	984.6	979.5	438.2	243.4	5 514.5
F. Technical Assistance								
International TA	399.5	358.2	360.7	317.7	154.7	155.6	135.7	1 882.1
National TA	305.4	261.8	229.3	109.5	87.0	87.5	72.4	1 153.0
Subtotal Technical Assistance	704.9	620.0	589.9	427.3	241.7	243.2	208.1	3 035.1
G. Service Contracts	782.2	863.5	735.1	770.4	589.8	393.6	314.6	4 449.1
Total Investment Costs	4 797.8	6 660.0	9 210.6	10 674.1	10 103.0	3 532.3	2 127.2	47 105.2
II. Recurrent Costs								
A. Salaries and Allowances	110.9	167.4	168.5	184.2	324.3	326.3	328.2	1 609.9
B. Operation and Maintenance	92.2	93.1	80.2	85.2	87.9	88.5	85.9	613.1
Total Recurrent Costs	203.2	260.4	248.8	269.5	412.3	414.7	414.2	2 223.0
Total PROJECT COSTS	5 001.0	6 920.4	9 459.4	10 943.6	10 515.3	3 947.1	2 541.4	49 328.2

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Components by Financiers
(USD '000)

	IFAD initial grant		IFAD 2nd grant		WFP		DED		Beneficiaries		Private Sector		Central Government		District Government		Total		For. Exch.	Local (Excl. Taxes)	Duties & Taxes	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%				
A. 1. Local institutional development																						
1.1 Support to agricultural transformation	2 788	72.7	-	-	-	-	471	12.3	20	0.5	-	-	151	4.0	402	10.5	3 832	7.8	980	2 700	151	
1.2 Water and land use management	2 625	92.0	-	-	-	-	-	-	-	-	-	-	202	7.1	27	0.9	2 854	5.8	647	2 049	159	
Subtotal 1. Local institutional development	5 413	81.0	-	-	-	-	471	7.0	20	0.3	-	-	353	5.3	429	6.4	6 687	13.6	1 627	4 749	310	
B. 2. Agricultural intensification																						
2.1 Value chain development	1 802	58.6	-	-	-	-	-	-	-	-	1 250	40.7	23	0.7	-	-	3 075	6.2	617	2 435	23	
2.2 Crop and livestock intensification	4 862	72.3	-	-	-	-	41	0.6	1 439	21.4	-	-	384	5.7	-	-	6 725	13.6	546	5 795	384	
2.3 Irrigation development	4 818	37.8	6 324	49.6	-	-	-	-	1 596	12.5	-	-	14	0.1	-	-	12 752	25.9	2 670	10 068	14	
2.4 Soil and Water Conservation	1 219	12.9	-	-	8 130	86.2	-	-	-	-	-	-	77	0.8	-	-	9 426	19.1	1 668	7 681	77	
Subtotal 2. Agricultural intensification	12 700	39.7	6 324	19.8	8 130	25.4	41	0.1	3 035	9.5	1 250	3.9	498	1.6	-	31 978	64.8	5 500	25 979	498		
C. 3. Feeder roads	-	-	-	-	-	-	-	-	67	0.8	-	-	6 628	80.6	1 526	18.6	8 221	16.7	1 779	6 164	278	
D. 4. Project coordination	2 332	95.5	-	-	-	-	-	-	-	-	-	-	110	4.5	-	-	2 443	5.0	591	1 756	95	
Total PROJECT COSTS	20 446	41.4	6 324	12.8	8 130	16.5	511	1.0	3 123	6.3	1 250	2.5	7 590	15.4	1 955	4.0	49 328	100.0	9 498	38 649	1 181	

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Disbursement Accounts by Financiers
(USD '000)

	IFAD initial grant		IFAD 2nd grant		WFP		DED		Beneficiaries		Private Sector		Central Government		District Government		Total		For. Exch.	Local (Excl. Taxes)	Duties & Taxes
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%			
Civil Works	4 811	17.0	5 344	18.8	8 130	28.7	-	-	3 103	10.9	-	-	5 451	19.2	1 526	5.4	28 364	57.5	5 673	22 692	-
Investment Fund	3 238	72.1	-	-	-	-	-	-	-	-	1 250	27.9	-	-	-	-	4 488	9.1	-	4 488	-
Vehicles, Equipment and Materials	597	47.6	-	-	-	-	-	-	-	-	-	-	657	52.4	-	-	1 254	2.5	793	55	406
Training, Technical Assistance, Studies and Service Contracts	10 071	77.5	980	7.5	-	-	511	3.9	20	0.2	-	-	1 389	10.7	27	0.2	12 999	26.4	2 756	9 559	684
Salaries and Allowances	1 280	79.5	-	-	-	-	-	-	-	-	-	-	-	-	330	20.5	1 610	3.3	-	1 610	-
Operation and Maintenance	449	73.2	-	-	-	-	-	-	-	-	-	-	92	15.0	73	11.8	613	1.2	276	245	92
Total PROJECT COSTS	20 446	41.4	6 324	12.8	8 130	16.5	511	1.0	3 123	6.3	1 250	2.5	7 590	15.4	1 955	4.0	49 328	100.0	9 498	38 649	1 181

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Local/Foreign/Taxes by Financiers
(USD '000)

	IFAD initial grant		IFAD 2nd grant		WFP		DED		Beneficiaries		Private Sector		Central Government		District Government		Total	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
I. Foreign	3 678	38.7	1 289	13.6	1 626	17.1	471	5.0	678	7.1	-	-	1 407	14.8	349	3.7	9 498	19.3
II. Local (Excl. Taxes)	16 767	43.4	5 035	13.0	6 504	16.8	41	0.1	2 444	6.3	1 250	3.2	5 002	12.9	1 606	4.2	38 649	78.4
III. Taxes	-	-	-	-	-	-	-	-	-	-	-	-	1 181	100.0	-	-	1 181	2.4
Total Project	20 446	41.4	6 324	12.8	8 130	16.5	511	1.0	3 123	6.3	1 250	2.5	7 590	15.4	1 955	4.0	49 328	100.0

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Disbursements by Semesters and Government Cash Flow
(USD '000)

	Financing Available							Total	Costs to be		
	IFAD 1st grant	IFAD 2nd grant	WFP	DED	Beneficiaries	Private Sector	District Government		Financed Project	Central Government	Cumulative
	Amount	Amount	Amount	Amount	Amount	Amount	Amount		Costs	Cash Flow	Cash Flow
1	1 628	-	560	64	1	-	-	2 348	2 500	-152	-152
2	1 628	-	560	64	1	-	-	2 348	2 500	-152	-304
3	1 730	-	807	64	105	88	-	3 319	3 460	-141	-445
4	1 730	-	807	64	105	88	-	3 319	3 460	-141	-585
5	2 077	-	975	64	230	125	34	4 658	4 730	-72	-658
6	2 077	-	975	64	230	125	34	4 658	4 730	-72	-730
7	2 381	469	899	64	410	125	113	5 393	5 472	-79	-809
8	2 381	469	899	64	410	125	113	5 393	5 472	-79	-888
9	1 177	1 860	823	-	464	144	253	5 183	5 258	-75	-963
10	1 177	1 860	823	-	464	144	253	5 183	5 258	-75	-1 038
11	715	555	-	-	212	144	288	1 919	1 974	-54	-1 092
12	715	555	-	-	212	144	288	1 919	1 974	-54	-1 147
13	515	278	-	-	140	-	290	1 224	1 271	-46	-1 193
14	515	278	-	-	140	-	290	1 224	1 271	-46	-1 239
Total	20 446	6 324	8 130	511	3 123	1 250	1 955	48 089	49 328	-1 239	-1 239

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Allocation of Grant Proceeds

IFAD initial grant
(USD '000)

	Suggested Allocation of Grant Proceeds		Total Project Cost						Average Disbursement %		Grant Amounts					
	Grant Amount	Disbursement (%)	Total Project Cost			Average Disbursement %			Unallocated			Allocated				
			Total	Local	Foreign	Total	Local	Foreign	Total	Total	Local	Foreign	Total	Local	Foreign	
Cat I. Génie civil	4 374	17	28 364	22 692	5 673	17	17	17	4 811	437	350	87	4 374	3 499	875	
Cat II. Fonds d'investissement	3 238	72	4 488	4 488	-	72	72	-	3 238	-	-	-	3 238	3 238	-	
Cat III. Véhicules, équipements & matériels	597	48	1 254	461	793	48	12	69	597	-	-	-	597	53	544	
Cat IV. Formation, assistance technique, études et contrats de service	9 909	77	12 999	10 242	2 756	77	79	70	10 071	162	133	29	9 909	8 004	1 906	
Cat V. Salaires et indemnités	1 280	80	1 610	1 610	-	80	80	-	1 280	-	-	-	1 280	1 280	-	
Cat VI. Entretien et fonctionnement	427	73	613	337	276	73	63	86	449	21	10	11	427	201	226	
Unallocated	621	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total	20 446	41	49 328	39 830	9 498	-	-	-	20 446	621	493	128	19 825	16 275	3 550	

Grant amounts financed by IFAD initial grant.

IFAD 2nd grant
(USD '000)

	Suggested Allocation of Grant Proceeds		Total Project Cost						Average Disbursement %		Grant Amounts					
	Grant Amount	Disbursement (%)	Total Project Cost			Average Disbursement %			Unallocated			Allocated				
			Total	Local	Foreign	Total	Local	Foreign	Total	Total	Local	Foreign	Total	Local	Foreign	
Cat I. Génie civil	4 858	19	28 364	22 692	5 673	19	19	19	5 344	486	389	97	4 858	3 887	972	
Cat II. Fonds d'investissement	-	-	4 488	4 488	-	-	-	-	-	-	-	-	-	-	-	
Cat III. Véhicules, équipements & matériels	-	-	1 254	461	793	-	-	-	-	-	-	-	-	-	-	
Cat IV. Formation, assistance technique, études et contrats de service	964	8	12 999	10 242	2 756	8	7	8	980	16	12	3	964	747	217	
Cat V. Salaires et indemnités	-	-	1 610	1 610	-	-	-	-	-	-	-	-	-	-	-	
Cat VI. Entretien et fonctionnement	-	-	613	337	276	-	-	-	-	-	-	-	-	-	-	
Unallocated	502	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total	6 324	13	49 328	39 830	9 498	-	-	-	6 324	502	401	100	5 822	4 634	1 189	

Grant amounts financed by IFAD 2nd grant.

