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REPORT AND RECOMMENDATION OF THE PRESIDENT

TO THE EXECUTIVE BOARD ON A PROPOSED LOAN TO

THE REPUBLIC OF ZIMBABWE

FOR

THE SMALLHOLDER IRRIGATION SUPPORT PROGRAMME



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CURRENCY EQUIVALENTS

Currency Unit	=	Zimbabwe Dollar (ZWD)
USD 1.00	=	ZWD 15.00
ZWD 1.00	=	USD 0.066

WEIGHTS AND MEASURES

1 kilogram (kg)	=	2.204 pounds (lb)
1 000 kg	=	1 metric tonne (t)
1 kilometre (km)	=	0.62 miles (mi)
1 metre (m)	=	1.09 yards (yd)
1 square metre (m ²)	=	10.76 square feet (ft ²)
1 acre (ac)	=	0.405 ha
1 hectare (ha)	=	2.47 acres

ABBREVIATIONS AND ACRONYMS

AGENT	Agribusiness Entrepreneur Network and Training Development Project
ASC	ASSP Steering Committee
ASIP	Agricultural Sector Investment Programme
ASMP	Agricultural Services and Management Project
ASSP	Agriculture Sector Support Programme
DANIDA	Danish International Development Assistance
DPF	District Planning Facilitators
DWD	Department of Water Development
EIA	Environmental Impact Assessment
ESAP	Economic Structural Adjustment Programme
EU	European Union
IMC	Irrigation Management Committees
M&E	Monitoring and Evaluation
MLA	Ministry of Lands and Agriculture
MOF	Ministry of Finance
NGO	Non-Governmental Organization
O&M	Operation and Maintenance
PFU	Programme Facilitation Unit
RDC	Rural District Council
SDARMP	Smallholder Dry Areas Resource Management Project
SISP	Smallholder Irrigation Support Programme
WUG	Water User Groups
ZAPF	Zimbabwe's Agricultural Policy Framework 1995-2020
Zimprest	Zimbabwe Programme for Economic and Social Transformation
ZINWA	Zimbabwe National Water Authority

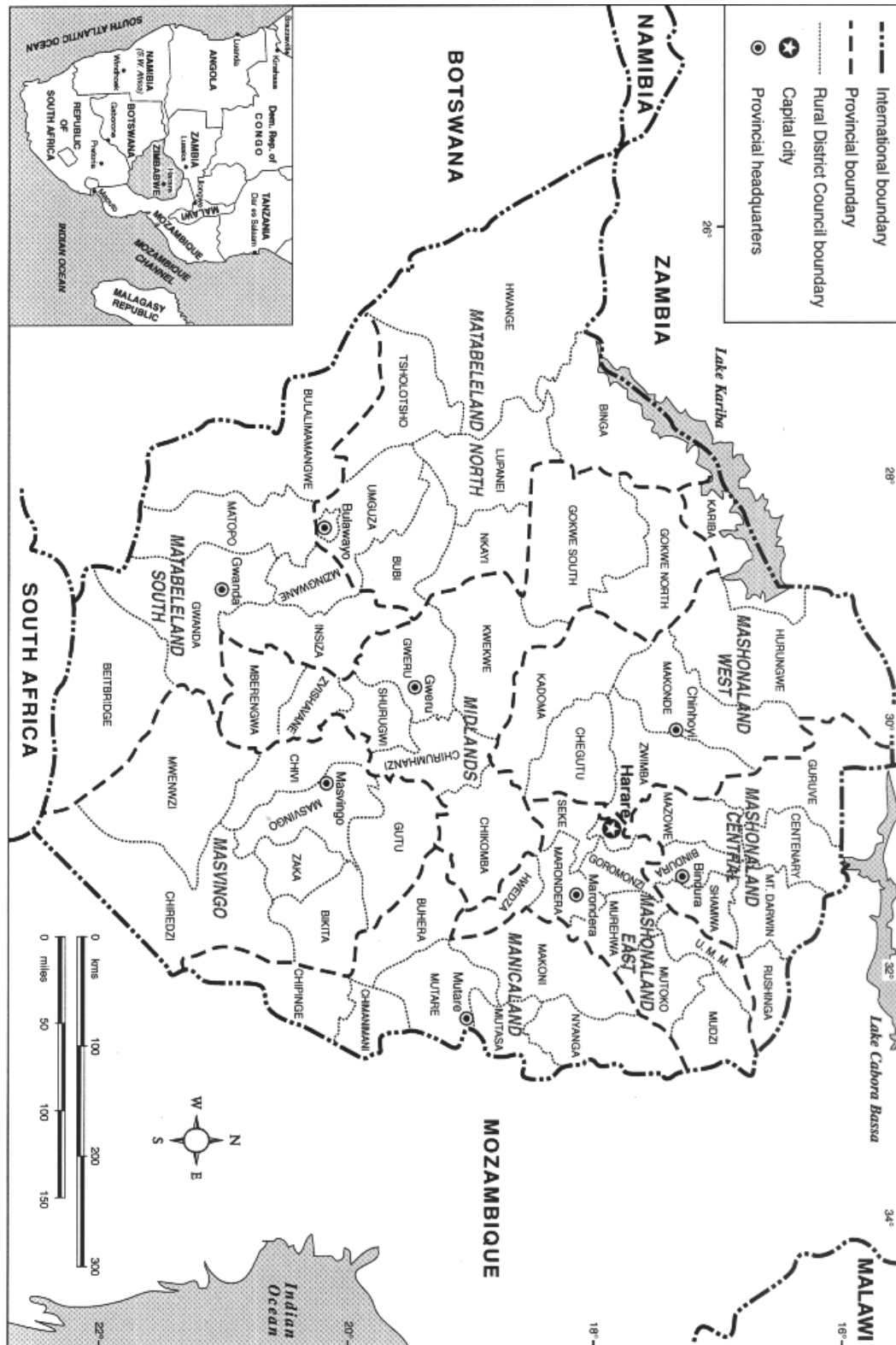
GOVERNMENT OF THE REPUBLIC OF ZIMBABWE

Fiscal Year

1 January - 31 December



MAP OF THE PROGRAMME AREA



Source: IFAD

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



REPUBLIC OF ZIMBABWE

SMALLHOLDER IRRIGATION SUPPORT PROGRAMME

LOAN SUMMARY

INITIATING INSTITUTION:	IFAD
BORROWER:	Republic of Zimbabwe
EXECUTING AGENCY:	Ministry of Lands and Agriculture
TOTAL PROGRAMME COST:	USD 19.33 million
AMOUNT OF IFAD LOAN:	SDR 8.65 million (equivalent to approximately USD 12.12 million)
TERMS OF IFAD LOAN:	40 years, including a grace period of ten years, with a service charge of three fourths of one per cent (0.75%) per annum
COFINANCIERS:	Danish International Development Assistance (DANIDA)
AMOUNT OF COFINANCING:	USD 5.44 million
TERMS OF COFINANCING:	Grant
CONTRIBUTION OF BORROWER:	USD 0.17 million
CONTRIBUTION OF BENEFICIARIES:	USD 1.60 million
APPRAISING INSTITUTION:	IFAD
COOPERATING INSTITUTION:	IFAD-supervised



PROGRAMME BRIEF

Who are the beneficiaries?

The IFAD-initiated Smallholder Irrigation Support Programme (SISP) is expected to upgrade existing smallholder irrigation schemes and support the development of new schemes. For all such schemes, existing or new, three types of beneficiaries can be identified: (i) households that hold or work plots - 10 000 households on existing schemes and 2 400 on new schemes; (ii) those depending on the schemes, including labourers, both permanent and seasonal, and traders of produce - about 24 000 persons on existing schemes and 6 600 on new ones; and (iii) less direct beneficiaries - households (numbers not known at this stage) that will gain from programme support to improve the management of the catchment areas upstream of the schemes in order to minimize erosion and siltation of the dams. About three quarters of the programme beneficiaries will be women.

Why are they poor?

As a general rule, households on irrigation schemes should be among the better-off within their communities. However, since a large number of schemes face technical, social, organizational, and financial and economic constraints, many irrigating farmers, particularly those who have given up their non-irrigated land in order to join the schemes, are actually worse off than the dryland farmers. The most serious and common problem encountered is unreliable water supply, which not only poses a serious threat to household food security but also has an adverse effect on the farmers' ability to secure marketing contracts for their produce and thus adopt a more commercialized production regime. Individuals working as labourers on the schemes, or trading in produce from them, are drawn from the poorest sections of the communities: most are landless or have holdings that are too small to ensure their household food security; and many of the households are headed by widowed or divorced women.

What will the programme do for them?

The programme aims to ensure that farmers are able to manage, operate and maintain the irrigation schemes in a fully operational and productive manner. This will be achieved by assisting them to: upgrade or develop the schemes; assume responsibility for the management, and operation and maintenance (O&M), of the schemes; substantially increase their agricultural productivity; and develop improved linkages with input suppliers and produce markets. Through this support, the farmers are expected to improve their ability to manage effectively their economic environment and thereby substantially increase family incomes and returns to labour.

How will the beneficiaries participate in the programme?

Full beneficiary participation is a prerequisite for programme success. Specific irrigation schemes will be upgraded or developed only in the event of full commitment to the schemes on the part of the irrigating farmers. This will include demonstrating their willingness to contribute substantially to the capital works in cash and kind, provide proof of having formed viable, representative organizations, and undertaking to assume responsibility for scheme management. In order to develop that commitment and, once established, build upon it, the programme will follow a well-defined, step-by-step participatory process for upgrading or development, both of which will include management transfer and improvement of agricultural practices, of which training and capacity-building for irrigating farmers and their irrigation management committees (IMCs) will be important elements.



**REPORT AND RECOMMENDATION OF THE PRESIDENT OF IFAD
TO THE EXECUTIVE BOARD ON A PROPOSED LOAN TO
THE REPUBLIC OF ZIMBABWE
FOR
THE SMALLHOLDER IRRIGATION SUPPORT PROGRAMME**

I submit the following Report and Recommendation on a proposed loan to the Republic of Zimbabwe for SDR 8.65 million (equivalent to approximately USD 12.12 million) on highly concessional terms to help finance the Smallholder Irrigation Support Programme. The loan will have a term of 40 years, including a grace period of ten years, with a service charge of three fourths of one per cent (0.75%) per annum. It is proposed that the programme should be IFAD-supervised. The programme is IFAD-initiated and will be cofinanced with a bilateral partner. Within the context of Zimbabwe, the programme is innovative, and pursues what are some of the main themes of IFAD's strategic focus both in the country and in the subregion, and its corporate strategy.

PART I - THE ECONOMY, SECTORAL CONTEXT AND IFAD STRATEGY¹

A. The Economy and the Agricultural Sector

1. **The economy.** Zimbabwe is a landlocked country, bordered by Mozambique, South Africa, Botswana, Namibia and Zambia, and covering a total land area of 390 000 km², of which some 85% is agricultural. The country's population of 12.3 million, 27% of which is urban, is growing at the rate of about 2.1% per year. The per capita income of USD 530 masks a highly skewed distribution of incomes and reflects the dualistic structure of the economy. One part of the economy covers modern commercial farming, manufacturing and mining sectors served by well-developed infrastructure and services and a vibrant private sector; and the other mainly comprises rural communities heavily dependent on largely subsistence-oriented, smallholder farming, an inadequate infrastructural base, and poorly-developed private sector support.

