

FOOD, AGRICULTURE
AND NATURAL RESOURCES

SADCC Strategy

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SUMMARY

Over the past six years, SADC member States have gained a great deal of experience in designing and implementing regional programmes for food and agriculture. Details of these programmes are contained in subsequent sections of this paper. Responsibility for coordinating regional programmes is allocated to member States as follows:

Food Security	-	Zimbabwe
Agricultural Research	-	Botswana
Livestock Production and Animal Disease Control	-	Botswana
Soil and Water Conservation and Land Utilization	-	Lesotho
Fisheries	-	Malawi
Forestry	-	Malawi
Wildlife	-	Malawi

SADC's food and agriculture programmes are designed individually and collectively to contribute towards regional food security through increased food production, and to raise income levels through production of cash crops. However, the emergence of food surpluses in some member States - in the midst of persistent malnutrition, underemployment and poverty - has brought into focus the complex nature of the food security situation in the region; and the need for a comprehensive approach to agricultural development. In June of 1986 the SADC Council of Ministers called for a review of the regional food and agriculture programme; with the objective of developing improved programmes and projects to increase agricultural production in the region. The Council also raised questions about the interrelationships between different sectoral programmes on the one hand, national and regional agricultural policies on the other; and the most appropriate approach to mobilize support for food and agriculture programmes from SADC's cooperating partners.

Following a review of the current programmes, some important modifications have been made to the regional strategy. The highlights of the updated strategy are as follows:

- * Activities in this area will be broadly grouped into Food and Agriculture, and Natural Resources Sectors.
- * The primary goal of the sector is to achieve food security at the household, national and regional levels.

- * Food security is defined as ensuring that all members of a household, nation or region have access to an adequate diet to lead an active and normal life. Its two essential elements are food availability through expanded production, storage and trade and the ability of all people to acquire an adequate diet.
- * Since poverty is a key cause of household food insecurity, expanding food production and the achievement of national food self-sufficiency will not automatically end food insecurity. Therefore, income and employment generating projects in rural areas (e.g. crops, raw materials for processing, small ruminants, fishing, small scale industry, etc) are essential components of increasing national food security.
- * Thus, SADCC's regional food security programme includes both sides of the food security equation - food availability and access to food.
- * The strategy reiterates the importance of increasing food production; particularly in food deficit member States. It emphasises to both SADCC member States and SADCC's cooperating partners the need to give first priority to increasing food production in food deficit countries; and the need for the countries of the region to diversify agricultural activities into cash crops for both export and domestic industrial use, horticulture and dairy production.
- * Agro-industries and rural small scale industries are an integral part of the updated agriculture strategy.
- * The activities of the regional agricultural research sector will be broadened to include cash crops, in order to generate production technology to expand rural incomes and foreign exchange earnings.
- * Recognition of the need to anticipate rather than respond to changes in the world food economy: there is a need to strengthen the policy analysis capability in the region.
- * The strategy emphasises the importance of professional training in agriculture and natural resources and charges SACCAR with developing a regional blueprint to strengthen such training, especially post graduate training on a long term basis. SADCC invites its cooperating partners - to work closely with SACCAR in planning and help implementing this important activity.

- * The natural resources area will cover soil and water conservation, fisheries, forestry and wildlife; and programmes will be developed to exploit and manage the natural resource base in order to increase food, agriculture and livestock production.
- * The strategy requires close liaison between the food, agriculture and natural resources sectors and the Industry and Trade sector in order to increase regional cooperation in the planning, production and trade in seeds, fertilizer, pesticides, farm machinery, processed and unprocessed food and other agricultural products; and the setting up of food processing and other agro-industries.
- * Implementation of the SADCC strategy requires full cooperation from all relevant ministries and institutions in the region. This is of particular importance with regard to programmes dealing with malnutrition and food insecurity.

In drawing up this strategy SADCC member States were conscious of their participation in a number of other multilateral fora which address problems of agricultural development. Of particular note in this regard are the recent initiatives of the OAU, the UN General Assembly and the various UN technical agencies. The implementation of the SADCC programmes in the Sector of Food, Agriculture and Natural Resources will therefore take full account of these other initiatives in order both to maximise the impact of the various activities, and also to avoid any duplication or wasteful overlap.

I INTRODUCTION

The Food, Agriculture and Natural Resources sector occupies a central position in the economic structure of the SADCC region. Simple mathematics tell the story. The population of the region currently estimated at 70 million is growing by around two million per year, and is, therefore, likely to exceed 100 million by the year 2000 and then double to 200 million between the year 2020 and 2030. Up to eighty percent of the population and labour force in member States are dependent on agriculture for employment and income. It follows that increasing the productivity of agriculture is essential for raising the standard of living of the people of the region.

Over the past six years, SADCC's member States have gained considerable experience and confidence in designing, and implementing a wide range of projects to improve the productivity of the agricultural sector. Moreover, SADCC is now better able to evaluate the performance of its projects and to learn from its successes as well as its failures. SADCC's agriculture strategy encompasses both food and agriculture and natural resources, for it is only on the basis of sound environmental management policies and programmes that sustainable agricultural development can take place.

SADCC's strategy addresses not only the goal of achieving regional self-sufficiency in food production but also the goal of achieving household, national, and regional food security.

Food security is defined as ensuring that all members of a household have access to enough food to lead a healthy and normal life. The two elements of food security are: food availability through food production, reduction of post harvest losses, grain storage and international trade and the ability of people to gain access to food through home production, purchase in the market, food for work, child feeding programmes and family food transfers. SADCC's food security programme will address both sides of the food security equation: food availability and access to food.

Since poverty is a central cause of malnutrition and food insecurity, SADCC explicitly acknowledges that increasing food production cannot, in and of itself, solve problems of hunger and food insecurity in the region, and explains why rural income and employment generation activities should be integral components of the strategy.

The strategy covers both food and cash crops which are necessary to reduce rural poverty, improve living standards and contribute to the growth of the national economy through increased export revenues. Given the current situation in the region, however, differing emphases may be called for among the various SADCC

member States. In food deficit countries, greater emphasis should be given to increasing and sustaining food production; although, obviously, not to the exclusion of increasing revenues from cash crops. In food surplus countries, the emphasis should be on diversification into cash crops and income and employment generating activities such as dairy production, horticultural crops, small ruminants and rural small scale industries.

In recent years there has been considerable consultation among SADC member States with regard to agricultural development and the management of natural resources. The approach to cooperation in this sector is based on each country's national policies and interests. There is, in fact, a very large measure of agreement in approach:

- all member States give high priority to increasing production of both food and cash crops; on a sustainable, long term basis.
- important policy adjustments are taking place in each country with the aim of increasing food production and creating the conditions necessary to develop a vibrant and growing agricultural economy; and,
- all countries are looking for increased commercial and concessional investment in agriculture.

In summary, the regional strategy is designed to reinforce the capacity of member States to feed their people, to provide productive employment, to reduce food dependence on South Africa and international sources and to enhance the capacity of the agricultural sector to speed-up the economic transformation of SADC's economies.

II. OVERVIEW OF FOOD, AGRICULTURE AND NATURAL RESOURCES

Agriculture is a strategic sector in the economies of SADC member States because a majority of the population lives and works in the rural areas. From 1980 to 1986, agriculture contributed 34 percent of the region's GNP, employed up to 80 percent of the total labour force and accounted for about 26 percent of total foreign exchange earnings. In the member States that are not dominated by mining, agriculture contributed about 60 percent of total foreign exchange earnings.

The SADC region is well endowed with basic resources of land, labour and water for agricultural production, broadly defined to include crops, livestock, forestry, fisheries, and wildlife. Out of a total arable land base of 477 million ha, 5 percent is under

crops; 41 percent, range land; 33 percent, forests and woodland; and 21 percent is at present considered unsuitable for agricultural use, given available technology and market conditions. However, in Lesotho and Malawi most of the land has been brought under cultivation. Botswana is carefully considering the environmental implications of opening new land for irrigation.

SADCC recognises that, when considering the region's labour resources, it must always be acknowledged that women occupy a very central position in the production structures of SADCC member States, especially in rural peasant agriculture. In Lesotho, and to a lesser extent Botswana and Swaziland, women constitute the bulk of the rural labour force, as most men have left to seek employment, mainly in South Africa; and in the other member States women constitute a majority of the rural labour force because men have left to seek employment in the urban areas.

SADCC's fisheries, forestry and wildlife have vast production potential. For example, output from freshwater fisheries increased dramatically from 1978-82 as illustrated by the following annual percentage increase: Mozambique 50, Zimbabwe 29 and Botswana 11. To date, however, exploitation of these natural resources has been pursued on an ad-hoc and generally unregulated harvesting basis. Little effort has been devoted to applied research to raise the productivity of the natural resource base in the region.

