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REPORT AND RECOMMENDATION OF THE PRESIDENT

TO THE EXECUTIVE BOARD ON A PROPOSED LOAN TO THE

KINGDOM OF SWAZILAND

FOR THE

LOWER USUTHU SMALLHOLDER IRRIGATION PROJECT – PHASE I



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CURRENCY EQUIVALENTS

(March 2001)

Currency Unit	=	Lilangeni (SZL)
USD 1.00	=	SZL 7.77
SZL 1.00	=	USD 0.1287

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

ADEMU	Agricultural Development and Environmental Management Unit
AfDB	African Development Bank
BADEA	Arab Bank for Economic Development of Africa
DBSA	Development Bank of Southern Africa
EC	European Commission
IEMU	Infrastructure Engineering Management Unit
LUSIP	Lower Usuthu Smallholder Irrigation Project
MOF	Ministry of Finance
PMU	Project Management Unit
PY	Project Year
SADC	Southern African Development Community
SKPE	Swaziland Komati Project Enterprise
SNL	Swazi Nation Land
TDL	Title Deed Land
TPTC	Tripartite Permanent Technical Committee
WUA	Water Users' Association

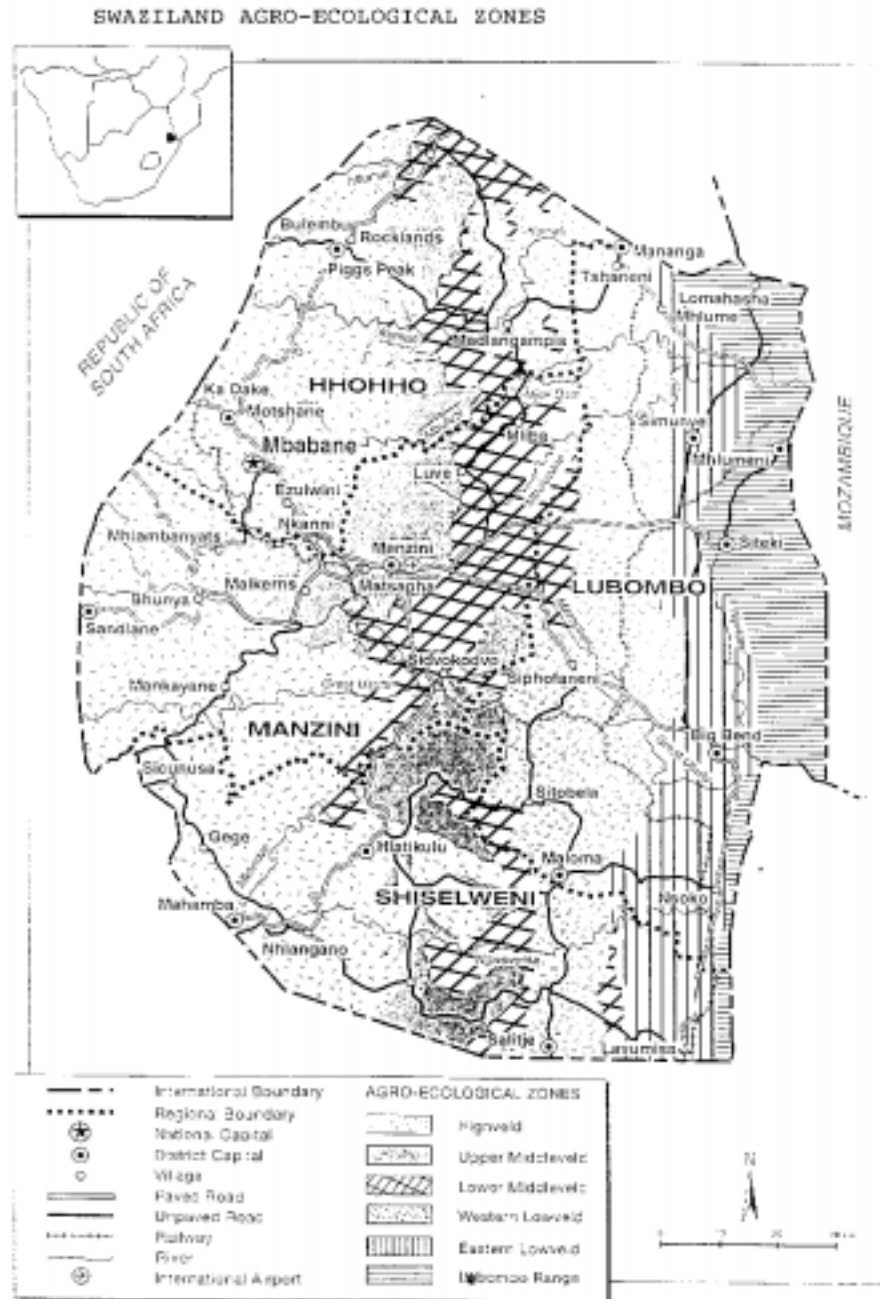
GOVERNMENT OF THE KINGDOM OF SWAZILAND

Fiscal Year

1 April - 31 March



MAP OF THE PROJECT AREA



Source: IFAD Appraisal Report

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.

KINGDOM OF SWAZILAND

LOWER USUTHU SMALLHOLDER IRRIGATION PROJECT - PHASE I

LOAN SUMMARY

INITIATING INSTITUTION:	Government of Swaziland
BORROWER:	Kingdom of Swaziland
EXECUTING AGENCY:	Swaziland Komati Project Enterprise (SKPE)
TOTAL PROJECT COST:	USD 116.54 million
AMOUNT OF IFAD LOAN:	SDR 11.90 million (equivalent to approximately USD 14.96 million)
TERMS OF IFAD LOAN:	20 years, including a grace period of five years, with an interest rate of one half of the reference interest rate per annum as determined by the Fund annually
COFINANCIERS:	African Development Bank (AfDB), Arab Bank for the Economic Development of Africa (BADEA), Development Bank of Southern Africa (DBSA) and European Commission (EC)
AMOUNT OF COFINANCING:	USD 81.32 million
TERMS OF COFINANCING:	AfDB: loan BADEA: loan DBSA: loan EC: grant
CONTRIBUTION OF THE BORROWER:	USD 15.37 million
CONTRIBUTION OF THE BENEFICIARIES:	USD 4.89 million
APPRAISING INSTITUTION:	IFAD
COOPERATING INSTITUTION:	United Nations Office for Project Services (UNOPS)



PROJECT BRIEF

The project. The design of the eight-year Lower Usuthu Smallholder Irrigation Project (LUSIP) - Phase I aims to create secure access among poor smallholders to a vital resource previously enjoyed principally by the large-scale private sector – water. The objectives are to integrate the smallholder sub-sector into the commercial economy through the provision of irrigation infrastructure to permit the intensification and diversification of high-value crops, and to arrest negative health impacts and environmental degradation. Project components include: (a) upstream works and a distribution system, involving the construction of a diversion weir, three dams and other heavy engineering civil works; (b) downstream development and agricultural commercialization, involving support for a policy and legal framework (for land, water, resettlement and farmers' organizations), participatory planning and irrigated farm development, irrigation management institutions and agricultural commercialization; (c) environmental mitigation comprising finalization of a comprehensive mitigation plan; resettlement planning and compensation; public health; and environmental conservation, monitoring and external review; and (d) project coordination and management.

Who are the beneficiaries? About 2 600 households, out of a total of 3 418 households currently residing in the LUSIP Phase I area, are expected to benefit directly from project activities. Beneficiaries will generally be smallholders, mainly involved in sugar cane production, but with some also cultivating cotton and other high-value crops under irrigation. It is expected that about 30% of the farmer groups will also be involved in commercial livestock activities. Beneficiaries are among the poorest in the country, with average annual per capita income estimated at USD 100. A large secondary group will benefit indirectly from the expansion of wage employment (labour) and small enterprise opportunities arising from a vast expansion in cash turnover in the local economy.

Why are they poor? The semi-arid conditions and frequent drought occurrence in the Usuthu River Basin area, coupled with the constraints of water, land and capital, presently prevent the widespread involvement of beneficiaries in intensive crop production – an enterprise that has so far proved profitable only among the few with access to these resources. The dry-season water flows of the Usuthu River and its tributaries are presently fully allocated to existing permit holders, mainly connected with large-scale sugar cane estates, who abstract the water by pumping directly from the river. Out of more than 17 500 ha under irrigated sugar cane nationwide, only about 1 200 ha are operated by smallholders – of which 800 ha lie within the project area. When fully developed, LUSIP will have radically changed the balance in access to national water resources allowing smallholders on Swazi nation land (SNL) to have wide access to a scarce resource that they have previously had contact with only as plantation labourers.

What will LUSIP do for them? Since further allocation of permits for direct water abstraction from the Usuthu is unlikely, the project will support an appropriate and adequate storage facility for the surplus flood flows of the river during the rainy season for systematic release and irrigation use downstream by SNL smallholders during the rest of the year. IFAD's support will specifically be directed to the creation of conditions that will enable poor farmers and communities to transform themselves into small-scale commercial operators.

How will the beneficiaries participate in the project? IFAD was requested by the Government to participate in the design and implementation of the project to ensure that the investment would have the maximum enduring benefit for the rural poor. Smallholders will form groups/associations, each of about 20 members, who will jointly cultivate crops or undertake livestock enterprises and will share the establishment costs, work and income on an equitable basis. Women and youths will be an integral part of the groups/associations. Beneficiaries will be responsible for the development, preparation and implementation of their workplans; they will receive training, skills upgrading and other capacity-building to enable them to manage their enterprises and take corrective and preventive measures against risks to their health and the health of their family members; and they will participate in the sustained maintenance of flora, fauna, land/soil and other natural resources.



**REPORT AND RECOMMENDATION OF THE PRESIDENT OF IFAD
TO THE EXECUTIVE BOARD ON A PROPOSED LOAN TO THE
KINGDOM OF SWAZILAND
FOR THE
LOWER USUTHU SMALLHOLDER IRRIGATION PROJECT - PHASE I**

I submit the following Report and Recommendation on a proposed loan to the Kingdom of Swaziland for SDR 11.90 million (equivalent to approximately USD 14.96 million) on intermediate terms to help finance the Lower Usuthu Smallholder Irrigation Project (LUSIP) – Phase I. The loan will have a term of 20 years, including a grace period of five years, with an interest rate of one half of the reference interest rate per annum as determined by the Fund annually. It will be administered by the United Nations Office for Project Services (UNOPS) as IFAD’s cooperating institution.

PART I - THE ECONOMY, SECTORAL CONTEXT AND IFAD STRATEGY¹

A. The Economy and the Agricultural Sector

1. Swaziland covers a land area of 17 364 km² and an elevation range of 60-1500 m above sea level. The country is landlocked: Mozambique forms its border to the east, and South Africa to the north, west and south (see Map). It is divided into four distinct regions corresponding to agro-ecological zones: the Highveld, Middleveld, Lowveld (the hottest and driest zone) and the Lubombo Range. The productivity potential of the different agro-ecological zones under rainfed conditions varies widely; most of Lowveld, for example, receives less than the threshold rainfall in four years out of five.

2. **Governance.** Swaziland is a monarchy, with legislative powers vested in Parliament. A Cabinet of Ministers and a National Council, whose members are drawn from among the country’s traditional leaders, advise the king. Western and traditional Swazi systems of government converge in Parliament, which consists of the House of Assembly and the Senate. About 270 chiefs provide traditional leadership at the local level, with each chief having his own council of deputies.

3. **The economy.** Throughout the 1980s, Swaziland experienced substantial economic growth, reaching an average of 6.6% per annum. By the mid-1990s average gross domestic product (GDP) growth had fallen to only 2.8% per annum in real terms. This further declined to less than 1% in 1999. Poor economic performance was partly attributed to the persistent drought in 1991-95, which had a devastating effect on the two main sectors of the economy: agriculture and manufacturing (largely agro-processing). Political change in South Africa has eroded some of Swaziland’s advantages in attracting foreign investment. South Africa is Swaziland’s main trading partner, accounting for 80% of its imports, 50% of exports and, until recently, a high proportion of foreign direct investment flows and domestic transfers. Remittances from Swazi nationals employed in South Africa have, in the past, contributed more than 15% to GDP, but this flow has declined significantly as recent changes in labour regulations have limited migrant employment opportunities in that country.

4. The agricultural contribution to GDP averaged some 11% in the decade to 1999, of which about 88% was derived from crop production and 12% from the livestock sub-sector. The manufacturing sector accounted for 28% of GDP over the same period. Agriculture is responsible for some 77% of manufacturing GDP, with major contributions from sugar processing, food processing and fruit

¹ See Appendix I for additional information.



canning. Crop production from title deed land (TDL)², consisting mainly of sugar cane, citrus and pineapples, presently accounts for about 70% of agricultural GDP. In contrast, crop production from Swazi Nation Land (SNL)³, where about 70% of the total Swazi population live and are engaged in semi-subsistence agriculture, accounts for only around 15%. Sugar cane production alone contributes some 60% of agricultural output and provides 37% of wage employment. During drought periods, the contribution of sugar to agricultural GDP has risen historically to about 75%, reflecting the privileged access of plantations to water for irrigation. Growth in the smallholder sub-sector (which remains predominantly rainfed) is highly susceptible to climatic variation and has also suffered from structural constraints inherent in former marketing and pricing policies.

5. **Crops.** The major annual rainfed crops include maize, cotton, beans and groundnuts – which together occupy more than 90% of the total SNL arable land. Under TDL, these crops account for only 20% of the total cropped area, the balance being used in the production of sugar cane and citrus. Low agricultural productivity on SNL can be attributed to a number of factors, including low availability of labour due to off-farm incentives, lack of transport, limited access to irrigation water and markets, and risks related to climatic factors. The availability and use of irrigation for sugar cane, cotton and citrus on TDL has been highly successful. However, access to water is a constraint for most farmers on SNL.

Irrigation and Water Resources

6. **Irrigation.** About 67 000 ha are presently under irrigation in Swaziland, most of which are concentrated in TDL under large-scale commercial farming operations. Smallholder irrigation schemes exist on an estimated 3 400 ha, mostly on SNL. There has been significant growth in the smallholder irrigation sub-sector in the last ten years, mainly for commercial sugar cane production. About 1 200 ha of new smallholder irrigation has been developed in the Lower Usuthu alone, facilitated by the nearby Ubombo Sugar Mill Limited.

7. **Shared water resources.** A 1992 study estimated mean annual run-off from Swaziland at 2 600 million m³. Of this, approximately half was attributed to the Usuthu River system. The run-off occurs during the peak flood season (November-May), such that any significant irrigation development will require the provision of dam storage. Because groundwater aquifers are mainly of low permeability, even well-sited and well-designed boreholes produce only small amounts of groundwater. Most borehole yields are less than one litre per second, which is adequate for drinking water supplies but not for irrigation on any scale.

8. As a member state, Swaziland recognizes the 1995 Southern African Development Community (SADC) *Protocol on Shared Watercourse Systems*. The Usuthu River basin forms a part of the Maputo basin and is shared with two other SADC members: Mozambique and South Africa. The three countries have long recognized the need to cooperate on joint management of the Maputo basin, establishing a tripartite permanent technical committee (TPTC) in 1983. They have also applied for funding under the United Nations Development Programme (UNDP) Global Environmental Facility for a regional project to develop a strategic action plan for the management of the basin. Meanwhile, the TPTC has been working towards the formulation of an interim water agreement for the use of water from the Usuthu River.

