GOVERNMENT OF THE KINGDOM OF SWAZILAND

MINISTRY OF AGRICULTURE AND CO-OPERATIVES

REVIEW OF THE RURAL DEVELOPMENT AREAS PROGRAMME

Hunting Technical Services Limited

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Consultants in Agricultural Development

P.O.Box 1346,
Mbabane.
31st October 1983

The Principal Secretary,
Ministry of Agriculture and Co-operatives,
P.O.Box 162,
MBABANE.

Dear Sir,

Rural Development Areas Programme Review : FINAL REPORT.

We have pleasure in submitting our Final Report, scheduled to be presented at the end of the sixth and last month of the study. The draft of this report was submitted to you at the end of September, and was discussed at a meeting of the Steering Committee on 14th October 1983. In accepting the report, the Committee concluded that it complied with the Terms of Reference for the study.

We thank all those who assisted us during the study, particularly the staff of your Ministry, and we wish all those concerned success in their future endeavours to develop the rural areas of Swaziland.

Yours faithfully,

(B.Duncan)
Team Leader

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FIGURES

ANNEXES
(In separate volume)

CONTENTS

CONTENTS (cont'd)

TABLES

TABLES (cont'd)

ABBREVIATIONS

AACS	Agricultural Advisory Credit Scheme
ADB	African Development Bank
AEO	Assistant Extension Officer
AI	Artificial insemination
AU	Animal Unit
CCU	Central Cooperative Union
CGM	Cattle Grazing Months
CIDA	Canadian International Development Agency
CIMMYT	International Maize and Wheat Improvement Centre
CODEC	Cooperative Development Centre
CPC	Chief Project Coordinator (of RDAP)
CRDB	Central Rural Development Board
CSO	Central Statistical Office
CTA	Central Transport Authority
CWM	Cooperative Wholesale Market
DCP	Digestible Crude Protein
E	Emalangeni
ECU	European Currency Unit
EDF	European Development Fund
EO	Extension Officer
FAO	Good and Agriculture Organisation (United Nations)
GOS	Government of the Kingdom of Swaziland
IBRD	International Bank for Reconstruction and Development (World Bank)
IFAD	International Fund for Agricultural Development
IIRDCC	Inter-ministerial Inter-institutional Rural Development Coordinating Committee
ILO	International Labour Organisation
IRR	Internal Rate of Return
ITF	Individual Tenure Farm (land)
LAN	Limestone ammonium nitrate
LDO	Land Development Officer
LDS	Land Development Section
LEO	Livestock Extension Officer
LPEP	Livestock Production and Extension Project
LU	Livestock Unit
LUPS	Land Use Planning Section
MEU	Monitoring and Evaluation Unit
MOAC	Ministry of Agriculture and Cooperatives
MOH	Ministry of Health
NAMB	National Agricultural Marketing Board
ODA	Overseas Development Administration
PM	Project Manager
PS	Principal Secretary (of a Ministry)
PWD	Public Works Department
RDA	Rural Development Area
RDAMU	Rural Development Areas Management Unit

ABBREVIATIONS (Cont'd)

RDAP	Rural Development Areas Programme
RDO	Rural Development Officer
REC	Rural Education Centre
RMO	Range Management Officer
RSA	Republic of South Africa
RWSB	Rural Water Supply Board
SAHO	Senior Animal Husbandry Officer
SCCS	Swaziland Cotton Cooperative Society
SCTC	Swaziland Cooperative Tobacco Company
SDB	Swaziland Dairy Board
SDSB	Swaziland Development and Savings Bank
SEO	Senior Extension Officer
SIDA	Swedish International Development Agency
SMC	Swazi Meat Corporation/Swaziland Milling Company
SNL	Swazi Nation Land
SSRU	Social Science Research Unit (UNISWA)
TA	Technical Assistance
TBLU	Total bovine livestock units
TDN	Total Digestible Nutrients
THP	Tractor Hire Pool
UBLS	University of Botswana, Lesotho and Swaziland
UCS	University College of Swaziland
UK	United Kingdom
UNDP	United Nations Development Programme
UNISWA	University of Swaziland
USAID	United States Agency for International Development
WFP	World Food Programme

SUMMARY

1. THE PROJECT

The first phase of the Rural Development Areas Programme (RDAP) 1970-1976 was financially assisted by the UK Government, and involved four Rural Development Areas (RDAs), now designated maximum-input, covering 7 per cent of Swazi Nation Land (SNL).

The second phase (1977-1983) expanded the RDAP to cover 50,8 per cent of SNL, with four new maximum-input RDAs funded by the UK, and a further ten RDAs (two maximum-input, eight minimum-input) funded jointly by the World Bank (IBRD), the African Development Bank (ADB) and the European Development Fund (EDF). The United States Agency for International Development (USAID) also contributed to the programme, and the Government of Swaziland (GOS) provided counterpart funds.

The objectives of the RDAP have been: to increase production of crops and livestock, to improve the living standards of rural people, and to protect the natural resources. Main components for the maximum-input RDAs have been: strengthening extension services, livestock development, land development and conservation, credit services, incremental farm inputs, social infrastructure, and technical assistance. The minimum-input RDAs received strengthened extension and credit services. The RDAs were chosen on the basis of agricultural potential, interest of the people in rural development, ecological homogeneity, and population density.

Total planned costs for 1977-1984 were E 52,7 million, of which the multi-donor component was E 10,9 million (21 per cent), the USAID component E 14,9 million (28 per cent), the UK funding E 6,1 million (12 per cent), and the GOS E 20,8 million (39 per cent).

2. THE RDAP REVIEW

The GOS and the donors wished to review the RDAP, and this study coincides broadly with the end of the second phase of funding, although some components continue, including the USAID project which was evaluated in August 1983.

The objectives of this review are: to assess the effectiveness of the project in relation to its objectives; to identify achievements and constraints; and to suggest remedial measures within a rural development framework.

The GOS wishes to continue the promotion of rural development throughout SNL, and this review provides a strategy to assist the MOAC in its future planning and implementation.

3. PRODUCTION AND DEVELOPMENT ASSUMPTIONS

The project submissions and Appraisal Report assumed that SNL farmers would readily adopt a more commercial attitude to farming, and hence would increase production of crops and livestock, if they were given inputs and advice. This assumption was probably unfounded, mainly because there have been alternative opportunities for SNL homesteads to use their labour in the wage sector.

Formal wage employment rose steadily in the 1970s, and wages for unskilled labour increased five fold, reflecting increasing demand. Availability of jobs, and willingness of homestead members to take them, has constrained the use of labour in farming activities.

At least two thirds of SNL homesteads had absentee members in wage employment, and 40 per cent had members 'commuting' to paid jobs. Overall only 18 per cent of homesteads had no member in wage employment. The expectation of employment is firmly established in most families, and as long as jobs are available they will be sought.

Assumptions of increased areas and yields of tobacco, potatoes, and groundnuts, were extremely optimistic and were never likely to be achieved within the time scale of the project. Maize clearly gives one of the highest returns to labour, and is unlikely to be replaced by the other crops.

The principal aim of livestock components was to reduce the pressure on grazing by destocking. Implicit was the assumption that owners would sell stock and invest the proceeds elsewhere. However, returns from investment in cattle, whether a typical small herd or steers on a fattening ranch, are significantly better than from institutional investments (the main alternative). Returns from cattle probably remain competitive even if stocking intensities are increased above present levels. In these circumstances voluntary destocking could not have been expected, and projections of productivity coefficients were unrealistic.

4. IMPLEMENTATION

The start of the multi-donor funded RDAP was delayed by administrative processes to January 1978 and the USAID project suffered problems in obtaining staff and equipment. However, the UK-funded programme was not significantly delayed. Some further delays resulted from CRDB procedures for plan approval. The slow start to the project could have been anticipated, and allowance made at the planning stage.

Achievement of some physical targets has been impressive. By the end of the programme most infrastructure had been completed. Some of the items with major shortfalls (e.g. soil conservation, and pasture improvement) were least critical. Other shortfalls were caused by delays in the start of the project, and in building up the capacity of the LDS.

5. OPERATING PERFORMANCE

The five year life of the expanded second phase of the RDAP was too short to expect measurable trends in agricultural production, particularly with delays in implementation and droughts in the latter two years. Monitoring and evaluation carried out by the MOAC was not until recently designed to detect changes in areas cultivated, cropping patterns, and yields.

Emphasis in the study has been given to the performance of the earlier RDAs which might have shown some response to the programme. Valid comparisons cannot easily be made because information is scarce and usually aggregated to the extent that differences are difficult to detect. Also the RDAs have inherently greater potential (a criterion for their selection).

a) Crop production

The impact of the RDAP on crop production was less than anticipated, but it probably contributed to slowing what might have been an even greater decline. Apart from cotton there have been no significant increases in crop areas planted, and the decline in maize area is greater than predicted. Declines in crop areas have been slower in RDAs than in non-RDAs. Yields have remained static and well short of the unattainable project targets, but are significantly higher in the older RDAs than the newer ones.

b) Livestock production, range and pasture

So far, the RDAP has had no measurable impact on overall stocking rates, herd structure, or productivity (offtake, calving/weaning rate, mortality). Stocking intensity has increased significantly in the fenced areas, and the condition of the grazing resource has deteriorated in comparison with unfenced areas. Rotational grazing has been limited to a few 'group' (demonstration) ranches. The fencing programme has led to an imbalance between winter and summer grazing, to the detriment of range condition, but has proved popular because of the reduced need for herding. It should not be continued in its present form.

Achievement of the unrealistic targets for pasture improvement have been negligible, and is still in the investigation/demonstration phase which should be continued, including range seeding followed by controlled stocking. Neither chain bush clearing nor brush cutting has proved successful. The latter method is cheaper but only justified in dense bush accompanied by arboricides.

c) The Tractor Hire Pool (THP)

The THP has been well managed but its efficiency has been constrained by government employment regulations. It has operated at steadily increasing losses because charge rates have not been raised to cover costs, of which the fixed element is about 80 per cent. There is no firm evidence that the THP has curbed expansion of private tractor hire.

d) Soil conservation

Excellent protection work in earlier years, low erodibility of soils, and restriction of cultivation to moderate slopes, mean that low achievement of the terracing programme is not serious. Severe erosion is limited to small areas near stock watering places and dip tanks. Gullies are spectacular but their overall impact is not great.

The RDAP placed too much emphasis on mechanical conservation measures. Greater emphasis should be given to appropriate land use and crop management.

e) Land Development Section

Most of the LDS work was in the RDAs and emphasis has changed from soil conservation to roads and water supply schemes. The equipment is not well matched to tasks, and efficiency is affected by lack of standardisation and design/planning capacity. Utilisation rates are generally 20-30 per cent. The central workshop, stores, and mobile repair units are not efficient, the latter affected by government employment regulations.

f) Credit, cooperatives, and marketing

Credit distribution by the SDSB has been generally efficient, and is used by 10 per cent of SNL farmers. The heavily subsidised interest rate has probably encouraged uptake, sometimes as a substitute for cash resources. In contrast credit through cooperatives (1975-1980) was a failure and had to be stopped, but many farmers and cooperatives have resulting debts. The cooperatives have made a significant impact in distributing inputs and consumer goods in RDAs, also benefitting non-RDAs.

The project's neglect of marketing outlets, on the assumption that commercial channels would be used, was unfortunate, as neither the latter nor cooperatives (until recently) provided adequate primary outlets.

g) The RDAP has widely improved the general standard of living through direct and indirect social services. Practical assistance (labour, materials, transport) has been given to local community self-help projects. Piped water supplies have been popular and 72 schemes serving 16 300 homesteads have been installed. Other services include: feeder roads, input sheds, meeting halls, electricity, and day care creches. The catalytic effect of the RDAP in stimulating interest and identifying the willingness of rural communities to contribute to rural development has been one of its main achievements.

6. FINANCIAL PERFORMANCE

Since 1976/77 about E 45 million has been spent on the RDAP (including the USAID project), of which GOS has contributed E 22 million.

Eighty-two per cent of planned expenditure (E 14,9 million) for the multi-donor funded project had been achieved by March 1983. Underspending was most evident on land development and conservation, incremental crop inputs, and project management, the principal reason being the slow start. Concentration of spending in the last two years compounded the impact of inflation on project costs, but this was partly offset by gains for the GOS from changes in currency exchange rates.

Although systematic records of expenditure on the UK-funded RDAs have not been kept, we estimate that approximately 50 per cent of planned expenditure was made. The main shortfall was in maintenance of infrastructure. Only 57 per cent of planned spending in the last phase of the RDAP was made before cessation of UK funding in March 1981. Work in these RDAs has continued with GOS funding.

By March 1983, 62 per cent of planned USAID spending for the Infrastructure Support Project had been used.

MOAC's share of the GOS recurrent budget has remained constant at about 9 per cent. However the RDAP share of the MOAC budget has risen, mainly in the last two years. A further significant increase is expected in 1984/85 when the all project costs are transferred to the recurrent budget. The largest components are salaries and wages, and vehicle operating costs, which together account for over 90 per cent of the total.

7. INSTITUTIONAL PERFORMANCE

Given the complexity of the task, the RDA Management Unit has been well managed and effective. The procurement and building programmes have been successful, with a high level of financial control. The Unit could usefully have been supplemented with expertise on design and supervision of buildings and other construction items.

Extension services in the RDAs are now well established. In 1982, the Ministry unified the extension service which hitherto had separate structures for RDAs and other areas, also bringing livestock extension staff administratively into the Department of Agriculture. Training programmes have been implemented, and the ratio of generalist extension workers is about 1:240 homesteads. Because research has in the past been oriented towards commercial farmers, there has been a distinct lack of appropriate extension messages for the majority of RDA farmers. The Ministry has recognised, and wishes to correct, the present excess of field level specialists in relation to generalist extension workers.

Since 1978, when the Research Division returned to the MOAC from the University, there has been a hiatus in staffing and research activity. Two thirds of the Research Officers are now training overseas. The current Cropping Systems Research and Extension Training Project (USAID) should enhance the redirection of research towards smallholder farmers and contribute towards definition of more appropriate extension messages.

The Land Use Planning Section and the Land Development Section have been supported by USAID. Considerable delays have been experienced in the appointment of expatriate staff, and selection and training of counterparts, and both sections have suffered from staff changes. The Monitoring and Evaluation Unit has produced several competent and useful reports giving some insight into the organisation of smallholder farming. Unfortunately, partly due to lack of resources, the Unit has not comprehensively monitored the impact of the RDAP.

The Animal Health Division of the Department of Veterinary Services has effectively controlled disease and livestock movements. The Animal Husbandry Division has suffered from over-specialisation at field level, and lines of authority divided between two departments. The range and pasture specialists have not been able to concentrate their activities enough to have much impact, except for the potentially valuable 'group' (demonstration) ranches.

The Department of Cooperative Development and Marketing has made useful progress integrating cooperative and agricultural activities in the MOAC, and guiding the cooperative movement in fulfilling a potentially valuable role in rural development.

The CRDB has effectively ensured that the needs and wishes of rural people have been incorporated in planning and implementation, by checking that sufficient consultations have been held with the people and their leaders. This process has been a major strength of the RDAP, contributing towards the demands for its expansion.

The Swaziland Development and Savings Bank is well established and managed. Costs of administering the small number of loans are high and involve heavy subsidisation of the interest rate on seasonal loans, which despite good recoveries is only a quarter of the breakeven rate.

8. CONCLUSIONS ON EFFECTIVENESS OF THE RDAP

The RDAP has had a significant impact in the rural areas, particularly in providing social infrastructure and fostering community self-help. It has also had some impact, however marginal, on agricultural production, and has established extension and other services nearer to rural homesteads. Community involvement in the planning process is well established, and through the efforts of the Monitoring and Evaluation Unit and rural sociologists there is now much clearer understanding of the organisation and needs of rural homesteads. The MOAC, as implementing agency has demonstrated considerable capacity, particularly in the last two years after initial delays had been overcome, and a great deal of valuable experience has been gained.

The decision to fund the RDAP was made on the expectation of substantial increases in crop and livestock production. Not only were the targets extremely optimistic, some of the fundamental assumptions were unsupportable. It is inexplicable that these assumptions were made during preparation of the project submissions, and were not questioned or modified at appraisal. The growing importance of wage employment to the rural population had been identified by Holleman and his team in 1960 on completion of an elaborate survey of SNL.

Failure to achieve unrealistic targets has not been the fault of the implementing agency. Rather it must be attributed to a poorly conceived plan. Fortunately some of the development components, notably terracing and fencing, were only partially implemented, because their impact would possibly have been more damaging than beneficial.

9. FUTURE DEVELOPMENT IN THE RURAL AREAS

Background

Although rural development has been in progress for many years, notably through extension, soil conservation, and social services, the tempo changed with the advent of the RDAP in 1970. In the RDAs, the intensity of development infrastructure increased and expectations of potential benefits were raised. Rural people and their leaders were deliberately involved in planning and implementation. In the remaining SNL the people are pressing for similar assistance.

The population is growing rapidly, and by the end of the century there will be over half a million persons of working age in Swaziland with only 117 000 jobs (based on projected economic growth). Thus many people of working age will have to make their living in the rural economy. Rural development must continue. The alternative would almost certainly be increasing food and water shortages, and considerable hardship.

Strategy

Rural development should be pragmatic and flexible. Incremental crop and livestock production are unlikely to be spectacular. Given the limited financial resources of GOS, development measures must be cost effective and should encourage community participation.

The RDAP should be extended throughout SNL. The creation of new RDAs on the basis of agro-ecological homogeneity should be associated with a rationalisation of existing RDAs, considering existing project centres and infrastructure, communications, and possible purchase of ITF land. The aim should be greater dispersal of services, including extension staff and farmers sheds, among outlying farmers. Road construction should be carefully justified. Priority should be given to rational land use plans, project centres, and domestic water supply schemes. Additional components should be dependent on community initiative and payment, but designed and supervised by RDAP staff, who could assist with procurement and distribution of materials.

Institutional changes

Major changes are not necessary. The RDAMU should continue its role of mobilising, coordinating, and administration. District Project Co-ordinators should be appointed under the CPC, who should particularly liaise with SEOs and District Teams. The present strong financial control should be maintained. Project managers need not be agriculturalists: strong administrative ability and motivation for community work should be equally considered. Those PMs already experienced could be effectively used to manage implementation in new RDAs.

The number of specialist field level extension workers should be reduced, at the same time creating teams of specialists at District level. Recruitment of additional staff will not be necessary, and the emphasis should change to re-training. Field staff should be decentralised wherever possible. Transfer of the Animal Husbandry Division to the Department of Agriculture would assist the integration of livestock and range management in the extension service.

The Land Development Section would benefit from specialist units (task forces) and decentralisation of construction and maintenance to District centres, where District Engineers should do design and construction work currently with the Land Use Planning Section. The latter should separate national level planning from detailed planning of individual RDAs, which should become the task of small multidisciplinary teams. The Tractor Hire Pool should have a measure of financial independence, while managed by, and deriving its policy from, the MOAC. Its structure should also be decentralised.

Improving programme effectiveness

Extension should be directed to the majority of moderate farmers, using better understanding of farming systems and resources. Recommendations should embody cost efficiency and low risk and should give priority to timely land preparation and planting, improved seed, and effective weed control. Emphasis should be given to the main crops (maize and cotton) aiming at groups wherever possible. Existing 'group' ranches should be carefully monitored and promoted. They represent community initiative to achieve better grazing management and husbandry, and in some cases destocking.

Direct taxation of livestock would probably create a climate of distrust and would be difficult to collect. Given the investment and social value of cattle, and the high propensity to retain them, the level of tax needed to increase offtake would be unacceptably high. However, there are good arguments for encouraging dip tank committees to purchase the more effective but expensive materials, thus relieving the MOAC of the financial burden.

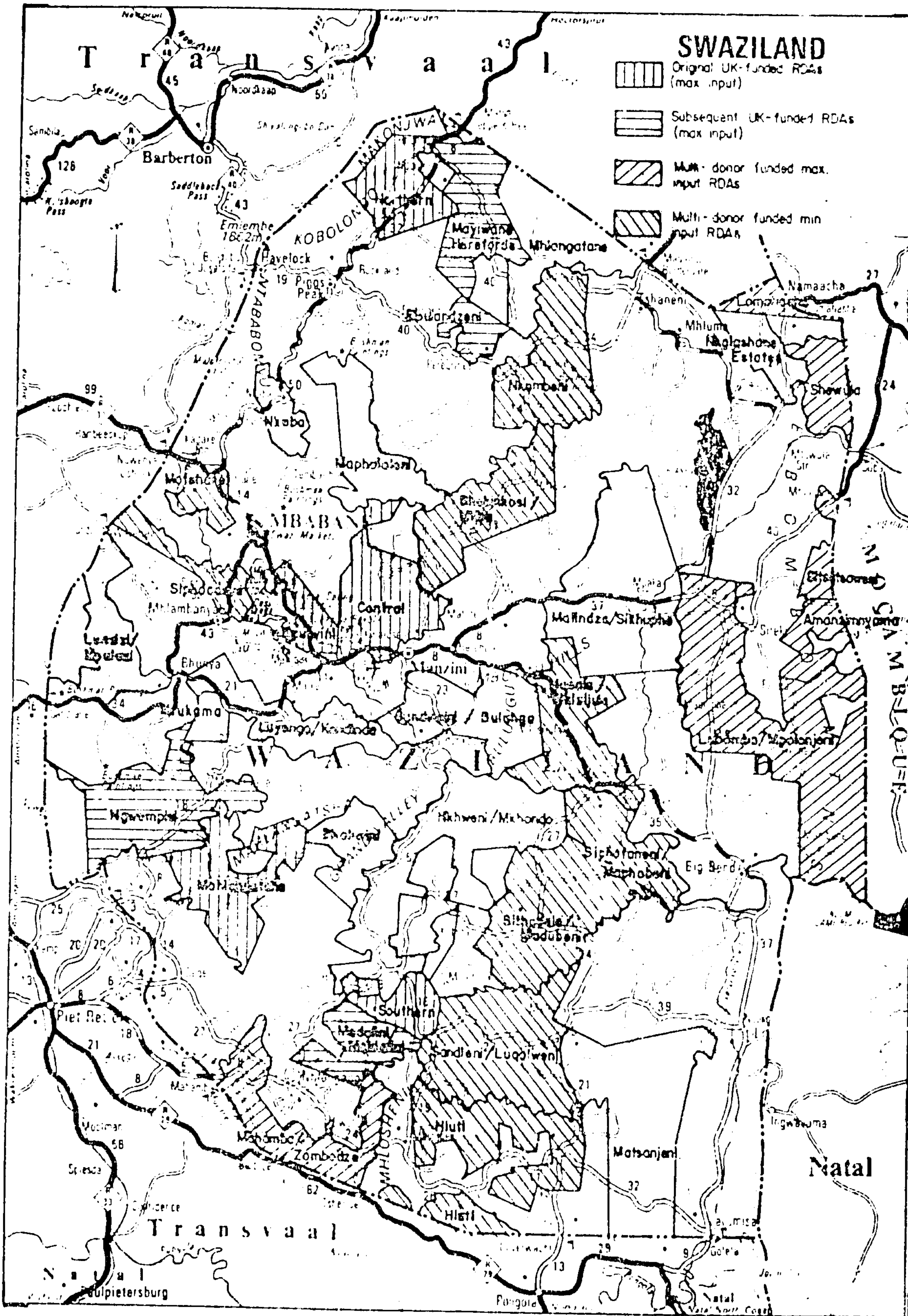
Other recommendations for better livestock and range management include: division of herds by age/sex groups, identification of suitable animals for marketing, a moratorium on perimeter fencing of grazing areas to allow better planning and use of fence lines, a review of pasture improvement achievements and data to formulate a new strategy, and limitation of bush clearing to maintenance of existing areas while they are subjected to technical and economic review.

Soil conservation policy should include thenational resources, not only the RDAs, and should concentrate on installation and maintenance of grass strips, associated with improved crop husbandry.

The planned rationalisation of the cooperative structure should be pursued,with emphasis on strengthening management and developing the primary marketing function to eliminate possible constraints.

Social infrastructure should be equitably distributed, assessing per capita expenditure. Social groupings, community organisation, and community responses to Government services should be investigated.

A comprehensive programme of surveys of rural development should be carried out, including: baseline studies, physical and financial progress, input and output monitoring, extraneous conditions, social impact, evaluation of specific components, and periodic reviews. The Monitoring and Evaluation Unit should be strengthened with a specialist in rural development projects.


SWAZILAND
Original UK-funded RDAs (max input)
Subsequent UK-funded RDAs (max input)
Multi-donor funded max. input RDAs
Multi-donor funded min input RDAs
Transvaal
Natal
Barberton
Havelock
Saddleback Pass
Pigg's Peak
Mbabane
Manzini
Big Bend
Namaacha
Mhlume
Nkambeni
Naphololoni
Mafutseni
Mankayane
Matsanjeni
Hlatikulu
Nhlangano
Piet Retief
Paulpietersburg
Pongola
Golela
Lavumisa
Ingwavuma
Northern
Central
Southern
Mayiwane/Herefords
Mhlangatane
Shewula
Malindza/Sikhuphe
Lubombo/Mpolonjeni
Ndzingeni
Nkhweni/Mkhondo
Siphofaneni/Maphobeni
Sithobela/Dudubeni
Sandleni/Luqolweni
Hlutí
Hlatí
Mahamba/Zombodze
Ngwempisi
Luyengo/Kaszinda
Bhunya
Lukama
Mhlambanyatsi
Sigangeni/Bulandzeni
Mbuluzi

CHAPTER 1 INTRODUCTION

1.1. BACKGROUND

1.1.1. Overview of the economy

Unlike most countries in sub-Saharan Africa, Swaziland is small, compact, has a homogeneous population speaking the same language, has a relatively even distribution of towns and employment centres, and has good communications both inside the country and to ports.

The Swaziland economy is characterised by "modern" and "traditional" sectors, which are strongly inter-linked, and by its membership of the South African Customs Union and the Rand Monetary Area. The traditional sector is dominated by Swazi Nation Land (SNL), occupying 60 per cent of the land area, on which two-thirds of the population live. The institutional customs and monetary arrangements with South Africa provide Swaziland with over half of total government revenue from customs receipts, but limit autonomy in controlling levels of wages and consumer prices, and the prices of agricultural products. Inflation has averaged 14 per cent in the period 1977-1982.

During 1977-1982 GDP fluctuated sharply about an average rate of 5 per cent a year. The main contributions to growth came from public sector investments and expansion of the sugar and woodpulp industries, coupled with favourable world prices for these products in 1980 and 1981. From 1982 the effects of the recession throughout the world, and particularly in South Africa, reduced the economic growth rate in Swaziland, aggravated by reduced crop production in two successive droughts. A projection of GDP growth to 1989 indicates a rate of 2,1 per cent a year.

Swaziland is suffering balance of payments difficulties, largely due to depressed commodity prices and growing import levels. Imports have exceeded exports by increasing amounts since 1976, and by 57 per cent in 1981. Exports are dominated by sugar (40 per cent in 1981) and are vulnerable to world price fluctuations. Amongst imports it is notable that E 42 million was spent in 1981 on "food and live animals", only 8 per cent of total imports but a rapidly growing item.

1.1.2. Population

The resident population in Swaziland in 1983 is estimated to be 602 000, growing at a rate of 3,4 per cent a year, one of the fastest rates in the world. In the 1976 population census it was estimated that 48 per cent of the people were below the age of 15. The momentum for growth is considerable, and the census report projected that there would be over a million people living in the country by the end of the century. The

high population growth rate means that national income growth must exceed 3,4 per cent to achieve any general improvement in the standard of living.

Only 15 per cent of the population lived in urban areas at the time of the 1976 census, with 19 per cent on individual tenure farms (ITF). The remaining two-thirds of the people live on SNL in scattered homesteads, each with an average of eight people, sometimes in more than one household. Migration to the urban areas is probably increasing.

The 1976 census also recorded 25 650 absentees working outside the country, and in that year 20 000 men were recruited to the mines in South Africa. There is thought to have been a decrease in the number of absentee workers in recent years, partly due to higher mine wages and a recession in South African industry resulting in more South African men replacing aliens in mine work. In 1980, only 10 870 men were recruited to RSA mines from Swaziland. The proportion of absentees from Swaziland is higher on the western and southern borders than in the centre of the country.

1.1.3. Employment

The 1976 census indicated that of the resident African population aged 15 and over, 58 per cent of males and 28 per cent of females were employed (i.e. earned money in the year before the census). The remainder were considered to be economically inactive (housewives, students, retired persons), unemployed work seekers, or persons engaged in subsistence agriculture or other activity who did not receive cash income.

The Central Statistical Office (CSO) estimates that total employment in 1983 is 94 842, including small Swazi traders and employment by private homesteads. At 16 per cent of the population, a lower proportion than indicated in the 1976 Census, this is nevertheless a higher proportion than in most countries in Central and Southern Africa. Agriculture (mainly ITF land) and forestry accounted for about 40 per cent of total paid employment. During 1977-1982, formal sector employment is estimated to have grown at an annual rate of 3,4 per cent, with an average of 2 400 new jobs created each year ("Economic Review 1978-1982", Department of Economic Planning and Statistics, February 1983). However, during the same period, 7 000 school leavers (at least Std. V) have sought employment every year.

A projection of employment prospects to 1989 based on projected economic growth indicates an increase of 1,7 per cent a year. Employment prospects are aggravated by the possibilities of reduced activity at Havelock Mine and Usutu forest and pulp plan, and the trend towards mechanisation on the sugar estates.

The prospects for increased employment are not good, partly because the Bantustan governments in South Africa offer considerable subsidies and tax concessions to new manufacturing industry that might otherwise have been attracted to Swaziland. Serious unemployment seems inevitable unless there

is a radical change in economic growth or employment structure.

Employment and wages are discussed in more detail in Section 2.6.1.

1.1.4. Land ownership

Of the total land area of Swaziland (1 736 456 ha), 60 per cent (1 046 230 ha) is Swazi Nation Land (SNL), and 40 per cent consists of individual tenure farms (ITF), either freehold or concession leases. SNL is held in trust for the nation by the monarchy, and is increasing as ITF land is purchased and re-designated under a scheme financed by the UK Government. While most of the ITF land is owned by companies and foreigners (some of them absentees), an increasing amount is being purchased by Swazi nationals. Of 320 individual tenure farms (ITF) recorded as "in use" in 1980/81, 61 per cent were less than 500 ha. in extent. However, 21 large farms accounted for 58,5 per cent of the ITF area.

The SNL is divided into Rural Development Areas (RDAs), occupying 531 808 hectares (50,8 per cent of SNL); non-RDAs (about 30 per cent of SNL); and "other land in trust" which includes Tibiyo land, National Trust Land, and other government controlled land.

Within SNL, arable areas are farmed by individual homesteads by customary right allocated by local chiefs. The grazing areas are used on a communal basis. These grazing areas occupy 80-90 per cent of the SNL.

1.1.5. Land Tenure

In studies of land tenure, it has been shown that there is a hierarchy of communities, each of which derives some of its rights to land from a superior level (Hughes, 1972). Membership of the Swazi Nation confers a right to use land, but this is realised through chiefdoms. The chief is responsible to the King for order in his chiefdom. This involves the right to accept newcomers, and the right to banish wrongdoers for serious offences. The latter is an essential element of social control, and is a retribution by the local community, rather than by the state.

Within the chiefdom there may be sub-groups, whether with a recognised sub-chief or not, which are defined areas and an associated group of homesteads. The actual apportionment of land between homesteads may be done by sub-chiefdom heads, though they do not have the authority to accept newcomers or banish.

A further apportionment of land is made by the homestead head, who allocates land to each woman for food crops. There is also in practice

a great deal of borrowing of plots. This is partly because of the mobility of wage earners, which means they may farm a plot one year but are absent the next, and also the mobility of homesteads. If members of a homestead continue to use a parcel of land they can effectively retain control of it even if they have built a new house elsewhere. Some lending of land is done to help keep it in use and thus maintain a claim to it. Much discussion about land tenure, which has seen it as a main obstacle to innovation, misses the point that agricultural development initiatives could and should be organised by the social groups with rights to decide issues of land use as well as by individuals. The resettlement carried out under the RDA programme has been consistent with this approach, and it is a feature of some very significant developments in range management. Since it is the group as a whole and not individual homesteads which possess the right to pasture, only group initiatives can make an impact.

1.1.6. The Rural Homestead

The homestead is the basic group within which crop production and the management of herds are organised. The head of the homestead acknowledges allegiance to a chief and obtains the right to graze animals in the chiefdom and the right to be allocated a parcel of land on which to grow crops.

Homesteads are dispersed, each next to and normally up-slope from its main arable plot. The buildings normally consist of a number of dwellings, some maize stores or tanks and a kraal. In most homesteads there is a single married couple and their dependants, and the number of dwellings is limited. However, there are many in which the head has two or more wives, or a married son has built his home there, or several married brothers have their families together. In these cases the homestead can become very extensive, and may include 30 or more people. The mean homestead size of about nine persons is large compared with many other societies.

The composition of a homestead reflects the marriages of its members and their pattern of post-marital residence. In the past it was apparently more common than today for married sons and younger brothers to remain attached to their father's or brother's homestead, and as a result the homesteads were larger. Now it is common for a couple to establish a separate homestead at an earlier stage. The timing of establishment of a separate homestead reflects the property held by the homestead members. Thus earlier independence almost certainly reflects the growing importance of non-agricultural income in the last generation or so. In the past the greater dependence on hand labour for cultivation and on cattle for food and accumulation of savings made it more difficult to obtain independence. However, todays separate homesteads of close kin are often grouped in a locality, and mutual assistance remains important.

Within a homestead each woman has a separate kitchen, although the meals may be taken together as a group. The production of maize and other food crops such as beans and pumpkins is done by each woman on a separate plot, and the harvest is stored independently. In this sense the crop production

may be understood best on the basis of each consumption group or household.

The same applies with the herd, that although it is penned in a single kraal and is identified with outsiders as the property of the household head, it is in fact better understood as the animals belonging to the members of each household, with others belonging to the head himself. Women can own cattle in their own right. One implication of this is that the head cannot always take a unilateral decision to sell or transfer (sisa) an animal, but must refer to the other individual or individuals. When a household separates from others to farm a new homestead, any animals owned by its members form a separate herd.

It would be misleading, however, to consider the homestead as essentially a farming group. A survey of married women in 1978 showed that 70 per cent of them had husbands in wage employment, most of them absent (Nxumalo, 1979). According to the Rural Homestead Survey 1978/79 (de Vletter, 1981) four out of five homesteads had at least one member in wage employment, either locally or at a distance. On average these homesteads have two members absent. Thus only a minority were recorded as having no members earning wages, and even some of them might have received remittances. Overall, wages and remittances on average accounted for 46 per cent of income in cash and kind, while crops were 12 per cent and livestock were 26 per cent, including an element of appreciation in value. The balance consisted of about 8 per cent from non-farm home-based activities and 9 per cent other sources (de Vletter, 1983). It should be emphasised that these figures are only indicative, because earnings were treated differently when wage earners were resident or absent, only homestead heads were interviewed, and the sampling was not closely supervised.

1.2. OVERVIEW OF THE AGRICULTURAL SECTOR

1.2.1. Introduction

The commercial sub-sector (IFT) mainly produces crops for export, particularly sugar, citrus fruit and products, pineapples and cotton. In contrast, the smallholder sub-sector (SNL) mainly produces subsistence food crops, with some cash crops (particularly cotton and tobacco), and has important holdings of cattle and goats. The SNL is heavily overstocked, and erosion is evident in both grazing and arable land, although the problem is not as serious as is generally thought.

Agriculture's importance to the economy can be measured by its contribution to GDP, which was 25 per cent in 1981, but of this only a third came from SNL. Agriculture contributed 47 per cent of exports in 1981, mainly sugar, canned fruit, and citrus fruit. The sector also provides about 40 per cent of paid employment, but this is almost all on ITF.

In addition to its contributions to subsistence food production, the SNL provides a home for about 400 000 people, two-thirds of the country's population. In the RDAs (RDAP Annual Report) in 1982, it was estimated that there were 26 566 homesteads with 227 639 people, an average of 8,6 people per homestead.

The Rural Development Areas Programme (RDAP) is Government's primary means of achieving its objective of improving the standard of living of the rural people, and increasing agricultural production on SNL. The Programme is described in more detail in Chapter 2.

1.2.2. Land use

In SNL about 9,7 per cent is classified as "cropland" (Annual Statistical Bulletin 1981), 89,7 per cent as "grazing land", the remainder having other miscellaneous uses. It is notable that about one-fifth of ITF is either unused or is used for smallholder agriculture.

The 1981/82 Annual Survey of Swazi Nation Land (CSO) gives more recent information which indicates a slightly more intense use for cropping of individual holdings in the RDAs (82 per cent) than in non-RDAs (79 per cent). The proportion of fallow, 11-13 per cent in RDAs and nearly 16 per cent in non-RDAs, indicates that pressure on available land is not yet intense. The differences between RDAs and non-RDAs may be due to the inherently greater production potential of the former.

1.2.3. Crop production on SNL

On SNL, in the highveld and middleveld, the most common area of crops grown per homestead was 0,5 - 1,0 hectares in 1982/83. Nevertheless, there was a wide distribution of cropped area and in many RDAs 30 to 50 per cent of homesteads crop more than two hectares. The small modal cropped area is a reflection of the tendency to restrict production to subsistence requirements. Cropped areas in the lowveld are generally larger, probably reflecting more extensive subsistence cropping and significant areas of cotton.

The dominant SNL crop is maize (80 per cent of cropped areas). Cotton is the main cash crop, grown mainly in the lowveld (71 per cent of the cotton area). Tobacco (dark air-cured), groundnuts, beans, and sweet potatoes are other important dryland crops. On small irrigation schemes the main crop are vegetables.

1.2.4. Livestock

Livestock are also divided between smallholder and commercial sub-sectors.

The former is characterised by large numbers of stock and generally low productivity. Livestock account for about 40 per cent of agricultural output, 12 per cent of GDP, and about four per cent of exports.

The cattle population increased from half a million in the early 1960s to nearly 660 000 in 1980, but then declined slightly. About 80 per cent of the national herd is on SNL. Goats, almost all on SNL, are also important numbering about 300 000, a six-fold increase in the last twenty years. Poultry numbers have risen from 300 000 to 700 000 over the same period. Sheep, pigs and equines are kept, but not in significant numbers.

On SNL, increased pressure on grazing areas has resulted from rising livestock populations and larger cropped areas. On the latter, winter reserves have become inadequate. Cattle productivity has tended to decline, with calving and weaning rates often less than 30 per cent. The low offtake of about 12 per cent includes deaths and local slaughter, and reduces the sales outside SNL to a small proportion.

1.2.5. Infrastructure and services

General

The institutional arrangements for rural and agricultural development in Swaziland are complex because there are two authorities, the traditional and modern. The former includes the monarchy, the Swazi National Council, chiefs and headmen. The latter includes the Cabinet, the Ministry of Agriculture and Co-operatives (MOAC), and the Central Rural Development Board (CRDB). Several government agencies are directly involved in rural development, including: the Ministries of Health; Education; Works, Power and Communications; Finance; and the Department of Economic Planning and Statistics. An Inter-Ministerial Inter-institutional Rural Development Co-ordinating Committee has been established under the chairmanship of the Principal Secretary of MOAC.

The Ministry of Agriculture and Co-operatives

The MOAC has Departments dealing with Agriculture (including the RDA Management Unit, Soil Testing, Seed Development, Extension Services, Farmer Training Centres, Irrigation, Mechanisation, Grain Storage, Rural Youth Development, Forestry and Home Economics); Research and Planning (including Land Use Planning, Land Development, Land Valuation, Research, Economic Analysis and Planning); Co-operative Development and Marketing; and Veterinary Services, (including Animal Health, Meat Hygiene, Cattle Breeding Stations, Sisa and Fattening Ranches).

Credit and input supplies

Agricultural credit is provided through the Swaziland Development and Savings

Bank (SDSB), the commercial banks, and input suppliers, as well as some co-operatives and processors. Small scale farmers on SNL receive almost all their credit through the SDSB Small Farmer Scheme, through which seasonal credit is offered at subsidised interest rates. Input supplies for SNL farmers come mainly through co-operatives, which are organised under a Central Co-operative Union (CCU).

Marketing

Marketing of maize is mainly informal, to neighbours or from surplus to deficit areas within the country. The Swaziland Milling Company (SMC) buys maize at a statutory floor price fixed by Government. The SMC also handles most of the imported maize and does most of the milling.

Cotton is mostly sold to two ginneries in Swaziland, but also to two in South Africa. The ginnery at Big Bend was temporarily closed in 1983. The cotton price is fixed each year by the ginneries, based on world prices for lint. In 1983, a subsidy is expected to be added by the Cotton Board.

Tobacco is sold through the Tobacco Co-operative at Nhlangano, which then sells to manufacturers of pipe tobacco in South Africa.

The Swazi Meat Corporation has a modern export abattoir with a capacity of 35 000 head a year, which is under-utilised. Most SNL cattle are sold to private butchers or dealers. Milk is sold to the Dairy Board at Matsapa, and there are a few collection centres in the RDAs.

1.3. GOVERNMENT POLICIES FOR RURAL DEVELOPMENT

The Second National Development Plan (1973/74 to 1977/78) included in its policies the intention:

> "to promote the progressive transformation of traditional agriculture from subsistence to semi-commercial and commercial farming, both to create more opportunities for gainful employment, and to raise incomes in the rural areas."

In respect of agriculture, the Plan specifically mentioned the objectives of increasing marketed production of key food and cash crops, and increasing offtake of cattle to 15 per cent.

The Third National Development Plan mentions (1978/79 to 1982/83) (p.33), the necessity

> "by conscious planning and vigorous action to ensure that the rural population enjoys in equal measure the increased well-being of the country."

It was hoped to raise agricultural production by 6,5 per cent a year, and to attain self-sufficiency in maize, by measures including the extension of the RDAP. However, the Plan warned (p.40) that:

> "production in the traditional sector is expected to increase only slightly, growing at a somewhat slower rate than the growth of the population, as increasing numbers of people are absorbed into wage employment and self-employment in sectors other than agriculture."

Specific objectives listed in the Plan (p.74) are:-

a) to protect and enhance the quality of the natural environment;

b) to promote the transfer of agricultural land from foreign to Swazi ownership;

c) to promote self-reliance by means of increased crop and livestock production and diversification;

d) to promote non-formal education for rural living, and to enhance the quality and quantity of extension services;

e) to make farm inputs and services, including credit and marketing, more accessible to farmers and cattle owners, especially those in RDAs;

f) to make basic services, including access roads and potable water available to homesteads in the RDAs.

g) to increase levels of animal fertility, reduce the incidence of disease, and make animal husbandry more profitable.

The RDAP was seen by Government as the main mechanism by which rural development would be achieved:

> "to further national development goals in selected areas, by raising levels of production and consumption of rural families, increasing the volume and nutritional quality of the food produced, and at the same time ensuring the protection of natural resources. By promoting a more commercially-oriented approach to agriculture and narrowing the gap between the standards of urban and rural facilities, the programme seeks to enhance the quality of rural life."

1.4. PRESENT STATUS OF THE PROJECT AND THE NEED FOR THE REVIEW

The RDAP, as described in its Annual Report (1982) was initiated in its present form in 1970 with four RDAs covering 7 per cent of the Swazi Nation Land (SNL). From 1977 the programme was expanded to create a total of 16 RDAs covering 50,8 per cent of SNL. The original four RDAs (Northern, Southern, Mahlangatsha and Central) were funded by the United Kingdom and the Government of Swaziland, as well as a further four RDAs (Ngwempisi, Mayiwane/Herefords, Ebulandzeni and Madulini/Mahlalini) in the expanded programme. All are maximum-input RDAs.

The other ten RDAs were financed jointly by the World Bank (IBRD), the African Development Bank (ADB), and the European Development Fund (EDF). The United States Agency for International Development (USAID) also contributed towards the programme, and the Government of Swaziland (GOS) provided counterpart funds. Of these "multi-donor" RDAs, two (Mahamba/Zombodze, and Lubombo/Mpolonjeni) are maximum input RDAs, and the remaining eight (Hluti, Bhekinkosi/Mliba, Siphofaneni/Madlangempisi, Masala/Vikizijula, and Sipocosini/Motshane) are minimum-input RDAs.

The multi-donor funded RDAP was planned for five years (1977-1982), but due to delay in implementation and spending extended into 1983. By March 1983, 82 per cent of project funds had been used, 36 per cent of spending in 1982/83. Under-spending was most significant on land development and conservation (39 per cent), incremental crop inputs (25 per cent), and project management services (50 per cent). The main reasons for under-spending were: delays in obtaining plan approval from the CRDB; delays in building houses, project centres and other infrastructure; and initial inability of the LDS to carry out their work programme.

Approximately 50 per cent of the UK-funded project spending has been made. The main shortfall was in recurrent items, probably because maintenance was less than anticipated.

The RDAP has been an important part of the MOAC's activities, in terms of both staff and expenditure. The RDA management unit initially created a division in the extension service which has subsequently been corrected.

The Government of Swaziland and the donors wished to review in detail the effectiveness of the RDAP, and this study coincides broadly with the end of some of the donor financing, although other components continue.

We understand that GOS wishes to continue the RDAP, and plans have been drawn up for the creation of an additional ten RDAs. Clearly rural development must continue, and the need for the review is to suggest both strategy and tactics in the light of experience gained from the first years of the programme.

1.5. ORGANISATION OF THE REVIEW

On 12th April 1983, the Consultants, Hunting Technical Services Limited, were contracted to the GOS to carry out this review, which is financed through the IBRD contribution to the RDAP. The study started in May, and an Inception Report was submitted at the end of that month. An Interim Report was submitted at the end of July 1983, and was discussed by the Steering Committee appointed within the MOAC. The Draft Final Report was submitted at the end of September, and was accepted by the Steering Committee on 14th October 1983.

The study team consisted of: Team Leader/Economist, Farm Management Agriculturalist, Economist/Financial Analyst, Livestock Specialist, Range Management Specialist, Conservation Specialist, and Rural Sociologist; and was supervised by an Associate Director. The total study time was 25 man months.

CHAPTER 2 PROJECT IDENTIFICATION, PREPARATION AND APPRAISAL

2.1. THE EVOLUTION OF RURAL DEVELOPMENT PROGRAMMES

2.1.1. Before 1970

After the Second World War, the Native Land Settlement Board, set aside two areas (near Herefords in the north, and near Hlatikulu in the south) to provide land for settlement of Swazi people. UK grant funds were also used to purchase additional foreign-owned land. This scheme, which lasted about ten years, is regarded as a failure due to the enforcement of stocking rates and crop rotations, and lack of involvement of local leaders.

In 1964/65, shortly before Independence, a RDAP involving eight areas (average size 4 800 ha);Nkwene, Madulini, Sipocoseni, Mpolonjeni, Mahlangatsha, Ebulandzini, Bhekinkosi and Sitataweni, was started. Emphasis was given to improvement of dams, roads and fences, village centres were developed and domestic water supplies improved. These initial areas were probably too small to justify project centres and decentralisation of extension staff, and the programme is thought to have had little impact. This may have been due to failure to intensify extension and other services and as in the earlier scheme, failure to involve the local people and their leaders in planning and implementation.

In 1969 the Hobbs Commission report was published with recommendations for land distribution and use. In essence, the Commission concluded that: rural people were precluded from obtaining a reasonable standard of living from farming on SNL; that the position was likely to deteriorate as a result of the increasing population; and that there was a need for rapid transition to a more balanced and intensive system of farming, and a considerable reduction in livestock numbers. The Commission recommended the purchase of 960 000 acres (388 500 ha) of ITF land on a willing buyer/willing seller basis. It also recommended a Development Corporation to acquire and subsequently develop the land concerned, and that a form of conditional leasehold title be used as a transition from the traditional system.

2.1.2. The 1970 - 1977 RDAP

In 1970 a new Rural Development Areas Programme was started, with financial assistance from the British Overseas Development Administration (ODA).

The project consisted of four RDAs (Northern, Southern, Mahlangatsha, Central), now classified as maximum-input RDAs, (see Table 2.1). They were chosen by MOAC on the basis of

Table 2.1. Rural Development Areas (RDAs)[1]

Name	Abbreviation	Ecological Areas[2]	Financial Support	Starting Time	Type	Project Manager/ EO-in-Charge	Total area (ha)	Homesteads[7] (no)	Population
1. Northern	N	M	UK	1971	Maximum Input	E Ngwenya	14 570	1 658	17 050
2. Southern[4]	S	M	"	1972		A Magongo	11 250	1 533	11 370
3. Mahlangatsha	M	H	"	1973	"	C Manana	22 510	664	6 380
4. Central	C	M	"	1975	"	D Dlamini	18 990	1 636	11 450
5. Ngwempisi[3]	Ng	H	"	1977	"	B Kunene	32 780	1 894	19 310
6. Mayiwane/Hereford[5]	M/H	M	"	1977	"	G Khumalo	26 300		
7. Ebulandzeni	E	M	"	1977	"	G Khumalo	5 250	2 388	18 210
8. Madulini/Mahlalini		M	"	1977	"	A Magongo	6 500	with S	with S
9. Mahamba/Zombodze	M/Z	M	Multi-Donor	1977	"	E Chiya	19 810	2 844	18 680
10. Lubombo/Mpolonjeni	L/M	P/L	"	1978	"	D Khumalo	98 590	3 437	32 200
11. Hluti	Hl	M	"	1978	Minimum Input	P Thwala	32 450	1 730	20 620
12. Bhekinkosi/Mliba	B/M	M	"	1978		J Masango	27 230	2 013	16 410
13. Siphofaneni/Maphobeni[6]	SIMAP	L	"	1979	"	L Dlamini	24 990	1 660	11 590
14. Sithobela/Madubeni	SIMAD	L	"	1979	"	P Shabanga	38 170	1 252	9 170
15. Sandleni/Luqolweni	Sa/Lu	M	"	1979	"	C Tsabedze	38 350	1 449	20 430
16. Nkambeni/Madlangempisi	Nkama	M	"	1980	"	J Simelane	27 290	1 166	5 860
17. Masala/Vikizijula[6]		L	"	1980	"	L Dlamini	22 590	with 13	with 13
18. Sipocosini/Motshane	SIMOT	H	"	1980	"	J Dlamini	19 100	1 232	8 880
							487 770	25 556	227 610

(1) Adopted from RDAP Annual Report 1982.

(2) H = Highveld, M = Middleveld, L = lowveld, P = Lubombo Plateau.

(3) Formerly called Mpondo-Velezizweni

(4) Administratively managed with Madulini/Mahlalini

(5) Administratively managed with Ebulandzini.

(6) Masala/Vikizijula is included with SIMAP for admin. purposes.

agricultural potential, the interest of the people in development, ecological homogeneity, and population density. The aggregate area was 72 965 ha (7 per cent of SNL), embracing 33 600 people in 4 000 homesteads.

The project entailed introduction of "minimum-input packages"; improvement of extension services, construction of offices, stores, staff houses, input sheds and dip tanks; land use planning and rationalising arable and grazing areas, establishment of controlled grazing areas, destocking through government fattening ranches; and tractor hire pools. Social components, such as schools and clinics, were not specifically included in the project.

The UK Government financial assistance was for: management staff (including an RDA Co-ordinator in MOAC, and Project Managers in each RDA); infrastructure, particularly project centre offices, housing, and input depots; and vehicles and equipment.

These first four maximum-inputs RDAs represented a concentrating of attention and effort into rural development and were generally regarded as being successful. Consequently in 1976 a multi-donor project aimed at extending the programme was prepared, and the UK Government decided to assist additional RDAs. While there are several comments in the project documents referring to the success of the early RDAs, we have found no formal assessment or evaluation of their success.

2.1.3. The 1977 RDAP

In 1977 the RDAP was expanded by the addition of 14 RDAs to cover 50 per cent of SNL. Of the new RDAs, four maximum-input RDAs (Ngwempisi, Mayiwane/Herefords, Ebulandzeni and Madulini/Mahlalini) were financially assisted by the UK, which also continued its financial assistance to the four original RDAs.

The other ten new RDAs were financially assisted jointly by the World Bank (IBRD), the African Development Bank (ADB), and the European Development Fund (EDF). The United States Agency for International Development (USAID) also contributed to the programme (although outside the multi-donor project document) and the Government of Swaziland (GOS) provided counterpart funds.

It was proposed that development of the 14 new RDAs would be undertaken in three phases:-

a) land use planning and investment planning;

b) preliminary development (project centres, services and inputs); and

c) intensive development (soil conservation and land

development, land consolidation and resettlement, livestock development and provision of full agricultural and social services).

Both projects, the four maximum-input RDAs for assistance by the UK, and the ten multi-donor financed RDAs, were identified and prepared initially by the MOAC; the latter with assistance from the IBRD Resident Mission in East Africa.

The multi-donor programme was appraised by the IBRD in June 1976 and the Appraisal Report (IBRD No. 1306 SW) formed the basis of the loan agreements. The project was due to become effective in June 1977, but due to delays in obtaining key staff, and other conditions for effectiveness, the ADB and IBRD loans were not signed until January 1978.

The Appraisal Report incorporated a number of amendments to the original MOAC submission. These were primarily concerned with phasing of investment, land development proposals and project management and are noted in Section 2.2.

Apart from Ebulandzeni, the MOAC submission formed the basis of the agreement for the four new UK-assisted maximum-input RDAs. The submission for Ebulandzeni was subsequently amended and incorporated in the project.

Although loan agreements were signed in 1977, no new development work commenced until 1978 due to delays in approval of plans by the CPDB.

2.2. GENERAL DESCRIPTION OF THE RDAP

2.2.1. Objectives

The main objective of the RDAP, as stated in the submissions by the MOAC for the UK and multi-donor assisted RDAs, is "to improve the income and general standard of living of Swazi farmers and at the same time to protect land resources." While objectives are not mentioned specifically in the IBRD Appraisal document for the multi-donor project (IBRD No.1306 SW), it was anticipated that the project would:

- improve rural infrastructure and services;
- strengthen rural development management;
- increase the protection of arable and grazing areas against erosion;
- and generally lead to increased production of crops and livestock.

In the Third National Development Plan, the RDAP was seen as the main mechanism by which rural development would be achieved, and in addition to raising productivity and protecting natural resources, the Programme was expected to promote a more

commercially orientated approach to agriculture and to narrow the gap between the standards of urban and rural facilities.

Although in some cases objectives are implied rather than stated, there is little doubt that the Government of Swaziland and the funding agencies were agreed on three fundamental objectives:

- to increase production of crops and livestock;
- to improve the living standards of rural people;
- to protect the natural resources.

2.2.2. Project Components

The main components of the maximum-input RDAs were: strengthening the extension services, livestock development, land development and conservation workers, credit services, and incremental farm inputs, social infrastructure, technical assistance with management, training, monitoring and evaluation and various consultancies.

The minimum-input RDAs were to receive only strengthened extension and credit services and came under the same management structure as the maximum-input RDAs. The planned inputs for the RDAP are summarised in Table 2.2.

The main differences between the MOAC project submissions and the IBRD Appraisal Report were that the latter reduced the amount of terracing and waterways, eliminated provision for ortho-photo mapping, included six diptanks, reduced the amount of bush clearing, added housing and vehicles for agricultural credit services, and added clinics, ambulances, and more water supply schemes.

The UK-funded RDAs had similar components to the multi-donor maximum-input RDAs, with the addition of poultry distribution centres, but excluded the agricultural credit and rural health components.

Extension services

The RDAP aimed to increase crop and livestock production by strengthening the extension services. Funds were provided for salaries, housing, vehicles, offices for incremental staff and for the Certificate training course at the University.

The staff provided were: Project Managers (2); Agricultural and Livestock Extension Officers (11); Field Officers (48); Domestic Science Demonstrators (10); and support staff, including drivers, watchmen, clerk/typists, artisans, labourers, tractor drivers, and mechanics.

Table 2.2. Planned inputs for RDAP (1977 - 1982)

Item	Unit	Multi-donor financed RDAs: Max. input RDAs MOAC Submission	Max. input RDAs Appraisal Report	Min. input RDAs MOAC Submission	Min. input RDAs Appraisal Report	All RDAs MOAC Submission	All RDAs Appraisal Report	UK-finance
A. Extension:building & installations								
Housing - 3 bedroom	no	2	2	-	-	2	2	1
- 2 bedroom	no	41	41	38	32	79	73	48
- junior quarters	no	25	25	21	22	46	47	39
main depot	no	3	3	2	2	5	5	2
agriculture store	no	2	2	-	-	2	2	6
tractor workshop	no	2,5	2	-	-	2,5	2	4
farmer shed	no	2	4	8	9	10	13	12
fertiliser shed	no	-	2	7	7	7	9	-
offices	no	3	3	5	5	8	8	4
B. Vehicles and equipment								
- 7 ton truck	no	3	3	7	7	10	10	6
- 4 WD (Landrover)	no	3	3	7	7	10	10	5
- pick-up truck	no	5	5	1	1	6	6	8
- tractor	no	10	10	-	-	10	10	11
C. Land development								
- terracing (full)	ha	17 290	2 600	-	-	17 290	2 600	25 511
- terracing (reduced)	ha	-	5 000	-	-	-	5 000	
- grass strip (rem. & realign)	ha	12 985	7 000	-	-	12 985	7 000	24 927
- grass strip (rem. only)	ha	-	7 500	-	-	-	7 500	
- land clearing and ploughing	ha	-	-	-	-	-	-	1 129
- waterways	no	50	44	-	-	50	44	72
- homesite levelling	no	2 376	2 000	-	-	2 376	2 000	4 02
- homestead resettlement	no							
- donga rehabilitation	no	48	44	-	-	48	44	95
- ortho-photo mapping	'000 ha	677	-	-	-	677	-	
D. Livestock developments								
- stock water dams	no	10	10	-	-	10	10	20
- diptanks	no	-	6	-	-	-	6	19
- pasture improvement	ha	9 000	8 000	-	-	9 000	8 000	19 51
- bush clearing	ha	8 000	4 500	-	-	8 000	4 500	2 50
- fire breaks	ha	-	-	-	-	-	-	186
- fencing	km	773	690	-	-	773	690	1 61
- cattle trucks	no	-	2	7	7	7	9	6
- handling yards	no	-	-	-	-	-	-	2
- bull camps	no	2	-	-	-	2	-	7
- poultry distrib. centres	no	-	-	-	-	-	-	4
E. Agricultural credit								
- housing (2 bedroom)	no	-	2	-	7	-	9	
- vehicles - collection van	no	-	2	-	7	-	9	
- car	no	-	2	-	7	-	9	
- bicycle	no	-	10	-	21	-	31	
F. Road development								
- construction/improvement	km	315	315	-	875	315	1 190	43
- maintenance	km	-	790	-	2 210	-	-	
- drifts	no	5	5	-	-	5	5	36
- culverts	no	-	-	-	-	-	-	
- bridges	no	-	-	-	-	-	-	
G. Rural health								
- clinics	no	-	3	-	-	-	3	
- ambulances	no	-	3	-	-	-	3	
- water supply schemes	no	-	55	7	7	7	62	75
H. Irrigation development								
- dams	no	-	-	-	-	-	-	7
- canals	km	-	-	-	-	-	-	46
- rice paddies	ha	-	-	-	-	-	-	30
- levelling	ha	-	-	-	-	-	-	210
- reservoirs	no	-	-	-	-	-	-	25
- weirs	no	-	-	-	-	-	-	15
- fish ponds	no	-	-	-	-	-	-	10

Sources: MOAC project submissions and IBRD Appraisal Report.

The project provided the salaries for those staff, also two three-bedroom houses, 73 two-bedroom houses, and 47 junior quarters, ten four-wheel drive vehicles, and six pickup trucks.

The provision of extension services was the same in maximum-input and minimum-input RDAs, both multi-donor and UK-funded. In the minimum-input RDAs, this was the main component.

Livestock development

This component was intended to be part of a national programme which had priority objectives of promoting de-stocking through marketing efforts and development of cattle fattening and breeding ranches. Other objectives were to upgrade cattle through a national breeding programme, and to raise herd productivity through improved management.

The multi-donor funded project provided for ten stock water dams, six diptanks, 8 000 ha of pasture improvement, 4 500 ha of bush clearing, 690 km of fencing and nine cattle trucks, and dipping materials. The main variations from the MOAC project submissions were the addition of the dip tanks, a reduction in the area of bush clearing from 8 000 ha to 4 500 ha, and the exclusion of two bull camps. All these measures were for the two maximum-input RDAs, with the exception of seven cattle trucks for the minimum-input RDAs. The project also made provision for a consultancy to study livestock marketing.

The UK-funded RDAs received more livestock developments: 20 stock water dams; 1 619 km of fencing; 19 510 ha of pasture improvement; 2 500 ha of bush clearing; two stock yards; seven bull camps; and 186 ha of firebreaks.

Land development and conservation works

The multi-donor funded project provided for: full terracing on 2 600 ha, and reduced terracing on 5 000 ha; removal or realignment of grass strips on 14 500 ha; 44 waterways; rehabilitation of 44 dongas (gullies); and levelling of 2 000 homestead sites. These works were restricted to the two maximum-input RDAs.

The main variations from the MOAC project submissions were: to reduce the area terraced from 17 290 ha; and to eliminate funds for ortho-photo mapping.