2. During the 1980s, economic growth averaged about 3-4% per year, although it has grown at only 1.5% per year during the present decade. Yearly growth has been erratic, mainly owing to climatic conditions and the varying performance of the agricultural sector. In 1990, the Government abandoned its policy of maintaining tight state controls on the economy and began a World Bank/International Monetary Fund-supported Economic Structural Adjustment Programme (ESAP) aimed at stabilizing the macroeconomy and improving the investment climate. Progress has been made in the deregulation of the domestic economy, including the agricultural marketing system; and the budget deficit (which, for some years, was more than 10% of the gross domestic product (GDP)) was reduced to 7.1% of GDP by 1996. However, the introduction of the ESAP was accompanied by a rapid acceleration in the rate of inflation which even today remains at around 30%. The Zimbabwe Programme for Economic and Social Transformation (Zimprest), introduced by the Government in 1998, aims to consolidate and build upon the achievements of ESAP by: promoting economic growth, social development, and greater equity of both opportunities and outcomes; facilitating a greater role for the private sector in the economy; commercializing and privatizing sectors previously

¹ See Appendix I for additional information.



monopolized by parastatals; alleviating poverty; and promoting the sustainable use of natural resources.

3. **The agricultural sector.** Despite its low share of GDP (17%), agriculture represents the most important single source of employment in the economy, representing 40% of merchandise exports and more than half of all raw materials for the industrial sector. The agricultural sector is highly dualistic: some 4 500 large-scale commercial farms occupy about 11 million ha, while 1 million smallholder households occupy about 16.3 million ha in the communal areas and a further 57 000 cover 3.3 million ha in the resettlement areas. Smallholders operate principally in medium- to low-potential areas and produce a limited range of produce for subsistence and sale. The two most important crops are maize, the staple food crop grown by almost all smallholder farmers, and tobacco for export, which is produced mainly by large-scale commercial farmers. Other important cash crops include horticultural produce, cotton, sugar cane and wheat. Livestock products, mainly from commercial farms, are also of importance. Since Independence, the performance of the sector has been mixed. During the early 1980s, agricultural GDP grew at 4% per annum, with most of the growth attributable to expanded plantings and improved productivity on the part of smallholder farmers. In sharp contrast, however, agricultural growth over the past decade has averaged less than 2% per annum. With a few notable exceptions (e.g., cotton and horticultural production), smallholder agriculture has performed below expectations.

4. **Irrigated agriculture.** Irrigated crop production accounts for almost half the total value of all crops marketed. The production of a number of important crops is reliant on irrigation, including virtually all the wheat, sugar cane, coffee, tea and cotton. An estimated 153 000 ha of land has been developed for irrigation. Of this, formal smallholder schemes make up only 12 900 ha, of which 9 300 ha are operational. The plots on the 180 or so smallholder schemes, which are mostly in agro-ecological regions of low potential, are allocated to approximately 18 300 plot holders. However there are probably an additional 26 000 plot users who also gain direct benefit from these areas through informal systems of land sharing between and within homesteads. Schemes vary considerably in size, although the majority of them (58%) are of less than 25 ha.

5. Production and marketing circumstances and scheme performance vary markedly, reflecting their development history; the role of the irrigated plots in farmers' overall production systems; scheme location and market access; reliability of water supply; and the efficiency of scheme operation and management. Two basic production systems have been employed: one is subsistence-oriented and based on field crops; and the other is commercially-oriented and built around horticultural crops, although the distinction is becoming increasingly blurred as farmers start to take advantage of emerging marketing opportunities and make management decisions for themselves. The double-cropping regime is the norm, although on schemes with water shortages the cropping intensities achieved may be only 150%. Under the field crop system, in which farmers are allocated larger plots (0.5-1.5 ha) as a risk-reducing substitute for dryland farming, the main crops grown include maize, sugar beans, groundnuts, cotton and wheat. Under the horticulture-based system, farmers typically irrigate between 0.1 ha and 0.5 ha and, as their main crops, grow green maize, a variety of vegetables, and (recently) paprika.

B. Lessons Learned from Previous IFAD Experience in Zimbabwe

6. IFAD has financed four projects in Zimbabwe to date. The first two, the **National Agricultural Extension and Research Project** and the **Agricultural Credit and Export Promotion Project**, are now closed. Both national in scope and cofinanced with the World Bank, these projects initially suffered from a slow rate of implementation and disbursement, and ultimately realized mixed, though not entirely unsuccessful, results. The two more recent projects are the ongoing **Smallholder Dry Areas Resource Management Project** (SDARMP) and the **South**



Eastern Dry Areas Project, cofinanced with the Governments of Australia and The Netherlands. As sister projects, they aim to provide agricultural production and natural resource management support to smallholder farmers in the drier parts of four provinces. While both have encountered implementation delays, the projects are now keyed into the Government's decentralized planning system through the Rural District Councils (RDCs) and have established a mechanism for project budgeting and financial management involving a number of ministries. In addition, IFAD has provided limited grant financing to the non-governmental organization (NGO) CARE Zimbabwe for its **Agribusiness Entrepreneur Network and Training Development Project (AGENT)**, through which potential community-based entrepreneurs were helped to establish themselves as rural agricultural input dealers linked into urban sources of supply. The project is considered to have made a successful contribution towards the commercialization of dryland farming and to have demonstrated and developed a synergy of interests between farmers, the private sector and the Government.

7. **Lessons learned.** IFAD's project implementation experience has provided a number of lessons. First, mechanisms are needed to avoid the start-up delays associated with the administrative and legal aspects of cofinancing arrangements; procurement and recruitment of technical assistance staff; and the unfamiliarity of government staff with financial and administrative requirements and donor procedures. Second, in order to ensure institutional sustainability, roles and responsibilities need to be clearly defined; and existing agencies and structures used to the extent possible and, where necessary, strengthened. Given the present financial stringency, it is important to minimize recurrent costs, promote cost recovery or cost sharing where feasible, and improve on the operating efficiency of government services. Third, the establishment of programme ownership among all stakeholders requires training to promote an attitudinal change among support service personnel and ensure their adoption of work methods which both stimulate the participation of beneficiaries throughout the development process and ensure responsiveness of programme interventions to their expressed needs.

C. IFAD's Strategy for Collaboration with Zimbabwe

8. **Zimbabwe's policy for poverty eradication.** Although, at the national level, food production has been in excess of domestic requirements in normal years, many households remain food insecure - even during good harvest years - and malnutrition is widespread. In the communal areas where the majority of the rural population live, 81% of households are considered poor or very poor, with women-headed households worse off on average than those headed by men. An important element in the Government's strategy for poverty eradication will be investment in the agricultural sector, within the framework of Zimbabwe's Agricultural Policy Framework, 1995-2020 (ZAPF). The latter recognizes that, since the majority of Zimbabweans derive their livelihood in some way from agriculture and live in rural areas, increasing productivity and incomes in smallholder agriculture is the most direct route towards eradicating poverty, malnutrition and unemployment. Accordingly, the commercialization of smallholder farming forms one of the basic pillars of the Government's strategy.

9. **The poverty eradication activities of other major donors.** In line with government policy, donor activities in support of rural poverty eradication have focused primarily on smallholder agricultural development. By supporting improvements to the institutional framework for agricultural services provision and policy formulation, the Agricultural Services and Management Project (ASMP) aims to rationalize the functions and structures of the Ministry of Lands and Agriculture (MLA) around "core" activities, while rendering its services more client-responsive; and, at the same time, to facilitate efforts to commercialize and buy-in selected services from private and other non-governmental service providers. The three-year project is supported by the World Bank, European Union (EU) and the British Department for International Development. The proposed SISP will be cofinanced with DANIDA, whose assistance to Zimbabwe explicitly targets poor farmers in communal and resettlement areas, acknowledging that the majority of the farmers are women.



Support is provided through an Agriculture Sector Support Programme (ASSP), which comprises investment in six discrete components: the proposed SISP will represent the ASSP component for smallholder irrigation. In addition to DANIDA, a number of other donors have supported smallholder irrigation development, including the EU, the German Credit Institution for Reconstruction, the Governments of Japan and The Netherlands, and the United Nations Development Programme and the Food and Agriculture Organization of the United Nations. The nature of the initiatives undertaken has reflected the different agenda of the donors concerned, with the result that they have not always been compatible with the Government of Zimbabwe's policy objectives.

10. **IFAD's strategy in Zimbabwe.** The rural population of Zimbabwe is highly stratified, with the poorer households located mainly in the drier, low-potential areas. For this reason, IFAD's intervention approach has, in recent years, targeted these areas; and, although the proposed SISP will be national in scope, the majority of the schemes to be supported will be located there. Second, the benefits of using a participatory approach in promoting programme ownership by targeted communities are being demonstrated by SDARMP and other programmes, and the approach has the full support of the Government. An implementation framework for the participatory approach and a range of participatory processes, have been introduced through SDARMP and will be pursued further under SISP. Third, it is agreed by all stakeholders, in Zimbabwe as elsewhere, that the era of discrete, stand-alone "donor projects" is past; new interventions must be developed within the Zimbabwean Government's sectoral policy; they must be designed to fit alongside, and support, other ongoing and planned interventions; and they must be implemented by existing line agencies, in collaboration with a broader group of stakeholders in civil society. In the case of SISP, it must take account of, and adapt itself to, the proposed ASMP and the ongoing RDC Capacity-Building Programme. A fourth element of IFAD, and Government of Zimbabwe, strategy is that of promoting commercialization in smallholder production. IFAD's approach - piloted through the AGENT programme (see paragraph 6) - looks to assist producers to take advantage of the new opportunities provided through the State's withdrawal from agricultural marketing, and to support the development of sustainable and equitable commercial linkages between smallholder producers and agricultural markets.

11. **Programme rationale.** Unreliable rainfall and recurring drought restrict the potential of rainfed agriculture for most smallholder farmers in Zimbabwe. Irrigation represents the most promising intervention for minimizing crop production risk and for raising incomes. There are certainly examples of successful irrigation schemes which have increased and stabilized production, and increased incomes to the point where they play a major role in the local economies. On the other hand, there are many schemes which, to varying degrees, are failing to fulfil their potential and are faced with a series of technical, social, organizational and economic constraints. Together, these constraints are limiting the farmers' income-generating potential and, at their most severe, posing a threat to household food security.

12. The Government's policies and strategies for agricultural and water sector development provide both new opportunities for supporting smallholder irrigation and new challenges for irrigating farmers and other private and public sector stakeholders, as they attempt to adjust to the new and changing circumstances. At the same time, the Government is also devolving greater responsibility for local-level planning to the RDCs as part of its policy of decentralization. SISP thus represents a timely intervention, which will help farmers to take full advantage of the emerging opportunities and assist public sector agencies to focus on their core functions as service providers, while tackling many of the constraints that have undermined subsector development and performance in the past. At the scheme level, it will improve operating efficiency and generate substantial benefits on existing schemes, and will expand opportunities for smallholder irrigation through the development of new schemes. At the sectoral level, the programme will: (i) support the relevant government institutions to modify their way of doing business in accordance with their established priorities and better perform the roles envisaged for them in the changing policy and strategic



environment; and (ii) support further review of the policy and legal environment for smallholder irrigators.