9. **Health impacts.** Among negative health impacts likely to arise in association with irrigation and water development are the possible increases in the incidence of malaria, diarrhoeal diseases, and bilharzia (schistosomiasis). Because of the large displacement of people necessitated by the project (in

² Title deed land is owned individually or corporately and is used for commercial farming and ranching.

³ Swazi Nation land is held in trust for the nation by the king and is administered by the chiefs. Although SNL agriculture occupies a large proportion of the country's land area, only 10% of agricultural SNL is used for crop production; the balance is used for grazing.



work camps, resettlement camps, etc.), there is also likely to be an increase in HIV/AIDS and other sexually transmitted diseases. The Joint United Nations Programme on HIV/AIDS (UNAIDS) estimates that as at end-1999, 130 000 people in Swaziland (including 10 000 children) had HIV/AIDS. In 1998, HIV prevalence among pregnant women was 30.3% for major urban areas and 31.5% for rural areas. While 3.9% of antenatal clients were infected in 1992, by 2000 their share had grown to 34.2%.

Poverty Situation and Gender Issues

10. With a per capita income of USD 1 100, Swaziland was ranked by the 1997 UNDP *Human Development Report* as a lower-middle-income country. But the distribution of income is highly skewed: the same report found that about 400 000 people (more than 40% of the population) were living in absolute poverty, with rural areas having a greater share of the poor (84%) than they have of the total population (79%). About 43% of the total income is received by 10% of the population. The poorest 40% of the population have a per capita income equivalent to USD 230, falling to USD 100 in the poorest areas. Since the rural population is largely resident on SNL, these estimates of rural poverty also describe SNL poverty. In other words, rural SNL areas are disproportionately poor. Per capita income in the rural areas is more than four times lower than that of urban areas, and food consumption two times lower. Moreover, poverty is increasing: the proportion of households with incomes below the poverty line increased from 62% in 1985 to 66% in 1995.

11. The increasing incidence of poverty can be attributed to a rapidly expanding population, the uneven distribution of resources and poor economic performance – all at a time when investment flows are declining. Widening gaps in rural-urban development, escalating unemployment, declining family remittances, the rising trend of woman-headed households, growing environmental problems leading to food insecurity, the vulnerability to drought of large parts of the country and the HIV/AIDS pandemic are all aggravating the poverty situation.

12. Women make up about 51% of the Swazi population. Although the adult female illiteracy rate is about 21% nationally, the situation is worse in the rural areas where illiteracy rates can be as high as 70%. The average fertility rate for the country is about 5.7, but this may be as high as 7.2 in rural areas. In 1996, the Government established the National Gender Coordination Office to identify and address gender issues in the country, notably the lack of control and ownership of land, the inherent biases in civil and customary law, and the strong influence of traditional systems on gender disparities – all resulting in a persistent burden of poverty on women. Woman-headed households often have inadequate incomes to support dependants; the incidence of poverty is estimated to be 1.7 times that of households headed by men.

B. Lessons Learned from Previous IFAD Experience

13. IFAD has financed two projects in Swaziland, for which total loans were USD 13.3 million (Appendix II). Both projects have made contributions to improving crop yields, increasing farmers' participation in small-scale irrigated agriculture and generally boosting farm incomes. However, a number of shortcomings and constraints have persisted, particularly low capacity in the public sector for implementation, inadequate marketing channels and unreliable rural financial services. Major lessons learned from IFAD's 16 years of operation in the country include the need to: (a) improve access to irrigation water for smallholders; (b) enhance the level of beneficiary/community interest group formation, cohesion and participation in development activities, especially in irrigated agriculture; (c) encourage the private banking sector to offer services to SNL farmers; and (d) strengthen the non-bank rural financial system and promote the increased use of voluntary savings and credit groups and other financial intermediaries.

C. IFAD's Strategy for Collaboration with Swaziland

14. **Swaziland's policy for poverty eradication.** The Government has initiated various strategy and policy discussions and proposed legislation aimed at enhancing smallholder access to water, land



and capital, and creating a conducive environment for agricultural and irrigation development. Among such policy and strategy initiatives are: (a) the national development strategy, which highlights food security and commercialization of agriculture on SNL as important elements explicitly dependent to a large degree on irrigation development; (b) the draft national land policy with a view, *inter alia*, to improving access to land and security of tenure on SNL (including tenure on irrigation schemes); (c) the draft rural planning, development and resettlement act to provide for women to be allocated land, with rights to hold, use, undertake transactions in and provide for succession on the same basis as men. In the context of draft, in October 1999 the Government gazetted a rural settlement policy task force charged with preparing a policy paper on rural settlement (including resettlement for irrigation schemes); (d) the livestock development policy, which recognizes the increasing pressure being placed on the vegetation and natural rangeland by traditional livestock management practices, and the need for livestock owners to become more market-oriented; (e) the Swaziland environmental action plan, which requires conservation measures to be integrated into all productive systems and the active involvement and participation of all stakeholders, particularly local communities, in decisions on land use and environmental management; and (f) the draft new Water Act (2001) which, when adopted, will update the Water Act (1967) as the main legal instrument for irrigation development, especially relating to the control and use of public and private water, and the legal establishment of water institutions.

15. While the above initiatives constitute important opportunities for accelerated development of irrigated agriculture and especially enhancing smallholders' access to land and water, their finalization and operationalization are constrained by slow legislative and administrative processes and procedures. Specific to the draft Water Act, there is need to ensure that its legal and institutional framework is adequate so as not to constrain its effective operations especially relating to community-level constitution of new local institutions.

16. **Institutional framework.** Existing key institutions of relevance to Swaziland's agricultural and water resources development include: (a) government ministries: Natural Resources and Energy, Agriculture and Cooperatives and Health; (b) parastatal agencies: Swaziland Environmental Authority (SEA) and Swaziland Komati Project Enterprise (SKPE); (c) statutory boards: Swaziland Sugar Association (SSA), Swaziland Cotton Board, and the National Agricultural Marketing Board (NAMBoard); (d) private-sector organizations: Ubombo Sugar Limited, Vunisa Cotton Limited, Swaziland Meat Industries, and non-governmental organizations (NGOs); and (e) agricultural credit institutions: Swaziland Development and Savings Bank (SDSB), Enterprise Trust Fund and commercial banks. The existing institutional framework is elaborated in Appendix VIII.

17. **Poverty eradication activities of other major donors.** Between 1993 and 1995, a total of 23 donors provided assistance to Swaziland. In 1996, donor assistance totalled USD 41.8 million (down from USD 71.4 million in 1995 and USD 90.9 million in 1994), mainly targeted at the transport, industry and health sectors; donor assistance for agriculture, forestry and fisheries development accounted for only 3.8% of total donor assistance. Since then, donor support has declined significantly, mainly as a result of socio-economic and political developments in the region. However, European Union support to Swaziland has remained relatively constant to date. South Africa has also supported developments in Swaziland's water and agricultural sectors – in particular, the financing of the Maguga Dam, which is currently under construction on the Komati River.

18. **IFAD's strategy in Swaziland.** IFAD's current strategy is based on the need to transform SNL agriculture, through agricultural intensification (use of irrigation, improved technologies and purchased inputs) and commercialization. The strategic objective is to enable SNL farmers to organize themselves to seize the opportunities of high-value crop production and livestock husbandry, taking advantage of local, regional and international market opportunities. The commercialization process involves the strengthening of the linkages between the smallholder sub-sector and the organized private sector in order to encourage and promote investment in agriculture.



D. Project Rationale

19. The project area is one of the poorest in the country. The climate is semi-arid, droughts are frequent and rainfed cropping is unreliable. More than two thirds of the households in the area have access to less than 2 ha of land for arable purposes and can barely grow enough to feed themselves; there is heavy reliance on remittances. Present annual incomes (excluding off-farm income) average USD 100 per capita, with little prospect of improvement under rainfed production systems. Conditions in the project area are broadly characteristic of much of the SNL. In recent years, a number of smallholder farmers have successfully engaged in small-scale commercial irrigated sugar cane production, obtaining net incomes of more than USD 1 200 per ha per year. But because dry season flows in the Usuthu River are now fully allocated, increased access to irrigation among poor, small farmers in the area will require the construction of reservoir storage for wet season peak flows – for release for irrigation in the dry season. However, even these peak flows are under pressure as water demand from Swaziland’s neighbours increases: unless Swaziland can make profitable use of this water, it will forfeit legitimate claim to one of its last remaining opportunities to give its rural poor access to water. The proposed project will enable the Government to do so, building on the successes already achieved by smallholder irrigators and taking advantage of existing market linkages.

20. Government and poor SNL farmers have identified access to water for irrigation and secure tenure of land as key factors in improving rural livelihoods in the project area and, indeed, in many other parts of Swaziland. The Government has committed itself to the provision of the infrastructure to make this possible. However, to ensure a significant and sustainable increase in the income and livelihood security of smallholders through access to water and private sector-mediated access to high-value crop production and secure market channels, it is imperative that the outstanding strategy, policy, legal, social and institutional issues be effectively addressed. Areas requiring support include aspects of resettlement (of people and livestock) in the project area; land tenure and redistribution; stakeholder participation in water institutions; the organization, management, operation and maintenance of the irrigation infrastructure; and health and other environmental impacts. The magnitude and complexity of the water delivery system, the numbers of potential irrigation schemes and participants, and the need to provide for competing uses of the land, demand a level of planning that has not previously been necessary for irrigation development in the country. Prospective beneficiaries need to develop ownership of the system by becoming involved in planning and development processes, but public-sector support services lack the capacity to support participatory development.

21. It is precisely to handle these issues – which are critical for smallholders – that the Government invited IFAD to take the lead in the designing, financing and implementation of community/farmer-related aspects of the project. While the project represents a major opportunity for poverty alleviation on a relatively large scale, it will require intensive and well-coordinated support to farmer-level processes, and to institutional development, land and water reforms, health and other environmental protection. IFAD’s assistance will therefore be geared to complementing investments in infrastructure by supporting the creation of conditions that will enable farmers in the project area to transform themselves into small-scale commercial farmers on an equitable and sustainable basis.

PART II - THE PROJECT

A. Project Area and Target Group

22. The land area involved in irrigation development and water management extends over five chiefdoms, of which three contain land within the proposed irrigable area. The target group comprises 3 418 households (representing 20 166 people), 58% of whom are below the age of 20 years. Of these, 2 600 households, representing 15 300 people, are likely to benefit directly from the project. Other key characteristics of targeted households are: (a) average farm size is 3.6 ha, with about 2.6 ha cultivated per household at any one time; (b) 48% of land holdings are less than 1 ha, while 67% of



holdings are less than 2 ha per household; (c) maize is grown on 60% of the cropped area despite the risk of inadequate and irregular rainfall, with cotton (the only crop grown specifically for sale) planted on about 40% of the cropped area; (d) up to 40% of all households are, either *de jure* or *de facto*, headed by women – who constitute the majority (50.2%) of the population; and (e) current average household income is approximately USD 100 per capita, assuming an average household of 5.9 persons. The risk of marginalization of women and other vulnerable groups will depend to a large extent on land share-holding size: the greater the number of participating households, the lower the risk of marginalization. In addition to households directly benefiting from access to irrigation opportunities under the project, a large secondary group will benefit from the expansion of wage employment and small enterprise opportunities arising from a vast expansion in cash turnover in the local economy.

B. Objectives and Scope

23. The proposed LUSIP⁴ will involve the construction of three dams to form an off-river reservoir to store water diverted from wet season flood flows in the Lower Usuthu River. Main canals and a distribution system will be constructed from the dam, together with on-farm works, to irrigate a net 11 500 ha. Phase I of the project, which will be implemented over an eight-year period, will involve construction of the main infrastructure and development of a net irrigable area of 6 500 ha. Phase II will involve extending the water delivery system and developing a further 5 000 ha.

24. The overall objective of LUSIP is the reduction of poverty and sustained improvement in the standard of living of the smallholder population in the Lower Usuthu Basin, through commercialization and intensification of agriculture along the lines articulated in the country strategic opportunities paper (COSOP) for Swaziland. The immediate objectives of LUSIP Phase I are the provision of: (a) irrigation infrastructure to permit the production of high-value crops by smallholders; (b) a complete package of measures empowering smallholders to benefit from access to valuable water resources; and (c) health and environmental measures that will not only mitigate negative health and environmental impacts, but also to enable the target group to derive the full benefits of the investment. The logical framework is presented in Appendix III.

C. Components

25. The project will comprise four main components: (a) upstream works and distribution system; (b) downstream development and agricultural commercialization; (c) environmental mitigation; and (d) project coordination and management. The main activities to be supported under the first three components are outlined hereunder and elaborated in Appendix IX.

26. **Upstream works and distribution system.** This component will include topographical surveys, geotechnical investigations and detailed designs; the construction of a diversion weir on the Usuthu River, a feeder canal, three dams to form an off-river storage, two concrete-lined main canals and a distribution system.

27. **Downstream development and agricultural commercialization.** This component will comprise four sub-components:

28. *Development of policy and legal framework.* Support for the Government's ongoing efforts to put an appropriate legal framework in place for water users' associations (WUAs), an irrigation district and a catchment authority; and to assist in policy and legal reforms for land and resettlement and with existing legislation for companies and cooperatives.

⁴ LUSIP was the subject of a pre-feasibility study in 1996, a feasibility study in 1998, an environmental impact assessment (EIA) in 2000 (all financed by the European Commission), as well as an IFAD formulation/post-feasibility mission of Phase I in June 2000. IFAD appraised the project in January/February 2001.



29. *Participatory planning and irrigated farm development.* Technical and logistical support for land-use planning and related processes for approximately 130 irrigated farm schemes (each averaging 50 ha) and other possible land uses; training of trainers and other capacity-building activities for project staff, leadership of community committees and groups, as well as farmers in all processes of land use planning and allocation; studies and surveys; and provision of development credit and seasonal loans to project beneficiaries for on-farm works and crop establishment.

30. *Development of irrigation management institutions.* Technical and material support to the process of establishing, organization and management of WUAs, irrigation district and water service providers; orientation, training and other capacity-building activities in irrigation operation and maintenance, bookkeeping, business affairs involving management staff, water service providers, WUAs, pump attendants, water bailiffs/guards and other operating staff.

31. *Agricultural commercialization.* Technical assistance to communities and economic interest groups, including with land use and farm enterprise planning processes, operational aspects of irrigated farming and intensified livestock management, in-service training of public subject matter specialists and extension staff, and sponsorship of specific agricultural research investigations towards enhancing long-term agricultural diversification.

32. **Environmental Mitigation.** This component will comprise four sub-components:

33. *Finalization of the comprehensive mitigation plan.* Provision of short-term technical assistance in various disciplinary fields to confirm the detailed environmental mitigation measures to be incorporated into the overall final design of LUSIP; design a comprehensive mitigation plan that meets SEA statutory requirements; and work alongside the water delivery system engineering design team and the land-use planners, working with and through the communities in a participatory manner through representative committees, to establish the irrigation schemes.

34. *Resettlement.* Support for the ongoing iterative community process of finalizing the resettlement action plan, building upon the recently completed outline resettlement plan and the draft resettlement action plan; to facilitate interaction at successive levels of community organization through workshops, training and meetings involving committees and stakeholder representatives.

35. *Public health.* Health-care delivery and provision of water and sanitation facilities, with the water and sanitation facilities operated and maintained by the users, while the clinic will become self-financing by the end of the project, through user fees and a levy on water charges.