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Procurement Arrangements
(USD)

	Procurement Method									Total
	International Competitive Bidding	Local Competitive Bidding	Consulting Services: QCBS	Consulting Services: LCS	Local Shopping	Direct Purchase/ Negotiations/ Single Tender	Force Account	Community Participation in Procurement	United Nations Agencies	
A. Civil Works	-	28 281 627.0	-	-	82 830.0	-	-	-	-	28 364 457.0
of which: IFAD initial grant		(4 728 195.2)			(82 830.0)					(4 811 025.2)
IFAD 2nd grant		(5 344 028.2)								(5 344 028.2)
B. Investment Fund	3 133 187.3	-	-	-	-	-	-	1 342 794.5	-	4 475 981.8
of which: IFAD initial grant	(2 258 187.3)							(967 794.5)		(3 225 981.8)
IFAD 2nd grant										
C. Vehicles	-	701 574.1	-	-	-	-	-	-	-	701 574.1
of which: IFAD initial grant		(144 853.7)								(144 853.7)
D. Equipments and goods	-	414 307.1	-	-	138 102.4	-	-	-	-	552 409.4
of which: IFAD initial grant		(339 091.5)			(113 030.5)					(452 121.9)
E. Service Contracts	-	2 335 032.0	-	-	2 335 032.0	-	-	-	-	4 670 064.1
of which: IFAD initial grant		(1 746 214.1)			(1 746 214.1)					(3 492 428.2)
F. Technical Assistance and Training	-	-	4 519 922.1	410 902.0	107 596.6	-	15 063.5	2 465 412.1	821 804.0	8 340 700.3
of which: IFAD initial grant			(3 574 662.0)	(324 969.3)	(91 457.1)			(1 949 815.6)	(649 938.5)	(6 590 842.5)
IFAD 2nd grant			(539 012.3)	(49 001.1)				(294 006.7)	(98 002.2)	(980 022.3)
G. Salaries and Allowances	-	1 207 406.9	-	-	-	-	402 469.0	-	-	1 609 875.8
of which: IFAD initial grant		(959 944.3)					(319 981.4)			(1 279 925.8)
H. Operation and Maintenance	-	153 274.2	-	-	306 548.4	153 274.2	-	-	-	613 096.9
of which: IFAD initial grant		(112 155.9)			(224 311.7)	(112 155.9)				(448 623.5)
Total	3 133 187.3	33 093 221.2	4 519 922.1	410 902.0	2 970 109.4	153 274.2	417 532.5	3 808 206.6	821 804.0	49 328 159.4
of which: IFAD initial grant	(2 258 187.3)	(8 030 454.7)	(3 574 662.0)	(324 969.3)	(2 257 843.4)	(112 155.9)	(319 981.4)	(2 917 610.2)	(649 938.5)	(20 445 802.6)
IFAD 2nd grant	-	(5 344 028.2)	(539 012.3)	(49 001.1)	-	-	-	(294 006.7)	(98 002.2)	(6 324 050.5)

Republic of Rwanda
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT (KWAMP)
Procurement Accounts by Years
(USD)

	Totals Including Contingencies							Total
	2009	2010	2011	2012	2013	2014	2015	
1. Civil Works	1 452 286.0	3 151 012.2	5 976 838.2	7 414 953.3	7 149 668.6	1 919 290.5	1 300 408.1	28 364 457.0
2. Investment Fund	66 463.6	878 945.5	1 003 654.5	980 009.1	1 021 909.1	495 000.0	30 000.0	4 475 981.8
3. Vehicles	290 658.0	248 959.9	25 477.8	35 882.9	36 098.2	36 314.8	28 182.4	701 574.1
4. Equipments and goods	231 905.7	127 056.0	38 726.3	61 001.0	84 366.7	6 744.2	2 609.5	552 409.4
5. Service Contracts	811 672.8	922 966.8	798 695.9	810 880.0	612 443.4	398 844.3	314 560.9	4 670 064.1
6. Technical Assistance and Training	1 944 861.3	1 331 018.0	1 367 255.0	1 371 384.3	1 198 557.4	676 139.0	451 485.3	8 340 700.3
7. Salaries and Allowances	110 918.3	167 366.2	168 537.1	184 209.0	324 331.9	326 277.9	328 235.5	1 609 875.8
8. Operation and Maintenance	92 232.9	93 077.0	80 245.4	85 248.1	87 925.5	88 453.0	85 915.0	613 096.9
Total	5 000 998.7	6 920 401.6	9 459 430.2	10 943 567.7	10 515 300.7	3 947 063.7	2 541 396.8	49 328 159.4

DRAFT - Procurement Plan for the first 18 months of Implementation

CIVIL WORKS	UNIT	QUANTITY		Unit cost USD	Total cost USD	Procurement Method	Timetable																			
		2009	2010				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
Construction of premises for CCI	number	3		75000	225000	LCB	Tender Doc. Prep.							Tender.Dc Eval.	Contract	Implementation										
Sheds for purchased animals	number		550	273		CPP												CPP								
Marshland irrigation schemes	ha		50	4500	225000	LCB												Tender Doc Prep.	TDE	Contract	Implementation					
Hillside irrigation schemes	ha		50	3500	175000	LCB												Tender Doc Prep.	TDE	Contract	Implementation					
Labour for embocagement (Food for work)	ha	3500	5000	290	1453500	LCB	Tender Doc. Prep.							Tender.Dc Eval.	Contract	Implementation										
Feeder road rehabilitation - major improvement works	km		10	35000	350000	LCB												Tender Doc Prep.	TDE	Contract	Implementation					
Feeder road rehabilitation to deprived areas - partial works	km		10	25000	250000	LCB												Tender Doc Prep.	TDE	Contract	Implementation					
Short access roads to storage facilities /a	km		10	10000	100000	LCB												Tender Doc Prep.	TDE	Contract	Implementation					
Spot improvements (culverts, drifts, cleansing)	amount		60000		60000	LCB												Tender Doc Prep.	TDE	Contract	Implementation					
Office rehabilitation	amount	75000			75000	LCB	Tender Doc. Prep.							Tender.Dc Eval.	Contract	Implementation										
TOTAL					2913500																					

VEHICLES	UNIT	QUANTITY		Unit cost USD	Total cost USD	Procurement Method	Timetable																			
		2009	2010				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
Motorbikes (four stroke) comp 1.1; 1.2; 4	number	11		4500	49500	LCB	Tender Doc. Prep.							Tender.Dc Eval.	Contract	Implementation										
Motorbikes (four stroke) comp 1.1	number		6	4500	27000	LCB												Tender Doc Prep.	TDE	Contract	Implementation					
Bicycles for Personnes Ressources comp 1.1	number	100	100	100	20000	LCB												Tender Doc Prep.	TDE	Contract	Implementation					
Grader	number		1	200000	200000	LCB												Tender Doc Prep.	TDE	Contract	Implementation					
Compactor + Small truck	number	2			230000	LCB	Tender Doc. Prep.							Tender.Dc Eval.	Contract	Implementation										
TOTAL					526500																					

EQUIPMENTS AND GOODS	UNIT	QUANTITY		Unit cost USD	Total cost USD	Procurement Method	Timetable																	
		2009	2010				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Lot 1																								
Computers with printers	number	12		2000	24000	LCL	Tender Doc. Preep. T.D. E Contract Implementation																	
Laptop	number	6		2500	15000	LCL																		
Video-beamer	number	1		2000	2000	LCL																		
Communication/audiovisual equipment	lumpsum	2		5000	10000	LCL																		
Office furniture	lumpsum	9		500		LCL																		
GIS equipment	number	1		4000	4000	LCL																		
GIS software	set	1		2182	2182	LCL																		
A3 Printer	number	1		1500	1500	LCL																		
A4 Printer	number	1		1500	1500	LCL																		
A0 Plotter	number	1		14000	14000	LCL																		
Network equipment	set	1		4000	4000	LCL																		
Other office equipment	set	2		10000	20000	LCL																		
Total					98182																			
Lot 2																								
Laser printer	number		3	2000	2181	LCL	Tender Doc. Prep. TDE Contract Implementation																	
scanner	number		3	727	927	LCL																		
TV and DVD Player	set		3	327	981	LCL																		
Digital Camera	set		3	309	927	LCL																		
Computers with printers	number		12	2000	24000	LCL																		
Total					29016																			
Lot 3																								
Flow measurement equipment	amount		15000		15000	LCL	Tender Doc. Prep. TDE Contract Implementation																	
River gauging stations	amount		5000		5000	LCL																		
Weather stations	amount		45000		45000	LCL																		
Total					65000																			
Small equipment for road maintenance	set		1	4000	4000	LCL	Tender Doc. Prep. TDE Contract Implementation																	
CCI furniture	set		3	1000	3000	LCL																		
Solar Panel	set		3	1818	5454	LCL																		
Library supplies	number		3	2000	6000	LS																		
Publications (including bulletins)	amount		8000		8000	LS																		
Base maps	set	1		100000	100000	LCL	Tender Doc. Prep.	Tender Doc Eval.	Contract	Implementation														
TOTAL					510850																			

REPUBLIC OF RWANDA

**KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT
(KWAMP)**

**PROGRAMME DESIGN DOCUMENT
FINAL DESIGN**

WORKING PAPER 12

ENVIRONMENTAL SCREENING AND SCOPING NOTE

REPUBLIC OF RWANDA

KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT

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REPUBLIC OF RWANDA
KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT
(KWAMP)

PROGRAMME DESIGN DOCUMENT
FINAL DESIGN

WORKING PAPER 12
ENVIRONMENTAL SCREENING AND SCOPING NOTE

Country Project Name: Republic of Rwanda - Kirehe Community-Based Watershed Management Project (KWAMP)

I. PROJECT DESCRIPTION AND COMPONENTS

1. The project has been formulated in response to the Government's strategy aimed at improving soil fertility and productivity through adopting sustainable soil and water conservation (SWC) programmes and increasing the quality and quantity of watershed services, especially in light of the climate change now affecting the Africa region. Through these efforts, it is expected that both farm productivity and the incomes of people within the watershed community will increase and that market opportunities will open up. The specific objectives of the project are to:

- stabilize and enhance agricultural production by reducing the loss of agricultural land through community-based SWC measures and sustainable support services;
- enable farming communities to plan and implement sustainable, market-oriented intensification practices and add value to their on-farm production through, inter alia, irrigation development;
- improve agricultural water management through strengthening the capacity of water institutions; and
- facilitate the integration of vulnerable groups into the socio-economic development process through increased opportunities for farm and non-farm activities.

2. The proposed project is structured around four components, namely: (i) local institutional development; (ii) farm intensification; (iii) marketing and financial services; and (iv) project coordination.

Component 1 – Local Institutional Development

3. The local institutional development component is geared to establishing a localized watershed management mechanism. It comprises five subcomponents, namely (a) watershed planning and management; (b) development of community innovation centres; (c) a community-managed extension mechanism; (d) support to farmer institutions; and (e) support to decentralized structures.

4. Watershed planning and management would involve development of criteria for the selection of priority watersheds, in consultation with districts. Once identified, the management and planning of

watersheds would be undertaken in a participatory manner. The watershed management plan would be integrated into the District Management Plan in support of SWC initiatives.

5. The community innovation centre would be developed as a venue for strengthening the capacity of farmers both with regard to water management and conservation measures. This would be a community-managed centre, where farmers could demonstrate appropriate technologies to fellow farmers and exchange information and lessons of experience.