PART II - THE PROGRAMME

A. Programme Area and Target Group

13. **Programme area.** The programme will operate in communal and resettlement areas in all of Zimbabwe's eight provinces, and will be directed to persons farming on, and directly associated with, the estimated 180 existing formal smallholder irrigation schemes and to families that become associated with new scheme development. Scheme-level support will ultimately cover a total of 28 out of the total 57 districts - generally those with three or more schemes which may be susceptible to upgrading and for the main part concentrated in the low-potential areas where the majority of the poorer smallholder farmers are located.

14. **Target group.** Households benefiting from smallholder irrigation schemes, both directly and indirectly, include: the registered holders of irrigated plots; users of plots; plot labourers, both permanent and seasonal; and others such as traders of produce or providers of services to the schemes. SISP will aim to upgrade existing schemes and develop new irrigation schemes. Its direct target group will comprise some 12 400 plot-owners and users and a further 30 600 labourers and dependent traders, representing a total quantifiable target group for programme interventions of at least 43 000, and likely more as additional labour-intensive crop production regimes develop. Programme activities will also target households farming in the upstream catchment areas, so as to minimize erosion and siltation of the dams. The targeting approach used will aim at ensuring that the programme benefits are distributed as widely as possible, and that poorer members of the community - particularly women - are not excluded from full and active participation. On existing schemes, a main role of the programme will be to strengthen the existing IMCs; while, on the new schemes, a wider range of targeting issues can be considered, including the need: to tailor the design of the scheme, including plot sizes, to the resource base, constraints and objectives, and management and maintenance capacity of the selected irrigators; and to ensure a transparent and equitable process for selecting plot holders and securing access to land for everybody, particularly women. Support will also be provided for activities or processes linked to gender issues: a gender-disaggregated monitoring and evaluation (M&E) system will be established; and a gender-sensitive implementation approach promoted.

B. Objectives and Scope

15. The development goal of the programme is to increase the incomes and food security of smallholder irrigating households and households in neighbouring communities on a sustainable basis. This will be dependent on the achievement of outputs at both sectoral and scheme levels. At the **sectoral level**, the programme will aim to enhance the institutional and regulatory framework for smallholder irrigation; while, at the **scheme level**, it will look to ensure that farmers are themselves able to manage, operate and maintain fully operational and productive irrigation schemes. As a subsectoral programme with a seven-year implementation period, SISP will assist the Government from the short-, medium- and long-term perspective. Short-term requirements will be served by, and immediate benefits derived from, investments at the individual scheme and institutional levels. In the medium term, the programme's links with the ASIP will be expected to further improve the policy and legal framework for smallholder irrigation and the institutional capacity to efficiently serve the subsector. Over the long term, the programme will assist the Government in developing suitable methodologies and public/private sector partnerships for coordinated, catchment-based planning for expanded command area development.



C. Components

16. **Scheme upgrading and development.** SISP will support the upgrading of some 2 000 ha of existing schemes and the development of 500 ha of new command areas, based on water sources in medium and large dams. All scheme upgrading or development will be based both on a detailed, step-by-step participatory planning process and on the proposed investment conforming to agreed criteria. SISP will support the steps involved in scheme identification, technical design and appraisal and finance 85% of the cost of upgrading or development, while the beneficiaries will make a 15% contribution in cash or in kind. The programme will also provide an initial capital injection to help the farmers meet part of the scheme operation costs for up to three years.

17. As part of the initial stage of scheme selection and diagnosis, SISP will finance environmental screening and scoping and, where necessary, an environmental impact assessment (EIA) as an integral part of the detailed planning for scheme development. An environmental fund will be set up to provide matching grants to communities in support of conservation measures which may be identified through the EIAs, and financing will be provided for the development of proposals for submission to the aforementioned fund. SISP will also finance environmental management training to help irrigating farmers to recognize environmental problems, identify solutions, or source advice on environmental management.

18. To complement investments in physical works and enhance the farmers' capacity to maintain and use their upgraded/new schemes efficiently, SISP will provide the training, particularly in the areas of improved plot and scheme management, and improved production and post-harvest practices linked to market opportunities. The programme will also contract commercially-oriented organizations to raise farmers' awareness of opportunities and requirements for accessing inputs and markets, and provide marketing intelligence. It will also hold workshops to link sellers with potential buyers.

19. **Strengthening of the institutional and policy framework.** SISP will support the capacity of key institutions to act as service providers at scheme level. Agritex staff will be trained in order to help them: to adjust to their role as service providers to their client IMCs and farmers; implement SISP's scheme-related activities; and carry out Agritex's core functions in support of smallholder irrigation on a continuing basis. Participating RDCs will be supported to permit them to take on their envisaged role in support of scheme upgrading/development, with training provided for staff in contract supervision, financial management, and participatory methods for project planning and management for smallholder irrigation. The programme will also meet the operating costs for Agritex and RDC staff involved in scheme-based activities. In addition, training will be provided for Department of Water Development (DWD) and Zimbabwe National Water Authority (ZINWA) personnel associated with SISP-supported schemes (pump attendants and water bailiffs) to help them develop a service-provision mentality in their dealings with irrigators and improve their coordination with other service providers. The programme will also strengthen the catchment councils in areas where scheme activities take place, supporting the participation of smallholder representatives in the councils' deliberations and the involvement of NGOs and other key stakeholders in relevant council activities.

20. SISP will provide support for enhanced **policy formulation** for smallholder irrigation. It will finance a review of the current legal status of IMCs; the implications at scheme level of the proposed new Water Act and the establishment of ZINWA; the constraints faced by IMCs in the enforcement of by-laws; and their status in relation to any contractual agreements they may choose to establish. The review will also examine the implications of transforming informal IMCs into registered water users' groups (WUGs) - or other legal entities - as an aid to promoting commercialization. Such



studies could lead to an identification of the need for an Irrigation Act, which SISIP will support if required.

21. In a longer-term perspective, there is potential for utilizing water allocated for smallholder irrigation (sufficient for perhaps 50 000 ha) from the major dams. Potential irrigable land from these sources is fragmented and often distant, and, as a result, the resources of major dams have been hitherto ignored in the smallholder context. The SISIP provides an opportunity to **plan for longer-term development**, by contributing to the identification of land and water resources specifically for future investment in smallholder irrigation.

D. Costs and Financing

22. **Programme costs** The total programme cost will be USD 19.33 million, with a base cost of USD 16.00 million and physical and price contingencies amounting to USD 3.34 million. The foreign exchange component is estimated at USD 3.32 million, or about 21% of total programme costs. Some USD 11.5 million (72% of base costs) will go directly to the beneficiaries, while the total cost is equivalent to some USD 450 per beneficiary over the life of the programme. The programme costs by component are summarized in Table 1.

TABLE 1: SUMMARY OF PROGRAMME COSTS^a
(USD million)

Components	Local	Foreign	Total	% of Foreign Exchange	% of Base Costs
A. Scheme upgrading and development	9.08	2.47	11.55	21	72
B. Strengthening of institutional and policy framework	2.74	0.40	3.13	13	20
C. Programme facilitation	0.86	0.45	1.31	35	8
Total base costs	12.67	3.32	15.99	21	100
Physical contingencies	0.73	0.31	1.04	30	7
Price contingencies	1.80	0.50	2.30	22	14
Total programme costs	15.19	4.14	19.33	21	121

^a Discrepancies in totals are due to rounding up of figures.

23. **Financing plan.** The proposed financiers for the programme will be IFAD, which will contribute some USD 12.12 million (63% of total costs); DANIDA, with USD 5.44 million (28%); the Government of Zimbabwe, with the equivalent of USD 0.17 million (0.9%); and the beneficiaries, with the equivalent of USD 1.60 million (8%). DANIDA will fully finance technical assistance, training and studies; and it will additionally, and outside the programme budget, finance the position of programme facilitator. IFAD will finance all other expenditures with the exception of: 15% of the cost of civil works for the upgrading and construction of schemes, which will be financed by the beneficiaries themselves in cash and/or kind; and the Government's contribution, which will be in the form of taxes and duties foregone and a portion of recurrent operating costs. The programme financing plan is shown in Table 2.

TABLE 2: FINANCING PLAN^a
(USD million)

Components	IFAD		Cofinancier		Government		Beneficiaries		Total		Foreign Exchange	Local (Excl. Taxes)	Duties and Taxes
	Amt.	%	Amt.	%	Amt.	%	Amt.	%	Amt.	%			
Scheme upgrading and development	11.19	77	1.68	12	1.60	11	0.01	0	14.48	75	3.21	11.26	0.01
Strengthening of institutional and policy framework	0.44	13	2.88	84	-	-	0.10	3	3.42	18	0.44	2.94	0.04
Programme facilitation	0.48	23	0.89	62	-	-	0.06	3	1.43	7	0.49	0.90	0.04
Total disbursement	12.12	63	5.44	28	1.60	8	0.17	1	19.33	100	4.14	15.10	0.09

^a Discrepancies in totals are due to rounding up of figures.



E. Procurement, Disbursement, Accounts and Audit

24. **Procurement** will be in accordance with IFAD's procurement guidelines and the Government of Zimbabwe's established practices. In the event that, by bulking items, contracts exceed a value of USD 100 000, they will be subject to International Competitive Bidding procedures. Contracts valued at less than USD 100 000 but above USD 20 000 will follow Local Competitive Bidding (LCB) procedures. Local shopping procedures, with quotations from at least three sources, will be followed for the procurement of goods totaling less than USD 20 000. Contracts for irrigation civil works will be undertaken following LCB procedures. In line with the envisaged active promotion of private sector involvement in smallholder agricultural development, at least 25% of the contracts for the guidance of the scheme development process will be awarded to the private sector. Technical assistance will be financed exclusively by DANIDA and will be recruited in accordance with its own its rules and guidelines. Training services, also to be financed by DANIDA, will be procured locally.

25. **Disbursement.** The IFAD loan proceeds will be disbursed over a seven-year period. Withdrawals from the loan account will be effected in accordance with procedures acceptable to IFAD. To facilitate programme implementation, a Special Account will be opened in the Reserve Bank of Zimbabwe, under the control of the Ministry of Finance (MOF), with an authorized allocation of USD 800 000. The Special Account will be replenished periodically upon presentation of appropriate documentation to IFAD by MOF. The closing date of the loan is 30 June 2008.

26. **Accounts and audit.** Separate accounts will be required for SISP-related expenditures at all levels. Financial reports and accounts from the various cost centres will be submitted on a monthly basis to the programme facilitation unit (PFU) in MLA for consolidation at the programme level by the programme accountant. Lines of financial reporting are illustrated in Appendix VI. Each RDC and the MLA will prepare a full set of annual financial statements which will form the basis of the annual audit and report thereof. Financed by the programme, two sets of audit reports will be prepared, one at each of the participating RDCs and the other at MLA, encompassing the totality of programme activities. The Auditor-General will appoint a private firm to audit separately on the collated SISP annual financial statements. The completed audit report will be submitted to IFAD and DANIDA within six months of the end of the Government's fiscal year.

F. Organization and Management

27. **Beneficiary participation.** The programme will use a step-by-step participatory approach for implementation, which gives a major role to the target group from the commencement of the planning process so as to ensure that the programme responds to their needs and priorities. All scheme development will be based upon a detailed, participatory planning process, with scheme participants required to be fully involved in, and to commit themselves to, each stage of the works. They will be expected to contribute to the scheme's capital costs and to finance its O&M, including the payment of water charges; and they will receive training aimed at assisting them to manage, maintain and use their schemes efficiently and sustainably. In addition, they will be represented on programme coordination structures and involved in reviews of programme progress and effectiveness. Appropriately trained staff in the main implementing agencies will be a key requirement for ensuring effective beneficiary participation; and the programme will place major emphasis on this aspect.