The UK-funded RDAs had provision for: terracing 25 511 ha; removal of grass strips on 24 927 ha; 72 artificial waterways; levelling of 4 027 homestead sites; and rehabilitation of 95 dongas.

Agricultural inputs and credit

The multi-donor funded project provided funds for incremental inputs. The quantities were calculated from the projected incremental crop production. The funds were to be provided to the CCU, and were intended to be recovered from sales and re-used. Also provided were five main depots, two stores, nine fertiliser sheds, and 13 farmers' sheds. With the exception of the fertiliser and farmers' sheds these sheds were provided for the maximum-input RDAs.

Although not in the MOAC submission, the project provided salaries, housing, vehicles and bicycles for agricultural credit staff in both maximum and minimum-input RDAs. The Appraisal Report stated that lack of credit availability appeared to be a significant obstacle to increased uptake of inputs in SNL.

The UK-funded project did not provide funds for inputs, nor for agricultural credit staff.

Road development

In the multi-donor funded RDAs, the project provided for 1 190 km of roads, construction and improvement of 36 drifts and four bridges. The main variation from the MOAC submissions was that the latter aimed to improve existing roads, whereas the Appraisal Report also provided for new access and feeder roads.

The UK-funded project provided for 431 km of roads and 36 drifts.

The project submissions did not attempt to justify the road construction, nor to indicate their relative importance among other infrastructure.

Irrigation and fish ponds

The Appraisal Report did not specify the number of irrigation schemes and fish ponds, but mentioned that a limited number would be developed and specified that the irrigation schemes would be small (10-15 ha). For this component, an amount of E 172 000 was added after the MOAC submissions.

In the UK-funded project, provision was made for seven dams, 46 km of canals, 30 ha of rice paddies, 210 ha of levelling, 25 reservoirs, 15 weirs, and ten fish ponds.

Social infrastructure

The multi-donor funded project provided new rural health clinics in Mpolonjeni and Nkonjane, as well as an extension

to the clinic, at Zombodze. Three ambulances were also planned for the clinics. These measures were not in the MOAC submissions.

The project also provided for 55 simple gravity water supply schemes in maximum-input RDAs, and seven in minimum-input RDAs. In the MOAC submissions only the latter were provided.

Social infrastructure was not included in the UK-financed RDAs.

Technical Assistance and Training

The project provided key staff to manage and co-ordinate development activities, including: the Chief Project Co-ordinator (expatriate) and his deputy (Swazi); a manager (expatriate); a Financial Controller (expatriate); a Sociologist (Swazi); and ten man years of technical assistance for crop and livestock advisory services.

In addition the project provided funds for the introduction of a Certificate level training course for extension staff (15 trainees in the first year, and 10 per year thereafter), as well as for pilot farmer training.

Staff salaries, vehicles and equipment were provided for monitoring and evaluation.

These provisions followed the MOAC submissions, although the amount of expatriate technical assistance was increased.

Co-operatives

It was assumed that the co-operative movement, under the CCU, would organise and distribute inputs, based on projections of requirements by RDA staff. Input storage sheds were to be provided by the project.

The project documentation does not include a strong component for development of the co-operative movement, possibly because at that time (1976) the Department of Co-operatives was in the Ministry of Commerce and Co-operatives and and was supported by other aid projects. However, it was pointed out in the Appraisal Report that co-operative development was at an early stage and still relied heavily on Government support and technical assistance; the CCU in particular was in considerable need of improved management.

Marketing

It was assumed that virtually all incremental project production

would be marketed through commercial channels.
It was intended that the project would assist farmers to sell crops and livestock by improving facilities, transport and price information. This was to be achieved in conjunction with the USAID Co-operative Marketing Project. A marketing study aimed at assisting GOS to identify new markets for beef was proposed.

For a project of this nature, in which incremental crop production was seen as a major objective and the main source of economic justification, insufficient attention was given to primary marketing facilites, perhaps because of aid from other projects. Commercial markets existed for the main crops (maize, cotton and tobacco) but only at main centres. This left unanswered the question of how farmers would get their produce to these centres, and whether this might constrain production.

2.2.3. Physical planning

The project documents required land use plans for each RDA to be drawn up by the Land Planning Section of MOAC (now the Land Use Planning Section). Essentially, the plans delineated arable and grazing land, location of homestead sites, and project centres. Although not stated explicitly, a "people's plan" was drawn up for each RDA in consultation with the local population, chiefs, and the local Rural Development Committee. This was submitted to the CRDB for approval before implementation. The approval process, however, caused delays of up to two years for some RDAs. This was not anticipated for the multi-donor project, despite considerable delays for the original four RDAs.

2.2.4. Selection and location of RDAs

RDAs were perceived as areas of SNL chosen for concentrated development on the basis of agricultural potential, the interest of the people in rural development, ecological homogeneity, and population density. A population of about 15 000 was considered optimal (although no reason was given). The RDAs do not always conform to administrative (District) boundaries, but this has not caused any problems.

Map 1. shows that some RDAs have very awkward shapes caused by intrusions of ITF. Particularly if they develop on a multi-sectoral basis, boundaries may need to be rationalised, and where sellers are willing, these intrusions and neighbouring areas should be purchased.

The siting of project centres is important, as they will probably become growth centres for each area. This is not explicit in the project documents, and an apparent deficiency in the planning process is the lack of emphasis of the growth centre concept. Provision of a road, a water supply, and in some instances electricity and telephone, are obvious

attractions for agricultural activities (e.g. milk collection, poultry distribution) and non-agricultural activities (e.g. Women in Development, training centres, banking). The location of centres should be agreed at inter-Ministerial level, to take account of requirements of health and education planning.

2.2.5. Organisation and management

The entire RDAP, including the early UK-assisted RDAs, was to be directed and supervised by a new RDA Management Unit (RDAMU). It was envisaged that the unit would supervise directly all extension staff working in the RDAs. This was a divergence from the MOAC submissions which expected that extension staff in the minimum-input RDAs would fall under the District SEOs.

Extension staff would compromise:

Minimum-input RDAs
- crop and livestock generalists
- Domestic Science Demonstrators
- Assistant Co-operative Officers and Sec/Managers for Co-ops.

Maximum-input RDAs
- as above, plus
- Veterinary Assistants
- tractor personnel
- crop and livestock specialists.

The appointment of key staff was a condition for loan effectiveness.

Project staff were to maintain close liaison with chiefs, District Officers (in Local Administration), and Rural Development Officers (of the CRDB). Liaison between Ministries would be effected through the creation of a new inter-ministerial committee to assist in project co-ordination. The committee was to include senior representatives of relevant Ministries and agencies and was to meet at least twice a year to act on all outstanding project issues, notably those involving policy matters or requiring inter-ministerial decision, and to assess project progress.

The CRDB, represented by Rural Development Officers, was to approve land use plans and to oversee their implementation, ensuring that development was consistent with Swazi tradition and reflected the wishes of the people.

The Central Transport Organisation (CTO, now CTA for Central Transport Authority) was to be responsible for procurement and maintenance of vehicles. However, it was envisaged (IBRD, 1306 SW. p.26) that servicing could be carried out through the private sector if the CTA did not perform adequately.

The RDAMU, with the Economics Section of MOAC, was to submit annual work programmes, both for GOS budgeting and as a basis for discussion with donor agencies.

As will be discussed in more detail later in this report, the creation of a management unit within the MOAC to deal with roughly half of SNL inevitably caused a division within the Ministry. This should have been foreseen, and an alternative structure might have been devised, for example separating agricultural extension from non-agricultural functions.

2.2.6. Monitoring and evaluation

It was intended that a special unit would be set up in the Economic and Land Planning division of the Department of Agriculture. The unit would be strengthened with an Economist/Statistician and a Sociologist, to evaluate data from four teams of enumerators.

Specifically it was intended that the unit would:

- measure effectiveness of project activities;
- assist in the establishment of realistic project goals and activity schedules;
- inform GOS about changes arising from the project;
- enhance knowledge of the rural development process for future planning;
- continuously re-appraise the project benefits and costs;
- measure changes in economic and social factors.

Particular reference was made in the Appraisal Report to the need for co-ordination between activities of the Central Statistical Office, which should have the principal responsibility for production data, and the Economics Section of the Ministry of Agriculture. Surveys were intended to provide practical guidance for project management on effectiveness of extension programmes and of extension staff.

2.2.7. Project costs and funding

The total planned cost of the expanded RLAP (1977-1984) was E 52,7 million (US$ 60,6 million at the exchange rate at the start of the project of E 1,0 = US$ 1,15). These costs are summarised in Tables 2.3. to 2.6.

The multi-donor funded project cost (1977/78-1981/82) was estimated at E 14,9 million (US$ 17,1 million) including the GOS component.

The MOAC submission for the multi-donor financed programme estimated costs at E 12,0 million (US$ 13,8 million). The main reasons for the higher cost of the project detailed in the Appraisal Report were the additional components noted in Section 2.2.2. There were also some differences in unit costs, which were generally higher in the Appraisal Report.

Table 2.3. Contributions to costs of RDAP (1977-1984)

	World Bank	UK Government	African Development Bank	European Development Fund	United States Agency for International Development	Government of Swaziland	Farmers
Amount	US$ 4 million	US$ 7,0 million	AUA 4,5 million	ECU 2,50 million (later increased to 2,62 million)	US$ 17,1 million (US$10, million loan US$ 7,1 million grant)		
Amount (E million)	3,5	6,1	4,7	2,5 (later increased to2 ,6)	14,9	20,76	0,3
Interest rate	8,5% plus 0,75% on undrawn balance	none	7,0 plus 1,0% statutory commission. 0,75% on undrawn balance	n/a	2% for 10 years, 3% for 20 years.		
Repayment period	15 years inc. 4,5 years grace period	25 years inc. 2 yrs grace period	20 years inc. 5 yrs grace period	grant	40 years inc. 10 yrs grace period		
Main components	70% of cost of equipment, vehicles, materials, (inc fencing) $ 0,7 m -65% of land development $ 0,7 m -55% of staff salaries, etc. for extension services and RDAMU $ 1,2 m -100% of foreign cost, or 75% of total cost of technical assistance, studies, and monitoring and evaluation $ 0,7 m -Unallocated amount transferrable and for price contingencies. $ 0,7 m	-construction -vehicles -land development -livestock development -irrigation -extension services -technical assistance.	80% of the cost of -buildings -roads -livestock infrastructure (except fencing) -dams -fish ponds -credit services -operating costs for development and livestock	-extension services (except buildings) in minimum-input RDAs. -incremental inputs -training -technical assistance for management.	-heavy earthmoving equipment, transport vehicles, machinery $ 10,0 m -technical assistance training, strengthening land use planning and land development capability. $ 7,1 m	-balance of funding for IBRD and ADB loan components, of RDAP and contribution to UK funded RDAs. £ 11,25m for USAID project. -equipment support and replacement -salary and wages -vehicle operation and maintenance. -per diem and housing and furnishing for Technical staff.	-seasonalinputs -contributions to livestock infrastructure, land development buildings. -on-going maintenance.

Sources: MOAC project submissions and IBRD Appraisal Report.

Table 2.4. RDAP and USAID project planned costs

	US $ '000	E '000
(a) Multi-donor RDAP (1977/78-1981/82)		
IBRD	4 000	3 478
ADB	5 367	4 667
EDF	2 875	2 500
UK	345	300
GOS	4 520	3 931
Total	17 107	14 876
(b) UK-Funded RDAP (1977/78-1981/82)		
UK	6 990	6 078
GOS	6 415	5 579
Total	13 405	11 657
(c) RDA Infrastructure Support (USAID) (1978-1984)		
USAID	17 146	14 910
GOS	12 943	11 254
Total	30 089	25 825
GRAND TOTAL	60 601	52 697

Note: US dollar converted to Emalangeni at the rate of E 1,00 = US $ 1,15.

Table 2.10. IBRD Appraisal Report : Projected yield increases (percentages) for minimum-input RDAs

		Highveld	Middleveld	Lowveld
		Percentages		
Local maize	(Yr 0 to Yr 5)	67	60	96
Hybrid maize	(Yr 0 to Yr 10)	86		
	(Yr 0 to Yr 7+)		72	
	(Yr 0 to Yr 6+)			57
Cotton	(Yr 0 to Yr 6)		83	60
Tobacco	(Yr 0 to Yr 6)		83	
Potatoes	(Yr 0 to Yr 6)	100		
Field beans	(Yr 0 to Yr 5+)		40	67
Groundnuts	(Yr 0 to Yr 6+)	67	80	104

Source: IBRD Appraisal Report (1977).

Table 2.9. IBRD Appraisal Report: Base and Maximum Yields Used in Yield Projections

Crop	Category	Yield	Highveld	Middleveld	Lowveld
			kg/ha		
Local maize	"passive"	base	810	900	460
		maximum	3 000	3 000	2 000
Hybrid maize	"actively extended"	base	1 944	1 944	910
		maximum	5 400	5 400	2 600
Cotton	"actively extended"	base	-	600	500
		maximum	-	2 000	1 000
Tobacco	"actively extended"	base	600	600	-
		maximum	2 000	2 000	-
Potatoes	"actively extended"	base	10 000	-	-
		maximum	30 000	-	-
Beans	"passive"	base	400	500	300
		maximum	1 250	1 250	1 000
Groundnuts	"passive"	base	450	500	345
		maximum	2 500	2 500	1 500

Source: IBRD Appraisal Report (1977).

Table 2.8. Projected crop area increases (hectares)

	Multi-donor funded RDAs				UK-funded RDAs				All RDAs			
	Yr 0 (ha)	Yr 6 (ha)	Yr 10 (ha)	Yr 10 Average (%)	Yr 0 (ha)	Yr 6 (ha)	Yr 10 (ha)	Yr 10 Average (%)	Yr 0 (ha)	Yr 6 (ha)	Yr 10 (ha)	Yr 10 Average (%)
Hybrid maize	1 064	4 240	6 710	(20,2)	1 160	4 537	7 034	(19,8)	2 224	8 777	13 744	(20,0)
Local maize	24 686	18 608	13 890	(-5,6)	19 603	13 208	8 822	(-7,7)	44 289	31 816	22 712	(-6,5)
Total maize	25 750	22 848	20 600	(-2,2)	20 763	17 745	15 856	(-2,7)	46 513	40 593	36 456	(-2,4)
Cotton	1 540	3 183	4 418	(11,1)	168	823	1 420	(23,8)	1 708	4 006	5 838	(13,1)
Tobacco	162	940	1 562	(25,4)	168	1 485	2 152	(29,1)	330	2 425	3 714	(27,4)
Potatoes	12	188	318	(38,8)	-	12	18	(111,6)	12	200	336	(39,6)
Groundnuts	1 913	2 313	2 557	(2,9)	1 397	1 913	2 246	(4,9)	3 310	4 226	4 803	(3,8)
Other crops	4 594	5 088	5 313	(1,5)	3 614	4 693	5 353	(4,0)	8 208	9 781	10 666	(2,7)
Total cropped area	33 971	34 560	34 768	(0,2)	26 110	26 671	27 045	(0,4)	60 081	61 231	61 813	(0,3)

Source: MOAC project submissions

Figures in brackets are annual rates of increase (%).

RDA in Annex 12 of the MOAC project submissions but not in the Appraisal Report. However, the methodology in the MOAC submissions (multi-donor funded and UK-funded projects) was adopted completely in the Appraisal Report. We have aggregated this information in Table 2.8. which also shows the annual rates of area increase (decrease in the case of local maize and total maize) over six and ten year periods.

The annual percentage rates of increase in crop areas shown in Table 2.8. are optimistic in respect of hybrid maize, cotton, tobacco, and potatoes, i.e. the "actively extended" crops. Although these rates of increase are technically achieveable, they are dependant upon a general desire on the part of farmers to extend their areas of crops and commit additional labour to achieving this.

2.4.2. Expected changes in yields

The rationale used for projecting yield increases was detailed in the MOAC submissions and adopted completely in the Appraisal Report. It started with the concept of "actively extended", "passive", and other crops. Input and yield levels were assumed to increase as a result of improved extension services and input availability. Input levels were increased as a percentage of recommended levels for each agro-ecological zone. These recommended levels however, were taken from the publication "Field Crop, Horticultural and Pasture Production Recommendations" (Advisory Bulletin No. 1. UBLS, 1975) which had the deficiency of being based on a research programme essentially oriented towards large-scale commercial producers.

Yield levels were expressed as percentages of expected maximum yields attainable when inputs were applied at recommended levels. The base yields and maximum yields are shown in Table 2.9. The base yields appear to be reasonable in relation to limited information about prevailing average yields in SNL. However, the maximum yields are too high even if material inputs are used at recommended levels, because of the importance of other technical constraints (e.g. soil acidity, and husbandry, particularly weed control). The result of using optimistic maximum yield levels was an over-estimate of yield increases.

For the maximum-input RDAs yields were projected to increase at a faster rate than in minimum-input RDAs, by an increasing scale reaching 8 per cent by Year 6.

2.4. CROP PRODUCTION GOALS

The original UK-funded RDAs were aimed at increasing rainfed crop production through: land consolidation and registration, improved husbandry, improved supply and utilisation of inputs (seed, fertilizers, tractor cultivation) and institutional development and strengthening (both Government and farmers organisation). Targets for increased production either through increased yields or expansion in the area of crops grown were not specifically stated.

The multi-donor funded RDAP appraised by the IBRD, adopted the approach used by the MOAC in preparation of its submissions for expansion of the programme in 1976. In these submissions a computer model was used to incorporate technical input/output relationships, input costs, product prices, cropped area and credit uptake rates, and to carry out complex calculations which would generate estimates of increased crop and livestock production. The crop input/output data varied for the main agro-ecological areas and identified three crop categories:

- "Actively extended crops" (hybrid maize, cotton, tobacco, and potatoes).

- "Passive crops", benefitting from increased input availability and general extension activity, but not actively promoted (e.g. groundnuts, beans, and local maize).

- "Other crops", including sorghum, pumpkins, and jugo beans (Bambara nuts), which were assumed to be unaffected by the project.

For the first two categories above, input/output levels were assumed to increase as a result of extension effort and increased input availability. Input levels were expressed as a percentage of the recommended level for each ecological zone. Output levels were percentages of the expected maximum level of field production attainable when inputs were applied at their recommended level.

2.4.1. Expected changes in areas of crops

For 'actively extended' crops (hybrid maize, cotton, tobacco, potatoes) the projected crop areas were based on 'uptake rates' which were related to the number of extension workers, the number of farmers that each extension worker is capable of serving, and the area of crops grown per farm. The average number of hectares cropped on each farm was assumed to increase as farmers gained experience in growing a particular crop. These assumptions varied for each RDA according to agro-ecological area, number of farmers, and number of extension workers. The projections were made over a ten year period. The results of these projections were applied to projected yield increases to calculate incremental production. The projected crop area increases were shown for each

Storage Facilities and Equipment for Co-operative Marketing of Maize (UNDP/FAO)

Facilities were provided at fourteen sites for Co-operative storage of maize in metal bins, particularly in Mahlangatsha and Ngwempisi with 240 and 100 tonnes capacity respectively. Quality control and inspection equipment were provided, and staff were trained. Implementation took place from 1980 to 1982 at a total cost of E 49 000 of which GOS provided 24 per cent. The project was part of the FAO Action Programme for the Prevention of Food Losses in Swaziland.

Co-operatives and Marketing Project (USAID)

The aim of the project, which started in 1976, was to strengthen co-operative and marketing services by providing: senior management staff to the CCU, middle management staff to farm service centres within the co-operative structure, consultancies, training for co-operative staff, vehicles, housing, storage facilities and limited budget support. The total cost was US $ 3,7 million, over four years, of which GOS provided 27 per cent. It was intended that the project would be related to the RDAP, and to UK-funded technical assistance for the CCU, and ILO/SIDA funding for CODEC.

Livestock Production and Extension Project (UNDP/FAO)

The objectives of this project were to increase livestock productivity, reduce slaughter age and increase offtake, particularly in the SNL. The approach included; advice on development strategy, strengthening the Animal Husbandry Section, creating an extension service, formulating and implementing a cattle breeding policy, grazing management systems, intensive feeding with crop by-products, development of dairy potential (including assistance in RDAs), and technical assistance. The project operated from 1973 to 1978. The original and somewhat ambitious measures were cut back, partly due to shortage of funds, but some progress was made with breeding programmes, bush clearing, pasture trials, and development of the Animal Husbandry Division.

Dairy Development Programme (CIDA, WFP)

The project (1976-1983) included a 5 000 litre/hour dairy plant, a zero grazed 250 cow milking unit, feed mill, AI programme, relocation of the Dairy Board offices, and four man years of technical assistance. WFP provided skim milk powder and anhydrous butter fat over five years. Funds derived from sales of these items are used to promote dairy production (mainly in maximum-input RDAs) including: credit for cows, inputs, dairy bulls etc.

Progress has been slower than anticipated.

particularly important in the light of RDAP activities, to provide solutions to the problems of small farmers and appropriate messages for the extension service to use.

The project was scheduled to last for three years (1980 - 1983). The UNDP contribution was US $ 357 195, and the GOS contribution E 120 070. The project was terminated at the half way stage, although the work has continued with the USAID-funded Cropping Systems Research and Extension Training Project.

Cropping Systems Research and Extension Training Project (USAID)

The project supports GOS policy to reorientate agricultural research towards smallholder farmers on SNL. It started in 1982 and includes a review of past research, a socio-economic base-line study, and survey of present cropping patterns and practices. The approach is based on CIMMYT principles. The training component provides courses at the University, Farmer Training Centres, and the research station, and in-service training for extension staff.

Over its six year life (1982 - 1987) the project should make a valuable contribution to providing information necessary for formulating agricultural development strategies on SNL.

Smallholder Credit and Marketing Project (ADB/IFAD)

The aim of this project, which is expected to become effective in 1984, is to assist achievement of basic food self-sufficiency and improve farm incomes and living standards. The means will be strengthening credit and marketing services, increased irrigation, and improving the MOAC tractor hire pool.

A loan of US $ 6,2 million will be provided at 4 per cent interest over 20 years with a grace period of five years. The total project cost is estimated at E 9,5 million and will be implemented over five years.

Assistance in Marketing for Rural Development (UNDP/FAO)

The objectives are to strengthen market policy formulation, improve market information and arrangements and increase the marketed output of small farmers. The two year project which started in December 1979 was extended to June 1984. A Marketing Advisory Unit was set up in the Department of Research and Planning in the MOAC. Assistance is provided to the Department of Co-operative Development and Marketing and the CCU: two associate experts are attached to the latter.

The UK-funded component (1977/78 - 1981/82) was estimated at E 11,7 million (US $ 13,4 million), the same cost that was estimated in the MOAC submission.

The USAID component (the Infrastructure Support Project (1978-1984) was estimated at E 26,2 million (US $ 30,1 million).

There were significant differences in the phasing of project cost (Table 2.7.). The Appraisal Report planned a tenth of spending in Year 1, with the remainder spread more or less evenly over Years 2 to 5. Although this was an over-optimistic projection of implementation capability during the early years of the project, it was a significant change from the MOAC submission which forecast one-third of spending in the first year, mainly on buildings and vehicles. Projected spending on these items was spread more evenly over the five years in the Appraisal Report.

The over-optimism of project phasing is discussed in Chapter 3 in the context of implementation achievements.

2.3. COMPLEMENTARY PROJECTS

Since the inception of the early UK-assisted RDAs, several projects have been involved in providing services to farmers on SNL. Two of these projects were aimed at farm systems and agronomic research, three at improving marketing facilities and services, and two at promoting the livestock industry and dairying. Five of these projects (one agronomic research, two marketing and two livestock) have now been completed and two (farm systems research and marketing) are currently in operation. A further marketing project has been prepared and is expected to become effective in 1984. All of these projects are aimed at supporting farmers in the SNL and thus should increase the effectiveness of the RDAP. It is not possible, however, to attribute benefits to one or other programme and part of the benefits attributed to the RDAP could not have been expected without these complementary projects. It is notable that they cover two areas: farm systems research and marketing, which received little emphasis in the RDAP project documents.

The eight projects are described briefly in the following sections.

Research for Rural Development (UNDP/FAO)

The main objective of the project was to create an agricultural research system related to the needs of SNL farmers, to enable them to increase production and raise their income levels. the project involved socio-economic and technical research reoriented to the needs of small farmers. This was seen to be

Table 2.6. Swaziland RDA Infrastructure Support Project (USAID)

USAID	US $ '000
Grant	
Technical Assistance	5 910,9
Training	660,0
Construction	435,0
Commodities	140,6
Loan	
Heavy Equipment	10 000,0
	US $ 17 146,5
GOS	
Equipment Support	12 228,6
Salaries and wages	460,0
Other Project Support Costs	253,3
	US $ 12 942,6
Total	US $ 30 089,1

Source: USAID.

Table 2.7.. Phasing of project costs[1] (percentages)

	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
a) Multi-donor funded project					
MOAC Submission	33,3	19,2	14,7	16,1	16,7
Appraisal Report	10,2	21,1	21,9	23,5	23,3
b) UK-funded project					
MOAC Submission	15,3	18,7	22,5	23,3	20,2

(1) Including physical and price contingencies.

Sources: MOAC project submissions and IBRD Appraisal Report.

Table 2.5. Project costs for multi-donor funded RDAP.

Project Component	Local	Foreign	Total	Local	Foreign	Total	% of total cost
	£ '000			US$ '000			
Extension Services and Infrastructure	1 726	1 533	3 259	1 984	1 762	3 746	32
Livestock Development	298	797	1 095	343	916	1 259	11
Land Development and Soil Conservation	277	621	898	318	714	1 032	9
Agricultural Inputs	88	462	550	101	531	632	6
Agricultural Credit Services	281	233	514	323	268	591	5
Access and Feeder Roads	525	890	1 415	603	1 023	1 626	14
Social Infrastructure	171	283	454	197	325	522	4
Central Management Services	184	525	709	211	603	815	7
Technical Services	514	682	1 196	591	784	1 375	12
Total	4 063	6 027	10 090	4672	6 931	11 604	100
Contingency Allowances:							
Physical	406	603	1 009	467	693	1 160	
Price	1 333	2 444	3 777	1 532	2 812	4 344	
Total Contingencies	1 739	3 047	4 786	1 999	3 505	5 504	
Total Project Costs	5 802	9 074	14 876	6 672	10 435	17 107	

Source: IBRD Report No. 1306 - SW, Jan. 1977

The rates of yield increases for "actively extended" crops (Table 2.10) were even more optimistic. For example, in the middleveld, over five years, maize and groundnut yields were projected to increase by 60 per cent, and cotton and tobacco yields by 83 per cent over six years. These projected yield increases were clearly unrealistic, and were not based on evidence of performance in the earlier RDAs.

2.4.3. Expected changes in crop production

Incremental crop production was expected mainly from yield increases, but also from greater areas of crops planted. The Appraisal Report projections of incremental crop production are summarised in Table 2.11. This table illustrates the large increases expected as early as Year 5, and huge increases by Years 16-20. The Report does not detail the cropped areas on which incremental production was based, although these are given for individual RDAs in both the MOAC submissions and have been aggregated in Table 2.8.

Table 2.11. IBRD Appraisal Report: Incremental Production Estimates (tonnes)

	Year 5	(%)	Years 16-20	(%)
Maize	12 900	62	17 000	82
Cotton	1 177	124	3 000	316
Tobacco	517	457	1 665	1 473
Potatoes	1 964	1 044	6 535	3 476
Beans	369	100	653	177
Groundnuts	553	76	1 322	153

Source: IBRD Appraisal Report, 1977 (Annex 10, Table 10).

The expectation that crop production could be increased over a relatively short time by improved infrastructure, services and availability of inputs was over-optimistic and had no foundation of achievement in pilot or earlier programmes. Issues such as the inherent characteristics of SNL agriculture, competition for SNL farmers' labour, and the availability of alternative employment opportunities were not discussed and must therefore have been ignored.

While the deficiencies of the extension service were recognised in the Appraisal Report (and the documents it succeeded) and provision was made to strengthen it and provide an intensive closely supervised service, the rate at which this could be achieved was again over-optimistic. Furthermore at the time of preparation of the programme appropriate extension messages adapted specifically for SNL smallholders were not available, nor had a smallholder farm systems research programme aimed at identifying appropriate extension messages been prepared. It was inevitable that this situation would have taken some years to improve. Six years later, although there has been useful progress the problems are still there.

2.5. LIVESTOCK, RANGE, AND PASTURE PRODUCTION GOALS

The livestock programme of the early UK-funded RDAs had the main aim of reducing grazing pressure and developing livestock production on a more commercial basis. The second phase (1977-1982) for the original four RDAs overlapped the earlier plans so that targets (e.g. for fencing) often cannot be distinguished. Reduction in numbers was to be achieved through discussions with the livestock owners, chiefs, the CRDB, and technical staff. The three fattening ranches would take surplus stock, and a cattle truck in each RDA would assist with transport. A major component was fencing and grazing management within an overall land use plan. Improved pastures were to be established, and bush cleared (in Ebulandzini RDA). New dip tanks were proposed, funds for acaricide were provided, and stock watering dams were planned. Promotion of small dairy units was also planned, and breeding camps where improved bulls, provided by MOAC breeding ranches, would be used.

In the multi-donor funded RDAs, the livestock programme was concentrated in the two maximum-input RDAs (Mahamba/Zombodze and Lubombo/Mpolonjeni). The objectives and the main components of the programme were essentially the same as in the UK-funded RDAs. It was agreed that adequate technical staff would be provided, including specialists in beef, range management and extension. In the minimum-input RDAs it was hoped to promote some stock reduction through extension advice, provision of a cattle truck for each RDA, and supply of improved bulls where major destocking efforts had been made.

2.5.1. Changes in cattle productivity and production

Production Coefficients

The technical estimates and projections in the project submissions showed a considerable lack of uniformity between RDAs. The approach used in the original four UK-funded RDAs does not conform with the later system used in 1977 for the 10 multi-donor funded RDAs, while the additional four UK-funded RDAs of 1977 are treated in yet a different manner. Details of these submissions are included in Annex D.

Project submissions were prepared for Mahlangatsha in December 1973 and for Northern, Southern and Central in February 1974. With the exception of the Central RDA, the grazing and livestock development sections of these submissions were limited to about two pages of generalised objectives concerning destocking, increasing offtake, improving calving percentage, introduction of improved bulls, improved veld management and dairy/pasture development.

In the submission for Central RDA, the results of a survey were presented to show the herd structure and domestic livestock population for the five chiefdoms included in the RDA and the ITF purchase areas. A production projection for the cattle herd incorporating progressive mortality, calving, culling and sales rates for various classes of stock covering the period 1974 to 1982, was also included.

The initial calving rate for 1974/75 was estimated at 45 per cent. This was projected to increase to 50 per cent in the following year, rising steadily to stabilise by 1977/78 at 65 per cent, a rate approaching that which may be found on extensive commercial ranches under sourveld conditions, and thus an extremely ambitious objective in a four year period with traditional management. The heavy cow culling policy envisaged in this projection should have led to a rapid change in the cow : calf ratio, resulting in a 20 per cent rise in calving rate. While the assumption that such a culling rate could be achieved might appear naive in retrospect, it was anticipated at the time of preparation of the submission that a controlled system of stocking could be maintained on purchased land, and the authorities could dictate the numbers and classes of grazing animals which should use it. No basis was shown for the estimation of the initial calving rate or mortality. The latter appear to conform reasonably well with the trend in the SNL herd, i.e. between 5 per cent and 6 per cent overall. However, the calving rate bears little relation to the surveyed herd structure.

Expected changes in stocking rates

No specific objectives were given for stocking rates and optimum carrying capacities. The development of such parameters was apparently to be a responsibility of project staff, in liaison with specialists from the MOAC, as the RDA activities progressed.

The 1976 Project Submission for UK-funded RDAs includes a record of stocking rates in the original RDAs as at the end of 1975 (in which the optimum stocking rate is assumed to be 2,65 ha per LU). They are difficult to relate to the data on either total area or grazing area presented in the same document.

In the case of the submissions for the earlier and later UK-funded RDAs, it was clearly stated that destocking would be dependent on obtaining authority for compulsory culling and control of stock numbers on the purchased land. On the other hand, as an incentive to continue destocking, improved bulls were to be introduced to communal grazing areas where a major effort had been made by farmers to undertake a destocking programme. It was conceded however that the achievement of optimum stocking levels would not be feasible in most areas.

The 'with project' herd projection for Mahamba/Zombodze clearly demonstrated a significant fall in the total LUs of 18 per cent by Year 5. In the Lubombo/Mpolonjeni RDA, divided into four separate sub-areas, falls of between 2 per cent and 28 per cent were anticipated in three of these with a 3 per cent rise in the fourth.

Herd projections

Projections for herd Structure and production parameters were limited to the two maximum-input RDAs. The system used for these projections was shown but not the basis for calculating the parameters. In essence, the objectives for 'with project' anticipated a rise in calving rate from 40 per cent through 50 per cent in Years 3 to 5, to 65 per cent by Year 6; a decrease in mortality from between 5 and 12 per cent to between 4 and 9 per cent by Year 5; and a culling rate for cows and oxen which would rise at unspecified targets in excess of 10 per cent.

Offtake numbers and incremental values were separately projected to match the herd projections, while the bull/cow ratio overall for the same year was set at 1:25. Significant rises in the proportion of immatures (0-3 years) were projected e.g. at Mahamba/Zombodze in Year 0, 5 700 immatures (39 per cent of total cattle numbers) and by Year 5 7 650 (over 50 per cent).

These projections and parameters were based on similar assumptions to the UK-funded RDAs, i.e. that there would be a high level of cooperation from livestock keepers, and that the necessary authority would be obtained to implement the desired destocking and herd rationalisation.

In retrospect, there would seem to have been an impractical degree of optimism about the rate at which anticipated changes might take place, probably because insufficient notice was taken of the investment value of cattle and complex ownership patterns.

It is also surprising that the system of herd structure classification used in Swaziland was not seriously questioned in any submissions. In particular it was then, as now, patently obvious that any system consistently showing the 2 to 3 year old group of immatures at some 40 per cent greater in number than those of 0 to 1 years, must be a misrepresentation of herd dynamics. This should have been noted at the time of submission as can be seen in the herd projections (both 'with' and 'without project') where the numbers have been adjusted after Year 0 to remove this anomaly. By following this method instead of rationalising the classification in the first place, a completely false situation was created in the projections which implied a level of performance which would be difficult to achieve on a well run extensive commercial ranch. If more realistic divisions had been used, the herd projections would have been more in keeping with possible trends in small SNL herds, and with a less ambitious approach to improved production parameters, some attainable targets might have been set.

2.5.2. Fencing and range management

In the multi-donor funded maximum-input RDAs, 690 km of fencing were planned (fencing was not planned for minimum-input RDAs). In the UK-funded RDAs, 1 619 of fencing were planned. Although it would have been better to have expressed these targets in terms of hectares as well, the lengths of fencing were within the project's implementation capacity. Unfortunately, this component of the RDAP had negative effects on livestock and natural resource objectives (as described in Chapter 4) and thus diverted funds and management from other more useful parts of the programme.

2.5.3. Pasture improvement

Eight thousand hectares of pasture improvement were planned for the two maximum-input RDAs in the multi-donor funded RDAP, and 19 510 ha of land preparation and seeding of pastures in the UK-funded RDAs. These were to include areas of "green belt" for late summer/autumn grazing before crops were harvested.

These targets were beyond the implementation resources of the RDAP, even if the areas had been already identified and agreed. For example the annual target for Lubombo/Mpolonjeni RDA and Mahamba/Lombodze RDA were each 1 000 ha, whereas the total areas ploughed (for all crops) in 1981/82 by the tractor pools were 428 ha and 326 ha respectively. Despite pilot trials under the Livestock Production and Extension Project (Section 2.3.) no practical lessons had been learned about large scale range seeding to warrant this ambitious programme.

The plans did not recognise economic factors, such as the high cost of pasture establishment in relation to the low levels of productivity from existing livestock systems. This aspect is discussed in Annex D. Budgeted costs for pasture establishment ranged from E 8/ha in 1977/78 to E 30/ha in 1982/83, roughly 10 per cent of actual costs (excluding land clearing).

2.5.4. Bush clearing

The multi-donor funded project planned 4 500 ha of bush clearing in the two maximum-input RDAs. The UK-funded RDAs planned 2 500 ha. Although these targets were within the implementation capacity of the project, the plans did not recognise the technical difficulties entailed, particularly maintaining the cleared areas free of re-encroachment. As in the case of pasture improvement, the costs of clearing were not weighed against the likely returns from systems characterised by low productivity.

2.6. ANALYSIS OF PRODUCTION AND DEVELOPMENT ASSUMPTIONS

The fundamental assumption in both the MCAC submissions for the RDAs and the IBRD Appraisal Report, was that given the higher levels of inputs and technology made more widely available by the RDA programme, the potential returns from farming in the SNL would stimulate greater interest and hence greater deployment of rural labour in farming activities. This increase in labour usage, estimated to be on average around 2 500 man years a year (600 000 man days of incremental labour by Year 6 increasing steadily to Year 10), was in turn expected to be reflected in increased production of crops arising primarily from improvement in yield and to a lesser extent from the expansion of the area cultivated (Section 2.4.). Although an analysis of farm labour availability had not been carried out, the Appraisal Report commented that a number of studies available at the time indicated that existing farm labour was significantly under-utilised even at peak seasons of harvesting and planting. It was thus assumed that there was no competition for farm labour and that the incremental labour required to raise agricultural production would be available. The competition for farm labour, particularly contributory factors such as the availability of alternative off-farm employment opportunities and returns to labour from farming activities, compared with the levels of off-farm wages, therefore forms the principal issue examined in this section.

The other major issue examined is livestock productivity and a comparison of returns from investment in livestock with other investment alternatives.

2.6.1. Off-farm employment opportunities and wages

Table 2.12 shows the growth of wage employment for the ten years between 1972 and 1982. Total employment has increased steadily over the period, with 25 000 new jobs, an increase of 12 per cent, having been created. In agriculture and forestry, however, there were almost 1 000 fewer jobs in 1982 than in 1972. Jobs in agriculture and forestry rose between 1972 and 1975, fell during 1976 and 1977 then rose again from 1978 to 1980 before falling markedly during 1981 and 1982. Over the same period labour recruited for the mines in the RSA rose from 7 200 to 20 700 between 1972 and 1976, then declined steadily to just over 11 000 in 1981. There is increasing evidence that the growth in total off-farm employment opportunities has recently slowed down; indeed it is estimated that between 3 000 - 5 000 jobs have been lost in the last 18 months as a result of the economic recession and an outflow of investors. The building sector has no new large projects and activity at Havelock Mines and Usutu forest and pulp plant is expected to be reduced.

Table 2.12. Private and Public Sector Employment and Wages (1972-1982)

	'A' (1) Total Paid employment (private & public)	'B' Paid employment in agriculture & forestry (private & public)	'B' as % of 'A'	Labour recruited for RSA mines	Average earnings, males (E/mth)				Min. wage gen. labourer in building and construction
					Agriculture (unskilled)	Forestry (unskilled)	All industries (unskilled)	All industries (skilled)	
	(no)	(no)	(%)	(no)	----------(E/mth)----------				(c/hour)
1972	53 856	24 332	45	7 215	15	22	23	208	11
1973	57 032	23 655	41	8 090	20	24	25	204	11 - 13
1974	62 061	28 029	45	9 574	n/a	n/a	n/a	n/a	13
1975	64 664	28 666	44	17 004	30	43	49	283	13 - 18
1976	66 215	28 520	43	20 743	40	45	51	315	18
1977	66 225	26 377	40	15 491	39	48	53	345	18 - 20
1978	71 256	27 152	38	14 284	56	55	71	404	20 - 22
1979	73 879	27 664	37	12 451	58	75	78	477	22
1980	75 124	29 958	40	10 870	79	105	100	n/a	30 - 33
1981	79 739	26 745	34	11 048	86	112	108	515	33 - 37
1982	81 854	23 491	29		95				
% inc. 1972-1981	48,1	9,9		53,1	473,3	409,1	369,6	147,6	236,4
% inc. 1972-1982	52,0	-3,5		n/a	533,3	n/a	n/a	n/a	

(1) Excludes small Swazi traders and employment by private households.

Comparing the estimated total number of homesteads in SNL (47 000) with the current number of jobs in the formal sector, public and private (82 000), there are approximately 1,74 jobs available per rural household, a level of wage employment which is much higher than in most African countries.

The Rural Homestead Survey (Social Science Research Unit, UCS 1978) indicated (Table 2.13.) that two-thirds of homesteads had absentee wage earners, and of these the average had two absentee wage earners per homestead. The survey also indicated that nearly 40 per cent of homesteads had home-based wage earners (commuters) and of these the average number of workers was 1,4 per homestead. Eighteen per cent of homesteads had neither a commuter nor an absentee worker. Combining these two estimates gives a mean of 1,89 wage earners per homestead which compares closely with the estimate of 1,74 wage earners per homestead above. As could be expected, Table 2.13. also indicates that off-farm employment is generally higher in peri-urban than in rural areas and suggests that it is slightly less prevalent in RDAs than in non-RDAs. Although the latter may be coincidental, it could possibly be a reflection of the increased potential for raising farm incomes brought about by the RDA programme.

From the information available it is clear that off-farm employment opportunities have been available throughout the past decade and earlier, and they have attracted labour from homesteads throughout the SNL. There is little doubt that this has affected the availability of additional labour for deployment in farming activities and ultimately constrained the impact of the programme on raising agricultural production.

Average earnings for unskilled male workers in agriculture, forestry and all industries are compared with wages for skilled labour in all industries in Table 2.12. Over the period 1972 - 1982 wages for the unskilled workers rose much more rapidly than for the skilled. The rapid rise in wages for the unskilled was partly due to increases in the gazetted minimum wages, determined by a wage council system involving representatives of employers and employees, and partly due to the demand created by the increased economic activity throughout the middle and late 1970s. The latter has probably been particularly important as average unskilled wages have increased five-fold between 1972 and 1981 while the gazetted minimum has trebled.

2.6.2. Returns to labour and farm incomes

The returns to labour from farming activities were determined by assumptions about levels of inputs used and expected

Table 2.13. Incidences of absentee and home-based wage earners in rural homesteads

	SNL	Rural RDAs	Rural non-RDAs	Peri-urban RDAs	Peri-urban non-RDAs
Homesteads with absentee wage earners (percentage)	67,6	61,2	70,0	63,0	55,0
Mean number of absentee wage earners (in homesteads with absentee wage earners)	2,0	1,8	2,1	1,9	2,2
Homesteads with home-based wage earners (percentage)	38,6	34,0	35,0	51,6	82,0
Mean number of home-based wage earners (in homesteads with home-based wage earners)	1,4	1,1	1,4	1,4	1,9
Mean number of absentee and home-based wage earners (in all rural homesteads)	1,89	1,48	1,96	1,92	2,77

Source: Rural Homestead Survey, SSRU, UCS, 1978

yields translated into crop and then farm budgets. These have been prepared using the consultants' estimates of current levels of inputs and outputs and the targets contained in the Appraisal Report.

Input/yield relationships

Levels of inputs used and expected yields were determined by an assumed rate and extent at which research recommendations embodied in Advisory Bulletin No.1 UBLS, 1975 (Field Crop, Horticultural and Pasture Production Recommendations) would be adopted by farmers in the RDAs. These recommendations, rate and extent of uptake and expected yields, are summarised in Annex C. The Appraisal Report, however, only details the input and output levels expected for minimum-input RDAs, and mentions that average inputs and outputs "were assumed to increase in a similar fashion but at a higher rate" for the maximum-input RDAs because of more intensive staffing, management, rationalisation of land, greater use of tractors and soil conservation measures. While we agree that this could logically be expected, we cannot comment on the rates assumed since they are not presented in the document.

Our main comment on these input/output relationships concerns yields. Although yield increases rarely exceeded 60 per cent of the attainable yields given in Advisory Bulletin No.1 they were nevertheless optimistic. The Bulletin was strongly orientated towards commercial farmers on ITF land and was not directly applicable to SNL farmers.

Research Report No. 7 published in 1976 (reviewed in Annexes B and C), which summarises maize trials carried out under SNL conditions, would probably have provided a more appropriate base upon which input/output relationships (for maize at least) could have been made.

The research recommendations for input use, particularly fertilizers, could have been reviewed more critically. No provision was made for top dressing local maize, and that for cotton was limited despite the evidence available at the time that responses to basal fertilizers were reduced in the absence of nitrogenous top dressing. Furthermore urea should not have been recommended because of the need to incorporate it in the soil and because of its acidifying effect. Generally the target rates of compound fertilizer were too high and those of top dressing (LAN) too low.

Crop Budgets

Table 2.14 summarises crop gross margins (detailed in Annex H), for a range of six crops. The gross margins calculated for each crop include:

Table 2.14. Comparison of Crop Gross Margins

CROP		APPRAISAL REPORT						RDAP REVIEW	
		YEAR 0		YEAR 6					
		Gross margin E/ha		Gross margin E/ha		RC Ratio (Yr 0 to Yr 6)(2)		Current E/ha	
		1976(1) Prices	1983 Prices	1976(1) Prices	1983 Prices	1976 Prices	1983 Prices	1976 Prices	1983 Prices
Local maize	Highveld	75,19	202,63	118,36	326,03	3,66	4,63	77,82	209,99
(Consumer Prices)	Middleveld	88,09	235,14	135,04	366,82	4,77	6,10	89,54	240,17
	Lowveld	44,49	118,38	86,44	233,62	7,50	9,99	61,31	164,73
Local maize	Highveld	34,69	114,34	50,86	177,53	2,00	2,86	33,74	113,41
(Producer Prices)	Middleveld	43,09	137,04	63,04	208,42	2,60	3,76	44,19	140,40
	Lowveld	21,49	68,24	41,44	134,62	4,09	6,18	29,71	95,21
Hybrid maize	Highveld	162,05	442,22	280,66	761,93	5,95	6,51	142,53	390,82
(Consumer Prices)	Middleveld	169,55	458,47	294,65	795,14	8,16	9,19	115,22	313,64
	Lowveld	67,81	185,64	117,52	322,07	7,64	9,93	83,38	227,81
Hybrid maize	Highveld	64,85	230,32	118,66	405,53	3,25	4,02	51,78	191,37
(Producer Prices)	Middleveld	77,35	246,57	132,65	438,77	4,45	5,68	46,87	163,27
	Lowveld	22,31	86,45	46,02	164,77	4,17	6,13	31,13	112,86
Other crops Producer Prices									
Cotton	Middleveld	129,60	267,50	253,66	523,40	8,78	11,62	124,18	264,54
	Lowveld	101,80	211,93	171,11	358,80	5,72	7,95	121,53	264,49
Tobacco	Highveld + Middleveld	627,34	560,75	1 130,38	1 037,14	11,71	7,47	225,39	117,66
Potatoes	Highveld	1 021,19	1 580,20	2 629,05	4 004,60	18,39	20,30	1 384,97	2 065,44
Beans	Highveld	83,70	207,70	119,70	302,70	3,00	3,44	28,67	68,41
	Middleveld	110,70	274,70	152,70	382,70	4,50	5,15	116,96	287,50
	Lowveld	56,70	140,70	104,70	261,70	9,00	10,31	24,89	59,03
Groundnuts	Highveld	35,20	92,80	62,69	168,55	5,99	7,73	34,76	91,64
	Middleveld	40,70	107,30	81,02	215,80	11,96	15,47	29,81	78,59
	Lowveld	24,20	63,80	62,15	164,50	35,50	45,76	30,69	80,91

(1) Recalculated from IBRD Appraisal Report.

(2) Incremental benefits Year 0 to Year 6 divided by incremental costs betweenYear 0 and Year 6.

Source: Consultants estimate detailed in Annex H.

- Appraisal Report, Year 0 input/output assumptions at 1976 and 1983 prices;
- Appraisal Report, Year 6 input/output assumptions at 1976 and 1983 prices;
- RDAP Review estimate based on current (equivalent to Year 6) input/output levels at 1976 and 1983 prices.

Ratios of incremental benefits to incremental costs between Year 0 and Year 6, using assumptions in the Appraisal Report are included to indicate whether additional inputs proposed were justified in terms of additional yield anticipated, and also to provide a broad indicator of whether input cost and output price relationships had deteriorated, or improved in the farmer's favour. The yield levels on which the estimates of gross margin are based are given in Table 2.15.

Maize gross margins are calculated at producer and consumer (retail) prices in order to compare the value of maize when grown as a commercial crop for sale, with its value to the farm family as a subsistence crop. As labour has been excluded from the production costs the gross margins can be used to indicate returns to farm labour.

Table 2.14. indicates that using the IBRD Appraisal Report input/output relationships, all of the gross margins are positive, with potatoes and tobacco far exceeding the other crops. Hybrid maize is next if valued at consumer prices, followed by cotton and benas. Year 6 gross margins are generally 60-70 per cent higher than Year 0, with the exceptions of: potatoes (150 per cent higher), lowveld maize and cotton (around 100 per cent higher). The ratios of incremental benefits to costs clearly indicate that the additional inputs could be justified economically so long as the expected incremental yields are achieved. The comparison of these ratios calculated at 1976 and 1983 prices also demonstrates (since the 1983 ratios are greater for all crops apart from tobacco) that crop returns have probably risen more rapidly than total crop input costs (apart from labour) and that the economics of crop production are generally as favourable or more favourable in 1983 than they were in 1976.

Our estimates of current gross margins are derived from actual levels of inputs and yields recorded in the Third Annual Report on RDA Cropping (1983) and earlier reports prepared by the MOAC extension services. Since this is the sixth season following signing of the Agreement, these gross margins can be compared with the Year 6 expectations in the Appraisal Report. For all crops they are significantly lower (sometimes less than 50 per cent) than the IBRD Year 6 estimates; indeed they are generally of a similar order or even lower than the IBRD Year 0 estimates. It is unfortunate that both the 1981/82 and 1982/83 seasons have been regarded as drought years with significantly less rain than normal. This has undoubtedly reduced the estimates of current gross margins.

Table 2.15. Comparison of Crop Yields (kg/ha)

		APPRAISAL REPORT		RDAP REVIEW		
		Year 0	Year 6	Estimate for 1983 Year 6	1983 as a % of Year 0	1983 as a % of Year 6
Local maize	Highveld	810	1 350	878	108	65
	Middleveld	900	1 440	907	101	63
	Lowveld	460	900	632	137	70
Hybrid maize	Highveld	1 944	3 240	1 815	93	56
	Middleveld	1 944	3 240	1 367	70	42
	Lowveld	910	1 430	1 045	115	73
Cotton	Middleveld	600	1 100	725	121	66
	Lowveld	500	800	591	118	74
Tobacco	Highveld+Middleveld	600	1 100	319	53	29
Potatoes	Highveld	9 900	20 000	12 000	121	60
Beans	Highveld	400	600	214	54	36
	Middleveld	500	700	541	108	77
	Lowveld	300	500	200	67	40
Groundnuts	Highveld	450	750	421	94	56
	Middleveld	500	900	376	75	42
	Lowveld	345	705	384	111	54

Source: MOAC project submission, and Consultants' estimates.

While the increase in crop productivity resulting from increased use of inputs and improved yields anticipated in the Appraisal Report might have been achievable by a minority of exceptional semi-commercial farmers, it is unlikely that even with favourable rainfall they would have been achieved by the majority of farmers in the RDAs within the time scale projected.

It is also worth noting that although potatoes have the highest gross margin of all, they are unlikely to be widely adopted by small farmers under rainfed conditions. Input costs of over E 1 000/ha generally represent too high an outlay (particularly with the high degree of risk attached) and are beyond the means of most smallholder farmers on SNL.

Returns to labour

Table 2.16 summarises the net returns (gross margin) per man day derived by comparing the gross margin estimates in Table 2.14 with the number of man days required to produce the crop. In most cases the latter bears little relation to the length of the growing season, nor does the analysis provide any insight into total farm or family income. It does, however, identify those crop which will be most attractive to farmers where the availability of farm labour is at a premium or whether there are competing opportunities for deployment of the farm labour.

The crops with the highest returns to labour at current prices are hybrid maize (consumer prices) in all three agro-ecological zones, beans in the middleveld, and potatoes. Returns to labour from cotton, tobacco, local maize and groundnuts do not compare favourably with the current minimum urban wage of E 4,50 per day, particularly when the length of the growing period and uncertainty of crop yields are taken into account. Of the three crops which are competitive, hybrid maize is probably the most attractive to the smallholder farmer.

Farm family incomes

Farm family incomes for typical subsistence and semi-commercial homesteads in the three main ecological zones have been examined with the objective of comparing the income in cash and kind that homesteads are likely to derive from agriculture alone (semi-commercial), with the income from a homestead where potential wage earners were in full time employment (subsistence homestead). The analysis considered two farm models, comprising homesteads of nine members, including two potential wage earners, and compares total incomes from: subsistence production plus wage earnings by two family members with the value of subsistence plus surpluses sold produced by the entire family. Details of the homesteads are summarised in Table 2.17 and 2.18. The gross margins used are based on those in Table 2.14.

Table 2.16 Comparison of Returns to labour (E/man day)

		APPRAISAL REPORT				RDAP REVIEW	
		Year 0		Year 6		Estimates for Year 6	
		1976 Prices	1983 Prices	1976 Prices	1983 Prices	1976 Prices	1983 Prices
Local maize (Consumer Prices)	Highveld	4,18	11,26	4,55	12,54	1,56	4,20
	Middleveld	4,89	13,06	7,50	20,38	1,79	4,80
	Lowveld	2,47	6,58	4,80	12,98	1,23	3,29
Local maize (Producer Prices)	Highveld	1,93	6,35	1,96	6,83	0,67	2,27
	Middleveld	2,39	7,61	3,50	11,58	0,88	2,81
	Lowveld	1,19	3,79	2,30	7,48	0,59	1,90
Hybrid maize (Consumer Prices)	Highveld	4,50	12,28	15,59	42,33	3,24	8,88
	Middleveld	4,71	12,74	16,37	44,17	2,62	7,13
	Lowveld	1,88	5,16	6,53	17,89	2,08	5,70
Hybrid maize (Producer Prices)	Highveld	1,80	6,40	6,49	22,53	1,18	4,35
	Middleveld	2,01	6,85	7,37	24,38	1,07	3,71
	Lowveld	0,69	2,40	2,56	9,15	0,78	2,82
Other crops	Producer Prices						
Cotton	Middleveld	2,06	4,25	2,82	5,82	1,66	3,53
	Lowveld	1,79	3,72	1,99	4,17	1,74	3,78
Tobacco	Highveld + Middleveld	3,39	3,03	4,36	4,00	2,13	1,11
Potatoes	Highveld	24,91	38,54	39,83	60,68	10,26	15,30
Beans	Highveld	1,31	3,25	1,29	3,25	0,84	2,01
	Middleveld	1,56	3,87	1,53	3,83	3,44	8,46
	Lowveld	1,32	3,27	1,45	3,63	0,73	1,74
Groundnuts	Highveld	0,65	1,72	0,75	2,01	0,83	2,18
	Middleveld	0,69	1,82	0,82	2,18	0,71	1,87
	Lowveld	0,55	1,45	0,79	2,08	0,73	1,93

Source: Consultants' estimate detailed in Annex H.

Table 2.17. Details of typical homesteads[1]

	Highveld	Middleveld	Lowveld
a) Subsistence			
Area (ha)	0,75	1,00	2,00
Number of people in homestead (de facto)	7	7	7
Number of wage earners present	0	0	0
Maize consumption (kg)	1 400	1 400	1 400
Maize production (kg)	1 025	1 400	1 400
b) Semi-commerical			
Area (ha)	1,85	2,25	4,35
Number of people in homestead (de facto)	9	9	9
Number of potential wage earners present	2	2	2
Maize consumption requirements (kg)	1 800	1 800	1 800
Maize production (kg)	2 590	2 820	2 140
Surplus (kg)	790	1 020	340

Note (1) : Based on data presented in "Crops : 1982/83 Season", MOAC Extension Service, and "Farm Household Theory and Rural Development in Swaziland" (A. Low, 1982).

Table 2.18. Cropping patterns for typical homesteads

A. Subsistence Holding

	Crop	% of Area
Highveld	Local maize	38
0,75 ha	Hybrid maize	57
	Beans	3
	Groundnuts	2
Middleveld	Local maize	34
1,00 ha	Hybrid maize	59
	Beans	5
	Groundnuts	2
Lowveld	Local maize	28
2,00 ha	Hybrid maize	52
	Cotton	18
	Beans	2

B. Semi-commercial

Highveld	Local maize	25
1,85 ha	Hybrid maize	65
	Beans	5
	Groundnuts	5
Middleveld	Local maize	25
2,25 ha	Hybrid maize	55
	Cotton	16
	Beans	4
Lowveld	Local maize	15
	Hybrid maize	38
	Cotton	45
	Beans	2

Table 2.19. compares the net returns from crop production on each model. The incremental net return from deploying two additional members of the homestead on farm work ranges from E 250 in the high- and middleveld to around E 530 in the lowveld, roughly doubling the net value of crop production. If, as is possible in the subsistence situation, two members of the family were working full time, their combined gross income as unskilled labourers would amount to an additional E 2 400 per year assuming that their wages were similar to the average for unskilled labour (E 100 per month). Even if the net disposable income (i.e. after payment for board and lodging) amounted to only 50 per cent of this, the additional income to the homestead would still be considerably higher than that which could be expected from adopting semi-commercial farming.

Alternatively, if the area of cash crops that would have to be cultivated to produce a net revenue of E 2 400 per year is considered, at least ten additional hectares of maize (the most likely cash crop) would be required. Clearly very few homesteads are farming on this scale and few would have the capacity or inclination to expand their cropped area to this extent.

A similar analysis (Table 2.20.) has been carried out using the Appraisal Report Year 6 target inputs and yields with produce valued at 1983 prices. The incremental income from adoption of semi-commercial farming ranges from E 424 in the highveld to E 740 in the lowveld. Even at these optimistic assumptions the incremental income is unlikely to compete with the alternative of wage employment.

It is concluded therefore that so long as off-farm employment opportunities are available, they will almost certainly attract labour from homesteads in the rural areas.

Table 2.19 Comparison of net returns (1) from crop production at Current Input/Output levels and 1983 prices

	Highveld	Middleveld	Lowveld
Subsistence Homestead			
Area (ha)	0,75	1,00	2,00
Net value of crop production (E)	230	283	427
Semi-Commercial Homestead			
Area (ha)	1,85	2,25	4,35
Net value of crop production (E)	493	516	961
Increase in net value of crop production from semi-commercial homestead (E)	264	236	531
Percentage increase	115	84	123

Note 1: Maize in excess of consumption requirements has been valued at producer prices.

Table 2.20 Returns from Crop Production assuming Appraisal Report Year 6 Target at 1983 Prices.

	Highveld	Middleveld	Lowveld
Subsistence Homestead			
Area (ha)	0,75	1,00	2,00
Net value of crop production (E)	387	507	540
Semi-Commercial Homestead			
Area (ha)	1,85	2,25	4,35
Net value of crop production (E)	811	1 081	1 283
Increase in net value of crop production from semi-commercial homestead (E)	424	574	740
Percentage increase	110	113	137

2.6.3. Livestock and alternative investment opportunities

All of the project submissions (MOAC and IBRD Appraisal Report) recognised that the most serious and perhaps overriding problem in the livestock sector is the extent to which the grazing resources on SNL are overstocked. The principal aim of the livestock components therefore, has been to reduce the pressure on grazing through destocking. It was proposed that this could be done by promoting the development of more commercially based production systems which would encourage the sale rather than retention of cattle.

Implicit in the livestock proposals was the assumption that livestock owners would sell stock at the appropriate stage and that the money realized would not necessarily be reinvested in livestock but instead be invested in some alternative investment opportunity.

In the following paragraphs we examine the returns which could be expected from investment in livestock either in a small herd typical of SNL livestock owners, or by purchasing stock for "finishing" on a Government fattening ranch, and compare them with the most likely alternatives available. Another related issue which we have considered is the level to which stocking intensity could increase before the returns from livestock were reduced to a rate which is comparable to the prevailing rates from investment alternatives.

The main returns from investment in cattle come from:

a) natural increase of the herd;

b) incremental weight gains;

c) increases in cattle prices over time, enhancing the value of (a) and (b);

d) products (mainly meat, milk, and manure);

e) draught-power (substituting for labour, or mechanical power).

The returns from natural increase, products, and price increases, are estimated with a simple model, based on a typical small herd. Returns from weight gains and price increases are estimated using the results of weight gains from cattle on fattening ranches. These analyses take no account of the social value of cattle, and we have not valued manure and draught power.

The typical small herd

The following assumptions have been made:

- 18 head of cattle; (the SNL average is 17,3) categories and values are shown in Table 2.21.

- 30-35 per cent weaning rate resulting in two calves per year;

- one mature animal sold per year for E 200;

Table 2.21. Typical small herd(numbers and values)

	No.	Unit value (E)	Total value (E)
Bull	1	250	250
Cows	6	200	1 200
Oxen	4	250	1 000
Immatures (1-3 yr)	5	100	500
Immatures (0-1 yr)	2	-	-
Total			E 2 950
		say	E 3 000

Source: Consultants' estimates.