6. The community-managed extension mechanism is expected to document farmers' experiences and best practices on SWC for incorporation into a manual. Participatory tools to ensure the sustainability of SWC initiatives would be developed, such as farm-risk assessment and analysis, household and farm planning, and formulation of community watershed development plans. These tools would become the basis for farmers to enter into contract agreements with the project coordination unit (PCU).

7. The subcomponent dealing with support to farmer institutions would involve provision of extension services to farmers to help them form community organizations and emerge as operational groups. The support services would also include organizational capacity building and development for farmer organizations (FOs). The support thereby provided would be widely disseminated

8. The last subcomponent, support to decentralized structures, would involve drawing up district development plans (DDPs) and formulation at the sector level. This would also include assisting sectors to draw up and update their DDPs through integration of watershed management and infrastructure plans.

Component 2 – Farm Intensification

9. This component involves four subcomponents, namely, (a) SWC; (b) rainfed crop intensification; (c) irrigation development; and (d) livestock development. Its main purpose is to enhance soil productivity while increasing farmers' incomes.

10. The SWC subcomponent would identify and train 300 farmer trainers on SWC measures. The farmers so trained would in turn train other farmers, and eventually involve about 22 500 farm households. It is expected that SWC-related measures would cover around 25 000 ha within the six-year life of the project.

11. The rainfed crop intensification subcomponent would concentrate on the promotion of cropping and agronomic practices, improvement of planting material and in-field rainwater management for dry-land cropping.

12. The subcomponent for irrigation development, on the other hand, would provide institutional support for irrigation and the development of marshland and hillside irrigation.

13. The subcomponent on livestock development would engage in activities related to livestock improvement, feed and feeding development, and capacity-building.

Component 3 – Marketing and Rural Financial Services

14. The marketing and rural financial services would involve subcomponents for: (a) input supply and marketing of produce; (b) feeder road rehabilitation; and (c) rural financial services.

15. Activities relating to input supply and marketing of produce would be based on criteria drawn up for focusing on specific commodities with pro-poor development potential, support of institutions that strengthen linkages and interaction between chain actors for learning purposes, facilitation of demand-driven services for capacity strengthening, and targeting investments according to rules

applied by the private financing sector. This subcomponent would develop selected value-chains, meaning that commodities would be selected in a participatory manner while taking account of future market development. Mapping and analysis of the production-consumption chains should identify the value-addition activities to be undertaken as well as issues concerning input supply and marketing of produce. This subcomponent would also involve providing access to inputs and equipment, better marketing of produce, market information and intelligence, and capacity strengthening.

16. For effective marketing of increased agricultural development and livestock production generated by the project, feeder roads would be rehabilitated in strategic areas (to be identified) and linked to intensification of specific watersheds. Road rehabilitation activities would be implemented along the same lines as under the PDRCIU intervention, which involved strengthening the capacities of both the district administration and private contractors.

17. The proposed rural financial services subcomponent would involve development of an effective and sustainable rural financing tool for target communities, innovation through support to the existing “*tontine club*”, and establishment of a decentralized funding mechanism.

Component 4 – Project Coordination

18. The project would be housed in MINAGRI, within the PCU of PAPSTA. Additional staff would be hired as required. To ensure effectiveness, proximity and efficiency, one unit would be established in Kirehe with responsibility for field activities. This team would be expected to coordinate closely with counterparts, such as district and sector agronomists.

19. Most project activities would be contracted out to service providers, including consultants for studies, contractors for physical works, non-governmental organizations (NGOs) or private organizations for training, and NGOs for development of a treadle pump supply chain. Communities and farmer groups would be important implementation partners in both the preparation and implementation of watershed management plans and in managing community based funds.

II. MAJOR SITE CHARACTERISTICS

A. The Biophysical Environment

20. **Location.** Rwanda is located in Central Africa, at 1°04' and 2°51' latitude south and 28°45' and 31°15' longitude east. The country covers an area of 26,338 km², with an average density of 321 inhabitants per square kilometre. The country is landlocked between Tanzania to the east, the Democratic Republic of Congo to the west, Burundi to the south and Uganda to the north. The District of Kirehe, which is situated in the southeast of the country, covers a land area of 1,225.4 km² and has a population of 229,486. The district consists of 12 administrative sectors comprising 60 cells and 613 villages. An administrative map of Kirehe District appears below.

21. **Relief.** The terrain in Rwanda is hilly and mountainous, with altitudes ranging from 900 m to 4,507 m above sea level. This includes the: Congo Nil Ridge, which overlays Lake Kivu at an altitude of 2,500-3,000 m. The area is dominated in the northwest by volcanic ranges, of which Karisimbi is the highest at 4,507 m. In Kirehe District, the relief is generally considered as low-plate. However, there is an assembly line that divides the area into two geographical entities: a low altitude plain (more or less 1,350 m) punctuated by insulated hills; and hills and mountains with top plates (the Mount Mahama and Migongo assembly line). The average altitude in Kirehe District is 1,500 m.

22. **Climate.** Thanks to its altitude, Rwanda benefits from a tropical, temperate climate. There are four distinct seasons, of which two are dry and two are rainy. Rainfall is estimated to range from 900 mm/year in the east to more than 2,000 mm/year in the west, with temperatures ranging from about

20-24°C to 26-29 °C. Thanks to its four seasons, the country benefits from two harvests per year. In general, the duration and intensity of rainfall and dryness differentiate into four seasons, namely: (a) the small rainy season, known as "Umuhindo", begins in mid-October and ends in December; (b) the small dry season, "Urugaryi", is from January to mid-March; (c) the heavy rainy season, "Itumba", is from mid- March to mid-June; and (d) the dry season, "Impeshyi", runs from mid-June to mid-October. The period September through mid-December is considered as a small rainy season, with an estimated 27% of all the year's rainfall. This is usually the period when beans, maize, potato, sorghum, etc., are grown. End-December to mid- February is seen as the small dry season, when rain is rare and when beans, corn and potato are harvested. The heavy rainy season begins in mid-February and lasts until the end of May, with an estimated 40% of all the year's rainfall. The great dry season runs from June through August.

23. **Soils and land capability.** Rwanda's cultivable area is estimated at 1,511,400 ha, or approximately 57% of the total land area. The country is characterized by six types of soils: those derived from schistose, sandstone and quartzite formations (50%); (b) those derived from granite and gneissic formations (20%); (c) those derived from basic intrusive rocks (10%); (d) those derived from recent volcanic material (10%); (e) those derived from old volcanic material (4%); and (f) alluvial and colluvial soils (6%). While soil on steep slopes may be fertile (volcanic soil), they are also considered fragile and vulnerable to deterioration and/or erosion. The proportion of land used for agriculture in Rwanda is the highest in Africa; it is also extraordinarily high by global standards.

24. **Hydrology.** Rwanda has a huge amount of water from rivers, lakes and marshes, which occupy 211,000 ha or about 8% of the national territory. (lakes 128,000 ha, rivers 7,260 ha, and marshes 77,000 ha). And while the Akagera River forms the south-eastern boundary of Kirehe District, water is still a serious problem for the majority of its population. The people of Gatore, for example, often travel more than 10 km to find water.

25. **Biodiversity and forests.** Ecological conditions both in Rwanda as a whole and in Kirehe District show a remarkable diversity of ecosystems that include mountains, ombrophile forest, gallery forests, savannahs, wet and aquatic zones, woods and agro-ecosystems. These areas are also the habitat of diverse flora and fauna (including the country's famous mountain gorillas). The Nyungwe, Volcanoes and Akagera national parks are home to a multitude of orchids, ferns, timber, birds, primates (300-400 *Colobus angolens*) and other mammals (*Loxodonta africana*, *sincerus caffer*, *Panthera leo*, *Tragelaphus oryx*). The forest has a high level of biodiversity, with certain endemic and threatened species such as *Blighia unijuguta*, *Growia forbese*, *Rhus vulgaris*, *Pterygota mildbrqedii* and *ficus*, among others. The national forest cover was estimated at 527,863 ha in 2001, or 20.05% of the total land area.

B. Socio-cultural and -economic conditions

26. **Socio-demographic profile.** The majority of Rwanda's population are engaged in the agricultural sector, and 13% of all people are considered landless. The total number of households is estimated at 55,000, of which women head 28%. The table below shows the structure of the population by sector and gender.

Names Sectors	Male	Female	Total
GAHARA	13859	15800	29659
GATORE	9161	10435	19596
KIGARAMA	10181	11489	21670
KIGINA	7850	8670	16520
KIREHE	7880	8494	16374
MAHAMA	6353	6777	13130
MPANGA	10662	11674	22336
MUSAZA	8622	9662	18284
MUSHIKIRI	8250	9291	17541
NASHO	9486	10660	20146
NYAMUGARI	11151	12229	23380
NYARUBUYE	5071	5761	10832
Total	108526	120942	229468

Source: INSR, Socio-economic census, 2006

27. **Economy.** Agriculture is the cornerstone of Rwanda’s economy, which shows an annual growth rate of 5.2% (2005). The sector accounts for 47% of gross domestic product, and for 71% of all export revenues, which constitute the main source of income for the population. The country’s major exports are coffee, tea, tin, cassiterite, wolframite and pyrethrum; its major industries involve cement, agricultural produce, small-scale beverages, soap, furniture, shoe-making, plastic goods, textiles and tobacco (cigarettes). Kirehe District’s economy is mainly based on agriculture and animal husbandry. The district’s secondary and tertiary industries are either not at all well-developed, or are even almost non-existent.

C. Governance, Institutional and Policy Framework

28. **Vision 2020.** The protection and management of the environment are two of the major pillars of the Government’s Vision 2020. By the year 2020, Government aims to build a nation in which:

- pressure on natural resources –essentially land, water, biomass and biodiversity – has significantly dropped and the process of pollution and degradation of the environment has been reversed;
- the management and protection of the above environmental resources is more rational and regulated, which would both preserve and leave behind a healthy, sustainable environment for future generations.

29. In terms of the protection and management of natural resources, the Government’s objective is to see, by the year 2020, a decrease from 90% to 50% in households mainly dependent on traditional agriculture. To that end, the Government will seek to integrate environmental aspects in all policies, education and development, and in all decision-making and the promotion of community (including women and youth) involvement as a basis for environmental protection and management.

30. **National policy on the environment.** The objective of the National Environment Policy of 2004 is to ensure sustainable environmental protection and management. The following principles are mentioned in the policy:

- It is every person’s right to live in a safe and stable environment; however, on the other hand, they must keep it salubrious;
- National economic growth must be based on rational use of resources and take account of the environment;

- The active and effective participation of the entire population is essential with regard to environmental protection and management?
- Special emphasis must be placed on environmental education, with a sensitization programme at all levels and more involvement of women and youth;
- Environmental impact assessments (EIAs) should form an integral part of studies for new development projects.

31. **The** policy was translated into an Organic Law on the Environment, which was gazetted in 2005. Since then, the Rwanda Environmental Management Authority (REMA) has been established. Ministerial Orders also have been drafted laying down the procedure for EIAs and listing the types of works, activities and projects for which an EIA is required.