The economies of member States are open and integrated into the world economy but trade within the SADCC region is extremely small because of inadequate transport facilities, low level of industrialisation, foreign exchange constraints, war and sabotage. For example, recorded intra-SADCC trade accounted for about 5 percent of the SADCC countries' total imports in 1982. On the other hand, the SADCC countries' trade with South Africa is considerably higher, representing 7 percent of their total exports and 30 percent of their imports.

The performance of agriculture in most SADCC States has been unsatisfactory over the past decade. This poor performance has been part of an Africa-wide downward trend for three decades. For example, because the rate of population growth exceeded the annual rate of increase of agricultural production, the annual growth rate of agricultural production per capita was negative (-0.31 percent) for the last thirty five years. Furthermore, because of drought, over the past decade, the annual growth per capita rate of agricultural production fell to -1.04 percent from 1978-85. This negative per capita growth rate was offset by food imports which rose to 12 million tonnes in 1985. Food aid accounted for 7 of the 12 million tonnes of imports in 1985. Three commodities accounted for 87 percent of Africa's total food imports (commercial and food aid) in 1985: wheat 50 percent, rice 22 percent, and maize 15 percent, respectively.

Two lessons flow from this sobering analysis. First, there will be a need for large and continuing public and private investment in the agricultural sector, just to keep up with population growth. Second, increased attention will have to be given by SADCC to environmental issues, including long term research by biological, physical and social scientists on developing sustainable production systems for food and cash crops, fisheries, forestry and wildlife.

Although Africa-wide food production trends are disturbing, the food and agricultural outlook has improved in many SADCC member States in 1985 and 1986. For example, Malawi and Zimbabwe currently have significant maize surpluses available for export. Zimbabwe has about two million tonnes of maize carry over which is equivalent to three years' normal domestic sales by the Grain Marketing Board (GMB) and the equivalent of four years' consumption of sorghum in storage. Moreover, Malawi has exported maize for seven of the past ten years and currently has a surplus of several hundred thousand tonnes available for export. Finally, Zambia is making vigorous attempts to shift its economic base from copper to agriculture. Zambia's 1985/86 maize crop of 1.1 million metric tonnes will come close to ensuring self-sufficiency through June 1987, when new harvest deliveries begin. The dynamism of the "maize belt" in the middle of the SADCC region - i.e., in Zambia, Malawi and Zimbabwe - is not, however, solely the result of the weather or imported maize varieties from other continents.

The improvement in maize production in the region is, in part, the outcome of sustained investments in research on hybrid maize in Zimbabwe for twenty eight years before a biologically stable and economically profitable variety - SR-52 was developed. The SR-52 variety was transferred to Zambia where it is known today as Z-752. The improved maize varieties in Zimbabwe, Zambia and Malawi, coupled with favorable policies and supporting institutions (i.e. extension services, availability of credit and fertiliser and, appropriate pricing and marketing arrangements), illustrate the strategic importance of strengthening national agricultural research services in the SADCC region and linking policy reforms with proven on-shelf technical packages.

III. MAJOR PROBLEMS FACING THE SECTOR

Main Constraints

The overall objective of the SADCC Food, Agriculture and Natural Resources programme is to improve the living conditions of the majority of the region's population. The major constraints which inhibit the achievement of this objective are:

- the lack of the technical, managerial and financial resources to implement agricultural programmes; and,
- the problems of mobilising these resources, both from within the region and externally.

These problems are compounded by the:

- low level of technology among small scale farmers; and,
- inability of support and extension service, and the marketing infrastructure, to meet the needs of farmers; and,
- military and economic destabilisation by South Africa.

Even when these constraints have been overcome, agricultural production is dependent on:

- the vagaries of the weather; and,
- the region's fragile environment.

Since production is largely undertaken by small holders, and is almost exclusively rainfed, weather conditions can nullify the best laid development programmes.

Long Term Problems

Good harvests in 1985 and 1986 have dramatically improved the short term food outlook in several countries in the SADCC region. But beneath this welcome turn of events are five long-term problems:

- * Food production-population imbalance
- * Lack of jobs in rural areas
- * Poverty, malnutrition and household food insecurity
- * National and regional food insecurity
- * Environmental Degradation

It is worth examining each of these problems:

Food Production-Population Imbalance

Rapid population growth is increasing the pressure on food supplies and the natural resources base, including fisheries, fuelwood and grazing land for wildlife and livestock. In many SADCC States, growth in population and incomes will demand that food supplies grow at four to five percent per year; an awesome task in the light of historical evidence. For example, the few countries achieving these rates of growth of food production have brought large areas of idle land under cultivation and/or intensified irrigated production. Moreover, few countries have achieved, and sustained, four to five percent annual growth rates for the agricultural sector as a whole for a decade or more. For example, from 1880 to 1960, the annual compound rate of growth of agricultural output was 1.5 percent in the US and 1.6 percent in Japan. In short, rapid population growth necessitates that expansion of efficient food production be one of the cornerstones of food security strategies in SADCC. Food aid can help to fill the food gap as it did in India for 15 years, 1956-71. In the final analysis, however, each member State must develop a cost effective strategy to ensure food availability through local production, storage and trade.

Lack of Jobs in Rural Areas

On average, seven out of ten people are living in rural areas in the region. The majority of the people will still be living in rural areas by the year 2000, because of the stark inability of the industrial, and service sectors to generate adequate jobs. For example, in the twenty two low income countries in Africa, the labour force in agriculture fell by only six percentage points (84 to 78) over a sixteen year period - 1965 to 1981.

SADCC member States recognise that rural employment generation will be as important a challenge in the 1990s as expanding food production has been during the 1980s. For example, in Zimbabwe's 1986-90 Development Plan, rural employment generation is being given high priority because roughly 85,000 school leavers have been added to the labour force for each of the past three years. It is estimated that only about 6,000 of the 85,000 school leavers in 1986 will find jobs in the industrial and services sectors. Finding productive employment for the remainder in farming and rural non-farm activities is a major challenge for planners and local communities.

SADCC's food and agriculture strategy addresses the following employment question: What can be done to help school leavers, redundant workers in mining and parastatals, and returning miners from South Africa, find productive employment in agriculture and rural non-farm activities until population growth declines or industrial expansion creates more urban employment opportunities? This challenge requires far-reaching programmes to bring more land under cultivation, increase the productivity of land presently in use, promote rural growth points and market towns, employment-intensive industries and long-term public works programmes. These programmes can fulfil the triple objectives of providing jobs, increasing the purchasing power to acquire food, and developing rural infrastructure.

In summary, the emerging employment crisis requires a medium and long term perspective, since the newcomers to the labour force in year 2000 are already born. Close cooperation between industrial and agricultural planners is required to develop policies and programmes that concentrate on increasing the rate of agricultural growth and spreading employment opportunities throughout the rural economy.

Household Food Insecurity

The Food and Agriculture Organization (FAO) estimates that about one-fourth of the people in Africa were malnourished in 1985. The concept of food security has gained wide acceptance over the past few years. SADCC embraced the concept of food security six years ago at its inaugural Summit meeting; and the World Bank endorsed this concept in its publication Poverty and Hunger in January 1986.

Food security is defined as ensuring that all members of society have access to an adequate diet throughout the year. The key elements of a food security strategy are the availability of food (through domestic production, storage or imports) and the ability to acquire adequate food through home production, purchase in the market, food for work programmes or food grants.

SADCC member States recognise the special role of women in agricultural and general rural development and, therefore, in the achievement of household food security. Therefore, policies and measures are being developed, as part of the overall strategy for agricultural development, which will enhance and facilitate the participation of women, not only in the chores of production, but in the appropriate planning and decision-making processes.

The problem of food insecurity can be tackled at the household, national and regional levels. Expanded food production and grain storage will not automatically solve malnutrition nor household and national food insecurity problems. For example, India is

self-sufficient in basic food grains and it donated 100,000 tonnes of food aid to famine-stricken African countries in 1985. India is now, however, devoting increased attention to malnutrition and household food insecurity problems because around one-fourth (200 million) of its total population do not have food security, at the household level.

The thrust of SADCC's food security strategy is clear; research on food crops, and investment in food production and storage are essential but not sufficient vehicles for solving malnutrition and household food insecurity problems. The reduction of poverty is a central part of a strategy to reduce food insecurity and malnutrition. Rural income and employment generation, food aid, and public feeding and public works programmes are important components of a strategy to tackle malnutrition and food insecurity among the poor, the underemployed and the sick.

National and Regional Food Insecurity

From 1980 to 1986, SADCC's main concern has been getting food and agriculture programmes moving, with the aim of reducing its food dependence on South Africa and the world at large. Changes in the world food economy and international capital markets dramatise the need for SADCC's agricultural strategy to be continually modified in the context of changing international realities. National and regional food insecurity can originate from drought and national, regional and international economic forces, including the following:

- * natural disasters such as drought, floods and disease and pests;
- * blockades and disruption in transport routes; and,
- * shifts in international prices of food imports and export crops.