Table 2.22. Weight gains and values of steers sold from government fattening ranches

Ranch	Ave. length of stay (mths.)	Ave. total wt. gain (kg)	Ave. monthly wt. gain (kg/mth)	Ave. sale wt. (kg)	Ave. price (E/hd)	Ave. price (E/kg)	Mortality (%)
Mpala	16	89	5,6	287	233	0,81	2,9
Lavumisa	12	111	9,3	315	302	0,96	1,0
Balegane	21	161	7,7	355	293	0,83	3,3
Mean	16,3	120,3	7,5	319	276	0,87	2,4

Source: MOAC.

- one mature animal death per year; on average E 50 worth of meat obtained from moribund animals;

- 150 litres of milk per cow per year, valued at E 90/year;

- the herd numbers remain the same (2 calves/year, replacing one sale and one death).

The gross return on the total value of the herd (E 3 000) is E 340/year. Cash costs are negligible, but net returns are estimated at E 300/year, i.e. 10 per cent. Adding the average increase in cattle prices over the last decade of 14 per cent (Table 2.23.) results in a total return of 24 per cent.

Steers on fattening ranch

The following assumptions have been made, and are based on Table 2.22.

- one steer worth E 173 (199 kg x E 0,87/kg) sent to the fattening ranch for 16 months;

- average weight gain 7,5 kg/month; total weight gain 16 x 7,5 kg = 120 kg;

- average price E 0,87/kg liveweight, therefore gross value of weight gain = E 104,40;

- ranch fee E 0,65/month for 16 months = E 10,40;

- transport and selling costs E 20;

- mortality 5 per cent.

Thus, the net return from the weight gain of the steer fattened on the ranch is E 60, on an initial value of E 173, over 16 months, i.e. 26 per cent/year. Adding the average increase in cattle prices of 14 per cent (Table 2.23.) results in a total return of 40 per cent.

The true cost of the fattening ranches is about E 4/head per month. If this fee was charged, the net return would be E 5/year, i.e. 3 per cent. When the average increase in cattle prices is added, the total return is 17 per cent.

Alternatives to livestock

The main alternative investment opportunity for the SNL farmer is a savings account or a deposit account at a commercial bank or building society. Interest rates are closely related to those prevailing in South Africa, and fluctuated between 3,50 per cent and 4,50 per cent in the period, 1st January 1974 to 22nd July 1981, (see Table 2.23.). Thereafter, interest rates on savings accounts rose to 7,0 per cent in 1982/83, but declined slightly after 15th March 1983. Interest rates on one year deposit accounts are generally 3 to 3,5 per cent above the savings account level.

Table 2.23. Interest rates, consumer prices, and cattle prices (1973-1983)

	(1) Percentage increase in consumer prices	(2) Savings account interest rate	(2) Time Deposit account (one year) interest rate	(3) Percentage increase in cattle prices
	(%)	(%)	(%)	(%)
1973	11,6	3,5	7,0	25,3
1974	21,0	3,5 - 4,5	7,0 - 10,0	57,4
1975	13,3	4,5	9,0 - 10,0	8,1
1976	6,5	4,5	9,0	6,3
1977	16,6	4,5	9,0	-15,3
1978	10,6	4,0 - 4,5	8,5 - 9,0	7,0
1979	16,4	3,75 - 4,0	6,0 - 9,0	12,8
1980	18,7	3,75	6,0	36,2
1981	20,0	3,75 - 6,0	6,0 - 10,5	35,2
1982	10,8	6,0 - 7,0	10,5 - 11,5	7,0
1983	15,0(5)	6,5 - 7,0	9,5 - 11,5	-17,1(4)
Average annual rate of interest/ increase (%)	16,1	5,1	9,5	14,2

(1) Year on year December level, "all items" 'B' Retail Price Index (low wage earning Swazis in Mbabane and Manzini).
Source: CSO and Central Bank.

(2) Interest rates payable on bank deposits in Swaziland.
Source: Central Bank.

(3) Average price at local sales, quoted in Annex IV, Table 3 of IBRD Agricultural Sector Review; and auction sale prices at three MOAC fattening ranches.

(4) Average for January to June 1983.

(5) Estimate.

When compared with consumer prices (Table 2.23.) interest rates on institutional investments are very disappointing. The "low wage earning" consumer price index has ranged from 6,5 to 21,0 per cent in the period 1973 to 1982, i.e. much higher than savings account interest rates and, except in 1976 and 1982, higher than one year deposit account rates. Thus, an SNL farmer who saved with a bank or building society would have seen the real value of his savings decline significantly over the period.

Table 2.23. also compares the consumer price changes and interest rates with cattle prices. Apart from 1977 and 1983, when cattle prices declined, they have increased at rates faster than the savings account interest rates. In several years (1973, 1974, 1979) the increase in cattle prices have been much higher than time deposit account interest rates.

Conclusions

The typical small SNL herd provides material returns in the form of sale of live animals, meat and milk (for home consumption or sale), manure, and draught power. Using prevailing low production coefficients, the estimated returns are 10 per cent a year, compared with 5 to 9 per cent a year from savings or fixed deposit accounts over the last decade. When the average annual increase in cattle prices is added, the return from the homestead herd is estimated to be about 24 per cent. If destocking was implemented and productivity improved, returns from traditional herds would improve further in comparison with alternative investment opportunities.

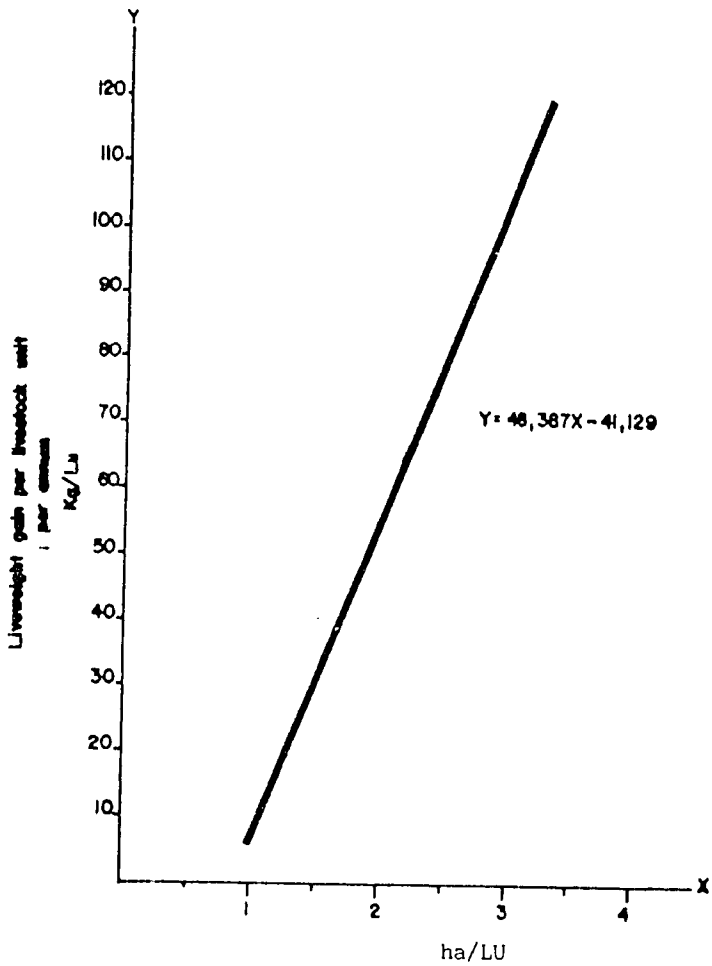
The government fattening ranches seem to provide high returns largely because the grazing fee is sub-economic. If a fee based on costs was charged, the returns would decline substantially, although, when cattle price increases are added, they would still be better than from institutional investments.

These comparisons confirm the widespread belief that cattle are a better investment than institutional opportunities, quite apart from the social benefits they provide. It would therefore be difficult and unreasonable to persuade cattle owners to dispose of cattle in favour of alternative investments. Any arguments would have to be based on improved production.

Reduction in live weight gains with increased stocking intensity

The analysis carried out is based on research in Zimbabwe by Kennon (1969), Carew (1976) and Jones and Sandland (1976) who proposed that the relationship between stocking rate and live mass gain per head is linear (negative) once a critical level of stocking intensity is reached. At lower stocking intensities (i.e. lighter) there is no effect on live mass gains per head whilst at higher stocking intensities the live mass gain per head per annum decreases rapidly. The relationship is embodied in the equation $Y = 48,357 X - 41,129$ (where Y = the live weight gain/head/annum and X = the stocking intensity in ha/LU) and is illustrated in Figure 2.1.

Figure 2.1. Relationship between Liveweight Gain per Livestock Unit and hectares per Livestock Unit



Stocking rate in hectare per livestock unit

The example used is a 380 kg steer (4-5 years old) valued at E 330. Assuming 7 and 10 per cent interest rates from alternative investments the return from E 330 would be E 23 and E 33 respectively. These in turn are equivalent to the value of live weight gains of 26 kg /head/year and 38 kg /head per year. Using the relationship above these weight gains would be achieved at 1,4 ha/LU and 1,6 ha/LU. Thus investment in livestock is still competitive at stocking intensities of 1,4 ha/LU and 1,6 ha/LU where returns from alternative investments are 7 per cent and 10 per cent respectively.

This crude analysis is based on the only quantitative information currently available which might approximate towards conditions found in Swaziland middle and highveld grazing. It is indicative only and as such should be treated with great caution particularly since the research work on which it is based may not have encompassed similar high stocking intensities or poor levels of range management found in Swaziland.

2.6.4. Conclusions

The assumption that SNL farmers would readily adopt a more commercial attitude towards farming and hence increase their production if given better access to inputs and advice was probably unfounded, primarily because:

a) There were alternative opportunities for SNL homesteads to deploy their labour and the expectation of wage employment is firmly entrenched in most SNL families. As long as jobs are available, they will be taken up.

b) At least two thirds of SNL homesteads had absentee members in wage-employment and about 40 per cent had home-based members in off-farm wage employment. Overall 82 per cent of homesteads had off-farm wage earners.

c) Jobs in formal wage employment rose steadily throughout the 1970s with 28 000 new jobs, an increase of 52 per cent being created. (This has recently slowed down and it is estimated that between 3 000 and 5 000 jobs have been lost due to economic recession in the past 18 months.)

d) The availability of jobs and willingness of farmers to take them up has constrained the availability of additional labour for deployment in farming activities.

e) Wages for unskilled labour increased five fold during the 1970s(gazetted minimum wages trebled) reflecting a rapidly increasing demand.

f) The anticipated yields and returns were not being achieved nor were they likely to be achieved within the time scale projected.

g) Maize clearly gives one of the highest crop returns to farmers' labour, and areas of maize are unlikely to be replaced by crops such as tobacco, cotton or potatoes (the latter mainly because of the high input costs and risk).

h) Deployment of labour in wage employment is more attractive in terms of incremental family income than moving to semi-commercial farming even if the optimistic targets assumed in the project submissions were achieved. Furthermore for semi-commercial farming to become attractive it would require significant increases in farm areas, beyond the capacity of most farmers.

The conclusions from the livestock analyses are:

a) Returns from investment in livestock, whether in a typical small herd or simply in purchasing steers for fattening, are significally better than returns from institutional investments, the main alternatives available.

b) Investment in livestock is still competitive when stocking intensities are increased to about 1,5 ha per livestock unit.

c) In these circumstances voluntary destocking should not have been expected to happen.

CHAPTER 3. IMPLEMENTATION

3.1. INTRODUCTION

In this chapter the achievement of the RDAP in terms of the physical targets and plans set out in the project submissions and the Appraisal Report are reviewed. Greatest attention is given to the multi-donor funded programme, for which more comprehensive records are available, particularly with regard to expenditure, component costs, records of achievements, and disbursement of funds. Unless stated otherwise, comments relate specifically to the multi-donor funded programme rather than to the entire programme, which includes the UK-funded RDAs.

Overall by the end of the phase most of the important infrastructure had been successfully completed, although behind schedule.

3.2. EFFECTIVENESS AND START-UPS

The programme was originally scheduled to start in June 1977 but did not become effective until January 1978. The IBRD conditions of loan effectiveness stated in the Appraisal document were:

a) Signature of the ADB loan agreement and fulfilment of ADB conditions of loan effectiveness.

b) Signature of the EDF financing agreement and fulfilment of EDF conditions of effectiveness.

c) Appointment of key project staff (Project Co-ordinator, Deputy Project Co-ordinator, Financial Controller, and Senior RDA Manager).

d) Development of the Certificate Training Course.

The actual dates when the individual donor contributions became effective were as follows:

IBRD - loan approved 9th March 1977,
signed April 1977, and
effective from 27th January 1978.

ADB - loan effective from 28th January 1978.

EDF - grant approved on 23rd March 1977 and
the agreement with GOS signed on 6th June 1977.

Apart from the requirement that agreement with the IBRD had been signed, and the IBRD's conditions of effectiveness fulfilled, the ADB did not have any special conditions of effectiveness in addition to those of IBRD above. EDF had no additional conditions.

Conditions (c) and (d) did not delay start-up. The Certificate Training Course began in March 1977 and the key project staff were in post on time. The Project Co-ordinator was simply transferred from SRDA where he had been the Project Manager under UK technical assistance, the Deputy Project Co-ordinator was a Swazi seconded from another department within MOAC, the Financial Controller was in post in July 1977, and the Senior RDA Manager was a Swazi who was transferred from NRDA. Complying with the conditions of effectiveness was not a constraint to start-up and the actual delay to January 1978 can be attributed to the normal administrative process in setting up the project. For example, GOS had to get legal advice and clearance from the Attorney-General before the various loans could be accepted. This took longer than the planners had anticipated but in view of the fairly tight timing required to get the programme underway, delays were probably inevitable. The fact that four separate donors as well as GOS were contributing to the programme probably compounded the delay.

The IBRD loan provided for US $ 100 000 that could be used retroactively before the loan became effective, to employ the key project staff and other preliminary development activities. This money was used to set up the RDA management unit, purchase of vehicles and equipment etc.

With regard to the UK-funded RDAs from 1976/77 on, no delays were experienced in fulfilling any conditions of effectiveness as this was the continuation and expansion of an existing programme, and the administrative procedures had already been set up.

The Swaziland RDA infrastructure support programme funded by USAID and GOS was signed with GOS in September 1978 but the beginning of actual implementation was delayed for about six months until early 1979. The programme experienced delays in the arrival of heavy equipment from the United States of America and delays in the fielding of the TA staff. These delays significantly affected the capability of the programme to maintain its schedule and curtailed several important programmes.

3.3. REVISIONS TO THE RDAP AFTER EFFECTIVENESS

No major changes were made to the programme after effectiveness. RDAP management did not think that any changes were necessary and, apart from some minor adjustment and re-allocations, the plan in the Appraisal Report was followed more or less as it stood. The EDF increased its grant by E 120 000 from E 2,5 million to E 2,62 million in September 1982 to enable the financing of the Certificate Training Course for another year.

Funds allocated for a cattle truck were used instead for the purchase of motor cycles. An additional 55 low-cost staff houses (rondavels), to provide storage initially and later housing for temporary staff, were constructed, and extra bicycles were purchased for extension staff. These additions were financed out of savings on EDF financed extension staff salaries in the minimum-input RDAs, brought about by the staff establishment freeze and through savings on vehicle operating costs. The latter

arose through high vehicle down time because the CTA was unable to repair vehicles promptly. All these changes were made with approval of the donors, and they were necessary because the need for extra low-cost housing and extension staff mobility had been overlooked and omitted in the original plans.

Unutilised funds which had been allocated to land development and incremental crop inputs were switched to the technical services section of the programme to finance training and studies.

Out of E 525 000 planned for incremental crop inputs, E 191 000 was spent before a decision was made (at the request of EDF) to stop funding this component. It could not be proved that there had been any incremental use of crop inputs, and there was dissatisfaction with the operation of what was intended to be a revolving fund. Specific use of the funds could not be isolated from other CCU spending. With the agreement of EDF, the remaining funds were allocated to other items.

Surplus funds amounting to E 610 000 originally allocated to land development were transferred to fund technical services (consultancies) at IBRD's suggestion because it was apparent that the programme would be unable to use all the funds available due to the delays in getting the LDS fully operational and the over-ambitious work plan proposed initially. These funds were earmarked to be used to finance the Usutu and Ngwavuma River Basins study subsequently carried out by consultants, but because the study was not as large or as expensive as anticipated by IBRD, all the funds were not needed and as a result around E 0,5 million was again not utilised.

Two additional studies carried out by consultants have been financed by the programme. The first was a study of livestock marketing and meat production carried out by Agrotec. Although this report was considered to provide a good background description of the livestock sector in Swaziland, its conclusions and recommended strategy for development were not accepted by MOAC and no further action has been taken.

The current 1983 review of the RDAP was also financed out of this component.

3.4. ACHIEVEMENT OF PLANNING TARGETS AND PLAN APPROVAL

The year in which operations were planned to begin for the multi-donor funded RDAs, and the actual years in which individual RDAs started, are shown in Table 3.1. The effective start year for all the RDAs except Mahamba/Zombodze was delayed from the planned year.

The most important contributory factor to the slow progress in getting RDAs under way was the delay in obtaining plan approval from the CRDB, particularly for the site for the project centre.

Without this approval, work on building the project buildings and housing for staff could not begin and the planning targets as set down in the annual work programme and budget could not be met.

The most serious delay was for Lubombo/Mpolojeni maximum-input RDA where the approval for the site for the project centre was not given until February 1981 when this was originally scheduled to be built during 1978.

The CRDB approves plans for rural development, resettlement, etc., on the basis of an individual chiefdom. An analysis of the latest CRDB annual report showing the years in which development plans in chiefdoms within RDAs were approved until August 1981 has been carried out and is given in Annex G. For Madulini/Mahlalini, Siphofaneni/Maphobeni, Sithobela/Madubeni and Masala/Vikizijula RDAs, there does not appear to be a record of which areas within these RDAs had been approved by the CRDB.

The delay in getting approval for RDA plans could have been foreseen during the preparation of the multi-donor project submissions because the implementation of the original four UK-funded RDAs had been delayed for the same reason. It would have been better to have allowed for an initial planning period or pre-investment phase to give time for the RDA project centre sites and RDA plans to be approved. However, we understand that CRDB approval of RDA plans no longer involves as much delay and the process is more expeditious. This is probably because the RDA concept is now more widely understood and appreciated by the people and their leaders.

The other major reason why the RDAP was unable to meet its planned work programme was because the LDS (formerly LDU) did not initially have the capacity to complete all the components that were to be undertaken by it, (roading, terracing, etc.). Although the funds and plans were available the LDS was unable to do the work. Organisational difficulties, a lack of experienced staff and a high proportion of machine down-time due to mechanical breakdowns severely hampered its operations dueing the first years of the programme. The injection of extra heavy equipment from USAID, and bolstering the

Table 3.1. Planned and Actual Start Years for Multi-donor funded RDAs

RDA	Planned Start Year	Actual Start Year
Mahamba/Zombodze	1977	1977
Lubombo/Mpolonjeni	1978	1978*
Hluti	1977	1978
Bhekinkosi/Mliba	1977	1978
Siphofaneni/Maphoveni	1977	1979
Sithobela/Madubeni	1978	1979
Sandleni/Luqolweni	1978	1979
Nkambeni/Madlangempisi	1978	1980
Masala/Vikizijula	1978	1980
Sipocosini/Motshane	1977	1980

* (Project centre site approved in 1981).

Source: MOAC Project Submissions and RDAMU.

Land Use Planning Section with TA staff has enabled the LDS to overcome many of its earlier shortcomings, and by the end of the programme it was in a position to carry out most of the work planned. Delays in the building programme could also be attributed to the inability of PWD to construct the full number of houses planned although funds had been warranted to them and the sites were ready. The inability of associated Ministries and Departments to respond to the increased workload resulting from the RDAP was probably inevitable and it was unrealistic to expect them to cope immediately.

3.5. ACHIEVEMENT OF PHYSICAL TARGETS

A complete inventory of the physical plans and achievements for the major infrastructural components of both the multi-donor funded RDAs and the UK-funded RDAs has been assembled and the summary of details are provided in this section. Because a complete and comprehensive record of achievements of the RDAP was not kept, the schedules have had to be pieced together from several sources, notably: an inventory ledger of physical progress kept by the RDAMU at the beginning of the RDAP but unfortunately discontinued, and the work programme and budgets from 1981/82 onwards and the 1981 and 1982 RDAP Annual Reports. The records have been accepted at face value and recorded achievements have not been verified by a visual reconciliation.

Achievements for the UK-funded RDAs have been analysed for the phase beginning in 1976/77, but this analysis was complicated by work and infrastructure that had been completed during the earlier phases. A further complication is that some buildings and staff housing that had been built by associated programmes such as Community Development has been accredited and recorded as part of the RDAP achievements, when in fact it was a separate project. Schedules for each RDA showing the work proposed for each item in the project submission or Appraisal Report, work planned in the annual work programme and budget and what was actually achieved each year until March 1983 have been prepared and these are included in Annex G.

3.5.1. Summary of targets and achievements

A summary of the planned infrastructure development and the record of achievements to June 1983 for the multi-donor funded RDAs and the UK-funded RDAs from 1976/77 is shown in Tables 3.2. and 3.3.

Overall, the RDAP, in relation to what was planned, has achieved all the buildings and vehicles, bush clearing, dip tanks, most of the road construction, homes-site levelling but less than half of the fencing, water supplies and irrigation development. Achievement of soil conservation and associated work, pasture improvement, stockwater dams has been less than 25 per cent of that planned. By the end of the programme most of the important infrastructure development had been completed.

Table 3.2. Summary of physical achievements in multi-donor funded RDAs

Item	Unit	Total Planned in Appraisal Report	Total Achieved to June 1983	Percentage Achieved
Buildings[1]	no.	173	187	108
Vehicles[2]	no.	72	71	99
Terracing and Soil Conservation[3]	ha	7 600	1 880	25
Artificial Waterways	no.	44	0	0
Homesite Levelling	no.	2 000	964	48
Donga Rehabilitation	no.	44	3	7
Pasture Improvement	ha	8 000	108	1
Bush Clearing	ha	4 500	5 746	128
Fencing	km	690	330	48
Road Maintenance	km	3 000	226	8
Road Construction/ Improvement	km	1 190	789	66
Stockwater Dams	no.	10	3	30
Diptanks	no.	6	12	200
Rural Water Supply	no.	62	17	27
Bridges	no.	4	1	25

Notes: (1) Does not include additional low cost housing not included in Appraisal Report.

(2) Does not include bicycles or motorcycles substituted for one cattle truck.

(3) Concept of full terracing later changed to soil conservation.

Sources: Appraisal Report and RDAMU.

Table 3.3. Summary of physical achievements: UK-funded RDAs (1976/77-1982/83

Item	Unit	Total Planned in Project Submissions	Total Achieved	Percentage Achieved
Buildings	no.	120	128	107
Vehicles	no.	36	30	83
Terracing and Soil Conservation	ha	25 511	3057	12
Road Construction	ha	431	367	85
Artificial Waterways	no.	72	7	10
Homesite Levelling	no.	4 027	3074	76
Donga Rehabilitation	no.	95	2	2
Domestic Water Supply	no.	75	55	73
Diptanks	no.	19	20	105
Fencing	km	1 619	722	45
Land Preparation and Seeding of Pastures	ha	19 510	390	2
Bush Clearing	ha	2 500	726	29
Stockwater Dams	no.	20	0	0
Irrigation Dams, Weirs and Reservoirs	no.	47	21	45
Fish Ponds	no.	10	0	0

Sources: MOAC Project Submissions and RDAMU.

3.5.2. Planned phasing compared with achievements

The actual timing of the physical achievement for the most important components compared to the planned phasing is illustrated in Figures 3.1. - 3.4.

The main features are summarised in the following paragraphs:

Buildings

Both the multi-donor and the UK-funded projects built about 8 per cent more buildings (project centres, stores, staff housing, etc.) than was originally planned. This is without taking into account the additional 55 low cost houses (rondavels) built out of savings on EDF-funded items. As no accurate inventory of completed buildings was kept and because the project management tended to build extra houses according to demand without conforming exactly to the project plan, it is not surprising that extra houses were built.

The building programme was completed behind schedule. The main reasons for this were the initial delay in getting approval for project centre sites from CRDB, and the inability of PWD to cope with the work allocated to them. The building programme managed by the PMs was also delayed, largely due to their inexperience in building construction.

Vehicles and equipment

The purchase of these items in the multi-donor funded RDAs largely went as planned. Any delays in procurement compared to the project plan was deliberate as vehicles were bought when they were needed.

Terracing and soil conservation

The multi-donor funded RDAs achieved about 25 per cent and the UK-funded RDAs 12 per cent. Almost nothing was achieved in the first four years. The full terracing originally proposed was later changed to a concept of reduced terracing, therefore achievements are exaggerated compared to the original plans. Included in land development work was the creation of artificial waterways and donga rehabilitation. Less than 10 per cent of the targets for these items was achieved.

Homesite levelling

Approximately half of the number planned for the multi-donor funded RDAs and three quarters of the number planned for the UK-funded RDAs were completed. However, the actual number of homesteads recorded as being resettled in the multi-donor funded RDAs almost met the target because many homesteads were resettled without site levelling. Most of the achievement was also delayed until the last two years of the project, due to LDS's limited capacity and a lack of approved resettlement plans.

Bush clearing and pasture improvement

The implementation of planned bush clearing has been relatively successful in the multi-donor funded RDAs in that 30 per cent more was achieved than was planned, although in the UK-funded RDAs only 30 per cent has been achieved. Only a negligible proportion of the planned area of pasture improvement achieved.

Fencing

Overall the RDAP has achieved about half of the planned lengths of fencing, although the considerable stock of fencing materials on hand at the end of 1982/83 will boost this figure once the fences are erected.

Road construction and improvement

Over two-thirds of this work is recorded as having been achieved at the time of the review. Most of the work was carried out during the last two years of the project.

Rural water supply schemes

The multi-donor funded RDAs had achieved about 27 per cent of the planned number of schemes while the UK-funded RDAs had achieved 77 per cent. In some cases the achievement was measured in kilometres of pipe laid rather than the actual number of schemes so the recorded achievements could be a misrepresentation. Once again very little was achieved during the first four years of the project.

Dip tanks

In the multi-donor funded RDAs twice as many dip tanks were built as planned and in the UK-funded RDAs over a 100 per cent achievement was [illegible]ined.

Irrigation development, fish ponds, etc.

A major component of the UK-funded RDAs was the planned development of an irrigation scheme in each RDA. Ten fish ponds were also proposed. Although the multi-donor funded RDAs allocated funds to irrigation and fish pond development, the Appraisal Report did not specify the number planned.

In the UK-funded RDAs, one irrigation scheme out of the seven planned was constructed and overall about 45 per cent of the dams, weirs, reservoirs and fish ponds planned, were completed.

Figure 3.1. Planned Phasing and Achievements : multi-donor funded RDAs

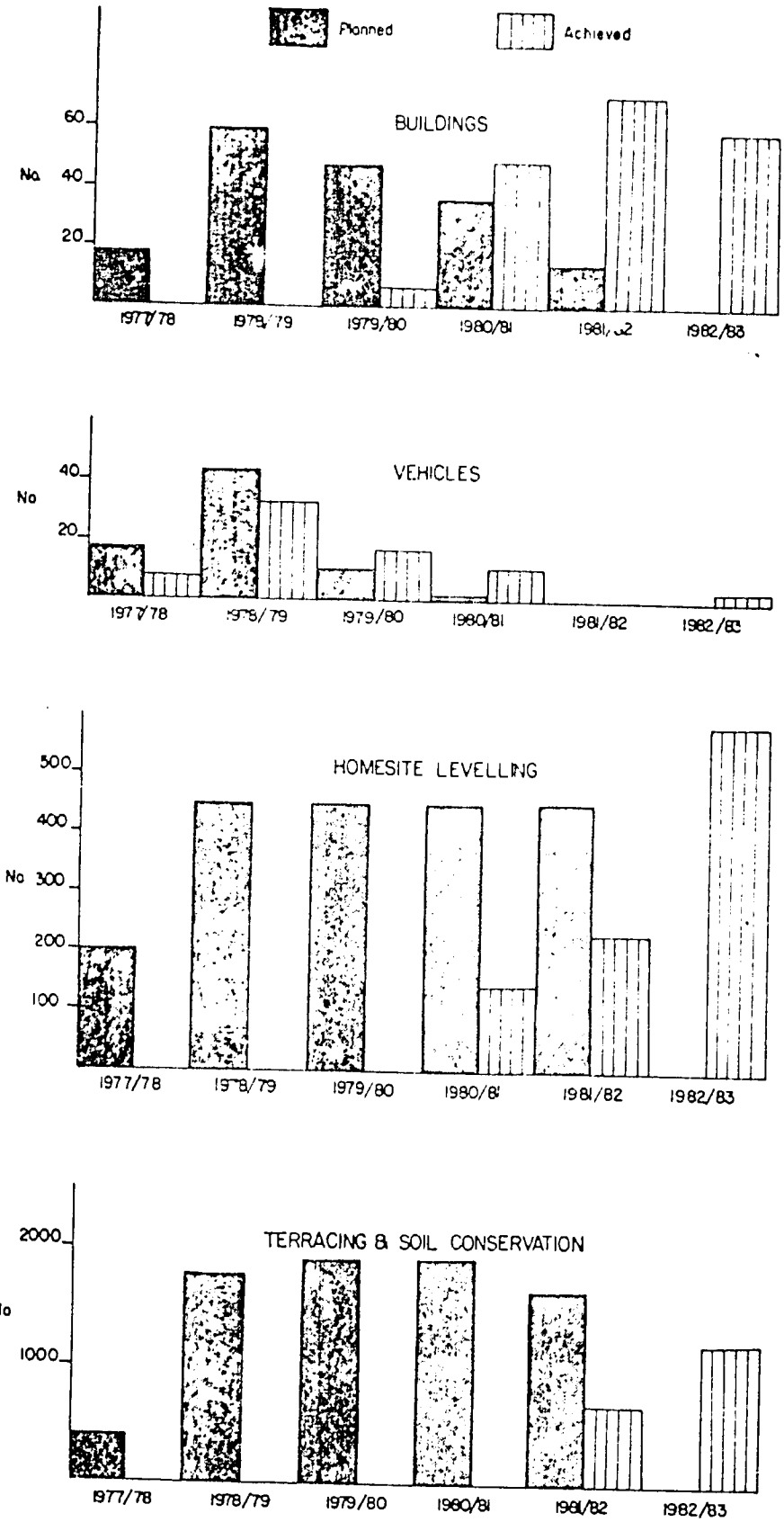


Figure 3.2. Planned Phasing and Achievements : multi-donor funded RDAs

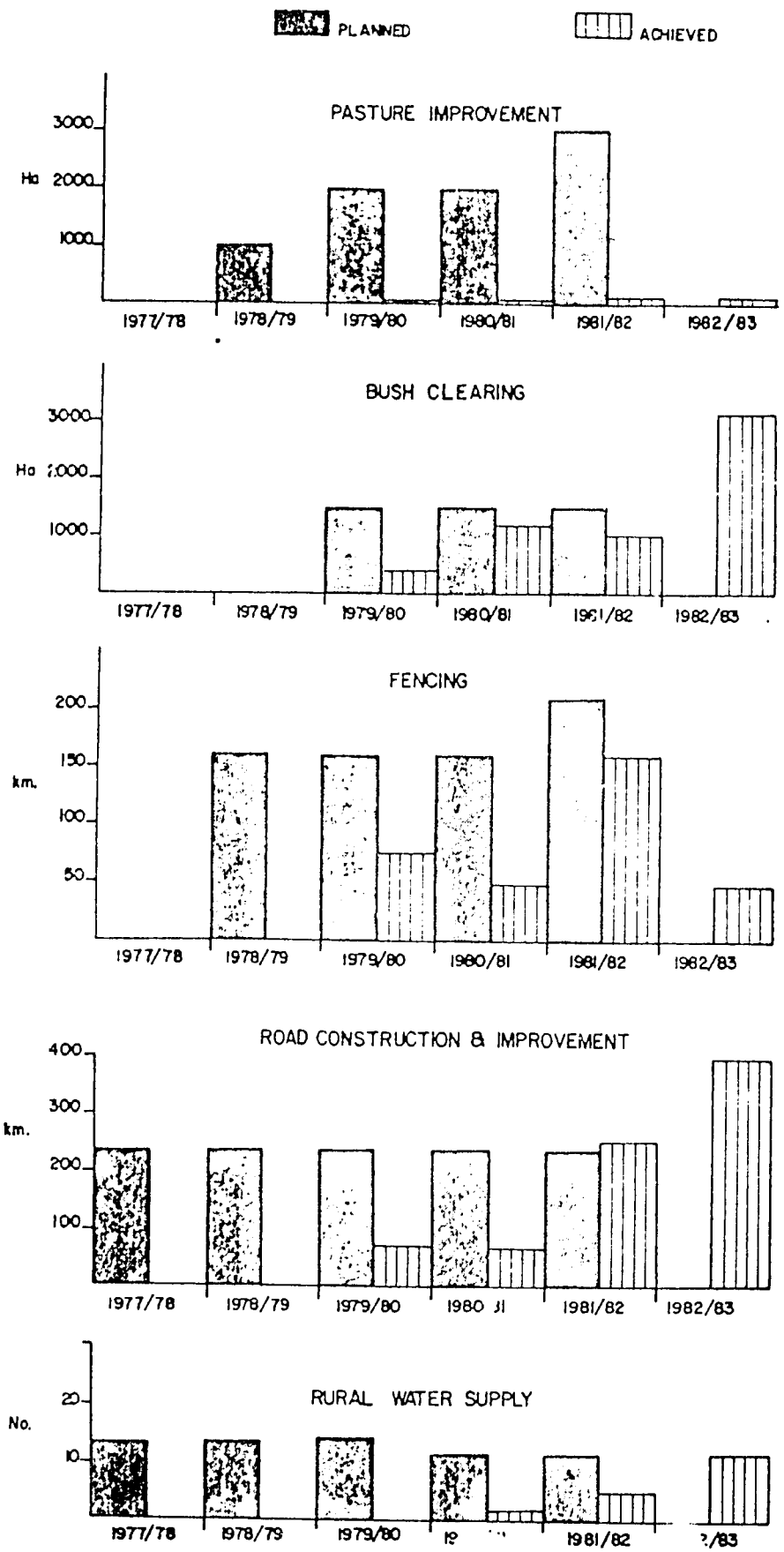


Figure 3.3. Planned Phasing and Achievements : UK-funded RDAs

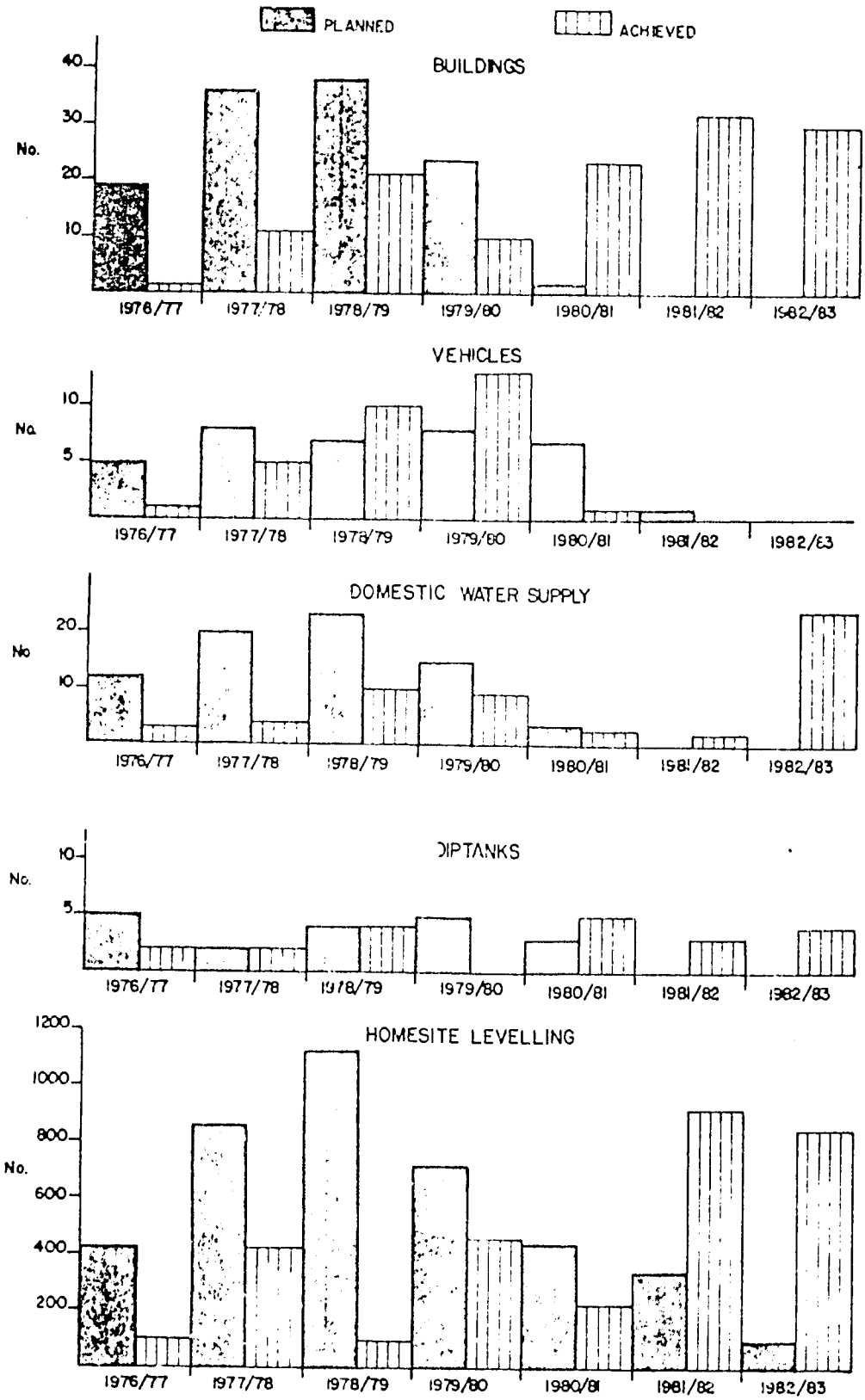
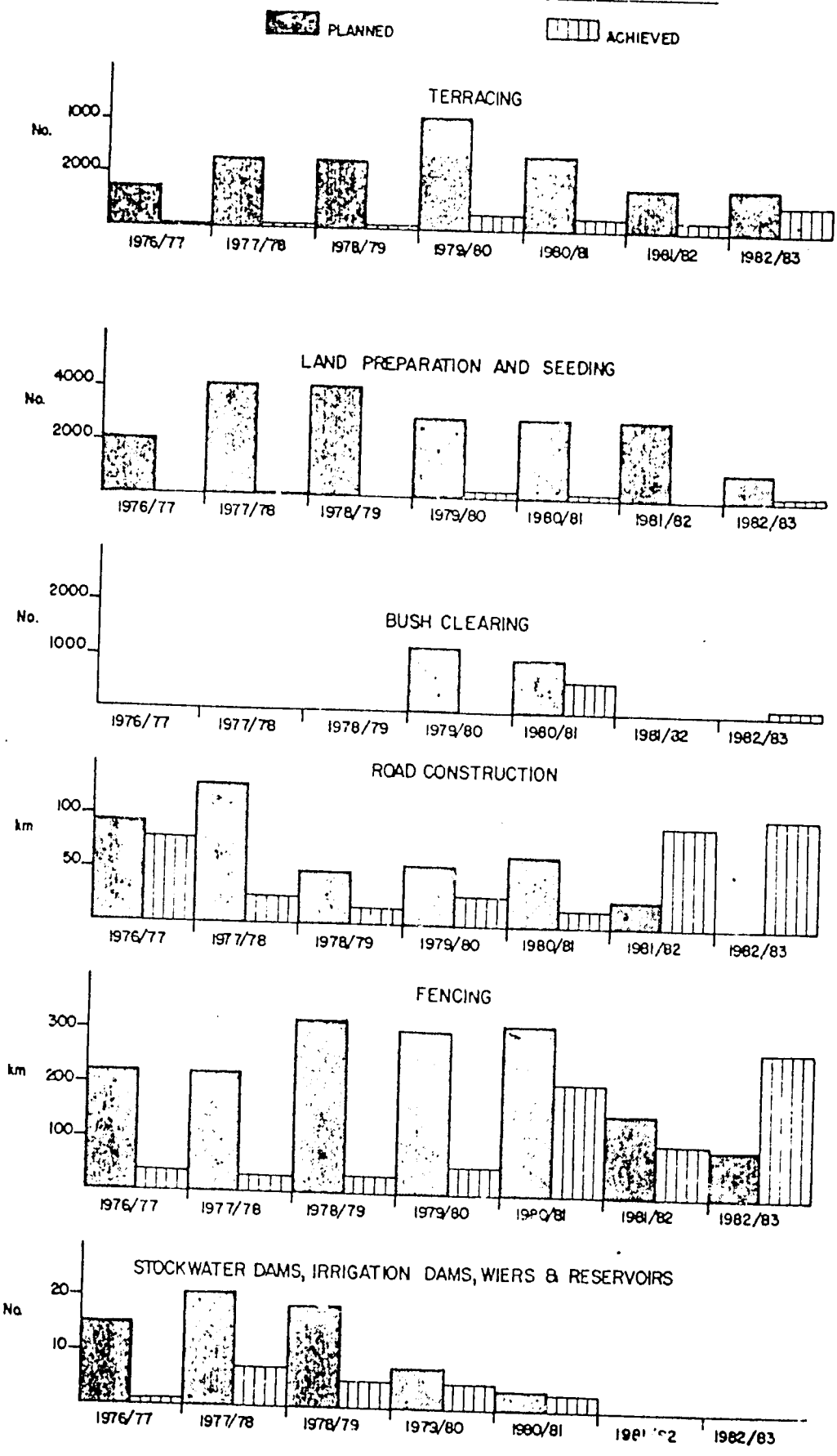


Figure 3.4. Planned Phasing and Achievements : UK-funded RDAs



3.5.3. Realism of original plans

Figures 3.1. - 3.4. demonstrate quite dramatically how the original project plans expected too much to be done too soon and did not allow for a more gradual build-up. The five year phase was too short and it is significant that in Year 6 the actual achievements for almost all of the major items exceeded those planned for any year during the five year phase, demonstrating that once the project had got underway, it had the capacity to carry out the work.

While the planners were aware of the importance of Swazi tradition and culture and made some allowance for the CRDB plan approval process, the time allowed for preparation, modification and eventual approval was unrealistic.

3.5.4. Work remaining to be done

The amount of physical infrastructure and works not completed is illustrated in Tables 3.2. and 3.3. by comparing achievements with work planned.

Components with the biggest shortfall were land development-terracing, donga rehabilitation, artificial waterways, homesite levelling, and road construction and maintenance where more than 50 per cent of the work remains to be done, and the livestock development component involving fencing, pasture improvement and stock water dams. Only about 30 per cent of the rural water supply schemes in the multi-donor funded RDAs were completed while most of the irrigation development planned for the UK-funded RDAs remain to be done. The question of whether completion of outstanding work is justified, is discussed later.

3.6. PROCUREMENT OF VEHICLES, PLANT AND EQUIPMENT

Compared with many countries Swaziland is in a favourable position regarding the supply of goods and services, in that most items can be obtained with the minimum of delay. Apart from the lead time involved in complying with the tendering procedures of the various donors, the RIAF experienced no problems or setbacks due to the procurement of vehicles, plant and equipment.

Procurement procedure

The long procurement procedure was probably unavoidable. For example, the tendering procedure could not be set into motion until after the capital allocations for the RDAP had been confirmed in GOS estimates in March, the beginning of the financial year. Draft tender documents

and specifications had to be sent to Nairobi (for IBRD) and to Brussels (for EDF) for the donors approval before invitations to bid could be advertised. The advertisement had to run for sixty days before closure and the tenders were then opened at the Central Tender Board in Swaziland. The Financial Controller, in consultation with CTA in the case of vehicles, decided which tender to accept. The bids and the chosen offer were then sent back to Nairobi or Brussels for the donor to approve the selection. Following donor approval the bid was returned to the Central Tender Board and a contract to supply was drawn up. In the case of vehicles the supplier would have to furnish a bankers guarantee to cover the vehicle maintenance period. When all the procedures had been completed satisfactorily payment was made to the supplier, in the case of EDF direct from the EDF office in Swaziland, and in the case of IBRD and ADB payment was made by GOS and included in the claim for reimbursement from the donor. In some cases there would then be a delay in delivery especially when special equipment had to be purchased or when modifications were needed, e.g. fixing loading ramps onto the cattle trucks.

Although the procedures were lengthy the RDAP had no difficulty in following them. No changes to procurement procedures were requested from the donors.

Standardisation

There was a small delay due to standardisation of equipment. CTA have a policy of rationalisation and rightly only deal with a limited range of models and types of vehicles. In some cases the lowest tender was for an unsuitable type and this caused some delays when IBRD queried the selection of a higher bid.

Comparison of procurement schedules with achievement

The histogram in Figure 3.1. shows the phasing of vehicle purchases as planned in the Appraisal Report compared to the actual achievement. The RDAP bought vehicles when they needed them, and almost all the items were procured in the same year that they were included in the work plan and budget. If anything, the programme bought vehicles and materials too soon because they did not anticipate the delays in implementation that would be caused by the delay in plan approval by CRDB.

Local and foreign components of procured items

No details were kept by the RDAMU of the breakdown between local and foreign components of procured items. For some items, particularly fencing materials, better utilisation could have been made of local

resources instead of using imported components. Fences were constructed of wooden corner posts, steel standards and wire netting. By using all wooden posts made of local tanalised timber the need to use imported steel could have been reduced and a local Swaziland industry supported.

3.7. ANNUAL WORK PROGRAMME AND BUDGETS

The Appraisal Report stated that the RDAMU would prepare an annual work programme and budget in co-operation with the Economics Section of MOAC and the Ministry of Finance, as part of the GOS budget process, and that the document should include IBRD, ODA, USAID and other directly-related activities. GOS would submit a draft programme to IBRD by 31st August each year for its review and concurrence. The work programme was to include full cost information distinguishing various donor-financed activities and including modification to project investment proposals where implementation experience warranted it.

A work programme and budget was prepared on schedule by the RDAMU for each year of the project starting in 1978/79. This document was carefully prepared to the guidelines stated above and included full cost information distinguishing between donors, related RDAP activities, and necessary changes to the original implementation schedule. In the later years it also included, in a summary form, details on the physical infrastructure and implementation showing the total that had been originally planned, the amount achieved so far, and the amount included in the previous work plan.

The Economic Planning and Analysis Section of MOAC and the Ministry of Finance were not directly involved in the preparation of the work programme and budget, although the Department of Economic Planning and Statistics were required to give final approval to the document. The Ministry of Finance used the programme and budget in preparing the draft estimates of the capital and recurrent budget for MOAC for the coming financial year.

A deficiency of the work programme and budget in our view is that it did not contain any description of the annual work plan for individual RDAs so that the managers could use the document in planning their year's activities. Apparently suggestions and contributions were solicited from the RDA managers but the response was not satisfactory and the document was prepared regardless, so that it was more of the listing of items and their cost without any rational description of how the work would be done by the project managers or the timing throughout the year. For some items the amounts budgeted were unrealistic in light of what had been achieved so far. Pasture improvement for example was consistently

budgeted at 2 000 ha a year when actual achievement was only 54 ha in the most successful year. It would have been much better to have included a realistic attainable area that the PMs could use as a basic target and make arrangements for seed, fertiliser, cultivations, etc. to be available.

It is surprising that this shortcoming was not recognised during the review of the workplan and that project supervision by donors did not insist that the RDAMU give greater priority to the formulation of more realistic plans that the PMs could use.

Success of implementation in relation to work programmes

A measure of the success of the implementation of the work programme is indicated by the total achievement for various important components expressed as a percentage of the total amount planned in the work programme and budgets over the whole programme (although this could also mean that the work programme and budget plans were unrealistic). A figure of 100 per cent means that all items were achieved in the year that they were planned and did not have to be repeated in the following year's work programme and budget. Conversely, a low percentage means that there was a high amount of repetition due to carry over of work planned from one work programme and budget to the next. An analysis, based on the schedules of implementation and the analysis of the work programmes and budgets in Annex G, is shown in Table 3.4.

Implementation of plans for vehicles was excellent; for buildings, road construction and bush clearing was satisfactory; and for other items was reasonable, except for pasture improvement, and terracing and soil conservation. When another department or agency was responsible for actually carrying out the work, such as the LDS for road construction etc., or PWD for house construction, it was difficult for the RDAMU to ensure that the work was done on time no matter how well intentioned the work programme.

Reporting

The Appraisal Report stated that the reporting requirement of the programme would be the annual work programme and budget (as discussed in Section 3.7.), audited annual accounts, and a quarterly report which would include full financial information, discussion of principal achievements, and progress of project monitoring and evaluation. An annual report was not requested.

In addition, the EDF agreement included a condition that an Annual Report should be produced at the end of each financial year. The report was expected to cover:

- trends in production, areas, yields, etc;
- arrangements and plans for the coming year;
- the state of progress on various investment works;
- provision of investment plans for the coming year.

Actual reporting by the project has included a quarterly financial report that was produced for all the donors, an annual statement of accounts, and an annual report which for 1981 and 1982 included a financial summary by component and by donor with details and discussions of principal achievements. In addition a progress report was prepared for the half yearly donor review meetings. This report was assembled from recent reports and incorporated the quarterly financial summary and comments on the progress of the project. Monthly reports have also been produced but these were for internal circulation only, although summarised they formed the basis of the Annual Report. A mid-term review of the RDAP was also produced by RDAMU in 1981.

In terms of the project plan the requirement for the quarterly report was not fulfilled as the document produced did not include the required discussions of principal achievements and the progress on project monitoring and evaluation. Separate reports were produced by the Monitoring and Evaluation Unit but these were surveys of individual RDAs or of specific subjects and were not part of a systematic reporting of the RDAP activities.

The Appraisal Report gave no clear indication of which section of the RDAMU was to be responsible for the production of the quarterly report, and this lack of a clear understanding together with the failure of the supervision by the donors and project management to ensure that the reporting requirements were complied with, has meant that adequate record of the project activities has not been kept. Although the financial data were exceptionally well recorded in an accessible form, a comprehensive record of physical achievement and crop production data was not kept. As mentioned in Section 3.5. several attempts at maintaining a record of physical achievements had been initiated but none of these provided a complete picture over the whole programme and the data had to be assembled from several sources. Forward planning is difficult if past achievements are not adequately recorded; the importance of a good reporting system therefore, cannot be overemphasised. The Monitoring and Evaluation Unit could logically have been allocated the task of producing the quarterly report and ensuring that an adequate inventory was maintained. It is surprising that the deficiency was not identified in the early supervision by donor representatives and review of the project.

Table 3.4. Achievement as a percentage of work planned

Item	Percentage achieved of cumulative work planned (%)
Vehicles	100
Bush clearing	77
Road construction	55
Buildings	50
Fencing	40
Homesite levelling	33
Terracing and soil conservation	22
Pasture improvement	1

Source: Consultants' Estimates. Annex G.

CHAPTER 4. OPERATING PERFORMANCE

4.1. INTRODUCTION

The objective of this chapter is to assess the actual operating performance of the project in relation to achievement of its stated objectives:

- to increase production of crops and livestock;
- to improve the living standards of rural people; and
- to protect the natural resources.

Recommendations for changes in strategy and improving operating performance are made in Chapter 9.

Very little monitoring of the project has taken place until the last three years. Consequently, the availability of useful information on areas of crops grown, yields, and production; and on livestock numbers, productivity and production,is limited. Equally, there is little or no information available on the changes in living standards of rural people, or protection of natural resources. The reasons for the lack of monitoring are discussed in Chapter 6.

"Annual Surveys of SNL" carried out by the Central Statistical Office (CSO) provided a time series of limited data. The sampling method used seems to over-estimate yields, and no distinction was made between RDAs and non-RDAs until 1980/81. For the last three seasons (1980/81 to 1982/83) the MOAC extension service, under the direction of the Senior Field Liaison Officer, has provided more detailed information from a large sample of farmers in RDAs (and non-RDAs in 1982/83). Unfortunately the last two seasons were atypical due to drought. The Monitoring and Evaluation Unit of MOAC carried out some detailed Farm Management Surveys of specific RDAs, but these do not provide a time series, and results since 1978/79 which have only recently been analysed are being checked by the Unit.

In Chapter 2, we concluded that the assumption that the majority of SNL farmers would adopt a pattern of semi-commercial farming, leading to increased crop and livestock production, was unfounded. We also concluded that anticipated yields and production were not likely to be achieved within the projected time scale. In searching for data to assess changes in crop and livestock production, we have concentrated on the original four UK-funded RDAs, which formed the basis for the expansion of the RDAP in 1977. If measurable changes had occurred, they were most likely to be found in these RDAs. By 1983, Northern RDA had been operating for 12 years, Southern RDA for 11, Mahlangatsha for ten, and Central for eight.

Although the UK-funded RDAs in the expanded programme started fairly quickly they have been operating for only five years. For reasons described in Chapter 3 the multi-donor funded RDAs made a slow start, and several of them have been operating for less than three years. Overall, it is too early to expect easily discernible changes in production from the expanded phase of the RDAP.

The attention and efforts of RDA management were initially concentrated on infrastructure, such as building staff houses, offices and sheds, and consequently less emphasis was given to extension activities. Despite the concentration on infrastructure there were notable delays. In the UK-funded RDAs, out of 20 sheds (main depots, agricultural stores, and farmers sheds) planned, by 1980 only 8 had been built. In the multi-donor funded RDAs, of 20 sheds planned by 1980 none had been built. By the time of this review, the main depot at Mahamba/Zombodze (a maximum-input RDA) had not been built. With such delays, discernible progress would not be expected.

The comparison of changes in production in the early RDAs with changes in non-RDAs is complicated by the fact that RDAs were selected on the criteria of having high inherent production potential, and people with an implied higher than average interest in improvement (Section 2.2.4.). It is difficult therefore to determine whether differences between RDAs and non-RDAs reflect an impact from the programme or simply higher inherent potential.

4.2. CHANGES IN CROP PRODUCTION

4.2.1. Cultivated area

The area of land incorporated within the RDAP has increased from 76 745 ha in 1976/77 to 551 908 ha in 1981/82. Available data suggests that the proportion of cultivated land within the RDAs increased slightly over this period from 11 per cent to around 13 per cent (Table 4.1.). Outside the RDAs the cultivated area fell from almost 10 per cent to just over 5 per cent. The RDAs were selected on the basis of having greater than average production potential. Although, this may be sufficient to explain the differences indicated between RDAs and other SNL, it could also reflect an increase in cultivated area as a response to the programme.

Table 4.1. Percentage of land cultivated in RDAs (excluding fallow)

	SNL	non-RDA	RDAs
1976/77	9,92	9,79	11,14
1980/81	9,56	5,61	13,31
1981/82	9,30	5,24	12,69

Sources: CSO and MOAC.

Data from a diversity of sources for the four original RDAs is summarised in Table 4.2. and implies that the percentage of land cultivated has increased by about one per cent per annum. This comment should be considered however, in the light of a rapidly growing population from a high birth rate and probable movement of people from other areas.

4.2.2. Maize

Area planted

The project submissions projected that the area planted to hybrid maize would increase by 20 per cent a year, and that local (open-pollinated) maize planting would decline by 6,5 per cent a year. The net effect would be a decline in the total area of maize of 2,4 per cent a year.

In fact the area of maize grown on SNL has declined from an average of 82 000 ha (1969/70 - 1971/72) to 53 000 ha (1980/82 - 1982/83). The declining trend rate over the last decade has been 2 600 ha a year. In the last three seasons, while the total RDA area was constant, maize plantings in RDAs fell from 38 150 ha in 1980/81 to 34 500 ha in 1982/83, i.e. at a slower rate than in non-RDAs. Detailed information is given in Annex C. Table C.2.1.

The predicted increase in area planted to hybrid maize has taken place, exceeding RDAP targets (Section 4.3.5.). The estimated area of hybrid maize in RDAs increased from 12 000 ha in 1980/81 to 22 000 ha in 1982/83. As there has been a decline in total maize area, there has been a corresponding large decline in the area of open-pollinated maize.

Yields

The Appraisal Report projected rapid increases in yields of both local and hybrid maize (57 to 96 per cent over 5 - 10 year periods, depending on agro-ecological area).

Trend analysis of maize yields on SNL indicates no significant change and a present level of 1,3 t/ha (Annex C. Table C.2.1.). Yields fluctuate widely from one season to another (1,7 t/ha in 1980/81, 0,9 t/ha in 1981/82), mainly due to rainfall quantity and distribution.

RDA yields, particularly in maximum-input RDAs, are higher than in non-RDAs (which may reflect their higher production potential) but also show no significant trend (Table 4.3.). Average yields in the four original RDAs over the period 1980/81 to 1982/83 were 1,6 t/ha, 36 per cent higher than average yields in the new RDAs, which may indicate positive results from extension and other components of the RDAP, or may be due to higher inherent potential in those areas.

Table 4.2. Estimated proportion of land cropped in the first four RDAs (percentages)

	Cultivated	Cropped	Fallow
1976/77	5,6	4,7	0,9
1977/78	3,0	2,6	0,4
1978/79	7,5	5,7	1,8
1979/80	3,0	2,5	0,5
1980/81	10,5	-	-
1981/82	10,9	-	-
1982/83	9,7	-	-

Source: MOAC.

Table 4.3. Estimated Maize yields on SNL (1970/71 to 1982/83) (kg/ha) (RDAP target yields in brackets)

	All RDAs		Max-input RDAs		Min-input RDAs	
1970/71	1 588					
1976/77	1 730	(934)				
1979/80	1 185	(1 225)				
1980/81	1 475	(1 344)	1 617	(1 533)	1 269	(1 045)
1981/82	1 145	(1 489)	1 236	(1 694)	993	(1 169)
1982/83	1 168	(1 601)	1 216	(1 799)	1 080	(1 297)

Source: MOAC.

Production

The Appraisal Report projected an increase in production of maize of 12 900 tonnes by Year 5 (1981/82), and 17 000 tonnes by Year 16. Allowing for delays in start up, and including the UK-funded RDAs, maize production in RDAs was expected to reach 58 000 tonnes by 1980/81 and 63 000 tonnes by 1981/82.

In fact on SNL maize production is declining at an average rate of about 3 380 tonnes a year. As yields are static, this decline is the result of smaller areas planted. Adjusting for droughts in the last two seasons, the present SNL production is about 70 000 tonnes, which is 175 kg per person in SNL. However, production appears to be over estimated, because the addition of imports gives apparent per capita consumption that is much higher than would be expected.

Roughly 70 per cent of SNL maize is produced in RDAs, based on the results of the last three seasons. Therefore the trend production in the RDAs (adjusting for the recent droughts) is less than 50 000 tonnes, and thus well below the project target. However, production of maize in the RDAs has declined at a slower rate than in non-RDAs.

Conclusions

Maize production on SNL, both RDAs and non-RDAs, is declining, mainly due to smaller areas planted. Yields are generally static, but are apparently higher in the older RDAs.

The main constraint to maize production above homestead subsistence levels is the relatively low financial return from surplus maize. This maize fetches a price which is determined by the consumer subsidised selling price of maize in the RSA, and returns compare unfavourably with those from wage employment (Section 2.6.). The latter also provides a regular income, not subject to seasonal fluctuations.

Further constraints have been availability of suitable inputs at the right time, lack of relevant extension messages, and lack of suitable primary market outlets, but these are gradually being overcome.

Although maize will remain the most important subsistence crop, it is unlikely that surplus production for sale will increase unless declining employment prospects alter the present relationship of returns to labour.

4.2.3. Cotton

Areas planted

The project submissions and Appraisal Report projected that the area of cotton grown in RDAs would increase by 13 per cent a year, to reach 4 000 ha by Year 6 (1983). Allowing for delays in start-up, the area planted should have reached over 3 000 ha by 1981/82 and nearly 3 500 ha by 1982/83. Details are given in Annex C. Table C.2.5.

In fact, the areas of cotton planted in RDAs fluctuated considerably over the last decade following the trend on SNL. On SNL, the area of cotton increased steadily from 3 000 ha in 1970/71 to 11 000 ha in 1974/75, then declined sharply to 7 000 ha in 1977/78. The next three seasons to 1980/81 saw rapid expansion to 23 500 ha. In the last two seasons, the area of cotton dropped by 60 per cent to 9 500 ha in 1982/83, the lowest level for five years. The area of cotton grown in RDAs fell from 10 000 ha to 6 000 ha (i.e. by 40 per cent) over the last two seasons, but was nevertheless higher than the projections in the project submissions, and had been at a much higher level.

	Target area (ha)	Est. area planted (ha)	Est. area as % of target (%)
1979/80	1 990	4 900	246
1980/81	2 590	10 170	393
1981/82	3 020	7 880	261
1982 83	3 480	6 240	179

Yields

The project submissions and Appraisal Report projected yield increases of 83 per cent in the middleveld and 60 per cent in the lowveld, over the first seven years of the programme Year 0 to Year 6.

The data available for 1980/81 to 1982/83 are presented in Table 4.4. There seems to be no significant difference between RDAs and non-RDA land, and no significant increase in yields over time. Maximum-input RDAs average 808 kg/ha, 31 per cent more than minimum-input RDAs, but this may well be due to their inherently higher production potential. Over the last three years the yields achieved on RDAs were 89 per cent of the target, but two of these were drought years.