1. Issues in Natural Resource Management

32. The following are identified issues and concerns with regard to natural resources management in Rwanda:

- Almost 90% of the population relies on agriculture for its livelihood, occupying an average of 0.6 ha, mostly on eroded slopes. With the limited resource base and pressure of population growth, there is a clear challenge to arrest soil erosion and make the land more productive to feed an average family size of six. MINITERE has estimated that the loss of productive soil caused by erosion equates to food for around 40,000 people per year (worth about USD 13 million).
- The capacity of agronomists at the national, district and sector levels is poor with regard to philosophy, principles and community participation practices.
- Limited access to technology, input/output markets and land and water is a key constraint. At an average of 2 kg per ha, the use of inorganic fertilizer in Rwanda is one of the lowest in sub-Saharan Africa. Land availability has been declining over time and dry-land farm size is now less than 0.5 ha per farming household. At current yields, this is often barely sufficient to produce enough food for self-consumption let alone a surplus to market. There is also a perceptible downward trend in mean annual rainfall, with wide and possibly increasing variability, resulting in severely dry years and dry spells within years, which discourages investments in yield-enhancing inputs.
- Smallholder farmers market surplus subsistence production on local markets, but their access to domestic and regional markets is still inadequate. Rural areas supply urban centres with agricultural products. Yet smallholder farmer organizations with well-developed economic functions remain an exception. The network of financial services is still expanding and provides an opportunity to strengthen the economic functions of FOs.
- Initiatives taken by traders and processors indicate that market demand is increasing. This is underpinned by the growing need for food products in urban centres and rural areas of the country, as highlighted in recent studies. Regional and international markets also offer opportunities, but set very high quality standards that are rather difficult for smallholders to meet.
- Two structural constraints have been identified: (i) a weakly organized input supply system accessible to smallholder farmers; and (ii) a network of feeder roads that rapidly deteriorates during the rains and hinders efficient supply of inputs and produce.
- Only 4.7% of the rural population have a stable livelihood, and women heads of household are very little involved in non-agricultural activities. Of the households involved in such activities, only 23% are headed by women. Yet a large part of the agricultural production is either marketed (60% of households) or processed (72% of rural households). This helps rural people to gain access to cash but at the same time it accentuates their precarious situation.

- Rural people are organizing themselves into associations and cooperatives. The Government's policy is now to transform all associations into cooperatives, even though some are not involved in economic activities. All of them, however, lack capacity and resources. Staff have been recruited by the districts and sectors, but their abilities are limited and therefore capacity-strengthening is needed. The need for capacity-strengthening was emphasized throughout the field visits.
- While women have been formally recognized through their positioning in local government bodies, they remain relatively confined to social sectors. The vice mayors in charge of gender issues are poorly skilled and contribute little to economic debates at the district level. As a result, the problems facing vulnerable groups are not addressed properly, despite the existence of assistance-type policies.

2. Potential Environmental Impacts/Concerns

Positive Impacts

a) Biophysical

33. The following positive biophysical impacts can be foreseen:

- Soil productivity enhancement using composting and organic fertilizers reduces potential risks to health and the environment, and increases the incomes of farmers and agricultural wage earners.
- Every household would have their own area for fuel wood and fodder for their farm animals.
- As a result of plant genetic resource conservation, the availability of sustainable technology and increased farm production, farmers and the entire community should be able to store more seed and food crops, thus also increasing their capacity to withstand climatic shocks.
- Sustainable SWC practices contribute to arresting soil erosion and, combined with soil fertility enhancement, may increase soil productivity, reduce pressure on forest cover (and even provide an opportunity to expand it), sequester and reverse carbon emissions to the environment, and significantly contribute to efforts to halt climate change.
- Environmental awareness and availability of sustainable farming practices may result in decreased soil erosion and land degradation by the end of the project.
- By adopting good agricultural practices, such as the use of animal manure, composting, crop rotations and alternative pest management, dependence on chemical fertilizer and pesticides will reduce health hazards and poisoning of the food chain.
- The creation of local water associations, and support to their apex bodies and representative sub-basin or catchment authorities, should result in more sustainable use of water resources

b) Socio-Economic Impacts

34. The following socio-economic impacts are possible:

- Farmers should become able to adapt to and cope better with climate changes through sound agricultural practices, such as good farming practices, afforestation, plant genetic resource conservation, radical terracing, trenching, hedging, cover cropping and intercropping (for example, the maize/beans intercropping system), mulching and hedging, crop development, intensification, diversification, and other SWC interventions within the six-year project period and beyond.
- Agricultural production should increase for the rural poor, enabling them to not only produce for subsistence but also for marketing. This will result in increased incomes and greater investment in the farm, tools and equipment, which should lead to greater efficiency and productivity. Increased incomes may also be used in other entrepreneurial activities such as: livestock and poultry-raising, small stores, farmers' and community savings programmes, and for education and health.

c) Governance, Policies and Institutional Impacts

35. The following impacts on governance and institutions might be expected:

- Through the introduction of participatory planning, monitoring, evaluation and learning (PPMEL) on a pilot basis, farmers should gain a sense of ownership and control over project implementation. Over time, the community should be empowered, resulting in independence, self-reliance and sustainability of investments.
- PPMEL should eventually lead to increased knowledge, opportunities, efficiency, effectiveness, confidence and empowerment of the community to manage watershed management projects on their own and should help service providers become more effective and efficient partners in community initiatives.

d) Negative Impacts

36. The possible negative impacts are:

- The development of new marshland or hillside irrigation – unless carefully planned– could compromise the availability of water for downstream users, including downstream irrigation users. It might compromise the fragile ecosystems of marshlands, particularly through excessive drainage.
- There might also be an increase in vector-borne diseases (bilharzia and malaria) as a result of new irrigation, although health centres in the project areas have not yet identified any cases of bilharzia.

e) Environmental Categorization of the Project

37. With its focus on watershed management and SWC, the project is considered to fall under the environmental Category B of IFAD's *Administrative Procedures for Environmental Assessment*. This is in spite of the proposed activities involving wetland development (including small-scale water control), which would normally place the project in Category A. However, as the area of wetland to be developed under the various subprojects proposed would amount to only about 500 ha in some 10 subprojects (out of a gross wetland area of 7 700 ha in Kirehe District and 194 000 ha in Rwanda as a whole, an area which represents a quarter of the total of 2 000 ha of irrigation development under the project), Category A is not considered appropriate. Nevertheless, an EIA will be prepared for all irrigation activities suspected of having a substantial environmental impact. Moreover, a Draft Order by the Minister responsible for the environment specifies that an EIA is required for any project (or

subproject) that involves agricultural development in wetlands, as well as any project/subproject involving the construction of a public dam for water conservation or ‘rainwater harvesting’ for agricultural activities (which could be the case for both marshland and hillside irrigation).

f) Information Required to Complete Screening and Scoping

38. As the detailed design of the irrigation development activities would only be prepared during project implementation and would be accompanied by an EIA, no further information is required to complete the environmental screening and scoping.

3. Recommended Features of Project Design to Mitigate Environmental Problems

39. The main thrust of the project would be to reduce soil erosion while increasing agricultural productivity and reducing poverty. The project would also involve capacity-building in natural resource management, all of which should have a positive impact on the environment. The only subcomponent that has a potentially harmful impact is irrigation development, for which EIAs and clearances from REMA would be obligatory. Consequently project design makes provision for impact assessments, clearances and monitoring in respect of such interventions.

4. Components Requiring Environmental Assessment, and Scope of Assessment needed (elements of TOR for EA)

40. The project component requiring environmental assessment is subcomponent 2.3, marshland and hillside irrigation development. The scope of the assessment in wetlands includes basin and feasibility studies, environmental impact surveys and the design of mitigating measures for these likely impacts.

41. The terms of reference for the EIAs – and, indeed, the results of the ensuing studies – would be subject to the approval of REMA. However, the following elements should be taken into account when designing these studies:

- whether a range of alternative proposals should be considered and, if so, whether they would be less environmentally damaging than that proposed;
- the main environmental effects of the proposed project, both in the project area and in the surrounding area, and the timescale of the impacts;
- the size and extent of the impacts, based to the extent possible on quantitative data rather than qualitative assessment. In some cases it may be necessary to highlight certain topics (such as flooding, draining) when a particular issue is known to be of concern. In most cases, however, it may be preferable not to mention any specific topic and make the consultant responsible for a complete review of all topics;
- groups that will benefit and others disadvantaged by the project (including upstream and downstream water users and those who might be displaced by the construction of dams or roads);
- the impact on any rare species of plant or animal in the area;
- the impact on human health;
- the control and management aspects of the project, to determine whether or not they will be effective;
- the need for further baseline data collection or for other specialist studies;
- the present policy, institutional and legislative situation and future needs;
- the mitigating measures needed and how they should be incorporated into project design;

- monitoring and evaluation activities required to ensure that mitigating measures are implemented and future problems avoided.

42. The TOR will give an indication of the team considered necessary for the study, which may include one or more of the following: an irrigation specialist, drainage specialist, roads specialist, rural sociologist, terrestrial ecologists (of various specializations), aquatic ecologist/fisheries expert, hydrologist, agronomist, soil chemist or physicist, economist and epidemiologist.

5 Requirements and Recommendations for Further Natural Resource Management Activities during Preparation

43. The natural resource management activities proposed under the project are comprehensive, and need no further action from the standpoint of environmental screening and scoping.

6. Estimated Budgetary Requirements for Environmental Assessment

44. The cost estimates include sufficient resources required for EIAs. Altogether, under subcomponent 2.3: marshland and hillside irrigation development, base costs of USD 150 000 have been included for 20 EIAs costing approximately USD 7 500 each. Thus each participatory feasibility and basin study would be accompanied by a thorough EIA before finalization of the design.

7. Record of Consultations with Beneficiaries, Local NGOs, General Public

45. In November 2007, initial discussions were held with many stakeholders, including officials of MINAGRI, MINICOM, MINALOC, MINECOFIN, MINITERE, MIGEPROF, the Central Bank of Rwanda, and of REMA, RADA, RHODA and RARDA, RSSP, PAIGELAC, PADEBL, INADES, ROPARWA, Heifer International and UCORIRWA. Members of the mission interacted with mayors and district staff, and participatory meetings were held with some communities and farmers' representatives. Stakeholders would be further consulted during the EIA process with regard to activities for which EIAs are required.