28. **Management and coordination.** With the MLA acting as the lead ministry, the programme will be implemented by and through existing administrative structures and technical support services of the Government, with provisions for the contracting of additional services from the private sector and NGOs where appropriate. The MLA will guide programme operations through the existing structures which are, *inter alia*, guiding the preparation of the ASIP. Since SISP will represent the smallholder irrigation component of the ASSP, programme coordination will be effected through the



existing, inter-ministerial ASSP Steering Committee (ASC), under the chairmanship of the deputy secretary, policy and planning, in MLA. In view of the anticipated roles of DWD and ZINWA in the programme, the heads of both organizations will be appointed to the ASC. However, although overall programme management will be an MLA responsibility, the driving force for individual scheme identification, diagnostic studies, design preparation, appraisal and implementation will be the WUGs themselves. The RDCs will support them, and they will contract Agritex to manage on their behalf scheme upgrading and/or development, including the subcontracting of specific support activities, until such time that they have the capacity to manage the process themselves. Management authority at the RDC level will rest with the chief executive officer, who will be assisted by executive officers for projects and finance, who in turn will be supported in carrying out such functions with training and technical back-stopping.

29. **Programme facilitation.** The ASC will be supported by a small secretariat - the PFU - comprising a programme facilitator, an accountant and a secretary. The facilitator will expedite programme activities, and assist the ASC in coordinating them and in embedding SISP firmly within ASIP. He/she will report administratively to the Deputy Secretary, Policy and Planning, in the latter's capacity as one of the component managers for ASMP, while reporting technically to the ASC. PFU staff will be recruited for the three-year preliminary phase of SISP in the first instance; and the continued need for a PFU will be reassessed during the mid-term review. A facilitation role is also envisaged at the level of the RDCs, and the programme will contract four district planning facilitators (DPFs) to assist the CEOs and staff of participating RDCs to carry out planning, management, monitoring and training functions related to smallholder irrigation. The DPFs will each work in two provinces, and will support individual RDCs during the first two years of their introduction to the programme. The facilitation staff will be provided with secretarial support, vehicles and equipment, and necessary operating costs

30. **Reporting, supervision, and monitoring and evaluation.** Quarterly summary progress reports from the RDCs will be submitted to the programme facilitator for review and incorporation into the facilitator's consolidated programme report to the ASC. The facilitator will also compile six-monthly and annual progress reports for submission to IFAD/DANIDA within six weeks of each reporting period. The reports will indicate progress made in the implementation of annual work plans, including financial progress, and highlight any issues that need to be resolved. These reports will be used as the basis for IFAD supervision missions and, as such, will need to be sufficiently detailed to enable the missions' work to be appropriately focused. To the extent possible, DANIDA representatives will also participate in supervision missions, which may be timed to coincide with the annual reviews of ASSP

31. The foundation for the programme's M&E system will be the logical framework² and a series of key performance indicators. Monitoring will take place at four levels: the WUGs will monitor their own activities and scheme performance with support from service providers; the RDCs will monitor activities, inputs and output achievements in their respective districts; the affected institutions will monitor their own support programmes and capacity-building activities; and Agritex will monitor smallholder irrigation for both sectoral and planning purposes. SISP will recruit a short-term consultant to help stakeholders develop a comprehensive M&E system, based on the principles outlined above and the system already developed under SDARMP. Internal, ongoing evaluation will be an important feature of the M&E system. Commencing with baseline surveys, this will be a continuous process to provide information to planners/managers at various levels within the programme. Evaluation instruments will include: the inventory of smallholder irrigation schemes; baseline surveys and periodic updates; participatory evaluations involving beneficiaries; and tracer studies of individuals who receive training through the programme.

² See Appendix III.



32. SISP has been appraised in a fluid policy and institutional environment; and it will lead to further changes, particularly in relation to the respective responsibilities of government and irrigators and their interaction at scheme level. For this reason, an extensive mid-term review of the programme will be conducted at the end of the third year of implementation, by which time: (a) activities will be ongoing in a sufficient number of districts (24) to enable judgments to be made on the programme's approach and impact; and (b) the ASMP will have concluded and the planning process for the ASIP will be well advanced. Approval of the final review report by the Government, IFAD and DANIDA will be a necessary condition for the programme to proceed to the expansion phase. Specific recommendations of the review may require changes to the IFAD loan agreement and/or the DANIDA grant agreement as a further condition of continued implementation.

G. Economic Justification

33. **Production, marketing and prices.** The programme will promote improved linkages between smallholder irrigators and input and produce markets, within the context of a private sector market development process. It will enhance farmers' understanding of how markets work in a competitive environment, and assist them to enter the market in a way which is more informed and better organized so as to obtain improved terms and conditions for their market transactions. As part of this process, farmers will be encouraged to plan their production regimes according to market opportunities and prices. These will vary considerably by scheme and result in scheme production regimes which, at one extreme, are based upon non-perishable, lower-value field crops, and, at the other, make use of market opportunities to include higher-value horticultural crops. Thus the programme will be expected to result in substantial increases in the production of both field crops, such as maize, sugar beans, wheat and cotton, and in horticultural crops, such as tomatoes, cabbage, onions and paprika.

34. **Benefits and beneficiaries.** Through the programme, crop production and productivity will be increased on some 2 500 ha of existing or newly-developed smallholder irrigation schemes. Increased and more stable yields will be derived from improved reliability of water supply and improved crop husbandry and water management; while increased farm incomes will additionally derive from increasingly commercialized cropping patterns and improved market linkages. Particularly in women-headed households, production benefits are likely to have a substantial impact on domestic food supply and thereby on household nutritional status. Direct programme benefits will thus accrue to an estimated 12 400 plot holders and users, plus a further 30 600 labourers and traders closely linked to the schemes. Three quarters of the beneficiaries will be women. In addition, through the programme's interventions, women will be expected to gain improved access to the benefits of irrigation development, either directly on the schemes themselves (as plot holders, plot users, members of scheme management committees, or labourers) or indirectly (e.g., as traders or retail service providers in the vicinity of the schemes).

35. Through SISP, there will be better trained, more responsive staff in the key agencies involved in smallholder irrigation development. Agritex and the RDCs will be assisted to fulfil their roles in accordance with relevant government policies and approaches for rural development; and, at the macro-level, the Government will generate substantial savings through its withdrawal from scheme management, O&M, and the WUGs' gradual assumption of full responsibility for their schemes. It has been estimated that, if existing schemes were fully operated and maintained by the Government, this would cost in excess of ZWD 30 million per year, equivalent to a further 300 ha of smallholder irrigation development per year.

36. **Financial and economic analysis.** Farmers will realize significantly higher net incomes under the programme, even after paying charges for water and maintenance. While the income levels



will vary considerably, depending on the crops grown (i.e., horticultural or field), they will increase by between ZWD 6 000 and ZWD 23 000 per year. An economic analysis has been conducted at the scheme level, using 16 different models, for four scheme types, under conditions of both good and poor market access, and for upgrading and new development. The economic rate of return varies considerably. For schemes with good market access, the rates are all acceptable, ranging from 20% to 93%, whereas for schemes with poor market access, the situation is more marginal: while upgrading is in most cases viable, at rates of between 8% and 29%, new development is not viable, with rates of 6% and less. The rates of return show the importance of: reducing unit costs for scheme upgrading, development and operation; increasing crop yields; and improving irrigators' market access. Each of these priorities will be supported under the programme. An economic analysis has also been conducted at the programme level. This yields an acceptable rate of return of 16%.

H. Risks

37. The main risks associated with the programme are institutional in nature and revolve around the capacity of the main implementers of the programme, namely, MLA/Agritex, the RDCs, ZINWA, DWD and the catchment councils, to effectively take on the new roles expected of them in an evolving policy and institutional environment. Three aspects of their new roles are of particular importance: first, that of adopting a participatory, demand-driven development approach; second, that of being accountable, efficient service providers; and third, that of managing, in both conceptual and administrative terms, the various programme activities. While there are real risks, these are mitigated by two particular factors. First, there is the Government's strong commitment to the process of policy and institutional reform, backed up by a number of key, donor-supported process projects and spurred on by its urgent need to reduce the level of subsidy to the subsector while improving its productivity. Second, the arrangements for the programme's organization and management not only look to take advantage of this momentum by placing overall responsibility at the centre of the change process within MLA, but they also use a tried and proven facilitation arrangement, supported by a substantial training provision, to push on and guide the implementation process.

I. Environmental Impact

38. The programme will have generally positive environmental effects, in at least four ways. First, environmental screening and scoping, and where necessary EIAs, will be prepared on all schemes associated with the programme. Scheme designs will propose explicit measures to ameliorate existing environmental problems and/or mitigate any adverse physical or environmental health effects arising from scheme operation. Second, irrigators' awareness of environmental issues will be improved: in part, through training in the health aspects of irrigation management, maintenance of soil erosion control structures, improved techniques of water management and crop husbandry; and in part through their taking on the management of their own schemes, which will be likely to make them increasingly concerned about the sustainability and reliability of their water supply, including the risks from upstream environmental degradation. Third, through access to the environmental fund, rural households in scheme catchment areas will become involved in approved conservation measures designed to generate benefits within the catchment and promote irrigation scheme longevity and water supply reliability for downstream irrigators. Fourth, the programme will be closely linked to the catchment councils and sub-catchment councils, which are charged with ensuring the sustainable development and use of water resources, thus helping to ensure that scheme managers are exposed to discussions involving environmental issues and the importance of sustainable water resource management.

J. Innovative Features

39. SISP will incorporate two features which are innovative within the context of Zimbabwe. The first is the participatory scheme development process itself, which will aim to establish a well-



functioning and sustainable irrigation system, the management of which is gradually assumed by the farmers themselves. The process will involve a series of discrete steps with rights and obligations at each stage. The process envisaged will require more time than other forms of scheme development - an expected three years from the introduction of SISP to the WUG assuming full responsibility. The phasing of programme costs and anticipated benefits is based on this assumption. The second innovative feature will be the establishment of coherent procedures and approaches for smallholder irrigation development which can be used by the Government in attracting future subsector investment. This will not only ensure that subsequent interventions complement and build upon the efforts of SISP, thus maximizing their effectiveness, but it will also provide an important example for other areas within the smallholder agricultural sector as a whole, which will be of particular relevance in the development of ASIP.

PART III - LEGAL INSTRUMENTS AND AUTHORITY

40. A loan agreement between the Republic of Zimbabwe and IFAD constitutes the legal instrument for extending the proposed loan to the borrower. A summary of the important supplementary assurances included in the negotiated loan agreement is attached as an annex.
41. The Republic of Zimbabwe is empowered under its laws to borrow from IFAD.
42. I am satisfied that the proposed loan will comply with the Agreement Establishing IFAD.

PART IV - RECOMMENDATION

43. I recommend that the Executive Board approve the proposed loan in terms of the following resolution:

RESOLVED: that the Fund shall make a loan to the Republic of Zimbabwe in various currencies in an amount equivalent to eight million six hundred and fifty thousand Special Drawing Rights (SDR 8 650 000) to mature on and prior to 1 October 2038 and to bear a service charge of three fourths of one per cent (0.75%) per annum, and to be upon such terms and conditions as shall be substantially in accordance with the terms and conditions presented to the Executive Board in this Report and Recommendation of the President.