Since SADCC economies are open and heavily dependent on international trade for food imports, such as wheat, and for exports, such as beef, cotton, coffee and tea, it follows that national and regional food insecurity can originate in sudden and unpredictable shifts in commodity prices and concurrent increases in foreign exchange requirements for food imports. For example, in the early 1970's, wheat prices in international markets rose from US\$60 to US\$220 per tonne in just 18 months. World sugar prices peaked at 45 cents a pound in 1980 but then fell steadily to 3 cents a pound by 1985 and recovered to 9 cents by mid 1986. Since world cotton production has been running ahead of demand, world prices fell to 60 cents a pound in 1985, a one-third reduction from 1980 prices.

Research on international commodity markets is a crucial input into national and regional food policy analysis. The challenge is to design cost effective national and regional food security policies to combat a given level of risk associated with drought, pests, e.g. locusts, transport disruption and international price movements.

To anticipate rather than respond to changes in the world food economy, SADCC invites its cooperating partners to help increase its policy analysis capability as part of the strategy to develop local capacity in economic management.

Environmental Degradation

Evidence from a wide range of scientific studies indicates that sustained overuse of biological systems can lead to a cascading effect that is difficult to reverse. The loss of top soil, tree and grass cover from increasing human and livestock pressure is now a fact of life in the region and in other parts of Africa. For example, livestock numbers in Africa have increased 75 per cent from 1950 to 1983. In a number of SADCC countries, fuelwood consumption is now running far ahead of tree growth. There is, therefore, a need to address the problems of environmental degradation in the region. There is a need to implement measures to preserve natural resources and a healthy environment. But these measures require sound economic analysis and close cooperation between specialists in ministries of natural resources and ministries of agriculture.

IV. NATIONAL AGRICULTURAL POLICIES AND POLICY REFORMS UNDERWAY

SADCC member States have, in recent years, reassessed their policies for stimulating agricultural production and rural development. As a result, important policy adjustments are underway within the region which hold the promise of increasing production and reducing poverty. Among the common approaches being adopted are:

- * All member States are pursuing policies to increase local staple food production and reduce imports.
- * All member States recognise that both small and large scale farmers have an essential role to play in national agricultural production.
- * All member States are implementing policies, including pricing policy reform, aimed at increasing agricultural production, and are seeking to increase the role of private enterprise, especially in agro-industry and marketing.

- * All member States are implementing policies aimed at attracting local and foreign investment in agriculture.
- * All member States give high priority to strengthening agricultural institutions; particularly, extension, research, marketing, credit and input-supply.
- * All member States seek to develop their scientific, technological and manpower capabilities in order to shift to a science-based agriculture.

Botswana deserves special mention for developing innovative programmes to tackle both sides of the food security equation. Now in the fifth year of drought, Botswana is providing supplementary food and financial assistance to about 60 percent of its population during some time of the year. Botswana's food security programmes are being carried out by inter-ministerial committees reporting to the Vice President who is also the Minister of Finance and Development Planning.

Zambia has recently taken some tough political decisions to shift its economic base from copper to agriculture because the real output of its economy has been declining for the last decade. Under Zambia's restructuring programme, agriculture is being given the number one priority. In October, 1985 a weekly foreign exchange auction was introduced and the Kwacha depreciated 61 percent in three months. Spare parts and consumer goods are now more readily available, both essential incentive goods in rural Zambia. Zambia has raised official producer prices, especially for maize and has reconstituted its seed parastatal with the assistance of a private seed company from Sweden and technical assistance from SIDA. Zamseed recently released four new maize varieties that were developed by the national maize research team of ten scientists in the Ministry of Agriculture. Zambia is now on the verge of self-sufficiency in maize, mainly because of dramatically higher prices in 1985/86 (from K28.32 to K55 per 90 Kg bag), improved varieties and favourable weather. Zambia's maize crops for 1986 is estimated at 1.1 million tonnes, enough for domestic consumption until the next harvest begins in June of 1987.

In January of 1986, Zambia announced the termination of the monopoly of the National Agricultural Marketing Board (Namboard) in maize and fertilizer marketing. Under the new policy, it will be possible for Namboard, cooperative societies and private traders to participate in the marketing of maize and fertilizer. Namboard will, however, remain the buyer of last resort and be responsible for maintaining the nation buffer stock of grain.

Zambia's decision to introduce floor prices to replace official guaranteed prices (intended to cover production costs) for the 1986/87 maize year is a major innovation that is designed to reduce the government cost of storing unexpected large crops. A floor pricing policy also permits a farmer to sell his crop at higher than floor prices prevailing in the market.

Angola and Mozambique are seeking to increase incentives and support to small scale and private farmers, and to streamline and increase the productivity of state farms. These countries are also encouraging foreign private investments in agriculture and agro-industries. Mozambique is also implementing a programme whereby agricultural exporters are allowed to retain a percentage of the export earnings they generate.

SADCC member States, notably, Zambia and Zimbabwe, are pursuing policies to reduce food subsidies. For example, Zambia recently announced the elimination of the subsidy on maize used in making beer, stock feed and breakfast meal (a twice ground maize meal principally consumed by higher income groups).

Conclusion

SADCC States are taking important steps to revamp their agricultural policies, institutions and incentives structure for farmers and traders, including an expanded role for the private sector in agro-industries and grain trade. However, serious development problems remain that cannot be dealt with by individual member States in a cost-effective manner. SADCC's regional strategy for food and agriculture is designed to reinforce the capacity of member States to implement these policies. Such policies require major investments and may involve significant social costs. Furthermore, the benefits will often take some time to be realised. SADCC's cooperating partners are, therefore, urged to increase significantly the flow of concessional and non concessional funds, technical assistance and other inputs.

V. A REGIONAL STRATEGY FOR FOOD, AGRICULTURE AND NATURAL RESOURCES

OVERALL STRATEGY

Objectives

SADCC's strategy for food, agriculture and natural resources is designed to achieve the following basic objectives:

- Provide a framework to integrate SADCC's regional and national policies and projects and harmonize investments that cut across sectors such as agro-industry and human capital improvements;
- Reinforce and facilitate the efficient growth of food and agricultural production in member States;
- Increase rural incomes and facilitate employment generation in member States in order to help translate the food needs of rural people into effective demand to purchase food in the market;
- Assist member States in designing policies, programmes and projects to increase household food security and to ensure an adequate diet for all members of society;
- Increase national and regional food security to ensure against bad harvests, natural disaster and reduce food dependence on South Africa and other sources;
- Foster the efficient development, utilization and conservation of natural resources and protection of the environment;
- Generation of domestic savings and foreign exchange to finance a gradual structural transformation of agricultural-dominated economies to those producing a larger percentage of industrial goods and services.

Main Elements

Experience has shown that no single factor - i.e., new food crop technology, or higher prices - can increase total national agricultural production and sustain it for any significant period of time. No amount of political will, policy reform, or change in the relative price of one commodity, can increase the rate of growth of total agricultural output and sustain it over a period

of several decades. SADC member States fully recognise the need to focus on the following elements of agricultural development as a policy package:

- Bringing more land under cultivation, consistent with sound land use practices;
- New technology that is produced by public and private investment in agricultural research;
- Human capital (i.e. managerial, professional and technical skills) that are produced by investments in schools, training centres, and on-the-job experience and training;
- Biological capital investments (e.g., improving livestock herds) and physical capital investments in infrastructure such as dams, irrigation and roads;
- Improvement in the performance of institutions such as marketing, credit and national agricultural research and extension services;
- Favourable economic policy environment.

To achieve progress in most of these areas requires the development of programmes of a long gestation period: often between ten to twenty years. For example, experience has shown that it takes around ten years of research on the average, to produce a new plant variety, and another five to eight years to gain widespread farmer adoption. It takes five to ten years of post graduate study and on-the-job training for an agricultural research scientist to be productive. It takes several decades or more to develop irrigation and water management planning capacity in countries with little experience in irrigation and a decade or more to help farmers develop efficient farmer irrigation associations.

SADC requests its cooperating partners to make an explicit, long term commitment to financing long term (minimum ten year) projects and programmes to develop indigenous scientific, managerial and technical capacity in the region. This issue requires discussion and debate. SADC views the strengthening of its indigenous scientific capacity as an essential step in moving to science-based and sustainable production systems for rainfed and irrigated farming, fisheries, forestry and game ranching.

In the meantime, however, some member States are facing a crisis of production which requires exceptional measures. It is essential that programmes are put in place which will provide the necessary inputs so that farmers can produce; both to feed themselves and their families, and contribute to national and

regional food security. At present there are areas in the region which need emergency assistance without which it will not be possible to provide the basis for such longer term programmes.