REPUBLIC OF RWANDA

KIREHE COMMUNITY-BASED WATERSHED MANAGEMENT PROJECT

(KWAMP)

**PROGRAMME DESIGN DOCUMENT
FINAL DESIGN**

WORKING PAPER 13

MONITORING AND EVALUATION

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Soil and Water Conservation
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MONITORING AND EVALUATION

I. INTRODUCTION

1. Project planning, monitoring and evaluation are necessary management tools to ensure that development programs and projects are carried out efficiently and effectively in bringing about sustainable and meaningful changes in peoples lives and their organizations and communities.
2. Planning, monitoring and evaluation are done to guide, direct, control and measure the process, outcome and impact of development programs and projects over desired results in terms of measurable specific indicators, by means of verifiable documents usually extracted by external teams from target beneficiaries, organizations and communities.
3. Over time, planning, monitoring and evaluation [have](#) become the domain of hired external management experts undergoing regular and periodic monitoring and evaluations, usually to satisfy funding partners. Project beneficiaries have increasingly become tools in the extractive process of data gathering resulting in disinterest in the process and loss of the sense of ownership, not only of the project, but the data and lessons learned from the programs and projects. The dynamic process of active people’s participation, problem solving, action and reflection, and the empowerment of target beneficiaries were lost.

II. RATIONALE

4. Evidently, there is a need to establish an approach in planning, monitoring and evaluation which ensures active participation, and seeks to institutionalize it and facilitates a continuing learning process in the farmer organization. The approach must be empowering, improving public accountability, facilitating information for strategic planning, ensuring people’s efficiency and effectiveness, increasing people’s awareness and control over development process by key stakeholders.
5. It is in this context that this paper will discuss the proposed Monitoring and Evaluation approach, from the pre-implementation stage, training of facilitators, preparation of tools and educational materials, training of farmer leaders, baseline data establishment, documentation, data analysis, reproduction in popular forms of learnings gained and re-planning. The approach will be applied in all components of the project.

III. M&E SYSTEM

6. The KWAMP M&E activities will be integrated into those of PAPSTA, where the same unit, strengthened by additional staff, would be responsible for M&E activities. A supervision mission recently undertaken for PAPSTA paid particular attention to finalizing a revised logical framework and indicators, to reviewing the M&E manual, forms and current systems of reporting, monitoring and data collection, and to reviewing and rationalizing project indicators. The project would benefit from the rationalized set-up for M&E.

7. Project M&E is a necessary management tool to ensure that development programmes and projects are carried out efficiently and effectively, and to bring about sustainable and meaningful changes in people's lives, their organizations and communities. In the evolution of community development work, the traditional management practice of considering M&E as an external mechanism and an extractive means for generating data and information, and for determining the efficiency, effectiveness and impact of a certain development project, has long been an accepted framework and part of the organizational culture.

8. However, latest innovations show that the participatory approach paradigm shift in development work has proved that development management, and in particular M&E, is no longer the domain of management experts or a top-down management approach. Rather it is becoming an effective system for ensuring successful development interventions.

9. In PAPSTA, there is already an established Monitoring and Evaluation system, comprising indicators from IFAD's Results and Impact Management System (RIMS) and other, project-specific ones. This is a good starting point to generate global perspective on what is happening on the ground. In the district, the field coordinator will be the person to ensure that M&E activities are functioning, and will need to follow-up with the partners that have the data collection & entry responsibility.

~~9-10.~~ There is however a need to In order to strengthen the local learning and planning loop, the project will additionally implement an internal participatory planning, monitoring, evaluation and learning (PPMEL) initiative, from the perspective of farmers organization, as an add on, and to complement and support existing M-&-E systems. The initiative aims to institutionalize a participatory planning, evaluation, and learning process, as part of a routine process at farmer organization level. It also aims to identify other key indicators, not otherwise identified under the RIMS, as a complementary effort of the project beneficiaries. In KWAMP, PPPMEL will be a pilot activity that will be tried in at least three watersheds, starting in PY3 when the regular project M&E system will have been consolidated.

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IV. PPMEL AS A MANAGEMENT TOOL

~~10-11.~~ A new initiative, scaled up from participatory planning into Participatory Planning, Monitoring, Evaluation and Learning (PPMEL), is an effective tool and approach to development management. PPMEL involves identifying problems, solutions, threats and opportunities for formulating and implementing a course of development action. It involves assessing the results of changes through an adoptive learning process in partnership with multiple stakeholders, such as community members and groups, FOs, NGOs, etc., each of which is affecting or is affected by decisions or actions taken and the impacts being assessed.

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~~11-12.~~ In the project, PPMEL would be an additional tool to PAPSTA's emerging M&E system. It is a piloting initiative that would be used in at least three watersheds to test its feedback loops relative to the implementation of project activities. It would work in a multi-

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level organizational hierarchy (sector, district, national) for planning, implementation, decision making, monitoring, evaluation and learning.

[12-13](#).PPMEL is in line with the September 2007 supervision recommendations for PAPSTA. It would have benchmark and context-specific information in each area of operation through the farm planning and community development planning process. Lessons would be constantly drawn from periodic assessments of progress. Any gaps identified for corrective action by the communities themselves would be raised with different levels of stakeholders, such as sector, district and MINAGRI representatives.

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[13-14](#).A “levelling-off” workshop for stakeholders would be initiated by the project’s M&E and implementation team to ensure that PPMEL is fully understood. Representatives of the PCU, the MINAGRI MIS unit, co-ordinators of different project components, service providers and the CLGS would attend the workshop together with other key stakeholders. This process would be replicated at the district, sector and community levels in a much simpler and popular form and content, bearing in mind the basics of PAPSTA’s M&E system.

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[14-15](#).It is expected that PPMEL would hasten the flow of learning from the community (CCI) to national-level institutions (PCU, service providers), policies and strategies with the objective of improving project implementation at the community level. At all project levels, data and information would be analysed and kept. Lessons learned and stories of significant changes would be translated into popular information, education and communication material for the benefit of all stakeholders, through forward-and-backward, vertical-and-horizontal communication processes, in order to bring about changes in policies, programmes, plans and strategies, activities and decision-making.

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[15-16](#).This continuous process would work throughout the life of the project, possibly even beyond, thereby giving birth to knowledge-based empowered organizations and communities, dynamically visioning and working towards sustainable and progressive change, as an expression of the individual dreams and aspirations of each member of these organizations and communities.

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APPENDIX 1: PARTICIPATORY PLANNING, MONITORING, EVALUATION AND LEARNING (PPMEL)

1. Planning, Monitoring and Evaluation and Learning (PPMEL) involves identifying problems, solutions, threats and opportunities, towards formulating and implementing a course of development action. It involves assessing the results or changes through adoptive learning process in partnership with multiple stakeholders, such as community members and groups, farmers organizations and non-government organizations, etc., each of whom is affecting or is affected by the decisions or actions taken and impacts being assessed.

I. PPMEL, A MANAGEMENT TOOL

2. PPMEL is an approach in development planning, monitoring and evaluation aimed at institutionalizing the process as part of the routine responsibility and capability building mechanism of the target partner organization, while at the same time facilitating a continuing learning climate.

3. PPMEL ensures accountability not only upwards (towards donors), but also downwards, that is accountability to our partner organizations, as well as, towards local communities, local government, and the organization's own staff.

4. PPMEL is also for learning, not only capturing information to learn (and not only to account), but also learning from this information, and importantly, applying the lessons learned.

5. By using PPMEL, in a multi-actor context, a partner organization can learn and improve, can raise its profile, can strengthen and can deepen its legitimacy, and open a healthy relationship with other partner organizations.

6. Finally, PPMEL can help our partners gain confidence, at different levels, those of a person, a team, and an organization. By knowing one has contributed to effecting change, by being ready to accept mistakes (and learn from them), self confidence, and therefore effectiveness can be built.

7. PPMEL in the context of this project can be described through the diagram below:

Table 1: Graphical flow of Concepts, Actions-reflection, learning and praxis as Expressed in PPMEL approach

