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Enabling the rural poor
to overcome poverty

**President's report on proposed
grants under the global/regional
grants window to
CGIAR-supported international centres**

Executive Board — Ninetieth Session
Rome, 17-18 April 2007

For: **Approval**

Note to Executive Board Directors

This document is submitted for approval by the Executive Board.

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Abbreviations and acronyms

APRP	Arabian Peninsula regional programme
CGIAR	Consultative Group on International Agricultural Research
FPRE	farmer participatory research and extension
FPVs	farmer-preferred varieties
GEF	Global Environment Facility
ICARDA	International Center for Agricultural Research in the Dry Areas
ICM	integrated crop management
ICRAF	World Agroforestry Centre
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IRRI	International Rice Research Institute
ISRIC	World Soil Information
M&E	monitoring and evaluation
NARS	national agricultural research system
NARES	national agricultural research and extension systems
NERICA	New Rice for Africa
PES	payment for environmental services
PRESA	Programme for Pro-poor Rewards for Environmental Services in Africa
RES	rewards for environmental services
RUPES	Programme for Developing Mechanisms to Reward the Upland Poor of Asia for the Environmental Services They Provide
WARDA	Africa Rice Center

Recommendation for approval

The Executive Board is invited to approve the recommendations for grants under the global/regional grants window to CGIAR-supported international centres as contained in paragraph 11 (page 3).

President's report on proposed grants under the global/regional grants window to CGIAR-supported international centres

I submit the following report and recommendation on four proposed grants for agricultural research and training to Consultative Group on International Agricultural Research (CGIAR)-supported international centres in the amount of US\$5.4 million.

Part I – Introduction

1. This report recommends the provision of IFAD support to the research and training programmes of the following CGIAR-supported international centres: the International Center for Agricultural Research in the Dry Areas (ICARDA); the World Agroforestry Centre (ICRAF); the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT); and the International Rice Research Institute (IRRI).
2. The documents of the grants for approval by the Executive Board are contained in the annexes to this report:
 - (i) International Center for Agricultural Research in the Dry Areas (ICARDA): Programme for Technology Transfer to Enhance Rural Livelihoods and Natural Resource Management in the Arabian Peninsula;
 - (ii) World Agroforestry Centre (ICRAF): Programme for Pro-poor Rewards for Environmental Services in Africa;
 - (iii) International Crops Research Institute for the Semi-Arid Tropics (ICRISAT): Programme for Harnessing the True Potential of Legumes: Economic and Knowledge Empowerment of Poor Farmers in Rainfed Areas in Asia;
 - (iv) International Rice Research Institute (IRRI): Programme for Alleviating Rural Poverty by Improving Rice Production in Eastern and Southern Africa.
3. The objectives and content of these applied research programmes are in line with the evolving strategic objectives of IFAD and the policy and criteria of IFAD's grant programme.
4. The overarching strategic objectives that drive the IFAD Policy for Grant Financing, which was approved by the Executive Board in December 2003, are:
 - (a) promoting pro-poor research on innovative approaches and technological options to enhance field-level impact; and/or
 - (b) building pro-poor capacities of partner institutions, including community-based organizations and NGOs.
5. Deriving from these core objectives, the specific aims of IFAD's grant support relate to: (a) the Fund's target groups and their household food-security strategies, specifically in remote and marginalized agroecological areas; (b) technologies that build on traditional local/indigenous knowledge systems, are gender-responsive and enhance and diversify the productive potential of resource-poor farming systems by improving productivity and addressing production bottlenecks; (c) access to productive assets (land and water, financial services, labour and technology) and the sustainable and productive management of such resources; (d) a policy framework that provides the rural poor with an incentive to reach higher levels of productivity, thereby reducing their dependence on transfers; and (e) access to input/product markets and an institutional framework within which formal and informal, public- and private-sector, local and national institutions can provide services to the economically vulnerable, according to their comparative advantage. Within this framework, IFAD also intends to develop commodity-based approaches to the rural

poor. Finally, the establishment of a consolidated network for knowledge gathering and dissemination will enhance the Fund's capacity to establish long-term strategic linkages with its development partners and to multiply the effect of its agricultural research and training programme.

6. The grants proposed in this document respond to the foregoing strategic objectives.
7. The Programme for Technology Transfer to Enhance Rural Livelihoods and Natural Resource Management in the Arabian Peninsula aims to promote among resource-poor farmers and pastoralists technology packages related to two of the critical natural resources of the region – water and forage – thus responding to both strategic objectives of IFAD's grant policy outlined in paragraph 4 above. The programme will support initiatives to disseminate tested and proven technologies and practices that are financially viable and environmentally sustainable to poor rural households, and that will produce a positive impact on their incomes and enhance their food security, thereby responding to aims (b), (c) and (e) of IFAD's grant support outlined in paragraph 5 above. The programme will also build the capacity of national research and extension systems, seeking to reorient their objectives towards greater attention to the technology needs of poor farmers and pastoralists, and enhance knowledge-generation/management and networking among national scientists based on experiences and lessons learned.
8. The Programme for Pro-poor Rewards for Environmental Services in Africa (PRESA) will promote among resource-poor farmers and forest dwellers technology packages related to two of the critical natural resources of the region – land and water – thus responding to both strategic objectives of IFAD's grant policy outlined in paragraph 4 above. PRESA will support initiatives to disseminate tested and proven technologies and practices that are both financially viable and environmentally sustainable to poor rural households. This technology transfer will produce a positive impact on their incomes and enhance their food security. The programme will also build the capacity of both the private sector and national research/extension systems, seeking to reorient their objectives towards greater attention to the needs of poor farmers. Furthermore, it will enhance knowledge management and networking among international and national experts based on experiences and lessons learned. It will address aims (c) and (d) of the grant policy outlined in paragraph 5 above.
9. The Programme for Harnessing the True Potential of Legumes: Economic and Knowledge Empowerment of Poor Farmers in Rainfed Areas in Asia aims to strengthen local communities and their ability to collaborate with research and extension agents in developing new, higher-yielding and better-quality legume production systems. This programme will respond to aims (b), (c) and (d) outlined in paragraph 5 above.
10. The Programme for Alleviating Rural Poverty by Improving Rice Production in Eastern and Southern Africa responds to both strategic objectives of IFAD's grant policy outlined in paragraph 4 above. It will build the capacities of pro-poor institutions (e.g. planning, research and extension services) to enable them to plan, implement and monitor development interventions more effectively. It will promote pro-poor research, focusing research activities where appropriate on farmers' fields, and carrying out research in a participatory manner with the involvement of farmers. Research priorities will generally be demand-driven and will take into consideration the aims and aspirations of the rural population – especially the poorest and women. In this way, the programme will address aims (a), (b) (d) and (e) outlined in paragraph 5 above.

Part II – Recommendation

11. I recommend that the Executive Board approve the proposed grants in terms of the following resolutions:

RESOLVED: that the Fund, in order to finance, in part, the Programme for Technology Transfer to Enhance Rural Livelihoods and Natural Resource Management in the Arabian Peninsula, shall make a grant not exceeding one million five hundred thousand United States dollars (US\$1,500,000) to the International Center for Agricultural Research in the Dry Areas (ICARDA) for a five-year programme upon such terms and conditions as shall be substantially in accordance with the terms and conditions presented to the Executive Board herein.

FURTHER RESOLVED: that the Fund, in order to finance, in part, the Programme for Pro-poor Rewards for Environmental Services in Africa, shall make a grant not exceeding one million United States dollars (US\$1,000,000) to the World Agroforestry Centre (ICRAF) for a four-year programme upon such terms and conditions as shall be substantially in accordance with the terms and conditions presented to the Executive Board herein.

FURTHER RESOLVED: that the Fund, in order to finance, in part, the Programme for Harnessing the True Potential of Legumes: Economic and Knowledge Empowerment of Poor Farmers in Rainfed Areas in Asia, shall make a grant not exceeding one million four hundred thousand United States dollars (US\$1,400,000) to the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) for a four-year programme upon such terms and conditions as shall be substantially in accordance with the terms and conditions presented to the Executive Board herein.

FURTHER RESOLVED: that the Fund, in order to finance, in part, the Programme for Alleviating Rural Poverty by Improving Rice Production in Eastern and Southern Africa, shall make a grant not exceeding one million five hundred thousand United States dollars (US\$1,500,000) to the International Rice Research Institute (IRRI) for a three-year programme upon such terms and conditions as shall be substantially in accordance with the terms and conditions presented to the Executive Board herein.

Lennart Båge
President

International Center for Agricultural Research in the Dry Areas (ICARDA): Programme for Technology Transfer to Enhance Rural Livelihoods and Natural Resource Management in the Arabian Peninsula

I. Background

1. The countries of the Arabian Peninsula vary significantly in terms of income, living standards and economic performance, and in the contribution of agriculture to their economies, rural livelihoods and employment. However, they all face the same problem of severe natural resource constraints including a fragile land base and limited water resources. Water is the single most binding constraint. The Arabian Peninsula is one of the driest inhabited regions in the world, characterized by low, variable rainfall and limited surface water resources. The actual renewable water resources per capita are estimated at 138m³ for the subregion, compared with 1,383 m³ per capita for the Near East and North Africa (NENA) region as a whole. The subregion uses up to 90 per cent of its water for agriculture.
2. Agricultural land is also in limited supply. Over 95 per cent of the total land area in the Arabian Peninsula suffers from some form of desertification, and over 80 per cent of the land is now classed as degraded as a result of wind erosion, encroaching urbanization and the lack of effective programmes that encourage the sustainable use of common property resources.
3. The subregion is home to an estimated 56 million people, half of whom live in Oman and Yemen. In Oman, agriculture supports nearly one third of the population, whereas in Yemen, which is one of the poorest countries in the world with almost 75 per cent of the population living in rural areas, half the labour force is involved in agriculture. In both countries, the total agricultural production per capita has steadily declined over the last five years.
4. The region is facing major challenges in developing more sustainable land and water use and preserving its environment and heritage. The major issues of improving water use efficiency and combating land degradation relate directly to food security, rural development and poverty alleviation. Developments to address these challenges are constrained by low investments in agricultural research and technology development, limited application of water-saving technologies and lack of attention to improved rangeland management.