Again it is of interest to compare the four original RDAs with the newer ones over the period 1980/81 to 1982/83 for which yield data was measured by a comparable methodology. Average yields in the four old RDAs were 934 kg/ha or 36 per cent higher than the new RDAs which averaged 686 kg/ha, but much of the cotton grown in the new RDAs is in the lowveld where the yield potential is lower.

Table 4.4. Estimated cotton yields on SNL (1980/81 to 1982/83) (kg/ha)

	Non-RDA	All RDAs		Max-input RDAs		Min-input RDAs	
1980/81	527	777	(689)	825	(759)	758	(620)
1981/82	941	630	(760)	727	(833)	590	(684)
1982/83	444	617	(832)	872	(909)	498	(748)

Source: MOAC. (Target yields in brackets.)

Production

The Appraisal Report projected incremental production of cotton of 1 177 tonnes by Year 5 (1981/82). However, after allowing for delays in start-up, and including the UK-funded RDAs, the target for 1982/83 was nearly 3 000 tonnes total production. Actual production in RDAs was estimated to be 3 850 tonnes, and had been much higher in the previous two seasons. Because there has been no discernible trend in yields, production changes have resulted mainly from changes in areas planted. When cotton production from SNL is compared with producer prices, there is a strong correlation, particularly in the period 1969/70 to 1980/81 (Annex C. Figure C.4.). However, the rate of production increase in 1978/79 to 1980/81 (57 per cent) is faster than would have been expected from the price increases over the same period (27 per cent).

The sharp decline in production in the last two seasons is contrary to the rising trend in prices. The main explanations are that areas planted and yields were severely affected by the droughts, which were most severe in the lowveld (where most of the SNL cotton is grown). The main parameter affected was the area planted, which was particularly low in 1982/83 and this may also have been due to the mourning period for the late King. Another factor that possibly contributed to reduced plantings in the last two years was the cessation of credit availability from the small co-operatives and the Swaziland Cotton Cooperative Society.

Conclusions

Despite the investment in the RDAP, and other aid programmes in agriculture, cotton yield increases have been insignificant. In the terminal report of the UNDP Crop Production and Extension Project, the "weak points in crop production were identified as poor input supply and a weak extension service." However, these services have been to a large degree improved, by cooperatives in the RDAs, and by increased quantities of extension staff (although the quality of service may still be lacking). The MOAC extension staff are supplemented by agronomists and technical advisers with the ginneries and the main input suppliers, who concentrate their activities in the main producing areas.

Most of the SNL cotton is grown in the lowveld, which has shorter rainfall seasons and greater drought hazards than the middleveld. The popularity of cotton in this agro-ecological area has been attributed largely to the lack of alternatives such as maize (which yields poorly), tobacco (which is even less suited than cotton), and sorghum (which suffers from bird damage).

We have concluded that cotton is a promising cash crop for SNL farmers in the middleveld, and can be grown in the lowveld with production costs related to the lower yield potential. It could also be a valuable summer crop on irrigation schemes.

4.2.4. Tobacco

The project predicted that the area planted to tobacco in RDAs would increase from 330 ha in Year 0 to 2 425 ha by Year 6 and 3 714 by Year 10, an annual rate of increase of 27,4 per cent (Table 2.8.).

Unfortunately, statistics on tobacco production are scanty and unreliable. Over 90 per cent of Swaziland's tobacco is produced by about 4 000 small growers with a mean and modal production in the last two seasons of about 25 kg. There is some evidence (Annex C. Table C.2.10.) that the area planted in RDAs has barely reached 200 ha, less than 10 per cent of the target area. The area planted on SNL has fluctuated over the last ten years between 300 and 600 hectares.

The Appraisal Report projected yield increases of 83 per cent in the middleveld from Year 0 to Year 6, from a base yield of 600 kg/ha. In fact, the average yield on SNL over the last ten years has been 340 kg/ha, with considerable fluctuation and no apparent trend (Table 4.5.).

Table 4.5. Estimated tobacco yields on SNL (1979/80 to 1981/82) (kg/ha)

	Non-RDAs	All RDAs	
1979/80	571	415	(784)
1980/81	340	432	(881)
1981/82	300	389	(979)
1982/83	348	n/a	

Sources: CSO and MOAC. (Target yields in brackets).

Adjusting for delayed start-ups, and including the UK-funded RDAs, target tobacco production from the RDAs was 2 453 tonnes by 1982/83. However, actual production from all SNL has not reached 200 tonnes for the last three seasons.

Much extension effort has been directed towards tobacco, including an FAO expert in the late 1970s. The latter reported the general constraint of poor returns compared with wage employment, and added: the cost of curing barns, distances from buying points, and disatisfaction with the hail insurance scheme. An international tobacco company has leased the facilities of the tobacco cooperative and will encourage production in 1983/84.

4.2.5. Groundnuts

The RDAP predicted that the area planted to groundnuts would increase from 1 913 ha in Year 0 to 4 803 ha in Year 10, an annual rate of increase of 3,8 per cent (Table 2.8.). Area estimates are summarised in Annex C. Table C.2.13., but are not very reliable because groundnuts are often grown in mixed stands with maize. Estimated areas planted in RDAs were 846 ha in 1981/82 and 1 859 ha in 1982/83, i.e. well below the target of 3 250 ha. Trend analysis indicates that the area planted on SNL is declining by about 350 ha a year.

Yields were projected to increase by 67 per cent (highveld) to 104 per cent (lowveld) from Year 0 to Year 6 from base yields of 345-500 kg/ha depending on agro-ecological area. In Table 4.6. estimated average yields on SNL are compared with RDAP target yields, indicating that the latter are now outreaching actual yields.

The Appraisal Report predicted incremental production of 653 tonnes of groundnuts by Year 5. Adjusting for late start-ups, and including the UK-funded RDAs, target production was 2 405 tonnes by 1980/81 and 2 795 tonnes by 1981/82. No information is available about RDA production, but SNL production was estimated to be 637 tonnes and 481 tonnes in these two seasons.

Table 4.6. Estimated groundnut yields on SNL, compared with project target yields (1975/76 to 1981/82)

	Average SNL yield (kg/ha)	RDA target yield (kg/ha)
1975/76	477	573
1976/77	563	494
1977/78	n/a	521
1978/79	563	540
1979/80	464	592
1980/81	426	629
1981/82	289	703

4.2.6. Potatoes

This was an "actively extended" crop in the RDAP. The area planted was projected to increase from 12 ha in Year 0 to 336 ha in Year 10, an average rate of increase of 39,6 per cent. Yields were projected to increase by 100 per cent (in the highveld) i.e. from 10 to 20 tonnes/ha. Production was expected to be 2 780 tonnes by Year 6.

In Swaziland potatoes are grown mainly under irrigation in the lowveld as a winter crop, often in rotation with cotton. About two-thirds to three-quarters of the production comes from ITF land, and 20 per cent from the Vuvulane scheme. SNL production increased from 164 tonnes in 1978 to 535 tonnes in 1982, but RDA production is thought to have remained unchanged at about 80 tonnes. No information on yields is available, but an average of 10-15 tonnes/ha from SNL seems probable.

Thus, potato production from RDAs has fallen well below the unrealistic target of 2 780 tonnes by Year 6, and yields are probably well below the target of 20 t/ha. The relatively high production costs, particularly seed (E 450 - E 700 /ha) are a major constraint to increased production.

4.2.7. Conclusions

a) It is still too early to expect to find definite trends in crop production resulting from the RDAP, particularly in those designated since 1977. Delays in starting implementation, and concentration of attention and effort on infrastructure, have made it even less likely that discernible trends would have been found.

b) Comparisons between RDAs and non-RDAs are clouded by the inherently higher production potential of the RDAs, and the greater interest of their people in participating in change, which were criteria for selecting these areas.

c) There is some evidence that the proportion of cultivated land in RDAs has increased since 1976/77, in contrast to non-RDAs, where the proportion has declined. This may reflect response to the RDAP.

d) Maize production is declining, in both RDAs and non-RDAs, mainly as a result of smaller areas planted. Yields are generally unchanged, but are evidently higher in the older RDAs. Although maize will remain the most important subsistence crop, surplus production for sale is unlikely to increase while wage employment offers more attractive returns to labour.

e) Cotton is a promising cash crop for SNL farmers in the middleveld, and can be grown in the lowveld with production costs carefully related to lower yield potential. It could also be a valuable summer crop on irrigation schemes. SNL producers have responded quickly to price increases.

f) Tobacco production in RDAs has not shown significant change for several years. Reported constraints include: the high cost of barns, distances from buying points, and disatisfaction with the hail insurance scheme.

g) As we concluded at the end of Chapter 2, the project assumption that SNL farmers would adopt a more commercial attitude to crop production was probably unfounded primarily because returns from wage employment have been more attractive. Maize gives the highest return to labour amongst the main crops, and is unlikely to be replaced by cotton, tobacco, or potatoes.

4.3. INPUTS

4.3.1. Introduction

The RDAP objective of increased crop production was to be achieved in part by greater availability of essential inputs. It was assumed that the cooperative movement, under the CCU, would distribute inputs, based on projections of requirements made by RDA staff. However, as noted in the Appraisal Report, cooperative development was at an early stage, relying heavily on Government support and technical assistance, with the CCU in considerable need of improved management.

The RDAP provided E 0,8 million for incremental inputs, of which E 191 000 was used in 1977/78 to 1979/80. Because the funds, which had been provided through the CCU, were not recovered, the remainder was diverted to 'technical services' (Section 3.3.1.).

The RDAP also assumed that credit for inputs would be made available by the SDSP, which was receiving assistance through other projects. However, the Appraisal Report noted that lack of credit due to "institutional blockages" was a significant obstacle to uptake of inputs.

In terms of quantities, by far the most important input used in SNL is fertilizer. In Table 4.7. estimates of the quantities of fertilizers and crop protection chemicals sold to SNL in 1971/72 and 1981/82 are summarised. The amount of fertilizer used has more than doubled, and the proportion of the compound 2:3:2 (22) has increased. The amount of crop protection chemicals has increased more than twenty fold, mainly due to the larger area of cotton grown on SNL.

As with production data, input use data for RDAs is extremely scanty. All that exists is a complete breakdown by RDAs for 1980/81 collected by the extension service.

The comparable 1981/82 and 1982/83 data have not yet been analysed. In addition, some data are available for individual RDAs in the various Monitoring and Evaluation Unit surveys. It is consequently rarely possible to make a direct comparison between input use in RDAs and non-RDAs.

The apparent inconsistency between increased input use and static or reduced (in the case of maize) production, can be explained by: larger areas of cotton and vegetables, and more intensive maize production (hybrid maize on smaller areas).

Table 4.7. Fertilizers and crop protection chemicals sold in SNL (1971/72 and 1981/82)

		1971/72		1981/82		Change
		(tonnes)	(%)	(tonnes)	(%)	(%)
Fertilizers	2:3:2 (22)	2 334	(51,1)	8 442	(79,1)	+261
	Other	2 231	(48,9)	2 236	(20,9)	
	Total	4 575	(100,0)	10 678	(100,0)	+133
Crop protection chemicals	DDT	15,8	(55,2)	257,5	(41,6)	+1 529
	Other	12,8	(44,8)	361,0	(58,4)	+2 720
	Total	28,6	(100,0)	618,5	(100,0)	+2 062

Sources: CSO and Marketing Advisory Unit, MOAC.

4.3.2. Distribution of inputs

SNL farmers, both in RDAs and non-RDAs, can obtain their crop inputs from three main sources: the wholesalers (mainly Farm Chemicals, and Swaziland Chemical Industries); the retailers; and the cooperatives and farmers associations. The latter purchase from wholesalers, directly or through the CCU. Very little information is available about the proportions of inputs used on SNL purchased through these sources. In "Fertilizer Marketing in Swaziland," (Marketing Advisory Unit, MOAC, 1980) it was assumed that 6 000 tonnes of fertilizers were used on SNL, all through the CCU, although the report also recognised the direct purchases by SNL farmers from wholesalers.

The CCU now estimates that it supplies about 70 per cent of SNL farm inputs through cooperatives. The budget for the 1983/84 season is E 2,1 million, of which 63 per cent (by value) is fertilizer, 23 per cent is maize seed, 10 per cent is crop chemicals, and 2,5 per cent is animal feed.

Our enquiries have indicated that the wholesalers are willing to deliver to rural areas only in bulk quantities (say 5 tonnes or more) which would require considerable aggregation of orders by small farmers. Retailers are generally not interested in supplying the SNL areas. Thus the cooperatives are a sensible system for ensuring input supplies to SNL farmers. They have played a valuable part already in this respect, and should be fostered and developed in the future.

4.3.3. Fertilisers

There appears to be an increase in total fertiliser use of about 1 600 t/year in Swaziland, and 250 t/year on SNL during the last ten years. The average application rate per cropped hectare has increased on SNL, particularly from 1978/79 to 1981/82 when cotton areas expanded. In 1981/82, application rates were higher in RDAs than in non-RDAs (see Table 4.8.).

Analysis of SNL use from 1971/72 to 1976/77 and in 1981/82 shows that the regional distribution of fertiliser application was as follows: highveld 39,7 per cent; middleveld 47,3 per cent; lowveld 11,4 per cent; Lubombo 1,6 per cent.

Although there has been a significant increase in the proportion of higher nutrient content fertiliser in Swaziland, this has occured mainly on ITF. The proportions of 2:3:2 (22), LAN and Superphosphate used on SNL in 1981/82, are shown in Table 4.9.

Table 4.9. Proportions of fertiliser types used on SNL in 1981/82

	2:3:2 (22) (%)	LAN (%)	Superphosphate (%)
SNL	79,2	7,9	5,7
Max-input RDAs	72,1	8,0	6,2
Min-input RDAs	85,8	1,5	5,5
Total RDAs	79,4	4,6	5,8
non-RDAs	78,5	4,9	5,3

Source: MOAC.

It seems that in 1981/82 at least 79 per cent of fertiliser used on SNL was 2:3:2 (22). Overall the RDAs used less top dressing in their fertiliser mix than non-RDAs but maximum-input RDAs used a slightly higher proportion of top dressing than non-RDAs. Sales by the CCU are showing an increase in relative importance of 2:3:2 (22) and a decrease in LAN and Superphosphate.

Table 4.8. Use of fertiliser (tonnes)

	National		SNL		RDAs	
	Total (t)	(kg/ha)	Total (t)	(kg/ha)	Total (t)	(kg/ha
1971/72	21 391	141	4 522	45		
1972/73	28 562	167	5 113	44		
1973/74	24 590	156	3 589	35		
1974/75	31 678	187	4 409	39		
1975/76	29 667	180	4 117	38		
1976/77	28 170	184	5 281	54		
1977/78	24 168	125	6 000	44		
1978/79	33 233	n/a	6 300	58		
1979/80	30 724	162	n/a			
1980/81	46 445	326	n/a		6 074	91
1981/82	n/a		10 678	128	8 132	144

n/a = not available.

Over the period 1971/72 to 1980/81, the average fertilizer used per hectare on all cropland in Swaziland is estimated at 178 kg/ha; for SNL the average was 43 kg/ha and 505 kg/ha for ITF. Over the same period 85 per cent of fertilizer tonnage was used on ITF and 15 per cent on SNL. It is estimated that on SNL 67 per cent of fertilizer is used on maize and 15 per cent on cotton. The proportion of RDA farmers using fertilizer decreased from 64 per cent in 1980/81 to 62 per cent in 1981/82.

Table 4.10. presents data available for estimated fertilizer use in individual RDAs, compared with the total target use for maize, cotton, tobacco and groundnuts had the target areas received the target fertilisation rate for the relevant year of operation of each RDA. Generally, fertilizer use has fallen well below target, which is partly a reflection of the below target cropped areas.

4.3.4. Lime

There appears to be a decline in the national use of lime of about 150 tonnes a year from 1971/72 to 1980/81. No trend is apparent in the few figures available for SNL (Table 4.11.). Average annual application rates per cropped hectare for the whole country and for SNL seems to be about 10 kg and 2 kg respectively. The one figure available for the RDAs as a whole is equivalent to 1 kg/ha. These rates are clearly inadequate even on ITF where most of the lime has been used.

Analysis of SNL use from 1971/72 to 1976/77 shows that the regional distribution of lime application was as follows: highveld 6,4 per cent; middleveld 11,5 per cent; lowveld 75,6 per cent; Lubombo 6,4 per cent.

This distribution seems strange as we would expect most lime to be applied to acid soils in the higher rainfall areas. The explanation may be in the lime used for potatoes grown in the lowveld.

For the 1983/84 season, the CCU has budgeted to distribute 560 tonnes of lime. The price to the farmer is E 60 / tonne.

With the aim of demonstrating that SNL farmers are interested in liming but unable to do so because of the cost; and to test the results of liming at field level, the RDAP is running a small liming project, using funds from the EDF component to subsidise the transport costs (three-quarters of the cost to the farmer). The project started in 1982/83 with 25 farmers in Siphocosini/Motshane RDA and Bhekinkosi/Mliba RDA. It is intended to extend the scheme to 75 additional farmers in 1983/84 and 200 in 1984/85.

Table 4.10. Comparison of estimated and target fertilizer use in the RDAs.

Year	RDA	Fertiliser used (t)	Target use (t)	Variance (%)
1974-75	Mahlangatsha	184	153	+ 20
	Northern	200	407	- 51
	Southern & Madulini/Mahlalini	184	219	- 16
	Central	138	442	- 69
1975-76	Southern & Madulini/Mahlalini	64	263	- 76
1977-78	Central	208	645	- 68
	Mahamba/Lombodzi	459	623	- 26
1978-79	Southern & Madulini/Mahlalini	371	978	- 62
1979-80	Northern	369	992	- 64
1980-81	Mahlangatsha	346	609	- 43
	Ngwempisi	474	913	- 48
	Northern	196	984	- 78
	Southern & Madulini/Mahlalini	436	1 [illegible]	- 59
	Central	492	781	- 36
	Mayiwane/Hereford & Bhulandzeni	134	1 113	- 88
	Hluti	236	755	- 69
	Bhekinkosi/Mliba	365	557	- 34
	Lubombo/Mpolonjeni	817	1 113	- 27
	Sithobela/Madubeni	403	471	- 14
	Nkambeni/Madlangempisi	204	237	- 14
	Siphofaneni/Maphobeni	466	579	- 23
			Overall	- 52

From all the sample surveys conducted since the start of the Project, it seems that fertiliser use is only about 48 per cent of that projected

Table 4.11. Use of lime (tonnes)

	National	SNL
1971/72	2 086	43
1972/73	2 011	313
1973/74	1 895	108
1974/75	2 541	769
1975/76	2 342	44
1976/77	433	294
1977/78	1 407	
1978/79	999	
1979/80	1 024	
1980/81	1 145	

The results from the 1982/83 trials are now being analysed. Pre-application pH were 3,9 to 4,9, and average lime applications of about 3 t/ha raised pH by about 0,5. Applications were delayed until November, and it was an atypical season. There have been some difficulties in assessing yields. However, there has been no difficulty finding farmers willing to participate.

4.3.5. Hybrid maize seed

Probably the most notable technological changes in SNL cropping in recent years has been the rapid uptake of hybrid maize seed, which has exceeded RDAP targets. This uptake has occurred in both RDAs and non-RDAs at about the same rate. According to the Third Annual Survey (Crops) of the RDAP (MOAC, June 1983), the proportion of farmers in RDAs growing some hybrid maize has increased from 55 per cent in 1980/81 to 76 per cent in 1982/83. In the latter season the survey showed that roughly two-thirds of the maize area was planted with hybrid seed in both RDAs and non-RDAs. Table 4.12. summarises recent data on hybrid maize seed use.

There has apparently been a change in the cultivars used (Table 4.13.) away from the long season variety SR 52, towards the shorter season Pioneer varieties. This was most marked in 1982/83 when the season started late.

Hybrid maize has consistently out-yielded open-pollinated maize in surveys conducted in the RDAs (Table 4.14.). This in itself would account for an increasing uptake. Some of these surveys recorded labour use, and indicated a slightly lower use for hybrid maize, probably because the farmers growing hybrid maize used more machinery, particularly hired tractors. Thus, the returns to labour are higher from hybrid maize. Taken in conjunction with wage earning opportunities, this would make the crop more attractive than local maize.

It is very likely that improved availability of seed through the cooperatives has played an important part in the increased uptake. In this respect, the RDAP has made a significant contribution, both in RDAs and non-RDAs.

Table 4.12. Use of hybrid maize seed

Season	Quantities Swaziland	RDAs	Area RDAs	Proportion of farmers using some hybrid maize seed in RDAs (%)	Proportion of area of maize in RDAs planted with hybrid maize seed (%)
	(t)	(t)	(ha)		
1978/79	588				
1979/80	624				
1980/81	671	333	12 235	55	44
1981/82	683	364	17 930	58	47
1982/83	616	450	22 075	76	65

Sources: CSO, and "Crops : Season 1982/83", MOAC, June 1983.

Table 4.13. Proportions of maize types used (1980/81 to 1982/83)

	1980/81 (%)	1981/82 (%)	1982/83 (%)
Open-pollinated	38,6	29,7	25,3
Pioneer (short season)	5,9	9,3	39,2
SR 52 (long season)	38,9	31,3	14,1
NPP X M64r (short season)	15,2	21,8	14,0
Other hybrids	1,4	1,4	2,2

Table 4.14. Estimated Yields (kg/ha) of hybrid and open-pollinated maize in RDAs

Year	RDAs Surveyed	Hybrid (kg/ha)	Open-pollinated (kg/ha)
1977/78	Mahlangatsha, Central, Manamba/Zombodze	1 575	1 181
1978/79	Northern, Southern & Madulini/Mahlalini	1 049	791
1979/80	Northern	1 140	772
1980/81	Most	1 205	874
1981/82	All	1 604	932
1982/83	All	1 372	806

Sources: MOAC, Monitoring and Evaluation Unit, and Crop Surveys.

4.3.6. Crop protection chemicals

The available information about the use of crop protection chemicals on SNL is summarised in Table 4.15. This reflects the very large increase in chemical use described in Section 4.3.1., mainly due to the larger area of cotton grown on SNL. The quantities are recorded in "kg equivalents" in the statistical records, which has the disadvantage of aggregating different formulations of active ingredients.

Table 4.15. indicates that the maximum-input RDAs used more crop protection chemicals than minimum-input RDAs and non-RDAs. This was despite the fact that the maximum-input RDAs had a smaller area of cotton than the other two categories. In fact, use per hectare of maize, cotton, and tobacco, was much higher in the maximum-input RDAs. This may be reflections of both greater extension effort and greater availability of the materials.

Table 4.15. Crop protection chemical use on SNL

Year		Chemicals used (kg equivalents)	Chemicals used/ha (g) (1)
1971/72		28 595	430
	(maize)	13 899	223
	(cotton)	14 591	3 710
	(tobacco)	105	341
1973/74		44 785	567
1974/75		159 214	2 193
1975/76		83 296	1 182
1976/77		63 133	1 012
1981/82		618 433	8 719
	(Non RDAs)	224 398	8 918
	(Max RDAs)	298 135	11 453
	(Min RDAs)	95 910	4 860
	(All RDAs)	394 045	8 610

(1) Expressed per hectare of maize, cotton and tobacco combined.

Sources: CSO and MOAC.

4.4. CHANGES IN LIVESTOCK PRODUCTION, AND RANGE AND PASTURE IMPROVEMENT

4.4.1. Introduction

As described in Chapter 2, the main objectives of the livestock component for the maximum-input RDAs were to reduce cattle numbers, achieve higher productivity, and improve the quality of marketed animals. Culling measures would be used to reduce stocking rates to acceptable levels, and the introduction of controlled grazing, with perimeter fencing and paddocking, was expected to increase and upgrade the fodder source. The latter would allow improved breeding measures, enhancing productivity and quality.

The RDAP has achieved a considerable proportion of the planned infrastructural development for livestock improvement in the maximum-input RDAs (described in detail in Chapter 3). New dip tanks have been built, many kilometres of fencing erected, and many hectares of bush cleared.

As in the case of crop production, monitoring of the programme has not been adequate. Evidence of change in livestock numbers and productivity is very difficult to find. We have concentrated our attention on the earlier (UK-funded) maximum-input RDAs, where it could be expected that more progress towards the programme's objectives would have been made.

4.4.2. Changes in cattle numbers and productivity

Some valuable records of livestock populations have been kept at project centres. Some of these have recently been collated and analysed in the RDAP Annual Reports for 1981 and 1982. Table 4.16. has been prepared to indicate trends in cattle population and herd structure. Three maximum-input RDAs have been compared with national and district trends for 1974 and 1979 to 1982. Northern, Central, and Mahlangatsha RDAs were chosen because they are larger established RDAs and had been recorded in 1974. Southern RDA had to be excluded because records for Madulini/Mahlalini RDA had been added at a later stage.

Table 4.16. shows livestock population estimates as total bovine livestock units (TBLU), bulls, cows, and oxen, and includes calculated coefficients grouped for comparisons. An anomaly immediately apparent is the steep rise in RDA cattle populations from 1974 to 1979. It has not been possible to obtain population estimates for the intermediate years which might have provided an explanation in comparison with district and national populations. The potential inaccuracies in the data are discussed in Annex D.

Table 4.16. Comparison of cattle population growth, bull/cow ratios and proportions of mature animals

		1974	1979	1980	1981	1982
SNL rate of increase in TBLU[1]	(%)	n/a	0,9	0,7	-2,9	-3,7
3 RDAs rate of increase in TBLU	(%)	n/a	7,2	5,4	-1,0	-4,6
SNL bull cow ratio		1:10	1:10	1:10	1:9	1:9
3 RDAs bull cow ratio		1:8	1:10	1:11	1:11	1:9
SNL mature animal share of TBLU	(%)	67	68	66	66	67
3 RDAs mature animal share of TBLU	(%)	66	67	65	65	69
NRDA rate of increase - per cent TBLU	(%)	n/a	11,6	5,2	-2,1	-3,4
Hhohho District rate of increase - per cent TBLU	(%)	n/a	4,2	2,1	0,4	-0,3
NRDA bull cow ratio		1:5	1:9	1:8	1:8	1:7
Hhohho District bull cow ratio		1:8	1:8	1:8	1:8	1:7
NRDA mature animal share of TBLU	(%)	67	64	63	66	73
Hhohho District mature animal share of TBLU	(%)	67	67	67	67	67
CRDA rate of increase - per cent TBLU	(%)	n/a	3,2	4,3	-1,9	-4,9
Manzini District rate of increase - per cent TBLU	(%)	n/a	-1,5	3,2	-0,9	0,3
CRDA bull cow ratio		1:8	1:8	1:11	1:12	1:10
Manzini District bull cow ratio		1:10	1:10	1:12	1:11	1:11
CRDA mature animal share of TBLU	(%)	64	70	68	64	68
Manzini District mature animal share of TBLU	(%)	66	68	67	66	66
MRDA rate of increase - per cent TBLU	(%)	n/a	0,8	6,9	-1,3	-2,9
Shiselweni District rate of increase - per cent TBLU	(%)	n/a	0,7	3,1	-3,3	-1,8
MRDA bull cow ratio		1:12	1:17	1:15	1:15	1:13
Shiselweni District bull cow ratio		1:8	1:8	1:8	1:7	1:8
MRDA mature animal share of TBLU	(%)	66	67	63	65	65
Shiselweni District mature animal share of TBLU	(%)	68	69	67	66	67

(1) TBLU - Total Bovine Livestock Unit.

Note: Rates of increase under 1979 are annual rates since 1974.

Source: HTS based on figures drawn from National Livestock Census and RDAP Annual Report 1981/82.

The comparisons in Table 4.16. reflect the main aims of the RDAP livestock programme, i.e. destocking, reduction in number of breeding bulls, and rationalisation of herd structure. Unfortunately, it has not been possible to abstract comparative coefficients for offtake, mortality or calving rate at national and district level. Except for the rise in TBLU between 1974 and 1979, there is no evidence that the three RDAs have deviated greatly from the national trend in either bull:cow ratio or herd structure. There is an indication that numbers were increasing at a higher rate from 1979 to 1980, and decreasing at the same rate from 1980 to 1982. Comparing individual RDAs with their associated districts, a notable deviation is the bull:cow ratio for Mahlangatsha RDA. The rates of decrease in TBLU from 1980 to 1982 are faster in Northern and Central RDAs than in their associated districts. On this evidence, it appears that the RDA livestock programme has had no significant measurable impact on productivity or stocking rates.

Except possibly in the period 1974 to 1979, the evidence of interchange of cattle between RDAs and non-RDAs, particularly the analysis in the last two RDAP Annual Reports, is insufficient to conclude that there is any deliberate movement of cattle into RDAs, as distinct from that occurring normally between different areas of the country through sisa and lobola.

Table 4.16.(a) shows that there are no significant differences between maximum-input RDAs and minimum-input RDAs in production coefficients for calving, mortality, and local slaughter, during recent years. In Annex D it is shown that there has been little variation in population trends for the same nine RDAs.

4.4.3. Fattening and sisa ranches

Records of numbers of cattle from RDAs despatched to fattening and sisa ranches are not sufficient to assess the extent to which they have been used. However, it is apparent that they have not provided the market outlet that was anticipated by the RDAP. A recent example was in Mahlangatsha RDA where, after two years of negotiation, two chiefdoms agreed to limit cattle numbers to 15 head per homestead, on the understanding that surplus animals could be moved to the appropriate ranches. However, they were unable to do this. The fattening ranches had low ratios of throughput mainly because unsuitable animals were spending too much time on them. The cattle owners in Mahlangatsha had to find grazing elsewhere.

We understand that discussions are now in progress about changes in the management of these ranches, and the breeding stations, which might introduce a more commercial approach, and greater efficiency in their operation.

4.4.4. The fencing programme and range management

Fencing of summer grazing areas, subdivision into paddocks, and rotational grazing, were basic components of the RDAP livestock programme. It was expected that range condition and carrying capacity would improve, and that cattle populations would be reduced. No specific management proposals had been made, and no target improvements suggested, except for Mahamba/Zombodze and the Tikhuba area of Lubombo/Mpolonjeni where carrying capacity was expected to increase by 10 per cent by Year 10, which would have been very difficult to detect.

Table 4.16.(a) Indicative calving, mortality and slaughter rates for nine RDAs (1980 - 1983)

RDA	Calving rate (%)			Mortality rate (%)			Slaughter rate (%)		
	1980/81	1981/82	1982/83	1980/81	1981/82	1982/83	1980/81	1981/82	1982/83
Maximum-input RDAs[1]									
Central	49	56	44	6,9	7,8	8,3	6,4	6,9	3,2
Mahlangatsha	33	42	36	3,8	6,2	5,6	3,1	3,0	2,8
Northern	32	27	44	4,6	4,2	4,7	5,6	5,5	5,9
Southern/M/M	61	28	49	7,5	5,6	4,6	7,0	3,4	2,9
Ngwempisi	31	31	13	5,5	5,7	4,8	6,2	6,3	6,8
Lubombo/Mpolonjeni (District)	53	52	69	16,8[2]	9,2[2]	7,1	-	-	7,2
Minimum-input RDAs									
Hluti	45	35	37	16,1[2]	8,7	17,0	-	4,4	5,3
Bhekinkosi/Mliba	22	29	29	6,3	5,0	6,0	1,9	1,2	2,8
Sandleni/Luqolweni	31	31	28	7,3	6,2	9,2	5,2	4,8	7,9

Notes (1) Representing three old and three new maximum-input RDAs.

(2) Separate data for mortality and slaughter not available.

Source: Consultants abstracted from RDAMU data.

In the multi-donor funded RDAP 48 per cent of planned fencing was achieved, and 45 per cent in the UK-funded RDAs. Unfortunately, there has been no monitoring of the effects of fencing and associated range management except for some observations of grass yields in rested camps.

Quantitative measurement of botanical composition was limited by season during the study but evidence of reduced range condition was observed in many fenced areas where less productive grasses and unpalatable herbs had become dominant.

The principal conclusions from our review are:

a) The main effect of the fencing programme has been to increase the stocking rate significantly in the fenced areas.

b) Range condition has, if anything, deteriorated within the fenced areas, compared with unfenced grazing areas.

c) There have been no recorded benefits from rotational grazing. The practice appears to have been confined mainly to lightly stocked "group ranches".

The main problems with the fencing programme were:

a) Imbalance between the eight months of summer grazing on inherently less productive land, and four months grazing on the arable areas.

b) The attraction of fenced areas (because of reduced herding requirements) has tended to concentrate animals into limited areas during the summer with no overall countervailing destocking.

c) Diversion of project funds and management from other strategies, which might have included: fencing of arable areas, specific bush or shrub encroachment control, erosion control in grazing areas, and re-seeding and fencing of fallow land.

A significant activity in the RDAs has been the 'demonstration' or 'group' ranches. Their location and features are summarised in Table 4.17. Entry of limited numbers of cattle to the ranches is subject to the approval of a committee of herd owners. In some cases 'herding and veterinary fees' are paid by the owners. (Further details are given in Annex F. Chapter 3). The most interesting ranch is at Magojela in Mahlangatsha RDA where voluntary de-stocking is associated with use of the ranch. Unfortunately, the performance of the cattle using this ranch, and the range condition, have not been monitored.

4.4.5. Pasture improvement

In the multi-donor funded RDAs 8 000 hectares of pasture improvement were planned, and 19 510 hectares of land preparation and seeding in the UK-funded RDAs. As discussed in Chapter 2, these plans were clearly unrealistic. Of the former only 108 hectares (0,1 per cent) were implemented, and of the latter 390 hectares (0,2 per cent).

Table 4.17. Range Demonstration and Breeding Ranches

Name	RDA	Date Started	Approximate Number of Owners	Approximate Number of Livestock	Area of Range (ha)	Description
"Central Grazing"	S	1979	20	70	100	Breeding, 4 camps, valley site.
Nyakeni	C	1982	36	76	200	Breeding, 4 camps, upland site.
Mnyani	M	1976	14	136	370	Breeding, 4 camps, valley site.
Magojela	M	1982	48	500	600	Breeding, all cattle, 4 camps, upland site.

Areas of successfully developed planted pastures have been too small to have had any impact on RDAP objectives. Details of some of these areas are given in Annex D, which indicate that if tractors and implements are available, and with significant fertilizer inputs, pasture establishment can be successful. However, without management they deteriorate rapidly through overgrazing and competition from invading grasses. Present policy is to use these limited pasture areas for hay production, but mowing and baling equipment is often not available or is too far away.

No evidence was seen of successful range seeding, but there is little likelihood of success without control of grazing intensity.

In general, small enclosed pastures on homesteads with dairy cattle were used as holding paddocks, and were severely over-grazed. Others are reported to have failed and were ploughed up. Some small irrigated areas have been used to produce winter green feed, such as oats, as an alternative to the usual vegetables.

We conclude that the pasture improvement programme is still in the demonstration phase. Management policies have not yet been established, particularly in economic terms. Details of costs and returns from pastures are given in Annex D. Chapter 7. Costs for successful establishment are generally too high in relation to modest returns from traditional livestock systems. However, this should not inhibit investigations into low cost establishment methods, as part of a long term programme to improve the grazing value of fallow lands, and for soil conservation in abandoned eroded arable land.

4.4.6. Bush clearing

A total of 720 ha has been chain cleared in Ebulandzeni on purchased land in 1981/82, and 3 700 ha were cleared with chain saws and brush cutters in Mpolonjeni in 1978 to 1983, of which about 300 ha may have been cut twice. Further small unplanned areas were reported in Northern and Southern RDAs and some minimum-input RDAs. These areas may not reconcile with the aggregates in tables recording RDAP implementation, due to descrepancies in the records of areas.

Bush clearing with a heavy chain pulled by bulldozers is no longer considered satisfactory or economic. Large trees are removed indiscriminately, and smaller ones are either unaffected or are damaged and subsequently coppice. However, one successful area of chain clearing was achieved at Lavumisa (outside the RDAP).

The area in Mpolonjeni cleared with chain saws and brush cutters has not been mapped or measured. Planned resting and burning has not been carried out. Sample cuts have shown increased grass yields, but sampling methods and other factors precluded statistical analysis. The general impression is that vigorous coppicing of most species has occurred, and that resting and burning should be carried out. This method of bush clearing is probably justified only in the densest bush areas, possibly in conjunction with arboricides.

4.5. CREDIT

4.5.1. Introduction

As described in Chapter 2, the RDAP assumed that the SDSB would be the medium for supplying credit. SDSB staff were expected to work closely with extension staff and personnel of the Department of Co-operatives. The Appraisal Report noted that lack of credit availability, principally because of "institutional blockages," appeared to be a significant obstacle to increased uptake of inputs in SNL. Provision was made in the multi-donor funded project for housing, and vehicles for credit advisers in nine RDAs.

The main sources of credit for SNL farmers have been the Swaziland Development and Savings Bank (SDSB), the commercial banks, input suppliers, cooperatives, and some processors, (Annex B). At 31st March 1983, the SDSB had lent E 10,9 million to agriculture (37 per cent by value), to 5 846 borrowers. Of these, 4 687 were SNL homesteads borrowing for seasonal inputs, an average of E 250 each. Under the Agricultural Advisory Credit Scheme (AACS) these loans are made at an interest rate of 7,5 per cent, subsidised from a breakeven rate of over 30 per cent. The role of the SDSB in distributing credit is discussed in Section 6.13.

The SDSB Senior Credit Advisers at district level, and Credit Advisers at RDA and sub-district level, work closely with MOAC staff. At RDA project centres they share in the office complex, and project funds were used for housing and vehicles.

Starting in 1975/76, an increasing volume of seasonal credit was channelled through the primary cooperatives, and from 1977/78 particularly through the Swaziland Cotton Cooperative Society (SCCS). These cooperatives frequently failed to adhere to regulations regarding credit-worthiness of applicants, loan limits, securities, and documentation, sometimes due to lack of training and experience among those administering the credit.

In 1980, credit from the cooperatives effectively ceased as a result of a directive from the Commissioner for Cooperative Development which is still effective. By this time they were generally severely in debt and their normal functions were jeopardised.

4.5.2. Relationship of credit to input use and production

There is no recent data available by which the relationship of credit to input use and production can be established. However, the RDAMU Monitoring and Evaluation Unit conducted a study in 1979 ("Mahlangatsha RDA Credit Study", Study No. 6, 1979) which aimed to examine "some of the inbuilt assumptions associated with provision of credit in the RDAP project documents". A random sample of 76 credit users in Mahlangatsha RDA were interviewed during the 1978/79 season.

The study concluded that purchases of inputs such as fertilisers and hybrid seed were usually made with cash resources and credit was not necessary to initiate purchases. However, the main reason given by borrowers for using credit was to increase input applications. The survey found that over the period 1976/77 - 1978/79 loans to farmers in Mahlangatsha RDA increased by E 36 030, but the value of inputs sold from the cooperative increased by only E 26 070 (allowing for price increases, the quantity increase would be proportionally lower). The same study showed that 44 per cent of credit-using maize farmers sold no crops, suggesting that they were subsistence farmers using credit for labour saving (hybrid maize seed, tractor hire), and repaying loans from wage employment.

It is probable that credit is often used as a substitute for cash resources which are then used to finance non-agricultural requirements. Credit can overcome a peak cash outflow at the time that crop inputs should be purchased. The availability of credit at subsidised interest rates, and at negative rates in real terms, will tend to encourage the use of credit instead of cash resources, as long as farmers are willing to pledge their cattle as security, with no certainty of increased use of inputs. In this context, sons and daughters are not obliged to include their cattle in the hypothecation.

Unfortunately, no information is available about the volume of credit distributed by cooperatives in the period 1975/76 to 1979/80. The total amount was probably in excess of E 4 million. The only direct comparison of credit use to input use that can be made is between credit given by the SDSB and fertiliser use in SNL (the latter being by far the most important input) for the seasons 1978/79 and 1981/82.

	SDSB Credit (small farmers)	Fertiliser sales to SNL
Season	(E)	(E)
1978/79	691 800	793 044
1981/82	1 560 270	2 242 380

In 1978/79 cooperative credit and crop protection chemicals probably added to the above amounts. However, by 1981/82 cooperative credit had ceased and the cotton area had declined. Allowing for these differences, there is evidence that fertiliser sales have increased at a faster rate than credit.

4.5.3. Comparison of credit use between RDAs and non-RDAs

As far as we know, there has been no monitoring/evaluation of credit which compares use between RDAs and non-RDAs.

Senior officials of the SDSB have told us that there is no discrimination between RDA and non-RDA farmers. However, in practice, applications from RDA farmers are processed more quickly because the farms are more accessible and because there are more extension staff to help the Credit Adviser to assess the abilities and credit-worthiness of the borrower. The RDA farmer can generally reach a Credit Adviser or SDSB branch more easily than a non-RDA farmer. However, there is no evidence to indicate that the RDAP has had any important impact on disbursement of credit through the SDSB. The assistance provided for staff housing, and vehicles, has been useful but of minor proportions. The main impact of aid on the SDSB credit to SNL has come from the low interest USAID loans which assisted the subsidisation of the AACS interest rate for which there is no evidence of justification.

Because there were no baseline studies nor on-going monitoring of credit use in SNL, we asked the SDSB to extract data for the Piggs Peak branch, to compare current credit use in the Northern RDA with surrounding non-RDAs. This information is summarised in Table 4.18., and includes Mayiwane/Herefords RDA.

Table 4.18. Credit use in two RDAs, compared with non-RDA (1982/83)

	Northern RDA	Mayiwane/Herefords RDA	Piggs Peak sub-district (non-RDA)
No. of homesteads	1 660	1 950	1 250
No. of loans (AACS)(1)	82	52	59
% of homesteads borrowing	4,9	2,7	4,7
Total value of loans (E)	37 302	21 823	26 000
Ave. value of loans (E)	455	420	441

(1) Agricultural Advisory Credit Scheme, less than E 1 000.

Source: SDSB.

There was no significant difference in the proportion of borrowers, nor in the average amounts of the loans, although these were somewhat lower in Mayiwane/Herefords, than in surrounding non-RDAs. The proportion of homesteads borrowing from the AACS in these areas, is much lower than the overall 10 per cent indicated by total AACS lending. This might be a reflection of the relatively small amount of cotton grown in these districts.

In the longer term it would be advisable for the SDSB and the MOAC to mount a baseline study on credit use and to monitor regularly. This could probably be done relatively easily by using a computer to analyse loan disbursements. A code could be given to the chief's area (entered on the loan application form) which in turn could be related to the RDAs, and if required to agro-ecological areas. Additional cross-coding could be made by purpose of loan, and by amount of loan. Thus lending, recoveries, and defaults, could be analysed by a variety of factors for all SDSB lending to SNL farmers.

4.5.4. Distribution of loans by size

The SDSB apparently does not analyse loans by size in respect of SNL farmers. We tried to analyse some computer print-outs but the codes did not distirguish between SNL and ITF for the loans over E 1 000. In "SDSB Credit to Small Farmers", C. Mercey (1981) loans to SNL cotton farmers were analysed for delinquency. The results are shown in Table 4.19.

Table 4.19. SDSB lending to SNL cotton farmers (1979/80)

	Small loans (less than E 1 000)	Large loans (more than E 1 000)
Number of loans	1 329	217
Total amount (E)	478 000	360 000
Average amount (E)	360	1 659
Delinquent loans (no.) at 30/6/81	460	130
Delinquent loans (%)	35	60

Source: "SDSB Credit to Small Farmers", C. Mercey (1981).

This limited evidence shows that credit to cotton farmers was unevenly distributed, and that the large borrowers had an inferior repayment record.

4.6. SOIL CONSERVATION

One of the objectives of the RDAP is conservation of natural resources. A major component of that project, and one of the main justifications for the USAID-funded Infrastructure Support Project, was soil conservation. The MOAC project submissions planned 42 800 ha of terracing in the expanded (1977 - 1982) RDAP, removal or re-alignment of grass strips on 39 400 ha, 116 grassed waterways, and reclamation of 139 dongas. The Appraisal Report reduced the quantity of terracing in the multi-donor funded RDAs from 17 290 ha to 2 600 ha of full terracing and 5 000 ha of reduced terracing.

In fact, there is not much erosion taking place on arable land largely as a result of the excellent conservation work in the past (Annex E, Chapter 1). Erosivity of rainfall is not as high as might be expected, erodibility of Swaziland soils is generally low, the principle of not cultivating steep slopes is well established, and slopes are nearly always broken with grass strips or channel terraces. Although grass cover on grazing land has been reduced by over-grazing, erosion is serious only at cattle trails to watering points and dips. Gullies, although spectacular are generally stable or enlargeing slowly, except for some associated with cattle trails. Erosion caused by the network of access roads has increased.

Before the RDAP started, conservation measures had been implemented with technical expertise and enthusiasm, particularly in 1948 - 1956, and some good terracing was put into the original four RDAs, notably Southern RDA. However, achievement in the second phase of the RDAP (1977-1983) has been very low, only 12 per cent of planned terracing in the multi-donor funded RDAs, and 25 per cent in the UK-funded programme. At present there is a little conservation work going on in the maximum-input RDAs, but none elsewhere.

The policy of removal of grass strips and replacing them with graded channel terraces did not take account of the bench-terracing effect of grass strips which have been in place for a long time, which would make installation of new lines difficult and expensive. Nor did the policy recognise the difficulty of providing safe discharge from the channels, and of maintenance of both terraces and waterways.

Insufficient use is being made of soil conservation technology available in Southern Africa. The present approach is too much linked to heavy machinery for mechanical protection.

4.7. LAND DEVELOPMENT

The Land Development Section (LDS) has been the main MOAC agency for physical development activities from before the RDAP. The RDAP has taken the LDS beyond the range of activities usually associated with a Ministry of Agriculture and during the last eight years the emphasis of the section has changed from soil conservation to farm roads and small water supply schemes. This was justified because the RDAP could integrate components like roads and water supplies with land development, and was filling a vacuum left by other Ministries.

Early in the RDAP, USAID accepted responsibility for ensuring that the LDS had sufficient equipment. In 1971, a loan of $ 2,2 was provided for heavy earth-moving equipment, followed in 1972 with a grant of $ 1,9 million for workshops and technical assistance. In the second phase of the RDAP a loan of $ 5,6 million was provided for purchase of equipment, and also a grant of $ 7,1 million for technical assistance for both the LDS and the LUPS. The GOS contribution was the equivalent of $ 12,9 million. In 1979 USAID contributed an additional loan of $ 4,6 million for equipment.

Implementation of the LDS components has never been close to the Appraisal Report targets, nor the work plan targets (Chapter 3). In the case of terracing this may have been due to lack of plans or equipment, but also to doubts about the wisdom of replacing grass strips with terraces. In the multi-donor funded RDAs only 25 per cent of terracing was implemented, no waterways, 48 per cent of homesite levelling, 7 per cent of donga rehabilitation, 30 per cent of stockwater dams, and 27 per cent of water supply schemes. The best proportion of target achievement was road construction : 66 per cent.

The present fleet of heavy machinery is several times larger than is necessary and is not well matched to present tasks which have changed. Some equipment was incorrectly chosen, e.g. large selfpropelled graders for building terraces when wheeled tractors would have been better. Failure to standardise has been a major fault, (Annex E. Chapter 2.).

The use of large units with a variety of equipment has been inefficient, and low utilisation has raised unit costs. An assessment in 1977 showed 27,5 per cent utilisation, compared with 60 per cent for a reasonably efficient commercial operator. A 1982 US Government assessment showed 40 per cent use, and our own (Annex E. Table E.2.2.) shows mean rates of 12,5 to 50 per cent depending on equipment type. Since the USAID project became fully staffed, there has been much improvement in management. Nevertheless, the Matsapa workshop is overstaffed and lacking in controls. The stores section also need reorganisation. Field maintenance efficiency is hampered by government regulations and should be decentralised.

The LDS was allocated E 2,0 million from the GOS capital budget for 1982/83, and E 2,3 million in 1983/84. These sharp reductions from the E 4,2 million allocation in 1981/82 have severely limited the capacity of the LDS to operate efficiently. Recurrent expenditure, mainly for established staff and overheads, reached about E 0,2 million in the early 1980s, but has been reduced to E 163 000 for 1983/84. In the latter year the LDS has taken half of GOS capital funds allocated to the MOAC, and 4 per cent of total GOS capital expenditure.

Considering the budget allocations to the LDS it is surprising that no analysis has apparently been made of actual costs incurred, including operation and maintenance costs, until 1982/83 (which have not been added up). Our own analyses from the limited information available are given in Annex E.

4.8. LAND USE PLANNING

A central component of the RDAP was the assessment of available land resources by the Land Use Planning Section (LUPS), and, with the approval of local people and their leaders, the preparation of land use plans for all RDAs. After initial delays technical assistance and training for the LUPS has been provided under the USAID grant of $ 7,1 million (also used for the LDS). About two-thirds of the LUPS work is for the RDAP.

A major achievement of the MOAC, and other institutions involved, has been the remarkable system of planning land use and infrastructure which emphasises planning 'by the people, for the people'. Resettlement has generally been carried out in a very positive way, with little conflict considering the costs and inconvenience. This has been attributed partly to the late King's proclamations that people must expect to be resettled. The prospect of better access roads and water supplies are incentives. Greater involvement of the LUPS at field level should be encouraged.

Despite the assistance of the USAID project, the LUPS has been chronically short of professional staff. The expansion of the RDAP in 1977 resulted in a demand for plans which was beyond the capacity of the section, and it is only within the last year that planning has caught up.

The value of the LUPS planning is questionable because the plans are seldom available or used at RDA level. Land use planning is usually oversimplified, and range management plans hardly appear before 1982.

4.9. THE TRACTOR HIRE POOL (THP)

The main reasons for extending the use of mechanical power on SNL were non-availability of farm labour, and the impact of mechanisation on improving the quality and timeliness of primary cultivations. It was conceived initially as a limited operation which would demonstrate a role for mechanization, concentrating on primary cultivation (ploughing) before eventually making way for private operators.

Despite a number of anticipated difficulties the operation of the scheme has been generally successful and it has proved an effective part of the RDAP. This can probably be attributed to continuous and consistently high quality management.

There are currently 10 pools, one in each of the maximum-input RDAs, operating a total of 89 tractors, of which 33 are due for replacement. Although the original policy was to operate a single-model fleet, the fleet now includes, 21 Massey Ferguson, 14 British Leyland and 4 John Deere and the task of procuring and maintaining an adequate supply of spare parts is unnecessarily complex and expensive.

Because operations have been limited primarily to ploughing, transporting, and discing and seeding of grass strips, the selection procurement and maintenance of equipment has been straightforward and carried out effectively.

Throughout the nine years of operation the THP has been closely monitored and good data is available on hours worked, areas cultivated, costs and income. In addition there are a series of annual reports, reviews (including an ODA evaluation) and miscellaneous reports from the Mechanization Officer. The information available demonstrates a steady growth in the activity of the THP. Despite a slight decline in efficiency as measured by the proportion of useful hours to total hours worked, efficiency is not a cause for concern, since the level achieved is generally better than could be expected. The average number of hours worked per tractor per year is just over 600 while the number of useful hours (working on site) worked per tractor was 423, an efficiency of 70 per cent.

The present arrangements for repair and maintenance i.e. a central workshop servicing all pools, and limited capacity for maintenance at each pool, is adequate for the present scale of operation but could not easily cope effectively with a greater number or more geographically dispersed pools.

The constraints which have limited the efficiency of the Pool are mostly associated with trying to run what is essentially a business within Government and the restrictions which government bureaucratic procedures places on it, including:

- Since drivers jobs became Government establishment posts the freedom to pay overtime, bonuses and incentives has been lost and as a consequence hours worked per tractor has declined.

- Dependence upon CTA for transport for managers; the servicing and maintenance record of CTA is so bad that during 1981 and 1982 only three or four of the eleven vehicles supplied to the Pool were operational.

Other problems include: the unreliability of the Leyland tractors and long delays (up to six months) obtaining spares; fuel shortages and occassional unwillingness of suppliers to do business with Government.

At its inception the agreed principle was that the THP should operate as a financially sound service to allow fair competition from the private sector and enable a realistic replacement policy to be implemented. Instead the THP has operated at a steadily increasing loss, as the Government has consistently declined to raise charges to a level which would eliminate subsidy. The operating loss as a percentage of operating costs has varied between 23 per cent and 67 per cent, with an eight year average of 51,6 per cent.

The fixed costs (wages, salaries, replacement allowances, transport costs, buildings depreciation, and services) in 1982 amounted to E 15 per tractor working hour or E 23 per useful tractor working hour. Variable costs (bonus payments, fuels lubricants tyres spares) were E 4,15 per working hour or E 7,50 per useful hour. Of the total cost, the fixed cost element has varied between 71 per cent and 88 per cent, with an project life time average of 78,6 per cent.

Hire charges have remained constant since 1980 when they were raised from E 9 to E 16 per hour (80 per cent increase), and are well below the estimated cost of providing the service. Because the large increase in charges in 1980 did not reduce utilisation, it is not expected that a further increase in charges would lead to a decline in tractor use.

4.10. IRRIGATION

Introduction

The MOAC submissions and IBRD Appraisal Report scarcely mentioned irrigation, but noted that a limited number of irrigation schemes and fish ponds would be developed, the former being small (10-15 ha). For this component an amount of E 172 000 was added after the MOAC submission. In the UK-funded project, provision was made for seven dams, 46 km of canals, 30 ha of rice paddies, 210 ha of levelling, 25 reservoirs, 15 weirs, and ten fish ponds. Relatively little of these components were implemented (Chapter 3). In contrast to the RDAP, other projects took a more positive view of irrigation potential. Further information is given in Annex C.

There are 19 irrigation schemes in the RDAs (Table 4.20.) totalling 395 ha, with 577 farmers, and ranging in size from 2,4 to 100 ha. Average holding sizes vary from 0,34 to 2,78 ha, but the modal level is about 0,5 ha. In addition to these group irrigation schemes, some individual farmers irrigate, usually pumping water out of a spring or stream. There is no inventory of these individuals.

Of the 19 irrigation schemes in the RDAs, sixteen fall under RDA management, and three are technically assisted by the Republic of China Mission. Seven of the schemes have Farmers' Associations or Cooperatives, and in some cases contributions have been made towards development costs. In 1978, the MOAC decided that farmers should be encouraged to establish their own committees and funds to cover maintenance costs. The recommended charge was E 105/ha in 1981, but has not been levied on those schemes maintained by the MOAC.

Production and management

The most commonly grown crops are vegetables (mainly cabbages, tomatoes and onions) and green mealies. Cotton, rice, and sugarcane are grown on a few schemes. The consensus of project investigations of irrigation on SNL has been that small-scale schemes should produce vegetables. Estimates of gross margins are given in Annex C.

Because land allocations are the prerogative of the chief, it is sometimes difficult to replace people who do not use their holdings properly. However, in time, a management committee of farmers can sometimes arrange the expulsion of uncooperative plotholders. The RDAMU, in "Irrigation Schemes : Results of 1980/81 Season," (Dec. 1981), recommended that farming communities should be closely involved in the preparation of schemes, and the choice of farmers, and that RDA management should give technical advice, and guide the farmers association in management matters. The report also suggested that irrigated plots of 0,5 ha were too large when they supplemented dryland cropping. This view is supported by the low utilisation of land on existing schemes. In "Horticulture in Swaziland", B. Hansen estimated that land utilisation was 60 per cent in winter, and only 25 per cent in summer. The RDAP Annual Report for 1982 quotes an average utilisation of 50 per cent.

Table 4.20. Summary of existing irrigation schemes in RDAs (1983)

Scheme	RDA	Area (hectares)	Number of farmers	Average holding (hectares)	Crops	Organisation	Farmers contribution towards development	
Kholumina (Mashabeni)	NRDA*	24,1	50	0,48	Mixed vegetables and green maize	RDA	None	
Mbasheni	NRDA	9,9	22	0,4	Mixed vegetables	RDA	None	
Mswati	NRDA*	Will be (50,0)			Rice & mixed vegs	RDA with Chinese assistance	None	
Mvembili	NRDA*	40,0	40	1,0	Rice & mixed vegs	RDA with Chinese assistance	None	
Mgubudla	NRDA*	12,0	16		Rice & mixed vegs	RDA with Chinese assistance	None	
Mshlwandi[1] (Mavundlandlela)	NRDA*	12,0	18	0,67	Mixed vegetables	RDA	None	(1) Proposed supplementary pump unit to be installed Feb. 1983-Farmers paying 25% of cost & labour
Kandwandwe	NRDA	2,4	7	0,34	Mixed vegetables	RDA	None	
Phophonyane	NRDA	27,0	15	1,8	Cotton, green maize & Mixed vegetables	Farmers Association	Pump unit + delivery pipeline E9 900 installed 1983 & Labour	
Embekelweni	CRDA	12,0	25	0,48	Mixed vegetables	RDA	None	
Mgomfelweni	MRDA*	6,0	12	0,5	Mixed vegs & fruit trees	RDA	None	
Mancubeni	MRDA*	10,0	20	0,5	Mixed vegetables	RDA	Labour	
Mpateni	SRDA*	22,2	50	0,44	Green maize, mixed vegetables	RDA	None	
Nkungweni[2]	SRDA*	24,0	-	-		RDA	None	(2) Not allocated
Mtumkuphila	NgRDA	13,6	34	0,4	Mixed vegetables	Farmers Association	Labour & capital	
Vulamehlo	NgRDA	6,4	16	0,4	Mixed vegetables	Farmers Association	Labour	
Mnywanyune[3]	L/MRDA	100,0	36	2,78	52ha sugar cane, cotton, green maize, mixed vegs	Farmers Cooperative	1st pump unit E4 000 installed 1974, 2nd unit E6 600 installed 1979 & Labour	(3) Very productive sugar cane co-operative
Kulungu[4]	L/MRDA	22,0	25	0,88	Cotton, green maize & mixed vegetables	Farmers Cooperative	Sprinkler scheme E6 000 installed 1974 & Labour	(4) Electrification of pump unit & conversion of the scheme from sprinkler to furrow irrigation planned for Feb. 1983. Farmers contributing 25% of cost & Labour
Mankantshane[5]	MW RDA	20,0	11	1,8	Sugar cane	Farmers Association	Pump unit E1 200 installed 1978 & Labour	(5) Sugar cane cooperative
Zakhe	MntRDA	40,0	11	3,6	Cotton, green maize & mixed vegetables	Farmers Association	Pump unit E5 500 installed 1979 & Labour	

Source: Irrigation section, Crop Production Unit, MOAC, Manzini.

Monitoring and evaluation

As far as we can ascertain, there has been little monitoring and evaluation of RDA irrigation schemes. The Monitoring and Evaluation Unit published "Efficiency Indicators for Vegetable Production on Government Irrigation Schemes : Northern and Southern RDAs" Briefing memo. No. 11 October 1980. This report presented data from 29 farmers, and concluded that technical and economic performances on government supported RDA irrigation schemes was low and was indicative of a lack of commitment and sub-standard management.

The Magwanyane scheme (Lubombo/Mpolonjeni RDA) was evaluated in detail with the conclusion that the scheme gave high returns to the farmers, with an internal rate of return of 12 per cent, but was accompanied by high opportunity costs of GOS personnel and formed a wealthy elite in a relatively poor area.

4.11. MARKETING

Introduction

In Annex C, we have described the marketing of crops in more detail, and livestock marketing in Annex D. This section concentrates on marketing for SNL farmers, and the performance of the RDAP in respect of this important activity.

As noted in Chapter 2, the RDAP assumed that virtually all incremental crop production would be marketed through commercial channels. However, it was intended to help farmers by improving facilities, transport, and price information, in conjunction with the Cooperative Marketing Project (USAID). We commented that for a project of this nature insufficient attention was given in the plans to primary marketing outlets perhaps because of aid from other projects (Section 2.3.).

About half way through the life of the RDAP, the Marketing Advisory Unit in the MOAC published a paper ("Marketing facilities and problems in Swaziland's Rural Development Areas", July 1980) which concluded that if Swazi farmers were to be encouraged to produce crops for sale outside their immediate localities then primary procurement/marketing services would have to be provided. This was considered to be a basic pre-requisite for increased crop production, especially for beans, pulses, vegetables and maize, and would engender interest in cotton and tobacco. This report and others commented on farmers' disatisfaction with arrangements for collection and payment for maize by SMC. The RDAMU's "Mid-term evaluation of the RDAP" (Jan. 1981) stated that an improvement in marketing facilities might well stimulate farmers to produce crops for sale and increase offtake of cattle for slaughter.

Provision of primary market outlets will not, by itself, stimulate production of surpluses for sale. However, there is an overwhelming opinion amongst MOAC officials that marketing has been a constraint, and the virtually complete absence of primary marketing outlets in the past (with the exception of homestead to homestead sales), together with our own observations and discussions, supports this view.

There have been some promising recent developments in marketing through the cooperatives in RDAs. Also, the feeder road system in RDAs makes it easier for farmers to transport their surplus produce. These measures have had a significant effect on primary marketing in the RDAs, but there remains more to be done.

Maize

This is by far the most important crop grown on SNL. Areas, yields, and production fluctuate greatly from one season to another. Production is declining, mainly due to smaller areas planted, and is now 60 000 - 70 000 tonnes. Consumption in Swaziland is estimated to be 120 000 tonnes, and the difference is imported from the RSA. The rapidly growing population will consume an estimated 200 000 tonnes by the end of the century.