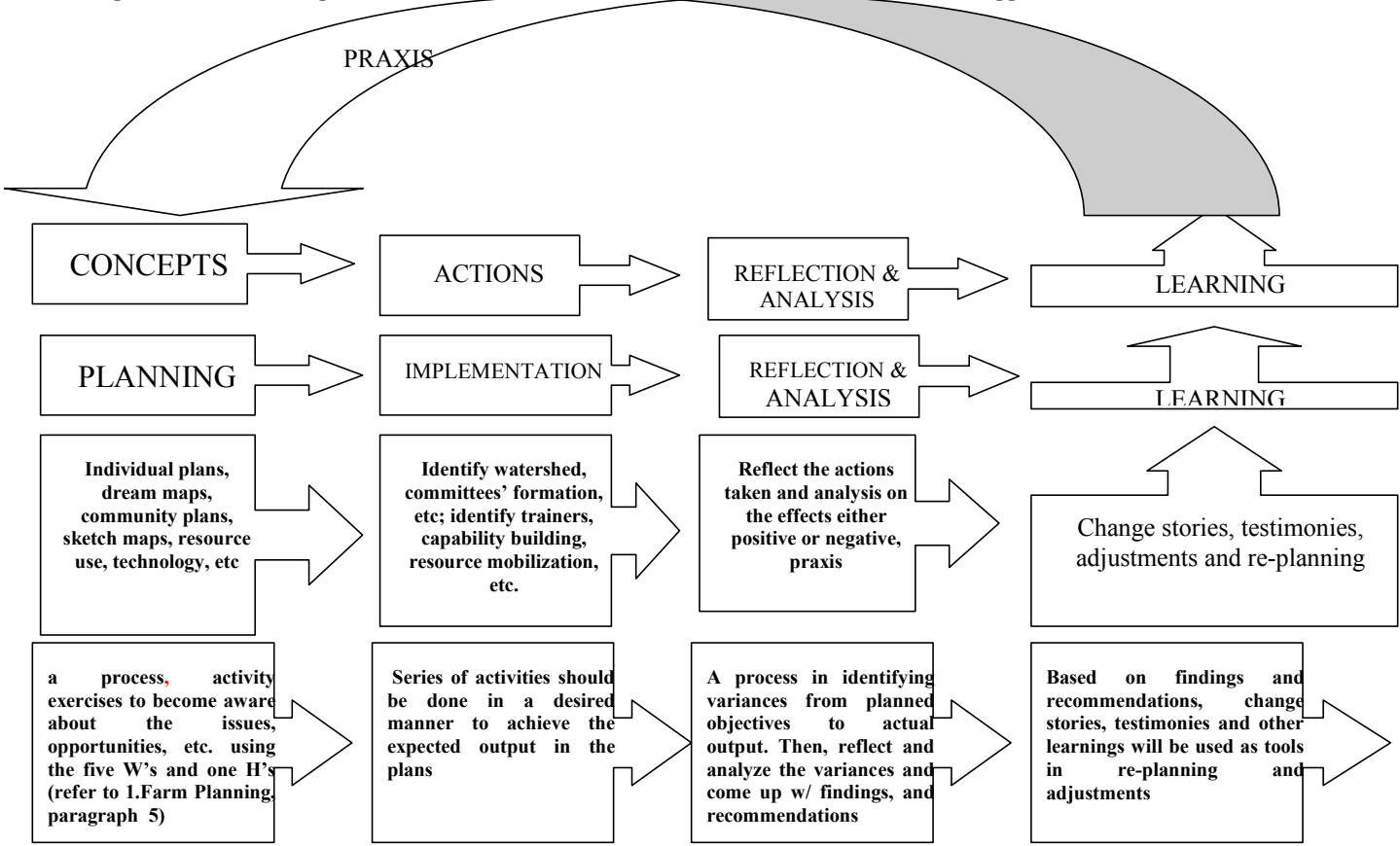
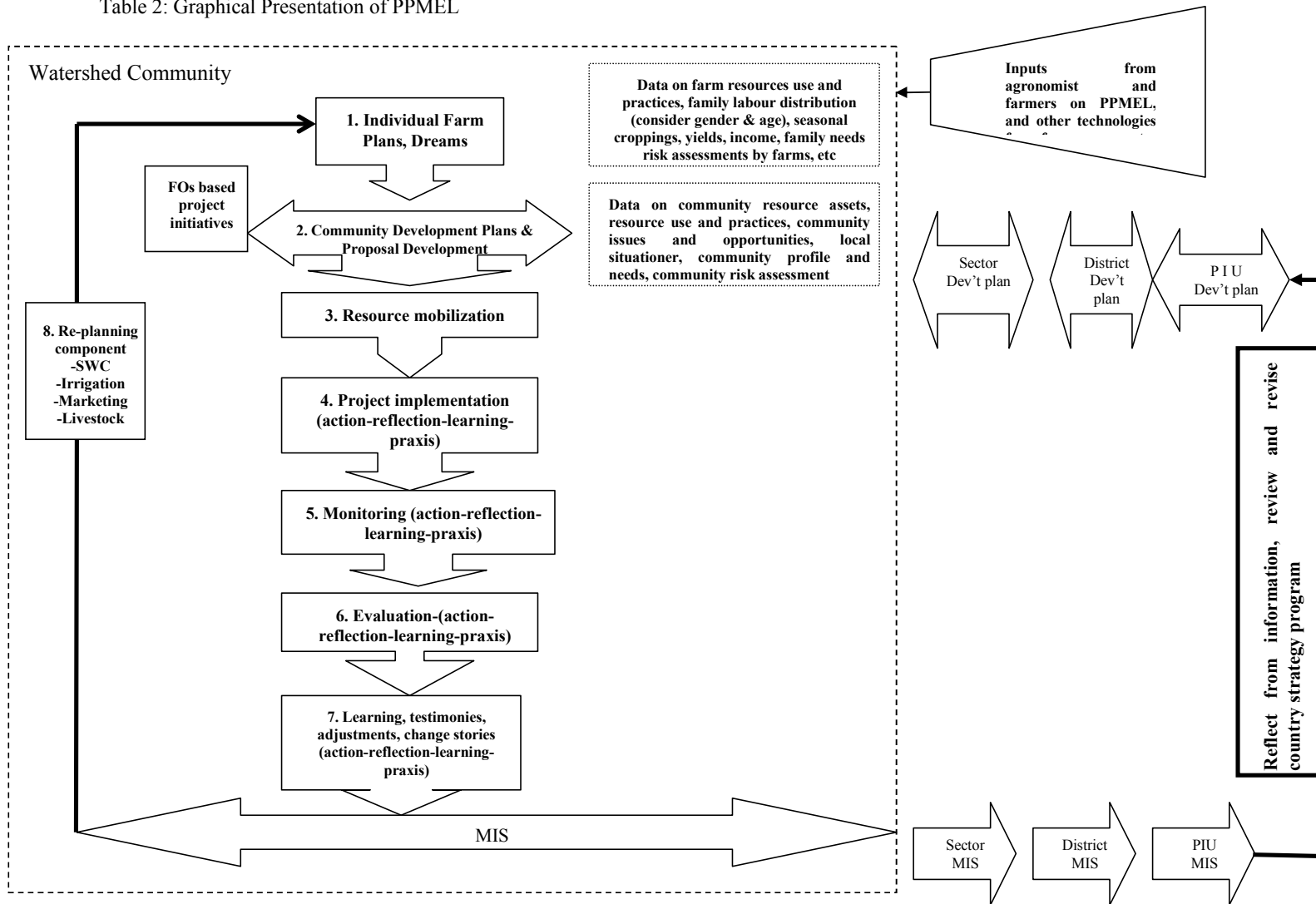


Table 2: Graphical Presentation of PPMEEL



8. It is envisaged that at the end of the project, the watershed community will be able to manage projects on their own. Thus, the PPMEL approach is also an exit strategy because it builds capacity for watershed community to manage their project through generating learnings from their projects and advance their learnings through their action-reflection praxis.

II. KEY STEPS OF PPMEL

A. Farm Planning

9. Trainings received by the farmers will be utilized to train fellow farmers on how to draw their individual farm sketch plan and their individual dream farm plan. Training on how to do these plans will be done by the trainers for individual farmers coming from the chosen watershed communities which are also considered PPMEL pilot areas.

10. The schedules of the trainings, number and criteria in selecting the participants in these trainings will be made by the Farmer Trainers, subject to the guidance of the agronomist/facilitator, the CLGS (Comite Local de Gestion et de Supervision), the Sector and District. Women and youth must be given equal opportunity in the selection of the participants. The training venue must be in the immediate vicinity of the participants' farms.

11. It is essential that part of the training inputs will include basic and practical knowledge of PPMEL contained in a clear manual written in the local dialect. It is important also that the manual and the farmers facilitating the training can answer the following questions: What is PPMEL? Why is it necessary? When will it be implemented? Who will implement and benefit from it? Where will it be implemented? And How should it be implemented (5 Ws + 1 H)? However, the farmer level manual must give great emphasis on inputs necessary to generate data and information needed to develop the individual participants farm plans, farm sketch, and dream farm plan. They must also be trained on how to make simple documentations and how to record events.

12. Since one of the significance of the KWAMP project is not only to arrest soil degradation, but also to contribute efforts towards mitigating the effects of climate change, inputs on the basic understanding of how climate change affects individual farmers and the watershed community at large will be given. Farmers must be taught of the basics of risk analysis and how to come out with mitigating measures to be integrated in their individual farm plans.

13. The agronomist/facilitators will assist the Farmer Trainers in facilitating the training. Farmer trainers may give trainings on technologies and processes of PPMEL which also includes other project components of the KWAMP project.

14. The agronomist/facilitators and the Farmer Trainers must process the entire training through PLA and ARLP (around 80 percent), such as workshops, dramatizations, group dynamics, story telling etc, utilizing local experience and locally available educational tools and materials. The trainers must also exercise measures to ensure gender sensitivity. Visits of individual farms must be made to ensure that farm sketch plan and dream farm plan prepared are realistic. All the processes and the outputs will be evaluated, documented in writing, photographs, audio and video, which will be later fed into the Management Information System of the farmers' organization. Significant learnings and stories of change will be given emphasis for future popularization. Individual farmers will also be furnished copies of their individual outputs for future use and reference.

15. At the end of the farmers training, trainees must evaluate themselves, the facilitators, the process, the training and including the venue. Learning and change stories must be properly documented to be later transformed into popular mediums for dissemination. Farmer trainees are expected to acquire the following working knowledge and skills: a deeper and practical knowledge on PPMEL (5 Ws + 1 H), as a practical tool for monitoring and evaluation of development projects. They must be able to use practical learning exercises and actions (for example: resource use mapping, land use mapping, transect mapping, farm sketching, farm sketch modeling, seasonal calendar, timeline, farm timeline, trend line, time allocation diagram, family labor allocation, etc.). More particularly, they must be able to draw their individual farm sketch plans and farm dream plans.

16. Risk analysis and mitigating measures must also be integrated in their individual farm plans.

17. All these outputs form part of the primary data and information which will be consolidated and formed as the community development plan of the farmers' organization in the pilot area of the KWAMP project.

III. COMMUNITY DEVELOPMENT PLANNING

18. In this phase, the individual farmer's farm plans will be consolidated into a community farm plan and map. Other data and information will be generated from the farmers' organization. Discussions on the creation of the Management Information System of the farmers' organizations, as well as, the PPMEL committee, and the approval of the same will be undertaken.

19. A community meeting will be called by the agronomists/facilitators in consultations with the farmers and subject to the guidance of the CLGS, the Sector and District and the Project Implementing Unit to validate the consolidated individual farm plans and maps. Other relevant information, such as, issues and opportunities, data on local institutions, community resources and uses, profile, maps, needs, and other relevant data, will be documented and consolidated in the community development plan and map.

20. Inputs of how to carry out risk analysis and how to come up with mitigating measures must be incorporated in the activity.

21. Discussions on the importance, functions and composition of the farmers' organization MIS and PPMEL will be facilitated by the agronomist and leaders of the farmers' organizations.

22. This activity, like the previous ones will be evaluated and documented properly through writing, photographs, and video and other popular means. Significant learnings and stories of change will be given emphasis for future popularizations. This will be fed into the newly created MIS and PPMEL committees.

23. The output of the activity is a comprehensive community development plan and map, as well as, a comprehensive risk analysis and mitigating measures. These will be used as baseline indicators and bases for resources and needs identification, for plan of actions and implementation, and for regular monitoring and annual evaluation and learning exercises. Risk analysis and mitigating measures of the individual farmer's farm plans must be integrated and consolidated into the community development plan.

IV. PROJECT PROPOSAL MAKING

24. With the community development plan at hand, the farmer organizations may identify their needs which could be addressed either by their own organization's capabilities, or by external assistance, specifically from the KWAMP component projects. To facilitate the making of project proposals necessary to address their needs and to access support, the farmer organization must ask the agronomist/facilitator to train them on how to make project proposals. They must set the proposed date, set the venue and select who among their members will be trained.

25. The farmers' organizations must write a letter of request to the agronomist/facilitator to train them on project proposal making. If approved, the agronomist will inform the farmer organizations on the actual date and venue, and other conditions of the trainings. The training must be simple, practical and effective, and must be in the language of the trainees. The process and output of the trainings must be properly documented and evaluated. Lessons learned and significant change stories must be given emphasis for future popularizations in various mediums. Data collected in this activity will be submitted to the farmer organizations Management Information System.

26. The out put of this activity is actual proposals in local dialect, which would address the needs of the farmer organization in the pilot area, which will be submitted to the Sector, CGU and district, through the agronomist, for approval.

V. PROJECT IMPLEMENTATION

27. Projects must be implemented in accordance with approved action plans which identify the target results, methodology to achieve the target ideas, resources necessary to achieve the target results, the activities involved, the persons responsible for the different tasks and the dates to accomplish the activities. It is worth to note that at this stage, a particular unit to oversee project implementation must be created by the farmers' organizations. They can call it Local Project Implementing Unit.

28. Specific needs which can be addressed by the local organization must be implemented according to the approved action plans. Specific needs which can be addressed through the project proposals must be implemented based on the terms agreed in the approved project proposals. Care must be given on the variances between the proposed and approved proposals. If there are variances, necessary adjustments must be carried out. In this situation, the farmer organization must call a meeting to re-plan the action on a particular project.