II. Rationale and relevance to IFAD

5. ICARDA and IFAD are strategic partners in the development of pro-poor technologies in the NENA region. Their partnership in the two previous Arabian Peninsula regional programmes (APRPs) – the Programme for Strengthening Agricultural Research and Human Resource Development in the Arabian Peninsula (APRP I) and the Programme for Sustainable Management of Natural Resources and Improvement of Major Production Systems of the Arabian Peninsula (APRP II) – included close collaboration with the national agricultural research system (NARS) to develop and evaluate pro-poor water and range use technologies. These programmes have resulted in a number of technology packages addressing on-farm water management and land degradation, aimed at improving the incomes and livelihoods of poor farmers and pastoralists while protecting the natural resources on which they depend. The technology packages were evaluated in a limited number of farms in Kuwait, Oman, the United Arab Emirates and Yemen and by APRPs in collaboration with the NARS.
6. IFAD's past support to APRPs leveraged substantial cofinancing from the Arab Fund for Economic and Social Development (AFESD) and from the OPEC Fund for International Development (OFID). These donors have relied on IFAD's technical

expertise and judgement in the design and appraisal of proposals and in the supervision of implementation to provide them with sufficient assurance to invest their own resources in these initiatives. Thus IFAD support of the proposed programme will leverage significant additional resources from these donors to serve the cause of pro-poor capacity-building and technology transfer in the region.

III. The proposed programme

7. The overall goal of the programme is to improve livelihoods of poor farmers and pastoralists in the Arabian Peninsula through the adoption of sustainable production and natural resource management technologies. The immediate objectives will be to: (i) test, evaluate and disseminate improved technology packages that increase crop and livestock production and productivity, increase water use efficiency and conserve rangeland resources; and (ii) enhance the capacity of national research and extension programmes to promote the adoption of the targeted technologies and enhanced communication among various stakeholders.
8. The programme will be of a five-year duration and will comprise four main components:
 - **Promotion and adoption of technology packages.** The programme will disseminate six specific technology packages for the (i) establishment of integrated production systems for indigenous forage species with high water use efficiency; (ii) establishment of integrated production systems for spineless cactus; (iii) establishment of seed production systems for indigenous forages; (iv) participatory technology development for rangeland rehabilitation, reseeding techniques and water harvesting; (v) establishment of integrated production and pest management systems for high-quality cash crops with fewer pesticide residues and hazardous chemicals; and (vi) promotion of high-intensity, water-use-efficient techniques for the production of high-quality cash crops. These technology packages were tested in a limited number of farms in Kuwait, Oman and Yemen, and the promising results encouraged the NARS and the agricultural policymakers in the countries of the Arabian Peninsula to call for further joint efforts to transfer these technologies to more end-users. The developed technologies were also assessed, and proved their viability, in terms of economic feasibility and sustainability under local farming conditions.
 - **Problem-solving adaptive research and impact assessment.** The dissemination and implementation of the six specific technology packages, on a large scale, to farmers and state rangelands will face operational problems, the solution of which will require participatory research in farmers' fields and, to a lesser extent, in agricultural research centres. The objective of this programme component is to enhance the capacity of the national agricultural research and extension systems (NARES) to conduct problem-solving adaptive research and impact assessment surveys with a view to providing operational solutions and guidance to the implementation process for results and impact management.
 - **Capacity-building and institutional strengthening.** The specific objectives are to strengthen national institutional and human resource capacity, and to enhance the transfer of technology.
 - **Programme management and coordination.** The programme will be managed and coordinated by ICARDA, including responsibility for financial management and donor reporting, according to annual workplans and budgets approved by the programme regional steering committee. The ICARDA regional coordinator in Dubai will be responsible for all logistical and administrative organization, and for liaison with national programmes.

9. The major beneficiaries of this programme will be the poor rural people of Oman and Yemen, the majority of whom are dependent on the use of range resources that have become degraded due to enormous utilization pressure.

IV. Expected outputs and benefits

10. These are the following:
- integrated forage production systems with demonstrated water use efficiency tested and available for wider dissemination;
 - seed production systems established and producing sufficient quantities of seed of forage species to enable adoption by end-users for rehabilitation of rangelands;
 - technologies and strategies for rangeland rehabilitation through water harvesting, reseeding and grazing management tested with end-users;
 - integrated production systems for high-value crops and products tested and demonstrated to end-users;
 - capacity of national research and extension systems to conduct adaptive and participatory research enhanced; and
 - subregional knowledge dissemination and networking system established.

V. Implementation arrangements

11. ICARDA will be responsible for overall programme management, and for financial and technical reporting to IFAD, and will coordinate programme activities through an APRP coordinator based at ICARDA's regional office in Dubai. A steering committee will be established – comprising national coordinators, ICARDA and donor representatives, and the APRP coordinator – and will be responsible for programme oversight and for reviewing and approving the annual workplans and budgets.
12. **Involvement of the NARES in delivery of actual adaptive research/extension.** National coordinators will be responsible for programme implementation in their respective countries. The actual technology transfer and adaptive research activities in the field will be conducted by the NARES in the seven participating countries – Bahrain, Kuwait, Oman, Qatar, United Arab Emirates, Yemen and Saudi Arabia – according to agreed workplans and in collaboration with scientists from national universities and ICARDA. Multidisciplinary national teams with solid expertise in participatory community-based approaches will be used to effectively empower the rural poor to determine community constraints and opportunities, and to identify action plans and adaptive research priorities.
13. To increase and enhance the capacity of counterparts and local personnel to successfully sustain technology transfer, ICARDA will arrange a human resource capacity development programme, including lectures, workshops, conferences and practical, "hands-on" training courses in both technical aspects and participatory approaches for technology transfer. Manuals and practical field guides will also be developed. Specialized training courses aimed at future local trainers ("train the trainer") will be organized for researchers, extension agents and leading farmers involved in the programme. Farmer field schools will be organized (potentially in collaboration with ongoing development projects) for training farmers and disseminating technologies and improved practices. Intercountry cooperation and synthesis of results will be facilitated by regional networks already established by APRPs, exchange visits and workshops.
14. **Participation of target groups in setting the adaptive research agenda and on-farm trials.** A farmer participatory approach will be adopted throughout the programme to involve farmers, extension agents and researchers actively in the adaptive research, on-farm trials and technology transfer. Such approaches will

include participatory workshops with rural communities, farmer field schools and on-farm trials and demonstrations in farmers' fields and on community-managed rangelands, in addition to annual technical coordination meetings.

VI. Indicative programme costs and financing

15. The programme represents a medium-term strategy for adaptive research and technology transfer. Its total cost over the entire programme period is estimated at about US\$5.4 million. IFAD will provide a grant of US\$1.5 million and the remainder will be provided by cofinanciers including AFESD, OFID, ICARDA and the NARS of the Arabian Peninsula countries. Cost breakdown is shown in the table below.

Summary of budget and financing plan

(United States dollars)

<i>Category of expenditure</i>	<i>IFAD grant</i>	<i>Other cofinancing institutions</i>	<i>Total</i>
Personnel			
Water irrigation specialist	154 000	396 000	550 000
Rangeland specialist	154 000	396 000	550 000
Protected agriculture specialist	154 000	396 000	550 000
Subtotal	462 000	1 188 000	1 650 000
NARES			
Short-term consultant	14 000	36 000	50 000
Research equipment and supplies	325 080	835 920	1 161 000
Training workshop and conferences	215 600	554 400	770 000
Information technology and publications	33 880	87 120	121 000
Technical advisory note	14 000	36 000	50 000
Technical and steering committee meetings	63 000	162 000	225 000
Subtotal	665 560	1 711 440	2 377 000
ICARDA technical assistance			
Office support staff	85 680	220 320	306 000
Office supplies and running costs	21 000	54 000	75 000
International and local travel	21 000	54 000	75 000
Maintenance and insurance	14 000	36 000	50 000
Communications	21 000	54 000	75 000
Vehicles (two)	16 800	43 200	60 000
Computers and office equipment	7 000	18 000	25 000
Subtotal	186 480	479 520	666 000
ICARDA indirect costs	185 960	506 844	692 804
Total	1 500 000	3 885 804	5 385 804

Logical Framework – Technology Transfer to Enhance Rural Livelihoods and National Resource Management in the Arabian Peninsula