Fawzi H. Al-Sultan
President



SUMMARY OF IMPORTANT SUPPLEMENTARY ASSURANCES INCLUDED IN THE NEGOTIATED LOAN AGREEMENT

(Loan negotiations concluded on 24 November 1998)

1. The Government of the Republic of Zimbabwe (the Government) will cause the PFU to open and thereafter maintain in a bank, satisfactory to IFAD, a Programme Account in Zimbabwe dollars, held in Harare, into which the Government will, commencing in Programme Year (PY) 4, deposit an initial amount from its own resources and will thereafter six monthly in advance replenish the Programme Account with the required local counterpart funds to be provided by the Government as estimated in the Annual Work Programme and Budget.
2. The Programme will be implemented in two phases: (i) the Preliminary Phase (first three years of Programme implementation); and (ii) the Expansion Phase (fourth through seventh year of Programme implementation).
3. During the Preliminary Phase, systems and procedures will be refined/developed and staff trained through the preparation and implementation of an initial series of scheme plans in each province of the Government's territory. The RDCs and schemes to be supported under the Programme will be selected by the Government in accordance with the selection criteria agreed upon by the Government, IFAD and DANIDA. A comprehensive stakeholder review of the Programme's progress will be carried out towards the end of PY 3, or such other time as may be agreed by IFAD. The review will coincide with the anticipated completion of the ASMP and the policy and regulatory framework for the smallholder irrigation subsector.
4. The outcome of the review of the Preliminary Phase will determine the detailed Programme content of the Expansion Phase, and confirm the timing, rate, scale and geographical extent of expansion. The continued need of the PFU and the organizational and management arrangements as a whole, will be reassessed during the Mid-Term Review (MTR), taking into account the then-current status of ASIP evolution and the further absorption of ASSP into the ASIP framework.
5. Approval by IFAD of the final MTR Report is a condition for the Programme proceeding to the Expansion Phase of the Programme.
6. The Government will ensure that it will submit to IFAD a Programme Completion Review, satisfactory to IFAD, within one year after the end of completion of implementation of the Programme's activities.
7. The Government will ensure that the Programme's organization and management structure will remain in place notwithstanding the possible prior completion of activities under the ASSP.
8. The following is specified as an additional condition to loan effectiveness:

the Programme Facilitator, satisfactory to IFAD, will have been appointed.
9. No withdrawals from the Loan Account will be made in respect of expenditures for the Programme until the Director of the Department of Water Development of the Ministry of Rural Resources and Water Development of the Government will have been appointed to the Agricultural Sector Support Programme's Steering Committee as a full member, and the Government will have undertaken that, once established, the Chief Executive of the ZINWA will also be appointed to the ASC as a full member.



ANNEX I

10. No withdrawals from the Loan Account will be made in respect of expenditures for civil works for any irrigation scheme under the Programme until:

- (a) the Government will have submitted to IFAD for its review and approval the selection criteria for the districts to be involved in the Programme, which criteria will be transparent and relate to the extent of irrigation in the district and the willingness of the relevant RDC to accept the role envisaged for it under the Programme in accordance with the Loan Agreement; and
- (b) the Government will have submitted to IFAD for its review and approval the selection criteria for individual schemes in which the Programme will invest, including the viability of the proposed investment, and the extent to which the irrigators are organized and are committed to contributing to the investment costs and assumption of scheme management.



COUNTRY DATA

ZIMBABWE

Land area (km² thousand) 1994 1/	387	GNP per capita (USD) 1995 2/	540
Population (million) 1995 1/	11	Average annual real rate of growth of GNP per capita, 1985-95 2/	-0.6
Population density (population per km²) 1995 1/	28	Average annual rate of inflation, 1985-95 2/	20.9
Local currency	Zimbabwe Dollar	Exchange rate: USD 1 =	ZWD 15.00
<hr/>			
Social Indicators		Economic Indicators	
Population (average annual rate of growth) 1980-95 1/	3.0	GDP (USD million) 1995 1/	6 522
Crude birth rate (per thousand people) 1995 1/	31	Average annual rate of growth of GDP 1/	
Crude death rate (per thousand people) 1995 1/	10	1980-90	3.5
Infant mortality rate (per thousand live births) 1995 1/	55	1990-95	1.0
Life expectancy at birth (years) 1994 3/	49.0		
		Sectoral distribution of GDP, 1995 1/	
Number of rural poor (million) 1/	n.a.	% agriculture	15
Poor as % of total rural population 1/	n.a.	% industry	36
Total labour force (million) 1995 1/	5	% manufacturing	30
Female labour force as % of total, 1995 1/	44	% services	48
		Consumption, 1995 1/	
Education		Government consumption (as % of GDP)	19
Primary school enrolment (% of age group total) 1993 1/	119	Private consumption (as % of GDP)	64
Adult literacy rate (% of total population) 1994 3/	84.7	Gross domestic savings (as % of GDP)	17
		Balance of Payments (USD million)	
Nutrition		Merchandise exports, 1995 1/	1 885
Daily calorie supply per capita, 1992 3/	1 989	Merchandise imports, 1995 1/	2 241
Index of daily calorie supply per capita (industrial countries=100) 1992 3/	64	Balance of trade	- 356
Prevalence of child malnutrition (% of children under 5) 1989-95 1/	16	Current account balances (USD million)	
		before official transfers, 1995 1/	- 465
Health		after official transfers, 1995 1/	- 425
People per physician, 1993 1/	7 384	Foreign direct investment, 1995 1/	40
People per nurse, 1993 1/	1 594	Net workers' remittances, 1995 1/	- 2
Access to safe water (% of population) 1990-96 3/	77	Income terms of trade (1987=100) 1995 1/	92
Access to health service (% of population) 1990-95 3/	85		
Access to sanitation (% of population) 1990-96 3/	66	Government Finance	
		Overall budget surplus/deficit (as % of GDP) 1994 1/	n.a.
Agriculture and Food		Total expenditure (% of GDP) 1994 1/	n.a.
Cereal imports (thousands of metric tonnes) 1994 1/	100	Total external debt (USD million) 1995 1/	4 885
Food imports as percentage of total merchandise imports 1993 1/	18	Total external debt (as % of GNP) 1995 1/	64.9
Fertilizer consumption (hundred grams of plant nutrient per arable ha) 1994/95 1/	593	Total debt service (% of exports of goods and services) 1995 1/	25.6
Food production index (1989-91=100) 1995 1/	66		
Food aid in cereals (thousands of metric tonnes) 1994-95 1/	4	Nominal lending rate of banks, 1995 1/	34.7
		Nominal deposit rate of banks, 1995 1/	25.9
Land Use			
Agricultural land as % of total land area, 1994 1/	52		
Forest and woodland area (km ² thousand) 1990 1/	89		
Forest and woodland area as % of total land area, 1990 1/	23		
Irrigated land as % of arable land, 1994 1/	4.1		

n.a. not available.

Figures in italics indicate data that are for years or periods other than those specified.

1/ World Bank, *World Development Report*, 1997

2/ World Bank, *Atlas*, 1997

3/ UNDP, *Human Development Report*, 1997

PREVIOUS IFAD LOANS IN ZIMBABWE

Project Name	Initiating Institution	Cooperating Institution	Lending Terms	Board Approval	Loan Effectiveness	Current Closing Date	Loan/Grant Acronym	Currency	Approved Loan/ Grant Amount	Disbursement (as % of approved amount)
National Agricultural Extension and Research	IFAD	World Bank: IBRD	I	21 Apr 83	17 Nov 83	30 Sep 91	L - I - 123 - ZI	SDR	16 700	68.8%
Agricultural Credit and Export Promotion	World Bank: IBRD	World Bank: IBRD	I	06 Dec 89	01 Aug 90	31 Dec 96	L - I - 248 - ZI	SDR	12 050	98.4%
Smallholder Dry Areas Resource Management	IFAD	UNOPS	HC	02 Dec 93	12 May 95	31 Dec 01	L - I - 341 - ZW	SDR	10 000	05.6%
South Eastern Dry Areas	IFAD	UNOPS	HC	13 Sep 95		31 Dec 03	L - I - 382 - ZW	SDR	7 150	



LOGICAL FRAMEWORK

Narrative Summary	Verifiable Indicators	Means of Verification	Assumptions
<p><i>Development Objective</i></p> <p>Increased incomes and improved food security of smallholder irrigating households and households in neighbouring communities on a sustainable basis</p>	<p>Household expenditures patterns</p> <p>Reductions in food aid</p> <p>Reduction in Government's recurrent budget for smallholder irrigation sector</p>	<p>Case studies, census reports</p> <p>Government documents</p>	
<p><i>Immediate Objectives</i></p> <p>1. Commercialize smallholder irrigation</p> <p>2. Institutional and regulatory framework for smallholder irrigation enhanced</p>	<p>1.1 Schemes expressing interest in participating in SISP</p> <p>1.2 Value of produce sales from schemes</p> <p>1.3 Percentage of O&M costs met by farmers</p> <p>2.1 DWD/ZINWA participate in ASC meetings</p> <p>2.2 Improved RDC/Agritex responsiveness to client demands</p> <p>2.3 Legal instruments</p>	<p>WUG and RDC Reports</p> <p>WUG records/Agritex Reports</p> <p>WUG/Agritex/ZINWA records</p> <p>ASC minutes</p> <p>Beneficiary assessments, tracer studies</p> <p>MLA records</p>	<p>Continued commitment to economic reforms (ZIMPREST)</p> <p>Commitment to smallholder irrigation sector policy objectives and policies of ZAPF and Water Resources Management Structure</p>
<p><i>Outputs: Scheme specific</i></p> <p>1. Scheme design and construction costs lowered, and O&M costs minimized</p> <p>2. Schemes farmer-managed with associated O&M costs met by farmers and water used more efficiently</p> <p>3. Number of schemes fully operational on a sustainable basis</p> <p>4. Number of schemes with environmental/health problems reduced</p> <p>5. Targeting/gender concerns effectively addressed and resolved</p> <p>6. Increased production of staple and commercially-viable crops</p> <p>7. Improved negotiating skills and market linkages</p>	<p>1.1 Number of schemes upgraded/ designed and constructed (cost/ha)</p> <p>1.2 Payment of water delivery charges</p> <p>2.1 Ratio of costs to returns</p> <p>2.2 Value of production vs. volume/cost of water delivered</p> <p>3.1 Amount, proportion of requirement, and timeliness of water delivery to scheme edge and plots</p> <p>4.1 Number of scheme designs which include environmental mitigation features</p> <p>5.1 Women registered as plotters</p> <p>5.2 Women members of WUGs</p> <p>6.1 Yields</p> <p>6.2 Marketing contracts established and cropping pattern diversified</p> <p>7.1 Private sector participation/linkages in input supply, credit and output marketing</p>	<p>WUG/RDC records and Agritex reports</p> <p>WUG & ZINWA/Zimbabwe Electricity Supply Authority records</p> <p>WUG/ZINWA records, Agritex reports</p> <p>WUG/ZINWA records, Agritex reports</p> <p>On site visits, design specifications</p> <p>WUG records/case studies</p> <p>Agritex records</p> <p>WUG/Agritex records</p> <p>WUG records/input suppliers</p> <p>WUG records/contracts/buyers</p>	<p>Willingness of farmers to take on scheme management</p> <p>Farmers respond to participatory methodologies</p> <p>Water pricing policy established with appropriate water charges</p>