The floor producer price of maize is set by GOS (on the advice of the MOAC), based on the selling price of the RSA Maize Board, which, although carrying a large consumer subsidy, is related to RSA producer prices. Thus the SNL maize growers selling surplus maize receive a floor price directly related to that received by large-scale mechanised commercial producers.

Many complaints from SNL farmers about the difficulties of selling surplus maize have been cited in survey reports. These centre on the collection and acceptance regulations of the Swaziland Milling Company (SMC), which inevitably finds it easier to import large quantities of maize from the RSA than to collect small quantities (the minimum is 30 bags of 70 kg) from SNL. Surveys have shown that most SNL farmers sell their surplus maize privately, perhaps to neighbours, or take it in a pick-up to a deficit area such as the lowveld.

An important contribution of RDA management and the cooperative movement has been the pilot maize marketing scheme, started in Mahlangatsha and Ngwempisi RDAs in 1980/81. A total 780 tonnes of maize were purchased by the cooperatives in these RDAs, and were transponted by the CCU to the SMC. A handling fee was included in the maize price for that year.

In 1981/82 (a drought season) 931 tonnes of maize were purchased by the cooperatives in Mahlangatsha, Ngwempisi, and Mayiwane/Herefords, and a further 291 tonnes where farmers participating in the Taiwanese maize project were obliged to deliver 20 bags to pay for inputs. The cooperatives (administered by the CCU) managed to sell maize on the open market, where prices in the two drought years (1981/82 and 1982/83) have been higher than the floor price paid by the SMC, and the handling fee was no longer included in the price.

Thus the CCU and cooperative, using RDAP facilities and storage silos contributed by other aid projects and supported by RDA management, have made significant progress in providing primary market outlets for maize.

Cotton

There are two ginneries in Swaziland, at Matsapa and Big Bend (the latter closed since 1982), and some cotton is ginned in the RSA. All lint is exported to the RSA. Each year producer prices are based on world market prices for lint, RSA prices for cottonseed, and ginning costs. In 1982/83 the price is expected to be subsidised from levy and STABEX funds. Market prospects are good.

The ginneries have collected packs of seed cotton from farming areas provided that a minimum of 30 packs (6 tonnes) are available. Opportunities exist for cooperatives and farmers' associations to aggregate cotton for such collection. An example has been given by the Matsanjeni Cooperative, which could be extended to other primary cooperatives in cotton growing areas.

Farmers can also deliver directly to the ginneries. Because the producer price includes the transport cost, they should be paid E 1 to E 3 a pack depending on distance.

At the ginnery, the cotton is weigned and classified. We were told by agricultural staff that some farmers suspect that their cotton is "under-weighed" and/or "down-graded". The Cotona ginnery deny this, and claim that classification favours small producers. The competition between ginneries would not allow much malpractice, particularly now that small farmers dominate production.

The cooperative movement could play a crucial role in improvement of primary marketing of cotton. At present, farmers have to accompany their cotton to the ginnery to supervise classification and weighing, and to receive payment. However, it might be possible to develop a system whereby the cooperative weighs, classifies, and pays the farmer, so that the latter does not have to travel to the ginnery. Alternatively, the ginnery could send a classifier to the collection point. These alternatives should be pursued to ease primary marketing for the farmer.

Tobacco

Swaziland's production (dark air-cured pipe tobacco) in the last ten years has ranged from 258 tonnes (1974/75) to 107 tonnes (1982/83), generally fluctuating around 200 tonnes, depending on seasonal rainfall, prices and other factors. Eighty to ninety per cent of the tobacco has been produced by about 4 000 SNL farmers, averaging 25 kg each. Yields appear to be static, as is the area planted.

The Swaziland Cooperative Tobacco Company Ltd. (SCTC) started in 1931, and by law all tobacco has to be sold to it. The SCTC pays by weight and grade, then re-grades, ferments, 'proctors', and bales, before selling the tobacco to manufacturers in the RSA.

The crop is very small by African and international standards (for example, Malawi produced 38 000 tonnes of Burley tobacco in 1982/83). It therefore does not attract attention from buyers, except the RSA manufacturers who buy by consignment. The Swaziland crop is less than one per cent of the RSA crop by weight, and the latter therefore determines prices. The prices offered by the SCTC in 1983 vary from 95 to 155 c/kg depending on grade. An initial payment is made, followed by a supplementary payment at the end of the marketing season, when the financial results of the cooperative are known.

RDA management has assisted farmers in marketing tobacco by transporting bales to selling points, particularly from Northern RDA to Manzini. As in the case of maize and cotton, the cooperatives could be the focus for collection and possibly payment. An international tobacco company has leased the facilities of the SCTC for 1983/84, and should improve the primary marketing system.

Cattle

Marketing of cattle in Swaziland is essentially by private treaty sale and auctions, the former being more important, particularly on SNL, where they usually occur at dip tanks. Before 1965 most cattle were sold at auction, but in that year the SMC started operations buying at dip tanks. In 1979 privately conducted auctions closed, leaving only the Department of Veterinary Services monthly auctions at the three fattening ranches, and at six rural sales yards.

In 1977 the SMC introduced floor prices based on weight, so that owners had to wait for payment, in contrast to other buyers who pay immediately, although the SMC now uses some mobile scales. There is some advantage for an SNL farmer selling at the dip tank because he does not bear the risk of reduced payment for measles and bruising, and bears no transport costs. Lacking large numbers, SNL farmers generally have to accept the floor price. In the case of sales to butchers weights have to be estimated.

Comparisons of auction prices with SMC floor prices show that the former have been consistently higher and about 20 per cent higher in 1980-1983. The relatively lower prices offered by the SMC accounts for the dissatisfaction commonly expressed by SNL farmers. Prices are higher in the last quarter of the year, when fewer animals are sold (their condition generally being poorest at the onset of the rainy season).

The SMC and private butchers slaughter over half the cattle slaughtered in Swaziland, the remainder being killed for local consumption. Of the former (commercial) slaughtering, the SMC accounts for about two-thirds, and the remaining third has gone to 214 licenced butchers who deal mainly with urban customers. The butchers provide strong competition for the SMC and their share of the commercial market has increased.

In the rural areas the most common system of slaughtering is in the open with poor hygiene. There are municipal abattoirs in Mbabane, Manzini, Mankayane and Nhlangano, and further abattoirs, under construction or planned, at Siteki, Piggs Peak, Hlatikulu, and Lavumisa, and some private abattoirs (Tshaneni, Big Bend, Mhlambanyatsi).

It was anticipated that the saleyards and cattle trucks provided in the project would contribute to improving offtake.

It is doubtful whether the saleyards have contributed significantly. They were not equipped with weigh bridges, and are at a disadvantage compared to other sales in valuation of animals.

The cattle trucks have not operated effectively. An analysis for 1981 and 1982 (Annex D) shows that they were working for only 38 and 29 per cent of those years, the main fault being the inability of the CTA to repair and maintain them. When working, they have rarely been used for livestock due partly to other priority transport requirements in RDAs, but mainly because both farmers and responsible staff have been discouraged by the high level of animal damage when trucks were employed.

Although marketing outlets should not be allowed to constrain offtake of cattle from SNL herds, it is recognised that the dominant constraint is the propensity to retain cattle as an investment and for social reasons.

It is evident that useful competition prevails in rural areas between private butchers and the SMC, with the latter providing a valuable floor price. We understand that the Livestock Development Programme Study (Hunting Technical Services Limited, October 1983) has made proposals to improve the viability of the SMC, which should enhance its ability to compete for SNL cattle and offer higher prices.

Market information to SNL cattle owners should be improved, with the objective of identifying marketable animals, and improving the confidence with which the producers regard the buyers (SMC and butchers). The dip tank committees could be crucial in this respect, as a group contact with the buyers, and as the primary groupings in the Livestock Producers' Association.

4.12. SOCIAL IMPACT

The RDA programme has had a wide-ranging and generally beneficial social impact:

- social infrastructure, especially domestic water supplies;
- community involvement in land use planning and other initiatives;
- self-help with assistance from RDA employees, tractors and other resources;
- direct employment of officers, artisans, drivers, guards, labourers, etc.;
- improved access for social purposes as well as agricultural inputs and marketing;
- improved nutrition with higher-yielding maize requiring less labour;
- tractors to substitute for hand labour;
- fencing, which allowed more children to attend school.

These can be summarised in two main groups, namely activities which may have improved the general standard of living, and direct or indirect social services.

4.12.1. Social services

Domestic water supplies

By far the most important and popular social service provided by the RDAP has been piped domestic water supplies. A total of 72 systems had been completed in RDAs by the end of 1982/83, serving an estimated 2 200 of 16 000 homesteads in maximum-input RDAs and an estimated 300 of 10 500 homesteads in minimum-input RDAs. These estimates are based on an average of 36 homesteads per scheme on maximum-input RDAs. Among the UK-funded RDAs only 2 systems were completed for every 3 planned, while in the multi-donor funded maximum-input RDAs only 1 in 5 was installed. This is in large measures a result of an underestimation of the time required for design and construction in the project submissions. With an intensive effort in the year 1982/83 the schemes completed in that single year were 44 per cent of the total to date in UK-funded RDAs and 65 per cent in the multi-donor funded RDAs. Some of these were built by RWSB or with RWSB cooperation with support under a separate UK-funding agreement.

Improved health has been considered a primary objective of piped water supplies, however, in practice this is only achieved where a sustained health education campaign and improved sanitation have been implemented at the same time. While this has been very actively promoted in Swaziland, there is as yet little discernible improvement (Bell et al 1983).

The social benefits are more obvious, primarily because of the greater convenience of a standpipe. This allows the use of screw-top containers which can be loaded in a wheelbarrow, and an unanticipated consequence is that water is fetched by men and boys as well as by women and girls. The saving in time is very considerable.

Given the social advantages it seems unwarranted to condemn the water supplies for their lack of purity. The major problem is that water is polluted at source in streams, and treatment is either lacking or is not continuous. Apart from provision of chlorinators, the main solution would be to make separate provision for livestock to drink from troughs well away from the streams. Localised fencing around the reservoirs is generally not effective because it merely forced the cattle to find another way to the water.

In principle, bore-wells would be preferable in many locations, but the objections are the cost of fuel for pumped reticulated systems and the high cost of providing numerous hand-pumps to serve scattered homesteads.

Rural clinics

It is not clear why this component was included in the RDA programme, and its impact on the intended areas has been slight. An extension to the clinic at Zombodze was built in Mahamba/Zombodze RDA, but two complete clinics proposed for Mpolonjeni and Nkonjane in Lubombo/Mpolonjeni RDA have not been built so far and it seems unlikely the money will be assigned during the loan period. Mpolonjeni is the one to which attention was given, but MOH felt that it would be unable to provide qualified staff or necessary staff housing, and there was also dispute locally about the site. From the point of view of Ministry of Agriculture, it felt obliged only to provide money, as it had done for SDSB. The project preparation document had suggested that finance should be provided for clinics and staff housing, but the appraisal was not specific about the latter, and one solution might have been to have committed all the funding earmarked to one complete clinic.

The funding also provided for purchase of three ambulances and three sets of medical supplies, which were handed over to MOH. As far as could be determined these were not used specifically in the two multi-donor maximum-input RDAs.

4.12.2. Other amenities

Roads

The major effect of road improvements has been to increase access by light 2-wheel drive vehicles and buses, where previously a 4-wheel drive vehicle had been required. This has made it feasible for those in wage employment to make visits to their rural homesteads at weekends or at least monthly. In some places footbridges have also provided improved access. Roads are normally included in the 'people's plans' drawn up before resettlement, and thus the alignment is in accord with local needs. Communities have had only limited involvement in road maintenance, but this could be increased in future planning.

Input sheds

It appears that cooperatives at RDA centres are too remote for many RDA farmers. By building a shed, a farmers association is able to make a bulk order with a supplier and share the cost of transport to their locality. The result is that the inputs are delivered at a significantly lower cost.

Meeting halls

Some Zenzele women's associations have built small halls used for meetings and domestic science demonstrations. Some are attached as an annex to an input shed.

Electricity

In several RDAs assistance has been given with connecting to main transmission lines, sometimes in association with schools. Some officials advocate an emphasis on electricity supply as a means of increasing the attractiveness of rural areas.

Creches

Day-care centres for small children have been built at several RDAs to enable women to attend training under the 'Women in Development Project'.

4.12.3. Community initiatives

The major social impact of the RDA programme has been the practical assistance it has been able to give to self-help groups. The assistance has been mainly in assigning artisans, labourers and drivers to provide back-up to community efforts. Almost all self-help construction involves the making of concrete blocks, and tractors with trailers or sometimes cattle trucks have been used to help transport sand and other materials. This has been reflected in the increase in tractor hours used for non-agricultural work in recent years. It can be assumed that privately-owned tractors and pick-ups are used in the same way.

To verify the extent of RDAP assistance, a questionnaire was prepared in which project managers and extension officers were asked to state in what way the community and the RDA had each contributed to social infrastructure programmes. The response showed clearly that for self-help work the assistance provided has often involved temporary assistance of an artisan or a tractor and its driver. In this way the RDA has provided the necessary skills and transport which the community might have been unable to obtain for itself. However, the results of the survey were not sufficiently consistent or comprehensive to be tabulated and in future such activities should be included in routine reports.

The role of the RDA in this is significant because it offers relevant assistance and is based in the rural areas. In particular, the project manager is able to maintain contact with self-help groups and can decide on the assistance he is able to provide. The RDAs have about 56 artisans, over 200 labourers and about 40 tractor drivers, and this represents a substantial workforce for which the RDA itself can have little use once the centre has been completed. There might be a case for assignment of these staff to LDS to increase their mobility. The LDS unit camps have provided an additional supply of manpower and machines in some areas, presumably available at the discretion of the unit supervisors and project managers.

By comparison, the Community Development Section appears to have had considerable problems in recent year, and has placed emphasis mainly on school improvement projects. Among its problems are a shortage of field staff, with only 13 staff at Community Development Assistant level in 23 established posts. There is a shortage of transport and housing for these staff, although 8 are at RDA centres. Another problem is the unpredictability of funding, given that warrants are not issued until the winter is almost over, and this is the time people are able to work. The percentage of revised funds expended was less than 40 per cent in 6 years prior to 1981/82, excluding a large World Food Programme grant in 1975/76. Expenditure was only 20 per cent of the approved budget before revision. It appears that the emphasis on schools is, at least in part, a reflection of the fact that these are ready-made groups which can be contacted through the head-masters.

The impression received in rural areas is that self-help has become well-established. A survey of community organisation in 10 areas revealed 66 committees active in work ranging from schools to dip tanks (Green, 1983). The RDAs have probably encouraged this trend by their ability to give assistance with a minimum of bureaucratic procedures.

What is questionable, however, is the assertion met sometimes that community work is necessary to help establish an extension field officer in the group he will serve. It should not be necessary to reinforce the agricultural initiatives in this way, although assistance in non-agricultural work is clearly desirable.

CHAPTER FIVE FINANCIAL PERFORMANCE

5.1. INTRODUCTION

This Chapter reviews the financial performance of the RDA programme since it began in 1970 until the end of the GOS 1982/83 financial year in March 1983. The broad objectives are:

- to compare the actual expenditure patterns with the project plans and to highlight the reasons for deviations;
- to assess the adequacy of physical and price contingencies, and;
- to investigate the effect and the implications of the RDAP on the GOS recurrent budget.

Throughout the analysis the distinction has been made between multi-donor funded RDAs and the UK-funded RDAs. This has been possible because the accounts for the two programmes were kept entirely separate, and is of value as the financial records for the multi-donor projects are much more detailed and comprehensive. However, within the limits of the data available we have analysed the UK-funded RDAs as thoroughly as possible.

5.2. MULTI-DONOR PROJECT COSTS

5.2.1. Planned expenditure

The planned costs for the multi-donor funded RDAP were detailed in the World Bank Appraisal Report (January 1977) and are summarised by major components in Table 5.1. A more detailed breakdown is included in Annex 6. The costs in the Appraisal Report were not broken down into capital and operating costs, although we have analysed the costs on this basis in Section 5.2.5. Total planned costs over the five years 1977-1982 (in constant 1976 prices) were projected at E 10 089 970. These were adjusted to allow for a physical contingency of a straight 10 per cent of costs per year, and a price contingency which varied from 13 to 8 per cent per year to allow for the cumulative effect of inflation. Including these allowances, the total projected costs amounted to E 14 876 000.

These costs did not include the USAID Infrastructure Support Project which provided finance to support the LUPS and LDS, including a technical assistance team of specialists, heavy machinery, workshop facilities and a training programme for counterpart staff. The total costs allocated to this programme which was planned to run from 1978-1984 were US $ 30 089 100 made up of US $ 17 146 300 of USAID funds and US $ 12 942 600 of GOS funds.

Table 5.1 Summary of multi-donor planned costs (Emalangeni)

Project Components	Year 1(1)	2	3	4	5	Total Years 1-5
(a) Extension Services & Infrastructure	282 800	965 000	750 600	705 800	554 900	3 529 100
(b) Livestock Development	27 600	196 800	309 740	281 680	279 020	1 094 840
(c) Land Development & Construction Works	67 800	194 600	213 550	209 950	212 100	898 000
(d) Incremental Crop Inputs	75 000	100 000	125 000	150 000	100 000	550 000
(e) Agricultural Credit	29 400	149 100	145 400	95 000	94 900	513 800
(f) Road Development	231 430	258 730	268 650	313 130	343 460	1 415 430
(g) Social Infrastructure	100 200	132 400	87 300	66 000	68 000	453 900
(h) Project Management Services	155 800	138 200	138 200	138 200	138 200	708 600
(i) Technical Services	264 900	197 100	197 100	269 100	268 100	1 296 300
Total Project Investments	1 234 930	2 331 930	2 235 570	2 228 860	2 058 680	10 089 970
Contingencies:						
Physical	123 493	233 193	223 557	222 886	205 808	1 008 997
Price	162 577	575 877	800 873	1 039 254	1 198 452	3 777 033
Total Project Costs (E)	1 521 000	3 141 000	3 260 000	3 491 000	3 463 000	14 876 000

Source: World Bank Appraisal Report, January 1977.

Note 1: Year 1 coincided to the GOS 1977/78 financial year.

5.2.2. Actual expenditure

Expenditure by major project component over the six years from 1977/78 to 1982/83 is shown in Table 5.2. Total expenditure on the multi-donor RDA programme to March 1983 was E 12 234 212. Full details of the expenditure pattern for each RDA and each donor and component is included in Annex G.

A comparison between the planned expenditure (including contingencies) of E 14,9 million and actual expenditure of E 12,2 million (Table 5.3) shows that the programme has achieved 82 per cent of the planned total. Components with the most significant under-expenditure were land development and conservation (39 per cent of planned expenditure), incremental crop inputs (25 per cent), and project management services (50 per cent). Only two components, extension services and infrastructure, and agricultural credit, exceeded planned expenditure, albeit by only a small percentage.

In the Appraisal Report, expenditure was planned over five years from mid-1977 through 1982. In the event, actual expenditure was delayed and did not begin until January 1978, and has continued after 1982. Because of the different phasing, the contingency for price inflation in the original plan does not accurately reflect the effect of inflation on the actual expenditure pattern.

5.2.3. Phasing of expenditure

The Project plan envisaged that costs of E 14,9 million (in current prices) would be spread over the five year phase in roughly equal instalments, with E 1,5 million in Year 1 and over E 3,0 million per year for the other four years. Actual expenditure has not followed this pattern mainly because the programme was delayed for one year and overran the original five year period. Expenditure patterns (planned and actual) are shown in Figure 5.1. Due to the slow start of the Project, expenditure has been delayed to the later end of the phase, and due to the cumulative effects of inflation this has had the effect of reducing the purchasing power of the funds allocated.

5.2.4. Actual expenditure in 1976 constant prices

To enable a more realistic comparison of actual and planned expenditure, showing expenditure in terms of its purchasing power we have deflated actual expenditure to a 1976 base using inflation indices for each of the major components; construction, wages and salaries, vehicle operating expenses, crop inputs etc.

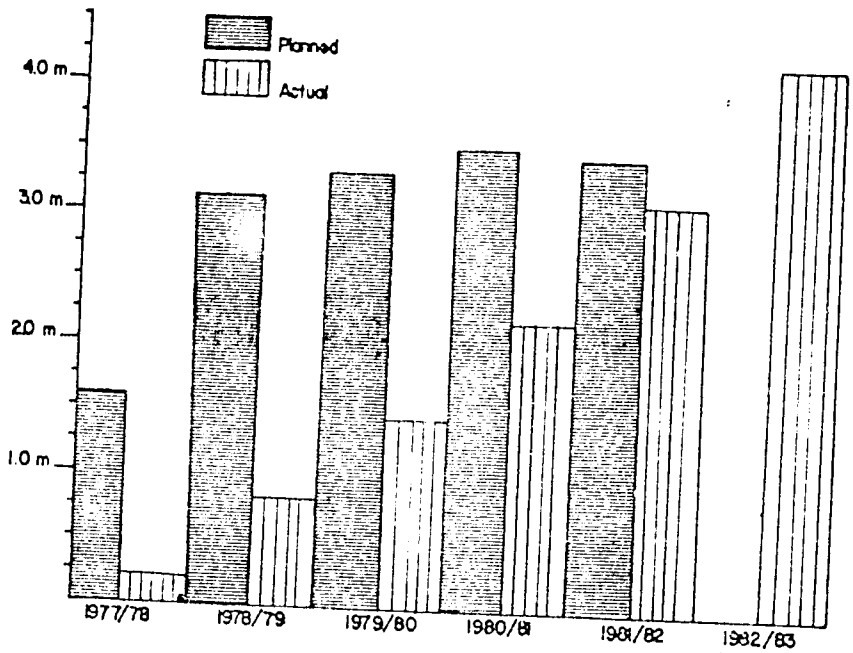
The relationship between actual and planned expenditure in current prices, and actual expenditure in constant 1976/77 prices, is shown in Figure 5.2.

Table 5.2 Summary of multi-donor actual expenditure (Emalangeni)

Project Component		Year						Total
		1977/78	1978/79	1979/80	1980/81	1981/82	1982/83	
Extension Services & Infrastructure		17 395	265 351	462 485	1 010 226	1 596 835	1 584 489	4 936 781
Livestock Development		0	135 741	265 543	162 188	282 448	753 509	1 599 429
Land Development & Conservation		0	0	0	1 000	138 250	386 480	525 730
Incremental Crop Inputs		50 381	61 789	79 324	10	0	0	191 504
Agricultural Credit		0	53 299	101 474	244 520	191 893	185 901	777 087
Road Development		0	32 400	207 000	222 960	526 340	530 360	1 519 060
Social Infrastructure		0	32 351	64 910	166 350	46 738	146 003	456 352
Project Management Services		45 922	71 153	93 089	94 561	83 934	119 896	508 555
Technical Services		75 645	107 225	203 340	296 249	329 456	707 799	1 719 714
Total	(E)	189 343	759 309	1 477 165	2 198 064	3 195 894	4 414 437	12 234 212

Source: RDA Management Unit

Figure 5.1 Multi-donor RDAs - planned cf. actual expenditure (Current Prices)



Sources: Tables 5.1 and 5.2.

Note: No costs were planned for 1982/83 as the programme was planned for five years, 1977/78-1981/82.

Table 5.3 Multi-donor planned cf. actual expenditure (Emalangeni)

Project Component	Planned (1) Expenditure	Actual Expenditure	Difference	Actual as Percentage Of Planned (%)
Extension Services & Infrastructure	4 781 573	4 936 781	+ 155 208	103
Livestock Development	1 661 289	1 599 429	- 61 860	96
Land Development & Conservation	1 342 652	525 730	- 816 922	39
Incremental Crop Inputs	812 505	191 504	- 621 001	24
Agricultural Credit	757 501	777 087	+ 19 586	103
Road Development	2 093 534	1 519 060	- 574 474	73
Social Infrastructure	646 812	456 352	- 190 460	71
Project Management Services	1 028 500	508 555	- 519 945	50
Technical Services	1 751 635	1 719 714	- 31 921	98
Total (E)	14 876 001	12 234 212	- 2 641 789	82

Source: RDA Management Unit

(1) Physical and price contingencies have been apportioned equally over the figures shown in Table 5.1.

Details of actual expenditure for each component over the six years, in constant 1976/77 prices, and the inflation indices used, are in Annex G.

Expenditure in 1976/77 constant prices is estimated to be E 7,653 million. This can be compared with the planned expenditure of E 10,089 million in the Appraisal Report plus the 10 per cent for physical contingencies of E 1,009 million - a total of E 11,098 million. Actual expenditure in constant prices was 69 per cent of planned expenditure in constant prices. From Section 5.2.2. actual expenditure in current prices was 82 per cent of that planned, the difference of 13 per cent being attributed to loss of purchasing power due to the effects of inflation.

5.2.5. Expenditure divided into capital and operating costs

Planned and actual expenditure for each component have been divided into capital and operating costs to enable an assessment of project performance in relation to what was planned in the Appraisal Report.

A summary of the breakdown and expenditure patterns in current prices is shown in Table 5.4 and Figure 5.3, (details are in Annex G).

For all components except agricultural credit and social infrastructure the ratio between capital and operating expenditure has increased i.e. a higher proportion of funds have been spent on capital items and overall the ratio between capital and operating expenditure has changed from the 1,4:1 as planned in the Appraisal Report to 2:1 as achieved. In terms of project performance this may have been an advantage if a higher proportion of the funds had been used in developing infrastructure and assets rather than had been used in operating expenditure.

5.2.6. Expenditure by donor

The contribution that each of the four main donors - IBRD, EDF, ADB and GOS - has made to the multi-donor funded RDAP is summarised in Table 5.5. and Figure 5.4. The biggest contribution has been made by ADB at 39 per cent of the total expenditure, while the GOS and EDF and IBRD have contributed around the same amount at 22, 18 and 21 per cent respectively.

Considerable delays have occurred in the processing of reimbursement claims by ADB and as of 31st August 1983 E 370 750 was still outstanding. This has meant that the GOS has had to provide additional bridging finance until the funds were reimbursed.

Figure 5.2. Relationship between planned and actual expenditure in current prices and constant 1976/77 prices

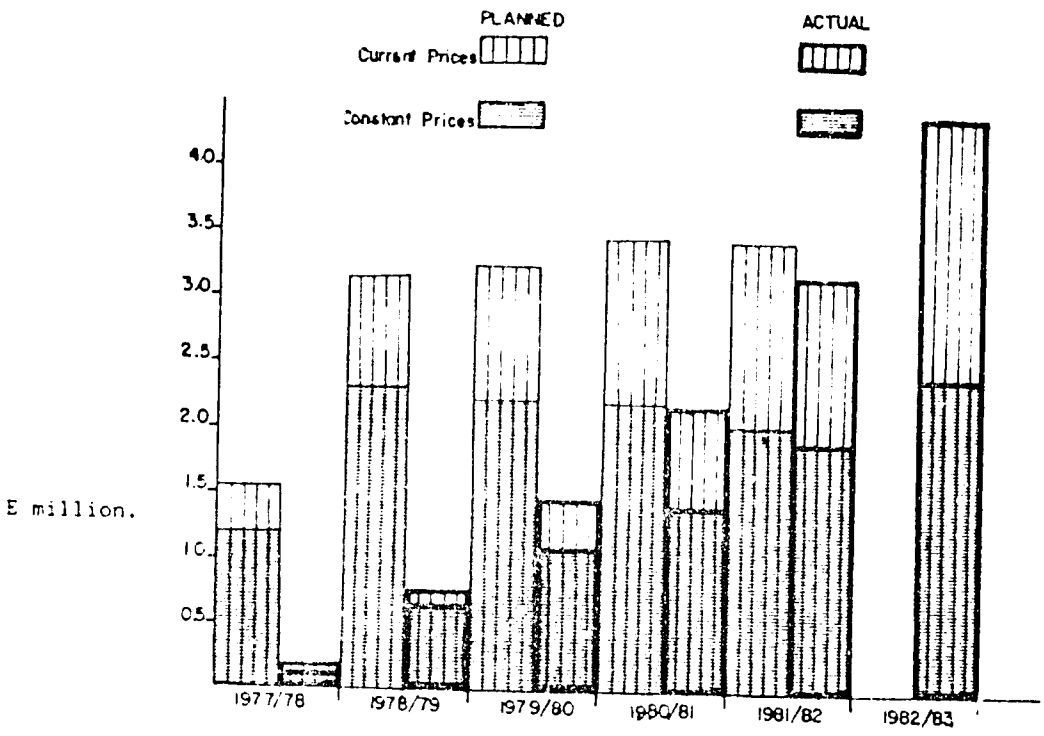


Figure 5.3. Breakdown between planned and actual capital and operating expenditure (current prices)

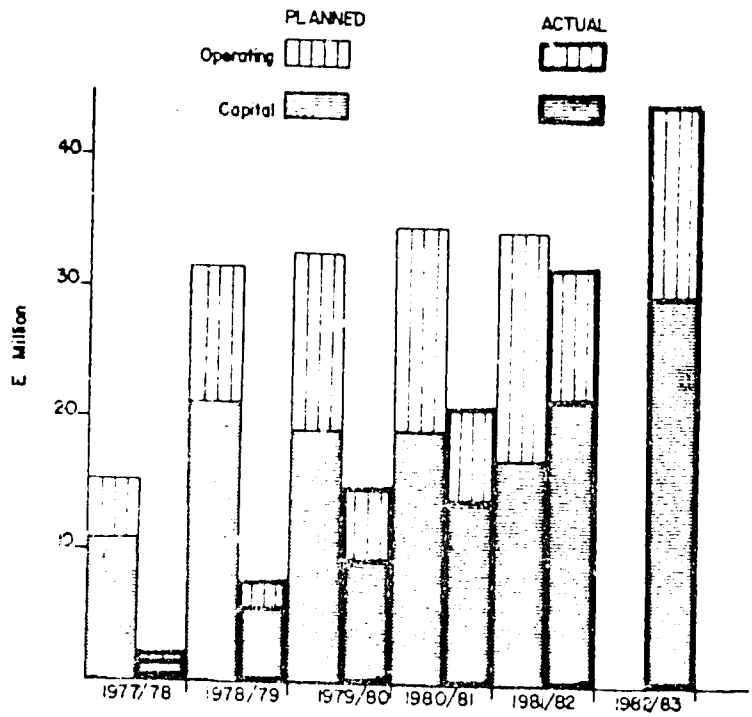


Figure 5.4. Expenditure by donor. Multi donor-funded RDAs as at 31st March, 1983.

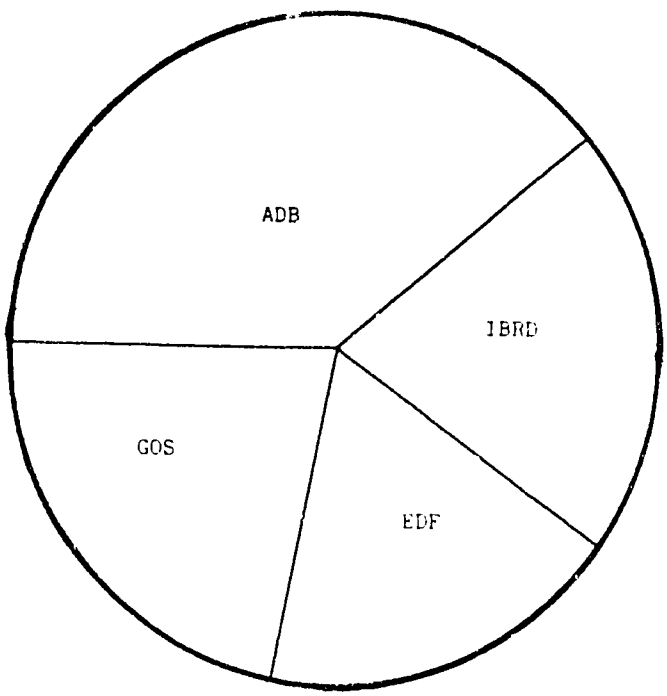


Table 5.4. Comparison of capital and operating expenditure (E '000)

Component	Planned Expenditure			Actual Expenditure		
	Capital	Operating	Ratio	Capital	Operating	Ratio
Extension services and infrastructure	1 937	2 844	0,7:1	2 732	2 205	1,2:1
Livestock development	1 173	489	3,6:1	1 309	290	4,5:1
Land development and conservation	1 280	626	2,0:1	525	0	-
Incremental crop inputs	812	0	-	192	0	-
Agricultural credit	210	547	0,4:1	196	581	0,3:1
Road development	1 566	527	3,0:1	1 439	80	18,0:1
Social infrastructure	495	152	3,3:1	330	126	2,6:1
Project management services	22	1 007	0,02:1	34	475	0,1:1
Technical services	1 221	530	2,3:1	1 381	338	4,1:1
Total (E '000)	8 717	6 159	1,4:1	8 139	4 095	2,0:1

Source: Annex G.

Table 5.5. Multi-donor funded RDAs - Breakdown of Expenditure by Donor

		(Emalangeni)						
		1977/78	1978/79	1979/80	1980/81	1981/82	1982/83	TOTAL
ADB	- Claimed	0	41 200	372 020	897 930	1 488 490	2 003 550	4 803 190
	- Reimbursed	0	19 520	372 020	556 710	1 480 640	2 003 550	4 432 440
	- Difference unpaid	0	21 680	0	341 220	7 850	0	370 750
IBRD	- Claimed and Reimbursed	36 610	372 050	413 330	371 840	502 960	883 130	2 579 960
EDF	- Claimed and Reimbursed	138 992	210 722	192 058	317 300	473 713	845 012	2 177 847
GOS	- Expenditure	13 741	135 337	499 757	610 994	730 731	682 745	2 673 305
	(Unpaid Claims)	0	21 680	0	341 220	7 850	0	370 750
	Total	13 741	157 017	499 757	952 214	738 581	682 745	3 044 055
GRAND TOTAL		189 343	759 309	1 477 165	2 198 064	3 195 894	4 414 437	12 234 213

Source: RDAMU.

5.2.7. Comparison in Emalangeni and in loan currency

a) IBRD

The available IBRD loan of US $ 4,0 million was drawn down and paid in instalments to the GOS on the production of claims for reimbursement of money spent on IBRD funded components of the RDAP. Reimbursement was made in US dollars at the current exchange rate with Emalangeni at the time of the reimbursement. At the beginning of the programme the exchange rate was E 1,00 to US $ 1,15, but as could be expected the exchange rate at the time of reimbursement has fluctuated considerably from as high as E 1,00 to US $ 1,34 to as low as E 1,00 to US $0,86. These variations from the initial exchange rate used in the programme plan resulted in gains and losses to GOS in terms of the amount of the available loan that was used. An analysis of the reimbursements by IBRD demonstrating the net effect of exchange rate fluctuations has been made for each year since 1978 and is included in Table 5.6.

As can be seen, overall the GOS has gained an additional US $ 181 981 as a result of the variation in the exchange rate from the initial E 1,00 to US $ 1,15. During the first two years of the programme the Emalangeni strengthened against the US dollar, to the GOS's disadvantage but this "loss" was recouped and an overall gain was achieved during 1982/83 as the Emalangeni weakened against the US dollar. Ironically, it would appear that the failure to achieve the planned project expenditure during the first three years has meant that more money was spent when the exchange rate was more favourable. However, the cumulative effect of inflation in reducing the purchasing power of the funds as expenditure was delayed has almost certainly offset all of the foreign exchange savings in the amount of the loan used.

b) African Development Bank (ADB)

A similar analysis has been carried out for the disbursement from the available loan of 4,5 million units of account (UA) with ADB. Claims to the ADB for the reimbursement of money spent on ADB-funded components of the RDAP are made in Emalangeni and the money is paid to the GOS in Emalangeni but debited to the loan account with ADB in units of account (UA). At the beginning of the loan agreement, E 1,00 was worth UA 0,967 but the rate has varied over the life of the programme as the UA is related to international currencies, particularly the US dollar.

Table 5.6. also summarises the claims and reimbursements from ADB. Out of the total amount claimed of E 4 803 190, claims of E 370 750 (some of which relate to 1978) are outstanding as of August 1983 and have not yet been reimbursed by ADB. The analysis assumes that all outstanding unpaid claims will be reimbursed at a rate of E 1,00 to UA 0,967.

As it stands the GOS has had a gain of UA 505 435 (over 11 per cent) on the money reimbursed so far, in terms of loan draw down compared to the initial conversion rate in 1978.

Table 5.6. Effect of exchange rates on reimbursements

(a) IBRD Reimbursements

Year	Claim (E'000)	Reimbursements (US $'000)	Exchange Rate (E:US $)	Difference (at E1,0=US$1,15) (US $)	Running Total (US $)
1977/78	36 611	42 103	1,15	-	-
1978/79	372 054	431 168	1,16	- 3 306	- 3 306
1979/80	413 333	515 604	1,25	- 40 271	- 43 577
1980/81	371 839	469 040	1,26	- 41 425	- 85 002
1981/82	502 957	502 174	1,00	76 227	- 8 775
1982/83	883 126	824 839	0,93	190 756	181 981
TOTAL	2 579 920	2 784 928	1,08	181 981	181 981

(b) ADB Reimbursements

Year	Claim (E)	(Unpaid)[1] (E)	Reimbursements UA Equivalent	Exchange Rate (E:UA)	Difference (at E1,0 = UA0,967) (UA)	Cumulative Total (UA)
1978/79	41 200	(21 680)	17 940	0,919	937	937
1979/80	372 020		368 420	0,990	- 8 680	- 7 743
1980/81	897 930	(341 220)	560 850	1,007	- 22 504	- 30 247
1981/82	1 488 490	(7 850)	1 210 660	0,818	221 119	190 872
1982/83	2 003 550		1 622 870	0,810	314 563	505 435
TOTAL	4 803 190	(370 750)	3 780 740	0,853	505 435	505 435

(c) EDF Reimbursements

Year	Claim (E)	Reimbursements (ECU)	Exchange Rate (E: ECU)	Difference (at E1,0 = ECU1,0) (ECU)	Cumulative Total (ECU)
1977/78	138 992	138 600	0,997	392	392
1978/79	210 772	191 120	0,907	19 652	20 044
1979/80	192 058	163 059	0,849	28 999	49 043
1980/81	317 300	291 984	0,920	25 316	74 359
1981/82	473 713	480 933	1,015	- 7 220	67 139
1982/83	845 012	789 056	0,944	46 956	114 095
TOTAL	2 177 847	2 063 752	0,948	114 095	114 095

Source: RDA Management Unit. Note 1: Assumes that the balance of unpaid claims are converted to UA at 0,967 to E1,0.

c) European Development Fund (EDF)

The total funds available under the EDF grant agreement was 2,5 million (later increased to 2,62 million) European Currency Units (ECU) and at the time of the grant agreement these were at parity with Emalangeni i.e. E 1,00 = ECU 1,00. Like the other donors, funds were reimbursed for EDF related expenditure on the receipt of claims from the RDA Management Unit. Table 5.6. also summarises the release of EDF funds for each financial year since 1977 and shows the variations in the exchange rates. Reimbursements are paid in Emalangeni but debited to the Fund in ECU at the prevailing conversion rate.

The GOS has to date benefited from an extra ECU 114 095 of loan drawn down because of the extra Emalangeni obtained for the EDF funds.

For the three sources of donor funds GOS has benefited from the weakening of the Emalageni vis a vis the currency units, resulting in a reduced draw-down of the loans and grant funds worth at current conversion rates around, E 900 000. On the other hand the weakening of the Emalangeni would also have resulted in an increased cost of the foreign currency content of the goods and services used in the RDAP, and an increased cost of servicing the loans so that on balance one influence has probably offset the other.

5.2.8. Reasons for under-spending

Section 5.2.2. showed that the multi-donor programme has achieved 82 per cent of the level of expenditure planned in the Appraisal document, and that the main reason for the under-spending was the delay in start-up and in getting the programme "on stream." The main contributory factors to under-spending are perceived to have been:-

a) delays in getting approval from the CRDB for RDA plans and infra-structure;

b) delays in building houses, project headquarters, and the necessary infrastructure for project staff; and

c) the initial inability of the LDS to carry out the full RDA work programme through their lack of resources.

The original disbursement schedule was unrealistic in respect of the level of expenditure planned during the first three years of the programme. It was over-optimistic to expect resources to be marshalled and that level expenditure to be achieved from Year 1. This highlights the possible need

to include a pre-investment phase of one or two years which would forerun the full implementation plan so as to allow time to develop the necessary planning. In this regard the five year funding period was too short to implement the full programme, and funding could have been more realistically phased over a longer period. This is confirmed by the overrun of the original five year programme and the failure to spend all the available funds.

5.2.9. Adequacy of physical and price contingencies and impact of inflation

A comparison of the contingencies used to allow for price inflation in the Appraisal Report and the actual inflation of items that relate to project expenditure is shown in Table 5.7. Overall the Appraisal Report allowed for a 58 per cent increase in unit costs due to price inflation not including the straight 10 per cent physical contingency on all expenditure also allowed in the plan. In comparison the consumer price index (all items, high incomes) rose by 70 per cent during the comparable period and the inflation of other items included in the Table rose by between 30 per cent for fuel and repair and maintenance charges from CTA to 100 per cent for vehicle (Landrover) costs. Bearing in mind the accompanying physical contingency, then the allowance for inflation in the Appraisal Report was reasonable and fairly close to actual inflation.

The planned project costs in the Appraisal Report were assumed to increase from E 11,098 million in constant 1976/77 prices including the physical contingency of 10 per cent to E 14,875 million when the allowance for price contingencies was added, an increase of 34 per cent.

The difference between expenditure deflated to constant 1976/77 prices and actual expenditure in current prices as discussed in Section 5.2.4., was 60 per cent (E 7,603 million increased to E 12,234 million) almost twice what was allowed for in the project plan. The effect of inflation has meant that it cost at least 1,6 times as much to do the same work in 1982/83 as it would have cost in 1976/77. As the allowance for inflation on a unit cost basis can be regarded as adequate, this difference is almost entirely due to the cumulative effects of inflation on the delayed expenditure pattern. Also the overrun of the programme by another year to 1982/83 which was not allowed for in the price inflation contingencies in the original plans, as it anticipated a much higher rate of expenditure in the earlier years.

5.2.10. Application of under-spending

A statement of funds for the multi-donor RDAP as at 31st March, 1983 is shown in Table 5.22.

Of the total loans, grants and counterpart funds of E 14 521 000 (not including ODA or farmers'contributions) E 12 123 893 or 84 per cent has been spent which leaves a balance remaining of E 2 397 107 which is made up as follows:-

Table 5.7. Comparison of price inflation

Item	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83
A. Price inflation contingencies assumed in Appraisal Report:							
Foreign exchange costs							
Civil works	100	112	125	140	155	171	n/a
Equipment	100	108	108	117	126	135	n/a
Technical assistance	100	108	117	126	135	144	n/a
Local costs	100	113	123	133	144	156	n/a
Overall project costs	100	113	125	136	147	158	n/a
B. Actual cost inflation:							
Consumer price index (high income, all items)	100	108	118	134	151	170	198
Salary and wages (general wage increases)	100	115	115	129	149	160	180
PWD House construction costs	100	115	135	144	168	198	206
CTA Petrol costs including R & M etc	100	100	100	130	130	130	130
Vehicle (Landrover)	100	110	122	150	190	200	222
LDU Road construction	100	100	100	127	127	127	127
Training (Certificate course)	100	108	108	130	178	177	209
Fertiliser	100	104	115	137	159	n/a	n/a
Consumer price index (transport and communications)	100	111	118	153	167	192	227

Source: Appraisal Report, Central Statistics Office and Consultants estimates.

African Development Bank	E 101 056
European Development Bank	339 950
World Bank	898 340
Government of Swaziland	997 761
TOTAL	E 2 397 107

These funds have been committed. The ADB funds will be used to continue to finance their component of the RDAP until December 1983. The EDF funds are to be used to continue to fund the Certificate Training Course at Luyengo. The World Bank balance is to be used to finance consultancies such as this review, and the GOS funds are needed to fill the breach where there remains a commitment to expenditure after donor finance has come to an end.

5.3. UK-FUNDED RDAP COSTS

5.3.1. Planned costs

Three separate phases can be identified for the planning of the UK-funded RDAP since 1970. Project submissions for each phase, including proposed capital and recurrent expenditure for the major components each year, were prepared. The three phases covered the years:

Phase 1	-	1970/71 to 1972/73
Phase 2	-	1973/74 to 1978/79
Phase 3	-	1976/77 to 1980/81

For most of the RDAs the phases overlapped with the succeeding project submission, superceding the previous plan before the end of its term. Although the RDAP is commonly accepted to have begun in earnest in the early 1970s with the creation of the four UK-funded RDAs (Northern, Central, Southern and Mahlangatsha) some rural development work had been done in the late 1960s. As this was possibly on a more piecemeal basis, it was not widely recognised as an all-enveloping rural development project. We have been unable to find any details of the project plans preceeding 1970/71 apart from some fragmentary details of expenditure incurred in Mahlangatsha RDA prior to 1970. A brief summary of the planned costs of the UK-funded RDAs, as contained in the various project submissions, is presented in the following tables. A more detailed description and cost breakdown is presented in Annex G.

a) Phase 1: 1970/71 - 1972/73

The first project submissions were for six RDAs of which the first three - Ebulandzini, Mahlangatsha and Sipocosini were existing pre-1970 RDAs which had already received some infrastructural development and the benefit of land use planning. The last three - Northern, Central and Southern, were

to be new RDAs and as further planning work still had to be done, detailed cost estimates for them had initially been prepared only for 1970/71, the first year of the programme. More detailed cost estimates for the following years were based on the results of further investigations. A summary of the cost estimates for the three existing pre-1970 RDAs from 1970/71 - 1972/73 and for Northern, Central and Southern RDAs for the years 1970/71 to 1974/75 is shown in Table 5.8. These formed the basis for a request for UK funds.

For all of the RDAs, rural development was planned to be closely tied in with the purchase and development of adjoining ITF farms. The capital cost of infrastructural development within the RDAs was intended to be completed over a period of five years at a cost of E 1,34 million which was hoped to be financed from British Development Loans.

The associated cost of land purchase and development of ITF farms is not included in the above estimates and during the same five year period, total expenditure for this component of E 1,25 million was also proposed. However, actual expenditure was considerably less than these estimates.

b) Phase 2: 1973/74 - 1978/79

Project submissions were again prepared for four RDAs (Northern, Central, Southern and Mahlangatsha) in late 1973, to cover the five year period from 1974/75 to 1978/79 (in the case of Mahlangatsha they covered the period 1973/74 to 1978/79). This can be regarded as the second phase of the UK-funded RDAP. A summary of these planned costs is shown in Table 5.10. Total costs of the proposed programme, which included a generous allowance for the recurrent costs of maintenance for buildings, roads, fences, were E 3,0 million of which E 1,27 million was to be financed by the UK and E 1,73 million financed by GOS.

c) Phase 3: 1976/77 - 1980/81

For the third phase of the UK-funded RDAP the original four RDAs from Phase 2 were continued and four new maximum-input RDAs planned.

Total proposed costs over the five year period were E 11,656 million made up of E 6 077 925 from UK funds and E 5 578 560 from GOS funds. This was to be the basis for UK funding for this period, although eventually the UK did not allocate the full E 6,08 million. A summary of the proposed costs from these project submissions is also given in Table 5.9.

In summary, the total planned costs of the UK-funded RDAs from 1970/71 to 1980/81 was in the order of E 15,0 million, although as discussed in the following section actual expenditure was probably about E 9,5 million.

Table 5.6. UK-funded RDAs, 1970/71-1974/75 planned costs (Emalangeni)

RDA	1970/71	1971/72	1972/73	1973/74	1974/75	TOTAL
Ebulandzini	9 821	6 512	4 702	n/a	n/a	21 035
Mahlangatsha	26 490	16 200	8 310	n/a	n/a	51 000
Sipocosini	14 848	14 068	9 985	n/a	n/a	38 902
Northern	55 225	47 650	31 100	21 450	16 300	171 725
Central	80 575	84 250	38 800	49 250	42 200	298 075
Southern	58 125	77 950	54 600	50 250	59 100	299 625
Overheads	136 118	101 588	75 728	70 958	72 708	457 110
TOTAL E	381 202	347 818	223 226	191 918	190 308	1 337 472

Source: Department of Economic Planning and Statistics Files.

Table 5.9. UK-funded RDAs, 1973/74 to 1980/81 planned costs (Emalangeni)

(a) Phase 2 - 1973/74-1978/79 (1973 constant prices)

RDA	1973/74	1974/75	1975/76	1976/77	1977/78	1978/79	TOTAL
Northern	0	285 669	231 198	209 021	133 945	89 602	949 435
Central	0	243 044	216 811	215 840	145 554	107 446	928 695
Southern	0	170 547	130 214	100 570	93 102	52 884	547 317
Mahlangatsha	90 919	163 448	163 920	80 640	44 450	40 990	584 367
TOTAL	90 919	862 708	742 143	606 071	417 051	290 922	3 009 814

(b) Phase 3 - 1976/77-1980/81 (projected current costs based on December 1975 prices) (Emalangeni)

RDA	1976/77	1977/78	1978/79	1979/80	1980/81	TOTAL
Northern	436 790	393 085	351 250	321 895	281 825	1 784 845
Southern	300 190	283 365	273 375	242 825	165 735	1 265 490
Mahlangatsha	356 255	347 290	354 435	227 490	177 010	1 462 480
Central	396 215	358 460	346 360	261 775	252 440	1 615 250
Ngwempisi (M/V)	14 230	233 860	392 510	477 845	456 770	1 575 215
Mayiwane/Herefords	0	14 995	294 900	547 725	534 900	1 392 520
Ebulandzini	180 420	311 655	258 625	201 140	97 910	1 049 750
Madulini/Mahlalini	0	144 605	270 100	355 490	304 005	1 074 200
RDA Overheads	97 545	89 660	81 405	80 815	87 310	436 735
TOTAL	E 1 781 645	2 176 975	2 622 960	2 717 000	2 357 905	11 656 485

Source: MOAC Project Submissions, 1973/74 and 1975/76.

5.3.2. Actual expenditure

Detailed accounts for the UK-funded RDAs have never been kept, so that a complete record of expenditure by major component each year does not exist. The only relatively complete record of total capital and recurrent expenditure is contained in the series of Treasury Annual Reports covering the period. To obtain a breakdown of actual expenditure for each RDA by major component would involve an analysis of the MOAC's and PWD's vote books relating to RDA expenditure throughout the period. Treasury's computer print-outs of expenditure relating to the RDAP are another source.

Since we have not had the resources to carry out such a detailed exercise, we have attempted to build up a time series of total expenditure each year from the incomplete records available.

Incomplete records of expenditure by main components do exist for some UK-funded RDAs, such as included in the ex-post evaluation of the Mahlangatsha RDA in 1981, and in the mid-term evaluation of the RDAP in January 1981, but these records do not cover the whole period and are difficult to reconcile with other sources of the same information. A complete record of the claims for RDA expenditure made to the UK up until they ceased funding in March 1981 is also available and this is discussed in the Section 5.3.4.

A summary of the capital and recurrent expenditure in the UK-funded RDAs since 1970/71 is shown in Table 5.10. This schedule is based on the Treasury Annual Reports where total capital expenditure each year is shown for each RDA. There is some doubt as to whether this table includes all the RDA expenditure for it is likely that where funds were warranted to another body (such as PWD or LDS) to undertake work on behalf of the RDA, these costs were not accredited to the actual RDAP.

A complete record of the period covering the third phase from 1976/77 to 1982/83 has been assembled and the total expenditure over this period is estimated to be E 9,048 million, made up of E 5,693 million capital expenditure and E 3,355 million recurrent expenditure. Unfortunately, with regards to the period prior to 1976/77 Table 5.10 has to remain incomplete. However, total expenditure (capital and recurrent) for the UK-funded RDAs from 1969/70 to 1982/83 is estimated to be in the order of E 9,5 million.

Recurrent expenditure for each RDA is based on records of expenditure used in compiling the annual estimates held by the RDAMU. Where necessary we have had to apportion the actual total recurrent expenditure to each RDA using details of the recurrent expenditure warranted to each RDA. This was not possible prior to 1976/77.

5.3.3. Planned expenditure compared with actual

Because of the lack of data for the earlier years it has only been possible to compare planned expenditure with actual expenditure coinciding with Phase 3 (1976/77 to 1980/81). This information has been presented in a histogram in Figure 5.5. of the total planned costs during Phase 3 of E 11 656 485, actual expenditure has been estimated to be at least E 6,0 million or around 50 per cent of that planned. Figure 5.5. indicates that the biggest shortfall in expenditure was the recurrent expenditure portion. The planned recurrent expenditure included a generous allowance for the maintenance of the capital investment in roads, buildings, fences, etc and it is likely that under-expenditure of this allowance has contributed to the low level of recurrent expenditure.

Following the withdrawal of UK funding in March 1981 GOS has spent an additional E 3,35 million on the eight RDAs formerly financed by the UK until March 1983.

5.3.4. Reimbursement claims for UK-funded RDAs

A schedule of the amount of money claimed for reimbursement from the UK for expenditure on UK-funded RDAs (excluding land purchase) for the period 1970/71 to 1980/81 when the UK ceased funding is shown in Table 5.11. Prior to 1976/77 a total of E 473 881 had been claimed and the total amount claimed for Phase 3 of the RDAP from 1976/77 to 1980/81 was E 3 600 135.

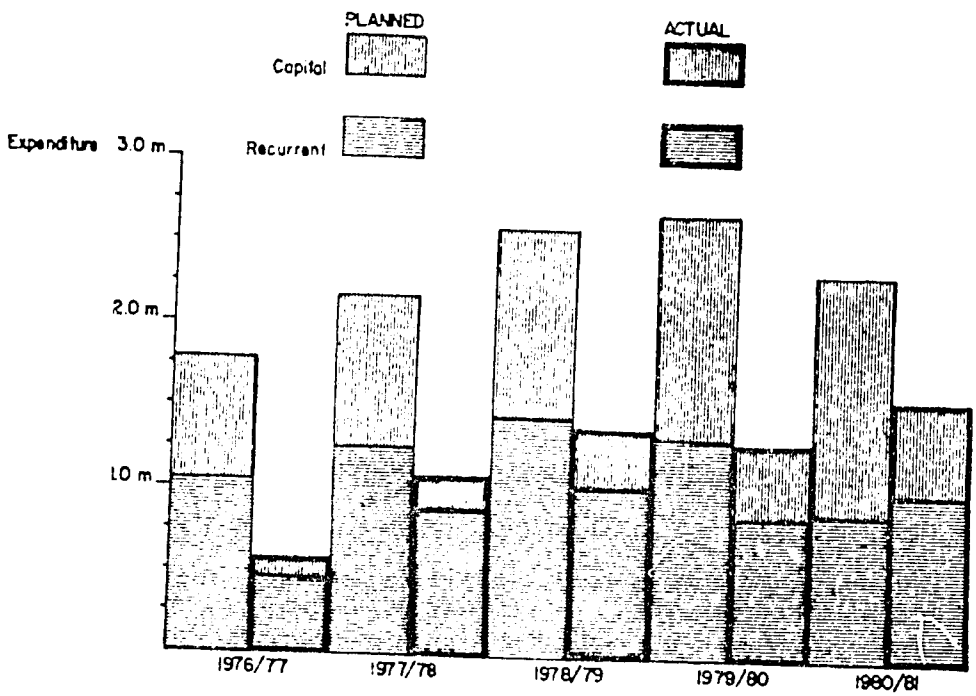
The claim of E 3 600 135 represents 63 per cent of the estimated total expenditure of E 5 701 000 for this period noted in Table 5.10.

According to our analysis for the period 1976/77 to 1980/81 the UK Government approved or allocated a total sum of E 3 562 128 for the UK-funded RDAs. This included an amount of E 124 798 of unutilised money carried over from 1975/76. Thus it appears that the GOS claim for the same period of E 3 600 135 actually exceeded the funds allocated by the UK by a small amount (E 38 007), and the aid funds available for this period were fully utilised.

We asked the British High Commission in Swaziland to provide details of the UK contribution to the RDAP. They have confirmed that a total of E 3,746 million was disbursed during the period 1976/77 to 1980/81. This appears to be E 146 000 more than was actually claimed, but as more comprehensive details of the UK contribution to the RDAs are kept only with ODA in London it has not been possible to reconcile these figures.

Table 5.12. summarises the UK funds allocated to the UK-funded RDAs since 1970/71.

Figure 5.5. UK-Funded RDAs planned cf. actual expenditure 1976/77-1980/81 (Current Prices)



Source: Tables 5.9 and 5.10.

Table 5.10. UK-funded RDAs actual capital and recurrent expenditure (E'000)

RDA		1969/70	1970/71	1971/72[1]	1972/73	1973/74	1974/75[1]	1975/76	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83	TOTAL	1976/77-1982/83
Northern	Capital	2	2	17	10	43	18	85	111	147	219	76	90	32	140		815
	Recurrent[2]	n/a	n/a	n/a	n/a	n/a	n/a	n/a	32	39	58	59	60	168	130		546
	Total								143	186	277	135	150	200	270		1 361
Southern	Capital	0	4	5	4	13	19	44	90	158	128	47	104	57	94		678
	Recurrent[2]	n/a	n/a	n/a	n/a	n/a	n/a	n/a	29	24	57	57	52	89	85		393
	Total								119	182	185	104	156	146	179		1 071
Mahlangatsha	Capital	0	0	0	0	0	0	11	125	353	180	91	32	91	455		1 127
	Recurrent[2]	n/a	n/a	n/a	n/a	n/a	n/a	n/a	22	32	1	52	50	76	79		312
	Total								147	385	181	143	82	167	434		1 439
Central	Capital	0	0	2	13	20	24	15	57	149	123	107	120	13	137		706
	Recurrent[2]	n/a	n/a	n/a	n/a	n/a	n/a	n/a	29	36	53	54	47	113	108		440
	Total								86	185	176	161	167	126	245		1 146
Ngwempisi	Capital	0	0	0	0	0	0	0	0	32	256	230	224	9	174		924
	Recurrent	0	0	0	0	0	0	0	0	28	49	50	55	90	93		365
	Total								0	60	304	280	279	99	267		1 289
Maviwane/ Herefords	Capital	0	0	0	0	0	0	0	0	32	44	108	218	6	147		555
	Recurrent	0	0	0	0	0	0	0	0	27	12	15	37	22	68		181
	Total									59	56	123	255	28	215		736
Ebulandzini	Capital	0	0	0	0	0	0	0	0	0	0	19	85	4	153		261
	Recurrent	0	0	0	0	0	0	0	0	0	0	0	16	10	5		31
	Total								0			19	101	14	158		292
Madulini/ Mahlalini	Capital	0	0	0	0	0	0	0	0	41	49	79	119	3	53		344
	Recurrent	0	0	0	0	0	0	0	0	13	17	21	41	35	31		158
	Total								0	44	66	100	160	38	84		502
RDA Overheads	Capital	0	0	34	25	59	0	22	4	42	54	54	69	70	n/a		293
	Recurrent	n/a	n/a	n/a	n/a	n/a	n/a	n/a	34	21	80	88	49	129	429		829
	Total								38	63	134	142	118	199	429		1 122

Source: Swaziland Government Treasury Annual Reports and Department of Economic Planning and Statistics Files.

Note 1: For years 1971/72 and 1974/75 capital costs not available from Treasury Annual Reports, so ODA records used.

Note 2: Recurrent cost records not complete. Where possible, they have been apportioned on the basis of warrants issued to RDAs. Prior to 1976/77 it is not possible to breakdown recurrent costs to individual RDAs although a global figure exists.

Table 5.11. Reimbursement claims for UK funded RDAs (Emalangeni)

RDA	1970/71[1]	1971/72[1]	1972/73[1]	1973/74	1974/75	1975/76	1976/77	1977/78	1978/79	1979/80	1980/81	Total
Northern	1 887	17 169	9 888	20 562	18 439	60 504	56 336	123 162	116 700	61 500	95 000	581 147
Southern	3 977	4 634	3 747	- 1 553	19 486	40 792	88 203	121 678	117 180	35 669	40 000	463 764
Central	0	2 188	8 944	3 243	24 224	100 000	97 365	156 000	190 350	111 000	75 000	768 314
Mahlangatsha	0	0	0	0	0	68 550	127 176	210 000	187 705	0	50 000	643 431
Magiwane/ Hereforda	0	0	0	0	0	0	0	0	20 000	71 300	207 000	298 300
Madulini/ Mahlalini	0	0	0	0	0	0	0	0	20 000	112 540	200 000	332 540
Ngwempisi	0	0	0	0	0	0	0	20 000	188 226	206 600	170 000	584 826
Ebulandzeni	0	0	0	0	0	0	0	0	0	31 000	73 000	104 000
RDA Overheads	8 829	34 737	9 781	8 716	0	15 187	20 475	98 300	86 558	0	13 112	295 695
Total	14 693	58 728	32 360	30 968	62 099	275 033	391 555	729 140	926 719	629 609	923 112	4 074 016

Source: Department of Economic Planning and Statistics and ODA Files.

Note 1: Amounts for the three years, 1970/71 to 1972/73, have been converted from Sterling at an exchange rate of £1.0=E1.61.