<i>Narrative Summary</i>	<i>Objectively Verifiable Indicators</i>	<i>Means of Verification</i>	<i>Assumptions and Risks</i>
Goal			
Improved livelihoods of poor farmers and pastoralists in the Arabian Peninsula through the adoption of sustainable production and natural resource management technologies	<ul style="list-style-type: none"> Increased agricultural production Improved rural incomes Reduced water use in agriculture Expanded area of productive rangelands 	<ul style="list-style-type: none"> National and international agricultural production and income statistics Development programme reports 	Enabling national development strategies and policy environment
Purpose			
Improved technology packages that increase crop and livestock production and productivity, increase water use efficiency and conserve rangeland resources tested, evaluated and disseminated	<ul style="list-style-type: none"> Recommended technologies adopted by participating pilot farmers and end-users Strategies for wider dissemination of technologies included in national research and extension plans 	<ul style="list-style-type: none"> Programme completion report Supervision reviews Impact assessments National programme plans 	Continued national commitment to the programme
Enhanced capacity of national research and extension programmes to promote the adoption of the targeted technologies and communication among various stakeholders	<ul style="list-style-type: none"> Participatory and adaptive research approaches and further technical research on recommended options included in national research and extension plans. National scientists are actively sharing information and using information services 	<ul style="list-style-type: none"> Mid-term review (MTR) and programme completion report Programme monitoring and progress reports National programme plans 	Continued national commitment to the programme
Outputs			
Improved technology packages for increased crop and livestock production and productivity and natural resource conservation developed and disseminated	<ul style="list-style-type: none"> National seed testing and seed health system and quarantine regulations established and/or strengthened Use of pesticide and residue of hazardous chemicals reduced 	<ul style="list-style-type: none"> MTR and programme completion report Programme monitoring and progress reports Benchmark study and socio-economic surveys Impact assessments 	
Targeted programmes to address farmers' needs and location-specific problems through adaptive research	<ul style="list-style-type: none"> Participatory and adaptive research approaches included in national research and extension plans 		
Enhanced national capacities in research and technology transfer and communication among stakeholders	<ul style="list-style-type: none"> Scientific papers and other information published by national scientists. National scientists are actively sharing information and using information services 		
Activities			
Establish integrated production system for indigenous forage species			
Establish integrated production system for spineless cactus			
Establish seed production systems for indigenous forages			
Experiment with rangeland rehabilitation			
Establish IPPM systems for high quality cash crops			
Experiment with soil-less culture			
Enhanced capacity of national research and extension systems			
Establish knowledge dissemination and networking system			

World Agroforestry Centre (ICRAF): Programme for Pro-poor Rewards for Environmental Services in Africa

I. Background

1. In Africa, as elsewhere, the conversion and degradation of ecosystems have direct effects on the livelihoods, health and welfare of the rural poor. Degradation also diminishes environmental services valued by local residents and people living further afield. Restoration and better management of ecosystems could rehabilitate the resource base of poor communities and improve environmental services to external users.
2. Rewards or payments¹ for environmental services represent a novel approach for linking ecosystem stewardship with the interests of ecosystem service beneficiaries. Payment for environmental services (PES) mechanisms are one new, and widely recognized, type of voluntary, conditional and negotiated contract between ecosystem stewards and ecosystem service beneficiaries. However, from its experience with the grant-financed Programme for Developing Mechanisms to Reward the Upland Poor of Asia for the Environmental Services they Provide (RUPES), IFAD prefers the term rewards for environmental services (RES). RES mechanisms comprise a range of conditional, voluntary incentives, including information, marketing, public services and property rights.
3. Such rewards offer poor farmers significant incentives to restore degraded lands, shift to sustainable agriculture and adopt better land management practices. Africa has accumulated some experience with similar mechanisms, especially involving community-based ecotourism. Despite these experiences, some concerns still remain: (i) lack of well-designed and piloted reward mechanisms; (ii) limited engagement by the private sector; (iii) unclear policy and institutional arrangements; (iv) lack of a critical mass of expertise; (v) limited knowledge of tested tools and methods for assessing, designing and implementing reward schemes; and (vi) high transaction costs. There is also a risk that associated ecosystem markets may adversely affect the livelihoods of poor rural communities. This risk needs to be countered by efforts to ensure that such mechanisms are pro-poor. The programme will address these constraints and concerns.

II. Rationale and relevance to IFAD

4. The approach proposed for the Programme for Pro-poor Rewards for Environmental Services in Africa (PRESA) is in line with the IFAD Strategic Framework 2007-2010 and with the regional strategies for Africa. The programme will seek to empower poor communities and build a coalition of stakeholders who will focus on ways to exploit more fully the synergies between environmental conservation and poverty reduction activities.
5. ICRAF and IFAD are strategic partners in the development of pro-poor technologies in Asia and Africa. A key resource they bring to PRESA is their joint experience with the similar, IFAD-funded programme, RUPES, which has produced important results at the site level, and new tools and approaches for reducing the transaction costs of establishing environmental services agreements. Recent IFAD-supported PES initiatives in Africa include small grants to World Soil Information (ISRIC) and Forest Trends. A project in the Tana River Basin in Kenya, funded by the Initiative for Mainstreaming Innovation, is in its early stages of implementation. PRESA will complement and add value to these various initiatives.

¹ Payment for environmental services (PES) has been defined as "a voluntary transaction where a well-defined environmental service is being bought by a (minimum one) environmental service buyer from a (minimum one) environmental service provider, if and only if the environmental service provider secures the environmental service provision.

6. The programme will build on the results of RUPES and create synergies with other IFAD efforts in Africa in order to: (i) empower and promote equitable access to natural resources; (ii) facilitate negotiation and coordinated natural resource use between ecosystem stewards and beneficiaries; and (iii) promote social and policy change for poverty reduction.

III. The proposed programme

7. The programme will involve work on three levels: (i) landscape-level engagement in core landscapes and associate landscapes² in the four participating countries (Guinea, Kenya, Uganda, the United Republic of Tanzania); (ii) engagement with the private and public sector at the national level; and (iii) development and fostering of a community of practice at the regional level. Standard methods will be applied in the core landscapes and the same methods made available at the associate landscapes.
8. The core landscapes selected include:
 - the eastern slopes of Mount Kenya and the upper Tana River catchment in central Kenya;
 - Nguru and Uluguru mountains in the eastern arc of the United Republic of Tanzania; and
 - Fouta Djallon upper catchment area in Guinea.
9. The associate landscapes include:
 - Western Usambara in the United Republic of Tanzania;
 - Upper Aberdare catchments in central Kenya, which provide water to the city of Nairobi;
 - Nyando and Yala basins in western Kenya; and
 - western highlands of Uganda.
10. PRESA will be supported by the research and development activities of key partners, national and regional networks, and projects that include RES mechanisms. Scientists involved in RUPES will contribute to PRESA's capacity-building, adapting and disseminating RUPES publications and methods, as necessary. At the site level, ICRAF will build on strong relationships with collaborators, including government organizations and projects active in the area. For example, ICRAF and ISRIC have committed themselves to developing a joint approach with Kenyan partners, which will include joint planning and review meetings. In addition, the two project teams have identified the following areas of complementarity:
 - PRESA will focus on a part of the upper Tana River basin where forest management and agroforestry are dominant land uses, while the ISRIC pilot Green Water Credits Programme,³ funded by an IFAD grant, will emphasize extensive farming and grazing areas across the basin;
 - the Green Water Credits Programme will conduct basin-level hydrologic analysis useful for PRESA;
 - the Green Water Credits Programme and PRESA will share expertise in analysis of farmer attitudes and behaviour;
 - PRESA will provide negotiation approaches and land use options for the Green Water Credits Programme; and
 - PRESA will facilitate an extended dialogue with private investors.

² Landscapes are the "traits, patterns and structure of a specific geographic area", as defined by the United States Environmental Protection Agency.

³ Green water credits are mechanisms for the transfer of cash to rural people in return for water management activities that are at present unrecognized and unrewarded: a pro-poor investment in people and in the environment.

11. **Target group.** The programme will focus on poor farmers and indigenous forest dwellers, especially women living in the PRESA landscapes. Private and parastatal companies, timber companies and users of other forest products will also indirectly benefit from this grant.
12. **Goal.** The programme aims to promote the livelihoods of smallholders living in the highlands of Eastern and Western Africa through fair and effective ecosystem service agreements.
13. **Objectives.** The programme's objectives are to: (i) foster the development, implementation and assessment of environmental service agreements in three core landscapes and four associate landscapes in the highlands of Eastern and Western Africa; (ii) catalyse policy support and private-sector participation in environmental service agreements in Guinea, Kenya, Uganda and the United Republic of Tanzania; and (iii) provide proactive support to the dissemination and application of assessment tools, negotiation methodologies, prototype reward mechanisms and monitoring tools among a PRESA community of practice, including other IFAD projects, regional and national Katoomba Group⁴ networks, NGOs and national organizations.
14. Below is a list of the key programme activities:
 - compile an inventory of baseline information, design and monitoring methods, and institutional innovation in all landscapes;
 - compile a set of scoping, negotiation support and prototype payment tools from RUPES and other PES projects;
 - conduct training in the PRESA assessment, negotiation support and prototype payment tools for project teams in all PRESA landscapes;
 - support partners to adopt PRESA assessment and negotiation tools to fill in key knowledge gaps and frame dialogue among stakeholders;
 - develop and refine a decision support tool for targeting promising technologies and land use options in different environmental and market conditions;
 - establish and monitor participants' responses to prototype environmental service contracts;
 - engage with utilities, private firms and industry groups with interests in ecosystem services, and with public agencies concerned with environmental services in the target landscapes;
 - identify and mobilize changes in institutions or regulations necessary to support the establishment of workable reward mechanisms;
 - monitor and evaluate the processes of establishing and implementing a working RES mechanism in PRESA sites where agreements are in place;
 - conduct a study of private and parastatal firms to determine factors motivating and constraining participation in contracts for ecosystem services;
 - work with selected private-sector groups to evaluate the business case for rewards for environmental services;
 - disseminate selected technical advisory notes adapted from RUPES and developed from PRESA;
 - develop field and training manuals on key topics;

⁴ "International experts' working group promoting conservation and advancing community livelihoods through markets for ecosystem services" (<http://www.katoombagroup.org>).