36. *Environmental conservation, monitoring and external review.* Establishment of a project environment fund, access to which is expected to encourage communities to take increasing interest in and responsibility for natural resources management in their locality; a full-time environmental monitoring officer will maintain oversight responsibility for all environmental aspects, while an independent environmental perspective on LUSIP will be maintained throughout the duration of implementation by an environment review panel. An ex-post environmental impact assessment will be undertaken in the eighth project year (PY).

D. Costs and Financing

37. The total project cost is estimated at USD 116.54 million over the eight-year period, with a base cost of USD 97.24 million and physical/price contingencies of USD 19.31 million. The foreign exchange component is estimated at USD 37.99 million (or 33% of total project costs). The project costs are summarized in Table 1. The largest component is for civil works.

38. The project will be financed by the Government of Swaziland and a number of cofinanciers, including IFAD, the African Development Bank (AfDB), the Arab Bank for the Economic Development of Africa (BADEA), the Development Bank of Southern Africa (DBSA) and the



European Commission (EC), as well as the beneficiaries – mainly irrigation farmers (Table 2). IFAD will contribute some USD 14.96 million (12.8% of project costs) to finance: (a) 100% of activities relating to the development of policy and legal framework; (b) 16.7% of the participatory planning and irrigated farm development; (c) 8.0% the development of irrigation management institutions; (d) 99.8% of agricultural commercialization and diversification; (e) 100% of the comprehensive mitigation plan; (f) 10.6% of the resettlement cost; (g) 74% of healthcare delivery and water/sanitation; (h) 40.9% of environmental conservation, monitoring and external review; and (i) 98.7% of the Agricultural Development and Environmental Management Unit (ADEMU).

Table 1: Summary of Project Costs

Component	(USD '000)			Percent Foreign	Percent Base
	Local	Foreign	Total	Exchange	Costs
A. Upstream works and distribution system					
Upstream works	31 796.3	18 361.3	50 157.6	37	52
Secondary and tertiary distribution system	5 181.0	2 991.8	8 172.8	37	9
Subtotal	36 977.3	21 353.1	58 330.4	37	61
B. Downstream develop. and agric. commercialization					
1. Development of policy and legal framework	93.0	207.0	300.0	69	-
2. Participatory planning and irrigated farm development	12 619.6	1 614.1	13 016.5	13	14
3. Development of irrigation management institutions	4 135.9	317.7	4 453.5	7	5
4. Agricultural commercialization	631.3	1 246.0	1 877.3	66	2
Subtotal	17 479.8	3 384.8	20 864.5	16	21
C. Environmental mitigation					
1. Comprehensive mitigation plan	43.6	200.8	244.3	82	-
2. Resettlement	4 448.7	567.3	5 016.0	11	5
3. Public health					
Health care delivery	1 177.6	268.1	1 445.7	19	1
Water supplies and sanitation	992.0	467.4	1 459.3	32	2
Subtotal public health	2 169.6	735.5	2 905.1	25	3
4. Environmental conservation, monitoring and external review	264.0	774.3	1 038.3	75	1
Subtotal	6 925.8	2 277.7	9 203.6	25	9
D. Project coordination and management					
Project management unit	1 306.8	2 624.5	3 931.3	67	4
ADEMU	1 221.1	3 688.6	4 909.7	75	5
Subtotal	2 527.9	6 313.1	8 840.9	71	9
Total Baseline Costs	63 910.8	33 328.7	97 239.5	34	100
Physical contingencies	4 434.5	1 900.5	6 335.0	30	7
Price contingencies	10 211.8	2 758.4	12 970.2	21	13
Total Project Costs	78 557.1	37 987.6	116 544.7	33	120

Table 2: Financing Plan by Components (USD '000)

Components	IFAD		ADB		BADEA		DBSA		EC		Others ⁵		Bene- ficiaries		Government (Budget)		Government (Taxes)		Total		Local (Excl. Taxes)		Duties and Taxes	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	For. Exch.	(Excl. Taxes)		
A. Upstream works and distribution system																								
Upstream works	-	-	13 443.4	22	8 304.5	13	6 480.7	11	5 701.3	9	19 636.9	32	-	-	-	-	8 446.9	14	62 013.8	53	21 402.8	32 164.1	8 446.9	
Secondary and tertiary distribution system	-	-	7 905.8	77	-	0	-	-	929.0	9	-	-	-	-	-	-	1 395.1	14	10 230.0	9	3 510.6	5 324.2	1 395.1	
Subtotal	-	-	21 349.3	30	8 304.5	12	6 480.7	9	6 630.3	9	19 636.9	27	-	-	-	-	9 842.0	14	72 243.8	62	24 913.4	37 488.3	9 842.0	
B. Downstream development and agricultural commercialization																								
1 Development of policy and legal framework	309.2	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	309.2	0	211.3	97.9	-	
2 Participatory planning and irrigated farm development	2 608.5	17	12 939.4	83	-	-	-	-	-	-	-	-	-	-	-	-	6.3	-	15 554.2	13	1 712.1	13 835.7	6.3	
3 Development of irrigation management institutions	449.0	8	928.0	17	-	-	-	-	-	-	-	4 198.6	75	-	-	15.3	0	5 591.0	5	354.8	5 220.9	15.3		
4 Agricultural commercialization	2 156.4	100	-	-	-	-	-	-	-	-	-	-	-	-	-	4.3	0	2 160.7	2	1 374.8	781.6	4.3		
Subtotal	5 523.1	23	13 867.4	59	-	-	-	-	-	-	-	4 198.6	18	-	-	25.9	0	23 615.0	20	3 653.1	19 936.1	25.9		
C. Environmental mitigation																								
1 Comprehensive mitigation plan	251.7	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	251.7	0	206.7	45.0	-		
2 resettlement	613.9	11	-	-	-	-	-	-	-	-	-	-	-	5 086.4	88	62.9	1	5 763.3	5	613.0	5 087.3	62.9		
3 Public health																								
Health care delivery	1 109.8	65	-	-	-	-	-	-	-	-	-	569.9	33	-	-	29.0	2	1 708.7	2	295.3	1 384.4	29.0		
Water supplies and sanitation	1 602.7	82	-	-	-	-	-	-	-	-	-	125.7	6	-	-	224.9	12	1 953.3	2	588.1	1 140.4	224.9		
Subtotal public health	2 712.5	74	-	-	-	-	-	-	-	-	-	695.6	19	-	-	253.9	7	3 662.0	3	883.3	2 524.7	253.9		
4 Environmental conservation monitoring and external review	475.0	41	-	-	-	-	684.3	59	-	-	-	-	-	-	-	-	-	1 159.3	1	833.0	326.2	-		
Subtotal	4 053.1	37	-	-	-	-	684.3	6	-	-	-	695.6	6	5 086.4	47	316.8	3	10 836.3	9	2 536.1	7 983.3	316.8		
D. Project coordination and management																								
Project management unit	-	-	-	-	-	-	-	-	4 368.8	99	-	-	-	-	13.3	0	20.6	1	4 402.6	4	2 853.3	1 528.7	20.6	
ADEMU	5 381.7	99	-	-	-	-	-	-	-	-	-	-	-	-	-	65.3	1	5 447.1	5	4 031.7	1 350.1	65.3		
Subtotal	5 381.7	55	-	-	-	-	-	-	4 368.8	44	-	-	-	-	13.3	0	85.9	1	9 849.6	9	6 885.0	2 878.8	85.9	
Total Disbursement	14 958.0	13	35 216.7	30	8 304.5	7	7 165.0	6	10 999.1	9	19 636.9	17	4 894.2	4	5 099.7	4	10 270.6	9	116 544.7	100	37 987.6	68 286.5	10 270.6	

⁵ In addition to Government's contribution towards compensation payments, social infrastructure, project management unit (PMU) and taxes, the Ministry of Finance has agreed to make up any shortfall in financing from the Government's own resources.



E. Procurement, Disbursement, Accounts and Audit

39. **Procurement.** Contracts for civil works, other than those to be financed by farmer groups, will be awarded on the basis of international competitive bidding (ICB). Procurement of other goods, materials and services will be as follows: (a) items or contracts valued at more than USD 150 000 will be procured through ICB procedures; (b) items costing more than USD 20 000 but less than USD 150 000 will be obtained through local competitive bidding procedures where, for contracts valued at more than USD 50 000 each, a certified or conformed copy of each such contract will be furnished to the nominated financing partner immediately after the conclusion of the contractual agreement and, in any case, before the submission of the first application for withdrawal of loan/grant proceeds for reimbursement of expenditure incurred on such a contract; and (c) items costing less than USD 20 000 will be obtained through local shopping procedures, which require quotations from three suppliers.

40. **Disbursement.** Annual disbursement requirements for IFAD financing are estimated at USD 2.0 million. To ensure timely allocation of funds, IFAD will make part of the proceeds of the loan available through a special account facility to be established at the Central Bank of Swaziland to pre-finance eligible expenditures. An initial deposit equal to approximately six months of eligible expenditures will be deposited in the special account. Withdrawals for payments less than USD 20 000 equivalent will be made against certified statements of expenditure and the relevant documentation retained for inspection during project supervision and the annual audit of accounts.

41. Funds for operating expenditures will be released periodically (quarterly or monthly) by the Government in accordance with existing procedures. Funds for all other items will be released on the basis of estimates submitted by SKPE and based on the annual workplan and budget. IFAD will accept withdrawal applications for reimbursement, direct payments and special commitments. Replenishment of the special account will be on the basis of evidence of eligible payments made from the account for goods and services required for the project and submitted to the financing partners. Supporting documents will be made available for review by supervision missions and external audits. SKPE will prepare the withdrawal applications for submission to IFAD through MOF. The Government will be expected to claim reimbursement of expenditure at reasonably frequent intervals during the fiscal year.

42. **Accounts and audits.** SKPE will maintain appropriate financial records and accounts in accordance with generally accepted accounting practices. The project management unit (PMU) will consolidate the financial information and prepare the project accounts. On the basis of these, MOF will submit six-monthly and annual financial statements and detailed statements of expenditure from the proceeds of the loans to IFAD within three months of the end of the reporting period. The project will contract a private-sector firm of chartered accountants to audit the accounts and to prepare a long-form audit and management letter to IFAD within six months of the financial year. The project management will respond to the management letter within one month of the date of the letter.

F. Organization and Management

43. LUSIP Phase I will be executed by SKPE, within whose head office a dedicated PMU will be established to be responsible for overall coordination, management and supervision of approved activities (Appendix IV, V, VI and VII). The PMU will be provided with a long-term internationally recruited technical assistance (TA) team, financed 99.2% by EC. An Infrastructure Engineering Management Unit (IEMU) and an ADEMU will be established under the PMU. The IEMU will be responsible for managing all activities relating to the development of upstream and water delivery infrastructure works. It will coordinate and support all project activities at the local/community level, and serve as the interface between the intended project beneficiaries, public and private service providers and the upstream works for the water delivery system. ADEMU will be supported by a TA team of long-term internationally/regionally recruited professionals.



44. In the initial years and as the land-use planning and allocation process proceeds, farmer groups will form and register as associations, cooperatives or companies (according to their own preferences) to take up the land allocated for irrigation schemes. A tiered system of stakeholders' planning committees will be established, corresponding approximately to (a) the individual scheme level; (b) the various parts of the distribution system; (c) the main canals; and (d) the entire irrigation system. Separate special interest committees will also be formed on issues such as resettlement, employment on construction work, livestock, range management and health. SKPE will be renamed and its board expanded to include stakeholder representation. Clusters of individual schemes will form WUAs to manage the secondary/tertiary system, enforce by-laws and resolve conflicts that might arise among WUAs. The project organization and implementation arrangements are further elaborated in Appendix X.

45. **Monitoring and evaluation.** Monitoring of progress in project implementation will be at both the upstream infrastructure and downstream scheme levels under the overall responsibility of the project manager at the PMU – who would define/refine the process and progress indicators, implementation milestones, data collection systems and reporting for approval by financing partners. The preparation of baseline/socio-economic surveys and the monitoring of land-use plans and their implementation will be the responsibility of the downstream development coordinator. ADEMU will establish an objectives-related and indicator-focused monitoring system that covers every downstream activity. Data collected will be analysed and fed into a geographical information system as a monitoring tool. The results of baseline socio-economic studies/surveys will be made available to the community group(s) concerned during both facilitation of the land-use planning process, and self-monitoring. Progress reports will include key qualitative and quantitative information, a review of incremental progress, a description and analytical account of achievements relative to targets and impact on beneficiaries; they will also highlight implementation problems and constraints. An extensive and intensive mid-term review will be conducted jointly by the Government and financing partners at the end of PY4, following which the draft report will be discussed at a stakeholders' workshop before it is finalized.

G. Economic Justification

46. **Benefits.** LUSIP will transform a net 6 500 ha of land from its present semi-subsistence level farming into use for diversified commercial cash cropping. Approximately 2 600 farm households (or 15 300 people) will obtain direct net profits of up to USD 3 500 per year from commercial farming (assuming an average shareholding of 2.5 ha of sugar cane per household). The same households will also benefit from the provision of an incremental 400 000 person-days per year of wage labour on the irrigation schemes and 50 000 person-days per year of labour at the sugar mill. Furthermore, the Phase I construction works will extend over a period of six years, during which more than 175 000 person days per year of work will be required. Subsequent operation and maintenance of the irrigation water delivery system will require a further 36 000 person-days per year. A large proportion of the new opportunities for engaging in wage labour and profit-sharing will be available to women.

47. **Household food security, nutrition and gender.** Existing sugar cane irrigation schemes indicate an increase in women's participation and autonomy; they also indicate substantial increases in household income, as well as increased opportunities for reliable food cropping. LUSIP Phase I will, therefore, enable participants to enhance the reliability of the supply and range of foods consumed in the household, leading to a more balanced diet and a general improvement in nutritional status. The establishment of formal local institutional structures such as farmer associations, WUAs, and their apex body will also facilitate women's participation and result in women shareholders' benefiting from many of the schemes' new opportunities.

48. **Financial analysis.** Projections of net farm incomes at full development indicate an average net income of between USD 2 655 and 3 158 per household, depending on the type of irrigation system. This level of income is net of payments for machinery hire and wage labour. Farmers will take credit to finance on-farm works and crop establishment, to be repaid over the five-year period following the



investment. Assuming interest on loans is charged at the commercial rate of 17% per annum, after financing a scheme based on sprinkler irrigation will break even with the first crop; but with the second crop (in PY3), the enterprise will produce a surplus of USD 680 per household. Although this represents only a 19% increase over without-project incomes, shareholding households will also have the opportunity to provide wage labour on scheme construction work, and up to 150 days per year of wage labour on the scheme. By PY7 when the loan is fully repaid, shareholding households will derive net farm incomes of USD 2 880; this is more than five times greater than without-project incomes – and takes no account of income from wage labour on the scheme. The credit analysis for other irrigation scheme types indicates significantly better results than this: after financing, a surface irrigation will produce a surplus of USD 700 per household with the first crop; by PY7, households having a 2.5 ha share in a surface irrigation scheme will derive net farm incomes of USD 3 357 – i.e. nearly six times greater than without-project incomes.

49. **Economic analysis.** The economic internal rate of return (EIRR), computed at 8.0%, is relatively robust. It is not, however, the sole criterion for an investment decision: the potential social benefits to be derived from poverty alleviation will have a major positive impact on not only the project area, but also throughout the country. Moreover, apart from these direct income and employment benefits, the investment will induce significant multiplier effects. Higher incomes from the production of non-traditional crops will benefit a much larger number of households than the direct producers/processors. As more small-scale farmers commercialize, they will create demand for small farming implements, hired labour, trading services, transportation, local consumer goods – all of which will stimulate local labour demands. Both the initial and subsequent rounds of growth through demand linkages will be labour-intensive and accessible to the poorer households. The potential impact will be such that for each dollar of agricultural growth generated in the project area labour, the total impact on the rural economy could be doubled as local demand for goods and employment are generated in second-round effects. If these second round benefits were quantified and added to the benefit stream, the EIRR could increase to nearly 15%⁶.