Table 5.12. Allocated and approved UK funds for UK funded RDAs (Emalangeni unless otherwise stated)

RDA	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76	1976/77		1977/78	1978/79	1979/80	1980/81	Total[1]
	Allocated	Allocated	Allocated	Allocated	Allocated	Allocated including increases	Carry over from 1975/76.	Approved	Allocated for 1977/78 to 1980/81.				
Northern	£ 24 285	£ 21 587	£ 10 923	£ 5 823	38 941	20 564	(39 [illegible]	150 140	314 045	0	0	0	743 159
						21 891		89 346					
						57 445							
Southern	£ 19 793	£ 21 584	£ 18 706	£ 16 610	13 436	10 792	(36 [illegible]	120 350	205 970	0	0	0	572 844
						56 410		36 410					
Central	£ 27 115	£ 30 697	£ 29 337	£ 22 046	24 224	72 573	(22 573)	168 731	359 375	0	0	0	924 591
						86 942	(36 942)	36 942					
Mahlan-gatsha	0	0	0	0	0	35 110	(10 110)	10 110	328 680	0	0	0	417 450
						43 550							
Magiwane/ Herefords	0	0	0	0	0	0	0	72 455	236 980	0	0	0	309 435
Madulini/ Mahlalini	0	0	0	0	0	0	0	0	287 670	0	0	0	287 670
Ngwempisi	0	0	0	0	0	0	0	0	467 800	0	0	0	467 800
Ebulandzeni	0	0	0	0	0	0	0	0	0	0	[illegible]	0	[illegible]
RDA Overheads	£ 47 319	£ 42 547	£ 20 971	£ 14 017	[illegible]	7 187	[illegible]	2 000	166 140	0	0	0	341 713
						10 000		168 184					
Total	£118 512	£116 415	£ 79 937	£ 58 496	89 799	422 404		804 658	2 356 650	0	390 820		0 4 675 432
	(E190 804)	(E187 428)	(E128 699)	(E 94 173)									

Source: Department of Economic Planning Statistics and ODA Files.

Note 1: Sterling amounts have been converted at £1.0=E1.61.

5.3.5. Cessation of UK funding

The UK funding of the RDAP ended on 31st March 1981. This was before the full amount of E 6 077 420 sanctioned for the third phase of the UK-funded RDAs had been fully authorised or disbursed, although the full amount of E 3 462 146 which had been authorised for the period ending 31st March 1981 was all spent.

GOS had expected the UK to continue funding the RDAP for another triannum after the 31st March 1981 to utilise the remaining funds that had been sanctioned for the RDAP based on the project submissions of September 1976. A firm indication of the UK intention to stop funding was not given until the middle of 1981 but meanwhile GOS had gone ahead with plans. When it became known that the UK were not going to continue funding, GOS provided funds for the work that was regarded as being necessary to complete the eight UK-assisted RDAs. An analysis done by the RDAMU calculated that the value of these extra necessary works completed between 1981 and 1983 was E 2 001 155. From the end of the 1982/83 financial year only a small amount has been allocated from the GOS capital budget so the E 2,0 million can be considered to be the additional cost borne by GOS as a result of the withdrawal of UK funding.

5.4. SWAZILAND RDA INFRASTRUCTURE SUPPORT PROJECT (USAID)

5.4.1. Planned costs

The total costs planned for this project which was scheduled to run from 1978 to 1984 were US $ 30 089 000 made up of US $ 17 146 500 of USAID funds and the equivalent of US $ 12 942 600 of GOS funds. A summary of the planned costs is shown in Table 5.13.

5.4.2. Expenditure to date

USAID

As of the 31st March 1983, the total disbursement of USAID funds was US $ 10 641 million or 64 per cent of the appraisal total. Table 5.14. shows the details.

Details of the amounts disbursed each year and of the equivalent amounts in Emalangeni are not readily available.

Table 5.13. Swaziland RDA infrastructure support project (USAID)

	US $'000	
USAID		
Grant		
Technical Assistance	5 520,9	
Training	660,0	
Construction	435,0	
Commodities	140,6	
Mlilwane Wildlife Sanctuary Conservation works	390,3	
Loan		
Heavy Equipment	10 000,0	
		US $ 17 146,5
GOS		
Equipment Support	12 228,6	
Salaries and wages	460,0	
Other Project Support Costs	253,3	US $ 12 942,6
TOTAL		US $ 30 089,1

Source: USAID.

Table 5.14. USAID Disbursement on RDAP

Item	Appraisal Total US $	Total to 31/03/83 US $	Percentage of Appraisal
Technical Assistance	5 520 900	2 680 356	48
Training	660 000	153 681	23
Construction	435 000	465 018	107
Commodities	140 600	100 201	71
Heavy Equipment	10 000 000	7 241 341	72
Total	16 756 500	10 640 597	64

Source: USAID.

Table 5.15. The GOS's expenditure on RDA infrastructural support

Year	Amount (E '000)
1978/79	1 203
1979/80	1 879
1980/81	1 783
1981/82	3 143
1982/83	2 287
1983/84	2 300

Source: GOS Estimates and Treasury Annual Reports Estimates.

GOS

Actual expenditure from the capital budget by GOS on the LDS as their contribution to the programme is shown in Table 5.15.

Since 1978/79 when the programme began GOS has spent around E 10,0 million of capital expenditure on LDS. This is in addition to around E 150 000 currently spent each year from the recurrent budget on staff salaries and wages and overheads.

5.5. FINANCIAL ISSUES

5.5.1. Extent of the recurrent budget

Recurrent expenditure for the RDAP is included within the MOAC's annual estimates of recurrent expenditure published by the GOS. A schedule of the MOAC's recurrent expenditure estimates and actual expenditure for the period 1974/75 (when the RDAP was first shown separately) to 1983/84 is presented in Table 5.16.

The MOAC acquired the additional responsibility for research in 1979/80 when this Division was transferred from the control of the University, and of Co-operative Development and Marketing in 1980/81 from the Ministry of Commerce and Co-operatives. The addition of these two divisions has inflated the total budget for MOAC. The Rural Development Areas section also includes recurrent expenditure for settlement areas (e.g. the Chinese Schemes), and in 1982/83 the settlement schemes accounted for E 52 000 or 5 per cent of the RDAs recurrent budget of E 1 535 000. In earlier years it was more: for example, in 1978/79 it was 28 per cent. To assess the impact of the RDAP on the MOAC's recurrent budget and of MOAC's budget on GOS's total appropriated expenditure or recurrent budget, a comparison has been compiled as shown in Table 5.17. The RDAP recurrent budget did not include the cost of the Land Development Section which is shown separately in the MOAC's recurrent budget.

To enable a more valid comparison "Research" and "Co-ops and Marketing" have been deleted from the MOAC's recurrent budget figures shown in Table 5.16., because they do not occur throughout the time series. MOAC's recurrent budget estimates expressed as a percentage of GOS total appropriated recurrent expenditure estimates has remained consistent at around 9 per cent since 1969/70. This means that MOAC expenditure has not expanded more rapidly than GOS recurrent expenditure as a whole. A similar analysis of actual expenditure confirms this.

Table 5.16 MOAC recurrent expenditure estimates and actual (1974/5 - 1983/4) (E'000)

Department	1974/75		1975/76		1976/77		1977/78		1978/79		1979/80		1980/81		1981/82		1982/83		1983/84	
	Est'd	Act'l	Est'd	Act'l	Est'd	Act'l	Est'd	Act'l	Est'd	Act'l	Est'd	Act'l	Est'd	Act'l	Est'd	Act'l	Est'd	Act'l	Est'd	Act'l
Minister		31	31	25	32	40	43	32	45	43	70	63	76	90	81	98	93	n/a	90	n/a
Ministry Admin.	93	211	218	221	271	349	484	488	585	441	837	840	1 230	1 [illegible]	1 [illegible]	1 [illegible]	1 [illegible]	n/a	1 [illegible]	n/a
Livestock	969	1 016	1 [illegible]	1 [illegible]	1 [illegible]	1 [illegible]	1 [illegible]	1 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	n/a	[illegible]	n/a
Crops	374	391	443	480	514	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	n/a	[illegible]	n/a
Fisheries	12	11	28	22	40	30	62	44	88	70	86	74	93	77	94	82	111	n/a	115	n/a
Forestry	33	20	32	26	31	31	38	38	47	44	108	53	121	119	136	131	165	n/a	214	n/a
Rural Devel.[1] Areas	152	164	172	223	213	243	276	356	452	462	517	708	640	865	[illegible]	823	1 073	[illegible]	[illegible]	[illegible]
Lands	156	130	199	124	216	168	271	224	272	279	381	293	529	541	512	555	383	n/a	435	n/a
Research[2]	-	6	0	0	0	0	0	0	0	354	601	442	648	538	722	594	762	n/a	841	n/a
Home Economics	63	45	75	68	92	92	122	98	144	144	209	158	232	178	231	222	254	n/a	41	n/a
Economic Planning	47	44	47	41	64	45	104	72	76	41	79	69	96	65	105	88	132	n/a	117	n/a
Co-ops & Marketing[3]	0	0	0	0	0	0	0	0	0	0	0	0	257	235	347	278	405	n/a	444	n/a
Total	2 059	2 063	2 292	2 548	2 647	3 083	4 077	3 882	4 898	5 232	6 256	6 150	7 996	7 926	8 913	8 912	10 147	n/a	10 733	n/a

Source: GOS Annual Estimates and Treasury Annual Reports

Note 1: Also includes Settlement Areas.

2: Research transferred to MOAC in 1979/80 from University College of Swaziland.

3: Co-ops and Marketing transferred to MOAC from Ministry of Commerce and Co-ops in 1980/81.

Table 5.17 Effect of RDAs on MOAC and GOS recurrent budget (E'000)

Year	GOS Total Appropriated Expenditure		MOAC[1] Recurrent Expenditure		MOAC As a Percentage of GOS Total Appr'-ted Expenditure		RDA Recurrent Expenditure		RDA As a Percentage of MOAC Recurrent Expenditure	
	Est'd	Act'l	Est'd	Act'l	Est'd	Act'l	Est'd	Act'l	Est'd	Act'l
1969/70	14 676	14 516	1 312	1 556	8,9	10,7	n/a	n/a	n/a	n/a
1970/71	15 164	15 116	1 348	1 586	8,9	10,5	n/a	n/a	n/a	n/a
1971/72	16 505	17 393	1 537	1 531	9,3	8,8	n/a	n/a	n/a	n/a
1972/73	18 316	n/a	1 321	1 477	7,2	n/a	n/a	n/a	n/a	n/a
1973/74	20 929	n/a	1 659	1 770	7,9	n/a	n/a	n/a	n/a	n/a
1974/75	n/a	n/a	2 059	2 063	n/a	n/a	152	164	7,4	7,9
1975/76	n/a	28 242	2 292	2 548	n/a	9,0	172	223	7,5	8,8
1976/77	30 180	n/a	2 657	3 083	8,8	n/a	212	243	8,0	7,9
1977/78	39 252	n/a	4 077	3 883	10,4	n/a	276	350	6,8	9,0
1978/79	47 815	51 600	4 898	4 878	10,2	9,5	452	462	9,2	9,5
1979/80	58 142	58 965	5 655	5 708	9,7	9,7	517	708	9,1	12,4
1980/81	72 113	74 554	7 091	7 234	9,8	9,7	640	865	9,0	12,0
1981/82	83 328	87 216	7 844	8 035	9,4	9,2	662	829	8,4	10,3
1982/83	110 460	n/a	8 985	n/a	8,1	n/a	1 073	797	11,9	n/a
1983/84	105 094	n/a	9 543	n/a	9,1	n/a	1 535	n/a	16,1	n/a
1984/85	n/a	n/a	n/a	n/a	n/a	n/a	2 017	n/a	n/a	n/a

Source: GOS Annual Estimates of Recurrent Expenditure, and Treasury Annual Reports

Note 1: For consistency, Research and Co-ops and Marketing have been deleted from the numbers in Table 5.16

On the other hand the RDAP recurrent budget (including the settlement schemes) has, as a percentage of the MOAC recurrent budget, expanded quite rapidly from 7,4 per cent in 1974/75 when the RDAs were first itemised separately. to 16,1 per cent in 1983/84. The big increase in RDA recurrent expenditure from 1982/83 to 1983/84 was mostly due to the completion of donor funding in the RDAP, which meant that many items that were previously financed under the capital budget were transferred to the recurrent budget. Before 1983/84 the recurrent expenditure estimates related entirely to the UK-funded RDAs and all multi-donor funded RDAs expenditure was included in the capital budget.

Capital expenditure financed by donor aid also included operating costs such as vehicle running costs, salaries and wages, etc., which are really recurrent operating costs and have been, or will have to be, transferred to the GOS recurrent budget at the completion of donor funding.

For 1984/85 when the GOS may have to bear the entire cost of the RDAP, the recurrent budget estimate is E 2,017 million. This means that in two years the recurrent budget estimates for RDAP have doubled from one million to two million and even this will not cover all items of operating costs previously financed under capital. The impact of this increase would have been eased if these additional recurrent costs had been phased into GOS's recurrent budget more gradually during the programme. We understand that a proposal to this effect was made by the RDAMU, but was rejected by the Department of Economic Planning and Statistics, probably on the grounds that as aid funds were available anyway, there was no need to burden GOS. The programme plan could have included a gradual transfer of operating costs to the GOS; a procedure that has been used in rural development programmes elsewhere.

5.5.2. Breakdown of RDAP operating costs

A breakdown of the RDAP recurrent expenditure, from 1977/78 (when the RDAP figures were first broken down) to 1984/85 as shown in the GOS annual estimates is shown in Table 5.18.

Prior to 1982/83, expenditure on recurrent costs related entirely to the UK-funded RDAs as the operating costs for the multi-donor funded RDAs were financed out of the capital budget. These have been analysed separately and are shown in Table 5.19. A combined summary of the operating costs for the whole RDAP unit 1984/85 based on the recurrent costs for the UK-funded RDAs and the capital funded operating costs for the multi-donor funded RDAs is shown in Table 5.20. From 1983/84 all of the RDAP operating costs will be financed from the recurrent budget.

Table 5.18. Breakdown of RDAP recurrent estimates (E'000)

Year	Treasury control items							
	01 Personnel	02 Transport	04 Services	05 Consumables	07 Durables	10 Transfers Internal	11 Transfers External	TOTAL
1977/78	159	52	2	2	0	60	0	276
1978/79	290	89	2	4	1	66	0	452
1979/80	367	72	4	6	2	66	0	517
1980/81	493	64	7	8	2	0	66	640
1981/82	480	85	9	20	2	66	0	662
1982/83(2)	784	192	13	18	0	66	0	1 073
1983/84	1 274	227	11	22	1	0	0	1 535
1984/85	1 606	279	33	99	0	0	0	2 017

Source: GOS estimates.

Notes:
1. These figures also include the recurrent costs for settlement schemes, 2 per cent of total costs in 1984/85.
2. Estimates prior to 1982/83 related entirely to the UK-funded RDAs.

Table 5.19 . Breakdown of multi-donor funded RDA operating costs (E'000)

Year	Wages and Salaries	Vehicle Operating	Other (Consumables)	TOTAL
1977/78	32	2	0	34
1978/79	50	142	9	201
1979/80	294	209	69	572
1980/81	480	265	53	798
1981/82	653	345	34	1 032
1982/83	771	421	226	1 458

Source: Annex G.

Table 5.20 . Summary RDAP operating costs (E'000)

Year	Personnel Costs	Transport	Other (Consumables)	Transfers	TOTAL
1977/78	191	54	4	60	309
1978/79	340	231	16	66	653
1979/80	661	281	81	66	1 089
1980/81	973	329	70	66	1 438
1981/82	1 133	430	65	66	1 694
1982/83	1 555	613	297	66	2 531
1983/84	1 274	227	34	0	1 535
1984/85	1 606	279	132	0	2 017

Source: Table 5.18 and Table 5.19 .

Several items of operating costs in the multi-donor funded RDAs which were included in the programme and paid for out of capital funds have been dropped from the recurrent estimates for the whole RDAP as from 1982/83. These are salaries and vehicle operating costs for agricultural credit, and ambulance operating costs and medical supplies for the social infrastructure component. The responsibility for these items have been handed back to the respective Ministry or Department.

The summary table for the operating costs of the whole RDAP shows that until the 1983/84 financial year, when all RDAP operating costs came under the recurrent budget, personnel costs for salaries and wages made up around 65 per cent of operating costs; transport 25 per cent and the remainder including maintenance was under 'others.' From 1983/84 it is estimated that personnel costs will take up at least 80 per cent and vehicle running costs 15 per cent.

The total allocation has been cut back from E 2,5 million in 1982/83 to around E 2,0 million 1984/85. This reduction has mainly been at the expense of the 'other' items such as materials and maintenance, and including those components no longer funded under the RDAP recurrent budget mentioned earlier.

It is likely that the amount allocated in the recurrent budget for the maintenance of the physical infrastructure implemented by the RDAP (buildings, roads etc) is less than is actually needed to maintain these components satisfactorily. The first priority has been to allocate funds to pay wages and salaries and transport costs.

5.5.3. Summary of total RDAP expenditure

Total expenditure on the RDAP including the associated USAID project for the period 1976/77-1982/83 is summarised in Table 5.21. This summary has been compiled from several different sources, and for some items (particularly the records of UK-funded RDAs) it has not been possible to reconcile different figures from alternative sources for the same item.

Total expenditure on the RDAP since 1976/77 has been around E 45,0 million and of this the GOS has contributed a total of about E 22,0 million of capital and recurrent (or almost 50 per cent) while the remaining E 23,0 million has been funded from aid funds of which USAID contributed almost half. In 1982/83 the GOS contributed E 5,134 million of which E 2,437 million was spent on LDS and E 2,697 million on RDAs.

This highlights the imbalance in the demands on the GOS finance in that the LDS, which is only one component of the RDAP, takes almost half the funds.

Table 5.21 Summary of Total Expenditure on RDAU, 1976/78 - 1982/84.

	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83	TOTAL
1. UK-funded RDAs								
Capital - GOS	0	162	333	74	138	285	1 252	2 244
- UK	387[1]	682	720	737	923	0	0	3 449
Total Capital	387	844	1 053	811	1 061	285	1 252	5 693
Recurrent - GOS	146	226	377	396	407	786	624	2 957
Sub Total	533	1 070	1 430	1 207	1 468	1 066	1 876	8 650
2. Multi-Donor funded RDAs								
Capital - GOS	0	14	157	500	952	739	682	3 044
- Donors	0	175	602	977	1 246	2 457	3 732	9 189
Total Capital	0	189	759	1 477	2 198	3 196	4 414	12 233
Recurrent - GOS	0	0	0	0	0	0	139	139
Sub Total	0	189	759	1 477	2 198	3 196	4 553	12 372
3. RDA Infrastucture Support (USAID)								
Capital - GOS	1 135	1 093	1 203	1 879	1 783	3 143	2 287	12 523
- USAID[2]							10 640	10 640
Total Capital	1 135	1 093	1 203	1 879	1 783	3 143	12 927	23 163
Recurrent - GOS[3]	62	85	100	110	220	200	150	927
Sub Total	1 197	1 178	1 303	1 989	2 003	3 343	13 077	24 090
Summary								
Total Capital Expenditure								
- by GOS	1 135	1 269	1 693	2 453	2 873	4 167	4 221	17 811
- by Donors	387	857	1 322	1 714	2 169	2 457	14 372	23 278
Total Recurrent -GOS	208	311	477	506	627	981	913	4 023
GRAND TOTAL	1 730	2 437	3 492	4 673	5 669	7 605	19 506	45 112

Source: GOS Estimates, Treasury Annual Reports, RDAMU, USAID.

Notes:
1. Actual UK reimbursements was £ 684 000 and included earlier years. Figure included to balance expenditure.
2. Yearly USAID disbursements not available. The number is the total to 31st March 1983 in US dollars.
3. Estimates of UK share of Lands Recurrent Budget.

This is further exemplified by the fact that during 1982/83 the Forestry Section in MOAC received a capital allocation of only E 25 000.

GOS's commitment to maintain the RDAP in the immediate future will be in the order of E 5,0 million per year made up of E 2,0 million for the recurrent costs of the RDAs, and at least E 2,5 million for the capital and recurrent costs of the LDS. There is clearly a strong case for reducing the scale of LDS operations and making savings in the budget.

5.5.4. Covenants

Several covenants regarding the financial management of the project were included in the agreement between the GOS and the donors and were noted in the Appraisal Report as:

Point (c) related to financial management and stated that separate accounts for the project would be maintained by MOAC and SDSB and that these would be audited annually be independent auditors selected by GOS and acceptable to IBRD. Audited accounts would be submitted to IBRD within six months of the close of the financial year. These conditions were all complied with, separate accounts were kept by RDAMU. The donors accepted that the Swazi Government auditors would audit the accounts and the RDAP accounts were submitted on time.

Point (o) said that GOS would consult with IBRD at least once a year on the level of charges for project vehicles and equipment, and on its vehicles and equipment renewal policy. This level of consultation has not taken place although IBRD did express concern about the replacement of vehicles and the poor maintenance service provided by CTA.

Point (q) said the GOS would consult with IBRD at least once a year on policies for recovery from beneficiaries of operating and maintenance costs for project installations, and broad policies for maximising financial participation by farmers in future rural development programmes.

Formal consultations did not take place. However, the principal of contribution by beneficiaries is recognised by GOS as being an important aspect of any future rural development work.

5.5.5. Future RDA programmes

Requirement to complete multi-donor funded RDAs

We have estimated that the cost of completing all the outstanding planned

physical development work remaining in the multi-donor funded RDAs irrespective of whether it should be done or not (for technical or other reasons) would be in the order of E 3,5 million. This estimate is based on the level of achievements noted in Table 3.2. and estimates of 1982/83 unit costs which are generally assumed to have doubled since 1976/77. The major items outstanding are terracing which could cost E 0,75 million to complete, and road construction and improvement (E 1,0 million). Similarly, to complete the RDAs formerly funded by the UK has been estimated to cost around E 6,5 million. Major items outstanding are terracing and soil conservation E 3,0 million and road construction E 1,0 million.

Requirement to complete necessary work

The requirement to complete only outstanding work deemed to be necessary based on the reasoning in Chapter Four (i.e. excluding physical works considered to be unnecessary or inappropriate), is estimated to cost E 2,3 million. the major items excluded are terracing, pasture improvements and artificial water-ways. These estimates do not include any of the operating costs of the RDAP, just the capital costs.

Cost of expanding RDAP to all SNL

The cost of expanding the RDAP to all of SNL has been estimated based on the actual costs of the multi-donor funded RDAs. The results of a simple analysis of the cost per hectare and per homestead of the multi-donor maximum- and minimum-input RDAs, in 1982/83 constant prices and including the estimated E 2,3 million extra for completing outstanding work considered worthwhile, but excluding the RDAMU costs, is shown as follows:-

Multi-donor funded RDAs per homestead (1982/83 prices)

	Total Cost (E m)	Area (ha)	Number of homesteads	Cost/ ha (E)	Cost/ homestead (E)
Maximum input	8,31	118 400	6 280	70	1 325
Minimum input	5,08	230 580	10 500	22	485

There are an estimated 19 000 homesteads remaining that are outside the present RDAs on SNL. A simple approximation of the cost of extending the

maximum-input concept of rural development, based on the above cost per homestead is E 25,0 million. This does not include the cost of upgrading the present minimum-input areas to maximum-input which, on the basis of the above figures, could cost an additional E 8,8 million in 1982/83 prices.

Alternatively, to expanded the minimum-input concept to the remaining non-RDA could cost around E 9,0 million. Obviously these estimates are very crude but they do serve to indicate the magnitude of the programme if it was considered.

5.5.6. Funds remaining

The remaining funds from the 1977/78 to 1982/83 phase of the multi-donor funded RDAs as of 31st March 1983 are summarised in the statement of funds in Table 5.22.

The remaining funds are not sufficient to complete the outstanding work. The ADB loan agreement is due to end as originally planned in December 1983 and the balance remaining will be used to finance their components until then. The IBRD loan has been extended until November 1983 but the remaining funds are only available to fund consultancies. EDF has no closing date while funds remain unspent. Their remaining funds are committed to the finance of the Certificate Training Course and technical assistance. The remaining GOS finance will be used to contribute to the ongoing components of the programme.

The UK withdrew from the funding of the RDAP in March 1981 before all their sanctioned funds had been used and we know of no plans to continue their contribution.

5.5.7. Debt servicing for multi-donor funded RDAs

The GOS's commitment in the foreseeable future until 1987/88 for servicing the debt with the main donors (ADB and IBRD) for the multi-donor funded RDAs has been estimated and is shown in Table 5.23. The actual draw down of the loans including the EDF grant funds is also shown although the EDF funds do not have to be repaid. The projected total annual cost of servicing the debt based on current conversion rates of the loan currencies with Emalangeni is estimated to be almost E 1,2 million 1983/84 and at least E 1,0 million per year until 1987/88. This assumes that the available funds of the ADB loan of UA 4,5 million will be used fully but that only US $ 2,96 million of the available World Bank loan us US $ 4,0 million will be used. Total debt servicing will decrease slightly each year from 1983/84 but will still be over E 0,7 million each year until 1997 when the loans should be fully paid off. The actual amounts will depend on the exchange rates of Emalangeni with the loan currencies.

Table 5.22. Multi-donor funded RDAP Statement of Funds as at 31st March 19

Africa Development Bank	(AUA)	(E)
Loan No. CS/SWZ/AGR77-006	4 500 000	4 653 520
Loan drawn	4 344 300	4 499 464
Balance available	155 700	161 056

European Development Fund	(EUA)	(E)
Financial Agreement 2082 SWA	2 620 000	2 620 000
Grant drawn	2 280 050	2 280 050
Balance available	339 950	339 950

World Bank	(US $)	(E)
Loan No. 1375 SW	4 000 000	3 478 260
Loan drawn	2 773 754	2 579 920
Balance available	1 226 246	895 340

Government of Swaziland	(E)
Counterpart funds	3 769 220
Amount spent	2 771 459
Balance	997 761

Summary	(E)
Total loans, grants etc [1]	14 521 000
Expenditure	12 123 893
Balance available	2 397 107

Source: RDA Management Unit.

Note 1: Not including UK or farmers' contributions.

Table 5.23. Debt servicing of Multi-donor funded RDAs

		('000)										
		1977/78	1978/79	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88
African Development Bank[1]												
Loan draw down	UA	0	[illegible]	[illegible]	461	1 [illegible]	194	2 143				
Servicing costs												
Commitment fee	UA	0	34	67	29	[illegible]	17	8				
Interest	UA	0	1	19	53	144	181	244				
Amortised, 15 years	UA	0						2[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
World Bank[2]												
Loan draw down	US $	42	131	51[illegible]	[illegible]	5[illegible]	82[illegible]	17[illegible]				
Commitment fee	US $	0	38	[illegible]	21	17	12	6				
Interest	US $	2	32	42	104	145	191	211	200	184	168	152
Principal repayment	US $						258	258	188	188	188	188
EDF												
Grant draw down	ECU	139	191	164	29[illegible]	280	789	n/a				
Total debt servicing (Emalangeni)												
ADB		0	39	48	82	179	247	660	650	666	650	650
World Bank		2	43	70	94	142	494	534	437	419	301	183
Total		2	82	118	18[illegible]	341	741	1 194	1 087	1 069	1 051	1 033

Source: Ministry of Finance and Consultants' estimates.

Loan Condition: ADB - Commitment fee on undrawn balance 0,75%, [illegible]% interest plus 1% statutory fee. Loan amortised over a twenty year repayment period including five years grace.

IBRD - Commitment fee on undrawn balance 0,75%, 8,5% interest. Repayment over twenty years including a five year grace period.

Repayment of the USAID loan of US $ 10,0 million will begin in 1988 after the ten year grace period and amount to US $ 330 000 each year. Interest charges at two per cent of the loan outstanding will amount to an additional US $ 200 000 per year initially.

5.5.8. Revenue to the GOS from multi-donor funded RDAs

The main source of direct revenue to the GOS as a result of the multi-donor funded RDAs is from the refunded customs duties and compensation payment on the imported components of expenditure, net of the same lost revenue because of import substitution; and tax receipts from the salaries and wages payroll of personnel directly employed by the project. Revenue could also accrue from the direct contribution by the beneficiaries towards the capital or operating costs of project components and indirectly through the increase in consumption of imported consumer goods on which the GOS collects duty brought about by the increase in disposable income of the beneficiaries and the effect of the multiplier. A summary of the estimate of direct revenue accruing to the GOS is shown in Table 5.24.

We have only attempted to quantify net revenue from the Customs Union common pool and income tax from the RDAP payroll. Customs revenue has been assumed to be 26 per cent of the cost of imports inclusive of duties less revenue foregone because of import substitution through incremental maize production. The imported goods content of RDAP expenditure has been calculated based on the percentages used in the Appraisal Report, as explained in Chapter 7 (Economic Analysis) of this Report.

The increase in GOS tax revenue has been based on an inspection of RDA payrolls during 1983 where income tax averaged seven per cent of gross pay. This same percentage has been applied to all expenditure on salaries and wages in the multi-donor funded RDAs as actual information on the tax take for each year is not readily available. The cost of labour embodied in physical construction costs (such as houses built by PWD) has not been included.

We have estimated that the GOS would have received a maximum net revenue of E 670 000 in Year 6 when project expenditure peaked but that from Year 10 on the net revenue flow would be negative by about E 25 000 because the loss of revenue through the import substitution of incremental maize production negates any increased revenue from income tax and extra customs revenue.

A comparison of the direct net revenue stream with the financial cost of servicing the multi-donor funded RDA debt as discussed in Section 5.5.7. shows that the GOS is likely to have had a positive direct revenue for the first six years until 1982/83 but this will become negative (about E 1,0 million per year) after 1983/84, when the grace periods on the loans have expired.

Table 5.24. Summary of revenue to the GOS from the multi-donor funded RDAs

Item	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89
						(E'000)						
1. Customs revenue and compensation from Customs Union from [5]												
- project exp. foreign costs [1]	14	134	211	284	437	570	715 [3]	715	715	715	715	715
- incremental crop inputs [2]			17	30	42	54	68	68	68	68	68	68
- maize import substitution			- 24	- 96	-113	-111	-147	-163	-183	-203	-209	-217
Net gain/loss	14	134	203	218	366	511	- 18	- 29	- 47	- 60	- 66	- 74
2. Income tax revenue:												
RDA payroll [4]	80	78	246	323	530	686	715	715	715	715	715	715
Income tax (3%)	2	6	17	24	41	48	50	50	50	50	50	50
TOTAL	16	138	220	285	413	659	32	21	5	- 10	- 16	- 24

Source: Consultants' estimates.

Notes 1: Foreign cost percentages taken from Appraisal Report and used to adjust actual costs.

2: Cost of incremental crop inputs and value of maize production taken from economic analysis.

3: Operating costs from 1983/84 assumed to be E 0.9 million per year.

4: Cost of salaries and wages from RDA cost records. Does not include labour embodied in construction costs.

5: Customs duties and compensation taken as 26% of duty inclusive value of imports.

CHAPTER 6 INSTITUTIONAL PERFORMANCE AND DEVELOPMENT

6.1. INTRODUCTION

The objective of this chapter is to assess the effectiveness of the institutions involved in the RDAP, to identify their achievements and constraints, and to suggest remedial measures. We have reviewed the institutional issues in project formulation, and whether recommended changes were made, including staffing, training and the use of counterparts. Institutions are described in more detail in Annex B, Annex D (Department of Veterinary Services), Annex E (Land Development Section, Land Use Planning Section, Tractor Hire Pool), and Annex F (Community and Social Services in the MOAC).

The IBRD Appraisal Report concentrated its attention in respect of institutions on: the traditional institutions (particularly the Central Rural Development Board), the Ministry of Agriculture, and credit institutions. In addition to these institutions, we have considered the co-operatives which have had an important role in the RDAP, and will be increasingly important in the future.

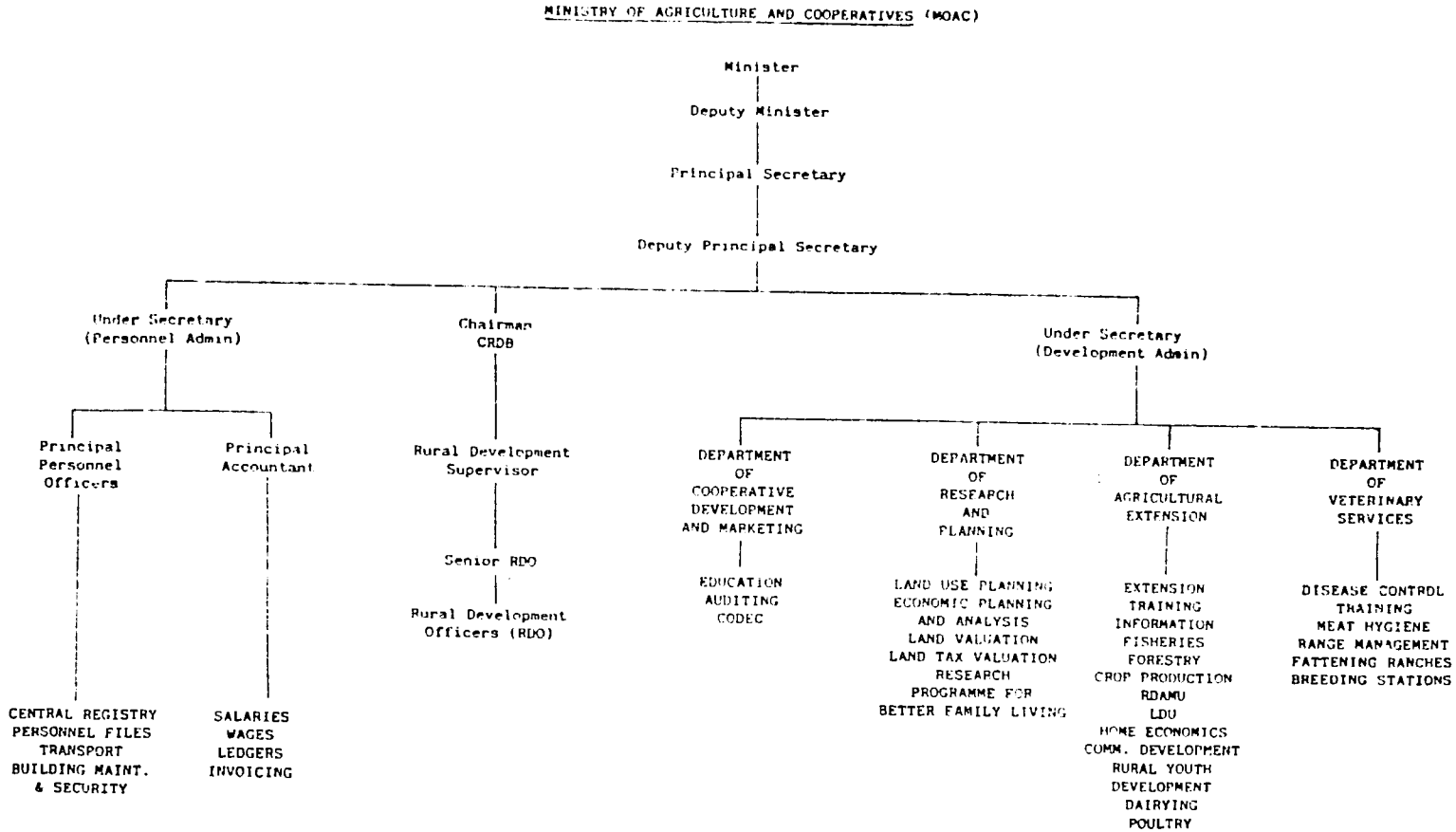
The Appraisal Report assumed that the Ministry of Agriculture would co-ordinate project implementation, relying on existing staff and institutions (e.g. SDSB and CCU). The use of the MOAC as the main implementing agency had been thoroughly discussed with the GOS. The project was to be administered by a new Management Unit (RDAMU), and an Inter-Ministerial Committee was to assist co-ordination with other Ministries and institutions. The management of the RDAP, and the subject of co-ordination are also discussed in this chapter.

6.2. THE MINISTRY OF AGRICULTURE AND CO-OPERATIVES (MOAC)

At the time of the Appraisal Report (1977), the MOAC comprised only two departments (Agriculture and Veterinary Services), with other sections reporting directly to the Permanent Secretary. Re-organisation of the Ministry was under consideration, and subsequently took place. The Appraisal Report made few observations about the Ministry, but noted the neglect of animal production work, and lack of training of extension staff.

The present structure of the Ministry of Agriculture and Co-operatives is illustrated in Figure 6.1. The main change since project appraisal has been the addition of two new departments. Responsibility for co-operatives (the Department of Co-operative Development and Marketing) came from the Ministry of Commerce and Co-operatives in 1977. The Department of Research and Planning was created from the separate sections of Land Planning, Land Valuation, and Economics, and from the Research Division, which had been with the University College of Swaziland from 1971 to 1978.

Figure 6.1.


MINISTRY OF AGRICULTURE AND COOPERATIVES (MOAC)
Minister
Deputy Minister
Principal Secretary
Deputy Principal Secretary
Under Secretary (Personnel Admin)
Chairman CRDB
Under Secretary (Development Admin)
Principal Personnel Officers
Principal Accountant
Rural Development Supervisor
Senior RDO
Rural Development Officers (RDO)
DEPARTMENT OF COOPERATIVE DEVELOPMENT AND MARKETING
DEPARTMENT OF RESEARCH AND PLANNING
DEPARTMENT OF AGRICULTURAL EXTENSION
DEPARTMENT OF VETERINARY SERVICES
CENTRAL REGISTRY
PERSONNEL FILES
TRANSPORT
BUILDING MAINT. & SECURITY
SALARIES
WAGES
LEDGERS
INVOICING
EDUCATION
AUDITING
CODEC
LAND USE PLANNING
ECONOMIC PLANNING AND ANALYSIS
LAND VALUATION
LAND TAX VALUATION
RESEARCH
PROGRAMME FOR BETTER FAMILY LIVING
EXTENSION
TRAINING
INFORMATION
FISHERIES
FORESTRY
CROP PRODUCTION
RDAMU
LDU
HOME ECONOMICS
COMM. DEVELOPMENT
RURAL YOUTH DEVELOPMENT
DAIRYING
POULTRY
DISEASE CONTROL
TRAINING
MEAT HYGIENE
RANGE MANAGEMENT
FATTENING RANCHES
BREEDING STATIONS

A major organisational change that has occurred during the life of the project has been the unification of the extension service. This followed intensive discussion within the MOAC and became effective with the Permanent Secretary's Directive No. 1. of 1982 (25th June 1982) which stated that all extension matters (crops and livestock) would fall under the Director of Agricultural Extension, either directly or through the Senior Agricultural Officer (SAO) Extension. It also stated that Senior Extension Officers (SEO) at district level would be responsible for extension staff in RDAs and non-RDAs. The Senior Field Liaison Officer (SFLO) and Field Liaison Officer (FLO), expatriates provided under technical assistance with EDF funds, were to operate under, and have offices close to, the SAO (Extension).

Suggestions for change are given in Chapter 9, section 9.3.2, based on detailed considerations of components of the MOAC in subsequent sections. However, at this stage we can point out the scope for rationalising the large number of sections, particularly in the Department of Agriculture.

6.3. PROJECT MANAGEMENT : THE RDA MANAGEMENT UNIT (RDAMU)

Functions

The Appraisal Report envisaged that the new RDAMU (in the Department of Agriculture) would have a dual role:

a) to plan and implement directly, through sections of the MOAC, several project components notably: agricultural extension, land development, and livestock development;

b) to mobilise and co-ordinate activities of other units, both within the MOAC and in other Ministries, notably: land use planning, inputs and marketing, credit and social infrastructure;

It was also envisaged that the RDAMU would supervise all agricultural staff working in RDAs. In fact, the RDAMU was expected to develop effective field extension services in each RDA, building on existing services, but expanding and diversifying them to permit more frequent and focussed contact with farmers.

Monitoring and evaluation was not to be a specific function of the RDAMU, but was proposed as the responsibility of the Economics Section in the MOAC.

Staffing

The Appraisal Report envisaged that the RDAMU would include a Chief Project Co-ordinator (CPC), Deputy Project Co-ordinator, Financial Controller, Senior RDAs Manager, and appropriate supporting staff. Project funding provided for the CPC, Financial Controller, and Senior RDAs Manager to be expatriates for five years. Provision was also made for two expatriate crop and livestock specialists.

The CPCs were initially expatriates, but a Swazi (who had previously been Deputy Project Co-ordinator) became CPC in March 1981. The Appraisal Report envisaged that the Deputy Project Co-ordinator would be a Swazi, but from January 1981 to March 1982 the position was occupied by an expatriate, and subsequently the poast has not been filled. The effective deputy is the Senior Agricultural Officer.

At the time of this review, the only expatriate remaining is the Financial Controller, who has a Swazi counterpart. The Senior Field Liaison Officer and Field Liaison Officer now report directly to the SAO (Extension), and are therefore not part of the RDAMU.

The maximum-input RDAs are managed by Project Managers (PMs), mostly diplomates (one graduate). In the UK-funded RDAs some of the PMs were expatriates but were gradually replaced by Swazis, the last in January 1981. Each minimum-RDA is managed by an Extension Officer-in-charge.

Management

It is evident from the project submissions that the donors intended the RDAMU to be a cohesive and effective management unit to plan and implement the RDAP. In fact, it has no planning capability, because the Land Use Planning Section and the Economic Planning and Analysis Section are part of another department (Research and Planning). Likewise, the RDAMU implementation capacity has been limited mainly to building work, because the Land Development Section is separate. Thus in practice, the RDAMU mostly mobilises and co-ordinates, functions reflected in the title of the head of the Unit - Chief Project Co-ordinator. Nevertheless, the creation of this separate unit was justified, and its continuation is recommended in Chapter 9.

In view of the inevitable reliance of the RDAMU on other sections of the MOAC, it would have been more effective if it had been housed in the main MOAC offices. We understand that this was not possible, but the physical separation must have made coordination more difficult.

It would seem that there has been a tendency for the RDAMU in general, and the project managers in particular, to concentrate on managing the implementation of infrastructure, possibly at the expense of 'agricultural activities.'

The MOAC has been aware of this problem, but feels that the infrastructural work has been necessary and valuable and has given staff a respect and status in rural areas.

Our impression is that the RDAMU has generally been well managed, within its rather restricted 'mobilise' and 'co-ordinate' functions. This has probably not caused many difficulties with activities within the MOAC, but liaison with other Ministries and institutions cannot have been easy without strong formal contacts.

The PMs have had a great deal of autonomy and responsibility for infrastructure components outside their training and experience, but the implementation achievement showed that this was not a serious problem. An advantage was that the PMs became closely involved with local communities.

The financial records of the project have been excellent, and the financial management generally appropriate. An improvement in planning would have been greater discretion in allocating funds to individual RDAs which is now happening.

Records of physical infrastructure have not been adequate throughout the life of the project, but could very easily be improved.

6.4. THE EXTENSION SERVICE (IN THE DEPARTMENT OF AGRICULTURE)

Introduction

Extension was a key component of the RDAP. It was to be the most important means of increasing crop and livestock production. The main items of funding for this component concerned: offices and staff housing, vehicles and incremental salaries, which have accounted for about 50 per cent of project costs so far.

The structure of the Extension Service as illustrated in the Appraisal Report was unclear and did not reflect the division which developed between RDAs and non-RDAs (Annex B). The relationship of extension staff in RDAs to district SEOs should have been clarified in the Appraisal Report, and discussion at that stage might have prevented the division that subsequently had to be corrected by the Principal Secretary's directive.

Functions

Extension workers should seek to make improvements by giving people new ideas, motives and knowledge, and by organising them or assisting them to achieve improvements. This normally entails transmitting information emerging from the research programmes, and from innovative farmers, and assisting farmers to adopt improved methods and materials.

Extension workers have assisted farmers in communal self-help projects, which have often been of a non-agricultural nature. This has made an important contribution to their acceptance by the local communities. It is sometimes argued that it increases their credibility and status, and hence acceptance of their advice. Although this may be true, it is important that extension messages should be appropriate and acceptable in their own right.

Staffing

In terms of the Permanent Secretary's Directive of 1982 all extension staff (crops and livestock) are under the Director of Agriculture; the specific responsibility of the SAO (Extension). Each of the four districts has a Senior Extension Officer (SEO); the sub-districts have Extension Officers or Assistant Extension Officers in charge. The RDAs have ECs under project managers, or in charge of minimum-input RDAs. The lowest level of extension worker is the Field Officer (FO), who may be a specialist or a generalist. The AEOs and FOs are often categorised together as Extension Worker Specialists (EWSp) or Extension Worker Generalists (EWg). The former are found mainly in the maximum-input RDAs, although they also work outside RDAs. Staffing is described in more detail in Annex B, including the build-up of trained staff, which doubled in numbers between 1979 and 1982.

The present extension staffing in the RDAP is given in the 1982 RDAP Annual Report as:

16	Extension Officers
73	Extension workers (specialists)
112	Extension workers (generalists)
201	Total

For 26 566 homesteads, the ratio in 1982 was one Extension worker (Field Officer) for 145 homesteads compared with 1:175 in 1979. If the specialists are excluded, because they also work outside the RDAs and confine their advice to specific (often small) groups of farmers, the ratio is one Extension worker (generalist) to 237 homesteads. This ratio varies from one RDA to another (RDAP Annual Report, 1982) with a range from 1:139 in Southern Madulini/Mahlalini, to 1:343 in Lubombo/Mpolonjeni.

Management

A great deal of comment has been made by observers, and by the RDAMU in its 'self-examination', about the quality of the extension service. These comments fall into the categories of: organisation and management, the balance between specialists and generalists, the extension 'message' and training.

a) Organisation and Management

Although the division in the extension service caused by the RDAP is now officially corrected, the prevailing differentiation between RDAs and non-RDAs, in terms of management, funding, and infrastructure (particularly offices and housing), has meant that lines of responsibility and command are still unclear. When, as is planned by the MOAC, all SNL is divided into RDAs, and infrastructure becomes relatively uniform, the organisation structure can easily be simplified and management will be easier.

b) Balance between specialists and generalists

All extension workers have had basic training as generalists, but once they specialise there is a tendency for them to restrict their activities to their speciality to the exclusion of other topics. Although this is a much debated subject in Swaziland and elsewhere in the world, in our view it is better for a farmer to deal with a local generalist, who will call in a specialist only when necessary, such as for a meeting or specific demonstration, or if some special problem has arisen.

In our discussions with MOAC it was clear that they recognised an existing imbalance between specialists and generalists and wished to correct it.

c) Contacts with homesteads

The RDAP Annual Report (1982) showed that 132 686 contacts had been made in 1982 by specialist and generalist extension workers. Of these 47 735 (36 per cent) were visits to individual homesteads, and the remainder of contacts were at meetings and method demonstrations. In the average month, they conducted 1,6 meetings (average attendance 30); 2 method demonstrations (average attendance 6,6); and 34,6 visits to individual homesteads.

d) Extension messages

These appear to have been lacking, largely due to the long period of research orientation towards ITF large scale commercial farms. This orientation has now been corrected, (Section 6.5.). However, there is considerable scope for developing effective extension messages from existing research information. Technical aspects of extension messages are discussed in Annex C. Chapter 3.

Training

In the past, there has been some criticism levelled at the facilities for training and levels of training of extension staff. The Appraisal Report included proposals for continuing the Diploma Course at the University and instituting a new Certificate Course. These measures were adopted and have increased the availability of trained staff. There is a constant erosion of staff to the private sector, although it can be argued that they are not lost to the agricultural sector.

Present in-service training seems to be inadequate, but there are several measures being taken to improve in-service training, including the appointment of an extension training specialist under the USAID-financed Cropping System Research and Extension Training Project, and training sessions held by the SFLO. The Crop Production Unit also holds courses and field exercises.

Co-ordination with other institutions, particularly SDSB and CCU, already exists through monthly meetings at RDA centres, and informal contacts. This co-ordination should be strengthened whenever possible, and could be enhanced by further training of the staff of these other institutions by MOAC.

Recommendations for structure and organisation

The recommended structure for the extension service is based on the assumption that additional RDAs are created to cover the remainder of SNL, giving a total of about 28 RDAs, say seven per district. This structure is illustrated in Figure 6.2.

In essence there would be a Senior Extension Officer, who should be a graduate (Grade 20) at each district office (this post might better be designated Principal Extension Officer). Each RDA would have an EO, who should be a Diplomate (Grade 16-18), who would be in charge of a team of generalist extension workers, the number depending on the number of homesteads in the RDA, communications and other local factors.

The proposed structure requires only minor modifications from the existing structure. The SAO (Extension) could be designated Chief Extension Officer, i.e. above the SEOs. The main change would be the re-designation of specialists as generalists at field level, and the concentration of "true" specialists at district level (see Figure 6.2.). This may require additional posts at Grades 18 and 20, but fewer posts at lower grades.

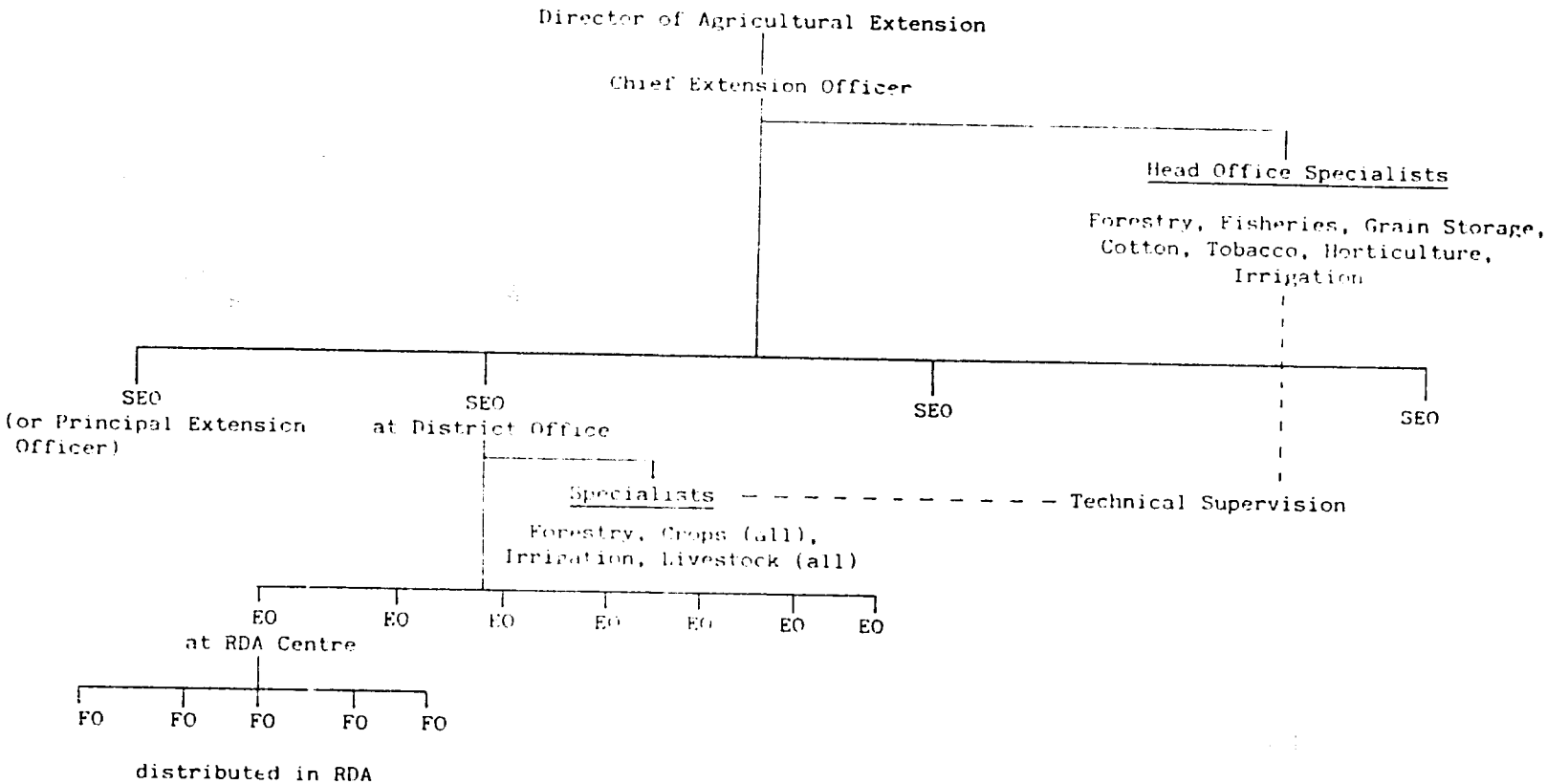
At each district office there would be a specialist (Grade 18 or 20), e.g. for forestry, crops (all types), livestock, and irrigation. Each of these district specialists would be supported by a deputy (Grade 14 or 16) who would aspire to promotion to the position of district specialist. These specialists at district level would fall administratively under the district SEO, but they would be technically supported by their respective senior specialists at headquarters (now the Crop Production Unit in Manzini).

6.5. THE RESEARCH DIVISION (IN THE DEPARTMENT OF RESEARCH AND PLANNING)

Introduction

Research was not included in the RDAP. At the time of the appraisal, crop and livestock research was carried out at the University, although in 1978 it returned to the MOAC, forming part of the Department of Research and Planning. Most of the Research Officer posts had been held by expatriates, who left at this time. There had been insufficient counterparts to replace them. Research, which in any case had been oriented towards large scale commercial farming, has since undergone a temporary period of hiatus (Annex B).

Figure 6.2. Recommended structure for the extension service



The Research for Rural Development Project (UNDP/FAO, 1980-82) made proposals for re-orientation of research towards small farmers on SNL, which was seen to be particularly important in the light of RDAP activities, to provide solutions to the problems of small farmers and appropriate messages for the extension service. This was followed by the Cropping Systems Research and Extension Training Project (USAID, 1982-88), based on CIMMYT principles, and starting its field work in RDAs (Section 2.3.).

Research capability

Since 1977, staffing of the Research Division has undergone severe difficulties, with the result that the research programme has been temporarily interrupted. Of twelve disciplines only four have Research Officers in post, the remainder being under training courses overseas. However, by 1984/85 the research programme in all disciplines should become fully operational.

In the context of the RDAP, the main problem has been the lack of research information specifically oriented towards small farmers. The deficiency has already been recognised, and measures have been taken to rectify the situation. Of particular concern is the lack of research on new varieties of maize, cotton, sorghum, and beans, and on cost effectiveness of inputs and crop husbnadry practices.

Maize

By 1977 most technical problems in maize production had been well researched, although they had not been put into extension messages appropriate for small farmers.

Recommendations have stressed the use of hybrid seed, which has been widely adopted. However, there is need for continued testing of quick maturing composites and synthetics under SNL management conditions, particularly for their ability to tolerate acid soils and low fertilisation rates.

Cotton

Very little cotton research took place between 1977 and 1982, and this has been a matter for concern in view of the levy contributions made by producers. A cotton entomologist was posted to Big Bend in November 1982, and a cotton breeder should be in post in October 1983.

Tobacco

As in the case of other crops, recent research on tobacco has been very limited. However, this should not have been a serious problem because of the availability of relevant information from Zimbabwe, Malawi, and RSA (Rustenberg).

Recommendations

Because the Cropping Systems Research and Extension Training Project is now in progress, and without a detailed study of the research programme, we have not made specific recommendations about research. However, in general, we support the measures being taken by GOS (with USAID assistance) to re-orient and improve the research programme.

6.6. THE LAND DEVELOPMENT SECTION (LDS)

Introduction

The LDS is a section within the Department of Agriculture, headed by the Land Development Officer (LDO) who reports to the Director of Agriculture. The headquarters of the section is in Manzini. Detailed information and discussion about this Section is in Annex E.

The field organisation has six 'units', each of which has a Unit Manager with from four to ten pieces of heavy earth-moving equipment and supporting vehicles. Each Unit works in from two to five RDAs, and has a semi-permanent base in one of the RDAs, but not at RDA headquarters. Technical supervision is provided by two construction engineers - one for the northern half of the country and one for the southern half.

Since 1972 the Section has been supported by a USAID project with a strong TA component. By 1979 the expatriate staff and the equipment had doubled, and present strength is 600 employees and a large fleet using over 200 pieces of equipment. One of the objectives of the USAID-funded Project was to help design a management system suitable for the increased scale of operation, and a series of proposals have been made to achieve this. The sharp cutback in GOS funding for fiscal year 1983/84 was known in advance and prompted the LDS suggestion for a slimmed-down operation which would have fewer projects, less staff, and less equipment. Efficiency would be improved by closer monitoring, tighter supervision, better equipment maintenance, and better co-ordination with LUPS in planning the work programme. That proposal has been submitted to GOS and will no doubt be considered together with the two current reviews, but does not offer a solution to the problem of co-ordination between LDS and LUPS resulting from fragmentation of authority. This has been a recurring theme in earlier evaluations, and co-ordination could be improved by regular meetings between the heads of LDS, the LUPS, and the RDAMU.

Staffing and Training

Institution building and training of Swazi staff to replace expatriate TAs has been identified as an important component of the USAID project. In spite of this, very little has been achieved. In the early years of the USAID input there was a rapid turnover of expatriate TAs. The full complement of five US technicians have only been in post since January 1982. The present LDO went to the US for graduate study, and one man is doing a BS now, but this is not an adequate base for the future.

Most of the Unit Managers have good practical field experience of handling machinery, but need training in soil and water engineering, and in management, which could easily be achieved by a few short courses of one or two weeks duration which could be arranged at slack periods. There should also be more experience-sharing with other countries in Southern Africa, particularly Zimbabwe, Zambia and Malawi.

Technician training at the Matsapa workshop has an output probably greater than is actually required by LDS, but it is in the interests of the country as a whole to increase the pool of well-trained mechanics whether or not they remain employed by LDS.

The LDS accounting system has recorded only the bare essentials, and management lacks cost accounting information, which could be supplied by a cost accountant, supported initially by a TA.

6.7. THE LAND USE PLANNING SECTION (LUPS)

The LUPS falls within the Department of Research and Planning, while most of the other sections and groups which are involved in the RDAP are within the Department of Agriculture. It is usually accepted that planning in isolation is unwise, and that it should be closely associated with putting the plan into operation and then evaluating it. For this reason previous reviews of the RDAP have several times proposed that the LUPS should be brought closer to the other groups, particularly LDS, and efforts are being made to strengthen coordination between the LUPS and the LDS.

Staffing and Training

The establishment strength of LUPS is complicated by the large input of US TAs, most of whom are temporarily occupying posts which will be filled by the staff now training overseas (Annex E.). The US staff in residence are a soil surveyor; a range management specialist, three engineers and a resource economist. The three LUPS engineers work closely with the two LDS construction engineers, and in effect, operate as a design and construction team.

In the early years of the USAID project there were severe delays in appointing expatriate staff, and rapid turnover. There were also some delays in Swazis going for training to the US. This means that it will not be possible for the returning officers to work alongside the TAs and take over from them as planned in the training programme. A further problem is that the TAs now in post are mostly working without counterparts, thus losing the opportunity to transfer their experience. It is to be hoped that the USAID project can be extended to maintain the original plan of TAs remaining after the return of the Swazis now training in the US.

The USAID project has a strong element of formal training as part of its institution-building goal, but practical professional training should be equally important. The science and art of land use planning makes use of many disciplines which can be taught as university subjects, but the integration of these and the ability to translate plans on paper into action on the ground, requires other skills which can only be gained by experience. Tactics to ensure that this practical experience is obtained are in Annex E.

6.8. THE MONITORING AND EVALUATION UNIT (IN THE ECONOMIC PLANNING AND ANALYSIS SECTION)

Introduction

In Section 2.2.6. we described the intention of the RDAP to set up a special unit, strengthened with technical assistance, to measure the effectiveness of project activities, re-appraise benefits and costs, and measure changes in economic and social factors.

The Monitoring and Evaluation Unit (MEU) was set up in the Economic Planning and Analysis Section, initially with expatriate technical assistance. Unfortunately, there have been several changes of professional staff, and little continuity in the Unit's management. The Unit now has two agricultural economists, a field team of enumerators and three micro-computers. An expatriate computer programmer/analyst left in 1983, and has not been replaced by a trained counterpart.

The Appraisal Report noted the need for co-ordination with the Central Statistical Office (CSO), which has conducted an annual survey of SNL since 1971/72, essentially for the purpose of national accounts. It has three field enumeration teams.

Since 1980/81, extension workers in RDAs (and more recently in non-RDAs) under the guidance of the Senior Field Liaison Officer, have collected some very useful information on cropping patterns, input use, and areas and yields of the main crops. Analysis of cattle numbers from dip tank records were also made. If similar information had been kept since the early 1970s, this review of the RDAs would have been able to reach more precise conclusions on changes in crop and livestock production. Unfortunately, the last three years contain two atypical drought seasons.

Monitoring and evaluation of the project

The MEU has concentrated on collection of farm management data. A series of Farm Management Survey Reports have been published for single RDAs in a single year. These included information on farm and field sizes, homestead sizes, labour allocation, livestock ownership, farm equipment ownership, tractor use, household income and expenditure and crop and livestock gross margins. Comparisons were made with other reports in the series.