- establish and periodically update a PRESA website;
 - Organize at least one national workshop and a final project workshop in conjunction with annual meetings of Katoomba Group Africa.
15. PRESA activities will have a direct impact on the programme landscapes, and generate knowledge and tools for use by researchers and intermediaries. These knowledge outcomes will lead to changes in behaviour among relevant groups, laying the foundations for more effective, fair and numerous environmental service agreements. The agreements will lead to changes in behaviour in the areas covered by the agreements, in turn leading to reductions in poverty, improvements in local resources, and improvements in the ecosystem services available to external populations. The programme will support (i) new techniques for scoping and negotiation of environmental service contracts; (ii) pro-poor targeting approaches; (iii) prototype reward mechanisms; and (iv) monitoring and evaluation (M&E) methods.
16. PRESA will benefit environmental service providers and external beneficiaries through improved provision of environmental services. Positive outcomes include new and regular flows of income, income diversification, adoption of more sustainable farming systems, and protection/restoration of locally valued ecosystem goods and services (e.g. water, fuel, medicines, wild game, improved air quality). The project is designed to benefit women as a special target group. Also targeted will be private and parastatal companies, timber companies and users of other forest products. Interactions with policymakers at different levels will give credibility to the entire process and will promote empowerment, policy reform, capacity-building and programme sustainability and replication.

IV. Expected outputs and benefits

17. These include:
- baseline reports for all of the core and associate landscapes;
 - programme teams in all landscapes introduced to and supported in the application of a toolkit of methods for scoping, negotiation support and assessment;
 - technology targeting tool developed;
 - prototype reward mechanisms developed and tested with at least 100 farmers in every core landscape;
 - workable reward mechanisms operational in at least four of the project landscapes;
 - monitoring, evaluation and impact assessment of working RES mechanisms;
 - technical reports and synthesis documents that clarify the business case for ecosystem management in the highlands of Eastern and Western Africa;
 - technical reports and synthesis documents that identify policy and institutional options for enhancing environmental service reward mechanisms;
 - technical advisory notes;
 - field and training manuals;
 - PRESA website; and
 - workshop summaries.

V. Implementation arrangements

18. PRESA will be coordinated from ICRAF's headquarters in Nairobi, and field-based activities will be implemented with partners. In the Mount Kenya and the upper Tana River landscape, PRESA will be integrated into IFAD's Mount Kenya East Pilot Project and the Green Water Credits Programme. Towards that end, ICRAF has discussed PRESA with ISRIC, respective IFAD country programme managers and the United Nations Office for Project Services.
19. An international advisory committee will be established comprising representatives from IFAD, ICRAF, project landscapes, national contact organizations and key donor and international organizations. The committee will provide strategic guidance on planning, implementation and communication, and be engaged in monitoring at three levels: (i) project management; (ii) performance of institutional arrangements and partnerships; and (iii) outcome and impact.
20. The costs associated with IFAD participation (evaluation reports, attendance at annual or supervision meetings) will not be financed from grant resources.
21. ICRAF will follow IFAD's guidelines for reporting and M&E. Clear criteria will be identified for each output and tracking of associated indicators assigned to specific personnel. An M&E plan will be a component of the annual planning process.
22. ICRAF will open a special United States dollar programme account in order to monitor expenditure and cash disbursements from IFAD. ICRAF will be responsible for the timely submission to IFAD of annual audited financial statements on the use of the grant funds, in accordance with provisions of the grant agreement.

VI. Indicative programme costs and financing

23. The total cost of this programme is about US\$1.4 million, of which US\$1.0 million will be financed by an IFAD grant. The table below presents a summary of the budget and financing plan.

Summary of budget and financing plan

(United States dollars)

<i>Category of expenditure</i>	<i>IFAD grant</i>	<i>ICRAF</i>	<i>European Union</i>	<i>Total</i>
Personnel costs	271 000	56 000	160 000	487 000
Professional services	55 000	-	-	55 000
Training and operational travel	126 000	-	-	126 000
Other research expenses	83 000	11 000	-	94 000
Landscape assessment and prototypes	320 000	-	-	320 000
Capital equipment	30 000	-	-	30 000
Subtotal	885 000	67 000	160 000	1 112 000
Administration and overhead costs	115 000	208 000	-	323 000
Total	1 000 000	275 000	160 000	1 435 000

24. Engagement in seven landscapes of PRESA will be made possible through cofinancing. ICRAF has secured funding from its core budget and the European Union. Key donors for the landscape-level activities include the Danish International Development Agency (DANIDA), IFAD, the United Nations Environment Programme (UNEP), the World Bank/Global Environment Facility (GEF), and the United States Agency for International Development (USAID). The International Development Research Centre has indicated interest in cofinancing specific research topics across the PRESA landscapes. USAID and the World Bank have indicated interest in cofinancing some of the capacity-building components.

25. Complementary funding will be provided by partner organizations and other donors through financial support for related aspects of the PRESA project. The most important of these are:

- World Wildlife Fund for Nature (WWF) and CARE International – with funding from DANIDA, the European Union, the Department for International Development (United Kingdom of Great Britain and Northern Ireland) and GEF. WWF and CARE International received funding from DANIDA for the first phase of PES research in Uganda and the United Republic of Tanzania, and a second phase of that project has been confirmed. Funding received in the past has been used to support a large scoping study and to lay the groundwork for operational reward schemes at two of the PRESA landscapes – Nguru and Uluguru in the United Republic of Tanzania, and Kasyoha and Kitomi in the western highlands of Uganda;
- World Bank/GEF provides US\$4.1 million to the Western Kenya Integrated Ecosystem Management Project, including US\$1.6 million to ICRAF. The project – located in the Nyando and Yala associate landscape – provides financial rewards to farmers for restoration of highly degraded catchment areas.
- The UNEP Division of Environmental Law and Conventions has provided ICRAF with a one-year grant of US\$0.1 million (and approved a second-year grant of an additional US\$0.1 million) to assess the value of ecosystem services and the potential for environmental service rewards in the Nyando and Yala basins.
- ICRAF and the World Bank/GEF have agreed on a US\$0.3 million project to develop a RES mechanism for watershed services in the Aberdares range of Kenya. That project, which will complement the IFAD-funded programme, is now in the advanced stages of development.

Logical Framework – Pro-poor Rewards for Environmental Services in Africa

<i>Narrative summary</i>	<i>Measurable indicators</i>	<i>Means of verification</i>	<i>Important assumptions</i>
Goal			
Hundreds of thousands of smallholder farmers and residents living in the highlands of Eastern and Western Africa benefit from fair and effective agreements between stewards and beneficiaries of ecosystem services	Evidence of national policy and institutional change target countries Systematic engagement in environmental service arrangements by industry groups and public utilities in the four target countries	Government policy and strategy documents Interviews with private firms and industry groups in the four target countries	Stable political and economic environment in target countries Availability of funding from IFAD, ICRAF and other partners
Objectives and outputs			
Landscape-level engagement.: Foster the development, implementation and assessment of workable environmental service agreements in four core and four associate landscapes in the highlands of Eastern and Western Africa.	Income among participating households improved by average of 10 per cent Measurable indicators L1. Baseline reports for all landscapes L2. Project teams trained in scoping, negotiation and assessment methods L3. Technology targeting tool L4. Prototype RES schemes operational in all core landscapes L5. Workable reward mechanisms operational in at least 4 landscapes L6. Monitoring, evaluation and impact assessment of working RES mechanisms	Means of verification Household surveys Reports on PRESA website Tool posted to the website and project monitoring of its use Reports and training materials published and posted to the website Reports and example contracts for pilot RES schemes Formal agreements and group membership lists Impact assessment report. Refined toolkit of scoping, monitoring and assessment tools Reports and papers posted to the website	Important assumptions Project partners and donors continue to be engaged in project landscapes Ecosystem stewards and beneficiaries in the project landscapes continue to support environmental service arrangements
Policy and private-sector engagement: catalyse policy support and private-sector participation in environmental service agreements in Guinea, Kenya, Uganda and the United Republic of Tanzania	P1. Technical reports and syntheses clarify business case for ecosystem management P2. Technical reports and syntheses identify policy and institutional options for enhancing environmental service reward mechanisms C1. Technical advisory notes (TANs) C2. Field and training manuals C3. Informative PRESA website C4. Reports on international workshops	Policy recommendations and stakeholder dialogues Notes disseminated to IFAD projects Manuals and workshop reports PRESA website updated monthly Annual reports, workshop reports Website and annual report	Policymakers and private-sector stakeholders will be interested in the RES concept and see its relevance to their needs. An enabling environment (appropriate dissemination strategy, capacity, etc) exists for knowledge and information sharing.
PRESA community of practice:			
L11. Compile an inventory of baseline information, methods and institutions in all landscapes. Identify gaps. L21. Compile toolkit of scoping, negotiation support and prototype payment tools from RUPES, other PES projects, land degradation and poverty studies	Reports for each site, following a standard format Assessment tools available as reports, computer programs, and data management protocols	Website, PRESA paper series, annual report	Collaborators are forthcoming with information Materials can be readily accessed and compiled in a meaningful way