VI. PROJECT MONITORING

29. Farmers' organizations must conduct regular monthly or quarterly monitoring of the progress and processes of project implementation. The PPMEL committees will ensure that this must be done in the project pilot area through meetings, group discussions, and other participatory learning exercise and actions. This is valuable for the following reasons: to identify gaps between the plan of actions and the actual implementation of a particular project; to measure the effectiveness of technologies and trainings being currently applied; to identify negative and positive lessons and source of variances; and to identify lessons learned and significant stories of change. All these must be properly documented at the level of the farmers' organizations and stored in their MIS.

30. Recommendations and lessons learned must be translated into adjustments, redirection or re-planning of activities. Lessons learned and significant changed stories must be translated in popular mediums, such as testimonies on good practices, video or audio materials, etc.

31. The agronomist must assist and coach the farmers in the initial stage of this process. This activity will be done all throughout the project cycle.

VII. PROJECT EVALUATION

32. The PIU and the PPMEL shall initiate annual (or semi-annual) participatory evaluation of the watershed community development plans. This must be done all throughout the project life, specifically in the pilot area for PPMEL implementation. Meetings of individual farmers, farmer leaders, agronomist/facilitators, and other key stakeholders must be called in a suitable venue. Gaps between plans and established indicators and actual performance, as well as, the intervening variables will be compared and analyzed; lessons learned and significant change stories will be identified.

A. Learning

33. Findings and recommendations, lessons learned and significant changed stories, will be documented and stored in the local MIS. Good practices, lessons learned and significant change stories will be produced and reproduced into audio, video, photographic materials, and other popular information, education communication materials for local, project wide, and national dissemination (specifically for MINAGRE, PAPSTA, IFAD and other project partners).

B. Re-Planning

34. This activity will be conducted based on the findings and recommendations, lessons learned and significant stories culled out. Re-planning will capture adjustments of the four project components. New policies, approaches, strategies, plan of actions will be developed to make the project more efficient and effective in realizing the desired objectives and impact.

VIII. CREATING AN ENABLING ENVIRONMENT FOR PPMEL

A. Building Advocates and Promoters of PPMEL

35. To insure that PPMEL will be carried out smoothly in the entire process of the KWAMP project implementation, it is necessary that all the stakeholders have a common understanding of the concepts and practical approach of this type of monitoring and evaluation. To make this a reality, it is necessary that all the project stakeholders will be called to a leveling off Workshop Conference, to be initiated by the National Project Monitoring and Evaluation Team and National Project Implementation Team. To be invited in this conference workshop are the representatives of the National Project Implementation Unit (PIU), Management Information Systems Units, Coordinators of different project components, Service providers and other key stakeholders.

36. The expected inputs in this conference is the clarification of the of the concepts, practical steps of implementations, components in terms of organizations and processes, the

levels of complementation among key stakeholders and areas of the project, the benefits and sustainability of the project, as well as other key issues and concerns which may arise.

37. The conference will be processed through lectures, testimonies of best practices, workshops and group discussions, synthesis, documentations, and evaluation.

38. It is expected that at the end of the conference, participants will have a common understanding of the concepts and practices of PPMEL. Most important is the production of a practical toolkit which will be used as main reference of key actors in the PPMEL project.

B. Agronomists Trainers Training for PPMEL Champions

39. Having achieved a common understanding and unity on the PPMEL project, a five (5) days trainers training will be called by the Project Implementing Unit. This training will be attended by Project Implementation Team, District and CLGS, and Sector representatives, and agronomists assigned as project facilitators in all levels of the KWAMP project. Inputs in this Trainers training are more simplified versions of toolkits made as a result of the national Conference Workshop. Testimonies on good practices by community project facilitators will also be captured.

40. Trainers from the Project Implementing Unit and or the Service Providers must use the prepared instructional manual, and organize lectures, participatory learning exercises and action tools such as workshops and group discussions. The training must be held immediately after the national Workshop Conference.

41. The expected output of the trainers training is to transform all participants into effective PPMEL advocates, facilitators at the community level, and genuine agents of learning.

C. Farmers Trainers Training to Carry Out the Initial PPMEL at the Watershed Community

42. Having been trained already in PPMEL, the agronomists must schedule a training workshop for 20 farmer trainers at the rate of 25 training days for the first year. (This will be repeated during the second and third year). They will be informed through letters and other forms of effective communication practiced in the community. The farmers to be trained will come from the three agronomic zones identified as pilot areas of the Project. They will be selected by the community or their organizations, with clear accompaniment of the Project implementing Unit and the CLGS. It is highly recommended that the training will be held in the pilot community. Women and youth will be given equal opportunity to participate in the training. Other project components may give inputs, specifically in terms of their particular project technologies and other schemes, in coordination with the agronomists/facilitators.

43. The training inputs will include all the basic and practical knowledge on PPMEL contained in the manual written in the local dialect. Furthermore, the agronomist facilitating the training is expected to be fully equipped and knowledgeable about various facets of PPMEL. Other project component inputs must also be included in the training always taking into account that approach, methods and tools must use the participatory learning and actions (PLA) and action reflection learning praxis (ARLP).

44. The agronomist/facilitator must process the entire training workshop through PLA and ARLP, such as workshops, dramatizations, group dynamics, story telling etc, utilizing local experience and locally available educational tools and materials. The trainers must also exercise measures to ensure gender sensitivity. At the end of the Farmer Trainers Training, trainees will evaluate themselves, the facilitators, the process, the training itself, and including

the venue. Learning and change stories must be properly documented and later transformed into popular mediums. Documented process and evaluation must later be stored in Management Information Systems which will be created and managed by the Farmers organizations.

45. Farmer Trainees are expected to acquire the following working knowledge and skills: a deeper and practical knowledge on PPMEL (5 Ws + 1 H), as an indispensable development tool on monitoring and evaluation; the basics of facilitations, how to ask questions and extract answers using practical learning exercises and actions (for example: resource and social mapping, land use mapping, transect mapping, farm sketching, service mapping, participatory modeling, seasonal calendar, timeline, farm timeline, trend line, time allocation diagram, census mapping, Venn diagramming, wealth ranking, etc).

46. Trainees must learn when and how to use writing, cameras, and video cameras, among others, and to store and retrieve generated data, use simple forms, create popular information and educational materials, and how to make simple but practical communication systems.

47. To manage the system, the trainees are expected to create in their organizations a Local Project Planning Monitoring Evaluation Learning Committee (LPPMELC).

D. PPMEL Institutionalization

48. PPMEL will be integrated into the entire KWAMP project implementation system. All the baseline data, farmers farm sketch plans, dream farm plans, community development plans, process documentations, results of monitoring and project evaluations, lessons learned, good practices and significant change stories (produced in popular forms) fed into the local farmers' organization MIS will be communicated in to the MIS of the sector, district and CLGS, Project Implementing Unit, PAPSTA Project Monitoring and Evaluation Team and COSOP.

49. Through their respective MIS they will be able to input the data provided in their respective planning, implementation, monitoring and evaluation systems. Through this scheme, sector, district and national plans reflect community plans, make adjustments in project implementations, monitoring and evaluation, and learn from lessons learned and significant change stories at community level of project implementation.

50. Lessons learned will then be reflected into the COSOP, PAPSTA and KWAMP project. Some significant change in policies, program, strategies and project planning and implementation, monitoring and evaluation, which will be reflected backward into the respective level of hierarchical arrangement in the project implementation (COSOP → PIU & M& E team → District and CLGS → Sector → farmers' organization/watershed community) and process (project components and service providers).

51. Once this forward and backward, vertical and horizontal flow of data and information, good practices, lessons learned and significant change stories, continuously flow in the entire cycle of the project systems and sub-system, components and sub-components, it will become a natural course of event in the entire organization and partners of the project.

52. It could be called then a knowledge organization- an organization of individuals thinking as one mind with a common vision and plan, working as one body to achieve it goals, always reflecting, analyzing and learning from lessons learned and significant stories, and always striving to effect change for the better. This is the empowerment stage of project implementation.

E. Institutional Arrangements

53. MINAGRE is the over-all implementing structure at the national level of the PAPSTA PROJECT. It is responsible for policy formulation, direction and project implementation. It exercises supervision over service providers, Project Coordinator, Project Implementing Unit, and the CLGS.

54. The Project Implementing Unit ensures that national policies and directives are being implemented at the beneficiary level, through the District and CLGS, which in turn ensure project implementation through the agronomist/facilitator in the community level. The PIU will report to the national PAPSTA Team.

55. At the District and Sector Level the CLGS is the supervising body exercising direct control and supervision on the agronomists/ facilitators. It recommends and implements through the agronomists/facilitators funding proposals, plans, programs and recommendations, from the farmers' organizations or water shed communities, subject to the approval of the PIU. The CLGS also recommends contracts of service providers.

56. The Service Providers (such as RARDA and RADA) are government agencies accredited to render services to the target beneficiaries of the project.

57. The agronomists serve as facilitators and project implementers at the watershed communities, and farmers' organizations level. They recommend or facilitate the development needs, and plans of the target beneficiaries, to the CLGS, PIU, or district level. They also facilitate and assist in the communication process between the farmer organizations and the next higher organ of the project implementation. They also assist or facilitate trainings and the institutionalization of the PPMEL, as well as, other types of trainings, such as soil and water conservation techniques, among others.

58. The basic, yet the center of gravity of project implementation is the farmer organizations and the watershed community. They are at the forefront of all project initiatives. Leaders serve as local facilitators and technicians. The bulk of institutionalizing PPMEL and other key components of the project falls on their shoulder. They communicate through the agronomist, although they may directly connect with other stakeholders, like the supervisory organs. Local Project Implementation Units and PPMEL committees are specific organs within their organizations to spearhead key responsibilities.

IX. BENEFITS

59. **Empowerment.** PPMEL will ensure empowerment of stakeholders to take action; improve public accountability; improve information dissemination at all levels; improve people's efficiency and effectiveness; increase people's awareness and understanding of factors which affect their situation, hopefully leading to increased control over development process by key stakeholders.

60. **Synergies.** PPMEL will contribute to the priorities and the M & E system being undertaken by PASTA and implemented by the Project Implementing Unit. It will facilitate access to other information and indicators not otherwise identified by RIMS. It will ensure that lessons learned from the ground are widely available to all stakeholders especially PAPSTA, IFAD, and other stakeholders. It is expected that information gathered by the

farmer organizations themselves will hasten data gathering and generation efforts under RIMS.

61. **Sustainability.** PPMEEL is a sustainable approach. It ensures participation in all processes at all levels. It ensures that inputs, processes and outputs are owned by the participants, farmers' organizations and the watershed community. By institutionalizing the approach, learning, confidence and capability are increased among participants. These will embolden them to become more independent and self-reliant.

62. On the part of other partners, such as PAPSTA and IFAD, less time, efforts and resources will be required to make the project work and broaden impact, not only in the immediate watershed community, but in the surrounding environment as well. Because learning and best practices are properly documented, and shared in popular forms, mistakes are avoided, leading to a more efficient and effective project implementation.