Unfortunately, these surveys did not provide a continuing time series covering the same homesteads, or even the same RDAs, which would have given some indication of changes in crop and livestock production as the project progressed. The data collected and analysed were too detailed for a general survey series. It would have been more useful if the MEU had concentrated on a continuing time series of data with two particular aims:

a) to measure changes within the RDAs over time;

b) to compare conditions in RDAs with non-RDAs.

In 1976 the MEU proposed samples of farmers in RDAs and non-RDAs but did not use this approach. No reports were published in 1981. The MEU economist was studying overseas and the post was not occupied for several months.

In addition to the Farm Management Surveys, the MEU carried out specific surveys and reported on subjects such as credit, maize marketing, tractor use, and cattle. These reports were competent and useful but should have been regarded as supplements to the basic information on achievement of project objectives. Nevertheless, they did provide some insights into the organisation of smallholder farming on SNL.

One of the significant deficiencies of the monitoring was neglect of the effects of infrastructure implemented by the RDAP. The productive and social infrastructure were important and expensive components of the project, but although the individual RDA surveys provided some information, the impact of these measures was not regularly monitored.

The extension service was another key component of the RDAP accounting for half its costs. Again, the effectiveness of extension was not monitored. With the resources available it should have been possible to assess the proportions and categories of homesteads to which advice was being given, the subjects of advice, how it was received and whether acted upon. Only within the last three years has a comprehensive analysis been made of the numbers of farmers contacted through meetings, method demonstrations, and individual visits.

Particularly lacking has been a measure of the 'without project' situation, i.e. the non-RDAs, as a baseline against which the achievements in the RDAs could be measured. This would have been particularly valuable from 1970, for comparison with the original four RDAs. The subsequent wider distribution of RDAs has reduced the opportunities to find 'without project' samples not affected by the RDAP.

6.9. THE DEPARTMENT OF VETERINARY SERVICES

Until June 1982 the Department of Veterinary Services, headed by a Director responsible to the Principal Secretary, MOAC, encompassed all livestock activities through two divisions: Animal Health and Animal Husbandry, headed respectively by an SVO and an SAHO. The former had responsibility for all animal health activities such as dipping, movement control, population census and records, quarantine, meat inspection, pathological laboratory, vaccination, treatment, etc., while the latter had responsibility for government ranch and dairy management, range and pasture activities, poultry development, livestock extension, etc. (Figure 6.3.).

The annual recurrent budget for this department has been in order of 35 per cent to 40 per cent of the total for the MOAC (Annex D). A very large proportion of this budget is taken up by staff costs, reflecting the high numbers of animal health staff required to service the dipping programme. It has been calculated that the free dipping service in SNL will cost GOS £ 6,30 per head of cattle during 1983/84 while conversion to a more effective dip could increase this figure to £ 10/head. So far the capital budget has been allocated largely to ranch development, while the RDAP has financed most of the new dip construction, but the general introduction of a more expensive dipping material would require a rapid conversion of many tanks to the lower capacity of 18 000 litres and a larger budget.

A decision was made in 1982 which transferred all the livestock extension personnel into a unified extension service under the Director of Agriculture. This action did not affect the Animal Health Division but it made serious inroads into the staff structure of the Animal Husbandry Division which lost some established posts to the extension service.

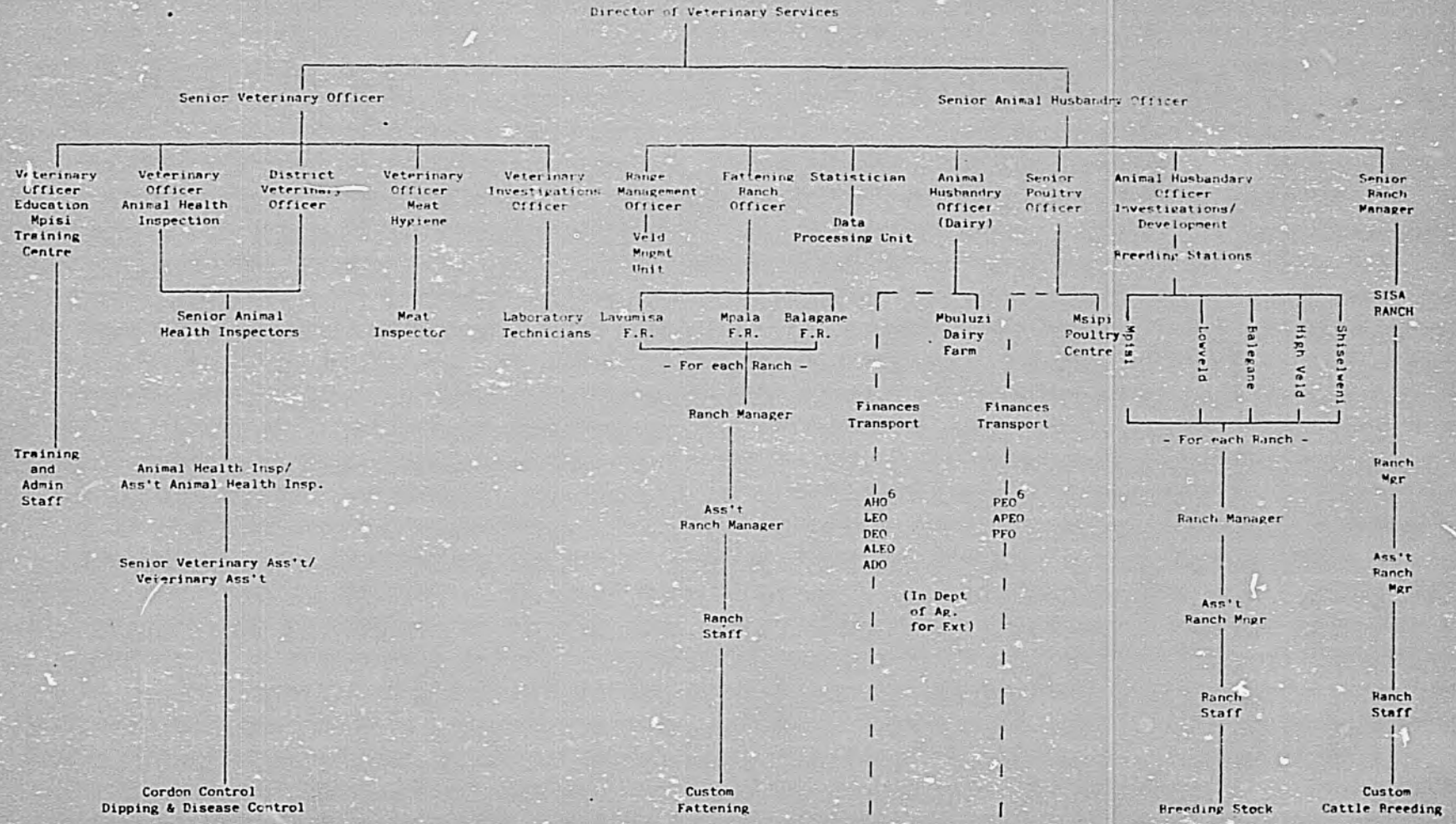
6.9.1. Animal Health Division

This Division has had little particular involvement in the RDAP, except: siting and design of new dip tanks, the introduction of more effective acaricide in maximum-input RDAs, and the supervision and control of new dip tank areas on purchased land. In general the Division has maintained its long standing function of controlling diseases and livestock movement. It was expected that the Division would assist RDA PMs to control movement of cattle from non-RDA dip tank areas. However, there is some evidence that full control of inward movement has not been achieved.

Adequate staff levels have been maintained, and more effective dipping materials have been introduced at the newer and smaller dip tanks. Information from the dip tank registers has not always been made available to RDA staff for their monthly returns to the RDAMU, and more effective methods of collecting and analysing this information should be devised (Annex D.). Liaison between the Veterinary Assistants and extension staff should be encouraged.

Figure 6.3.

DEPARTMENT OF VETERINARY SERVICES



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6.9.2. Animal Husbandry Division

This Division, headed by the Senior Animal Husbandry Officer (SAHO) has provided all the specialist livestock extension staff for the RDAP (including range management), and has been responsible for the operation of the fattening and 'sisa' ranches. Fifty-three established Livestock Extension Officer (LEC) posts were transferred administratively to the Department of Agriculture in 1982 (but not to its establishment). The main functions of the LEOs, have been: advising on animal husbandry, collecting dip tank records and census statistics, supervising bull camps and demonstration ranches ('group ranches'), assisting with the acquisition of improved bulls, organising the movement of cattle to fattening or sisa ranches, and advice on dairy and poultry management.

Although some livestock extension work took place during the first phase (1970-1977) of the RDAP, the 1974-1978 FAO project was supposed to develop this activity. Unfortunately the project was severely curtailed, particularly in respect of extension and training. This Division has fewer numbers than the Animal Health Division and has been added to an established structure already restricted for housing, office accommodation,and transport. These requirements were provided by the RDAP, and the commitment of planned numbers of extension staff to the RDAs has been made.

When the LEO posts were administratively transferred to the Department of Agriculture in 1982, the staff were not always clear about their lines of responsibility and communication. Administratively they came under the RDA PM or EO, but also under the district SEO, while technically they looked to the senior officials in the Animal Health Division. They remain within the establishment of the Department of Veterinary Services.

At field extension worker level, specialisation for dairy and poultry has been introduced. This has created a situation where the specialists have relatively few farmers to advise, but may be reluctant to become involved in working with other classes of livestock.

Ranch and Pasture

The Department of Veterinary Services has three range management and pasture specialists (RMOs), one at Manzini reporting directly to the SAHO, and the other two in the extension service (one at Manzini, the other at Nhlangano) who also work closely with the SAHO. Their functions are to provide advice and undertake surveys on range and pasture. Their duties include the RDAs, particularly the maximum-input RDAs working through the PMs and LEOs. The RMOs also provide technical advice to the LUPS and Rural Development Officers, particularly on agreed land use plans and resettlement. Monitoring of the effects of the RDAP on range and pasture condition unfortunately has not been an important function of the RMOs.

The impact of the RMOs on the RDA range and pasture programme has been slight. They have large areas to cover, and have had relatively short periods in post after training overseas. Assessment of the effectiveness of the RDAP components has not been adequate, particularly after an FAO expert left. In consequence, the strategic errors in the fencing programme were not recognised or acted on.

The RDA managers, extension staff, and RMOs, have shown the benefits of reduced stocking by visual demonstration on 'group ranches'. This is a positive feature of the Divisions work which deserves greater emphasis.

6.10. COMMUNITY AND SOCIAL SERVICES IN THE MOAC

6.10.1. The Community Development Section

This section of the Department of Agriculture has the function of motivating communities to organise drvelopment, and if possible to provide financial support. In most cases, this work is related to schools and clinics, but also input storage sheds, meeting halls, and water supply schemes. The Section works largely through the District Teams where plans are co-ordinated with other agencies, for example, plans for additional classrooms are co-ordinated with the District Education Officer. Plans approved by the District teams are referred to Headquarters staff for submittal to the Department of Economic Planning.

The Community Development section would like to emphasise education, water supply and sanitation, but the programmes depend on the community's priorities. Contributions are not necessarily cash, and may take the form of skilled artisans to back up unskilled labour contributed by the community. To an increasing extent the same approach is being adopted for construction of social infrastructure. For example, when the Ministry of Works, Power and Communication is building a rural clinic the community may be organised to provide concrete blocks.

Some junior staff are housed at RDA project centres, but there does not appear to be any significant difference between RDA and non-RDA activities. Access to transport is mentioned as a problem restricting field activities. Also at present there are more Community Development Assistants posts vacant than there are staff in post. The shortfall is attributed to the lack of a training course at present in Swaziland.

6.10.2. Rural Youth Development (4-S Youth Movement)

The 4-S youth clubs were started in about 1975 with the objectives of encouraging youth to take an active interest in practical skills (farming and home economics in particular), and inculcating in youth the desirability of being self-reliant and responsible (MOAC, 1974). At present there are about 200 clubs with a membership of about 10 000, mostly in rural primary schools. Meetings are organised by teachers as well as by the small staff of 5 field officers, 1 supervisor and 1 senior officer in the Rural Youth Development Section of the Department of Agriculture. The main activities are vegetable gardens, for which assistance is provided for fencing and seeds, and for girls, knitting, crochet, sewing and cookery as well. Some clubs have rabbits and poultry. Sales of produce are used by some clubs to raise funds.

There are similarities between the youth clubs and agricultural education under the schools agriculture project but most clubs are at schools which have not yet joined the project.

One significant experiment involves 10 school-leavers who have obtained a plot of land with permission of the chief at Motshane and with Canadian assistance started a cropping enterprise. It is unusual for unmarried men to obtain land, and what made it possible in this instance was their identity as a group.

6.10.3. Women in development project

This project has trained rural women in skills they can use to generate income, and to help them have time to work. It is involved in day-care centres for children and improved domestic technology. Between the start of the project in 1975 and early 1983 a total of 566 women had received training, most at the project centre at Ntfonjeni in Northern RDA. Three new centres have been completed at Mahlangatsha, Mahamba/Zombodze and Sithobela RDAs. Thus, the RDA centres have provided a focus for project activities.

Technical assistance and part of the funding were provided originally by UNDP, but now several agencies are involved.

The purpose of the project is to integrate women in the national development effort. It stresses women's economic role by: offering training in income-generating activities to foster self-help and self-reliance; stressing group organisation and co-operation through credit, production and marketing groups; and making use of existing community networks and resources.

Income-generating is especially important because of the large proportion of women dependent on remittances from husbands or kin in wage employment. School uniforms and women's clothing have been the most successful products. The project has provided assistance with materials, credit and marketing, but is trying to increase the self-reliance of early trainees. It has been found that most women prefer to work in their spare time, rather than as a group, and also that most participants are aged under 40.

6.11. THE CENTRAL RURAL DEVELOPMENT BOARD AND TRADITIONAL INSTITUTIONS

The Appraisal Report commented on the importance of traditional government, particularly on matters affecting Swazi Nation Land, and the possibility of delays in decision-making, which might affect the implementation of the RDAP. The CRDB, although not strictly a traditional institution has been included in this section because of its relationship to the RDAP implementation.

The Central Rural Development Board (CRDB)

The Board was formed in 1954 with a chairman (appointed by the King), eleven members representing sub-districts, seven Rural Development Officers (RDOs) (ex-officio members), and a secretary (ex-officio member). An indication of the importance of the CRDB is that the present Secretary is the Deputy Prime Minister. The Board falls within the MOAC, and the RDOs are on the Ministry establishment.

The CRDB's main functions are to consider and approve resettlement and other agricultural projects, ensuring the involvement of local people and their leaders. The Chairman submits periodic verbal reports to the King about the state of natural resources, and recommends action for their preservation.

From 1976 to 1979, including the first two years of the RDAP, no resettlement and development plans were approved, by command of the King. This was because: the Board had found no signs of physical and social improvement; resettlement was not in accord with plans, some homesteads remaining in the original locations; grazing areas were overstocked; and new people were being admitted indiscriminately to development areas. Furthermore, boundary disputes had arisen between chiefs, triggered by the development measures. During this period the Board held meetings throughout the country to ensure that approved plans conformed to principles of proper land use and conservation, and that the sketch 'peoples plans' bore the signatures of the chief and two of his committee members. In May 1979 plan approval started again.

Rural Development Officers (RDOs)

The functions of the RDOs are to ensure that the RDA planning and implementation conform with the requirements of the CRDB. This is achieved by meetings and discussions with chiefs, tindvuna, and imisumphe. The RDOs act as liaison officers between these people and GOS officials involved in rural development. They submit monthly and annual reports on the status of ongoing rural development projects, and the state of natural resources. The CRDB has reported that transport for the RDOs has been a perennial problem.

The chiefs and local committees

Chiefdoms are recognised units in the political and administrative system. The chief is responsible to the King for order and welfare of his subjects, as well as for the allocation of land. Boundaries have frequently been disputed, particularly where ITF land has been purchased. The CRDB (Annual Report, 1980) has noted that these disputed have continued to be the biggest single delaying factor in resettlement programmes. The Board has also commented that some chiefs have used a haphazard kukhontisa system, allowing unplanned homesteads to start up in unsuitable places (e.g. along main roads).

Resettlement Committees (imisumphe) are formed of elders in the community who assist with the preparation of plans, using their special knowledge. Also during the implementation stage, they have assisted in liaison between technical officers and local people, and have ensured that plans are followed. The imisumphe also ensure that funds are collected for the maintenance of infrastructure (e.g. fencing, dams).

Attempts have been made by RDA management, and by the Ministry of Health, to increase the awareness of chiefs and sub-chiefs about rural development measures, by leadership courses, and workshops. These are reported to have been well attended and generally successful.

Conclusions

As noted in Section 4.8., one of the great strengths of the rural development process in Swaziland is the degree of involvement of the local people and their leaders in the process of planning and implementation. So often in other countries, this process is thrust on local communities by technicians from urban centres, or even from other countries, usually with bad results. The CRDB seems to be an effective means of ensuring that the commendable procedures in Swaziland are maintained.

The CRDB has noted its most important problems as:

a) Failure by local communities to reduce livestock numbers to conform with carrying capacities. We have considered this problem in Section 4.4.

b) Failure to adhere to agreed land use plans, aggravated by indiscriminate kukhontisa. The CRDB is probably the most effective means of dealing with this problem.

c) Boundary disputes triggered by resettlement programmes and general land shortage.

6.12. THE CO-OPERATIVE MOVEMENT

Introduction

Farmers co-operatives have operated in SNL since 1963, as agents for supply of inputs and consumer goods, and later for credit and marketing. A three-tier structure evolved, with the Central Co-operative Union (CCU) at the apex, four district unions in the second tier, and primary co-operative societies of which there are about 130, with roughly 6 000 members (15 per cent of SNL homesteads). Further information about co-operatives is given in Annex B.

Part of the multi-donor RDAP infrastructure programme was the provision of "depots for inputs and marketing of produce." A total of nine fertiliser sheds (E 3 000 each) and 13 farmers' sheds (E 2 000 each) were planned. Incremental input costs, in the form of fertilisers, insecticides, seeds, and other materials (E 0,8 million) were also budgeted. The CCU was to be responsible for organising the supply and distribution, and it was intended to be a revolving fund. However, after amounts of E 50 381 (1977/78), E 61 789 (1978/79) and E 79 324 (1979/80), had been distributed without recovery, no further incremental inputs were funded, and the balance of funds were transferred to 'technical services.'

It is unfortunate that housing for co-operative staff was not provided as this probably delayed the supervision of co-operative activities, and their integration with general agricultural activities.

Since 1976, significant aid has been provided for the co-operative movement, including: technical assistance for the CCU and the Co-operative Development Centre (CODEC), vehicles, counterpart training, and working capital for the CCU.

The Department of Co-operative Development and Marketing

In 1963 a Department of Co-operatives was introduced in the Ministry of Agriculture with the aim of sponsoring farmer co-operatives to supply inputs. The Department was later taken over to the Ministry of Commerce, but in 1977 was returned to the Ministry of Agriculture. Its functions are to advise the Minister and GOS on co-operative matters, to supervise and advise co-operatives and to develop and improve primary marketing of farming produce.

The Department is headed by the Commissioner for Co-operative Development, who has a Deputy Commissioner and two Assistant Commissioners (one for administration and one for education). At each district centre there is a Senior Co-operatives Officer, a District Marketing Officer, and a Co-operatives Officer. At field level are Assistant Co-operatives Officers (at the same grade as Field Officers in the extension service). These ACOs supervise and inspect the co-operatives, and provide advice and education of co-operative matters.

The staff of the Department work alongside those of the Department of Agriculture, and there is close liaison between them. Apparently there was some antipathy to co-operatives amongst extension staff in earlier years, but this attitude has changed.

In late 1976, the Co-operative Development Centre (CODEC) was started at a cost of E 1,36 million (assisted by SIDA), under the Department of Co-operative Development and Marketing. CODEC offers a variety of courses including: an induction (orientation) course; a Certificate in Co-operative Studies; specialised in-service courses; and occasional seminars and workshops. CODEC staff assist field staff of the Department at meetings with farmers intended to make them aware of the advantages of co-operatives.

The Department is making progress in the implementation of MOAC policy to rationalise the co-operatives into fewer primary societies. It recognises the need for stronger management of these societies activities, and the CODEC training, followed by field supervision has done much to improve matters. The Department also recognises the risks of overloading co-operatives with too many functions, and for the time being will concentrate on farm inputs and consumer goods, and marketing. It has tried hard to integrate with other MOAC activities, and there is evidence that this policy is succeeding, and should ultimately benefit farmers.

Farm input supplies

The primary co-operatives place orders with the district unions, who in turn order through the CCU, which has credit facilities with major suppliers, and a line of credit with SDSB. Some of the large primaries obtain their supplies independently.

From 1976/77 to 1979/80, the value of farm inputs sold through the co-operatives trebled from E 0,5 million to E 1,6 million. However, some of this increase was due to injudicious sales on credit. For 1983, the CCU has budgeted sales of E 2,3 million. The CCU now estimates that it supplies about 70 per cent of SNL farm inputs through the co-operatives.

The sale of consumer goods through co-operatives has expanded rapidly since the mid-1970s, and in 1979/80, sales were estimated to be E 1,0 million.

The co-ordination of information between extension staff, primary co-operative staff, the CCU, and input suppliers, is encouraging, and has resulted in better availability of inputs to farmers and less dead stock.

It is clear that the co-operatives have greatly improved the availability of farm inputs in the RDAs, thus generally ensuring that no constraint exists. There is little doubt that this effect has spilled over into the surrounding non-RDAs, both through co-operatives, and through farmers travelling to nearby RDAs to purchase their inputs.

The Central Co-operative Union (CCU)

The CCU was established in 1971 and has its headquarters in Manzini. Although originally intended to organise and promote the co-operatives, it has subsequently become involved in bulk purchasing and distribution of inputs, and now has 21 primary co-operatives in effect as branches.

The CCU has been a channel for significant amounts of aid, including the incremental input costs for the RDAP described in the introduction to this Section. The serious financial situation of the CCU, largely resulting from injudicious distribution of credit by the co-operatives, necessitated GOS settling the accounts of the two main creditors (E 0,6 million) and the SDSB freezing an outstanding loan to the CCU (E 1,6 million) and providing a loan of E 0,8 million for the 1983/84 season.

The CCU has also received considerable technical assistance over the years from the UK Government, USAID, the Volunteer Development Corps (US), and currently two associate experts from FAO. Further technical assistance is planned in the ADB/IFAD project.

The CCU is a necessary organisation to arrange input supplies to the primary co-operatives and to make large scale arrangements for marketing produce collected by the co-operatives. However, it needs technical assistance for its expanding activities, particularly for financial management, distribution of consumer goods and market activities, and unless the IFAD project becomes effective soon this should be obtained from another source.

Conclusions and Recommendations

The co-operative movement should be at the instigation of the people concerned, and for their benefit. There is some evidence (including "Small farmer credit and small farmer attitudes towards co-operatives," Guma, S.P. and Simelane, V.R., Department of Economics, University of Swaziland - September 1982) that SNL people have no clear motivation for joining a co-operative, although they are aware of the services it offers, and are prepared to contribute financially. However, this survey was made at a time when the co-operatives were at a low ebb, due to their problems arising from distribution of credit, and attitudes have probably improved. The financial difficulties experienced by the primary co-operatives, largely arising from poor management, and inadequate capital, suggest that they should be large enough to justify the employment of professional (trained and experienced) managers. A primary co-operative of viable size would probably start at the level of the RDA, i.e. about 25 - 30 covering all SNL. Without adequate management, a wide range of activities, including marketing and credit is unlikely to be successful.

It is generally thought that the district unions are unnecessary intermediaries between the CCU and the primary co-operatives, tending to add to farmers' costs, and they are now being disbanded.

In the context of the RDAP, the co-operatives have a valuable role in the supply of farm inputs and consumer goods. However, competition from commercial suppliers and traders should be allowed, to ensure the efficiency of the co-operatives.

In our view, each RDA should have one primary co-operative, preferably sited at the project centre distributing to outlying farmers' sheds. Initially, the trading activities of the co-operative should be restricted to the distribution of farm inputs and consumer goods, and marketing (i.e. receiving, inspecting, and paying for produce delivered). Although these functions will require careful management, their peak demands are at different times of the year.

At least for the foreseeable future, the co-operatives should trade only for cash, or purchasing authorities issued by approved creditors such as the SDSB.

Building through the existing institutions of the Department of Co-operatives and CODEC, co-operative staff should be carefully and systematically trained, and members and potential members should be educated in the objectives, functions and benefits of co-operatives. Agricultural staff should regard the co-operatives as an integral and important part of the Ministry's activities, and in this regard, the position is much better than it used to be.

Consideration should be given to technical assistance to the CCU to streamline the accounting system, and to assist with the development of the marketing programme.

6.13. THE SWAZILAND DEVELOPMENT AND SAVINGS BANK (SDSB)

Introduction

The SDSB was established in 1973, is wholly State owned and has among its objectives the promotion of agriculture and rural industries (Annex B.). It is the dominant institution for providing credit to SNL homesteads, and was assisted by the RDAP with housing and vehicles for its field staff. Seasonal credit to SNL farmers is provided through the Agricultural Advisory Credit Scheme (AACS), started in 1977 with a limit of E 1 000, and a subsidised interest rate (Section 4.5.).

The SDSB has six branches, each with a Senior Credit Adviser (SCA) for agriculture, and 25 Credit Advisers (CAs) at field level. An SNL farmer applies for credit through the CA, completing a detailed application form and a Deed of Hypothecation on cattle as security for the loan. When the loan is approved, the farmer is given a purchasing authority specifying the quantity and value of goods. Failure to repay a loan may involve sale of the pledged cattle, or legal action. If the reason was beyond the farmers control (e.g. drought) refinancing for the next season is possible.

Details of the SDSB's agricultural lending for 1981-1983 are given in Annex B. These show that about 70 per cent of the bank's borrowers are farmers, but only 35 - 45 per cent of the amount lent goes to farmers. Only about 10 per cent of SNL homesteads borrow from the SDSB, and of these average seasonal borrowing was E 250 in 1983. Unfortunately, the SDSB records do not distinguish between SNL and ITF farmers outside the AACS, but there is evidence of very uneven distribution of lending (Table 4.18.).

The SDSB has received major loans from aid agencies: ODA, interest free loan, E 479 444 outstanding (1982); USAID, 2 - 3 per cent interest E 806 744 outstanding (1982), to finance the AACS. In addition, it is understood that USAID is considering a further loan for irrigation development, and the ADB/IFAD Smallholder Credit and Marketing Project includes a US $ 2,5 million loan for seasonal credit.

Management

The SDSB has a good record of recovery of credit, due to good management, including careful assessment of credit worthiness and supervision by a network of trained field staff. In July 1981 (latest information available) only 3,4 per cent of 1977/78 and 1978/79 loans were delinquent, and adding 1979/80 loans the total was 10,1 per cent. Cotton farmers defaulted more than maize farmers, and this was attributed to: prevalence of drought in the lowveld (where most cotton is grown); interaction with other credit sources (ginneries, and co-operatives); greater dependence on crop sales, in contrast to maize

farmers who had more wage income, (Mercey, C. "Credit to Small Farmers in Swaziland," 1981).

Mercey (op. cit, 1981) analysed the financial performance of the AACS for the three years 1978/79 to 1980/81. The breakeven interest rates were 37, 37, and 27 per cent respectively, despite low default costs. Administrative costs were high (14 per cent of new loans, E 52/loan) compared with other African small farmer credit schemes, mainly due to the small number of loans. Losses were partly covered by GOS and RDAP donor lending, and the balance borne by the SDSB, which had surpluses from other banking activities.

Conclusions and recommendations

The SDSB is a well established, specialised credit source with a satisfactory recovery performance. In our view it should remain the primary channel for providing credit to SNL farmers for the foreseeable future. The co-operatives must prove their ability to distribute inputs efficiently, and to act as marketing agencies, before consideration is given to using them as credit agencies.

There is no evidence to justify the use of a heavily subsidised interest rate for the Agricultural Advisory Credit Scheme. The present subsidy probably encourages the use of credit as a substitute for cash resources rather than as a means to increase production (which is affected by other constraints). Therefore, we suggest that the AACS interest rate be raised to a level closer to the commercial rate, as has been proposed in the ADB/IFAD Smallholder Credit and Marketing Project.

In the absence of baseline information and monitoring of credit use, we recommend that the SDSB, in consultation with the MOAC, establishes procedures for analysing credit use, recoveries, and defaults by RDAs, non-RDAs, agro-ecological areas, main crop, main inputs, and loan amount. This analysis should be a continuous means of monitoring credit use through the main channel.

6.14. COORDINATION

Introduction

The Appraisal Report envisaged that the MOAC would be responsible for ensuring proper coordination on matters of inter-ministerial concern. An inter-ministerial committee was to be established, to include senior representatives of the relevant Ministries and agencies involved in rural development. It was to meet twice a year, to assess progress, and to act on matters requiring inter-ministerial decision.

The main organisations that are involved in rural development, with whom coordination is necessary, are:

- Ministry of Finance, which should be aware of requirements for development and operating finance, and how spending progresses.

- Dept. of Economic Planning and Statistics (in the Prime Minister's Office), which is responsible for overall economic planning, but also has a specific interest in the requirements for aid, and its disbursement and effectiveness in the national context.

- Central Statistical Office (in the Dept. of Economic Planning and Statistics), which has a specific responsibility for carrying out surveys including SNL characteristics and information for national accounts.

- Ministry of Education, which has schools in rural areas, agricultural teaching in schools, and Rural Education Centres (adult education).

- Ministry of Health, which has clinics in rural areas, and is concerned with health education, and health aspects of social services, particularly water supplies and sanitation.

- Dept. of Establishment and Training (in the Prime Minister's Office), which is responsible for the establishment of government staff posts, and public sector training (general and individual).

- Ministry of Works, Power and Communications, particularly in respect of: roads (PWD), buildings (PWD), electricity (SEB), telephones (PTC), vehicle provision and maintenance (CTA), water control for irrigation.

- Rural Water Supply Board, which is responsible for the installation and maintenance of water supply schemes.

- Swaziland Development and Savings Bank, which is the dominant source of credit for SNL homesteads.

- Central Cooperative Union, which dominates the supply of farm inputs to SNL through cooperatives, and is increasingly involved in marketing of produce.

- Central Rural Development Board, which is part of the MOAC but has a degree of autonomy.

- Ministry of Home Affairs, which is responsible for administrative activities in rural areas, including the District Teams for rural planning activities.

- University of Swaziland, which has research and training interests in the rural development field.

The Inter-ministerial Inter-institutional Rural Development Coordinating Committee

At the time of the Appraisal Report, a Rural Development Committee consisting of the Permanent Secretaries of Ministries involved in rural development used to meet regularly (roughly every six weeks), and its existence may have led the appraisal team to propose a new interministerial committee meeting at least twice a year. In fact, the Rural Development Committee has not met for about five years, and a sub-committee has been set up called the Inter-ministerial Inter-institutional Rural Development Coordinating Committee (IIRDCC). This committee used to meet monthly, but now meets every three months, convened and chaired by the PS of the MOAC.

The IIRDCC has met regularly, often in a rural environment, and with an opportunity for committee members to see a rural development project. The members are supposed to submit a report in advance of the meeting. Unfortunately, the Ministries and institutions forming the committee now often fail to send representatives, or send a relatively junior official who cannot speak authoritatively for his organisation. Failure to send reports has become the norm. For the last three meetings, the only representatives to attend all meetings were from the radio and UNISWA. Economic Planning and Statistics, Health, and Finance, did not attend any meetings, nor did they submit any reports.

If rural development is to be coordinated with the importance it deserves, we submit that the IIRDCC should be strengthened, requiring the following action.

a) Additional representation to include all organisations listed in the introduction to this section.

b) Representation at Director level or above (certainly not lower).

c) Reports to be submitted to the Chairman (PS, MOAC) not less than two weeks before the quarterly meeting. Reports to be in a simple format of headings, agreed by the committee, including: action on matters raised at the previous meeting, new matters requiring coordination, progress in the quarter, problems arising and suggestions for solution.

d) As the IIRDCC is a sub-committee of a Cabinet committee, compliance with the conditions listed above could be submitted to Cabinet.

e) Special meetings should be convened, if necessary, to deal with specific issues.

Coordination between Government and rural communities

There is a well-established system of communication between government and rural communities. The basis of this is the relationship between chiefdoms and national authorities, both through regional groups of chiefdoms (pl. Tinkhundla) to the Swazi National Council and the monarchy, and through the Ministry of Home Affairs. The links between the Ministry of Agriculture and rural communities are particularly strong, partly as a result of the soil conservation programme on SNL between 1947 and 1956, during which time chiefs assisted land utilization officers. The authority to do this derived from the King's Orders-in-Council. In each chiefdom a committee of men with ancestral roots in the area (Imisumphe) was formed to ensure that soil conservation measures did not disturb graves and any other sites. The Imisumphe are referred to in drawing up the resettlement plans, or in deciding road or fence alignments. Their interests are supported by the Rural Development Officers (RDOs) of the Central Rural Development Board (Section 6.11.).

CHAPTER 7. ECONOMIC RE-EVALUATION

7.1. OBJECTIVES AND SCOPE OF THE ANALYSIS

The objective of this economic re-evaluation is to assess the economic performance of the project and to compare this with the projections made in the Appraisal Report. The evaluation is made at Year 6/7 of the project life, and consequently it is possible to assess accurately the capital costs incurred, and the prevailing levels of recurrent costs. It has not been possible to assess the incremental benefits with reasonable accuracy, because, as discussed earlier in this report, basic crop and livestock production has not been systematically monitored.

At this stage of the project we have been able to assess projected costs and benefits more objectively than when the project was first planned. However, as the project had a slow start, a clear indication of future performance, particularly benefits, has not yet emerged. Indeed it is too early to expect significant and measurable benefits to have fully developed.

The economic re-evaluation has been confined to the multi-donor funded programme because in contrast to the UK-funded RDAs good financial records have been maintained, and to allow a direct comparison with the original economic evaluation in the Appraisal Report.

Although it is possible to separate the costs for the two maximum-input RDAs in the multi-donor funded project, from the costs for the eight minimum-input RDAs, it is not possible to separate the benefits because of the limited information available.

We have tried to make the economic re-evaluation directly comparable to the economic analysis used in the IBRD Appraisal Report, as far as possible using the same format. In the following section we comment briefly on the assumptions made for the economic analysis in the MOAC project submissions and the IBRD Appraisal Report, and their methodology.

An important problem in the economic analysis, which was noted in the Appraisal Report, is to separate any benefits, quantifiable or otherwise, attributable to the RDAP, from those which might be attributable to other complementary projects, including those described in Section 2.3.

Another problem has been the assessment of any 'spill-over' effect from the RDAs into the surrounding non-RDAs. Although we believe that there has been some spill-over, particularly of extension services and the availability of inputs for crops, the lack of monitoring has been such as to make the assessment of the extent or impact of this spill-over impossible.

This re-evaluation is not concerned solely with the project objective of incremental crop and livestock production. Sections are included which describe the social benefits, and employment and income distribution.

7.2. ASSUMPTIONS AND METHODOLOGY

The assumptions and methodology used in the economic re-evaluation, are described in the following paragraphs. Where relevant, comparisons are made with the approach used in the MOAC submissions and Appraisal Report.

Project life

The life of the project is assumed to be 20 years. The economic and social environment has changed, and is likely to change continuously, and also the accuracy of the basic data in the projections does not justify a longer period. The Appraisal Report also used a 20 year life.

Project benefits

Incremental crop production has been calculated from detailed assumptions of areas, yields, and production, which are described in the next section of this chapter. The projections used in the Appraisal Report, which were adopted completely from the MOAC submissions, were described in Chapter 2. As in the Appraisal Report, no attempt has been made to quantify the value of social benefits.

Project costs

Capital costs have been based on the detailed information available on costs already incurred, Chapter 5). Future operating costs have been based on prevailing levels, with some adjustments where they are thought to be excessive or inadequate.

Crop production costs are based on crop budgets derived from current information. These have been described in Section 7.4. The Appraisal Report also used detailed assumptions of crop inputs derived from the MOAC submissions.

Excluded costs

Costs of social infrastructure have been excluded, because it is not possible to quantify the relevant benefits. A share of the RDA management costs has been excluded in respect of the eight UK-funded RDAs which do not form part of the analysis. Also excluded have been shares of the costs of training, studies, and monitoring and evaluation, because they contribute to other projects. This approach was used in the Appraisal Report.

Labour costs

Labour for development and incremental farm labour have been costed at the prevailing wage rate. The opportunities for wage employment are considerable fairly close to rural homesteads, and wage employment is an important feature of the rural economy. It is evident that farm labour is fully utilised even at non-peak periods.

The Appraisal Report used a shadow price for farm labour of E 0,50/day, half the prevailing wage rate, arguing that existing labour was significantly under-utilised. This modified the approach used in the MOAC submissions which assumed that labour had no opportunity cost.

Prices

Constant 1982/83 prices have been used in the analysis. Earlier costs have been inflated to 1982/83 prices. For incremental production (with the exception of maize), prevailing crop prices have been assumed as equivalent to economic farmgate prices, because for internationally traded commodities they are related to world market prices, and projected crop prices are based on the December 1982 IBRD commodity price forecasts, using an index to link the price levels at 1982/83.

For the maize price it has been assumed that the saving to the economy of maize produced in Swaziland is equivalent to the cost of imports from the RSA, virtually the only reliable source of supply of white maize (the type consumed in Swaziland).

Foreign exchange

Foreign exchange has not been shadow priced, nor was it in the Appraisal Report. Swaziland shares in the Rand Monetary Area, which has an open economy, and allows generally freely changing exchange rates for the rand.

Customs Revenue

Adjustments have been made for the revenue accruing to the Swaziland economy from the Customs Union, and the refund of customs duties. These revenues and duties are attributable to the inputs for development, operating costs and crop production. An adjustment has been made for the loss of customs revenue on maize imports not required because of incremental maize production attributable to the project.

In the Appraisal Report amounts for taxes were deducted from costs, but the explanation was unclear.

Swaziland receives a refund of customs duties from the Customs Union, calculated according to a formula which ensures that the duty refund will be between 17 and 23 per cent of the duty inclusive value of imports; a long run average of 20 per cent. In addition, Swaziland receives a payment as compensation for lack of autonomy through membership of the Customs Union. This compensation raises the total revenue to around 26 per cent of the value of imports.

7.3. INCREMENTAL CROP AND LIVESTOCK PRODUCTION

Project performance in respect of crop production has been described in Chapter 4, where it is pointed out that it is still too early to expect definite trends in those RDAs designated in 1977. Delays in starting, and concentration of attention and effort on infrastructure rather than extension and other services, has made it even less likely that trends could be discerned.

Comparisons between the earlier RDAs and non-RDAs have been clouded by the inherently higher production potential of the former, as well as the probability that their people were more interested in participating in development. These were criteria for selection of the RDAs. It is possible that there may have been some spread of input use and better husbandry from RDAs to non-RDAs, but without careful monitoring of the RDAP, this effect could not have been assessed.

There is some evidence (Section 4.2.) that the proportion of cultivated land in the RDAs has increased since 1976/77 in contrast to non-RDAs where the proportion has decreased. This may have been a response to project activities, resulting in increased maize and cotton production (see below). However, it may have been a reflection of the greater inherent production potential in the RDAs.

Maize

Maize production has declined in both RDAs and non-RDAs, mainly as a result of a decrease in the areas planted to maize. Yields have generally not changed, although there is some evidence that they are higher in the older RDAs, possibly because of their inherent potential, but also possibly because of project activities.

The decline in the area planted to maize has been slower in RDAs than in non-RDAs. Unfortunately, the reliable time series of information covers only the last three seasons, two of which were droughts, and is not long enough to estimate the differential with any accuracy. We have assumed that the project retarded the decrease in area planted to maize in RDAs by 5 per cent a year, building up over Years 3 to 5. We have not assumed any further decrease in maize areas, as it is probable that production and subsistence production are more or less in balance.

We have also assumed that maize yields in RDAs are higher than in non-RDAs by 15-20 per cent after 10 years, of which it is reasonable to assume that about half was due to inherent potential of the RDAs, and half to project activities. A gradual build up has been assumed, from one per cent in Year 3 to eight per cent in Year 10, thereafter remaining constant. Details are shown in Annex H.

Cotton

In the last three seasons, for which we have fairly reliable information about cotton production in RDAs compared with non-RDAs, there has been a sharp decline in SNL cotton production. This decline has been slower in the RDAs, and we have assumed that RDA cotton areas are 10 per cent higher than they would have been without the project, with a build-up from Year 3 to Year 5.

The cotton yields in the older RDAs were 36 per cent higher than in the new RDAs. However, most of the cotton production in the new RDAs is in the lowveld which has a much lower yield potential than the old RDAs, of which the three that produce cotton are all in the middleveld. Consequently, we have assumed an incremental yield attributable to project activities of 8 per cent, rising from one per cent in Year 3. Details are shown in Annex H.

Vegetables

There is no accurate estimate of the area of irrigation development attributable to the multi-donor funded project. Some project funds have been spent on rehabilitation of existing schemes, and we have assumed that the area is 20 ha. A gross margin of E 4620/ha (based on the ADB/IFAD Smallholder Credit and Marketing Project estimates) has been assumed, of which half could be attributed to the rehabilitation, with a build-up over three years, starting in Year 3.

Cattle

In the Appraisal Report, incremental cattle sales were based on herd projections for the two maximum-input RDAs, and resulted mainly from increased productivity, offtake, and quality. It was also assumed that some incremental cattle sales would occur in the minimum-input RDAs from extension and marketing assistance.

As discussed in Chapter 4, there is no evidence that the project has improved productivity, offtake or quality of cattle. It is possible that the construction of dip tanks and the provision of dipping materials may have reduced mortality from tick borne diseases. However, it is also possible that productivity and quality may have been reduced by increased stocking resulting from the fencing of grazing areas under the programme.

Consequently, no incremental benefits from cattle production have been attributed to the project.

7.4. PROJECT COSTS

Capital Costs

Capital or investment costs are based on the actual costs incurred by the programme from 1977/78 to 1982/83, excluding the costs for those components not covered by this economic analysis and a proportion of the RDA Management Unit. Costs have been brought to a common 1982/83 base year by inflating costs incurred in the earlier years by their relevant indices, the details of which are shown in Annex H. A summary of the costs streams is also given in Table 7.1.

Operating Costs

Costs from Year 1 to Year 6 are the actual costs incurred by the programme adjusted in the same way as capital costs, while those from Year 7 to Year 20 are the estimated costs of maintaining the RDAP at the level that was planned in the Appraisal Report. Because of budget restrictions these are about 45 per cent more than what is currently planned to be allocated by GOS for the recurrent costs of the multi-donor funded RDAs. The extra costs allow for maintenance of the infrastructure and for a level of operating expenditure similar to what was spent in Year 6 of the programme, which is considered sufficient to maintain the programme in its present form.

Table 7.1.

ECONOMIC ANALYSIS OF MULTI-DONOR FUNDED ROAP

(ECONS)

	Year 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	Yr 11	Yr 12	.....	Year 2
BENEFITS														
Incremental Benefits														
Maize			92	331	433	426	565	627	704	782	802	834	.....	83
Cotton			110	460	346	283	381	437	448	488	496	496	.....	49
Vegetables			12	28	46	46	46	46	46	46	46	46	.....	4
Total Incremental Benefits	0	0	214	819	825	755	992	1110	1198	1316	1344	1376	.....	137
COSTS														
Fixed Investment Costs														
Extension Infrastructure	35	296	264	736	1012	795								
Livestock Infrastructure	0	231	297	155	280	573								
Land Development	0	0	0	1	144	386								
Credit Services	0	73	54	142	3	1								
Road Development	0	58	260	296	725	682								
Central Management Services	78	55	99	102	117	142								
Total Fixed Investment	113	713	1000	1432	2281	2579								
Incremental Operating Costs														
Extension Services	0	202	481	573	808	932	705	705	705	705	705	705	.....	705
Livestock Extension & Maint	0	0	89	48	16	180	71	71	71	71	71	71	.....	71
Land Development Maintenanc	0	0	0	0	0	0	13	13	13	13	13	13	.....	13
Credit Services	0	22	97	168	220	185	172	172	172	172	172	172	.....	172
Road Maintenance	0	0	6	19	19	68	51	51	51	51	51	51	.....	51
ROAP Management	29	60	95	116	91	110	150	150	150	150	150	150	.....	150
Total Operating Costs	29	284	768	924	1154	1475	1162	1162	1162	1162	1162	1162	.....	1162
Production Costs														
Maize Inputs			26	79	125	119	142	156	170	183	183	183	.....	183
Cotton Inputs			25	91	103	86	93	100	106	112	112	112	.....	112
Total Input Costs	0	0	51	170	228	205	235	256	276	295	295	295	.....	295
Maize Farm Labour			57	170	268	272	304	333	362	392	392	392	.....	392
Cotton Farm Labour			51	164	207	173	189	202	214	227	227	227	.....	227
Total Farm Labour Costs	0	0	108	354	475	445	493	535	576	619	619	619	.....	619
Total Financial Costs	142	997	1927	2880	4138	4704	1890	1953	2014	2076	2076	2076	.....	2076
Adjustments to Costs														
Taxes and Duties (net)	-20	-202	-267	-282	-415	-543	-3	8	24	39	45	53	.....	53
Total Economic Costs	122	795	1660	2598	3723	4161	1887	1961	2038	2115	2121	2129	.....	2129
NET CASH FLOW	-122	-795	-1446	-1779	-2898	-3406	-893	-85	-840	-799	-777	-753	.....	-753

Crop input costs

Production costs for maize and cotton, the two main crops from which benefits have been achieved, are based on an average of their input costs, based on the crop gross margins for crops grown in different ecological areas included in Annex H. Production costs are based on 1982/83 input prices and these have been assumed to remain constant over the life of the project.

The cost of the incremental farm labour involved in the increased crop production has been valued at E 3,00 per day, which is considered to represent prevailing rural wage rates. A sensitivity analysis has also been calculated with farm labour costed at a shadow cost of E 1,00 per day.

7.5. RESULTS OF ECONOMIC ANALYSIS

Normal analyses

A summary of the cost and benefit cash flow is shown in Table 7.1. The net benefit stream is negative throughout the 20 year life of the project so the net present value is zero at any discount rate and the internal rate of return (IRR) is less than zero. The net benefit flow is 35 per cent less than the total cost stream from Year 7 on.

Sensitivity analyses

Several changes have been made to the net benefit stream to test the sensitivity of the project to changes in the basic assumptions, and to indicate what level of benefits would have to have been obtained for the project to have a reasonable rate of return. A summary of the results of the sensitivity analysis is shown in Table 7.2.

a) The basic analysis has been repeated with the maize price increased by 50 per cent to reflect prevailing world market maize prices rather than the import cost of subsidised maize from RSA. This has the effect of reducing the negative NCF to E 407 000 from Year 12 on, but as the NCF remains negative throughout the IRR is still less than zero.

Table 7.2. Summary of results of sensitivity analyses

Normal Analysis	Net benefit flow always negative. Therefore no NPV and no IRR
Sensitivity Analysis	
a) Basic Analysis with maize price increased by 50%	NCF always negative.
b) Basic Analysis plus half livestock benefits assumed in Appraisal Report in 1982/83 prices.	NCF always negative.
c) Operating costs halved	NCF always negative.
d) Basic Analysis with farm labour at E 1,00 per day.	NCF always negative.
e) Five times net benefits with farm labour at E 3,00 per day.	NPV at 10% - E 1 916 000. IRR 4%
f) Six times net benefits with farm labour at E 3,00 per day.	NPV at 10% E 131 300. IRR 10%
g) Farm labour at E 1,00 per day and three times net benefits	NPV at 10% E 631 900 IRR 12%

b) As there is a degree of uncertainty about the effect of the programme on livestock production because no measurable effect on livestock can be identified, a sensitivity analysis has been done using half of the livestock benefits assumed for the economic analysis in the Appraisal Report, readjusted to 1982/83 price levels. Even with the inclusion of these benefits of E 450 000 per year the NCF is still negative and the IRR less than zero.

c) The projected operating costs (following the methodology used in the Appraisal Report) do not take into account the cost of the basic services that would be provided in the without project situation taken over by the project or allow for the spill-over of some services such as specialist extension staff to non-RDAs. To test the sensitivity to a reduction in incremental operating costs an analysis has been done with operating costs halved but even with this reduction the NCF remains negative.

d) The basic analysis has also been carried out with incremental farm labour valued at a shadow price of E 1,00 per day instead of E 3,00 per day. This too had no major effect on the economic returns as the NCF remained negative throughout the 20 year life.

e) and f) As a measure of the effect of increased crop production on economic returns, the net benefits (gross income less production costs and incremental labour) have been doubled, then tripled etc., until a reasonable economic return is obtained. A five-fold increase in net benefits gave an IRR of 4 per cent (NPV at 10 per cent : -E 1 916 million) and at a six-fold increase in net benefits, an IRR of 10 per cent was obtained.

g) With farm labour at E 1,00 per day instead of E 3,00, three times the net benefits gave an IRR of 12 per cent.

Conclusion

The estimated quantifiable benefits from crops and livestock are much lower than project costs incurred so far and projected future costs for the programme. It is extremely unlikely that the programme has had or will have a reasonable economic return of say, an IRR of 10 per cent.

The economic return is sensitive to the cost of incremental farm labour. As the average return per man day for maize and cotton generally only exceeds the imputed labour costs per man day by a small margin, the estimated economic returns to increased crop production after deducting labour costs are relatively small. Hence the considerable improvement in the economic return when labour is shadow valued at a lower rate.

However as there are considerable opportunities for off-farm employment in Swaziland it is more realistic to use an economic wage rate similar to actual wage rates than to assign a much lower shadow value. The shadow value of labour of 50 per cent of market rates used in the Appraisal Report probably under-estimated the economic cost of production, and therefore over-estimated returns from the project.

Comparisons with Appraisal Report

The Appraisal Report calculated that the IRR of the project would be in the order of 20 to 25 per cent. This assessment was clearly extremely optimistic, and because the basic assumptions used were incorrect this high IRR had little prospect of achievement. The reason why the present economic return is so much lower than the Appraisal Report prediction is simply that the projected large increases in crop and livestock production did not happen and are unlikely to occur in full. Over half the assumed benefits in the Appraisal Report were projected to occur from increased tobacco and potato production and this review cannot identify any measurable increase in the production of these two crops that can be attributable to the RDAP. We consider that it was unfounded to base a major part the economic performance of the project on the production of these two crops when there was little or no evidence that they would be adopted by smallholder cultivations in Swaziland. Although it has an attractive gross margin per hectare, tobacco has a relatively low return to labour and has also become less profitable because of the decline in tobacco prices (in real terms). Potatoes, although having a high return to labour, require such a high level of inputs that the cost is beyond the resources of most smallholder farmers. These factors should have been taken into consideration in the original Appraisal, at least in a sensitivity analysis.

7.6. SOCIAL BENEFITS

The multi-donor RDAP has evidently not achieved the economic returns projected because the expected increases in crop and livestock production did not occur. Nevertheless, the programme has had a wide ranging and generally beneficial social impact. Most of these social benefits are not readily quantified, so they are not reflected in the conventional cost benefit analysis described earlier in this chapter. However, in the context of rural development they are very important, and so we have described briefly what appear to have been the main social benefits of the RDAP. Further details are in

Annex F. The main social impact of the RDAP can be summarised into three aspects, namely those activities that may have improved the general standard of living through the provision of direct or indirect social services, employment and income distribution effects, and the development of community initiatives and attitudes to development.

Social services

The most important and popular social service provided by the RDAP is regarded as piped domestic water supplies. This component failed to meet its targets, largely as a result of a lack of appreciation by the planners of the time and organisation required for design and construction. However, by the end of the phase an estimated 14 per cent of households in the maximum-input RDAs, and three per cent of households in the minimum-input RDAs, had been provided with piped water. While improved health may be considered to be the primary objective of piped water supplies, this has not always been achieved because water sources are usually contaminated. Nevertheless obvious social advantages have accrued from the convenience of a piped water supply close to hand.

Roads are generally regarded as the second most important social service provided by the RDAs and one of their main perceived benefits is that they have allowed improved access for light two-wheel drive vehicles, facilitating the supply of inputs and marketing of crops, and also allowing homestead members to commute to work or visit their homes more easily.

The multi-donor funded RDA achievements included the extension to a health clinic and the provision of three ambulances and sets of medical supplies, which were administered by the Ministry of Health. Although not quantifiable, benefits would have emanated from this component in the areas served.

Other items provided by the RDA which have contributed to social services were: input sheds which also handled consumer goods; meeting halls; day care centres for small children at the RDA centres, and assistance in rural electrification. The fencing programme has reduced the need for close cattle herding and allowed more children to attend school.

Development of community initiatives

A major social impact of the RDAP has been the practical assistance it has been able to give to self-help groups, and the development of initiatives and awareness in the community that rural development can improve living standards. The main assistance has been in providing artisans, labourers and drivers to provide support to community efforts such as for the construction of piped water supply schemes.

The other major effect is that because the community has generally been closely involved in land use planning and resettlement, they can see themselves as being more closely involved in the development process. The foundations of co-operation and participation have been laid for the future.

Employment and income distribution

A more direct social benefit to those involved has been through the employment of officers, artisans, drivers, guards, labourers, etc., in the RDAP, and the use of RDAP transport and communications. An effort was made to employ staff in the lower grades from within the community involved, so that some income distribution and improvement in welfare would have resulted locally from their employment and increase in consumption. The encouragement of higher yielding maize varieties, better husbandry and the tractor hire service would also have reduced the labour required for food production and led to a better standard of living and improved nutrition.

CHAPTER 8 OVERALL PERFORMANCE AND CONCLUSIONS

8.1. TIMING OF THE REVIEW

The review has been carried out in the sixth year, or five full agricultural seasons after the expanded multi-donor and UK-assisted programmes became effective, incorporating six new maximum-input and eight minimum-input RDAs. As the donor funding period is now virtually at an end, and the five years allocated for implementation complete, a major review of progress and assessment of impact is well-timed.

Although important, the review of implementation and financial performance has been relatively straight forward, requiring the assembly and analysis of large volumes of information from a diversity of sources. At the end, however, the achievement in terms of physical construction, disbursement pattern of funds, and actual costs can be compared with targets and estimates established at project appraisal, and the conclusions are unlikely to be in dispute.

Reviewing agricultural and social impact is more controversial, particularly in a production system dependent on uncertain rainfall and where agricultural impact will reflect a voluntary response from farmers to the implementation of various measures, and access to advice. In these circumstances it can be argued that five years is too short a period in which to expect any measurable trends. The "too early" argument is reinforced by the recognition that there were substantial delays in implementation, and that the latter two of the five seasons had significantly lower rainfall than could normally be expected. It can also be argued that although the Monitoring and Evaluation Unit of the MOAC provided useful insight into the farming systems and organisation of smallholders within the SNL, the system as a whole was not designed to pick up production trends, reflecting changes in areas cultivated, cropping patterns and increases in yields.

Although these are strong arguments against placing too much weight on the results of analysis carried out to detect production trends, they do not detract significantly from the value of a review at this stage. The reason is that the programmes initiated in 1978 were not dissimilar from that initiated in 1970/71 (four UK-funded RDAs) for which approximately ten years of data are available, and more importantly because enough information is available (from both historic sources and the studies carried out by the Monitoring and Evaluation Unit and the Rural Sociologist in the MOAC) to test the underlying assumptions upon which the programmes were based. The aim of this chapter therefore is to draw together the main conclusions in the foregoing chapters, examining where appropriate on which the programmes were based.

Despite the uncertainty about the eventual impact of the programme on agricultural production, the timing of the Review is believed to be particularly appropriate. The GOS is currently considering a strategy for the next phase of development in the rural areas and it is essential that an analysis of the experience and conclusions drawn from the past ten years of rural development is available.

8.2. IMPLEMENTATION

Effectiveness

The multi-donor programme became effective in January 1978 after a six month delay due to various administrative processes in setting up a project involving four donor agencies and the GOS. As it was essentially an expansion of an existing programme, and conditions of effectiveness were already fulfilled, there was no delay in effectiveness of the UK-assisted programme. Implementation of the Infrastructure Support Project (USAID), although finalised in September 1978, suffered successive delays in getting staff and equipment. The full complement of staff was not reached until January 1982, and a large part of the machinery did not arrive until 1983.

Apart from minor adjustments in the multi-donor programme, such as an increased grant from EDF to enable the Extension Officers' Certificate course to be continued for another year, construction of an additional 55 low-cost staff houses, and reallocation of funds from the incremental inputs and land development components to financing technical services (training and studies), there were no major changes to the programmes after effectiveness.

Plan approval

Apart from Mahamba/Zombodze, implementation of all of the multi-donor funded RDAs was delayed; four RDAs by one year, three RDAs by two years, and in one RDA the delay was three years. These delays were, for the most part, attributable to the lengthy procedures for planning and acquiring plan approval from the CRDF. To a lesser extent they were due to limitations on the capacity of the LDS (staffing and equipment) to implement them, particularly in the earlier years. Given the experience of the four early RDAs, there is no reason why these delays could not have been anticipated and a reasonable amount of time allowed in the various project documents, for plan preparation and approval.

Achievement of physical targets

The delay in commencing implementation clearly influenced the achievement of targets for the full five year implementation period. Despite this however, the overall achievement (UK and multi-donor) was impressive, and by the end of the programme most of the important infrastructure development was complete. All of the building programme, bush clearing, dip tanks, and a majority of the road construction and homesite levelling was finished. However, less than half of the proposed fencing, water supplies and irrigation development was installed, and achievements in soil conservation and associated works (e.g. donga rehabilitation and artificial waterways), pasture improvement, and stock water dams, was well below 25 per cent of the targets, which in some cases were unrealistic.

The major differences between achievements and targets occurred in the early years and were largely attributable to the delays in plan approval and the time required to build up implementation capacity, particularly in the LDS. It is notable that the final year's achievements for major items (illustrated in Figures 3.1. and 3.4.) frequently exceeded the maximum planned target for any year. Also the items with the greatest shortfall (i.e. terracing, donga rehabilitation, artificial waterways and fencing) were probably the least critical and in any case, require reconsideration (Section 8.3.5.).

Procurement

Although procurement procedures are lengthy, vehicles and equipment were obtained according to, or occasionally ahead of, schedule. There were no significant procurement problems.

Reporting

Annual work programmes with supporting budgets were submitted to the IBRD as agreed in the Appraisal document. They were aggregate programmes prepared centrally, and were not based on individual programmes for each RDA.

Although they were useful as an annual guide to overall programmes and expenditure, they were of little value as a working/programming document for individual Project Managers.

Quarterly reports were also produced, which gave an up-to-date statement of expenditure against budget. They did not however, cover physical progress, or the results of monitoring and evaluation. In addition to these, regular half yearly monthly and annual reports for donors' meetings, and reports from the Monitoring and Evaluation Unit, were produced. Although the lack of information monitoring physical progress reduced the value of reports as an aid to internal management, a reasonable level of reporting was maintained and the donors' requirements were met.

8.3. OPERATING PERFORMANCE

8.3.1. Impact on crop production

The impact of the RDAP on crop production was examined with regard to changes in total crop production and its two constituents: changes in area and changes in yield. Although data from all the RDAs were examined thoroughly, particular emphasis was given to those earlier RDAs which have had adequate time to respond to the infrastructure and services provided.

A major problem with the data which has been collected systematically is the extent to which it is aggregated when presented in reports. This has limited the comparisons which can be made, particularly between individual RDAs, non-RDAs, and early and new RDAs, and ultimately on the conclusions which can be drawn.

The data available for all RDAs suggest that between 1976 and 1982 the proportion of cultivated land has increased slightly from 11 to 13 per cent. Over the same period the proportion of cultivated land in non-RDA land has fallen from 10 to almost 5 per cent. While the difference in trends is probably accentuated by the fact that RDAs are generally areas of higher than average potential, the programme has probably had some impact in at least maintaining the proportion of land cultivated. Data for the same period from the four original RDAs would tend to support this, and indicate an increase in the proportion of cultivated land of one per cent per annum.

Taking all crops into consideration, the overall conclusion is that apart from cotton, there have been no significant increases in areas planted and the decline in maize area has been greater than predicted. Where areas have declined, the decline is less marked in RDAs than in non-RDAs.

Yields appear to have remained static and have been well short of the Appraisal Report targets, which in most cases were unattainable. In the older RDAs, however, yields are generally significantly higher than in the newer ones.

Although the impact of the programme in terms of increased crop production is much less than anticipated, we believe that it has probably made a contribution in slowing down what might have been an even greater decline.

8.3.2. Uptake of agricultural inputs

The anticipated increase in crop production was to a large extent expected to be a function of increased uptake of agricultural inputs (hybrid maize seed, crop protection chemicals, fertilisers and lime), made more easily available by the programme. The rapid uptake of hybrid maize seed throughout the SNL has been a major success and within the RDAs it exceeded the Appraisal Report targets. There has also been a significant increase in the use of crop protection chemicals. The increase is probably more pronounced in the RDAs than non-RDAs and the quantities used per hectare of crop are higher.

Although the fertiliser application rates in RDAs are well below target (about 50 per cent) the data indicate that application rates are higher than in non-RDAs. There has been a general decline in the use of lime throughout the country and there is no indication of an increase in the use of lime in the RDAs.