Criteria for the Selection of Projects

The basic criteria for the selection of regional projects is whether or not they contribute to the objectives of SADCC as defined in the Declaration - Southern Africa: Toward Economic Liberation. SADCC development objectives which will be pursued "through coordinated action" are:

- the reduction of dependence, particularly, but not only, on the Republic of South Africa;
- the forging of links to create a genuine and equitable regional integration;
- the mobilisation of resources to promote the implementation of national, interstate and regional policies;
- concerted action to secure international cooperation within the framework of our strategy for economic liberation.

In the Food, Agriculture and Natural Resources Sector there are certain projects which, though national in character, have clear regional significance: viz,

- Research projects that require concentrated human capital (e.g., 5 to 8 researchers) or physical capital (e.g., laboratories) that can produce products such as seeds or tea clones that can be diffused to neighbouring States.
- Training projects that capitalize on the unique comparative advantage of a member country (e.g., Lake Malawi) by developing more relevant training programmes than those available outside the region.
- Pilot projects with regional spin offs. The IDRC funded research on developing a sorghum dehuller in Botswana is a good example. This project has produced prototype machines and blueprints that are being used to manufacture the machines in Tanzania.

In addition, however, given the crisis facing a number of member States, regional solidarity requires that support be given to food production projects in food deficit countries with critical shortages of foreign exchange; and which do not, necessarily, have any direct impact on any other member States. The criteria for such special projects are:

- that priority be given to staple food crops with proven technical packages;
- that priority be given to integrated rural development and food production projects for the benefit of small scale producers;
- that the implementation of the project will reduce dependence on South Africa and international markets; and,
- that the implementation of the project will create rural employment and/or absorb workers from South Africa or those retrenched in, for instance, the mining industry or the parastatals.

The Food Security sector coordinating unit will need to be strengthened to assist member States in the identification, evaluation and coordination of this special programme of national food production projects. It is envisaged that the process of identification will be complete during the second quarter of 1987.

VI SECTOR STRATEGIES

The sub-sectors in this programme are clustered in two groups: food and agriculture - comprising, Food Security, Agricultural Research and Livestock Production and Animal Disease Control; and natural resources and the environment - comprising, Soil and Water Conservation and Land Utilisation, Fisheries, Forestry and Wildlife.

Food and Agriculture

Food Security

The regional food security strategy has been modified to take account of the changing food situation in the region over the past three years. To date, the regional programme has focused on helping member States increase food availability through expanded domestic production and national and regional grain storage. This thrust should be continued in food deficit countries. However, there is ample evidence in food surplus member States that increasing food production and achieving national food self-

sufficiency will not automatically end hunger and malnutrition. For these reasons the goal of SADCC's updated food security strategy is to increase household, national and regional food security. The strategy recognizes that member States have a comparative advantage in dealing with household and national food security issues. SADCC's regional Food Security programme focuses on national and regional food security policy issues.

The updated food security strategy reiterates the strategic importance of increasing food production in food deficit member States. It requests cooperating partners to give first priority to helping increase food production in food deficit countries, and to support crop diversification projects such as export crops, horticultural crops, dairy products, industrial crops and rural small scale industries.

The Food Security Administrative Unit is in the process of reorganizing its programme of work consistent with this updated strategy. The principal elements of the programme are:

- development of mechanisms for the exchange of information;
- reinforcement of national food production capacity;
- improvement of the food storage, delivery, conservation and processing;
- development of cash crops and other agricultural enterprises;
- establishment of systems for the prevention of food crisis and the development of national food security strategy;
- establishment of programmes for the control of major crop pests and crop diseases;
- development of skilled manpower; and
- development of intra-regional trade in food and other crops.

The present twelve regional food security projects are being regrouped into programmes that explicitly address both sides of the food security equation:

- Agricultural Resources and Food Production
- Food marketing
- Food storage and processing
- Intra-regional and international trade
- Food aid

- Food for work
- Nutrition
- Income and Employment generating projects

Food security policy studies will be the main analytical technique used to integrate the various projects and programmes under food availability and access to food. In view of the dearth of hard information on the trade-offs in pursuing alternative food security policy options in the region, the Food Security Unit will gradually increase its capacity to carry out policy analyses and provide technical assistance to member States.

Details of the status of projects in this sector can be found in Annex One.

Agricultural Research and Training

Historically, agricultural research institutions in the region have focussed on cash/export crops for both small and large scale producers. The research was undertaken almost exclusively by expatriate staff. Initially SADC identified sorghum and millet as the priorities for regional research programmes. Subsequently, regional projects were developed for grain legumes and land and water management. These projects are in various stages of planning and execution.

Maize self-sufficiency in Malawi, Zimbabwe and Zambia has demonstrated the need for a comprehensive regional agricultural research strategy. Since rural poverty is a central cause of malnutrition and household food insecurity, SADC's regional research programme will be broadened to include cash, export and industrial crops. The output of a broad regional research programme will be new production technology that can be used by member States to generate new income generating activities and jobs to raise the per capita income of rural people.

Careful analysis will be needed to determine whether new regional research projects and networks should be taken on by SACCAR. For example, should SACCAR develop a long term regional fruit and vegetable research programme? Should SACCAR develop research programmes on rubber, fibre, nitrogen-fixing trees and some of the thousands of different fruit species not in commercial production? For example, of the 3000 different tropical fruit species in Africa, Asia, Latin America, the Caribbean and the Pacific only four - bananas, pineapple, papaya and mango - have been developed into major crops.

At present there is neither an adequately resourced horticultural research station nor a BSc degree - granting programme in horticulture in the SADC region. Moreover, member States find it difficult to obtain plant material or information from other

regions of the world. There is an need to study how SADCC can "catch up" with horticulture research and training in other parts of Africa.

The following are the overall objectives for SACCAR:

- the promotion and dissemination of available technology;
- the promotion and implementation of studies of problems common to all or to several member States and the initiation of cooperative research to overcome them;
- the generation of new technologies needed by farmers to raise the productivity of food and non-food crops, livestock, fisheries and forestry through regional collaborative projects and inter-country liaison;
- strengthening national agricultural research systems and capabilities;
- promotion of rapid and continuous provision, interchange and utilisation of scientific and technical information both old and new;
- provision of such regional support services and functions as may be necessary to assist and inform national and regional research activities.

SACCAR is developing specific strategies to achieve each of the above objectives.

Substantial long term investments in agricultural research are required in order to lay the foundation for a science-based agriculture and the diversification of SADCC's agricultural economy. The research investment should be broadly allocated to plant breeding, agronomy, irrigation, food science, food processing, agro-industry and economic policy analysis. SACCAR has prepared a list of second generation research projects and networks to discuss with its cooperating partners; these include irrigation, horticultural crops, and small ruminants (sheep and goats) and smallholder dairy, pig and poultry production. SACCAR is also planning to establish a maize research network.

There is a need to develop a long term blueprint to train more scientists in the region as illustrated by the following examples:

- * The stock of human capital in scientific fields per million people in Africa in 1980 was about one-fourth of the relative scientific strength of Asia in 1970;

- * In 1984, twenty-six percent of all professional staff in research, extension and agricultural training schools and faculties of agriculture in SADC States were expatriate;
- * The cost of expatriate advisors is around US\$80,000 to US\$150,000 per person per year;
- * The cost of training for MSc and Phd degrees in Europe and North America is around US\$30,000 and US\$80,000, respectively per person per year;
- * Cooperating partners generally have avoided long term investments in basic science research and building post graduate training capacity in universities in the SADC region. This pattern of decision-making assumes that technology transfer and applied research (e.g. farming systems) are adequate to solve the scientific needs of SADC agriculture.

The training strategy for food, agriculture and natural resources will be pursued within the policy framework for human resources that is being developed by Swaziland's Regional Training Council (RTC). In this regard:

- * The mandate of SACCAR will be broadened to include professional training in agriculture and natural resources, especially at post-graduate levels. SACCAR will thus give priority to developing a regional blueprint to phase out all overseas BSc training as soon as possible and to strengthen post-graduate training in agriculture in the region. The blueprint should be completed by December 1987.
- * The composition of the Board of Governors of SACCAR will be expanded to reflect the broadened mandate.

Details of the status of projects in this sector can be found in Annex Two.

Livestock Production and Animal Disease Control

The seventy million people in the region are supported by a large livestock industry, including some twenty nine million head of cattle and a growing small ruminant population of sheep and goats. Given the common property status of grazing land, the sub-sector is faced with many problems, including overstocking, poor breeding stock and inadequate support services to control diseases that cut across national boundaries. These problems are especially acute in the smallholder system which own some three quarters of the cattle in the region.

Over the 1980 to 1985 period the priority regional livestock programmes concentrated on disease control with emphasis on rinderpest and foot and mouth disease. To date, five regional projects have been completed, six are under implementation and thirteen still require support. Over the past six years the following lessons have been learned by the livestock sector coordinator and by member States:

- Disease control projects have a long lifespan. Moreover, experience has shown that some diseases such as rinderpest can reappear if the national livestock services are not adequately financed to maintain control after regional projects have been completed.
- Rinderpest and foot and mouth disease control should remain as the priority of priorities in the regional portfolio.
- The gains from SADCC's regional disease control projects cannot be maintained unless complementary improvements are made in animal nutrition, range management, and animal health.
- There is a growing demand for milk and dairy products and small ruminants.