<i>Narrative summary</i>	<i>Measurable indicators</i>	<i>Means of verification</i>	<i>Important assumptions</i>
L22. Conduct training in assessment, negotiation support, and prototype payment tools for project teams	Reports of group training workshops and individual training	Website and annual report	RUPES staff will be available for training sessions
L23. Support partners to use assessment and negotiation tools	Annual narrative reports for each site	Website and annual report	Collaborators retain interest and funding
L31. Literature review and interviews establish a portfolio of suitable land use options	Standard information compiled for a number of land use options	Website and annual reports	Sufficient information exists
L32. Develop and refine a tool for targeting promising technologies and land use options	Technology targeting tool	Website and annual reports	Adequate information exists
L41. Studies of farmer preferences for elements of environmental service contracts.	MSc theses and project reports	Website, PRESA paper series and annual reports	The project has sufficient technical expertise
L42. Establish and monitor participants' responses to prototype environmental service contracts	Simple and clear M&E indicators; simple form for monitoring	Website and annual reports	Partners and local groups agree to prototype mechanisms
L51. Engage with public agencies, utilities, private firms and industry groups with interests in ecosystem services in the target landscapes	PRESA site reports	Website and annual reports	Minimum conditions exist for private sector interest
L52. Support collective action and awareness raising among community groups	PRESA site reports	Website and annual report	Partners are effective in mobilizing local collective action
L53. Identify and mobilize changes in institutions or regulations to support RES mechanisms	PRESA site reports	Documented changes in policy	Public agencies see advantages of RES
L54. Support consultations, negotiations and agreements for establishing workable mechanisms	PRESA site reports, minutes of meetings and workshops	Website and annual report	Partners are proficient at supporting negotiations
L61. Monitor and evaluate establishment and implementation of RES mechanisms.	PRESA site reports; working papers	Website and annual report; PRESA working papers	Workable agreements implemented in a minimum number of landscapes
L62. Assess impacts of RES on human well-being and the environment, with focus on well-being of the poor	PRESA working papers.	Website and annual report; PRESA working papers; mid-term review	Working agreements generate measurable impact
P11. Conduct a study of factors motivating and constraining private sector participation in environmental service mechanisms	Country-level reports for all 4 countries; synthesis paper	Website, PRESA paper series, annual technical report	Firms are forthcoming with information.
P12. Work with private sector groups to evaluate the business case for environmental services mechanisms		Website, PRESA paper series, annual technical report	Private firms and groups are willing to engage
P21 Facilitate workshops for exchange of good business practice and policy reform	Workshop summaries		Private firms and industry groups are willing to engage
P22. Make presentations and convene side events in at least 3 international forums	Presentations and conference papers	Website, conference websites, PRESA paper series	Good opportunities emerge
C11. Adapt and disseminate RUPES TANs	Dissemination of RUPES TANs in Africa	RUPES website	Partners agree that RUPES experience is relevant
C12. Develop and disseminate PRESA TANs	PRESA TANs following ICRAF research brief format	ICRAF website, PRESA website	PRESA generates a sufficient number of insights
C21. Identify best practices from existing RES schemes	Synthesis paper	PRESA paper series	PRESA generates a sufficient number of technical insights
C22. Develop field and training manuals on key topics	Field and training manuals on 2-5 topics	PRESA website and website	Field and training manuals judged to be appropriate
C23. Provide responsive advisory services to project developers and researchers	Trip reports	Annual report	Project developers and researchers are willing to share costs
C31 Establish and periodically update a PRESA website building upon RUPES and CRES websites	Updates to PRESA website	PRESA website	Website judged to be an appropriate investment
C4. Organize at least one national and a final project workshop in conjunction with annual meetings of Katoomba Group Africa	Documents and presentations at four country workshops and synthesis workshop	PRESA website, PRESA papers series, book or special issue of a journal.	The Katoomba Group for Africa continues to be active

International Crops Research Institute for the Semi-Arid Tropics (ICRISAT): Programme for Harnessing the True Potential of Legumes: Economic and Knowledge Empowerment of Poor Farmers in Rainfed Areas in Asia

I. Background

1. A previous IFAD grant-funded operation, the Programme for Farmer-Participatory Improvement of Grain Legumes in Rainfed Asia, commenced in 2002 and involved four Asian countries – China, India, Nepal and Viet Nam. The programme's overall objective was to improve the well-being of the rural poor in Asia through sustainable increases in agricultural productivity based on wider adoption of grain legumes in cropping systems. The programme had significant achievements to its credit in all the partner countries. Participatory varietal selection was its most successful aspect, generating considerable interest and favourable responses from the farming communities, research scientists, extension workers and local officials. Farmers participated both in the identification of desirable traits and in on-farm selection of preferred varieties. Good progress was made in validating and refining a number of technologies that were at an advanced stage of development through research undertaken by ICRISAT and/or NARES.
2. The programme was also quite successful in empowering farmers and introducing them to improved farming practices. However, some of these achievements were uneven across the partner countries and across locations within a country depending on the socio-economic status of the farmers, and on the duration of their involvement in programme activities. The programme established strong linkages with IFAD investment projects in India (Jharkhand-Chhattisgarh Tribal Development Programme) and in Viet Nam (Rural Income Diversification Project in Tuyen Quang Province).
3. An evaluation of the programme's activities in India and Viet Nam, undertaken during September and October 2006, concentrated on four aspects of impact: relevance, beneficiary impact, induced institutional change and sustainability of impact. In recommending a follow-up phase, the independent evaluator noted a number of factors that had contributed to the programme's success. Key among them were quality of staff, availability of technologies at the local level through the CGIAR-national agricultural research system (NARS) networks, cross-fertilization of ideas, and the large number and wide range of partners (making it possible to draw on mutually complementary comparative advantages).
4. The proposed programme will build on the achievements of the previous IFAD programme, the findings of the evaluation mission, the comments and suggestions of the directors of the IFAD investment projects in India and Viet Nam, and those of farmers, wherever possible.

II. Rationale and relevance to IFAD

5. Legumes play an important role in the livelihoods of the peoples of Asia. Many people are vegetarian and rely heavily on legumes for their dietary protein. Therefore, farmers produce a wide range of legume crops for household consumption as well as for markets to earn a cash income. Many of the legume growers of Asia are small farmers whose land tenure is uncertain. Given the risk of dispossession, they are reluctant to seek improvements in soil fertility through the application of purchased inputs such as lime and fertilizer. Growing legumes that contribute to soil fertility can be an indirect way of improving fertility and productivity, and including legumes in the cropping cycle often benefits other crops in that cycle. In some situations, rural poor people have protein deficiencies because they cannot obtain

sufficient protein to balance their diets. The proposed programme will address the need for increased and diversified production, and will also strengthen local communities and their ability to collaborate with research and extension agents in the development of new, higher-yielding and better-quality legume production systems. It is therefore consistent with IFAD's strategic objectives.

III. The proposed programme

6. The proposed activities emerge from the recommendations of the review mission and the suggestions of partners including the directors of the IFAD-supported projects in India and Viet Nam. The programme for Nepal has been discussed with NARES representatives.
7. **Target group.** The programme will mainly target poor smallholder farmers who currently grow legumes and potential legume growers. Through its activities, it will also benefit farm households and the rural poor in general. Working in collaboration with IFAD loan-financed development projects, the programme will take advantage of previous pro-poor and gender targeting to ensure that the poor and women attain the maximum benefits from programme activities.
8. **Goal.** The overall goal of the programme is to improve the well-being of the rural poor in Asia through sustainable increases in agricultural productivity based on wider adoption of grain legumes in cropping systems.
9. The programme's specific objectives are to:
 - consolidate and scale up and out the gains achieved in the previous IFAD programme with necessary fine-tuning of farmer participatory research outputs for new areas, particularly with IFAD-funded development projects;
 - develop seed production, storage and distribution systems to make small and marginal farmers self-reliant and self-sufficient in seed requirements;
 - promote forward and backward market linkages and value addition at the local level;
 - popularize the farmer participatory research and extension (FPRE) approach among farmers and agricultural research and extension workers, and assess its institutional impact; and
 - assess the impact of farmer-preferred varieties (FPVs) and integrated crop management (ICM) technologies of legumes in rainfed production systems on farmers' socio-economic conditions (e.g. sustainable increased productivity, food and nutritional security and improved well-being).
10. The new programme, in addition to the scaling up and out of FPVs and ICM technologies, will lay emphasis on mechanisms and approaches that will help sustain the gains already made.
11. Key programme activities:
 - Location-specific FPVs of various legumes and the ICM technologies matching their socio-economic condition adopted by farmers, leading to increased legume productivity and stability of the rainfed cropping systems.
 - Self-sustained community-based seed systems at the local level established to meet the increasing seed demand of the FPVs, public-sector seed agencies sensitized to adopt FPVs in their seed production programmes, and institutional arrangements made for breeder seed production to sustain seed production chain.

- Self-help and common interest groups promoted to undertake value addition and production of biopesticides/botanicals at the local level, and forward and backward market linkages established for marketing value-added products and ensuring supply of required inputs.
- Farmers, NGOs and extension officials trained in integrated legume production technologies and their advocacy groups created for further spread of technologies.
- Impact on institutional capacity in FPRE, farm-level productivity and knowledge, awareness and livelihoods of the farmers documented and publicized.
- Mainstreaming of FPRE promoted through policy dialogues and enhanced capacity in NARES.

IV. Expected outputs and benefits

12. **Consolidation and scaling up and out of gains from the previous programme.** The Programme for Farmer-Participatory Improvement of Grain Legumes in Rainfed Asia will be scaled up at existing locations and scaled out into areas with similar agroclimatic conditions. This will be supported with required seed production at the institutional and local level. At new programme locations, farmers will receive a basket of varieties, selected on the basis of farmer-preferred traits, for evaluation and selection of their preferred varieties. Similarly, an integrated package of farmer-preferred components of technology will be scaled up suiting the location-specific needs and priorities of production systems that are of importance to small and marginal farmers. In indigenous areas where agriculture is just emerging from the traditional seed broadcast and harvest system, the individual components of technology will continue to receive priority until farmers are prepared to accept and adopt the whole package. A holistic, interdisciplinary, multi-partner approach will be adopted in the scaling-up and fine-tuning of technologies, with a focus on issues relating to sustainability and stability of rainfed production systems.
13. **Technology dissemination.** For dissemination of farmer-preferred validated technologies with greater potential impact, various partners will be involved, including lead farmers. To accelerate dissemination of technologies, a farmer-to-farmer extension strategy, and an implementation plan using farmers already trained under the previous programme as resource persons, will be developed. Farmers' organizations and associations, self-help groups, common interest groups and the private sector, where needed, will be involved in technology dissemination activities and encouraged to become advocacy groups. Linkages with extension officials and staff of departments of agriculture will be strengthened. Electronic and print media and farmer-friendly literature will be extensively used.
14. **Seed systems.** A holistic strategy and action plan for improving seed availability of FPVs will be developed and implemented. Both formal and informal seed sectors will intervene to develop self-reliance and self-sufficiency in seed requirements of FPVs for small and marginal farmers. Self-help groups and local young people will be encouraged to take up community-based seed production, storage and distribution, and marketing at the local level. NGOs and private-sector seed-producing agencies will be encouraged to participate in FPV seed production and distribution activities. Public-sector seed-producing agencies will be encouraged to participate in seed production, and in the procurement and distribution of FPVs even if they are not officially released. The state and local governments will be approached to obtain recognition for FPVs outside the formal system of variety evaluation and release. Self-help groups, NGOs, farmers and local traders will be trained in seed production, processing and storage practices. The successful model will be replicated at other locations. Institutional arrangements for "breeder-seed" production to support formal and informal seed production chains will be strengthened.