APPENDIX III

Narrative Summary	Verifiable Indicators	Means of Verification	Assumptions
<p><i>Outputs: Institutional</i></p> <ol style="list-style-type: none"> 1. Legislation/regulations for smallholder irrigation sector introduced or changed 2. More reliable water supplied to schemes 3. Government institutions with appropriate and effective services 4. Schemes selected for investment based on established criteria 5. Private sector/NGOs involved in service delivery 6. RDCs capable of employing participatory techniques for scheme planning and implementation 7. Catchment planning adopted as basis for future irrigation development 	<ol style="list-style-type: none"> 1.1 Legal instruments 2.1 Volume and timing of water deliveries 3.1 Job descriptions reflect facilitation role 3.2 Status of scheme development process 4.1 Number of schemes approved for investment 5.1 Percentage of Agritex/private sector/NGO involvement in scheme design, construction and training 6.1 Comparison of actual vs. planned schemes (numbers) 7.1 Location of new schemes 7.2 Incorporation of environmental management measures in scheme design 	<p>MLA records</p> <p>ZINWA records</p> <p>Government records, beneficiary assessments</p> <p>RDC/Agritex reports</p> <p>PFU Progress reports</p> <p>MLA/Agritex/RDC annual work programmes and budgets (AWP/Bs)</p> <p>RDC AWP/Bs</p> <p>Agritex records</p> <p>EIAs, Catchment Council meeting minutes</p> <p>Agritex & RDC AWP/B</p> <p>WUG records, Agritex & RDC AWP/B</p> <p>Agritex & RDC AWP&B</p> <p>MLA, Agritex, & RDC records</p> <p>PFU records</p> <p>Procurement records, Statements of Expenditure</p> <p>MLA records</p> <p>Agritex & RDC records</p>	<p>ZINWA and DWD take active part in ASC for coordination of smallholder irrigation development</p> <p>Commitment to ASIP, decentralization and management transfer processes</p> <p>O&M put on commercial footing</p>
<p><i>Inputs</i></p> <ol style="list-style-type: none"> 1. Design, construction and supervision of upgraded and new schemes 2. Training ⇒ Farmers' WUGs: business planning, scheme management, marketing, health and environmental awareness ⇒ Staff: participatory methodologies, planning, M&E ⇒ Workshops: information meetings, contact (input/output marketing), M&E, stakeholders 3. Technical assistance (TA) and studies ⇒ TA: facilitators, financial management, training, procurement, post-harvest handling ⇒ Studies: water pricing, cost-effective design, legal and policy framework, long-term development of smallholder irrigation 4. Equipment and goods 5. Allowances for field visits ⇒ Policy and decision-makers ⇒ Agritex/RDC staff 	<ol style="list-style-type: none"> 1.1 Schemes upgraded/rehabilitated (ha) 2.1 Farmers attending training courses (number and proportion women/men) 2.2 Staff trained (number and proportion women/men) 2.3 Workshops held 3.1 Contract staff in place 3.2 Training programmes designed 3.3 Systems designed 3.4 Studies completed 4.1 Items procured 5.1 Look and learn visits 5.2 Field visits (planning, M&E, training, etc.) 	<p>Agritex & RDC AWP/B</p> <p>WUG records, Agritex & RDC AWP/B</p> <p>Agritex & RDC AWP&B</p> <p>MLA, Agritex, & RDC records</p> <p>PFU records</p> <p>Procurement records, Statements of Expenditure</p> <p>MLA records</p> <p>Agritex & RDC records</p>	<p>ZINWA (DWD) responsive to client demands and market forces</p> <p>Health and environment improved through better design</p> <p>Success of ASMP and RDC Capacity-Building Project enhances institutional capacities</p>

**KEY PROGRAMME FACTORS**

FINANCING	USD millions
IFAD	12.12
DANIDA	5.44
Government	0.17
Beneficiaries	1.60
Total	19.33

COSTS	USD millions
Scheme Upgrading and Development	14.48
Strengthening Institutional and Policy framework	3.42
Programme Facilitation	1.43
Total	19.33

BENEFICIARIES	Upgrading	New Dev.	Total
Plot holders and users	10 000	2 400	12 400
Labourers, traders etc.	24 000	6 600	30 600
Total	34 000	9 000	43 000
Cost per beneficiary (USD)			450

INCREMENTAL PRODUCTION	tons
Cotton	490
Green / grain maize	4 194
Sugar beans	2 120
Wheat	995
Tomatoes, fresh	2 175
Tomatoes, canned	1 150

FARM INCOMES WITH PROGRAMME (USD/ha) 1/	Minimum	Maximum
Schemes with good market access	1 950	2 312
Schemes with poor market access	542	904

1/ Variation dependent on water supply (gravity or pumped) and irrigation technology (surface or sprinkler).

ECONOMIC RATES OF RETURN (%)	Upgrading	New Development
Schemes with good market access	35-93	20-32
Schemes with poor market access	8-29	0-6
Programme	16	
Programme costs up 20%	13	
Programme benefits down 20%	12	

COST AND FINANCING

Expenditure Accounts by Components - Base Costs (USD '000)

	Scheme Upgrading and Development		Strengthening Institutional and Policy Framework			Programme Facilitation		Total	Physical Contingencies	
	Scheme Upgrading and Development	Natural Resource Management	Institutional Strengthening	Review of Policy and Legal Framework	Planning for Longer-term Development	Facilitation and Financial Management	Planning, Monitoring and Evaluation		%	Amount
I. Investment Costs										
A. Civil works										
Construction	8,216.0	-	-	-	-	-	-	8,216.0	12.3	1,009.1
Design and supervision	1,047.7	-	-	-	-	-	-	1,047.7	-	-
Civil works (all other)	637.5	100.0	-	-	-	-	-	737.5	-	-
Subtotal Civil works	9,901.2	100.0	-	-	-	-	-	10,001.2	10.1	1,009.1
B. Equipment and Goods										
Equipment -	-	23.7	161.3	-	-	176.5	-	361.6	2.0	7.2
C. TA, Training and Studies										
TA and studies	350.0	147.0	1,582.4	290.0	400.0	578.5	242.4	3,590.3	-	-
Training	948.0	47.5	387.2	-	-	-	-	1,382.7	-	-
Subtotal TA, Training and Studies	1,298.0	194.5	1,969.6	290.0	400.0	578.5	242.4	4,973.0	-	-
Total Investment Costs	11,199.2	318.2	2,130.9	290.0	400.0	755.0	242.4	15,335.8	6.6	1,016.3
II. Recurrent Costs										
A. Allowances -	-	7.5	59.5	0.6	-	-	22.8	90.4	5.0	4.5
B. Operation and maintenance -	-	-	82.7	-	-	92.5	-	175.2	5.0	8.8
C. Other operating costs	21.3	-	170.0	-	-	182.7	13.5	387.5	3.6	13.9
Total Recurrent Costs	21.3	7.5	312.2	0.6	-	275.2	36.3	653.0	4.2	27.1
Total BASELINE COSTS	11,220.5	325.7	2,443.2	290.6	400.0	1,030.2	278.7	15,988.8	6.5	1,043.4
Physical contingencies	1,010.2	1.6	17.7	-	-	12.2	1.8	1,043.4	-	-
Price contingencies	1,889.3	33.2	208.9	5.5	54.2	81.9	24.3	2,297.2	7.2	164.5
TOTAL PROGRAMME COSTS	14,119.9	360.4	2,669.7	296.1	454.2	1,124.3	304.8	19,329.4	6.2	1,207.9
Taxes	1.3	4.6	42.2	-	-	41.7	0.8	90.6	2.9	2.6
Foreign exchange	3,204.3	6.1	210.2	88.6	136.2	227.0	262.8	4,135.3	8.8	362.1

**Disbursement Accounts by Financiers
(USD '000)**

	IFAD Loan		DANIDA Grant		Beneficiaries		Government		Total		For. Exch.	Local (Excl. Taxes)	Duties & Taxes
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%			
A. Civil works	11 141.1	87	0.0	-	1,602	13	-	-	12,743	66	3,204.31	9,538.93	-
B. Equipment and goods	328.6	85	0.0	-	-	-	57.9	15	386	2	308.42	20.17	57.86
C. Technical Assistance													
TA (national)	-	-	2 044	100	-	-	-	-	2,044	11	-	2,044.27	-
TA (international)	-	-	859	100	-	-	-	-	859	4	158.42	700.52	-
Subtotal Technical assistance	-	-	2 903	100	-	-	-	-	2,903	15	158.42	2,744.80	-
D. Training	-	-	1 549	100	-	-	-	-	1,549	8	-	1,549.45	-
E. Studies	-	-	986	100	-	-	-	-	986	5	328.25	657.32	-
F. Allowances	60.6	57	-	-	-	-	46.7	44	107	0	-	107.22	-
G. Operation and maintenance	194.3	95	-	-	-	-	10.2	5	205	1	102.28	92.06	10.23
H. Other operating costs	394.2	88	-	-	-	-	55.5	12	450	2	33.57	393.62	22.48
Total	12 118.8	63	5 438.2	28	1,602	8	170.2	0	19,329	100	4,135.27	15,103.56	90.57





ORGANIZATION AND MANAGEMENT

Programme Coordination

1. Management authority for the overall programme will lie firmly within the Government. As lead ministry, the MLA would guide programme operations through existing intra- and inter-ministerial structures which are, *inter alia*, guiding the preparation of ASIP. The anticipated relationship between SISP and these structures is illustrated on page 12. The programme will function under the overall guidance of the Agricultural Management Committee (AMC), chaired by the Permanent Secretary in MLA.

2. The SISP represents the smallholder irrigation component of the ASSP, which will therefore cater for the overall programming needs of SISP and oversee the specific management functions of the programme. The coordination of programme implementation will be effected through the existing, inter-ministerial ASSP Steering Committee (ASC) under the chairmanship of the deputy secretary policy and planning, in MLA. The ASC will be expected to:

- review and approve the consolidated AWP/B for SISP;
- arrange, oversee and monitor programme implementation and performance with respect to issues of policy, technical design, management and coordination, and financial management based on reports prepared under the programme;
- provide guidance to implementing agencies on action to improve implementation consistent with programme design principles while minimizing costs;
- arrange and ensure that external audits are performed on a regular and timely basis; and
- resolve administrative problems.

3. In view of the anticipated roles of DWD and ZINWA in irrigation development and catchment area planning, the director of DWD and the chief executive of ZINWA will be appointed, as a condition of loan disbursement, as full members of the ASC to improve coordination between those organizations and the MLA. It is assumed that this operating relationship between MLA, DWD and ZINWA will be continued as an essential aspect of coordinated water resource development following the anticipated absorption of ASSP/ASC into ASIP. It is recommended that the DWD and ZINWA representatives also be co-opted into the ASIP Working Group for Smallholder Irrigation, and that the chairman of the working group be co-opted onto the ASC.