On the basis of this experience the mandate for the livestock sector has been expanded and renamed the Livestock Production and Animal Disease Control Sector. The newly constituted sector will now also elaborate programmes for improved livestock production including dairy and pasture management, improving stock breeds and breeding methods. Associated with this will be efforts to develop a regional industry for the production of veterinary products and stock feeds. These initiatives will be pursued in cooperation with the SADCC Industry and Trade sector.

Details of the status of projects in this sector can be found in Annex Three.

Natural Resources and the Environment

Soil and Water Conservation and Land Utilisation

As a result of rapid population growth, food supplies through domestic production and/or imports will have to be doubled in the SADCC region over the next twenty to twenty five years. To double agricultural production in the region, more land will have to be brought under cultivation and present land use will have to be intensified.

There is widespread agreement that some of the land currently in agricultural use in SADC member States is deteriorating because of inappropriate land and water management practices. To date, however, comprehensive data on the extent and rate of soil degradation and loss are scarce in the region. Until this information is generated, it is impossible to assess the capacity of the land base to support future population growth.

Research in other regions of the world on the economics of soil conservation and watershed projects to halt soil erosion have yielded high economic returns in the form of improved productivity and income for the participating farmers. For example, watershed reclamation projects in the Indian foothills of the Himalayas yield a direct economic benefit - cost ratio of 2.5 to 1.0 and reduced sediment transported downstream by 90 per cent.

This brief overview points to the need for SADC and its cooperating partners to take the "long view" in anticipating the consequences of rapid population growth on the natural resource base over the next twenty five to fifty years. This means that SADC should foster research and studies to guide policy reforms and institutional innovations to adjust to rapid population growth. The outcome of these studies will provide practical information on how to develop sustainable production systems that can meet the needs of present and future populations.

SADC is in the early stages of mapping out a long term strategy to deal with soil and water conservation and land utilisation. Initial emphasis has been given to a series of seminars and workshops on cost-benefit analysis of soil and water conservation practices. Based on these successful experiences in raising the sensitivity of soil and water conservation issues among member States, SADC will be in a position within the next year to lay out a long term strategy for this sector for the period from 1990 to year 2000.

Details of the status of projects in this sector can be found in Annex Four.

Fisheries

At one time it was thought that fish were an inexhaustible resource. Although oceans cover nearly three quarters of the earth's surface, it is now understood that much of the ocean is infertile and between ten and twenty percent of the world's fish catch is wasted through spoilage. Moreover, state and private investment are not forthcoming (except in equipment for catching and processing the fish) to increase the productivity of the world's fisheries because of the open access, common property organisation of most of the world's oceans and inland fishing. The consequences of open access and year round fishing (e.g. on

that, because of over fishing, the world fish catch is at present less than it might have been and some of the most seriously depleted fish stocks are in inland fisheries in the Third World that provide livelihoods for millions of poor families.

At present, SADC member States have a vast fisheries resource base. The marine fisheries of the region's three maritime states, namely Angola, Mozambique and Tanzania, involve both commercial and artisanal types of fishing. To date, most emphasis has been placed on commercial marine fisheries. About 15 percent of SADC's 5.7 million sq.km is inland waters which yield a total of about 300,000 metric tons of fish or about 5 kg. per head.

Under the leadership of Malawi, a regional fisheries strategy has been developed. The first step in developing the strategy was to send a mission to visit each of the member States to discuss the major issues with technical and professional staff. The regional fisheries strategy is proceeding along three tracks; marine and inland fisheries and aquaculture:

- The marine fisheries strategy calls for numerous measures to assist Angola, Mozambique and Tanzania to achieve self-sufficiency and to export the balance.
- The strategy for the development of inland fisheries (lakes, rivers and swamps) consists of training, stock assessment, marketing and distribution.
- Aquaculture production is increasing worldwide at a rate of about seven per cent per year. Since SADC member States realise that, sooner or later, the region's inland waters will not be sufficient to meet the future demand for fish, all States - except Botswana - currently have aquaculture programmes at various stages of implementation.

The missing link in SADC's three fisheries programmes to date is solid scientific research to guide the transition from fish harvesting to controlled access to fisheries and the expansion of aquaculture. There is a need for sound scientific studies to focus on both technical as well as organisational issues under actual management conditions (e.g. Lake Kariba). Unless the technical and organisational research is carried out at the same time under actual field conditions in the region, the optimum use of the region's fisheries base will likely not be achieved.

Details of the status of projects in this sector can be found in Annex Five.

Forestry

Although forests are holding their own in industrial countries, the area under forests in the Third World is shrinking at the rate of eleven million hectares per year, mainly because of farmland that is being brought under cultivation. In Africa, about 3.6 million hectares of forests are cleared each year at an annual rate of one percent of the remaining forests. The World Bank recently concluded that the current rate of tree planting in some African countries is less than one fifth of the rate needed to assure a reasonable supply of fuelwood, fodder and poles by the year 2000.

At present, some sixty percent of the total land in SADC states consists of open Miombo woodland, relatively dry *Brachystegia* savanna woodlands and grasslands. Approximately nine percent of land has been set aside for forestry and environmental management purposes such as conservation, management of vegetative cover for environmental protection and the protection of vital headwater catchments.

The major forestry problems in the region are a shortage of fuelwood for both urban and rural use, depletion of woody vegetative cover essential for environmental protection and a lack of trained manpower for research and support services.

Malawi, as the coordinator of the forestry sub-sector, has responded to these challenges through the establishment of a technical sub-committee for forestry in 1983. The policy of the Forestry sub-sector is to promote sustained regional self sufficiency in all forest and wood products, the improvement of the economic and social welfare of the region; and to protect, manage and control forest resources so that they contribute significantly to the overall strategy of enhancing food and agricultural production.

Strategies to achieve the policy objectives are the following:

- Identification of specific areas needing protection, management or control from over-exploitation;
- management of permanent forest cover in order to prevent soil erosion, enhance water production and minimise downstream negative impacts;
- provide commodities such as woodfuels, fruit, honey, mushrooms and poles.

Malawi now has a Forestry Technical Unit in operation. Three regional forestry projects are being implemented, four are under negotiation with cooperating partners and eleven were recently prepared.

Details of the status of projects in this sector can be found as Annex Six.

Wildlife

Wildlife is an important renewable natural resource for the SADCC region. At present 11.5 percent of the land area in the region consists of national parks, indigenous forest reserves and game reserves and game management areas.

Under the leadership of Malawi, the thrust of SADCC's wildlife strategy is to develop long term approaches to wildlife management that are socially and politically acceptable, ecologically viable, profitable and sustainable. This implies sustainable yields in the form of culling, game ranching, hunting, bee-keeping, crocodile farming, photographic safaris as well as the sale of meat hides and other wildlife products. The aim of SADCC's strategy is to build up stocks to levels that can be utilised on a sustainable yield basis.

SADCC's wildlife programme for the 1986-90 period is focussed on: restocking and establishment of new conservation areas, public education, management workshops, study tours, preparation of master plans and upgrading infrastructure in conservation areas.

Zimbabwe is gaining world attention among wildlife authorities because game ranching appears to be a self-spreading innovation induced primarily by market forces. In fact, sixty seven commercial farmers in Zimbabwe are practicing game ranching. A preliminary report on the economics of commercial game ranching in Zimbabwe is encouraging but long term (i.e. ten to fifteen year) research is needed to determine whether these systems are environmentally sound and sustainable. To date, game ranching in Zimbabwe and other SADCC states shows that wildlife is a highly marketable commodity that shows promise of being managed for the continuing benefit of local people.

Details of the status of projects in this sector can be found as Annex Seven.

Annex One

FOOD SECURITY

FOOD SECURITY

STATUS OF OF CURRENT PROJECTS

The current Food Security Programme consists of twelve discrete regional projects and a number of projects which have been designated national projects with a regional impact. Following the review of SADCC's work in the area of Food, Agriculture and Natural Resources it has been decided to re-organise both the implementation of these projects, and the structure of the Food Security Technical and Administrative Unit. This re-organisation will allow for some rationalisation of support services and, at the same time, will provide the Unit with a more coherent and comprehensive technical capacity.

Also as a result of the review, new criteria have been agreed for the identification and selection of national projects and it is envisaged that detailed guidelines will be developed to assist member States to develop projects which address the priority needs of the region. An early priority for the newly constituted Food Security Technical and Administrative Unit will be to work with food deficit member States to identify a group of production projects which will be presented for support from SADCC's cooperating partners.

Regional Projects

Project: 1.0.1.