H. Risks

50. **International water.** The Government has obtained memoranda of understanding from the Governments of Mozambique and South Africa confirming their ‘no objection’ to Swaziland’s proposals in respect of the use of Usuthu Water for LUSIP, which will serve as a temporary measure until an interim water agreement can be reached. All three countries have been cooperating on shared water since 1983 and recognize the *SADC Protocol on Shared Watercourse Systems*. The Government accepts that the interim water agreement will need to be in place as a condition of loan effectiveness/disbursement for the upstream civil works.

51. **Resettlement.** There is a risk that the traditional authorities might decline to implement the Resettlement Action Plan. However, as an additional condition for further processing of LUSIP Phase I, the Government is expected shortly to publish a statement on its poverty alleviation strategy for LUSIP and the surrounding areas in which the draft Resettlement Action Plan would be amplified. Government has also further accepted that implementation of the Resettlement Action Plan will be a condition of loan effectiveness/disbursement for the upstream civil works. *IFAD’s assistance will be geared to supporting the process of finalization of the plan and its subsequent implementation.*

52. **Legal framework for irrigation.** Although farmers’ organizations do not appear to be constrained so far by the inadequacies of legal framework for land, water and farmers’ organizations, some adjustment is necessary. A legal framework that is more supportive of commercialization of SNL agriculture is required to enhance the potential value of the project and its prospects for

⁶ Delgado, C. L., P. Hazell, J. Hopkins and V. Kelly (1994). Promoting Intersectoral Linkages in Rural Africa Through Agricultural Technology and Policy Reform. *American Journal of Agricultural Economics*, Vol. 76, N. 5, December: in which multipliers for smallholder agricultural growth in Burkina Faso, Zambia, Senegal and Niger were estimated at 2.88, 2.4, 1.97 and 1.96, respectively.



sustainability. The Government has accepted that an appropriate legal framework for the establishment of a catchment authority, irrigation district and WUAs will need to be in place as a condition of loan effectiveness/disbursement for the upstream civil works. *IFAD's assistance will be geared to supporting the process of adjustment.*

53. **Safeguards.** IFAD's participation in the project is primarily designed to support the ongoing process through which, *inter alia*, stakeholders develop an adequate framework of legislation, institutions and capacity to provide a secure basis for the effective and profitable participation of the rural poor. This community consultation process, started in September/October 2000 (with the support of the Fund and other donors), will continue through the life of the project. To ensure that agreed targets are adhered to, IFAD will include important conditions and assurances in the loan agreement.

I. Environmental Impact

54. The environmental impact assessment carried out in 2000 as part of the project design classified LUSIP as a category "A" development intervention with significant environmental implications. The areas of primary environmental interest relate to the potential impact of the project on the physical resources (degradation of soil and natural vegetation), particularly in the project area and generally in the Lower Usuthu basin. In addition, there are pollution and public health hazards. The provisions incorporated in the project design to support the development and implementation of a comprehensive mitigation plan, as well as environmental monitoring and management are in accordance with the guidelines specified in 1992 Swaziland Environmental Authority Act and its associated regulations.

J. Innovative Features

55. The project will provide an exceptional opportunity to address poverty on a large scale by taking advantage of existing market linkages – for technical support, input supply, credit, agro-processing and marketing. It will also address the issue of access to land and water resources. Participatory processes will establish well-functioning irrigation schemes and a farmer-managed, self-financing irrigation water delivery system. The project will also establish an improved and sustainable user-financed health system, which could have a significant impact on what is probably the main threat to health and prosperity in the project area – HIV/AIDS.

PART III - LEGAL INSTRUMENTS AND AUTHORITY

56. A loan agreement between the Kingdom of Swaziland 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.

57. The Kingdom of Swaziland is empowered under its laws to borrow from IFAD.

58. I am satisfied that the proposed loan will comply with the Agreement Establishing IFAD.

PART IV - RECOMMENDATION

59. 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 Kingdom of Swaziland in various currencies in an amount equivalent to eleven million nine hundred thousand Special Drawing Rights (SDR 11 900 000) to mature on and prior to 1 December 2021 and to bear an interest rate of one half of the reference interest rate per annum as determined by the Fund annually, 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.

Lennart Båge
President



ANNEX

SUMMARY OF IMPORTANT SUPPLEMENTARY ASSURANCES INCLUDED IN THE NEGOTIATED LOAN AGREEMENT

(Loan negotiations concluded on 30 August 2001)

1. The Government of the Kingdom of Swaziland (the Government) will ensure that the SKPE (the lead project agency) opens and thereafter maintains, in a reputable commercial bank in Swaziland, acceptable to IFAD, a current account denominated in SZL for project operations (the project account). The chief executive officer and the finance director of the lead project agency will be designated as authorized signatories of the project account and both authorized signatories will be required to sign for any transaction relating to the project account.

2. The Government will ensure ADEMU and IEMU open and thereafter maintain in a reputable commercial bank in Swaziland, acceptable to IFAD, a current account denominated in SZL for project operations at the respective upstream and downstream levels of the project. The manager of ADEMU will be fully authorized to operate the ADEMU account and the management engineer of IEMU will be fully authorized to operate the IEMU account.

3. The Government will take necessary action to ensure that its counterpart funds for the project are accurately reflected in its annual public investment budget. Such counterpart funds will, in accordance with the AWP/B for each fiscal year, be applied to the payment of foregone taxes, resettlement compensation payments and payments related to social infrastructure. In addition, the Government will ensure that any shortfalls in financing of the project will be financed from its own resources. The Government will further ensure that its counterpart funds are made available to the lead project agency annually throughout the project implementation period, in accordance with the AWP/Bs.

4. The Government will ensure that ADEMU and IEMU will, no later than the end of the first quarter of the second project year, establish an objectives-related and indicator-focused information management system for the upstream and the downstream level of the project, respectively. The director of the PMU will have direct responsibility for overall monitoring of the project and will, in agreement with IFAD, define the process and progress indicators, implementation milestones, data collection systems and report design. ADEMU will be responsible for establishing an information management system for the downstream development and agricultural commercialization component and the environmental mitigation component of the project, based on key performance indicators, which will be agreed by the Government and IFAD during the first project year. During the first project year, ADEMU will carry out at least the following monitoring activities:

- designing an appropriate baseline sample survey methodology for use within economic interest groups;
- establishing methods for monitoring data collection at the irrigation scheme or planning unit level;
- testing data-entering procedures for the geographical information system database; and
- establishing methods for validation and analysis of the data.

5. Within 90 days of the date of effectiveness of the loan agreement, the Government will select independent auditors for the project, in accordance with procedures and criteria agreed by the Government and IFAD, to audit the accounts relating to the project. Such selection will be subject to



prior review and approval by IFAD. The Government will ensure that the annual audit report for the project will be a long-form audit report based on financial statements which have been prepared in accordance with international accounting standards and which adequately reflect the progress and operations of the project.

6. The Government will, during the first project year, pursue negotiations with the Republic of South Africa and the Republic of Mozambique with respect to an Interim Water Agreement concerning the use of water from the Usuthu River. The Government will ensure that such agreement will comply with the terms of the 2000 Southern African Development Community *Revised Protocol on Shared Watercourses*. The signature of the Interim Water Agreement by the three parties will be a precondition for the release of funds from cofinanciers financing civil works under the upstream works and distribution system component of the project.

7. The Government will ensure that during the course of project implementation, the project complies with the conditions set forth in any environmental compliance certificate issued by the Swaziland Environmental Authority in respect of the project, in terms of environmental compliance.

8. The Government will ensure that by the end of the first project year it will have established an independent and operational Environmental Review Panel, in accordance with the composition and responsibilities described in the loan agreement.

9. The Government will ensure that it pursues and sustains the community consultative process on land tenure and resettlement throughout the project implementation period, with a view to reaching an equitable conclusion satisfactory to the project beneficiaries and IFAD and, if appropriate, enacting relevant legislation.

10. The Government will submit to IFAD annual reports on the implementation of the resettlement plan, which will provide the status of scheduled activities undertaken and details of the households resettled and the compensation paid, including the following information: (i) number of resettlers; (ii) allocation of land per household for irrigation scheme development – which will not exceed an average area of 2.5 ha and a maximum of 3.5 ha per household; (iii) host areas identified for resettlement; (iv) mechanisms and indicators for monitoring and evaluating the resettlement process; and (v) the timetable for implementing the remaining work.

11. The Government will ensure that within the first six months of the first project year, it will have restructured the board of the lead project agency to extend the representation from the private sector and to include representatives from the project beneficiaries, satisfactory to IFAD.

12. The Government will ensure that by the end of the second project year, an appropriate legal framework will be in place to empower the Lubovane block planning structure, as will be described in the project implementation manual.

13. The Government will ensure that by the end of the second project year, an appropriate legal framework will be in place for the establishment of the Lower Usuthu River Basin Catchment Authority, the Lubovane Irrigation District and WUAs.

14. The Government will ensure that by the end of the second project year, it will have adopted regulations on the scope and calculation of water charges applicable to the project water users.

15. The Government will ensure that by the end of the fourth project year, the Lubovane Irrigation District will have contracted a suitable private water service provider to operate and maintain the entire water delivery system established under the project on a commercial and self-financing basis at the sole expense of the water users.



16. The Government will, by the end of the third project year, have concluded: (i) a subsidiary loan agreement with the Enterprise Trust Fund, or any other institution satisfactory to IFAD, for on-lending of credit funds under the participatory planning and irrigated farm development sub-component of the project; and (ii) a memorandum of understanding with the Enterprise Trust Fund and the Ubombo Sugar Company, or any other institutions/entities satisfactory to IFAD, stipulating the duties and obligations of each of the institutions in the provision and administration of credit. The terms and conditions of the subsidiary loan agreement and the memorandum of understanding will be subject to approval by IFAD.

17. The Government will ensure, through the recruitment of project staff, that women are represented in the organization and management of the project. The Government will also ensure that women beneficiaries are represented in all project activities and that they receive appropriate benefit from the project outputs.

18. (a) The following are specified as conditions for disbursement of funds from the loan:

- (i) the financing agreements of the other cofinanciers of the project, in addition to IFAD, have been duly signed and entered into effect;
- (ii) the Government has duly opened the special account;
- (iii) the lead project agency has duly opened the project account, the ADEMU has duly opened the ADEMU account and the IEMU has duly opened the IEMU account;
- (iv) the first AWP/B for the project has been prepared, submitted by the lead project agency and approved by IFAD in draft; and
- (v) the auditor of the project has been duly appointed.

(b) The following is specified as a condition for disbursement of funds from the investment matching financing loan category: the modalities and procedures for the investment matching financing have been established by the lead project agency and approved by IFAD.

19. The following are specified as conditions precedent to the effectiveness of the loan agreement:

- (a) the PMU has been duly established;
- (b) a director for the PMU has been duly appointed by the lead project agency and approved by IFAD;
- (c) the Government has made available a copy of a valid Environmental Compliance Certification for the project to IFAD;
- (d) the Government has developed a policy framework for poverty alleviation in the project area and immediate surroundings, together with a strategy for its integration with ongoing development programmes in the Lubombo Region;
- (e) the Government has completed a draft resettlement plan, approved by IFAD;
- (f) the Government has made a budgetary allocation for its counterpart funds covering the first project year;

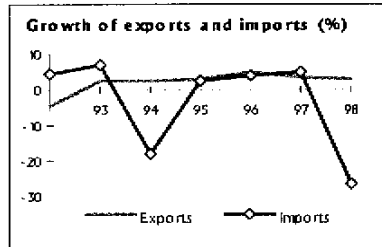
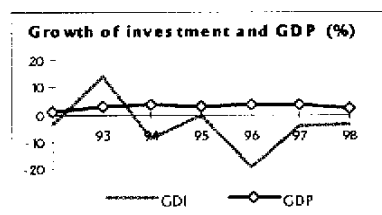
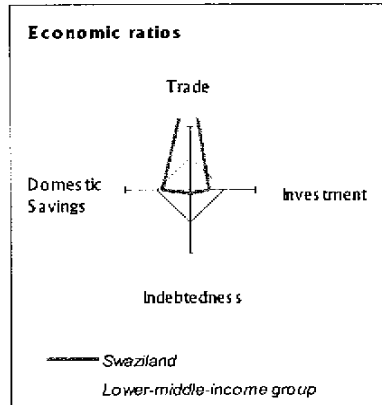
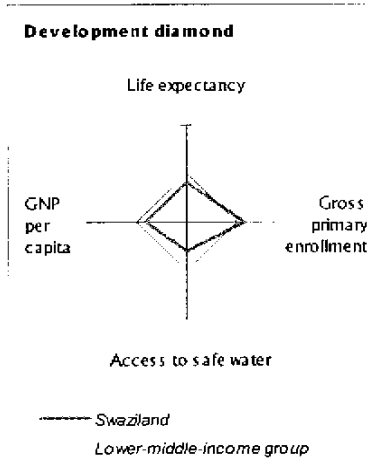


- (g) the loan agreement has been duly signed, and the signature and performance thereof by the Government have been duly authorized and ratified by all necessary administrative and governmental action; and
- (h) a favourable legal opinion, issued by the attorney general, in form and substance acceptable to IFAD, has been delivered by the Government to IFAD.

APPENDIX I

SWAZILAND AT A GLANCE

	Swaziland	Sub-Saharan Africa	Lower-middle-income	
POVERTY and SOCIAL				
1998				
Population, mid-year (millions)	0.99	627	686	
GNP per capita (Atlas method, US\$)	1,400	510	1,740	
GNP (Atlas method, US\$ billions)	1.4	323	1,541	
Average annual growth, 1992-98				
Population (%)	3.1	2.6	1.1	
Labor force (%)	3.6	2.6	1.5	
Most recent estimate (latest year available, 1992-98)				
Poverty (% of population below national poverty line)	..	..	..
Urban population (% of total population)	26	33	58	
Life expectancy at birth (years)	56	50	68	
Infant mortality (per 1,000 live births)	69	92	35	
Child malnutrition (% of children under 5)	..	33	14	
Access to safe water (% of population)	43	43	71	
Illiteracy (% of population age 15+)	22	40	14	
Gross primary enrollment (% of school-age population)	117	78	102	
Male	120	85	105	
Female	114	71	99	
KEY ECONOMIC RATIOS and LONG-TERM TRENDS				
	1978	1988	1997	1998
GDP (US\$ billions)	0.34	0.70	1.31	1.22
Gross domestic investment/GDP	48.1	23.6	33.9	12.3
Exports of goods and services/GDP	63.2	75.2	81.8	101.5
Gross domestic savings/GDP	24.3	29.0	19.5	19.2
Gross national savings/GDP	30.7	43.7	38.1	38.8
Current account balance/GDP	-20.8	13.7	-3.6	-0.6
Interest payments/GDP	0.6	1.9	0.6	0.6
Total debt/GDP	39.4	37.9	28.0	20.5
Total debt service/exports	1.6	6.0	2.7	2.1
Present value of debt/GNP	..	..	..	14.7
Present value of debt/exports	..	..	..	18.1
	1978-88	1988-98	1997	1998
<i>(average annual growth)</i>				
GDP	5.7	3.6	3.7	2.0
GNP per capita	2.8	1.0	1.5	-1.3
Exports of goods and services	8.5	1.8	3.3	3.0
STRUCTURE of the ECONOMY				
	1978	1988	1997	1998
<i>(% of GDP)</i>				
Agriculture	29.9	16.1	18.7	16.0
Industry	25.0	41.1	41.6	38.7
Manufacturing	..	34.3	34.2	31.8
Services	45.1	42.8	39.6	45.3
Private consumption	51.9	54.3	53.4	60.8
General government consumption	23.8	16.7	27.1	20.0
Imports of goods and services	87.0	69.7	96.3	94.6
	1978-88	1988-98	1997	1998
<i>(average annual growth)</i>				
Agriculture	1.3	-0.6	-6.0	2.3
Industry	6.8	4.9	6.2	2.8
Manufacturing	9.1	4.5	5.5	3.0
Services	5.7	4.0	3.1	6.4
Private consumption	..	..	..	..
General government consumption	..	..	..	..
Gross domestic investment	2.3	0.5	-4.1	-3.4
Imports of goods and services	3.8	-0.3	4.8	-26.3
Gross national product	6.1	4.2	4.8	1.8



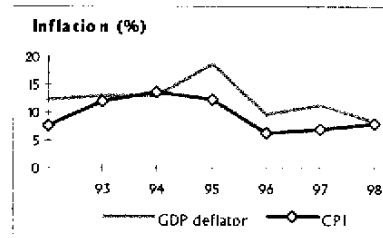
2000 World Development Indicators CD-ROM, World Bank

Note: Figures in italics are for years other than those specified. The diamond charts show four key indicators in the country (in bold) compared with its income-group average. If data are missing, the diamond will be incomplete.