Programme Facilitation

4. The MLA is undergoing a transformation in role and responsibilities within the framework of the emerging ASIP. As part of this transformation, the operations of its technical departments are being modified to function in a service mode and to become more responsive to client farmers' identified needs. To assist MLA to manage and coordinate its support to smallholder irrigation during this transitional phase, a programme facilitation arrangement will be introduced as a temporary measure. The PFU will comprise, as full-time staff, a programme facilitator, an accountant and a secretary. The facilitator will assist the ASC/MLA with the coordination of the wide range of activities to be undertaken by the various stakeholders, and the embedding of SISP firmly within ASIP. He/she will report administratively to the Deputy Secretary, Policy and Planning, in the latter's capacity as one of the component managers for ASMP, while reporting technically to the ASC. The PFU staff will be recruited through the DANIDA grant for the preliminary (three-year) phase of SISP in the first instance. The continued need for a PFU will be reassessed during the mid-term review



(see paragraph 15 below), taking into account the then current status of ASIP evolution and the further absorption of ASSP into the ASIP framework.

5. A programme facilitation role is also envisaged at the level of the RDCs. The programme will contract four DPFs to help the CEOs and staff of participating RDCs to: (i) carry out planning functions related to smallholder irrigation; (ii) provide financial management/control of scheme-specific investments; (iii) report on financial/technical matters to the PFU; (iv) coordinate training at the district level; and (v) contract services for smallholder irrigation scheme upgrading and development. Facilitators will operate through the RDC Projects Office to permit close links to be maintained between SISP and the existing mechanisms for technical coordination at the district and subdistrict levels (as effected through the RDDC and its subcommittees), as well as the administrative and planning authority represented by the RDCs and the Provincial Development Committee. The DPFs will operate on a short-term basis at any given RDC to help during the first two years of an RDC's introduction to the programme, and will provide more occasional follow-up support thereafter. Initially each DPF will support scheme-based activities in two provinces³; geographical responsibilities will then be reassessed annually in relation to the rate of programme and workload expansion in each province.

Programme Implementation

6. With the MLA acting as the lead ministry, the programme will be implemented over a seven-year period by and through existing administrative structures and technical support services of government, with provisions for the contracting of additional services from the private sector and NGOs where feasible and appropriate. The programme will require the adoption of a number of procedures with which implementing staff in RDCs and the technical service agencies may be currently relatively unfamiliar. Accordingly, the programme will be based on a strengthening of implementation capacity at an institutional level among key service providers. Similarly, at scheme level, major emphasis will be placed on training IMCs/farmers to improve existing scheme management and operational efficiency, and to ensure that potential irrigators on new sites are fully prepared for operating their schemes efficiently from the outset.

7. The two main implementing agencies will be the Irrigation Branch of Agritex, for aspects of the institutional and the policy-related activities, and the participating RDCs. Although overall programme management will be an MLA responsibility, SISP's emphasis on locally-based, participatory planning for smallholder irrigation scheme upgrading and development suggests that the driving force for individual scheme identification, diagnostic studies, design preparation, appraisal and implementation will be the WUGs themselves. For such activities the RDCs would support the groups involved, and would contract Agritex to manage on their behalf scheme upgrading and/or development. Agritex would then carry out some of the activities itself (e.g., design, contracting and supervision) and would subcontract the remaining activities (e.g., the physical works, the participatory diagnosis, community mobilization and scheme management training) to private consultants and suitably qualified and experienced NGOs. As the RDCs capacity is expanded, so they may take on the responsibility for at least part of the contracting and supervision work. As long as Agritex is responsible for managing the activities, it would also be expected to make payments to the subcontracted service providers; however, it would remain answerable to the RDCs, which would operate as management 'boards', and would retain full responsibility for, and decision-making regarding, all irrigation upgrading and development on behalf of the WUGs.

8. Management authority at the RDC level will lie with the CEO, operating under delegated authority of the council. The CEO will be assisted by EOs for projects and finance who will absorb

³ It is suggested that, for operational purposes, the four DPFs cover: Mashonaland West and Central; Mashonaland East and Manicaland; Midlands and Masvingo; and Matabeleland North and South.



APPENDIX VI

SISP-related activities into their project and financial management, and planning and M&E functions. The EOs will be supported in these functions with training and technical back-stopping from the DPFs and the accountant to be contracted under SISF.

9. Scheme-specific proposals will be developed with the full involvement of the beneficiaries. This process, which will be intimately linked to an assumption of scheme management responsibility by the farmers themselves, is to be based on a partnership between client farmers and service providers (from Government, NGOs and the private sector). The partners will share rights and responsibilities for fulfilment of the various steps of the process, with the completion of each step being a prerequisite for advancing to the next.

Annual Work Planning and Budgeting

10. Following completion of the participatory scheme development process, proposed scheme-specific activities will be budgeted for as part of the normal AWP/B cycle of the respective RDCs. Consolidated district plans, possibly comprising provisions for more than one scheme, will be submitted to the Provincial Development Committee and thereafter further consolidated into the provincial AWP/B. From there, the provincial AWP/Bs will be submitted to the parent Ministry of Local Government and National Housing. Following its ratification, those elements of the ministry's AWP/B relating to SISF will be withdrawn and reassigned for inclusion in the bids under the Public Sector Investment Programme of MLA. The AWP/Bs for institutional strengthening under the programme will be prepared following the normal procedures of the relevant agencies, and, for all programme activities, the AWP/Bs will be collated by the programme facilitator and reviewed and approved by the ASC before onward submission to the National Economic Planning Commission, in accordance with standard government procedures. The relationship between the processes of work planning, the subsequent flow of funds and reporting requirements under SISF is illustrated on page 13.

Monitoring, Evaluation and Review

11. **Programme monitoring.** Monitoring will be action-oriented to facilitate decision-making. It will take place at three levels, i.e., irrigation scheme, district/provincial, and national levels, with the most specific indicators of progress used at scheme level and increasingly broad indicators used higher up the system. The general principles for monitoring will be that:

- WUGs monitor their own activities and scheme performance with support from service providers;
- RDCs (more specifically, the Rural District Development Committees monitor activities, inputs and output achievements in their respective districts;
- responsible institutions monitor support programmes and capacity-building activities; and
- Agritex retains responsibility for monitoring smallholder irrigation for both sectoral and planning purposes.

12. SISF will recruit a short-term M&E consultant to help stakeholders develop a comprehensive M&E system for the programme, together with the logframe and key performance indicators, based on the broad principles outlined above and building upon the system already developed under SDARMP. The system to be developed will cover all the broad aspects of SISF, including: investments in scheme upgrading/development; socio-economic characteristics of the plot holders, plot users and the neighbouring communities; environmental and health issues; management capacity of IMCs/WUGs and the RDCs; and training at all levels. Care will be taken to ensure that the M&E provides for both quantitative and qualitative measurement of the programme's interventions. Funds will be available to commission specific diagnostic studies during the course of SISF in response to any special needs which may be identified through the programme's monitoring system.



13. **Evaluation.** Internal, ongoing evaluation will be an important feature of the M&E system. Commencing with a baseline survey, this will be a continuous process to provide information to planners/managers at various levels within the programme. Ongoing evaluations will be based on outputs of the programme's monitoring system (including financial reporting), beneficiary contacts and diagnostic studies, and will focus on, for example, the response of the beneficiaries and institutions to the management process; effects of the programme on agricultural production and improved livelihoods; consequences of the programme on other smallholder producers; effects of the programme on the environment; and the validity of interventions in a changing economic and institutional environment.

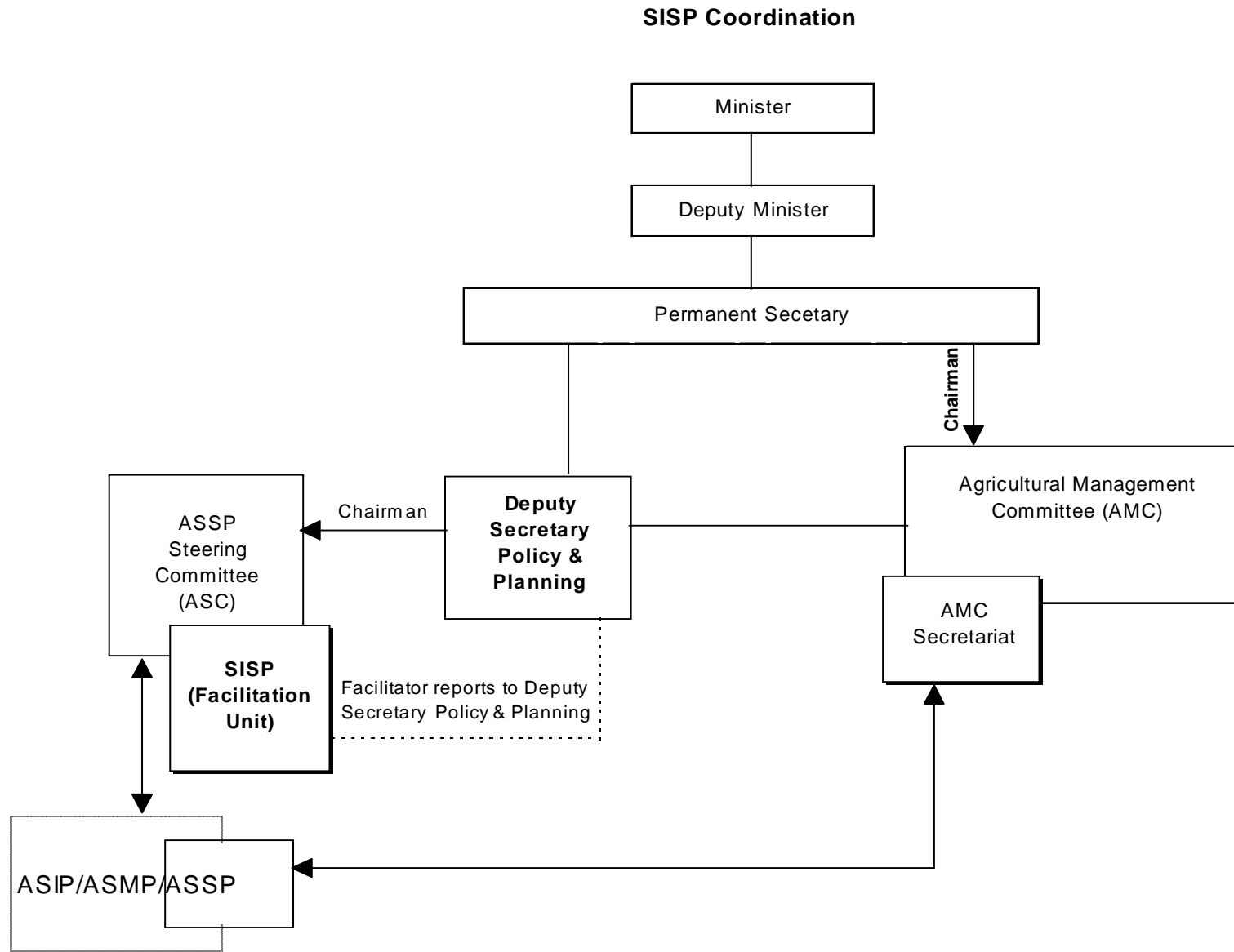
14. Formal evaluations will be conducted by different agencies, depending on the nature of the evaluation. Certain studies may be most efficiently carried out by Agritex as one of the participating institutions, while others may require an external and independent view. Programme evaluation instruments will include: an inventory of smallholder irrigation schemes; baseline survey and periodic updates; participatory evaluations, involving beneficiary assessments; and tracer studies of a small number of individuals receiving training through the programme.