15. **Value addition and linkages with markets.** Self-help groups will be encouraged to start local enterprises – such as mini *dahl* (split pulses) mills, oil mills and preparation of diversified food products – for local-level value addition of legumes. Units for biopesticides/botanicals production will be promoted to ensure timely availability of quality biopesticides/botanicals required for environmentally friendly, cost-effective pest and disease management options. The self-help groups will be given required skills training to manage and run these enterprises. Linkages between self-help groups and traders from nearby markets will be facilitated for marketing value-added products and facilitating the supply of inputs. Arrangements for microfinancing and microcredit will be facilitated. These enterprises will help generate local employment among rural young people; they will also lower the cost of processing thereby benefiting consumers.
16. **Mainstreaming of FPRE approach in NARES and assessing its impact.** Both the proposed programme and the collaborating IFAD-supported projects will focus on influencing the research and development policies and institutional mindsets of national partners to mainstream the FPRE approach, leverage incremental funding for pro-poor research incorporating legume crops and give greater attention to the human capacity development needs of partner organizations. These objectives will be achieved through policy dialogue, training workshops and appropriate publications. An assessment will be made of the impact of the FPRE approach on state and local government policies.
17. **Impact of farmer-preferred legume technologies.** The impact of research and technology dissemination activities on the productivity of rainfed cropping systems and the well-being of farmers will be assessed. The technical and socio-economic benefits of the introduction of legumes on systems' productivity will be assessed and documented. Socio-economic research will be initiated to assess costs and benefits of various commodity-based options and to facilitate more-informed decision-making by farmers.
18. **Knowledge empowerment.** Regular training courses on integrated legume production technologies and on the FPRE approach will be organized for field staff of the programme's partners, extension officials and farmers. Children in village schools will also be sensitized about these technologies.

V. Implementation arrangements

19. ICRISAT will be the grant recipient and will be responsible for implementing the programme in accordance with the grant agreement with IFAD. The proposed programme will be coordinated by a designated ICRISAT staff member and be implemented by a coalition of partners including the staff of selected IFAD-financed projects. In terms of collaboration and involvement with other agencies, ICRISAT operates in a partnership mode, and its partners include national and provincial institutions, (e.g. in India, the state agricultural universities and state departments of agriculture), NGOs, civil society and farmers. The relationships are generally with the national research and development agency of each country and are formalized by memorandums of understanding that detail the scope, mechanisms, roles, responsibilities and obligations of each organization. Memorandums of understanding will be renewed or agreed as needed to undertake the proposed programme. A steering committee – comprising one senior representative from each partner country and partner IFAD-financed projects, and one or more representatives from IFAD – will provide overall guidance for project implementation. Funds from the requested grant will not be used to finance the participation of IFAD staff.
20. **Monitoring and evaluation (M&E) and reporting arrangements.** Primary M&E systems will be devised by designated implementers with guidance from ICRISAT and IFAD. Each partner will submit a programme implementation report and a progress report annually to ICRISAT. The Institute will be responsible for overall monitoring of programme implementation and progress, and for financial, technical

and progress reporting. The steering committee will meet annually to monitor the programme's progress and approve the subsequent year's workplan for each location and an overall workplan and budget in support of withdrawal requests to IFAD. The programme will be supervised by the Technical Advisory Division and the Asia and the Pacific Division through attendance at the steering committee or through additional visits, at no charge to the grant.

VI. Indicative programme costs and financing

21. The total cost of the programme is estimated at US\$2.4 million, of which US\$1.4 million will be financed by an IFAD grant. The balance will be financed by ICRISAT and partner institutions through in-kind contributions. Of the IFAD grant, 44 per cent will finance research subcontracts with partner institutions and research-related equipment and supplies; and 18 per cent will be used for personnel costs. There will be no duplication of financing from grant funds and IFAD loan-financed project funds. Roles, responsibilities and financing arrangements between the grant programme and the loan projects will be clearly spelled out in the agreements between ICRISAT and the programme management units.

Summary of budget and financing plan

(United States dollars)

<i>Category of expenditure</i>	<i>IFAD grant</i>	<i>ICRISAT^a</i>	<i>NARES^a</i>	<i>Total</i>
Personnel	250 000	208 000	140 000	598 000
Research supplies	147 000	80 000	48 000	275 000
Travel	100 000			100 000
Research equipment and facilities	70 000	160 000	120 000	350 000
Training, monitoring and meetings	230 000	32 000	12 000	274 000
Research subcontracts	400 000			400 000
Administrative overhead	203 000	120 000	80 000	403 000
Total	1 400 000	600 000	400 000	2 400 000

^a In-kind contributions.

Logical Framework – Harnessing the True Potential of Legumes: Economic and Knowledge Empowerment of Poor Farmers in Rainfed Areas in Asia

<i>Hierarchy of objectives</i>	<i>Objectively Verifiable Indicators</i>	<i>Means of Verification</i>	<i>Assumption</i>
Goal			
Improved well being of the rural poor engaged in rainfed agriculture in Asia	Increased net returns, assets and savings from agriculture Enhanced opportunities for income generation and rural employment Improved food security, nutrition and diversity of diet of rural poor Increased crop diversity and sustainability of productivity of rain fed cropping systems Increased availability of protein rich fodder for livestock	Within project: baseline data on income and returns, nutrition and diet, crop and livestock productivity and rural employment and enterprises, impact assessment and monitoring reports, post project evaluation report	Agriculture remains a significant player in national economy Government policies and world trade scenario favour small and marginal farmers Climatic conditions remain farmer-friendly
Overall objective			
Sustained gains in agricultural productivity based on wider adoption of grain legumes and their improved production technologies in rainfed cropping systems in India, Nepal and Viet Nam	40-60 per cent farmers in project and nearby areas adopt project identified technologies Increase in legume area by 15-20 per cent and in productivity by 20-30 per cent Improved productivity and stability of the rainfed cropping systems	Project progress reports, impact monitoring and assessment reports, production and area statistics of the districts, records of market arrivals of legumes Soil analysis (chemical and physical) data in the long term	Legume prices remain remunerative to farmers Legumes receive greater government support through favourable policies and credit support Climatic conditions remain farmer friendly
Specific objectives			
1. To consolidate and up- and out-scale gains achieved in previous project ICRISAT with required fine-tuning of research outputs for new areas particularly under the IFAD investment projects	40-60 per cent farmers in project and nearby areas adopt project identified technologies Increase in legume area by 15-20 per cent and in productivity by 20-30 per cent	Project progress reports, impact monitoring and assessment reports	Farmers continue to maintain their enthusiastic participation in the project IFAD investment projects provide local and logistics support
2. To develop seed production, storage and distribution systems to make small and marginal farmers self-reliant and self-sufficient in seed requirements	At least one seed production, storage and distribution unit for cluster of 3-4 villages established 40-60 per cent of area planted to farmer-preferred improved legume varieties	Project progress reports, impact monitoring and assessment reports	Government encourages and supports informal seed sector and helps create required infrastructure
3. To promote forward and backward market linkages and value addition at the local level	At least one self-help group in a cluster of 3-4 villages promoted to start local legume enterprises Increased local employment and income generation opportunities	Project progress reports, impact monitoring and assessment reports	Legume prices remain competitive vis-à-vis other commodities Micro-credit facilities are available
4. To popularize FPPE approach among NARS, extension officials and farmers and assess its institutional impact.	One formal training course organized once a year in each country Meeting with policy makers at the local/provincial/national level held at the beginning of the project in each country	Project progress reports, impact monitoring and assessment reports	NARS policy makers value FPPE approach
5. To assess impact of FPVs and ICM of legumes in rainfed production systems on socio-economic conditions of the farmers vis-	Baseline data on income and returns, nutrition and diet, crop and livestock productivity and rural employment and enterprises collected	Project progress reports, impact monitoring and assessment reports	Legume prices remain competitive vis-à-vis other commodities