APPENDIX I

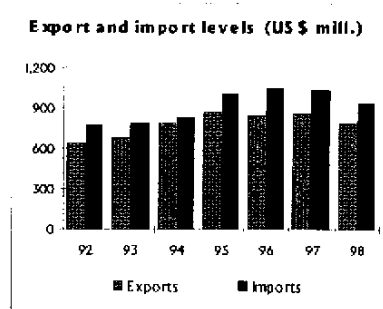
PRICES and GOVERNMENT FINANCE

	1978	1988	1997	1998
Domestic prices				
<i>(% change)</i>				
Consumer prices	8.5	21.7	7.1	8.1
Implicit GDP deflator	10.5	24.1	11.2	8.5
Government finance				
<i>(% of GDP)</i>				
Current revenue	33.4	26.9	..	..
Current budget balance	14.6	8.5	..	..
Overall surplus/deficit	-13.5	3.8	..	..



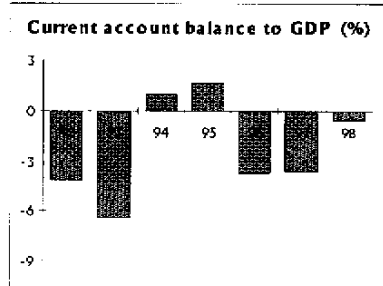
TRADE

	1978	1988	1997	1998
<i>(US\$ millions)</i>				
Total exports (fob)	..	467	864	790
Food
Agricultural raw materials
Fuels
Ores and metals
Manufactures
Total imports (cif)	..	449	1,041	941
Food
Agricultural raw materials
Fuels
Ores and metals
Manufactures



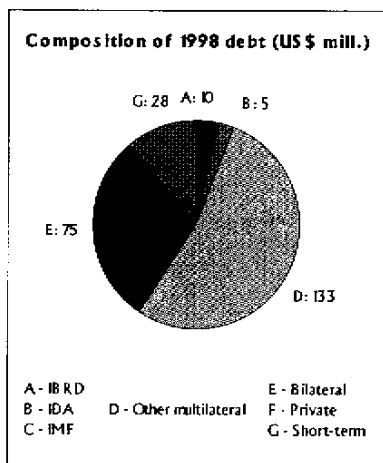
BALANCE of PAYMENTS

	1978	1988	1997	1998
<i>(US\$ millions)</i>				
Exports of goods and services	219	532	991	907
Imports of goods and services	311	555	1,286	1,132
Resource balance	-93	-23	-295	-225
Net income	-4	44	137	101
Net current transfers	26	75	110	117
Current account balance	-71	95	-48	-7
Financing items (net)	87	-83	73	58
Changes in net reserves	-16	-12	-25	-50
Memo:				
Reserves including gold (US\$ millions)	114	140	295	359
Conversion rate (DEC. local/US\$)	0.9	2.3	4.6	5.5



EXTERNAL DEBT and RESOURCE FLOWS

	1978	1988	1997	1998
<i>(US\$ millions)</i>				
Total debt outstanding and disbursed	134	264	368	251
IBRD	14	59	10	10
IDA	7	7	5	5
Total debt service	4	39	32	23
IBRD	2	10	6	3
IDA	0	0	0	0
Composition of net resource flows				
Official grants	9	8	17	16
Official creditors	31	-6	8	3
Private creditors	27	-2	0	0
Foreign direct investment	22	54	75	80
Portfolio equity	0	0	0	0
World Bank program				
Commitments	11	0	0	0
Disbursements	7	1	1	3
Principal repayments	1	5	5	3
Net flows	6	-4	-4	0
Interest payments	1	5	1	1
Net transfers	5	-9	-5	-1



2000 World Development Indicators CD-ROM, World Bank

Note: Trade components may not sum to total due to rounding and unclassified trade.



COUNTRY PORTFOLIO SUMMARY

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)
Smallholder Credit and Marketing Project	IFAD	AfDB	I	21 Apr 83	14 May 85	31 Jul 93	L - I - 121 - SZ	SDR	5 700 000	96.8%
Smallholder Agricultural Development Project	IFAD	AfDB	I	06 Apr 93	29 Apr 94	31 Mar 02	L - I - 323 - SZ	SDR	5 100 000	52.8%
Lower Usuthu Smallholder Irrigation Project	To be determined	To be determined	I				G - I - 46 - SZ	USD	100 000	

Logical Framework

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Assumptions
Goal			
Standard of living of the population in the Lower Usuthu basin area of Swaziland improved through an environmentally and culturally sustainable process.	<ul style="list-style-type: none"> ◆ Reduction in the percentage of the absolute poor living in the Lowveld area (from 40%) ◆ Reduction in rate of illiteracy (from 17%) ◆ Reversal in the rate of outmigration ◆ Reduction in the prevalence of chronic malnutrition among children under five. 	<ul style="list-style-type: none"> • Baseline studies • Case studies • Household surveys • Census reports • Population survey (sampling) 	
Objective			
Smallholder farmers (approximately 2 600 households residing within the boundaries of the five chiefdoms involved in LUSIP Phase I) directly integrated into the commercial economy through the establishment of farmer-managed and self-financing irrigation schemes.	<ul style="list-style-type: none"> ◆ Change in production system (from extensive rainfed to intensive irrigated), hectares under cultivation by commodity ◆ On and off-farm paid employment (days or equivalent) ◆ Increased diversity and nutritional content in household diet ◆ % of Operation and Maintenance met by WUAs annually 	<ul style="list-style-type: none"> • Quarterly and annual project reports • Quarterly and annual ADEMU reports • Satellite imagery and geographical information system • Farm surveys and annual farmer association/WUA accounts • Participatory diagnostic studies • Food frequency surveys (24-hour dietary recall) 	<p>World price of sugar remains stable, and Swaziland maintains current sugar quotas.</p> <p>There are no changes in macroeconomic context.</p> <p>Increased incomes at household level are used to reduce the effects of poverty.</p> <p>Interim Water Agreement is signed.</p>

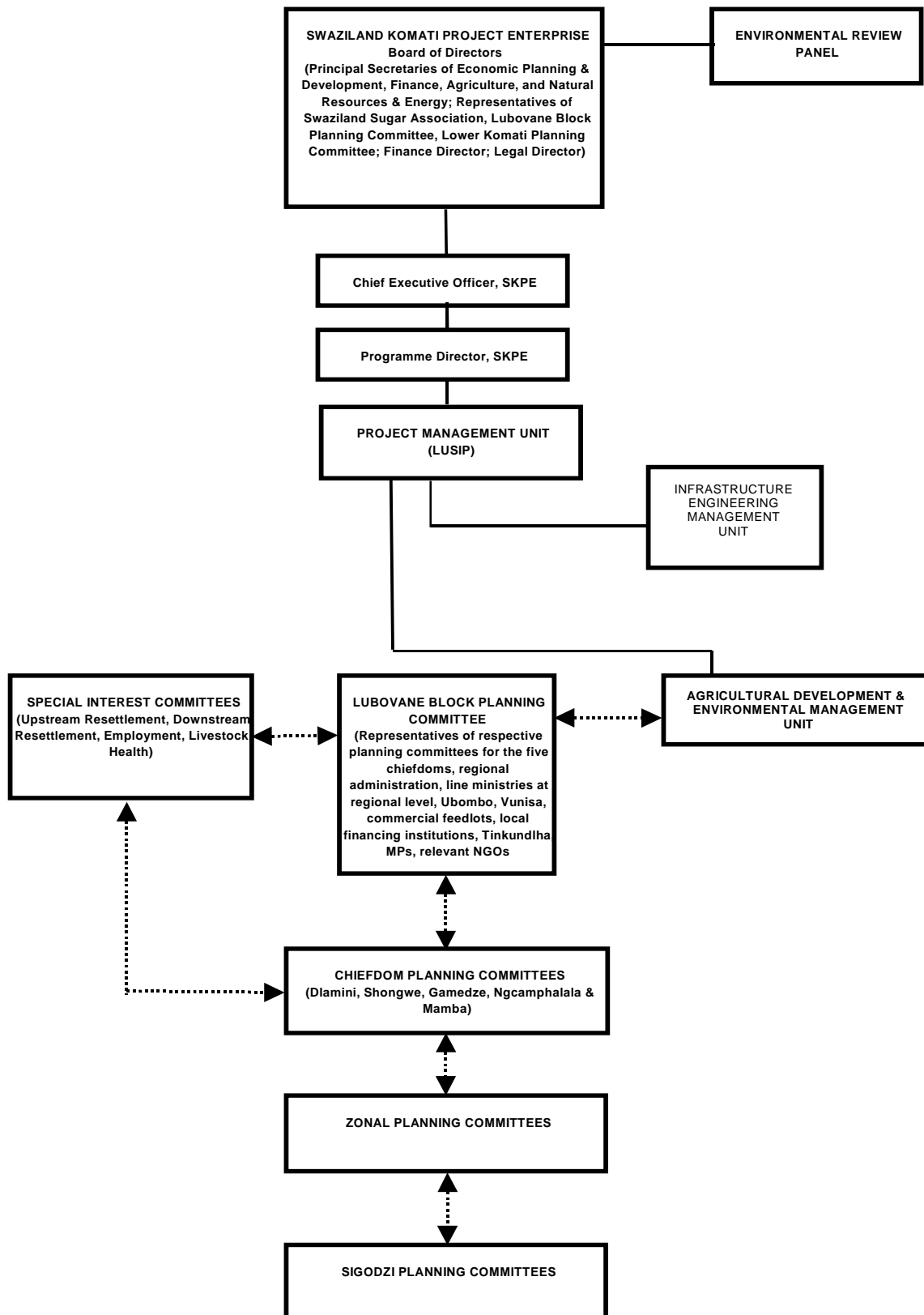
Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Assumptions
<p>Outputs</p> <p>1. Adequate and environmentally sustainable supply of irrigation water assured for some 6 500 ha of high-value commercial crop production.</p> <p>2. About 130 new farmer-owned and -managed irrigation schemes (50 ha each), growing high-value commercial crops, established by PY8.</p> <p>3. Legal framework put in place for WUAs, economic interest groups and irrigation district and catchment authorities by PY3.</p> <p>4. Policy for participatory and equitable resettlement process, including environmental mitigation and compensation payments, operational by PY3.</p> <p>5. Fully equipped and staffed health clinic self-financing by PY8.</p> <p>6. Provision of improved household water supply and sanitation by PY8.</p> <p>7. Strategies for community-based natural resource management put in place by PY4.</p> <p>8. Process for effective project management established, with particular emphasis on participatory planning process and environmental issues.</p>	<p>1.1. Amount, proportion of requirement, and timeliness of water delivery to plots</p> <p>1.2. Water delivery data and system performance</p> <p>2.1. Payment of water delivery charges</p> <p>2.2. Cropping patterns, intensity and yields per ha</p> <p>3.1. About 130 WUAs operational by PY8.</p> <p>3.2. No. of irrigation and catchment authorities operational with WUA representatives</p> <p>3.3. No. of economic interest groups operational</p> <p>4.1. No. of civil/traditional actions alleging unfair compensation</p> <p>4.2. Environmental mitigation measures adopted</p> <p>5.1. Water-borne illnesses reported and treated</p> <p>5.2. % of clinic expenses met by clients.</p> <p>6.1. Prevalence of hygiene-related illnesses reduced</p> <p>7.1. No. of new hectares planted to local grasses/vegetation</p> <p>7.2. Intensification of livestock activities</p> <p>7.3. Reduction in degraded land</p> <p>8.1. Water quality and downstream flows sustained</p> <p>8.2. Acceptable disbursement rate and progress reporting</p> <p>8.3. Completion of activities as compared to APW&B</p>	<ul style="list-style-type: none"> • Quarterly and annual project reports • Water service provider and WUA records and reports • Participatory diagnostic studies • MOAC records (extension service) • Case studies; ADEMU reports • Trade and ADEMU reports • ADEMU and Auditor's reports • Quarterly and annual project reports • Legal/court records • Chiefdom reports and interviews • Health clinic records and reports • Cattle census and production data 	<p>Average annual rainfall remains constant.</p>
<p>Activities</p>			
<p>1.1. Upstream civil works including diversion weir, feeder canals, dams and traps completed by PY5; designs of which contain measures to mitigate against water-related diseases and environmental hazards.</p>	<p>1.1.1. Construction contracts awarded to qualified firms by PY2.</p> <p>1.1.2. Detailed designs that incorporate health and environmental concerns completed by PY2.</p> <p>1.1.3. Physical progress of civil works by type</p>	<ul style="list-style-type: none"> • Quarterly and annual project reports. • MOAC reports 	<p>ICB regulations are followed.</p> <p>No unforeseen geographic features are discovered.</p> <p>Private-sector organization is ointed as water service provider.</p>
<p>2.1. Secondary and tertiary distribution system, including earth works, structures, pipelines, road works, fencing, etc., completed by PY6 with the participation of the beneficiaries in the design and construction of schemes; designs of which contain measures to mitigate against water-related diseases and environmental hazards.</p> <p>2.2. Training in business planning, agricultural diversification and commercial management provided to government staff and scheme shareholders.</p> <p>2.3. Credit for on-farm works made available beginning in PY4.</p> <p>2.4. Matching grant funds available for establishment of small and medium-scale enterprises in support of</p>	<p>2.1.1. Construction contracts awarded to qualified firms by PY3.</p> <p>2.1.2. Detailed designs that incorporate health and environmental concerns completed by PY2.</p> <p>2.1.3. Land-use planning surveys undertaken by future scheme shareholders with external assistance</p> <p>2.1.4. No. of schemes completed annually beginning in PY3.</p> <p>2.2.1. No. of WUA members attending courses, from PY3.</p> <p>2.2.2. No. of extension staff (crops and livestock) attending courses</p> <p>2.3.1. Loans made to schemes (number and amount, by type of scheme)</p> <p>2.3.2. Repayments of loans by shareholders</p> <p>2.4.1. No. of grants made, disaggregated by purpose</p>	<ul style="list-style-type: none"> • Quarterly and annual project reports. • MOAC reports • Beneficiary interviews/focus groups 	<p>ICB regulations are followed.</p> <p>No unforeseen geographic features are discovered.</p> <p>Use of fragile soils is possible under good management practices.</p> <p>Future shareholders recognize the advantage of irrigated agriculture over other income-generating opportunities and land-use systems.</p>