A General Technical Assistance Programme to Achieve Coordination and Cooperation on All Agrarian Issues.

During the past twelve months the project has funded the following activities of the sector Coordinating Unit:

- the joint meeting of the sector's Consultative Technical Committee held in Angola;
- a meeting of SADCC technical experts to review the Regional Food Reserve/Food Aid feasibility study held in Malawi;
- sponsorship of SADCC participants to the Workshop for the Southern African Region on the Basics of Soyabean Cultivation and Utilisation held in Zimbabwe;
- the meetings of the Working Group on SADCC's strategy for Food, Agriculture and Natural Resources; and
- the workshop in Post-Harvest Losses held in Arusha.

An additional grant of US\$500 000 providing for an extension of the project to February, 1988 has been agreed with USAID.

Project: 1.0.2

SADCC Early Warning System for Food Security

The FAO funded pre-implementation phase of the project was completed in June, 1986 and the nucleus of the Regional Early Warning Unit has been established in Zimbabwe. Three training seminars for staff of the National Early Warning Units were conducted in Dar-es-Salaam, Lusaka and Harare. Four of the seven agreements relating to the establishment of these Units have been signed.

Project: 1.0.3.

Regional Resources Information System

The agreement with the UNDP relating to the funding of the pre-implementation phase of the project has been signed and recruitment of SADCC personnel is proceeding.

Project: 1.0.4.

Regional Inventory of Agricultural Resource Base

Significant progress has been made in compilation of data for the Inventory. Technical Liaison Officers have been appointed in six member States. A workshop on the methodology of agro-ecological zones was organised jointly with FAO and followed by a meeting of the Technical Liaison Officers.

Project: 1.0.5. and 1.0.9.

Regional Food Reserve and Regional Food Aid

A feasibility study on both projects has commenced. On the basis of preliminary reports and consultations, it has been decided that detailed costing and design of the Reserve should be based on a fund to enable member States to buy options to purchase grain when required. The consultants for the study are proceeding with their investigations and have produced three discussion papers on which member States have been invited to comment.

Project: 1.0.6. and 1.0.7.

Post Production Food Industry Advisory Unit (PFIAU)

The PFIAU has encouraged the establishment of National Post Production Systems Advisory Committees to assist the Unit to identify areas in which it can provide support. Committees have been established in Angola, Botswana, Lesotho, Malawi, Tanzania, Zambia and Zimbabwe. Some of the activities undertaken by the PFIAU which were initiated by these Committees included:

- A practical training course in grain silo storage conducted in Harare which was attended by five Swazi Depot Managers. As a follow-up, the PFIAU is assisting

Swaziland with the formulation of a project to examine the soundness of the structural design of its silos and their physical and operational status.

- Assistance to Angola in the formulation of a project aimed at the development of cassava processing technology. Donor interest in funding the project has been expressed.

Project: 1.0.8.

Regional Food Marketing Infrastructure

It has been decided that further investigations required to complete the feasibility study be undertaken by each member State working together with a small team of experts drawn from within the region assisted by a consultant.

Member States were invited to nominate their representatives to a working group which will determine the approach to be adopted in revising the individual country report component of the study. Member States were also invited to nominate persons who could make up the small team of experts.

Project: 1.0.10.

Recruitment and Retention of Professional and Technical Staff in the Ministries of Agriculture

Data for this project is still outstanding from two member States which have undertaken to follow up this matter urgently and advise the Sector Coordinator.

Project: 1.0.11.

Regional Seed Production and Supply

Terms of reference for a feasibility study have been finalised and negotiations with DANIDA on funding of the study are in progress.

Project: 1.0.12.

Improved Irrigation in the SADC Region

Significantly revised terms of reference for a feasibility study have been finalised and negotiations for support for the study are proceeding with Australia. DANIDA, the EEC and the Ford Foundation have also expressed interest in the project.

It should be noted that SACCAR will undertake research aspects of this project whilst development aspects will be undertaken by the Food Security Sector.

NEW PROJECTS

Project: 1.0.13

Strengthening and Coordination of Migrant Pest Control in Southern Africa

There is, at present, great concern among SADCC member States about the threat which the current locust outbreak represents to agriculture in the region. It is recalled that the last major outbreak, which took place between 1929 and 1944, caused crop losses of up to 100% in some areas. The locust problem, however, has also highlighted the need for the region to strengthen its capacity to deal with migrant pests in general.

The Locust Emergency

Consultations are underway within the region, and with the FAO, to develop a comprehensive programme to combat the locust threat. In this regard member States have been urged:

- to mount locust awareness campaigns involving:
 - * the distribution of coloured posters and pamphlets to such places as schools, police stations, post offices, and extension staff stations, to assist in the positive identification of the pests;
 - * the use of the mass media to educate the public;
 - * appeals to the general public to report the presence of locusts to the authorities; and,
 - * warning to the general public not to eat dead locusts since they will be carrying insecticides.
- to improve communications both regionally and nationally:
 - * national information should be sent to the pest control coordinator and to the meteorological office;
 - * at a regional level this information will be passed on to the SADCC Food Security Unit which, in turn, will disseminate the information throughout the region.
 - * Such information should include: location; density; phase; stage of development; and, wind direction and speed.

- to ensure that they have the following available:
 - * adequate equipment like ULV and knapsack sprayers, aerial spraying facilities and protective clothing;
 - * adequate stocks of pesticides, e.g. fenitrothion;
 - * adequate trained personnel to deal with emergencies.
- to arrange for emergency votes for travel and subsistence to deal with locust invasions.

Every effort will be made by the SADCC Food Security Unit and the FAO to compliment each other's efforts in the dissemination of information on the locust situation and in advising on the material which is available for public education.

Overall Coordination of Pest Control

In addition a comprehensive programme for migratory pest control in the region is being elaborated by the Food Security Unit in consultation with the FAO. The primary development objective of this projects is to improve the capability of Ministries of Agriculture in the SADCC region to protect crops, particularly cereals, from losses caused by grain eating birds, African armyworms and locusts. The aim is to increase the yields of cereal crops by effective crop protection from the depredations of migratory pests, as part of the effort to achieve overall food security in the SADCC region.

This objective is to be achieved by clarifying and assessing the migratory pest problem and the crop losses due to them in the region. Existing crop protection units concerned with migratory pests will be strengthened both materially and by training inputs. Where none exists, the minimum requirements for successful and cost effective national crop protection units to deal with migratory pests will be determined and recommended to governments.

The immediate objective of the project is to develop an integrated approach for the economic and efficient control of migrant pests including actions at national and regional levels and the introduction of equipment and control methods suitable against migrants pests, including: bird pests, armyworms, locusts.

Appeal

SADCC's cooperating partners are urged to contact the Food Security Unit with regard both to the needs of member States to combat the current locust outbreak and the overall project for the strengthening and coordination of migrant pest control. Detailed costs and project descriptions will be available from the Unit.

Project: 1.1.3

Establishment of a Technical Unit for the Preparation and Monitoring of Projects in the Field of Agriculture, Angola

Angola's participation in SADCC activities in the field of Food, Agriculture and Natural Resources is severely constrained by the lack of trained personnel in the Ministry of Agriculture. This problem hampers the identification, development and implementation of projects of both a national and a regional character. SADCC, therefore, urges its cooperating partners to provide technical assistance to the Government of Angola to strengthen the technical capacity of its Ministry of Agriculture in order both to improve the quality of its Agricultural programmes and enhance Angola's participation in and contribution to the SADCC programme in this Sector.

Project Objectives

- To control the quality, coherence, the technical and economic feasibility of the projects, including their integration into regional projects within the context of the SADCC;
- to secure the follow-up of operations and monitoring of such projects during the period of their execution;
- to establish a system of control of the results of the projects within the framework of the national planning;
- to secure a programme of on-the-job training for personnel in the Ministry of Agriculture during the execution of the project. This programme should result in a number of well trained and qualified national personnel capable of preparing and analysing the projects once the foreign assistance is over. Although indirectly, the present of the Technical Unit in the Ministry of Agriculture will also contribute to a rationalisation insofar as the procurement of agricultural inputs are concerned. In addition, the above mentioned Unit will also assist in the improvement of the commercialisation system of the agricultural products.

Project Results

The following are the main results expected from the project:

- to develop, within the Ministry of Agriculture, technical capacities for preparing agricultural project documents;

- in accordance with local conditions, develop an adequate system for the control of the execution of the projects;
- preparation of annual reports. Such reports should contain an extensive evaluation of the results of the projects. When deemed necessary, the reports should include proposals aiming at readjusting and improving project activities;
- to train national personnel with a view to rendering them capable of preparing, evaluating and controlling programmes and projects in the field of agriculture.