<i>Hierarchy of objectives</i>	<i>Objectively Verifiable Indicators</i>	<i>Means of Verification</i>	<i>Assumption</i>
à-vis sustainable increased productivity, food and nutritional security and improved well being.	Impact assessed on selected farm families at each location through economic analysis of technologies and household surveys		
Outputs			
1. Location specific FPVs of various legume crops and ICM technologies suiting to their socio-economic conditions adopted by the rain fed farmers leading to increased legume productivity and stability of the cropping systems	40-60 per cent farmers adopt FPVs and ICM technologies in project and nearby areas 20-30 per cent increase in productivity and 15-20 per cent increase in area of legumes under rainfed cropping systems	Project progress reports, impact monitoring and assessment reports Area and production statistics of the district	Legume prices remain competitive vis-à-vis other commodities Climatic conditions remain farmer friendly
2. Self-sustained community based seed systems at local level established to meet increasing seed demand of FPVs, public sector seed agencies sensitized to adopt FPVs in their seed production programmes and institutional arrangements strengthened for breeder seed production to sustain seed production chain	40-60 per cent project and nearby areas under legumes covered by FPVs At least one public-sector seed producing agency in each state includes FPVs in its seed production programme ICRISAT and SAUs produce breeder seed of FPVs	Project progress reports, impact monitoring and assessment reports Seed production records of public-sector seed producing seed agencies Breeder seed production records of ICRISAT and SAUs	Government encourages and supports informal seed sector and facilitates required infrastructure development
3. Self-help and common interest groups promoted to undertake value addition and production of biopesticides/botanicals at the local level and farmer-market linkages established for marketing value added products and ensuring supply of required inputs	Physical presence of operational local enterprise at least one each dealing with biopesticides/botanicals production and input supply and value addition in legumes	Project progress reports, impact monitoring and assessment reports	Legume prices remain competitive vis-à-vis other commodities Microcredit facilities are available
4. Farmers and extension officials trained in integrated legume production technologies and their advocacy groups created for further spread of technologies	One formal training course organized once a year in each country At least one farmer field day organized at each location in each cropping season Farmer-friendly literature on FPVs and ICM published in local languages At least one farmer-scientist interaction meeting held at each location in each cropping season	Project progress reports, impact monitoring and assessment reports	None
5. Impact on institutional capacity in FPRE, farm level productivity and knowledge, awareness and livelihoods of the farmers documented and publicized	State/local governments/institutions adopt FPRE as one of the approaches in their programme 40-60 per cent farmers adopt FPVs and ICM and realize 20-30 per cent increase in legume productivity in rainfed cropping systems	Project progress reports, impact monitoring and assessment reports Farmer friendly literature and public awareness materials	NARS policy makers value FPRE approach
Key Activities			
1. Consolidation and out- and up-scaling of gains	20-30 per cent increase in legume productivity in rainfed cropping systems	Project progress reports, impact monitoring and assessment reports	Legumes receive greater government support through favourable policies and credit support
a. Technology dissemination	40-60 per cent farmers in project areas and nearby areas adopt FPVs and ICM		Legume prices remain competitive vis-à-vis other commodities

<i>Hierarchy of objectives</i>	<i>Objectively Verifiable Indicators</i>	<i>Means of Verification</i>	<i>Assumption</i>
b. Microfinancing/microcredit for purchase of inputs	Microfinancing for inputs arranged		
2. Seed systems	At least one self-help or common interest group established in a cluster of 2-3 villages to take up informal seed production programme		
	FPVs cover 40-60 per cent legume area in project and nearby areas		
	At least one public sector seed producing agency in each state includes FPVs in its seed production programme		
	ICRISAT and SAUs produce breeder seed of FPVs		
3. Value addition and linkages with market	Physical presence of operational local enterprise at least one each dealing with bio-pesticides/botanicals production and input supply and value addition in legumes		
4. Main streaming FPRE in NARS and its impact	One formal training course on FPRE approaches organized in each country Meeting with policymakers at the local/provincial/national level held at the beginning of the project in each country Policymakers invited to field days and farmer-scientist interaction meetings		
5. Impact of farmer preferred legume technologies	40-60 per cent farmers adopt FPVs and ICM and realize 20-30 per cent increase in legume productivity in rainfed cropping systems	Project progress reports, impact, monitoring and assessment reports, production and area statistics of the districts, records of market arrivals of legumes	Legume prices remain competitive vis-à-vis other commodities Climatic conditions remain farmer friendly
	Improved productivity and stability of the rainfed cropping systems	Soil analysis (chemical and physical) data in the long term	
6. Knowledge empowerment of farmers and other stakeholders	One formal training course organized once a year in each country At least one farmers field day organized at each location in each cropping season At least one farmer-scientist interaction held at each location in each cropping season One ITC-enabled learning center established at selected IFAD investment project location	Project progress reports, impact monitoring and assessment reports Farmer-friendly literature and public awareness materials	Farmers continue to maintain their enthusiastic participation in the project

International Rice Research Institute (IRRI): Programme for Alleviating Rural Poverty by Improving Rice Production in Eastern and Southern Africa

I. Background

1. Rural poverty in the Eastern and Southern Africa region could be significantly reduced if the efficiency of local rice production were improved. There are more than half a million poor rice farmers in the region who could reduce their levels of poverty by growing and selling rice as a cash crop to local urban markets. Increasing local rice production by about 1.0 tonne/hectare (t/ha) would significantly reduce the need for imported rice, but this would require more efficient farming operations and improved rice quality.
2. In the region:
 - Most of the poor cultivate less than 1 ha of land. Rainfall is often unreliable in quantity and frequency, and farmers are frequently forced to seek low-income, off-farm work to earn cash to cover their food deficits.
 - The consumption of rice in many parts of the region has doubled. For example, annual rice consumption in the United Republic of Tanzania has increased from 17 kilogram (kg)/person in the 1970s to about 40 kg/person in 2003.
 - More than 500,000 t of rice are imported annually at a cost exceeding US\$100 million in foreign exchange.
3. Constraints to agricultural production include the lack of inputs such as improved varieties, fertilizer and, in some areas, labour. High post-harvest losses and difficulties in accessing markets are other key obstacles. Options to overcome these constraints exist, but an integrated approach drawing on a range of production and post-production technologies is required to achieve the increased production targets. Farmers must be linked to local and regional markets for both inputs and outputs to ensure success. The proposed programme addresses these issues.
4. IRRI and the Africa Rice Center (WARDA) have more than 80 years of combined experience in rice research and development, working with poor farmers in unfavourable environments across Asia and Africa. IRRI technologies were instrumental in starting the green revolution in Asia, which doubled rice production resulting in food security for many countries. During this time, IRRI developed new rice varieties and crop production and post-production technologies, and built human capacity within national rice research and development sectors. Similarly, WARDA has been instrumental in developing and extending the rice crop in upland and lowland areas of Western and Central Africa and training rice researchers from countries in that region. Recently WARDA has developed a series of new varieties of rice termed NERICA (new rice for africa). Although the green revolution bypassed Africa, IRRI and WARDA are now collectively well positioned to address the problems of low incomes and food security for the rural poor people in the region using the relevant experiences of rice production and technology from Asia and Africa.

II. Rationale and relevance to IFAD

5. Rice is an increasingly important commodity in the Eastern and Southern Africa region, and importation of Asian rice costs the countries dearly in foreign exchange. Thousands of small farmers grow rice in the region but most depend on increasingly unreliable rainfall and lack irrigation facilities. Hence production is low and risk of loss due to drought is high. Nevertheless, if IRRI and WARDA can develop drought-resistant varieties that satisfy market preferences, many poor small farmers, taking

advantage of the newly created marketing opportunity, will improve their livelihoods. IRRI and WARDA have jointly developed a proposal that could impact positively on livelihoods in the region – not only those of poor rice producers and consumers but also those of market traders and poor people employed in the input and output markets for the commodity. Countries too will benefit by saving foreign exchange, which could then be used, for instance, for developing rural infrastructure – including water supply and roads, both essential for improving the rice subsector.

III. The proposed programme

6. The challenges involved in making rice agriculture sustainable will be tackled by building local expertise, developing new rice varieties, improving agronomic practices and addressing market issues (both input and output). Research, development, and extension activities at farm level combined with the improved capacity of local rice scientists, technicians and advisors (including the private sector) will address local priorities.
7. **Target group.** The programme will benefit poor farmers (especially the many women farmers in the region) in seven Eastern and Southern African countries – Burundi, Kenya, Malawi, Mozambique, Rwanda, Uganda and the United Republic of Tanzania – by increasing efficiency in rice production and improving grain quality. These countries were selected because of the local importance of rice as well as the need to enhance the livelihoods of local poor people. In this region, more than 85 per cent of the extreme poor are dependent on agriculture.
8. **Goal.** The goal of the programme is to improve the food security and living standards of the extreme poor in Eastern and Southern Africa. Its objective will be to build regional and household food security by raising the income of extremely poor rice farmers in the region through an increase in rice production by up to 1.0 t/ha across 600,000 ha of existing rice-growing areas within five years. The present value of this increase will be around US\$110 million/year.