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Assumptions																																								
commercial agricultural production.																																											
3.1. WUAs and other economic interest groups established. 3.2. Irrigation and catchment authorities established with representatives of user groups. 3.3. Policy and legal reforms completed in the area of land and water use.	3.1.1. No. of WUAs established annually 3.1.2. No. of economic interest groups established annually 3.2.1. No. of authorities established annually, membership disaggregated by gender and interest group 3.3.1. Legal acts and regulations drafted approved by PY2	<ul style="list-style-type: none"> Government policy statements, legislation/regulations Quarterly and annual project reports Beneficiary interviews/focus groups Project steering committee meeting reports 	Government is committed to land, water and farmers' organization reform.																																								
4.1. Comprehensive Environmental Mitigation Plan (CMP) completed by PY1. 4.2. Resettlement Action Plan operational with effective participation of the community. 4.3. Equitable compensation payments (in cash or kind) made to individuals and communities.	4.1.1. CMP completed and adopted. 4.2.1. CMP completed and adopted. 4.2.2. No. of <i>Sigodzi</i> (zonal and chiefdom planning committees) established and consulted. 4.2.3. No. of households resettled, by gender of head of household 4.3.1. % of eligible households receiving compensation, by gender of household.	<ul style="list-style-type: none"> Government records; legislation Committee meeting records Project steering committee meeting reports Quarterly and annual project reports Beneficiary interviews/focus groups 	Traditional authorities are willing to allocate land for cross-boundary resettlement. Draft Resettlement Action Plan is ready by end-June 2001.																																								
5.1. Health clinic built and fully operational by PY2. 5.2. Disease-monitoring and reporting system established by PY2.	5.1.1. No. of patients treated annually, by age and gender. 5.1.2. No. and type of health information campaigns completed. 5.1.3. Staffing levels by PY8. 5.2.1. Prevalence of endemic disease among the population, disaggregated by gender and age.	<ul style="list-style-type: none"> Clinic records Beneficiary interviews/focus groups Population-based health survey 	Medical clients are willing and able to pay for treatment.																																								
6.1. Boreholes and hand pumps installed (15 by PY8) 6.2. Latrines, sand pits and washing areas provided.	6.1.1. No. per year beginning in PY4. 6.2.1. No. per year beginning in PY3.	<ul style="list-style-type: none"> Quarterly and annual project reports Beneficiary interviews/focus groups 																																									
7.1. Community-based natural resource management plans defined. 7.2. Matching grant facility for community-based natural resource management established.	7.1.1. No. of plans elaborated annually. 7.2.1. No. and types of grants applied for and made.	<ul style="list-style-type: none"> Quarterly and annual project reports Beneficiary interviews/focus groups 	Livestock production and range management commercialized																																								
8.1. Project staff employ participatory methods in the elaboration of APW&B and for M&E. 8.2. Independent environmental monitoring system established.	8.1.1. No. of workshops/meetings held annually with beneficiaries or their representatives. 8.1.2. M&E system established in PY1. 8.2.1. Water and air quality	<ul style="list-style-type: none"> Quarterly and annual project reports Beneficiary interviews/focus groups 																																									
Inputs	Financier																																										
<table border="0"> <tr> <td>Expenditure Account</td> <td style="text-align: right;">USD '000</td> </tr> <tr> <td>Civil and earth works</td> <td style="text-align: right;">67 672</td> </tr> <tr> <td>Vehicles, equipment and goods</td> <td style="text-align: right;">990</td> </tr> <tr> <td>Technical assistance</td> <td style="text-align: right;">17 933</td> </tr> <tr> <td>Training, studies and workshops</td> <td style="text-align: right;">3 250</td> </tr> <tr> <td>Credit and matching grants</td> <td style="text-align: right;">13 129</td> </tr> <tr> <td>Contracted staff</td> <td></td> </tr> <tr> <td>Resettlement compensation</td> <td style="text-align: right;">4 728</td> </tr> <tr> <td>Other operating costs</td> <td style="text-align: right;">7 219</td> </tr> <tr> <td>Total</td> <td></td> </tr> </table>	Expenditure Account	USD '000	Civil and earth works	67 672	Vehicles, equipment and goods	990	Technical assistance	17 933	Training, studies and workshops	3 250	Credit and matching grants	13 129	Contracted staff		Resettlement compensation	4 728	Other operating costs	7 219	Total		<table border="0"> <tr> <td></td> <td style="text-align: right;">USD '000</td> </tr> <tr> <td>IFAD</td> <td style="text-align: right;">14 958</td> </tr> <tr> <td>African Development Bank</td> <td style="text-align: right;">35 217</td> </tr> <tr> <td>BADEA</td> <td style="text-align: right;">8 304</td> </tr> <tr> <td>Development Bank of South Africa</td> <td style="text-align: right;">7 165</td> </tr> <tr> <td>European Commission</td> <td style="text-align: right;">10 999</td> </tr> <tr> <td>EIB/Others</td> <td style="text-align: right;">19 637</td> </tr> <tr> <td>Beneficiaries</td> <td style="text-align: right;">4 894</td> </tr> <tr> <td>Government</td> <td style="text-align: right;">15 370</td> </tr> <tr> <td>Total</td> <td style="text-align: right;">116 545</td> </tr> </table>		USD '000	IFAD	14 958	African Development Bank	35 217	BADEA	8 304	Development Bank of South Africa	7 165	European Commission	10 999	EIB/Others	19 637	Beneficiaries	4 894	Government	15 370	Total	116 545	<ul style="list-style-type: none"> Loan Agreement Subsidiary Agreements Appraisal Report 	IFAD Executive Board approves project Co-financing made available Government financing made available Subsidiary/implementing agreements approved and executed
Expenditure Account	USD '000																																										
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APPENDIX IV

PROJECT ORGANIZATION DURING PLANNING AND DEVELOPMENT PERIOD

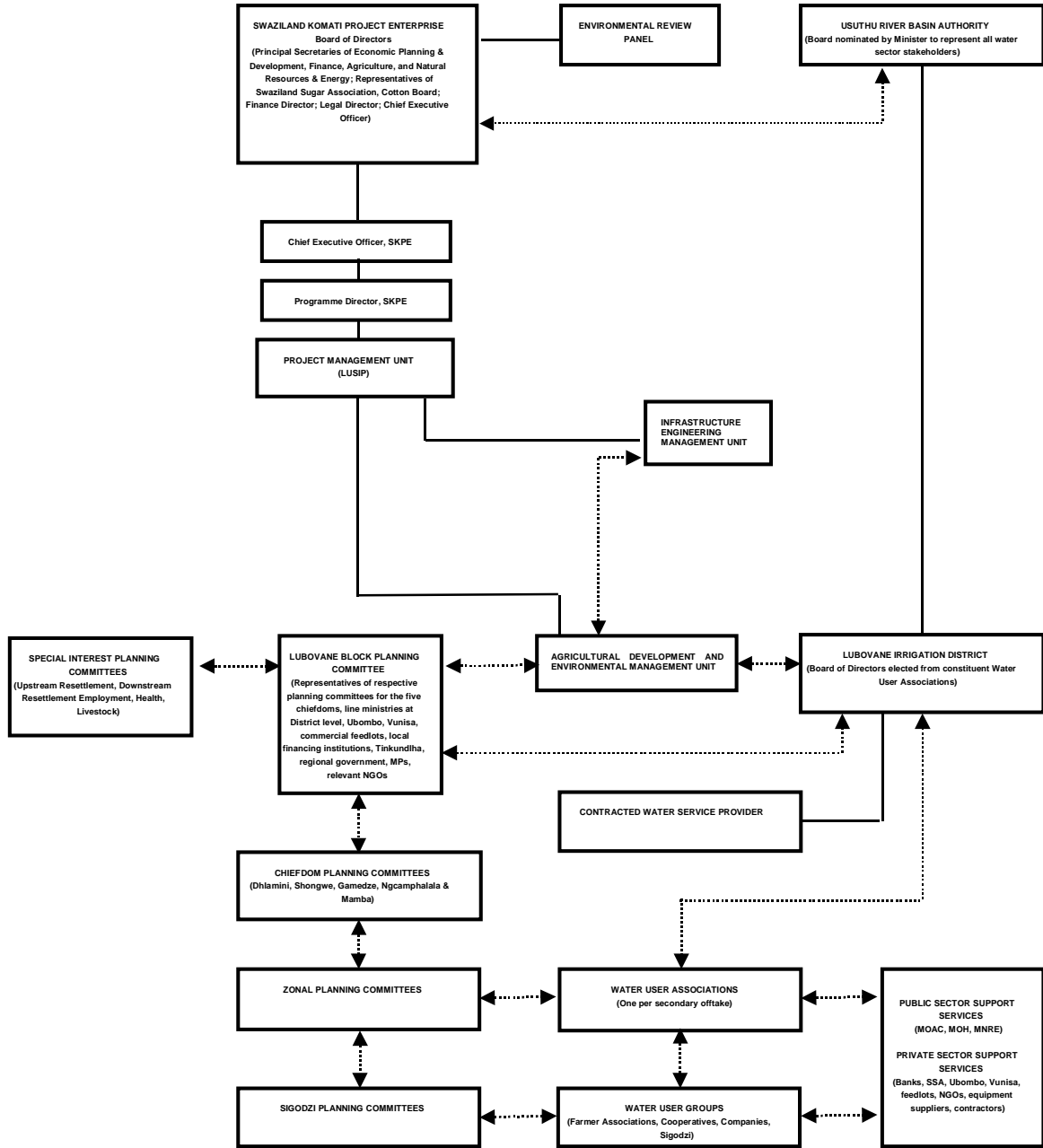


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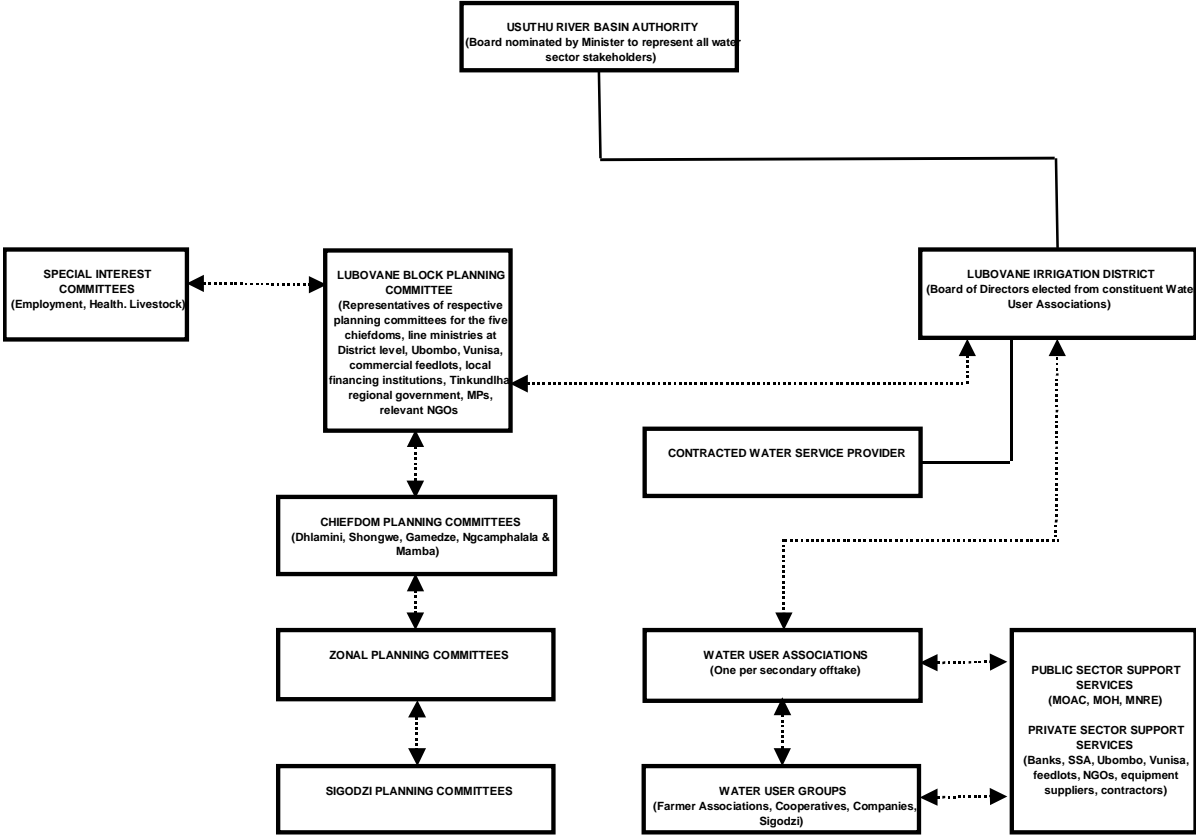
APPENDIX V

PROJECT ORGANIZATION DURING INITIAL OPERATION PERIOD



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PROJECT ORGANIZATION UPON FULL OPERATION



Key:
 Line of authority/answerability: ———
 Line of communication: ·····



IMPLEMENTATION SCHEDULE FOR PHASE I

Task	PY-1	PY1	PY2	PY3	PY4	PY5	PY6	PY7	PY8
1. Activities for Effectiveness of IFAD Loan									
Complete Draft Resettlement Action Plan	█								
Update Environmental Clearance Certificate as required	█	█	█	█	█	█	█	█	█
Develop Poverty Alleviation Strategy	█								
Loan negotiation and agreement with other financiers	█								
2. Activities for Effectiveness/Disbursement for Other Loans									
Complete Interim Water Agreement with South Africa & Mozambique	█	█	█	█					
Restructure SKPE Board	█	█	█	█					
Establish Legal Framework for Catchment Authority, Irrigation District and WUAs	█	█	█	█					
Adopt regulations for water charges	█	█	█	█					
Complete Comprehensive Mitigation Plan and implement scheduled activities	█	█	█	█	█	█	█	█	█
Complete Resettlement Action Plan and implement scheduled activities	█	█	█	█	█	█	█	█	█
Establish Legal Framework for Lubovane Block planning structure	█	█	█	█					
Appoint Environmental Review Panel	█	█	█	█					
3. Procurement of TA for Project Management		█							
4. Procurement of TA for Downstream Development Unit (Int'l & Regional)		█							
5. Development of policy and legal framework		█	█	█					
6. Procurement of design studies consultants		█	█	█					
7. Procurement of geotechnical investigations/topographic surveys		█	█	█					
8. Design Studies for Diversion Weir, Dams & Irrigation System		█	█	█					
9. Geotechnical & Topographic Surveys		█	█	█					
10. Procurement of Contractors for Diversion Weir, Dams & Irrigation System		█	█	█					
11. Construction of Upstream Works				█	█	█	█	█	█
Diversion Weir, Dams & Feeder Canal				█	█	█	█	█	█
Main, Secondary & Tertiary Canals				█	█	█	█	█	█
12. Public information campaign upstream and downstream		█	█	█	█	█	█	█	█
13. Establish local planning structures		█	█	█	█	█	█	█	█
14. Land use planning and allocation		█	█	█	█	█	█	█	█
15. Participatory Planning & Design of Tertiary Works		█	█	█	█	█	█	█	█
16. Procurement of Consultants for Design of Surface Irrigation Schemes				█	█	█	█	█	█
17. Surveys & Designs for Surface Irrigation Schemes				█	█	█	█	█	█
18. Tendering for Surface Irrigation Schemes				█	█	█	█	█	█
19. Bidding for Sprinkler Irrigation Schemes				█	█	█	█	█	█
20. Award of Construction/Installation Contracts				█	█	█	█	█	█
21. Construction/Installation On-Farm Works (incl Power Transmission Lines)				█	█	█	█	█	█
22. Establish Lubovane Irrigation District				█	█	█	█	█	█
22. Procurement of Water Service Provider				█	█	█	█	█	█
23. Provision of Water Service				█	█	█	█	█	█
24. Planting & Irrigating				█	█	█	█	█	█