Project Activities

Main project activities are as follows:

- permanent operational assistance (three experts for two years) plus specific intervention missions (twelve man/months of consultancy services);
- training activities;

More precisely, project activities will consist in the technical support to the Ministry of Agriculture regarding:

- preparation and agricultural projects and related technical/economic evaluation;
- the elaboration of proposals for the rectification of the same projects;
- the preparation until the second year of the project, of a system of control and evaluation of projects;
- the preparation of an annual report covering the results of the project, including the study and the proposals for the better conduct of project operations.

Experts' Main Tasks

Project Manager

This expert would possess considerable experience in analysing agricultural projects as well as in the preparation of the dossiers to be submitted to SADCC. In close collaboration with a unit of Angola technicians of the Ministry of Agriculture, the Expert will organise and lead the preparation and formulation of project documents, including their monitoring. He will also be in

charge of preparing the progress reports as well as the final report. In addition he will supervise the expatriate staff and secure good personal relations between the foreign and the national personnel. The project Manager will also be responsible for the equipment and other material at the disposal of the project. The team would consists of the following experts:

Acro-economist: this expert should possess considerable experience on economic analysis, a priori and a posteriori of agricultural and livestock projects. He should also possess a sound experience in organising control systems for the same projects. He will issue methodological notes and will organise conferences on evaluation and control of projects to the attention of interested staff at the Ministry.

Expert in Livestock: this expert should have a good experience in preparing projects in the field of livestock. Also, he should have a good knowledge of the different breeds of cattle and principal inputs, in accordance with the local ecological conditions and the socio-economic situation of the country. He will further contribute in the preparation and analysis of the studies and projects in the field under review.

Specialists: The project will require twelve man/months of consultancy services to carry-out specific tasks as may be deemed necessary in the different sectors. In this context, a consultancy mission shall be required to the analyze the results of the projects on an individual basis, as well as to the agricultural development plans being developed by the Ministry of Agriculture.

Project Duration

The project will have a 2-year duration. Its activities will be developed in the premises of the Ministry of Agriculture which will make available the necessary physical infrastructure (houses and equipment, offices, etc.)

Project: 1.1.4.

Reinforcement of the National Service for Plant Protection -
Angola

Plant protection and pest control is a crucial element in the SADCC strategy for agricultural development in the region. This project seeks to strengthen the technical capacity of the Angola Ministry of Agriculture to enable it to undertake pest control programmes and increase its ability to participate fully in the regional pest control programme (see Project 1.0.13 above).

In Angola, as in other countries in the region, the damage caused by pests, diseases and weeds often brings the partial, and sometimes the total destruction of crops. The problem of plant protection, therefore, is of considerably economic significance. Furthermore, by extending the area under cultivation and through the use of improved seed varieties, irrigation, fertiliser, or greater mechanisation, the economic impact of such losses is greatly increased.

The Government of Angola has, therefore, decided to establish a plant protection department, within its Ministry of Agriculture, to take responsibility for the country's phytosanitary monitoring and supervision; and to develop specialised extension services. Priority will be given to the protection of the following crops:

- food staples (maize, cassava, rice, bananas, potatoes and vegetables); and,
- industrial crops (coffee, cotton and sunflower).

Angola's ability to achieve this objective is crucially constrained by the lack of trained and experience personnel. Technical assistance is, therefore, required both to assist in developing extension programmes and to support Angola's efforts in the field of training and in research.

Given the scarcity of trained manpower, and the communications difficulties within the country, it is very difficult to provide extension programmes throughout the country. Other methods will, therefore, be used, such as:

- technical extension service pamphlets; and,
- publication of information briefs and practical manuals on protecting crops from pests, diseases and weeds.

The development of these activities requires the revamping of laboratories and the training of competent professionals at every level.

The overall development objective of this project is to increase agricultural production through the more effective control of pests, diseases and weed by reinforcing Angola's plant protection service. The immediate goals of the projects are:

- to increase national research, execution and extension service capacity in the area of plant protection;
- to acquire new techniques to control pests, diseases and weeds by integrating the various methods: cultural and sanitary measures, chemical and biological control;
- to identify suitable pesticides and improve their application techniques so they will be better adapted to the conditions prevailing in the country;
- to establish an effective extension programme in the area of crop protection, emphasising the most economic and effective methods; and,
- to establish a programme to extend the formulation of agricultural pesticides in Angola.

The project covers the provision of technical assistance, training support and equipment. Detailed costing can be obtained from the Angolan Ministry of Agriculture, or from the Food Security Unit.

Project: 1.3.6.

Establishment of National Food Reserves and Self-Sufficiency Programme in Staple Food Grains, Lesotho

- Components+
1. National Food Reserves
 - A. Silos
 - B. Foodstocks
 2. National Food Self-Sufficiency
 - C. Machinery
 - D. Inputs

Total Cost: M54,970,000

Objectives

- Food Reserves and Food Stocks: the project seeks to reduce dependence on supplies from South Africa and to benefit from the generally lower grain prices in the world market; and
- to establish a strategic grain reserve to ensure uninterrupted supply. Details of this programme will be elaborated in the light of the overall regional food reserve project.
- Farm Input and Machinery: The project seeks to promote increased production of food grains by provision of necessary inputs; and
- to provide machinery and accessories necessary to place the country's arable land in production throughout the year. The project will be elaborated in the context of the proposed SADC National Food Production Projects.

Background and Justification

Lesotho depends on South Africa in many ways, from transport routes, employment and part of her revenue which accrues from the Customs Union Agreement. Of great concern is dependence in the food sector, where, at present, up to 69 percent of foodstuffs are imported from South Africa. It is forecast that, in 1986 alone, 97 400 metric tonnes of maize and 28,500 metric tonnes of wheat will be imported from South Africa. This makes Lesotho vulnerable to South African pressures like the recent border blockade. To combat this vulnerability it is estimated that five silos of 30,000 tonnes capacity will be needed to provide the nation with a six month reserve.

Lesotho is engaged in vigorous efforts to promote food production especially in the area of wheat and maize. The Food Self-sufficiency Programme which has been operating for the past five years has shown that it is possible to increase yields in maize and wheat production by the right combination of tractor mechanization and farm inputs. The programme has, been able to contribute over 40 per cent of total maize grain produced.

However this performance has not been without constraints. Given the drought, a large tractor fleet has been needed to take full advantage of meagre rainfall. However, even under normal circumstances the tractor fleet has had to be helped by private contractors from South Africa. Given the drought problems have also been compounded by the fact that, ploughing has had to be completed in just one month. Furthermore, the average family has not been able to afford essential inputs. Therefore, most of the potential land has been allowed to lie fallow since it was impossible for tractors to cover all of it; and/or because the owners could not afford the cost of inputs.

To overcome these constraints and to cover an area of over 100,000 acres the present TOU tractor fleet of 150 tractors will have to be increased, to at least 170 with complementary accessories of ploughs, discs planters and trailers. To minimize further loss in harvesting, five mechanical combines will also need to be added.

Activities of Various Components

Food Reserves and Stocks

In order to maximise the stability of the flow of grain supplies, the component will build storage silos to hold optimum levels of food reserves in major population concentration and high growth areas. The intention is to have storage capacity which can hold enough food supplies to last the nation for a period of six months. Initial food stocks to fill in these silos will have to be procured from world markets to enable future recycling with local produce in subsequent years. This component will also provide easily accessible grain collection facilities and equipment.

Food Self Sufficiency Programme (FSSP)

The Government has embarked on an intensive grain production of the staple food (maize, sorghum and wheat) in suitable areas. This programme is now on 50,000 acres, and contributes more than half of the national food production. The programme is based on full farmer participation availability of credit for inputs [fertilizer, seed, pesticides and cultural operations (ploughing and planting)] has resulted in higher production yields through socially and politically acceptable and desirable means. It is

recommended that this programme be increased by 100,000 acres. This component will serve dual purposes:

- a. It will finance annual farm inputs for the 1986/87 summer season and 1987 winter season loan.
- b. It will purchase tractors and all necessary equipment for ploughing most of the arable land in the lowlands.

The tractors and accessories will be leased to the farming community through tractor associations which are already in existence and attempts will be made to revitalise these or organise them in areas where they are not in existence.

The project will further revitalise the existing farm machinery workshops which have not been operational over the past few years. These workshops are in Leribe, Maseru and Mohale's Hoek. The project will manage these with the ultimate objective of handing them over to the Tractor Associations.

All equipment will be loaned to the Tractor Association which will repay the project at a time to be agreed upon.

Implementation

Cooperating partners in a position to assist in the implementation of either or both components of this project are invited to contact the Government of Lesotho, and the SADCC Food Security Unit, to obtain more detailed information.