15. **Mid-term review.** SISP has been appraised in a fluid policy and institutional environment where: ZAPF is being operationalized; WRMS has generated a new institutional and regulatory framework which is yet to be implemented; and the RDC Capacity-Building Programme is under way but with its impact on planning, management and coordination capacity of the RDCs yet to be fully realized. The likely combined effect of all these processes on the agricultural sector, and the smallholder irrigation sub-sector in particular, is at present unclear. SISP itself is expected to lead to further changes, particularly in relation to the respective responsibilities of the Government and irrigators and their interaction at scheme level. The programme's implementation approach will be flexible to react to further changes which cannot be fully predicted.

16. By the end of the third year of implementation, programme activities will be ongoing in a sufficient number of districts (24) to enable judgments to be made on the programme's approach and impact. In addition, it is envisaged that the ASMP will have concluded and that the planning process for the ASIP will be well advanced, thus enabling SISP to be reviewed, and revised as necessary, in relation to the ASIP framework. For these reasons, an extensive mid-term review of the programme will be conducted. The review will assess progress towards the achievement of programme objectives, based on the indicators confirmed at programme start-up, and will focus particularly on the lessons learned during the transfer of scheme management responsibility to farmers. The review will be expected to lead to a further strengthening of SISP implementation arrangements and ensure their full conformity with ASIP.

17. The mid-term review will be managed by the programme facilitator with selected officials of the main implementing agencies and consultants financed under the programme. Terms of reference for the review will be subject to approval by the ASC and by IFAD/DANIDA. The draft mid-term review report is expected to be discussed at a stakeholder workshop, and approval of the final review document by Government, IFAD and DANIDA will be a necessary condition for the programme to proceed to the expansion phase. Specific recommendations of the review may require changes to the IFAD loan agreement and/or the DANIDA grant agreement as a further condition of continued implementation.

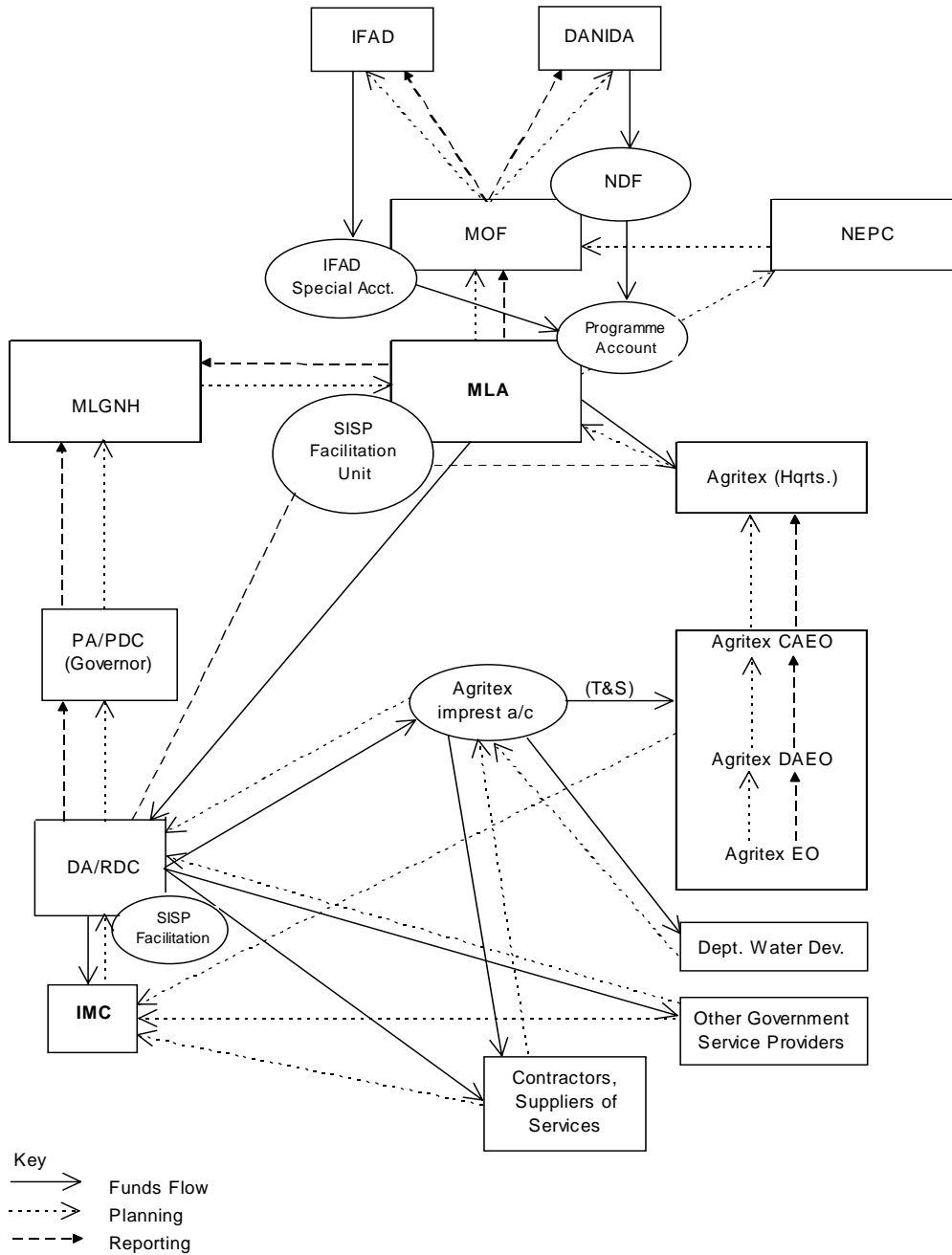
ORGANIZATION CHART





FLOW OF FUNDS

Planning Process, Funds Flow and Reporting





FINANCIAL AND ECONOMIC ANALYSIS

1. **Financial analysis.** Production models and financial budgets were defined for 12 representative field and horticultural crops, and the models were then used to formulate two cropping patterns: one for farms with good access to markets, and one for those with poor access to markets. The two cropping patterns were then applied to four scheme types: (i) surface irrigation with gravity water supply; (ii) surface irrigation with pumped water supply; (iii) sprinkler irrigation with gravity water supply; and (iv) sprinkler irrigation with pumped water supply.

2. This resulted in a total of eight farm models, which were then analysed in both “without programme” and “with programme” situations. It should be noted that farmers on new schemes developed under the programme (for whom no models have been shown) would realize similar returns in the “with programme” situation while, in the “without programme” situation, their incomes would be only those realized from dryland farming, assumed to be about ZWD 870/ha. They would thus realize incremental benefits considerably higher than those of farmers on existing schemes.

3. The analysis reveals that, while there are considerable differences in income levels and increments, depending principally on the degree of market access of the scheme and thus the crops that can be grown, irrigating farm households would, in general, benefit considerably. Farmers would realize significantly higher incomes under the programme, even after paying charges for water and maintenance. Farmers with good market access, who can grow mainly horticultural crops, would benefit particularly, increasing their net incomes by around ZWD 23 000; and even those with poor market access, who are obliged to grow mainly field crops, would increase their incomes by some ZWD 9 000. Projected net farm incomes at full development are shown in the table.

Net Farm Incomes: Farm Models (ZWD/ha)

Farm Model (Scheme type)	Without	Full Development	Incremental	Returns per labour day
Good market access				
Surface irrigation with gravity water supply	11,398	34,678	23,280	123
Surface irrigation with pumped water supply	9,460	30,802	21,342	109
Sprinkler irrigation with gravity water supply	11,774	34,233	22,459	121
Sprinkler irrigation with pumped water supply	9,283	29,252	19,969	104
Poor market access				
Surface irrigation with gravity water supply	4,061	13,558	9,497	57
Surface irrigation with pumped water supply	2,123	9,682	7,559	41
Sprinkler irrigation with gravity water supply	4,437	13,113	8,676	55
Sprinkler irrigation with pumped water supply	1,946	8,132	6,186	31

4. **Economic analysis at scheme level.** An economic analysis has been conducted at the scheme level in order to identify whether, according to the assumptions made with regard to costs and benefits, investment in upgrading/new development is likely to be economically viable for a range of different scheme types. Sixteen scheme models have thus been developed, for the four scheme types, each under conditions: (a) of good and poor market access; and (b) of upgrading and new development. As shown in the following table, the EERs vary considerably.

**Economic Analysis at Scheme Level (ERRs)**

Scheme type	Upgraded		New Development	
	Good access	Poor access	Good access	Poor access
Surface irrigation with gravity water supply	74	25	21	4
Surface irrigation with pumped water supply	49	14	32	6
Sprinkler irrigation with gravity water supply	93	29	22	4
Sprinkler irrigation with pumped water supply	35	8	20	-

5. The results show that investment in upgrading can be viable on scheme types in areas with both good and poor market access (with the exception of schemes under sprinkler irrigation with pumped water supply), with ERRs which range from 14% to 93%. For new development, the analysis clearly demonstrates that where market access is good, investment can be viable, with ERRs which range from 20% to 32%; *Under the assumptions used here*, however, no new development should take place in areas where market access is poor and cannot in some way be improved, as the ERRs do not approach the opportunity cost of capital (assumed to be 12%). However, these are only models, and there is no reason why new development cannot be made viable, even in areas of presently poor market access, in one of the following ways:

- (a) by lowering the costs. The importance of (i) controlling and reducing the costs of scheme development, and (ii) ensuring that scheme design minimizes to the extent possible the subsequent O&M costs, remains paramount in ensuring the viability of investment. The achievement of (i) will be an important objective of the programme and will be supported by a study in PY 1;
- (b) by increasing yields of the crops grown, through more intensive use of improved inputs and improved husbandry practices; and
- (c) by improving market access, which can either result in improved prices for the produce or assist the substitution of lower-value field crops for more perishable, but higher-value, horticultural crops.

6. Conversely, the apparent viability of investment in new schemes with good market access is dependent on the projected construction costs being contained, and the crop yields and produce prices assumed being realized. As such, none of the above preclude the need for a scheme-specific analysis to be undertaken as part of the participatory planning process, and for the results of the analysis to be considered as one of the criteria for scheme investment.

7. **Economic analysis at the programme level.** An economic analysis has been also conducted at the programme level in order to present the programme benefits in the context of the Zimbabwean economy. The cost benefit analysis takes into account only those benefits that are directly quantifiable, i.e., increased production from smallholder irrigation, even if all programme costs have been included in the analysis. An ERR of 16% was calculated for the programme as a whole, while the net present value (using a discount rate of 12%) was calculated at ZWD 37.8 million, indicating that the programme is an attractive investment. This rate of return reflects the conservative (primarily field crops) cropping patterns adopted; indeed, the net benefit stream is probably understated as it is heavily weighted towards field crops. Reflecting farmers' preference for low-risk field crops under conditions of uncertain water supply, the contribution of horticultural crops to the benefit stream begins very conservatively at 8% and rises to 27% by full development. It is expected that, under the programme, farmers will adopt more commercial cropping patterns and therefore that the benefit stream and ERR will be substantially increased.



APPENDIX VII

8. The ERR was tested for sensitivity to changes in the levels of costs and benefits and for the timing of the benefit flow. The analysis demonstrates that, even under adverse conditions, the programme still remains economically viable. Programme costs would have to increase by 25% or the benefits to decrease by 20% before the net present value would fall to zero (opportunity cost of capital of 12%).