**ELABORATION OF EXISTING INSTITUTIONAL FRAMEWORK**

1. **Ministry of Natural Resources and Energy.** MNRE is responsible for overall policy, development and regulation for the country's land and water sectors. It also leads Swaziland's delegation to the TPTC. The Minister appoints a water apportionment board that is responsible for the allocation of all water use permits.
2. **Ministry of Agriculture and Cooperatives.** MOAC is responsible for overall policy and development of the agriculture and livestock sectors. It is organized into three departments: Agriculture (including extension, research and technical divisions); Veterinary and Livestock Services (disease control and prevention, diagnostic and investigative services, meat hygiene, veterinary education and livestock husbandry); and Cooperative Development. A recent study financed under the ongoing IFAD-assisted Smallholder Agricultural Development Project recommended the organizational restructuring of MOAC into the following departments: Land Use Planning and Development; Crop Production and Extension; Livestock Production and Extension; Veterinary Services; Policy Development and Planning; and Human Resources and Administration.
3. **Ministry of Health.** MOH operates some 328 service delivery points, including seven hospitals, ten health centres, eight public health units, 141 clinics and 162 outreach sites. On a national basis, 85% of population are within an 8 km radius of a health facility. The ratios of key health personnel to the population are: doctors 1:6 500; nurses 1:1 000; nursing assistants 1:2 600 and rural health motivators 1:400. About 74% of the MOH budget is used for curative services, 11% for administration and support services, leaving only 15% for preventive and promotive services. Rural clinics form the backbone of the primary health-care programme, but the quality and efficiency of services provided have deteriorated in recent years, owing to a lack of basic maintenance of facilities, the lack of essential amenities, and the shortages of drugs. The tertiary level of care consists of regional hospitals. Most of Swaziland's qualified doctors are either in (more lucrative) private practice or are working in South Africa. The majority of rural health motivators are inactive - a situation that is attributed to their meagre remuneration.
4. **Swaziland Environment Authority.** SEA is a key instrument in the management of the environment. The Authority coordinates the Government's efforts to incorporate environmental management and protection into the country's development process. In addition, it has wide-ranging powers and responsibilities for the development of policy and supporting legislation, coordination, research and training, environmental monitoring and management, and the setting of environmental standards.
5. **Swaziland Komati Project Enterprise.** SKPE was established in March 2000 as a parastatal organization, nominally under MNRE, to plan and implement the downstream development of the Komati Basin Project. It now has an expanded role, covering all river basin development in the country. As a parastatal, SKPE is relatively independent from government bureaucracy and procedural controls; it has gained experience with the Komati Basin Project, including resettlement planning and implementation.
6. **Swaziland Development and Savings Bank.** The parastatal SDSB formerly supplied credit for a wide range of agricultural activities. However, because of disappointing performance in servicing credit for other crops and livestock, SDSB now concentrates on lending for irrigated sugar cane production – largely because of the unique relationship that exists between the growers and millers: sugar cane can only be sold to mills and, as the cost of transport is a major expenditure, farmers will only sell to the nearest mill. This allows the millers to make payments directly to SDSB – which deducts any outstanding charges before paying the balance into farmers' accounts. Sugar cane is currently the only crop for which collateral is not required by SDSB; it accounts for 90% of the bank's annual business in agricultural lending. However, the consensus among other credit institutions, MOF and the Central Bank is that SDSB needs first to complete its ongoing restructuring process before it can become involved in the proposed LUSIP.



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7. **Commercial banks.** The three South Africa-owned commercial banks that operate in Swaziland (First National Bank, Standard Bank and Nedbank) will not lend to SNL farmers, partly because they are constrained from doing so by Central Bank regulations that categorize SNL farmers as high-risk borrowers. Even if the Government and the Central Bank were to reclassify SNL irrigation farmers in an effort to soften the position of the commercial banks, they are likely to still require at least a partial guarantee from a third party, such as the Government. Even then, the interest of the banks is likely to be only in crops for which close control can be exercised through strong market links, i.e. sugar cane and perhaps cotton.
8. **Enterprise Trust Fund.** The Swaziland Enterprise Trust Fund was established in November 1995 to operate as a short and medium-term credit wholesaler, lending to financial intermediaries who on-lend to small and medium-sized businesses. The retail interest charge of 2% over prime allows financial intermediaries sufficient spread to cover both operating costs and the risky nature of their loan portfolios. Non-financial support is also given to businesses in the form of technical assistance in the preparation of business plans and financial management skills training. The Fund currently services more than 140 financial intermediaries and loan recipients. It has managed to achieve repayment rates of 95% and current provisions for bad debts are only SZL 350 000 (USD 45 000), mainly in non-agricultural sectors. The Fund is widely regarded as the most reliable source of credit for Swaziland's small and medium-size enterprises. However, it is currently short of funds to on-lend.
9. **Swaziland Sugar Association.** The sugar industry is controlled by the Sugar Act (1967), which created and gave wide powers to SSA. SSA comprises the Sugar Millers Association and the Cane Growers Association, both of which are of equal status and are represented as such on the SSA Council. The SSA regulates the industry, promotes its interests and is responsible for all processing, conditioning, bagging and marketing beyond the point at which the mills produce raw sugar. No cane can be grown without the issue of a sucrose quota (in effect a licence) to the prospective grower. Similarly, millers must be licensed by the Ministry of Enterprise and Employment, based on the recommendation of the SSA. The Association provides extension, research and marketing services to its members. After crushing, all sugar and molasses produced in the country become the property of SSA – which arranges for its storage, transport and sale. The mills receive payment of a pre-agreed seasonal price shortly after deliveries have been made, plus an adjustment after crop disposal by SSA. The proceeds from sales are distributed between growers and millers on terms mutually agreed between them, subject to an independent review committee.
10. **Swaziland Cotton Board.** The Swaziland Cotton Board advises MOAC on all aspects of the cotton industry. It controls the cotton varieties to be used in planting through its administration of a seed multiplication and production programme. The Cotton Board finances research at the Lowveld Experiment Station from a Cotton Improvement Fund derived from an annual levy paid by all cotton growers on seed cotton deliveries. Low overall cotton production, which is closely linked to the vagaries of the weather, adversely affects levy income and, thereby, can disrupt the continuity and extent of research. The Cotton Board finances the portion of the credit made available to cotton farmers for land preparation (tractor hire) costs through the sole cotton ginnery (Vunisa Cotton Limited), which provides the credit for farm inputs. Loan recoveries are made through 'stop-orders' on payments for seed cotton delivered.
11. **National Agricultural Marketing Board.** The NAMBoard has the mandate to facilitate the marketing of locally produced horticultural crops, but also has a conflicting mandate to import a wide range of produce that local retailers can purchase. NAMBoard does impose a levy on imported fruits and vegetables, ranging from 3.0 to 6.75% according to crop type, which may offer a degree of protection to local producers.
12. **Ubombo Sugar Limited.** Ubombo Sugar Limited, a part of the Illovo Sugar Group of South Africa, operates the sugar mill at Big Bend. Over the past two years, the company has invested some USD 13 million in expanding its processing capacity, including the installation of a second cane preparation line and a 100 t boiler. The mill is now capable of processing 2.0 million t of cane, compared



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with the current throughput of 1.8 million t. The company operates a Smallholder Development Department and is intensifying efforts to promote industry expansion on SNL. As a result of past efforts, there are now more than 800 ha of sugar cane under smallholder production in the proposed LUSIP Phase I area and a further 370 ha in the Phase II area. Ubombo Sugar has historically provided comprehensive facilitation and support services to smallholder growers, from enterprise initiation through to the delivery of cane to the mill. Ubombo plans to maintain its involvement in support of smallholders and is prepared to increase the staff of its Smallholder Development Department as necessary to accommodate expansion of sugar cane planting by smallholders.

13. **Vunisa Cotton Limited.** Vunisa Cotton operates the only cotton ginnery in the country at Matata within the Phase II area. The company has recently expanded its annual ginning capacity from 16 000 to 30 000 t of seed cotton. National production is currently about 13 400 t¹; the shortfall in throughput from national sources has historically been made up through seed cotton imports from Mozambique and Angola. The company provides extension support to farmers, as well as agro-chemicals (pesticides) on credit and administers loans on behalf of the Swaziland Cotton Board for other seasonal inputs, including land preparation. Vunisa Cotton employs seven extension officers nationwide and has expressed a willingness to expand its field staff, if this is commercially warranted, to cope with the establishment of irrigated cotton.

14. **Swaziland Meat Industries.** Swaziland Meat Industries is based in Matsapha and operates the largest commercial abattoir in the country, as well as a beef-processing facility that exports to the EU market. The company buys fattened cattle for slaughter as well as operating its own feedlots to fatten store cattle for slaughter and subsequent export. It is the custodian of Swaziland's beef export quota to the EU of 3 400 t per annum, but is only able to meet 12% of this quota. However, the company has its own buying team and publicity unit and could participate in a campaign to establish closer links between the meat industry and potential SNL sources of supply.

15. **Farm Input Supply and Contract Services.** There are numerous private-sector outlets in Swaziland providing ready sources of supply of seeds and planting materials, other farm inputs, tools and farming equipment. Many outlets are linked into parent companies based in South Africa, or act as agents on behalf of South African companies. There is strong competition for the supply of irrigation equipment among companies in both Swaziland and South Africa; suppliers can design, supply and commission complete pressure irrigation systems according to requested specifications. A number of agents for farm machinery, plant and equipment are based in Manzini, and there are numerous companies in South Africa capable of supplying a wide range of land development and farm machinery, as well as providing after-sales service. In addition, machinery services can be contracted from local specialist sources. A growing number of farmers and farmers' organizations are able to provide tractor and machinery hire services.

16. Three local **NGOs** currently operate in the Lower Usuthu: Women's Resource Centre, Swaziland Farmer Development Foundation and Ngcamphalala Community Development Programme. The first two NGOs are based in Manzini and work with rural communities to improve business development skills and women's economic empowerment. Ngcamphalala Community Development Programme facilitates an outreach programme from St. Philips Health Clinic that promotes income-generating activities and human resources development. The human and logistical resources of these NGOs are considered to be fully stretched.

¹ National production is entirely rainfed and produced by some 12 000-14 000 cotton farmers, all farming on SNL.



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ELABORATION OF PROJECT COMPONENTS

1. The project will comprise four main components: (a) upstream works and distribution system; (b) downstream development and agricultural commercialization; (c) environmental mitigation; and (d) project coordination and management. The main activities to be supported under the first three components are briefly described hereunder.

A. Upstream Works and Distribution System

2. This component will include topographical surveys, geotechnical investigations and detailed designs (by consulting firms), as well as the construction of a diversion weir on the Usuthu River, a feeder canal, three dams to form an off-river storage, two concrete-lined main canals and a distribution system. Since it will be difficult and costly to increase these later, the dams, feeder canal, and the south main canal for Phase I will all be sized to accommodate the future development of 5 000 ha in Phase II. The component will be financed by AfDB, BADEA, DBSA, EU and possibly EIB.

B. Downstream Development and Agricultural Commercialisation

3. This component will comprise four sub-components as hereunder.

4. **Development of policy and legal framework.** This sub-component will support, by means of short-term technical assistance, the Government's current efforts in meeting its commitment to putting an appropriate legal framework in place for water users' associations, an irrigation district and a cathment authority. It will also assist policy and legal reforms for land and resettlement, and possibly existing legislation for companies and cooperatives. *IFAD will finance the whole sub-component.*

5. **Participatory planning and irrigated farm development.** This sub-component will support land-use planning and other processes for approximately 130 irrigated farms, each averaging 50 ha, and other possible land uses. A technical assistance team will be provided to assist farmer groups and associations in formulating their own land-use plans. The sub-component will provide for an intensive programme of training-of-trainers, groups and committees in all processes involved in the land-use planning and land-allocation exercises (including data gathering, information dissemination, gender sensitization and training for transformation). The sub-component also includes budgetary provision for the finance required for on-farm works expected to be supplied on a credit basis by an appropriate private sector or parastatal financing institution and repaid by farmer groups. *IFAD will finance the whole sub-component, except for the line of credit.*

6. **Development of irrigation management institutions.** This sub-component will provide technical support to the processes of establishing WUAs and a proposed irrigation district. It will also provide technical and material support to the establishment of a proposed water service provider, which will include budget provision for vehicles and equipment, and initial orientation workshops for management staff and training of operating staff. However, all other operating costs incurred by the provider, including staff salaries, vehicle running costs and annual maintenance of the water delivery system, will be recoverable from farmers through service charges. Although the water service is intended to be self-financing from user fees, its initial establishment and part of the annual fixed costs for system will be pre-financed by the project until the whole area has been developed. *IFAD will finance the whole sub-component.*

7. **Agricultural commercialization.** This sub-component will provide short-term technical assistance to assist communities and economic interest groups with land use and the farm enterprise planing process. It will also provide longer-term technical assistance to support subsequent



operational aspects of irrigated farming and/or intensified livestock management. Further, provision will be made for technical training of managers and office holders of farmers' organizations and associations in relevant aspects of crop production and livestock management. The sub-component will also finance in-service training of public extension staff to help them adjust to supporting farmers dealing with irrigated crops and market-oriented farming operations. To assist with long-term diversification efforts, the sub-component will sponsor agricultural research investigations (excluding research on sugar cane and cotton which is already catered for) should any specific requirements emerge during the course of project implementation. In line with efforts towards diversification, the sub-component will provide initial support to farmers' organizations and associations wishing to become involved in horticulture, but which have not yet established firm relationships with buyers. Two separate funds will be established to provide business development matching grants as a partial contribution to the investment costs of improving or establishing small and medium-scale enterprises particularly among the poorer farmer' associations and the more disadvantaged members of society (unemployed/under-employed youths and women's groups). *IFAD will finance the whole sub-component.*

C. Environmental Mitigation

8. The Environmental Mitigation Component will comprise four sub-components: (a) finalisation of the comprehensive mitigation plan; (b) resettlement planning and compensation; (c) public health; and (d) environmental conservation, monitoring and external review.