IV. Expected outputs and benefits

9. **Rice production environments and market information assessed.** The programme will gather, analyse and present socio-economic, production and market information to enable a better understanding of rice production with regard to the whole farm enterprise and food security. This data will also be used for monitoring and evaluation purposes during the programme. Changes in resource availability and evidence of threats to sustainability – including farmer practices – will also be documented. This will involve analysis of physical, climatic, biological, socio-economic, cultural and institutional data, including the use and availability of labour within the different countries; characterization of farming and land use activities; and identification and prioritization of needs and opportunities, especially urban market requirements.
10. **Varieties with high yields, good grain quality, and enriched with micronutrients for rainfed lowland and irrigated ecosystems developed and tested with farmers.** After assessing existing rice germplasm, the programme will develop new cultivars that have both improved resistance to biotic factors (such as drought and pests) and desirable quality traits. WARDA's work on NERICA will be continued as an integral component of this output.
11. **Sustainable production and post-production rice-based technologies for both seed and grain farms identified, developed and tested.** The programme will address issues relating to water management, plant nutrition and pest management in addition to post-harvest problems in rice harvesting, drying, storage and milling. To achieve this, it will conduct collaborative applied crop management research on strategically located farms and research stations to establish best crop management practices for different regions; evaluate techniques that will help

- develop an integrated nutrient management programme at farm level; and introduce on-farm water-saving techniques such as land levelling and soil puddling. It will also conduct on-farm research with NERICA varieties.
12. HIV/AIDS has decimated rural labour in the region. The programme will address this constraint by developing local capacity to explore labour-saving equipment for crop production and post-harvest activities (e.g. rice milling). Prototypes will be developed and imported, and machinery manufacturers will be trained especially in the labour-intensive areas of land preparation, planting and harvesting. Links will be established with NGOs involved in the commercialization of African agriculture, e.g. TechnoServe.
 13. **Capacity of key rice scientists, technicians and extension staff strengthened to conduct research and extend findings.** Well-trained staff are needed to ensure that relevant research is carried out, that systems are sustainable and that technologies are communicated effectively to farmers. To achieve this, effective partnerships will be established with other CGIAR centres, advanced research institutes and universities, national agricultural departments, NGOs and machinery manufacturers. Degree and non-degree training programmes will be conducted as part of a research and human resource development plan. Participants from within the region will be included in short courses at IRRI, WARDA and elsewhere, and special in-country courses will be organized. Selected staff in the region will be trained as trainers to develop national, provincial and county capacity in conducting effective rice-related training programmes for village extensionists/advisers and farmers. National and regional workshops involving research, extension and development partners will be convened. Research findings will be documented and disseminated through appropriate channels. A rice knowledge bank for Africa will be developed.
 14. **A market for domestically produced rice developed and promoted.** Although a market exists for imported rice in the programme countries, the market and demand for domestic rice is underdeveloped. The proposed programme will develop and promote a market for domestic rice (including NERICA varieties) by analysing rice consumer preferences in target countries to contribute to developing and selecting varieties. Market access and prices will also be gathered to determine the price level for various types of rice on the market and seasonal variations. Market information will be provided to producers and consumers to support those who invest in rice production and marketing. Promotion of domestic rice consumption through tasting panels, rice cooking shows and media campaigns on the quality of domestically produced rice will be supported.
 15. Local applicability will be the fundamental criterion in choosing demonstration technologies. An understanding of existing farming systems and markets will guide the research undertaken and determine technologies best suited for adoption and sustainability. Institutional change will be catalysed through the participation of the major stakeholders in programme design and implementation. Participation of all elements of the different NARES – the national agricultural departments, universities and agricultural colleges – in research and training activities will increase national capacity.

V. Implementation arrangements

16. Programme implementation will be the responsibility of IRRI and WARDA. However, IRRI will be the grant recipient and responsible for financial controls, audit and reporting (both financial and technical). WARDA's collaboration will be under the terms of the existing memorandum of understanding. IRRI and WARDA will collaborate with the NARES of appropriate countries in the region (this includes public, private and civil-society entities). Memorandums of agreement will be established with all partner institutions for implementation of project activities, disbursement of funds and financial recording and reporting. IRRI and WARDA will

base a team of personnel in the region and provide technical and management assistance to the team with headquarters-based breeders, production specialists, trainers and information and communication technology specialists. IRRI has already posted an agronomist in Mozambique. Staff of NARES will also provide support to the IRRI-WARDA team.

17. The programme will aim to capitalize on existing development projects such as the IFAD-supported Mount Kenya East Pilot Project for Natural Resource Management and the Southern Nyanza Community Development Project in Kenya, the Agricultural Support Programme in Mozambique, the National Agricultural Advisory Services Programme in Uganda, and the Agricultural Marketing Systems Development Programme in the United Republic of Tanzania. Other linkages will be identified through the participatory involvement of stakeholders.
18. A steering committee (comprised of representatives of IRRI, WARDA and the NARES of the six focus countries) and IFAD will meet annually. Attendance of IFAD staff will not be financed from proceeds of the grant. Staff from IFAD-funded development projects in the region will also be invited. The steering committee will develop guidelines for programme implementation, play a lead role in determining research and training priorities, and approve the annual workplans and budgets.
19. **Supervision.** The programme will be supervised by IFAD (Technical Advisory Division and/or Eastern and Southern Africa Division) through participation in the annual meetings of the project steering committee plus additional visits as appropriate. Supervision costs will be borne by IFAD, and none of the grant proceeds will be used for this purpose.

VI. Indicative programme costs and financing

20. An IFAD grant of US\$1.5 million has been requested. The following budget assumes a start-up of the programme during the second half of 2007 – in time for the rainy season in some countries. Negotiations for funding from “other sources” are almost complete, and all the funding shown in the following table is expected to be secured by April 2007.
21. Category headings in the cost table below are consistent with IRRI accounting systems, which will facilitate auditing and financial reporting.

Summary of budget and financing plan

(United States dollars)

<i>Category of expenditure</i>	<i>IFAD grant</i>	<i>IRRI</i>	<i>WARDA</i>	<i>NARES</i>	<i>Other sources</i>	<i>Total</i>
Personnel	400 000	534 000	288 000	-	412 000	1 634 000
Capital equipment	60 000	-	-	-	-	60 000
Supplies and services	120 000	-	-	58 500	41 400	219 900
Travel	100 000	-	-	-	26 800	126 800
Training, conferences, publications	600 000	-	-	-	-	600 000
Indirect costs	220 000	112 000	127 000	12 300	100 800	572 100
Total	1 500 000	646 000	415 000	70 800	581 000	3 212 800

Logical framework – Alleviating Rural Poverty by Improving Rice Production in Eastern and Southern Africa

<i>Narrative summary</i>	<i>Performance indicators</i>	<i>Means of verification</i>	<i>Assumption</i>
Goal			
To improve the food security and living standards of the extreme poor in Eastern and Southern Africa (ESA).	<ul style="list-style-type: none"> Improvement in food security and living standards in target domain 	<ul style="list-style-type: none"> Survey and studies conducted by local and national governments 	<ul style="list-style-type: none"> Increased financial returns to farmers will reduce poverty in the community and improve livelihoods
Purpose			
To build regional and household food security by raising the income of extremely poor rice farmers in ESA through an increase in rice production by up to 1.0 t ha ⁻¹ across 600,000 ha of existing rice growing areas within 5 years. The present value of this increase will be around US\$110 m year ⁻¹ .	<ul style="list-style-type: none"> Local rice production satisfying local demand 	<ul style="list-style-type: none"> Surveys, impact assessment and project completion report 	<ul style="list-style-type: none"> Governments must be committed to achieving rice self-sufficiency The political environment remains conducive to bilateral activity Climatic variability does not unduly affect rice production
Outputs			
1. Rice production environments and market information assessed	<ul style="list-style-type: none"> Data base of farming practices and, land use and market requirements 	<ul style="list-style-type: none"> Project reports 	<ul style="list-style-type: none"> Active participation of local communities
2. Varieties with high yield, good grain quality, and enriched with micro nutrients for rainfed lowland and irrigated ecosystems developed and tested with farmers	<ul style="list-style-type: none"> High yielding rice varieties with desired grain quality being grown by farmers and available in markets Micronutrient-enriched varieties are available and being grown by farmers 	<ul style="list-style-type: none"> Farmer survey Market analysis 	<ul style="list-style-type: none"> Target farmers and communities are willing to use participatory approaches Genetic material can be transferred to the country
3. Sustainable production and post-production technologies for both seed and grain farms identified, developed and tested	<ul style="list-style-type: none"> Applied crop management research being conducted on research stations and farms Integrated nutrient, pest management and water saving techniques adopted and used on farm Equipment prototypes and designs available and being used at farm level Improved rice milling yields being attained by local millers 	<ul style="list-style-type: none"> Annual project reports Participatory M & E Availability of equipment blue prints 	<ul style="list-style-type: none"> Access to inputs by poor farmers Local equipment manufacturers are convinced of the viability of design and production of suitable machinery for rice production and processing
4. Capacity of key rice scientists, technicians, and extension staff strengthened to conduct research and extend findings	<ul style="list-style-type: none"> Partnerships developed with other institutes, universities, national agricultural departments, NGOs and machinery manufacturers Number of MS and PhD degree candidates trained at academic institutions within Africa and overseas Number of participants at IRRRI, WARDA and elsewhere and who have conducted effective rice-related training programs Number of scientists who have participated in IRRRI and WARDA sponsored scientific activities (conferences, meetings, workshops, etc.) Rice Knowledge Bank for Africa developed Number of local post-production practitioners working within region 	<ul style="list-style-type: none"> Annual project reports Participatory M & E Conference papers On line African Rice Knowledge Bank 	<ul style="list-style-type: none"> National programmes give priority to capacity building. (This has been identified as a regional priority at a meeting in Nairobi in December 2005).

<i>Narrative summary</i>	<i>Performance indicators</i>	<i>Means of verification</i>	<i>Assumption</i>
5. Capacity of key rice scientists, technicians, and extension staff strengthened to conduct research and extend findings	<ul style="list-style-type: none"> Partnerships developed with other institutes, universities, national agricultural departments, NGOs and machinery manufacturers Number of MS and PhD degree candidates trained at academic institutions within Africa and overseas Number of participants at IRRI, WARDA and elsewhere and who have conducted effective rice-related training programs Number of scientists who have participated in IRRI and WARDA sponsored scientific activities (conferences, meetings, workshops, etc.) Rice Knowledge Bank for Africa developed Number of local post-production practitioners working within region 	<ul style="list-style-type: none"> Annual project reports Participatory M & E Conference papers On line African Rice Knowledge Bank 	<ul style="list-style-type: none"> National programmes give priority to capacity building. (This has been identified as a regional priority at a meeting in Nairobi in December 2005).
6. A market for domestically produced rice developed and promoted.	<ul style="list-style-type: none"> Market information available to producers and consumers Market acceptance of domestically produced rice. 	<ul style="list-style-type: none"> Annual project reports Market survey 	<ul style="list-style-type: none"> Quality of locally-produced rice can be raised and is accepted in local markets