APPENDIX 2: INDICATORS FOR KWAMP M&E

The following tables gather simplified indicators for the main components of the project.

Development of CCIs

Who gathers the information	Which Indicator	How often	Indicator sent to whom	Copy to whom	Analysed by whom	Analysed report sent to whom	Copy to whom	How often
District	Government officials and staff trained (district staff), by gender and topic (RIMS # 1.6.1)	Half-yearly	M&E Officer	x	M&E Officer	PCU IFAD	District	Half-yearly
M&E Officer	Number of CCIs established	Yearly	-	x	M&E Officer	PCU IFAD	District	Half-yearly
CCI	Number of training requests implemented, by type	Half-yearly	M&E Officer	District CLGS	M&E Officer	PCU IFAD	District CCI	Half-yearly
CCI	Persons trained in crop production and technology, by gender (RIMS # 1.2.2)	Half-yearly	M&E Officer	District CLGS	M&E Officer	PCU IFAD	District CCI	Half-yearly
CCI	Number of information tools produced and distributed by CCIs (broadcasts, brochures, newspapers, etc)	Half-yearly	M&E Officer	District CLGS	M&E Officer	PCU IFAD	District CCI	Half-yearly

Support to Farmer Institutions

Who gathers the information	Which Indicator	How often	Indicator sent to whom	Copy to whom	Analysed by whom	Analysed report sent to whom	Copy to whom	How often
Service provider for training FOs	Community groups formed / strengthened, by type (RIMS # 1.6.4)	Half - yearly	M&E PCU	District	M&E officer	PCU	District CLGS	Half - yearly
Service provider for training FOs	People in community groups formed/ strengthened, by gender (RIMS # 1.6.5)	Half - yearly	M&E PCU	District	M&E officer	PCU	District CLGS	Half - yearly
M&E officer	Number of FOs' action and business plans prepared and implemented	Half - yearly	x	x	M&E officer	PCU	District CLGS	Half - yearly
Service provider for training FOs	Number of farmer groups-leaders trained (by gender)	Half - yearly	M&E PCU	District	M&E officer	PCU	District CLGS	Half - yearly

Watershed planning and management

Who gathers the information	Which Indicator	How often	Indicator sent to whom	Copy to whom	Analysed by whom	Analysed report sent to whom	Copy to whom	How often
CLGS	Number of WMPs formulated	Yearly	M&E Officer	District	M&E Officer	PCU IFAD	District	Half-yearly
CLGS	NRM groups formed/strengthened (RIMS # 1.1.10)	Half-yearly	M&E Officer	CCI District	M&E Officer	PCU IFAD	District	Half-yearly
CLGS	People in NRM groups formed/strengthened, by gender (RIMS # 1.1.11)	Half-yearly	M&E Officer	CCI District	M&E Officer	PCU IFAD	District	Half-yearly

Agricultural water institutions and irrigation development

Who gathers the information	Which Indicator	How often	Indicator sent to whom	Copy to whom	Analysed by whom	Analysed report sent to whom	Copy to whom
Irrigation Staff/ Service Providers	Marshland area equipped with irrigation system (ha)	6 monthly	District Technician who checks and puts into M&E system	PCU District	M&E officer at District PCU	PCU/ MINAGRI/ IFAD	6 monthly
As above	Hillside area equipped with irrigation system (ha)	6 monthly	As above	As above	As above	As above	6 monthly
As above	No of functioning WUAs; and areas (ha) covered;	6 monthly	As above	As above	As above	As above	6 monthly
As above	No of WUAs with women in leadership position	6 monthly	As above	As above	As above	As above	6 monthly
As above	No of water harvesting structures constructed	6 monthly	As above	As above	As above	As above	6 monthly
As above	No of leaders of WUAs trained, by gender	6 monthly	As above	As above	As above	As above	6 monthly
As above	No of farmers trained in WUA organization and irrigation water management, by gender	6 monthly	As above	As above	As above	As above	6 monthly
As above	No of staff trained in WUA organization and irrigation water management, by gender	6 monthly	As above	As above	As above	As above	6 monthly
As above	Households benefiting from irrigation and drainage systems	6 monthly	As above	As above	As above	As above	6 monthly
As above	No of farmers reporting production/ yield increases;	6 monthly	As above	As above	As above	As above	6 monthly
As above	Households benefiting from water harvesting structures and catchment conservation;	6 monthly	As above	As above	As above	As above	6 monthly
Field Survey	% increase in crop production and yields	Annual	As above	As above	As above	As above	Annual

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Who gathers the information	Which Indicator	How often	Indicator sent to whom	Copy to whom	Analysed by whom	Analysed report sent to whom	Copy to whom
	by small farmers in targeted areas; gender disaggregated;						
Field Survey	Incremental irrigated crops grown per season, by crop type and area (ha);	Annual	As above	As above	As above	As above	Annual

Rainfed crop intensification

Who gathers the information	Which Indicator	How often	Indicator sent to whom	Copy to whom	Analysed by whom	Analysed report sent to whom	Copy to whom	How often
CCI	Number of farmers groups trained in seed multiplication, by gender	Every two months	Trainer in field unit	District Agriculturist	Trainer in the field	CCI	PCU District	Every four months
S&W Expert in Field Unit	Number of farmers using improved planting material, by gender	Every two months	M&E officer PCU	District Agriculturist	M&E officer PCU	Coordinator PCU	District	Every six months
CCI	Number of events organised and number of persons attending	Every two months	Trainer in field unit	District Agriculturist	Trainer in the field	CCI	PCU District	Every four months
CCI	Number of people trained in crop production practises and technologies	Every two months	Trainer in field unit	District Agriculturist	Trainer in the field	CCI	PCU District	Every four months

Livestock Development

Who gathers the information	Which Indicator	How often	Indicator sent to whom	Copy to whom	Analysed by whom	Analysed report sent to whom	Copy to whom	How often
Animal solidarity chain service provider	Persons trained in livestock production and technology, by gender (RIMS # 1.2.3)	Every two months	M&E officer PCU	District Agriculturist	M&E officer PCU	Coordinator PCU	District	Every six months
As above	Number of project-purchased animals distributed, by species	Every two months	M&E officer PCU	District Agriculturist	M&E officer PCU	Coordinator PCU	District	Every six months
As above	Number of passed-on animals distributed, by species	Every two months	M&E officer PCU	District Agriculturist	M&E officer PCU	Coordinator PCU	District	Every six months
As above	Households receiving animals from restocking/redistribution, Type A: project-purchased animals, by species (RIMS # 1.2.6)	Every two months	M&E officer PCU	District Agriculturist	M&E officer PCU	Coordinator PCU	District	Every six months
As above	Households receiving animals from restocking/redistribution, Type B: passed-on animals, by species (also RIMS # 1.2.6)	Every two months	M&E officer PCU	District Agriculturist	M&E officer PCU	Coordinator PCU	District	Every six months
Biogas service provider	Persons trained in biogas technology, by gender	Every two months	M&E officer PCU	District Agriculturist	M&E officer PCU	Coordinator PCU	District	Every six months
As above	Number of biogas fermenters installed	Every two months	M&E officer PCU	District Agriculturist	M&E officer PCU	Coordinator PCU	District	Every six months
As above	Households operating a	Every two	M&E	District	M&E officer	Coordinator	District	Every six

	biogas fermenter	months	officer PCU	Agriculturist	PCU	PCU		months
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Soil and Water Conservation

Who gathers the information	Which Indicator	How often	Indicator sent to whom	Copy to whom	Analysed by whom	Analysed report sent to whom	Copy to whom	How often
S&W Expert in Field Unit	Number of nurseries established	Every two months	M&E officer PCU	District Agriculturist	M&E officer PCU	Coordinator PCU	District	Every six months
S&W Expert in Field Unit	Number of trees and forage cuttings produced	Every two months	M&E officer PCU	District Agriculturist	M&E officer PCU	Coordinator PCU	District	Every six months
S&W Expert in Field Unit	ha of land under improved management practices, by type	Every two months	M&E officer PCU	District Agriculturist	M&E officer PCU	Coordinator PCU	District	Every six months

Feeder Road Rehabilitation

Who gathers the information	Which Indicator	How often	Indicator sent to whom	Copy to whom	Analysed by whom	Analysed report sent to whom	Copy to whom	How often
District Roads Engineer	Roads constructed/ rehabilitated (km) (RIMS # 1.4.2)	Monthly	M&E officer at PCU	Mayor and PCU Field Coordinator	M&E officer PCU	Coordinator PCU	District	Every Quarter
District Roads Engineer	Speed of rehabilitation of the feeder roads (km/month) ¹	Monthly	M&E officer at PCU	Mayor and PCU Field Coordinator	M&E officer PCU	Coordinator PCU	District	Every Six months
District Roads Engineer	Unit cost of rehabilitation of the roads (USD/km) ¹	Quarterly	M&E officer at PCU	Mayor and PCU Field Coordinator	M&E officer PCU	Coordinator PCU	District	Every Six months
District Roads Engineer	Percentage overall length of feeder roads having traffickability challenge less than 50%.	Quarterly	M&E officer at PCU	Mayor and PCU Field Coordinator	M&E officer PCU	Coordinator PCU	District	Every Six months
District Roads Engineer	Percentage of people using non-motorised transport (walking, bicycle) to take goods to markets	Yearly	M&E officer at PCU	Mayor and PCU Field Coordinator	M&E officer PCU	Coordinator PCU	District	Once a year
District Roads Engineer	Number of village level road maintenance brigades trained on feeder roads maintenance (by gender)	Half yearly	M&E officer at PCU	Mayor and PCU Field Coordinator	M&E officer PCU	Coordinator PCU	District	Once a year
District Roads Engineer	Number of Government officials (national and local levels) trained on maintenance of feeder roads and contracts management (by gender)	Yearly	M&E officer at PCU	Mayor and PCU Field Coordinator	M&E officer PCU	Coordinator PCU	District and MININFRA	Once a year
District Roads Engineer	Number of villages and people benefiting from improved roads to access markets	Yearly	M&E officer at PCU	Mayor and PCU Field Coordinator	M&E officer PCU	Coordinator PCU	District	Once a year
District Roads Engineer	Annual volume of funds allocated by district and sectors to road maintenance (RWF)	Yearly	Coordinator PCU	Mayor and PCU Field Coordinator	M&E officer PCU	Coordinator PCU	District and MININFRA	Once a year
District Roads Engineer	Sustainability of the roads constructed and/or rehabilitated (RIMS # 2.4.3)	Annually	M&E officer PCU	Mayor and PCU Field Coordinator	M&E officer PCU	Coordinator PCU	District and MININFRA	Once a year

¹ (a) Major feeder roads rehabilitation including drains; (b) Partial rehabilitation excluding drains; (c) Spot improvements; (d) Small feeder roads improvement using Food for Work.

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WORKING PAPER 13: MONITORING AND EVALUATION
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