9. **Finalization of the comprehensive mitigation plan.** The project will contract short-term technical assistance to confirm the detailed environmental mitigation measures to be incorporated into the overall design of LUSIP and to design a Comprehensive Mitigation Plan that meets the statutory requirements. The environmental technical assistance team will work alongside the water delivery system engineering design team and the land-use planners working with and through the communities to establish the irrigation schemes. Detailed surveys will be carried out to permit site-specific environmental mitigation measures to be designed and incorporated, as necessary, into construction contracts and/or project work programmes. The work will be organized in a participatory manner through representative committees to be set up by the LUSIP-affected communities. *The sub-component will be financed by IFAD.*

10. **Resettlement.** The project will finance the remaining steps in the ongoing iterative process of finalizing the Resettlement Action Plan. The Plan will build upon the recently completed Outline Resettlement Plan and the Draft Resettlement Action Plan, to be submitted by the Government by end-June 2001 through a continuation of the ongoing consultative process. Funds will be provided to facilitate interaction at the successive levels of community organization through workshops and meetings – including provision of training for committees and stakeholder representatives. The final terms and conditions of compensation, by Government, including the confirmed listing and values to be attached to items eligible for compensation, will be incorporated into the final Resettlement Action Plan. *IFAD will finance the whole component, with the exception of compensation payments.*

11. **Public health.** This will consist of two parts: (a) health care delivery; and (b) provision of water and sanitation facilities. A fully equipped clinic will be provided in or adjacent to the Phase I area, together with staff housing. An ambulance and motorcycles will be provided for referral and outreach services. Strengthening community-based health care will entail community mobilization, awareness and education campaigns. The project will reorient existing rural health motivators (and train more if needed to achieve the target ratio of 1:400 persons) to the target diseases (particularly HIV/AIDS/STDS) and provide support supervision. Strengthening control of target disease will be achieved through health campaigns in close conjunction with relevant Ministry of Health (MOH) programmes/activities – collaborating with NGOs active in the project area and using local institutions and leadership. The project will support the continuing education of project health staff,



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including regular training/updates to rural health motivators and other community resource persons within the project area. Existing training resources in MOH and bilateral and multilateral agencies will be used as appropriate. Some 65 slow sand filters will be constructed for community water supplies, corresponding to one unit per two 50 ha farm schemes. Some 15 boreholes fitted with hand pumps have also been budgeted for those homesteads that will not benefit from the slow sand filters. The project will provide a total of 675 ventilated pit latrines – for those homesteads currently without the facility, as well as within the irrigation farms. It is intended that water and sanitation facilities will be operated and maintained by the users and that the clinic will become self-financing by the end of the project, through user fees and a levy on water charges. *The entire investment costs for the sub-component and part of the running costs for the clinic will be financed by IFAD.*

12. **Environmental conservation, monitoring and external review.** This sub-component will contribute to the financing of community-based natural resources management through the establishment of a project environment fund. Access to the fund is expected to encourage communities to take increasing interest in and responsibility for natural resources management in their locality. The fund will award small matching grants for eligible community initiatives that will positively affect the local environment and improve sustainable community access to natural resources. Priority will be given to initiatives that will contribute to improvements in the status of natural vegetation and/or the arrest of land degradation. In addition, special provisions will be made to establish a nursery for endangered species of flora with a view to introducing nursery activities as new irrigation areas are being developed.

13. The project will provide a full-time environmental monitoring officer (funded by DBSA) throughout the first five years who will maintain oversight responsibility for all environmental aspects, including initial and continuing compliance with statutory requirements, participatory monitoring and impact evaluation by project-affected communities. The project will also provide an independent environmental perspective on LUSIP by providing for periodic visits, throughout the duration of implementation, from an environment review panel, which will report jointly to the Executing Agency and SEA. Funds will be made available to permit accurate and continual monitoring of both water quality and downstream flows at existing stations so that any necessary remedial action can be taken to protect downstream and trans-boundary interests. Finally, the project will finance an ex-post environment impact assessment (EIA) in PY8, the outcome of which may be expected to have particular relevance for any future planning of LUSIP Phase II. *IFAD will finance the whole sub-component, with the exception of the environmental monitoring officer.*



ELABORATION OF PROJECT ORGANIZATION AND IMPLEMENTATION ARRANGEMENT

1. LUSIP Phase I will be executed by the Swaziland Komati Project Enterprise (SKPE), a government parastatal (under MNRE) that has been given responsibility for planning and executing all river basin development in the country. A dedicated PMU will be established within the headquarters of SKPE, to be responsible for overall coordination and supervision of LUSIP activities. It will contract out for all technical services required, including detailed design studies and construction supervision for the water delivery system, down to the farm edge. The PMU will be provided with long-term internationally recruited technical assistance financed by the EU. The project will also establish an IEMU under the PMU and located in the headquarters of SKPE, and an ADEMU, also under the PMU but located within or adjacent to the project area. ADEMU will coordinate and support all project activities at the local level, and serve as the interface between the intended users, public and private service providers and the upstream works for the water delivery system. The unit will be provided with a long-term internationally/regionally recruited technical assistance team and *will be financed by IFAD*.
2. The organizational arrangements for the project will need to be flexible over time to meet the demands of the various stages of planning, development and eventual operation of the water delivery system. In the initial years and as the land-use planning and allocation process proceeds, farmer groups will form and register as associations, cooperatives or companies (according to their own preferences) to take up the land allocated for irrigation schemes. A tiered system of stakeholders' planning committees will be established, corresponding approximately to: the individual scheme level; the various parts of the distribution system; the main canals; and the entire irrigation system – for which a block planning committee will be formed. Each of the four tiers is intended to form an information conduit to the next platform of aggregation above or below. Hence the block planning committee will be the conduit for information to and from the executing agency, SKPE. Separate special interest committees will also be formed to consider and advise the block planning committee on issues such as resettlement, employment on construction work, livestock, range management and health. It is envisaged that the traditional authorities will participate through their representatives in the various tiers of committees and organizations. The SKPE Board will be expanded to include stakeholder representatives nominated by the block planning committee. ADEMU will provide secretarial service to the various planning committees.
3. Clusters of individual schemes will form WUAs, probably on the basis of use of a common secondary canal. WUA functions will be to manage the secondary/tertiary system, enforce by-laws, and to resolve conflicts that might arise between water user groups. According to the draft water bill, an irrigation district will be established as the apex organization for Phase I WUAs and will assume complete responsibility for the organization, management, operation and maintenance of the entire irrigation system (including the diversion weir and dams). The irrigation district will be responsible for introducing and enforcing by-laws, and for levying and collecting rates and charges to defray the costs of the district – including operation and maintenance costs associated with water delivered to the farm edge. Since the proposed irrigation district will be a regulatory rather than an operational body, it will contract out the work of annual operation and maintenance of the water delivery system to farm edge. A specialized contracting organization will be established by the project for this purpose. However, the contract will be between the irrigation district and the water service provider, who will be responsible for billing users and collecting the charges.
4. Once the construction of the water delivery system has been completed and the full Phase I target of 6 500 ha of irrigated land developed, the need for the continued involvement of SKPE will diminish. In time, it is expected that the respective tiers of water user stakeholder bodies will absorb the functions of the various committees, including that for the delivery of health care services, which is expected to continue as a self-financing service provider under the auspices of the irrigation district.

ASSUMPTIONS FOR COMPUTATIONS OF CROP BUDGETS, FARM MODELS AND COST STREAM AND THE PROJECTED SUGAR PRICE

A. Crop Budgets

1. The preparation of **crop budgets** is based on the following assumptions: (a) sugar cane yields are higher on R-set (deeper) soils than on S-set (shallow) soils, with peak yields of 110 t and 105 t per ha respectively; (b) peak sugar cane yields are achieved with the first ratoon crop (i.e. three years after initial cane planting, yields in the first two years being 80-90% of the potential) with annual yields declining thereafter; (c) sucrose content remains relatively constant at 13.5%; (d) 13 sugar cane ratoons are produced on R-set (deeper) soils and eight ratoons on S-set (shallow) soils before ploughing out and replanting (by which time sucrose yield would have declined by about 20% from the peak level); (e) planted sugar cane is harvested after 12-13 months, with subsequent ratoon crops harvested every 11-12 months; (f) surface irrigation is relatively more profitable than sprinkler irrigation; and (g) surface irrigation is not suitable on S-set (shallow) soils;

2. The preparation of **farm models** is based on the following assumptions: (a) typical 50 ha schemes operated as commercial entities, with all labour and finance costs included; (b) commercial interest rate at 17% per annum on loans; (c) each scheme is operated by a group comprised of 20 households, each with a shareholding in the scheme of 2.5 ha; (d) for sugar cane, much of the first year (i.e. PY1) will be devoted to on-farm development, such that the crop will not be planted until towards the end of PY1 – for harvesting after 12-13 months in PY2; (e) beneficiaries will meet the full cost of: operation and maintenance for on-farm infrastructure and the water delivery system, in addition to their on-farm works and crop establishment for which the project will provide the source of credit; (f) loans for on-farm works and sugar cane establishment will be repaid within six years, with the year of farm development/first planting treated as a grace period (i.e. repayment is over a five-year period); and (g) sugar cane yields used for the farm models are 97.8 t/ha and 91.8 t/ha for R-set (surface or sprinkler) and S-set (sprinkler) soils respectively.

B. Cost and Benefit Streams

3. Project costs are calculated in economic terms (i.e. net of taxes, duties and contingencies). Certain of the physical works for Phase I (e.g. diversion weir, feeder canals and the south main canal) will eventually be shared with the Phase II development. Similarly, certain of the technical assistance and associated costs (e.g. those associated with the development of a policy and legal framework, as well as design services for the physical works) are related to works or services that will benefit both Phase I and Phase II. Furthermore, some of the costs associated with resettlement (e.g. resettlement of those displaced from the proposed reservoir) are related to works that will be shared between the two phases. Where appropriate, part of these costs can be attributed to Phase II and deducted from the Phase I costs. The cost of resettlement compensation (payable by the Government) was reduced by 50%, to remove apparent distortion in the budgeted costs and to take account of compensation in kind. The relevant cost items have, therefore, been reduced by applying conversion factors as follows: (a) costs of physical works in relation to the diversion weir, intake and sand trap; feeder canal; Mhlathuzane Dam; Golome Dam and Spillway; and the South Saddle Dam were reduced by the ratio of the land area to be served in Phase I to the combined Phase I and Phase II area – i.e. the costs were converted by computing the ratio of (6 466 ha/11 500 ha), or a factor of 0.56; (b) cost of the South Main Canal was converted by 4 444 ha/9 480 ha, or 0.47; (c) costs of the secondary and tertiary distribution system were shadow-priced at 0.92% to take into account labour; (d) resettlement costs were reduced by a factor of 0.56; and (e) recurrent costs were shadow-priced at 0.92%

4. The cost of farm labour was converted by a factor of 0.65 to reflect the prevailing opportunity cost, bearing in mind the employment situation in the project area. All costs in relation to the public



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health sub-component were zero-rated, since they can be justified separately on social grounds (because the objective is to improve public health, rather than only mitigating harmful impacts). The effect of these changes has been to reduce project costs by approximately 35% from their financial value to their economic value.

5. Specific to benefits streams, these have been phased: construction of the diversion weir, feeder canal and dams will be undertaken in PY3 and PY4; the main secondary and tertiary canals in PY3-PY5; and irrigation schemes developed at 1 300 ha per year, beginning in second half of PY4 onwards. The economic analysis has been extended over 50 years to take full account of the economic life of the major infrastructure components of the project.

C. Employment Opportunities

6. In contrast to rainfed agriculture on SNL where little use is made of hired labour and, indeed, where there is a shortage of labour due to off-farm incentives, irrigated sugar cane provides 37% of Swaziland's wage employment. The incremental production of 6 500 ha of sugar cane under will result in peak labour requirement of 62 person days per ha. In effect, the labour requirement for the typical 2.5 ha irrigation scheme shareholding will be 155 person days – which labour demand will be well within the capacity of the average household (of 5.9 persons) to provide. About 40% of the labour requirement is normally for cane cutting, with loading being largely a mechanized task. It is assumed that substantial new employment opportunities will become available in the operation of irrigation schemes and the sugar mill, the construction of infrastructure, and the operation and maintenance of the irrigation systems.

D. Projected Sugar Price

7. The **producer price** for sugar is a blend price derived from sales to a number of overseas and regional markets, including preferential markets in the EU and the United States. The blend price is obtained by dividing: (a) the distributable proceeds from all annual sales, by (b) total annual production of 96 pol sugar²; the result is then converted to a sucrose equivalent, since the ratio of 96 pol sugar to sucrose varies slightly each year – and it is the latter for which the producers are paid.

8. The **growers' price** for sucrose is shared between millers and growers in proportions fixed by the SSA. The grower's share has increased by 0.5% per year, from 66% in 1998/1999 to 67.0% in 2000/2001. It increased again to 67.5% for the 2001/2002 season, but is expected to remain at this level for the foreseeable future. Thus, for 2000/2001 the growers' price was fixed on the basis of a 96 pol sugar price of SZL 1 880.14/t, which was converted to sucrose by the reciprocal of a factor of 1.06086, to arrive at a growers' price of SZL 1 187.44/t.

9. Swaziland's sugar production now exceeds these preferential quotas. Therefore, it is assumed that all incremental sugar production will be disposed of on the world market, which will result in dilution of the blend price paid to producers and, hence, growers. According to SSA, the total production of 96 pol sugar for the 2000/2001 season was 594 318 t. Of this amount, 96 460 t was disposed of on the world market at a price of USD 0.09/lb, giving net proceeds of SZL 114 million. The remainder was sold to various preferential and regional markets (the latter being also preferred to the world market). The net proceeds from these sales was SZL 1 064 million – the implication being

² Pol' is a measure of sugar purity: it is the degree of polarization of light refracted through a solution of the sugar, as a percentage of polarization through a pure sugar solution. Typically mills in Swaziland can produce Very High Pol (VHP) sugar at 99.4⁰ pol and raw sugar at 98.5⁰ pol. Pol is used as a proxy for sucrose in cane where it is pol not sucrose that is analysed in cane sampling.



that the average price obtained from preferential and regional markets is more than 81% higher than that obtained from the world market.

10. Taking account of annual growth within the existing industry plus production from LUSIP Phase I and the current Komati Basin Project, incremental sugar production will amount to some 295 700 t³ by 2010/11, over and above the present (2000/01) production of 594 318 t. This assumes production of 86 000 t at full development of LUSIP based on 97.5 t/ha and a sucrose content of 13.5%. Assuming that the 2000/01 prices and exchange rates⁴ will remain constant and that preferential/regional sales will remain at existing levels, the additional 295 700 t of sucrose/96 pol sugar will yield SZL 349 million⁵, thus increasing total net proceeds to SZL 1 527 million⁶. From this analysis it can be inferred that the unit price for 96 pol sugar will become SZL 1 715/t, which converts to a growers' price of SZL 1 088/t. In other words, given that the 2000/01 growers' price was SZL 1 187/t (compared with the 2001/02 price of SZL 1127/t), the dilution of the growers' price at full development of LUSIP will be approximately 8%.

11. In reality, the international sugar market is volatile and currencies are changing over time. While it is envisaged that during the next ten years the value of the preferences that the Swaziland sugar industry currently enjoys are likely to decline (because of downward pressure upon prices within the domestic markets of the EU and the United States and a possible restriction upon the extent of the access to these markets), falling dollar prices may well be mitigated by local currency depreciation. In effect, it is assumed that depreciation of the Swazi Lilangeni will counter the effects of dilution of the growers' price and that sugar cane will retain its attractiveness for the foreseeable future.

³ Landell Mills Limited (December 2000), *Study for an Optimal Sugar Policy in the Context of Trade Liberalisation – Draft Final Report*. Ministry of Economic Planning and Development.

⁴ SSA based their 2000/01 prices on an exchange rate of USD 1.00 = SZL 6.92.

⁵ SZL 114 000 000/96 460 t x 295 700 t = SZL 348.8 million.

⁶ SZL (114 + 1 064 + 348.8) million = SZL 1 526.8 million.