Project	Project Title	Estimated Cost US\$ Million			Funding Secured & Source US\$ Million	Funding Under Negotiation US\$ Million	Financing Gap US\$ Million	Comments/Status
		Total	Foreign	Local				

SECTOR: AGRICULTURE - Food Security								
1.0.1	Technical Assistance Programme designed to achieve coordination & cooperation on all agrarian issues.	2.389	2.174	0.215	0.675(USAID) 0.149(Australia) 0.215(Zimbabwe)	1.35(USAID)	USAID has submitted a draft agreement which extends project life to 1988 and adds 0.5m. to the present amount.	
1.0.2	Early Warning System for Regional Food Security	5.38	5.38	-	0.130(FAO) 0.250(UNDP) 3.7(DANIDA)	- - 1.3	Preparatory stage completed June 1986. DANIDA grant for phase 2 pledged. Phase 2 to commence June 1986.	
1.0.3	Regional Resources Information System	4.95	4.95	-	0.25(UNDP)	4.5(Netherlands)0.2	Pre-implementation under way.	
1.0.4	Regional Inventory of Agriculture Resource Base	1.938	1.938	-	0.2(CFTC) 1.738(Ireland)	-	Study Completed. Project under implementation.	
1.0.5 & 1.0.9	Regional Food Reserve/ Aid	0.505	0.505	-	0.505(EEC)	-	Prefeasibility study complete. Feasibility study under way. Concept paper Presented by consultants in May 1986.	
1.0.6 & 1.0.7	Regional Post-Harvest Loss Reduction	2.077	2.077	-	2.077(CIDA/IDRC)	-	Studies completed. Project under way. Strategy Paper prepared & to be discussed.	
1.0.8	Regional Food Marketing Infrastructure	0.300	0.300	-	0.150(CFTC)	-	0.150 First Study recommended further investigation.	
1.0.10	Study on Recruitment and Retention of Professional & Technical Staff in Ministries of Agriculture.	0.245	0.245	-	0.245(CIDA)	-	Under Implementation.	

Project	Project Title	Estimated Cost US\$ Million			Funding Secured & Source US\$ Million	Funding Under Negotiation US\$ Million	Financing Gap US\$ Million	Comments/Status
		Total	Foreign	Local				
1.0.11	Study on Seed Production and Supply	-	-	-	-	-	-	A number of Donors have shown interest. DANIDA has been supplied TOR.
1.0.12	Regional Irrigation Management Programme Study	-	-	-	-	-	-	Australia has shown interest in funding the study. Modified TOR have been forwarded.
1.0.13	Strengthening and Coordination of Migrant Pest Control in Southern Africa	-	-	-	-	-	-	New Project.
National Projects with a Regional Impact								
1.1.2	Reinforcement of the Department of Soils and Climate of the Agronomic Research Institute. Angola	0.553	0.553	-	0.553(Italy)	-	-	Phase 1 complete. Phase 2 due to commence on completion of field data study.
1.1.3	Establishment of A Technical Unit for the Preparation and Monitoring of Projects in the Field of Agriculture. Angola	-	-	-	-	-	-	New Project
1.1.4	Reinforcement of the National Service for Plant Protection Angola	-	-	-	-	-	-	New Project
1.2.1	Seed Supply Programme. BOTSWANA	2.2	2.2	-	2.2(Botswana)	-	-	Under implementation.

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Project	Project Title	Estimated Cost US\$ Million			Funding Secured & Source US\$ Million	Funding Under Negotiation US\$ Million	Financing Gap US\$ Million	Comments/Status
		Total	Foreign	Local				
1.2.2	Water Relief Programme. BOTSWANA	1.5	1.5	-	1.5(Botswana)	-	-	Under implementation.
1.2.3	Gaborone Water Supplies BOTSWANA	20.0	20.0	-	20.0(World Bank, CDC, Botswana)	-	20.0	-
1.3.1	National Food Reserve, LESOTHO	3.8	3.8	-	-	-	3.8	SIDA financed feasibility study completed. Will approach EEC for project finance. Recurrent costs financed by Government.
1.3.2	Irrigated Vegetable Production, Lesotho	5.96	5.96	-	4.68(EEC)	-	1.28	2nd Phase of study being implemented.
1.3.3	Watershed Management Programme. LESOTHO	20.0	14.5	5.5	5.5(Lesotho)	6.6 (Netherlands)	7.9	Negotiations with CFTC and FAO on feasibility study and with UNDP and Netherlands for project.
1.3.4	Feed Mill, Lesotho	6.0	4.0	2.0	2.0(Lesotho)	4.0(Danida)	-	Danida Approached for funding.
1.3.5	Destocking Programme LESOTHO.	14.735	10.5	4.235	4.235(Lesotho)	1.4(USAID)	9.1	EEC approached for funding.
1.3.6	Establishment of National Food Reserves and Self-Sufficiency Programme in Staple Food Grains	-	-	-	-	-	-	New Project
1.4.1	Interim Grain Reserves MALAWI	-	-	-	-	-	-	Government examining Study reports.
1.4.2	Small Irrigation Schemes MALAWI	-	-	-	-	-	-	Government examining Study Report.

Project	Project Title	Estimated Cost US\$ Million			Funding Secured & Source US\$ Million	Funding Under Negotiation US\$ Million	Financing Gap US\$ Million	Comments/Status
		Total	Foreign	Local				
1.5.1	Production of Groundnut & Sorghum Seed. MOZAMBIQUE	8.65	5.0	3.65	3.65(Mozambique) 1.9(France)	3.1(IFAD)	-	France loan. Under negotiation with IFAD.
1.5.2	Establishment of Seed Security Stocks. MOZAMBIQUE	3.43	2.5	0.93	0.93(Mozambique)	2.5(IFAD)	-	Under negotiation with IFAD (with Project 1.5.1).
1.5.3	Reinforcement of Food Marketing Network MOZAMBIQUE	5.452	3.552	1.9	1.9(Mozambique)		3.552	Project revised to cover several projects in food marketing, some already funded bilaterally.
1.5.4	Reduction of Post Production Losses. MOZAMBIQUE	0.7	0.5	0.2	0.2(Mozambique) 0.5	-	-	Funding secured.
1.5.5	Establishment of Network Quarantine Stations. MOZAMBIQUE	0.975	0.75	0.225	0.5(DANIDA) 0.225(Mozambique)	-	0.250	Under implementation.
	Storage facilities. MOZAMBIQUE	20.6	15.2	5.4	3.6(Netherlands) 5.4(Mozambique)	-	11.6	Grant. Macala silo. Implementation due September 1986. Matola Silo feasibility study funded by F.R.G.
1.6.1	Rehabilitation of Irrigation Schemes. SWAZILAND	1.5	1.5	-	-	-	1.5	-
1.7.1	Kapunga Rice Project, TANZANIA	18.4	12.9	5.5	5.5(Tanzania)	-	12.9	-
1.7.2	Madibira Rice Project TANZANIA	22.5	19.0	3.5	3.5(Tanzania)	-	19.0	Interest from ADB
1.7.3	Eradication of the Larger Grainer Borer. TANZANIA	0.933	0.732	0.201	0.201(Tanzania)	-	0.732	Interest from Netherlands.
1.7.4	Water Development & Range Management. TANZANIA	10.0	10.0	-	-	-	10.0	-

Project	Project Title	Estimated Cost US\$ Million			Funding Secured & Source US\$ Million	Funding Under Negotiation US\$ Million	Financing Gap US\$ Million	Comments/Status
		Total	Foreign	Local				
1.8.1	Construction of Food Storage Facilities. ZAMBIA	4.021	4.021	-	4.021(CIDA,EEC & NORAD)	-	-	
1.8.2	Zambezi Water Resource Enhancement and Irrigation Programme. ZAMBIA	10.0	10.0	-	-	-	10,0	-
1.8.3.	Lukhanga Water Development. ZAMBIA	1.5	1.5	-	-	-	1.5	-
1.8.4	Luano Area Irrigation Project. ZAMBIA	1.5	1.5	-	-	-	1.5	-
1.9.1(i)	Interim Regional Grain Reserve ZIMBABWE. (84/85)	8.75	8.75	-	8.75(NORAD)	-	-	Project completed.
1.9.1(ii)	Interim Regional Grain Reserve ZIMBABWE (86/87)	8.28	8.28	-	-	-	8.28	Interest shown by Netherlands pending outcome of feasibility study on Projects 1.0.5.
1.9.2	Rural Service Centres & Market Programme Pilot Project. ZIMBABWE	1.95	1.95	-	1.0(Italy)	-	0.95	-
1.9.3	Rural Public Works Programme Ecological Up-Grading and Rural Income Underwriting. ZIMBABWE	50.0	50.0	-	6.0(Zimbabwe)	-	44.0	Project underway with local funding. Negotiations proceeding with Italy.
1.9.4	Land Use Reform Programme (Communal Areas). ZIMBABWE	16.0	16.0	-	2.0(Italy)	-	14.0	Project proposal to be finalised.
1.9.5	Communal Areas Management Programme. ZIMBABWE.	1.243	1.243	-	-	-	1.243	
1.9.6	Tractor Credit Fund. ZIMBABWE	10.5	10.5	-	-	-	10.5	