Overall the uptake of inputs has probably been higher in the RDAs than in the non-RDAs. Again, however, the inability to disaggregate data detracts from the precision with which conclusions can be drawn.

8.3.3. The impact on livestock

Conclusions on the impact of the livestock components are limited by lack of data (due to no specific provision for monitoring) and are drawn mainly from comparisons of performance in the three early RDAs with District and national trends.

Productivity

To date the programmes have had no measurable impact on stocking intensity, herd structure, or productivity as indicated by offtake, calving percentages or mortality.

Fencing and range management

Stocking intensity has increased significantly in the fenced areas and the condition of the range has deteriorated in comparison with unfenced areas. Rotational grazing is only practised on the "group ranches". The fencing carried out has led to an imbalance between summer grazing and winter grazing. The attraction of fencing to livestock owners is more related to the reduction in herding than to control and management of the range. It should not be continued in the present form.

Pasture improvement

Because an insignificant proportion of the targets have been met, this part of the programme has had little impact. There is evidence, however, that with reasonable management pastures can be established and maintained successfully. Range seeding has not been carried out successfully, but is not worth pursuing unless control of stocking intensity can be achieved. Overall the programme has not gone beyond the investigation/demonstration phase.

Bush clearing

Almost 4 500 ha have been bush cleared using ball and chain, and brush cutters plus chain saws. Neither method has proved entirely satisfactory as they have not been followed up with resting and burning. Bush clearing is only justifiable in the densest of bush and then should be accompanied with the use of arboricides.

8.3.4. The Tractor Hire Pool

The Tractor Hire Pool (THP) has been closely monitored since it was established in 1974 and good data on its operating performance are available. The THP has been well managed and has achieved levels of utilisation and efficiency which are higher than would normally be expected from a state run operation. The main constraints on its efficiency arise from the Government regulations concerning employment of staff, and the restrictions which these place on wages, bonuses and working hours.

The arrangements for repair and maintenance of tractors and equipment are adequate for the present scale of operation. Should operations expand, particularly on a geographical basis, the arrangements for repair and maintenance will have to be revised.

Although the principle that the THP should operate as a financially sound service, allwoing fair competition fromthe private sector, was agreed at the time of establishment, this has not been the case. The Pool has operated at a steadily increasing loss as the Government has consistently declined to raise charges to a level that would eliminate subsidy. At current costs this would mean almost doubling charges and could result in a drop in utilisation of tractors because the current private sector charges are of a similar order to those of the THP. There is no firm evidence however, that the THP charges are depressing private sector charges and thereby curbing private sector expansion.

The major problem with the THP costs is the exceptionally high fixed element (wages, salaries, buildings, depreciation, replacement and services) amounting on average to 80 per cent of the total cost. As it is unlikely that this element can be reduced to a reasonable level by increased utilisation, the Pool charges will always have to have some element of subsidy. In this case the original objective of a limited operation aimed primarily at demonstrating a role for mechanization should be strictly adhered to. Alternatively some of the fixed costs (salaries, and maintenance of buildings) could be allocated to general MOAC overheads, and a resolute effort could then be made to achieve financial independence within a more favourable cost structure.

8.3.5. Soil conservation and land development

Soil conservation

The problem of soil erosion in SNL has been overdramatised. As a result of the excellent conservation work in the past, almost all of the cultivated land is protected by grass strips. Because cropping is restricted to land with moderate slopes, and the low erodibility of the soil, erosion is not a serious problem on arable land. Therefore, the low achievement of the terracing programme (Section 3.5.) is of little consequence. In the grazing areas, despite high stocking intensities and low levels of grass cover, sheet erosion is neither severe nor widespread. Serious erosion is taking place in localised areas near watering places and dips, but the areas affected are small and the impact on the range as a whole is slight. Gullying is also serious in localised places, but whereas its appearance is spectacular, its impact overall is small.

In the RDAP too much emphasis has been placed on mechanical conservation measures, particularly replacing grass strips (many of which have been in place for 10-15 years) with graded channel terraces, which if not adequately served by drainage disposal waterways, and regularly maintained, could make these areas more vulnerable to erosion. Furthermore the potential for erosion has probably been increased by building a dense network of roads in some areas.

In conclusion, greater emphasis should be given to controlling erosion through implementing appropriate land use patterns, and land and crop management practices.

The Land Development Section (LDS)

The LDS grew out of the old Soil Conservation Unit, and although it was anticipated that soil conservation would remain a major part of its work, the emphasis has changed from conservation to roads, water supply schemes, and small water conservation structures. The majority of its work is now concentrated in the RDAP.

The present fleet is not well matched to the tasks which it now has to fulfil (e.g. graders are not necessary nor suitable for terrace building, and earth carrying equipment is too large). There is a lack of standardisation, and the fleet is several times larger than it need be. Its potential capacity is considerably in excess of the capacity of the design and planning teams and consequently work is held up waiting for designs.

Plant is deployed in six large mixed units to enable a wide range of tasks to be undertaken. The result is that plant is frequently idle and the utilisation rate (i.e. operating, servicing, unavoidable travel and waiting) is low (27,5 per cent). By reducing the time when machines are disabled this could be raised to about 43 per cent, still well short of the 60 per cent utilisation rate expected by a private contractor.

Operating efficiency is currently at its lowest, as funds for major spares not available in the stores have now dried up.

Difficulties in recruiting suitable workshop staff have resulted in a history of poor management and supervision in the workshop. Although there has been a recent improvement particularly in monitoring and record keeping, little progress has been made with progress towards an appropriate management structure. Overall the workshop is not well managed, and is currently overstaffed. The effectiveness of mobile repair units has been greatly reduced by Government restrictions on overtime and overnight stops, which have led to large mileages and a high incidence of accidents.

The mechanical stores are equally unsatisfactory and are characterised by excessive stocks, inadequate control, an imbalance between slow and fast moving spares, and laborious inefficient procedures.

8.3.6. Credit

The Appraisal Report assumed that credit would be supplied by the SDSB, and the project provided some housing and vehicles in nine RDAs. The SDSB has proved an effective means of distributing credit, but the uptake has been low. Only 10 per cent of homesteads borrow, on average E 250 for seasonal purposes. Credit distribution through the cooperatives, mainly from 1975 until stopped by the MCAC in 1980, was disastrous and resulted in debts among homesteads and cooperatives.

Although comparative credit distribution and uptake of credit in RDAs and non-RDAs has not been monitored, there is some evidence that they are similar. Credit to cotton farmers has been unevenly distributed, and large borrowers had inferior repayment records. A study in Mahlangatsha RDA (1979) indicated that credit was not necessary to initiate purchases, and there is evidence that input use has increased at a faster rate than credit uptake. It is probable that credit from the SDSB, which had an interest rate between a half and a third of commercial rates, has been used as a substitute for cash resources at periods of peak requirement to purchase crop inputs, particularly labour saving inputs.

8.3.7. Marketing

Primary outlets for produce were neglected in the design of the RDAP, because it was assumed that surplus production would be sold through commercial channels, and because other projects were involved in co-operative marketing. As it happened, commercial organisations have not been active in SNL, and the cooperatives have, until the last three years, made little impact.

Provision of market outlets in SNL will not in itself stimulate production of surpluses for sale. Nevertheless, we support the view of the MOAC that marketing has been a possible constraint which must be corrected. There have been promising recent developments in the use of cooperatives for collection of crops, particularly maize and cotton. The extension and strengthening of these measures should be an integral part of RDA infrastructure and staffing. Pre-requisites for success are adequate management of the cooperatives, and careful monitoring, notably of operating costs.

8.3.8. Social impact

The RDA programme has had a wide ranging and generally beneficial social impact through improvement in the general standard of living and through direct or indirect social services.

The major social impact however, has been the practical assistance it has been able to give "self-help" groups by assigning artisans, labourers and drivers to back up community efforts. The role of the RDAP is particularly important because it offers relevant assistance and is based in the rural areas. We have no doubt that RDA management had encouraged a growing trend towards self-help projects (from schools to dip tanks), largely through their ability to give assistance with the minimum of bureaucratic procedures.

Of the social services established through the RDAP, piped domestic water supplies are by far the most important. By the end of 1982/83, 72 systems serving approximately 16 300 homesteads had been completed. Although they have had little impact on health because the surface water sources are generally contaminated, the social benefits in terms of time saving and convenience are considerable.

Other social services have included rural roads, input sheds, meeting halls, electricity, and day care creches. The extension of the clinic at Zombodze and supply of three ambulances will have had a positive if limited impact.

8.4. INSTITUTIONAL PERFORMANCE

The main institutions involved in the RDAP are the MOAC, its various line Departments and Divisions, the SDSB, and the Cooperatives. A new management unit, the RDAMU, was set up to mobilize and coordinate activities within the MOAC and other organisations, and to plan and implement components such as extension, land and livestock development, indirectly through divisions of the MOAC.

The proposal in the Appraisal Report to set up a new interministerial committee, which would meet at least twice a year to deal with matters requiring liaison and co-ordination between ministries, was not implemented, and the Rural Development Committee which had been active at the time, ceased to meet shortly afterwards. A sub-committee (of the Rural Development Committee), the Inter-ministerial Inter-institutional Rural Development Co-ordinating Committee (IIRDCC) was eventually set up, and although it has met regularly, it has not been adequately attended by officials with seniority and authority to speak for their organisation. There is therefore a need to strengthen the IIRDCC if rural development activities are to be properly co-ordinated.

8.4.1. MOAC : Department of Agriculture

RDAMU

Given the complexity of its task, particularly motivating departments and divisions within the MOAC, and other Ministries over which it had little direct influence, the RDAMU has proved an effective organisation. The building and procurement programmes, over which it had direct control were implemented in full, and a high level of financial budgetary control was maintained. The Unit could however, have benefitted from additional expertise in building design and supervision of construction, and assistance with annual planning and programming at the individual RDA level.

Extension service

With the immediate priority of establishing adequate infrastructure, project centres, fertiliser/input sheds and staff houses, it was inevitable that extension activities would be limited in the early stages. Nevertheless, the Extension Officers, through their participation and assistance to community efforts have established themselves in their areas. In 1982, the extension service, which hitherto had been separated between RDAs and non-RDAs, was unified, and livestock extension staff were brought under the Department of Agriculture.

Because research programmes in the past have been stronly oriented towards commercial (mainly ITF) farmers, there is a distinct lack of appropriate extension "messages" for the majority of moderate to poor farmers. Combining this with a historic preoccupation with "progressive" farmers and an objective to promote semi-commercial and commercial farming, it was not unexpected that contacts with moderate or poor farmers was limited. Although it is still early in the life of the re-oriented research programme, there is an immediate need to assemble extension messages which have more meaning to the majority of homesteads. Another major problem is the now widely recognised imbalance between specialist and generalist extension staff.

The training proposals suggested in the Appraisal Report have been implemented and a ratio of generalist extension staff to homesteads in the RDA of about 1:240 has now been reached. If field level specialists, who spend the majority of their time in RDAs are included, the ratio is 1:150. Emphasis is now being placed on in-service training.

The mechanisms for co-ordination/liaison with SDSB and CCU have been established (monthly meetings) and liaison is good.

Land Development Section (LDS)

The Land Development Section has been supported by a USAID project with a strong TA component since 1972. In terms of institution building, little has been achieved so far mainly because staff turnover (particularly the expatriate component) has been high. The full complement of US technicians have only been in post since January 1982 and there is a distinct possibility that counterpart training and handover will be curtailed.

8.4.2. MOAC: Department of Research and Planning

Research Division

Since 1978, when responsibility for research was returned from the University to the MOAC, there has been a hiatus in staffing. Currently only four officers of the twelve on establishment are in post; the others are under-going training in the USA. The current Cropping Systems Research and Extension Training Project (USAID) should enhance the re-direction of research towards smallholders in SNL, and should contribute towards the definition of appropriate extension messages.

Land Use Planning Section (LUPS)

Like the LDS, the Land Use Planning Section is supported by a USAID project, and a large input of American TA staff occupy posts which will later be filled by staff training overseas. Opportunities for working with and training counterparts have unfortunately been lost.

Monitoring and Evaluation Unit

This is now a small unit comprising an agricultural economist and a team of enumerators. The unit has produced a number of competent reports giving some insight into the organisation of smallholder farming in SNL. It has not had the staff or facilities, however, to carry out the comprehensive surveys necessary to enable the impact of the RDA programme to be assessed and compared with the planners' expectations.

8.4.3. MOAC: Department of Veterinary Services

Animal Health Division

The Animal Health Division has carried out its principal function of controlling disease and livestock movements effectively. Its contribution to extension, husbandry and to the RDAP could have been enhanced by more liaison with RDA management and extension staff.

Animal Husbandry Division

The major change since initiation of the RDAP has been the transfer of 53 Livestock Extension Officers to the Department of Agriculture in 1982. The effectiveness of transferred staff has probably been curtailed by the anomaly of being under the administrative responsibility of the Extension Service while looking for technical support from the Animal Health Division and remaining on the establishment of the Department of Veterinary Services.

The introduction of specialist poultry and dairy extension workers at field level does not represent an efficient or effective deployment of staff resources. Frequently the specialists work with very few farmers and are reluctant to undertake work outside their specialist field.

Range and pasture

The functions of the three Range Management Officers attached to the DVS are so wide that overall, their impact on RDA range and pasture programmes has been slight and the programmes have suffered from lack of supervision and monitoring. On the constructive side, the benefits of reduced stocking on "group ranches" have been demonstrated in a few cases.

8.4.4. MOAC : Department of Co-operative Development

Considerable progress has been made by the Department in training and improving the management of primary co-operatives, and in implementing the Ministry's policy of encouraging fewer primary societies with a more limited range of activities. Integration of co-operative and agricultural activities is succeeding and there is much closer liaison between extension staff and co-operative workers.

Although, the RDAP attempt to establish a revolving fund through the Central Cooperative Union (CCU) was not a success and had to be abandoned, we believe that the movement has a significant role in rural development, particularly if the current trend towards a more rational range of operations and strengthened management is maintained.

8.4.5. MOAC : Central Rural Development Board

The CRDB, although not a traditional institution, provides a means through which the views of the traditional authorities can be expressed, particularly with respect to matters affecting the utilisation of Swazi Nation Land. The primary function of the Board has been to consider agricultural and resettlement projects, ensuring that there has been adequate consultation with the local people and their leaders, and that proposals conform to the principles of proper land use and conservation. There is no doubt that the CRDB will go to considerable lengths, including denial of approval of plans (no plans were approved between 1976 and 1979), to ensure that its functions are satisfactorily fulfilled.

One of the major strengths of the RDA programme has been the degree of consultation and involvement of local communities, and the success of this can in large part be attributed to the CRDB.

8.4.6. The Swaziland Development and Savings Bank : SDSB

The SDSB administers the Agricultural Advisory Credit Scheme, and since co-operative credit has been stopped, is now the main source of seasonal credit for SNL farmers. The bank is firmly established and well managed and is served by a network of well trained field staff. Loan recovery is good. The major problem facing the bank is the high cost of administering a small number loans and the current interest rate of 7,5 per cent is therefore heavily subsidised. Despite good loan recovery, an interest rate of over 30 per cent is required to break-even. Loans are equally available to RDA and non-RDA farmers.

8.5. FINANCIAL PERFORMANCE

The financial performance of both multi-donor and UK-funded programmes were analysed with the aims of:

- comparing actual and planned expenditure, and determining the reason for any deviations;
- assessing the adequacy of physical and price contingencies;
- determining the impact of the programmes on the GOS recurrent budget.

8.5.1. Multi-donor project

Actual and planned expenditure

Of the total planned expenditure (excluding the USAID Project) of E 14 876 000, E 12 234 212, or 82 per cent, had been spent by March 1983. The most significant underspending was on land development and conservation, incremental crop inputs, and project management where 39, 25, and 50 per cent of planned expenditure was actually achieved. Infrastructure for extension services, and agricultural credit were slightly in excess of the planned expenditure. The principal reason for the overall underspending was the slow start caused by delayed effectiveness followed by further and more serious delays in approval of plans by the CRDB.

Pushing forward the major part of expenditure into the last two years compounded the impact of inflation, and although the annual price contingencies were adequate, the total inflation was almost twice that budgeted. On the positive side, the Government of Swaziland did gain through fluctuations in the currency exchange rates. From inception of the programme it is estimated that this has amounted to a gain equivalent to approximately E 0,9 million at current exchange rates. This is a substantial sum and goes some way towards offsetting the losses due to inflation.

Of the remaining funds unspent at 31 March 1983, the balance of ADB funds may still be used before December 1983, the EDF has no closing date while funds are unspent, and the IBRD loan was extended until November 1983 but any balance can be used only to fund consultancies. The GOS funds will be used to continue funding ongoing components of the programme.

8.5.2. The UK-funded Programme

The UK-funded programme can be divided into three separate but overlapping phases with a total planned expenditure of approximately E 15,0 million. Records and estimates of actual expenditure for the period between 1970/71 and 1980/81 have not been kept systematically. Our estimate of E 9,5 million, although primarily based on Treasury Annual Reports, has had to be compiled from a number of sources. While it is the best estimate we can make on the information available, it may be slightly low, as funds from Treasury allocated to PWD or LDS could have been used in the RDAs.

A fairly complete record of actual expenditure for the third phase (1976/77 to 1980/81) has been compiled, and the total was approximately E 6,0 million or just over 50 per cent of a planned E 11,6 million. The major shortfall was in recurrent expenditure (about 30 per cent of estimate) due largely to a fairly generous allowance for maintenance of buildings, roads, fences, etc. Following withdrawal of UK funding in March 1981, GOS has spent a further E 3,35 million (capital and recurrent costs).

The total planned UK contribution to Phase 3 was E 6,1 million, of which E 3,5 million was disbursed before the cessation of UK funding. As no clear indication of the intention to withdraw was given until mid-1981, GOS continued to fund essential components of the programme on the assumption that the UK commitments or funding would continue. The estimated cost of capital work completed between 1981 and the end of 1982 was E 2 million. Expenditure since then has been minimal, and only a small allocation has been made in the GOS capital budget.

8.5.3. RDA Infrastructure Support Programme : USAID (1978-84)

The planned expenditure was US $ 30 089 000 made up of $ 17 146 500 from USAID and a GOS contribution the equivalent of $ 12 942 600. By March 1983 $ 10,6 million of the USAID funds had been disbursed. GOS expenditure is estimated as E 10,0 million from capital budget and an annual E 150 000 from recurrent budget (salaries, wages, etc.).

8.5.4. Recurrent budgets

The MOAC's recurrent budget (excluding Co-operatives and Research recently transferred to MOAC), as a proportion of GOS total appropriated recurrent budget, has remained constant at around 9 per cent since 1969. The RDA programmes share of the MOAC budget however, has risen from 7,4 per cent in 1974/75 to 16,1 per cent in 1983/84, the major increases occurring in the past two years, coinciding with completion of donor funding and the transfer of a number of operating costs (which had been financed under the capital budget) to the recurrent budget. A further significant increase

(E 0,48 million) in recurrent budget bringing the total to E 2,0 million doubling in 2 years) is anticipated for the 1984/85 financial year, when all multi-donor project commitments have been completed and all of the operating costs in the programme are transferred to the GOS recurrent budget. Up to 1982/83 the UK-funded RDAs operating costs represented the entire recurrent budget.

Prior to 1983/84, salaries and wages accounted for 65 per cent of the recurrent budget, transport 25 per cent, and "others" (including maintenance) the remaining 10 per cent. When all operating costs, from 1983/84 onwards are included in the recurrent budget, the proportions will be: salaries and wages 80 per cent, vehicle running costs 15 per cent, and "others" will be reduced to 5 per cent.

8.5.5. Summary of expenditure

Since 1976/77 approximately E 45 million has been spent on the RDAP and the associated USAID Infrastructure Support Programme. Of this GOS has contributed E 22 million, while USAID has financed almost half of the balance.

In 1982/83 GOS contributed E 5,1 million, almost half of which, E 2,4 million, was spent on the LDS. Given its capacity to absorb funds and our conclusions on its organisational and operational efficiency there is strong case for reducing LDS operations considerably.

8.5.6. Debt servicing

Assuming that all of the AID funds are spent, that currency exchange rate fluctuations are minimal, and that no further expenditure (other than the present study) is incurred under the IBRD funds, the annual debt servicing repayments will decrease slightly each year from E 1,2 million in 1983/84 to E 1,0 million in 1987/88, but will never fall below E 0,7 million by 1997, when the loans should have been repaid. Debt servicing for the USAID loan will cost an additional E 0,5 million per year after 1988.

8.5.7. Revenues to GOS

The major revenues to GOS as a direct result of the multi-donor programme would be derived from revenues from the Customs Union and income tax from project employees, and would build up to a peak of E 0,67 million by Year 6. Revenues would then fall, becoming a negative flow of E 25 000 by Year 10. The fall reflects projected increases in maize production replacing imports from the RSA, and hence a reduction in revenues from the Customs Union.

8.5.8. Covenants

The major covenant concerning accounting and auditing procedures was fulfilled by GOS. Annual consultations with the IBRD on issues such as charges for project vehicles, vehicle renewal policies, and broad policies for increasing the financial anticipation of farmers in the programmes, did not take place.

8.6. ECONOMIC RE-EVALUATION

The economic re-evaluation was limited to the multi-donor programme for which good financial records have been maintained. The analysis was carried out at constant 1982/83 prices and a 20 year programme life was assumed. The basis of the analysis and methodology used were as far as possible similar to those in the Appraisal Report and thus the analysis and its results are directly comparable.

The major difference, and one which has had greatest influence on the result, was the revised projection of incremental production. This projection assumed that the RDAP has had an impact on production through curtailing the decline in cropped area which would have occurred without the project, and through modest increments in yields. The projected incremental production is considerably less than that anticipated in the Appraisal Report, but is the most optimistic forecast which could be made given the area, yield, production data available. A major factor contributing to the lower projection is that the Appraisal Report targets for potatoes and tobacco have proved to be extremely optimistic (over half of the Appraisal Report incremental production was derived from tobacco and potatoes). So far there has been no increase in area planted or yields, and given the high initial outlay for potatoes and returns to labour from both crops it is unlikely that any significant increases in area will occur.

The basic analysis and most of the sensitivity analyses carried out produced negative net benefit flows with recurrent costs consistently exceeding the incremental benefits. The incremental net benefits would have to be increased five fold to give a positive internal rate of return.

It is not inconceivable that the incremental benefits could be greater than those assumed for this analysis. It is recommended therefore that in future greater attention is given to monitoring and evaluation, particularly to the design of surveys which will detect slow and marginal changes in production.

It should also be noted, that the programme has had a considerable social impact which has not been valued, and as pointed out in Section 8.2. a significant part of that impact is derived from the physical presence of the RDAP and the infrastructure which has been installed as a component of it.

8.7. CONCLUSIONS

From the foregoing it is clear that the programme has had a significant impact in the rural areas, particularly in the installation of social infrastructure (piped water, roads) and in the fostering of community self-help (electricity, schools, etc.). It has also had some impact, however marginal, on raising agricultural productivity and has led to the establishment of extension centres and infrastructure outside the District Headquarters, and thus much closer to the communities they serve. The MOAC has demonstrated a considerable capacity for implementation as evidenced by the achievement in the past two years after the initial delays over plan approval had been overcome.

The principle of community involvement in planning is now well established, and through the efforts of the Monitoring and Evaluation Unit and the studies in rural sociology, there is now a much better understanding of the organisation of smallholder farming upon which rural development planning can be based.

However, the RDAP was justified on the expectation of considerable increases in agricultural and livestock production. Not only were the targets highly optimistic but some of the fundamental assumptions were also unsupportable.

8.7.1. Agricultural production

The most significant assumption was that rural homesteads were dependent on agricultural production and that constraints on natural resources, knowledge and motivation were the main factors limiting agricultural production. Thus it was assumed, that given the knowledge, the inputs, and improved physical resources, the potential returns from farming would stimulate greater interest, and deployment of labour, and ultimately would lead to increased agricultural production.

These assumptions did not recognise the extent to which the rural/agricultural, and urban/industrial sectors were already integrated, or the extent to which off-farm wage employment was already contributing to farm incomes. In effect there was competition for farm labour, and if a greater deployment of labour in farming was to be achieved, the potential returns would have to be competitive with those from alternative off-farm employment. The project assumptions were examined in Section 2.6. and we concluded that they were unfounded because:

a) Jobs in the formal sector increased rapidly throughout the 1970s. They were taken up by members of rural homesteads, and the availability of labour for intensifying farming activities was thus constrained. In 1978 over 80 per cent of homesteads had at least one member in wage employment.

b) Deployment of labour in wage employment was more attractive in terms of incremental homestead income than intensifying farming and moving towards a semi-commercial farming system. For the latter to become competitive would require significant increases in the areas cultivated, beyond the capacity of most farmers.

c) Wages for unskilled labour increased five fold throughout the 1970s, reflecting rapidly increasing demand, and confirming that availability of labour was probably an important constraint to increasing agricultural production in SNL.

The analysis also indicated that in terms of returns to labour, hybrid maize for home consumption was probably the most attractive crop, and that the expectation that farmers would easily move towards higher value cash crops such as potatoes and tobacco was also unfounded.

Besides the movement of labour due to availability of jobs, there has always been a strong tradition in Swazi society for young men to leave the homestead and seek wage employment (Annex F, Section 2.4.). A very small proportion of males under 30 years old are married and eligible to manage land independently, and have therefore few alternatives to wage employment. Also there are various stages in marriage, and while marriage is incomplete the tendancy to become involved in surplus production of crops for cash sale is reduced.

8.7.2. Livestock production

Besides the hoped for introduction of more rigorous culling, it was also assumed that destocking could be encouraged by promoting the development of more commercially based production systems which would lead to the sale rather than retention of cattle. Implied in this was the assumption that money realised from livestock sales would not necessarily be reinvested in livestock but in some alternative investment opportunity. Our comparison of returns on investment from various livestock enterprises with alternative institutional investment opportunities indicated that returns from re-investment in livestock were significantly better than returns from institutional alternatives. The analysis also indicated that even at stocking intensities of around 1,5 ha per Livestock Unit, returns from livestock were still competitive. Because the current average stocking intensity is in the order of 1,9 ha per LU, voluntary destocking is unlikely to occur.

Besides the investment argument, which explains a tendancy to acquire more cattle, there is also the question of the distribution of ownership of cattle between various members of all age groups in the homestead, and the fact that the homestead head does not have a direct or sole right to dispose of animals in the homestead herd. This has obvious complications for destocking and limits the impact which the development of a commercial attitude to livestock might make.

8.7.3. Soil conservation

Another important assumption in the RDA programme was that arable and grazing resources were under threat of serious erosion, and that dramatic measures, primarily the installation of mechanical soil conservation works such as graded terraces were necessary. Indeed there is some inconsistency between Annex 1 Section F in the Appraisal Report and the decision to continue with a major programme of replacing grass strips with terraces. Section F points out that "very little erosion is evident on arable land", and adds that "virtually all arable land has grass strips on the contour which have been maintained in a remarkable fashion and appear to have been effective in controlling erosion". Our own investigations confirm this view and conclude that the installation of terraces which require considerable maintenance is likely to increase the vulnerability of some areas to erosion if terraces cannot be maintained. The fact that such a small proportion of the terracing programme was implemented suggests that the MOAC also had misgivings and gave low priority to this component.

8.7.4. Conclusion

In conclusion what is inexplicable is that these assumptions were made during preparation of the project submissions, and were not questioned at Appraisal. The growing importance of wage employment to the Swazi rural Population was not a new phenomenon, and was pointed out by Holleman in 1960 on completion of one of the most elaborate surveys to have been carried out on Swazi Nation Land. The implementation of the programme was carried as vigorously as could be expected. Failure to achieve the results anticipated so far is not the fault of the implementing agency, rather it must be attributed to a poorly conceived plan. It is fortunate that some of the development targets (terracing and fencing) were not met because their impact may have been potentially more damaging than beneficial.

CHAPTER 9 FUTURE DEVELOPMENT IN THE RURAL AREAS

9.1. INTRODUCTION

The preceding chapters of this report have been devoted to reviewing the achievements of the Rural Development Areas Programme and assessing its effectiveness in relation to the original plans. It was concluded (Chapter 8) that the achievements have been significant, and a great deal of experience of implementing rural development has been gained. It is equally true, that some parts of the programme were inappropriate and had little hope of contributing either to increased agricultural production or improved quality of life in the rural areas. A number of constraints have also been identified, and in the supporting Annexes detailed recommendations for remedial measures have been made.

It is argued in the next section that the case for continued rural development in the 1980s is even stronger than it was throughout the 1970s, and that the principal issue is not whether to continue with rural development, but the level and intensity at which it should be organised.

The aim of this chapter therefore, is to translate the experience of the past ten years into a broad strategy for the continued promotion of rural development, and to suggest appropriate amendments to components of the current plans.

9.2. THE NEED FOR CONTINUED RURAL DEVELOPMENT

Rural development was not a new phenomenon when the 1970/71 maximum-input RDA programmes were introduced. It had been pursued through the extension service, the soil conservation unit, and various other initiatives since the 1930s, but at a much slower pace. One major difference in the 1970s has been a change in tempo. The process was speeded up, the intensity of development infrastructure increased, and expectations of potential benefits were raised. There is no doubt that expectations have been raised in the rural areas; communities in minimum-input RDAs expect similar development to the maximum-input RDAs, and those in areas not yet designated as RDAs are pressing to be included. Another major difference has been the extent of involvement of local people and their leaders in the planning process.

This widespread awareness of the programmes and the social benefits which can be derived represents a strong argument for continuing with rural development, particularly since a major disparity in the intensity of rural infrastructure between one area and the next has been created.

Another argument is that considerable effort and expenditure has already gone into the programme. Additional measures required to enable the potential which has been created through installation of infrastructure to be exploited should not be great, and compared with other alternatives have the advantage of cost effectiveness.

The strongest argument for continuing however, is linked to expectations of how the economy will continue to perform, the growth of the population and workforce, and the role of the rural areas in providing employment and absorbing population growth.

The resident population in Swaziland in 1983 is estimated to be over 600 000 and growing at the rate of 3,4 per cent a year, one of the highest population growth rates in the world. The 1976 census projected a population of over one million persons by the end of this century, and estimated that, of this population, more than half (512 000) would be of working age.

Based on projections of the country's economic growth, the Department of Economic Planning and Statistics estimates that employment should increase at 1,7 per cent per year. Taking an optimistic assumption, an increase of 2 per cent per year, the total number of jobs by the year 2000 would be 117 000. Thus about 400 000 persons of working age (almost double the current number of around 200 000) would have to be absorbed in the traditional agriculture sector.

Rural development in some form therefore, should continue. The alternative of reducing the effort in the rural areas would almost certainly condemn the growing rural population to increasing food and water shortages and perhaps ultimately to considerable hardship and poverty.

9.3. FRAMEWORK FOR THE FUTURE

9.3.1. Strategy

The proposals that follow recognise that rural development is an inherently slow and continuous process, and that it is not a matter of rapidly installing infrastructure followed by an immediate and spectacular response. Response in terms of incremental crop or livestock production will never be spectacular, and will be slow in building up. Because of this, and limited financial resources, costs should be kept to the minimum, and developments proposed should be examined carefully to ensure they are the most cost effective alternatives available. The associated recurrent costs should also be examined and their impact on Governments recurrent budget assessed.

The broad strategy proposed, therefore, is to build on the achievements of the current programmes, selecting only those components (or parts of components) proven worthwhile, and at every opportunity to encourage and involve community initiatives.

We propose that the RDA programme should be extended throughout SNL. The present approach of identifying discrete geographical entities characterised by agro-ecological homogeniety is sound and we suggest it should be continued so that each District is sub-divided into a number of Rural Development Areas; a total of between 25 and 30 RDAs is anticipated for the whole of SNL.

In carrying out the sub-division of Districts, locations of project centres and existing infrastructure should be re-examined with the aim of determining whether they could with some rationalisation of the RDA boundaries, serve a wider area. Plans for the new RDAs should take account of and by complementary to infrastructure and services already (including existing RDAs) established.

The new RDAs should aim at a greater dispersal of services with reduced project centres i.e. smaller input stores and sheds, and a greater number of outlying farmers sheds throughout the area.

Both from the point of view of cost and potential erosion hazards, plans for roads should be scrutinised carefully. The guideline should be to provide a minimum network linking the less accessable areas and farmers sheds with the existing roads, ensuring reasonable access to project centres. Concentrations of road networks should be avoided.

Priority should be given to establishment of the project centres, the introduction of a rational land use plan, ensuring reasonable access throughout the area and installation of domestic piped water supplies.

The installation of piped water supplies need not be dependent on relocation of homesites and homesite levelling. Water supplies could be piped to strategic points where, although they do not adjoin the homestead, the distance to a water source is significantly reduced.

Planners should be continuously aware of the size of population to be served, the cost of proposals, and their cost per capita, and should aim at ensuring an equitable distribution of expenditure between RDAs.

Other components such as fencing, pasture development, etc. should be dependent on community initiative, paid for by the community, but designed and supervised by the appropriate extension officer. There is no reason why the RDA management cannot assist with procurement and distribution of materials, but this should be done on the understanding that the community will bear the cost.

9.3.2. Institutional/Organisational changes

We do not believe that any major or far reaching institutional changes are necessary. The main point is that where necessary the district MOAC organisations are strengthened, and that the RDAMU acts as focus or catalyst for rural development within a strong district framework. Apart from the Land Use Planning Section, all of the modifications suggested are concerned with the Department of Agriculture.

RDAMU

We believe that there is a continuing role for the RDAMU both in co-ordination of activities of divisions within its own ministry and other ministries, and implementation of various components (e.g. construction of project centres, staff houses) and general administration of the programmes. We suggest that the structure of the organisation should remain largely as it is with one minor modification:

- the introduction of an intermediate level of co-ordination at the district organisation, by establishing a District Programme Co-ordinator (DPC) post in each District. The line of responsibility would then be from Project Manager through DPC to the CPC. The relationship of the DPC post to the district SEO must be carefully defined after discussion by Senior Officials in the MOAC.

The financial control function is vital and this section within the RDAMU should be maintained at least at its present strength to ensure the current high level of accountability, financial/budgetary control and procurement efficiency.

The Project Managers have a key role in implementing programmes. First they should be involved at the planning stage, as co-ordinator (and perhaps sometimes arbitrater) between the local development committees, Rural Development Officers (CRDB) and the technicians from the LUPS. Secondly they provide a focus for stimulating community involvement and thirdly they have responsibility for administering and organising implementation of building programmes and other project components. Their function therefore is more closely related to community development and administration than it is to that of an agricultural technician. These posts, therefore, need not necessarily be tied to agriculture; strong administrative skills, motivation, and sense of community development, would be equally good qualifications and could be found in other disciplines. Project managers who are already experienced could be used to manage implementation in the new RDAs.

Reporting of physical progress at the project level has been recognised as a weakness of the present programme. Better reporting and more involvement in monthly and annual work programming will require emphasis in the current and future programmes.

The Animal Husbandry Division

The arguments for transfer of the Animal Husbandry Division from the Department of Veterinary Services to the Department of Agriculture are given in Annex D. Essentially they are based on the disadvantages of the present system, where the officers are administratively responsible to the Senior Extension Officers in the Department of Agriculture, while they remain on the Department of Veterinary Services establishment. The arguments for improved efficiency and effectiveness are equally strong.

The proposal is that the AHD joins the Department of Agriculture and that it has two sections:

- Operations: which would be responsible for Government fattening and breeding ranch operations.

- Extension: which would provide specialist livestock extension services to farmers on SNL.

The conclusion on the range and pasture component (Section 8.4.3.) was that although not much had been achieved during the past ten years, there was potential for improvement and a number of specific measures are proposed in Section 9.4.3. In order to implement and supervise them adequately however, the range management and pasture establishment would have to be strengthened. It is suggested therefore, that a Senior Range and Pasture Officer is appointed, reporting through the Chief Animal Husbandry Officer to the Director of Agriculture, and that the number of Range and Pasture Officers (RPOs) is increased to four, each of whom would have two assistants who would be trained in post. One RPO would be assigned to the Operations Section and the other three to the Extension Section of the Animal Husbandry Division.

The Range and Pasture research establishment (one Range and Pasture Research post currently unfilled as the nominated candidate is undergoing training in the USA) would be enlarged to two professional posts, a Head of the Unit and a Range and Pasture Research Officer (RPRO), and a supporting assistant/technician post.

Liaison between the Departments of Agriculture, Veterinary Services and Research and Planning, would be maintained through the establishment of a small co-ordinating committee.

The Extension Service

No major structural changes are proposed; rather a reduction in the large number of specialist extension workers and redesignation of the majority of them as generalists. The reduced core of specialists would probably have higher level qualifications and additional post-graduate or post-diploma training in their specialist subject. They would be based at District Offices and serve entire districts.

Taken overall, the ratio of extension staff (i.e. staff at all levels) to homesteads in SNL is in the order of 1:300. This is considered adequate and cannot justifiably be increased. It is more important that the current distribution of staff is reviewed and that where necessary staff are redeployed to avoid undue concentrations in specific areas or districts. While the RDA programme has led to increased decentralisation of the service, this process should be continued further with more extension staff (and their houses) located in outlying areas away from the project centres.

The Land Development Section

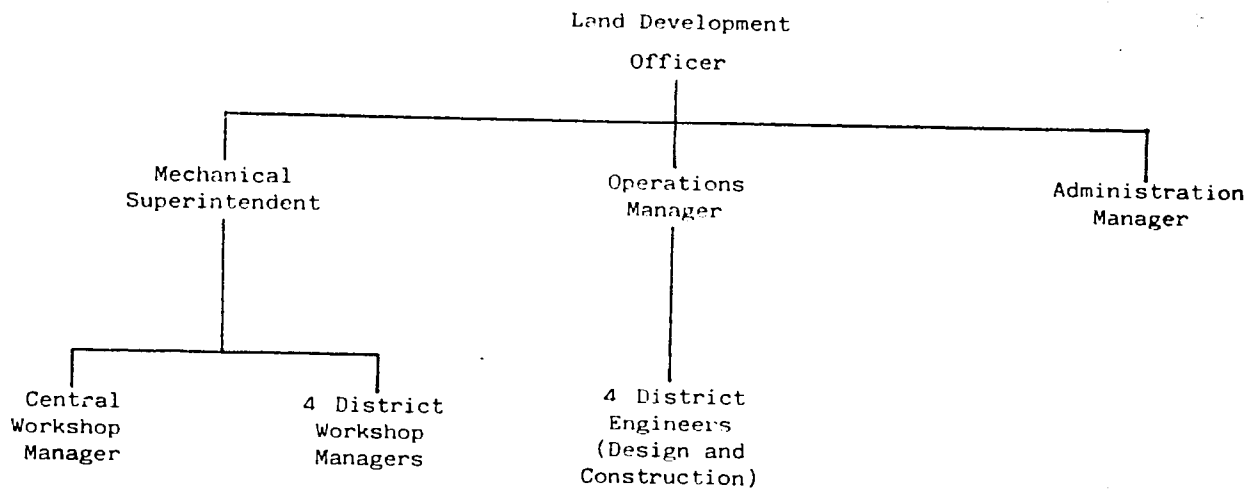
Annex E, Chapter 2 points out that there are grave problems associated with the Land Development Section, in its staffing, equipment and present organisation, and a reorganisation of the section is proposed. 'Once only' operations, like dam or road building would be separated from continuous operations such as road maintenance and a number of specialist units ("task forces") with the right combination of staff and equipment effectively to undertake specific jobs (e.g. dam building, road construction) should be set up. The advantages would be more efficient use of manpower and machinery and easier liaison with other Government departments such as Roads in Public Works.

The other major proposal is to decentralise both construction and maintenance activities to four District Centres as shown in Figure 9.1. Each district would have an engineer responsible to the Operations Manager, and a workshop and mobile repair truck under a District Mechanical Engineer (Workshop Manager) who in turn would be responsible to the Mechanical Superintendant.

As working within Government impairs the efficiency of the mechanical workshop, it is recommended that the possibility of transfer to parastatal status be examined, reducing its operations in scale and decentralising into four district units. The Matsapha workshop should therefore be drastically reduced, partly because of a reduced fleet (Section 9.4.4.) and partly because of decentralisation of repair and maintenance to the Districts.

A cost accountant should be appointed to supply the LDO with management accounts information and to assist with budgeting. Initially, he should receive technical assistance through the USAID project.

Figure 9.1. A Suggested Management Structure for Land Development Section



Land Use Planning Section

The main organisational proposal (Annex E. Chapter 3) is to separate the functions of national and regional planning, preparation of design manuals and technical guidelines, and training, from the very detailed planning to be carried out at the individual RDA. It is proposed that the latter be carried out by small mobile multi-disciplinary teams comprising four or five specialists (land capability, livestock/range, agronomy, soil/water engineering and community development). In the short term, additional technical assistance may be required to establish these planning teams and to enable a bank of detailed plans to be built up. Detailed design of minor engineering works should be transferred to its rightful place alongside construction, and hence to the LDS.

The Tractor Hire Pool

The proposals for the THP contained in the ADB/IFAD Smallholder Credit and Marketing Project are supported (Annex E, Chapter 4) as the best alternative for the future operation of the Pool. Although still managed by MOAC, the essential differences would be that the Pool would have a measure of financial independence, operating with a revolving fund established initially by SDSB, and that it would have authority to use incentive schemes. Its policy would still derive from Government. With extension of the RDAP, the Pool may have to decentralise and adopt a district or regional structure. It is recommended that the THP should move towards parastatal status at the end of the ADB/IFAD project.

9.4. IMPROVING COMPONENT EFFECTIVENESS

It is not intended that this section should provide comprehensive or detailed proposals for each component of the RDA programme. Its aim rather is to suggest various measures which could be introduced and which might increase the effectiveness of a specific service or lead to greater incremental production from the programme.

9.4.1. Agricultural extension and research

In Section 8.4.1. it was concluded that one of the major limitations on the effectiveness of the extension service was the lack of a clearly defined message which was applicable to the majority of farmers. The current messages which are based on the Research Divisions' Advisory Bulletin No. 1 (1977) are aimed at achieving high yields (for instance maize yields of 4-5 tonnes/ha), well beyond the perspective, ability to supply inputs and management capacity of the average moderate farmer. The messages are applicable to the minority of commercial progressive farmers; these are the farmers who are interested and who consequently receive greatest attention. However, improved yields from a minority of progressive farmers will have little impact on production as a whole, whereas improved yields on the majority of "moderate" farmers could have a significant impact. The argument of the "demonstration" effect of progressive farmers on the "moderates" has

rarely materialised; the moderates recognise that their resources differ, and consequently do not believe that the improvements could be applied by them.

If the potential of extension staff and infrastructure is to be realised, the service will have to be directed more towards the majority of farmers. This will mean acquiring a better understanding of the farming system and resources of the "moderate" farmers, and a deliberate and serious attempt to assist them. The most likely way of maintaining consciousness of the distinctions is to ensure that extension staff reflect them in regular reporting on their activities.

Research was not incorporated as a component of the current programmes. Fortunately the need for farm systems research, aimed specifically at farming constraints on SNL, has been recognised, and a six year project (USAID) was initiated in 1982. It is from this project, and from a motivated and perceptive extension service, that appropriate messages will have to emerge. In the meantime, in-service training is now the most immediate priority in re-directing and motivating extension workers.

Since the "moderate" farmer has limited resources, know how, and managerial capacity, and may also have interests outside the farm, recommendations should embody low cost, and low risk. Extension messages therefore should give priority to, timely land preparation and planting, improved seed and effective weed control. The latter represents one of the major problems and limits responses to most other inputs.

Finally extension should rely as little as possible on the "verbal" message, and wherever possible should use method demonstration as the main extension technique, concentrating on the major crops (maize and cotton) and aiming at groups rather than individual homesteads.

9.4.2. Livestock production initiatives

Communal initiatives

It has been concluded (Section 8.3.3.) that the objective of the RDA livestock development programme, of controlling animal numbers, restoring range and improving productivity, has not been met. Indeed it was concluded that the intervention of fencing has in most instances led to poor utilisation of total grazing available, and has had a detrimental affect on the range. There have been however, some small yet significant achievements on the four "group" ranches (described in detail in Annex F, Section 3.7.), which provide grounds for some hope. They demonstrate that when communal action is seen to be to the common good, the will and authority to implement it can be found. Between them, the "group" ranches have demonstrated that:

- communities can work together;
- grazing rotations with rest periods can be introduced and the benefits appreciated;

- destocking through removal of the least productive animals can be achieved;

- stocking limits can be established;

However, the ranches have not been monitored, so improvements either in productivity of animals or grazing cannot be quantified. Nevertheless, they demonstrate that control can be established through groups and that there is little point in directing extension or improved husbandry at individual homesteads which cannot respond independently. It is recommended therefore, that existing group ranches are monitored carefully, and that effort is devoted to promoting them in other areas though not yet as a major programme. They represent the main livestock production initiative available.

Another proposal, again aimed at a group or community, and specifically at one in an area which is heavily overstocked, and where grazing and animal production are in decline, is described in Annex F. (Section 3.7.3.). It is essentially a series of steps accompanied by appropriate monitoring and investigation which lead the community towards destocking in the expectation of higher productivity from fewer animals. The acceptability of the scheme would be enhanced by the fact that the management of the herds would allow many of the important features of the existing system: milk cows retained at the homestead, variation in individual herd size, acquisition of livestock by those without, individuals right to grazing ensured by membership of the group, and individual owner's freedom to decide on husbandry aspects such as breeding and weaning of their own animals, to be maintained.

Overall a fairly simple intervention, probably requiring 2-3 years to demonstrate results, is proposed. The first step would be to select a chiefdom characterised by severe overstocking and decline in productivity, and carry out a detailed range, animal production and sociological survey. This would be followed by the selection of a group with no social divisions, and then reaching agreement between the chief and the group on its right to a specific area of grazing. The grazing area would then be classified according to quality and the group persuaded to divide their herds into high and low productivity groups, the latter being assigned the poorer grazing. The high productivity group would be assigned to the better grazing, with stocking intensity adjusted as far as possible towards the optimum. If properly managed the experiment should demonstrate that productivity of animals with potential can be increased if range and livestock management is improved.

Livestock taxation

The introduction of a livestock tax to encourage sale and increase offtake of livestock has occasionally been suggested as a possible solution to the overstocking problem.

The principal argument in favour of taxation is that the cost would act as an incentive for livestock owners to dispose of stock surplus to their requirements. However, such cost must be measured against the high propensity to retain livestock, which offer a better return to alternative investments, and provide meat, milk, manure, and draught power.

Another argument in favour of taxation, is that the national herd costs GOS a considerable amount each year, mainly for animal health services. The recurrent budget of the Department of Veterinary Services is about E 8/head of cattle on SNL each year. The only statutory charge on the industry is the E 0,40 slaughter fee paid by butchers, which probably does not cover costs of collection.

The main argument against taxation is that the level would have to be very high to offset the homestead's propensity to retain cattle. In Section 2.6. we showed an example of a typical small SNL herd offering a return of 24 per cent a year on capital value (10 per cent in real terms). Over the last decade, cattle prices have more or less kept pace with inflation, so the cattle herd has at least maintained its real value. In contrast, investment in a bank savings account or building society account would have lost real value. Thus, even if the monetary returns from the typical small herd were reduced to zero by a taxation of about E 300/year (E 16-17 per head), it would still be attractive to retain the herd. Alternatively since present institutional interest rates are about 5 per cent lower than the rate of consumer price and cattle price increases, an additional tax of E 150 (E 8/head) on the typical small herd worth E 3 000, would have to be levied to bring the returns from cattle and institutional investments to the same level. The tax per head of cattle would then total E 25, which would probably be unacceptably high, yet a lower level would probably not achieve the objective.

Introduction of taxation would almost certainly have a negative effect on livestock production. The trust that has been built up over the years regarding confidentiality of the dip tank registers would be lost, and field staff and planners could find it difficult to encourage improved practices in an atmosphere of distrust. This in turn could lead to inaccuracies in dip tank registers, and census data would no longer reflect numbers, structure or herd dynamics.

The practical difficulties of tax collection due to the complicated pattern of livestock ownership would inevitably mean a significant level of avoidance. This in itself would create divisions in society between those who paid and those who did not.

We believe that the disadvantages of taxation outweigh any possible advantage, and suggest instead that the alternative of reducing Government subsidies in dipping, fencing, dip-tank construction, and fattening ranches be tried instead. For example, cattle owners are well aware that arsenite dipping material provided free of charge is less effective than more expensive chemicals used in the maximum-input RDAs and on ITF properties. GOS budgetary restrictions preclude the free issue of these more expensive chemicals. About 30 dip tank committees have already changed to the latter at their own expense, estimated at E 5/head/year. This self-help measure has the advantages of: being self-imposed, having no collection cost to GOS, and relieving GOS of the large recurrent cost of ensuring adequate tick control. At the same time, the cost involved might have some effect on the propensity to invest in, and retain, cattle.

We believe that there is enough evidence to support the view that if an innovation is worth while, farmers will not only adopt it but will be prepared to pay for it. This represents a more positive form of taxation.

Other suggestions:

- Pay greater attention to marketing, particularly by encouraging selection and sale of mature stock in good condition. The marketing effort should also be aimed at the larger herds where offtake is probably much lower and there is no incentive to sell. Present emphasis in the RDAs is on sale of old cull stock which will probably be used locally for meat and are generally unsuitable for commercial slaughter.

- Encourage better feeding of work oxen, and demonstration that with oxen in better condition, fewer numbers are required.

9.4.3. Range and Pasture Improvement

The recommended measures summarised in the following paragraphs are described in detail in Annex D, Chapter 9. The most immediate measure that should be taken is to introduce a moratorium on further general fencing of grazing areas for at least a year, to enable existing fence lines and designated grazing and arable areas to be mapped, as well as accurate estimates of total grazing, i.e. fenced summer grazing, grass strips, fallow and unfenced grazing. Inventories of all stocks of fencing materials should also be made.

With this information, revised plans could be drawn up in association with local committees. Fencing could be part of the plan but would include options such as fencing of specific arable areas or blocks of grazing within the designated arable areas. The aim would be to avoid the rigidity of the early plans which have led to poor utilisation of resources. Management principles such as limiting stock numbers or giving priority to lactating cows would be essential parts of the plans.

It is also recommended that grazing management in existing fenced and arable areas should be revised to allow free range grazing (in arable or grazing areas) in spring, to reduce pressure at this critical period. Thereafter at least one camp should be rested. Where grazing pressure is so acute that this is impossible, all camps should be open for grazing.

As mentioned in Section 9.3.1., future fencing should be dependent on community initiatives and contribution to capital and maintenance costs. RDA management should assist with design and supervision, and procurement and distribution of materials.

Pasture

A thorough review of all available data in Swaziland (and other parts of Southern Africa) should be carried out to determine the importance of pasture and forage crop production in SNL livestock systems. The review would include technical, economic and social aspects and lead to a strategy for future development of pasture and forage crops. Until a firm strategy is available work should be limited to maintenance and monitoring of existing pastures, trials on the introduction of legumes into range or grass strips using minimum cultivation, and techniques for establishing grass (Eragrostis curvula) on run down and abandoned crop lands.

Bush control

A series of measures are proposed for bush clearing activities:

- No further chain clearing should be undertaken, and brush cutting should be limited to maintaining existing brush cut areas.
- A technical and economic review should be carried out of existing cleared areas, and a firm set of criteria established for engaging in clearing.
- Control through resting and burning should be encouraged.
- More use could be made of goats in containing tendencies towards coppicing. Also the use of arboricides in bush control in Southern Africa could usefully be reviewed.

9.4.4. Soil conservation and land development

Soil conservation

There is no need for a crash programme on soil conservation (Annex E. Chapter 1). It is more important that a national strategy for soil conservation (formulated by LUPS) which would aim at conservation of the national resource rather than only those of the RDAs should be prepared. The broad policy should be to concentrate on grass strips and only instal terraces where absolutely necessary and when the farmers agree to maintain them. Where they are required, they should be built by wheeled tractors, such as those in the tractor hire pools, not by graders from the LDS. Finally cultivators should be reminded of the late King's decree on grass strips and be strongly discouraged from making them narrower or ploughing them out.

The Land Development Service

The main proposals for improving the efficiency of LDS operations (detailed in Annex E. Chapter 2) are summarised as follows:

- The design work now done by LUPS should be transferred to LDS where the proposed regional engineers (Section 9.2.) would be responsible for both design and construction.

- The Matsapa workshop should be drastically reduced, partly because of a reduced fleet, and partly because of the decentralisation of maintenance and repair to the districts.

- The LDS fleet should be substantially reduced by transferring surplus equipment to other Government agencies such as the Roads Department, or, if it is permissable under the terms of the loan agreement, it should be returned or sold. A special Board or Committee would be necessary to go into the details of which equipment is surplus to requirement. Strong candidates for disposal would be the two recently imported D8Ls, intended for bush clearing which is now not in favour, the CAT 815B compactor for which no work is in sight, and most of the earth-carrying equipment, since the present dam-building programme could be achieved with a tenth of the present capacity.

- Whenever possible semi-permanent camps for the units should be replaced by short-term operation before moving on to a new area.

- The farm tractors of LDS should be transferred to the Tractor Hire Pool Scheme, and can be hired from THP when required for LDS operations such as terracing.

- The possibility of sub-contracting cut-off jobs to private contractors, and hiring specialised plant from private contractors should be considered.

Land Use Plans

A number of broad recommendations, such as extending the USAID project, greater emphasis in professional as opposed to academic training, greater emphasis on introducing RDA managers to land use planning techniques, and the adoption of the Land Capability Classification system developed in Zimbabwe and Malawi as the basis for land use planning, have been recommended (Annex E. Chapter 3). The crucial issue however, is the preparation of development plans for each RDA. We have strong reservations about the quality and value of some of the plans which have been

produced and were frequently surprised at the lack of plans in RDAs, where it was expected they would be the focus of activity and thinking. The two major criticisms of the present planning system are:

- the professional planners are not involved in the system until the people's plan has been produced;
- the plans which are produced apply the same general principles with little regard for ecological differences between one part of the country and another.

The organisational changes in Section 9.3.2. (i.e. the establishment of a small mobile planning team to deal specifically with the RDAs), should enable plans to reflect local conditions and ecology, and to be specific to a particular area. This system would also allow early consultation between planners, the local people, and RDA manager, and lead to "people's plans" being formulated within the context of resource constraints which have been discussed either before or at the time when the development committees are assembling their ideas.

9.4.5. The Tractor Pool

Given the constraints of operating within Government, the Tractor Hire Pool has operated at a high level of efficiency and provides a worth while service. We believe that its objective, of introducing the concept of mechanisation and demonstrating the benefits from it, is generally being achieved and is worth pursuing throughout SNL.

We also believe, however, that the operation should be of limited duration (an original principle). When the function of demonstration is achieved, and demand for mechanisation created, the pool should move on to new areas leaving private contractors to meet the demand. The recognition that mechanisation has an important role is consistent with the need to raise productivity (early cultivations and planting), and to raise the returns to labour from crop production.

Financial viability is an important objective, but we cannot see it being achieved with the present high level of fixed costs. There is considerable scope for raising charges significantly and this should be done to reduce the level of subsidy to a minimum.

9.4.6. Cooperatives and marketing

The cooperatives have demonstrated that they can be the means for distributing farm inputs and consumer goods, as well as acting as primary market outlets. The need to rationalise the structure of the cooperative movement has been recognised by the MOAC, which encourages fewer larger, better managed cooperatives, gaining confident membership after the discouraging period when credit was mismanaged and the societies accumulated debts. Increased membership should follow more efficient service.

The marketing constraint is gradually being removed by the introduction of maize buying and storage facilities at cooperatives, and in one case collection of cotton for sale to the ginnery. Given improved management, which should be achieved with larger, more viable cooperative societies, this marketing function should be developed for those areas in SNL with surplus crops. Handling costs must be carefully monitored to ensure a reasonable charge to farmers. The community should be involved in the planning and operation of marketing schemes.

9.4.7. Social infrastructure

A great deal of infrastructure which has had significant social benefits, has been installed under the existing RDA programmes. Although probably at a much less intensive level, infrastructure will continue to be installed in new RDAs and existing minimum-input RDAs. Because it will probably be less intensive, it is even more important that criteria are established to ensure there is an equitable distribution of infrastructure and equal access to it throughout the country. We recommend that broad guides such as expenditure per capita or per homestead be applied, and that priority should be given to a basic road network and domestic water supply schemes.

We also recommend that a number of social issues are investigated (Annex F, Chapter 8). These include:

Social grouping - to support considerable recent efforts to identify the characteristics of domestic groups, and analyse their significance in the rural economy, particularly crop production and wage employment.

Homestead survey - a new survey will be needed in the near future, which should involve collaboration between the GOS and UNISWA. Also, a sample of homesteads should be investigated over a period of several years.

Community organisation - including: the nature and organisation of community projects, resettlement, acceptance of newcomers, and community involvement in grazing management and animal husbandry.

Response to government services -- including: farmers' response to extension methods and messages, and how farmers use recommended inputs' and practices.

The MOAC needs two types of permanent sociologist posts, one concerned with research, and the other (probably a more senior post) to advise on planning and policy.

9.4.8. Monitoring and Evaluation

The work programmes of MEU since the beginning of 1975 have been concerned primarily with understanding farming systems as an aid to planning, rather than with comparing farmers' behaviour with the RDAP planners' expectations, to determine the extent to which those expectations were fulfilled. This is understandable since the Unit did not have adequate staff to undertake comprehensive baseline surveys which would have enabled the latter to be accomplished. We believe that such surveys are necessary and if properly carried out the costs are justified.

We recommend, therefore, that a comprehensive programme of surveys of rural development activities is drawn up and implemented. This programme should take account of the interest of other organisations involved in rural development, and should include their participation if possible.

The scope of the monitoring and evaluation programme should inlcude:

a) Baseline study, covering existing RDAs at various stages of development, and non-RDAs.

b) Project implementation activities (physical and financial progress).

c) Extraneous conditions (physical and economic climate).

d) Evaluation of specific components (e.g. extension, water supply schemes).

e) Review after two years.

f) End of phase review/evaluation, say after five years.

On-going monitoring should include:

a) Project inputs (e.g. buildings, vehicles, equipment, staff, crop inputs, credit).

b) Project outputs (e.g. areas, yields, and production of crops; livestock production coefficients and numbers).

c) Social impact.

If carried out, it would help the MOAC to adjust its strategy for rural development, and provide a useful data base for extension of the programme to additional areas. The work could be carried out by the existing MEU, strengthened by a Monitoring and Evaluation Specialist with experience of rural development projects. The post could be filled from technical assistance aid.

APPENDIX

TERMS OF REFERENCE

SWAZILAND GOVERNMENT

TERMS OF REFERENCE FOR REVIEW OF THE RURAL DEVELOPMENT AREA PROGRAMMES

For a consultancy to asses the effectiveness of the project in relation to the stated objectives and to identify achievements and constraints, and to suggest remedial measures within a Rural Development Framework.

A. BACKGROUND:

The project was established initially to promote the well being of the rural population. Swazi Nation Farmers were to be assisted in undertaking semi-commercial and commercial farming as opposed to subsistence farming.

B. AREAS OF INVESTIGATION:

(a) The objectives and achievements should be analysed to assess the benefits of the RDAP. This will involve a comparison of crop and livestock production, and rural services, including extension services in all RDAs, and if necessary, non-RDAs.

(b) i On the basis of survey data on the sources of income and allocation of labour among Swazi rural households, the underlying project objectives should be analysed to indicate the extent to which the rural community dependent upon agriculture and responsive to incentives has actually increased production through labour input.

ii Comparison should be made between the returns to labour from the agriculture proposed under the project and from available wage employment.

C. THE EXTENSION SERVICE:

An investigation should be made at the farm level of:

i The effectiveness of the extension service.

ii Availability of research information to farmers.

iii The acceptability of the extension officers ideas and suggestions to the farmers.

In all the above investigations, reference should be made to the conclusions reached by the Ministry of Agriculture and Co-operatives in their recent reports. The study should be supported by farm budgets.

D. INFRASTRUCTURE DEVELOPMENT:

An investigation should be made of objectives and achievements of:

i Community Development Plans, specifically to find out whether the community develops initiatives after the plans have been introduced;

ii Road construction and maintenance;

iii Production;

iv Marketing;

v The actual pace of RDA plan approval;

vi The timing of donor funds release.

E. AGRICULTURAL INPUTS AND CREDIT:

The use of agricultural Inputs and Credit should be analysed for each of the project years and comparisons made of Input and Credit use (wi or without subsidy) between multi-donor and other RDAs, and if necessary, non-RDAs as well.

The role of co-operatives and other institutions, e.g. SDSB in the provision of inputs and credit should be studied.

F. OPERATIONAL AND MAINTENANCE COSTS INCLUDING THE LAND DEVELOPMENT UNIT

An analysis of operational and maintenance costs should be made, and future budgetary requirements provided. This analysis would include the evaluation of the appropriateness of the equipment employed by the Land Development Unit.

G. LIVESTOCK PRODUCTION:

As one of the project objectives was to modify cultural attitudes to livestock owning - to reduce overgrazing of communal areas through extension, and to provide improved marketing facilities, an analysis should be made of:

i The change in stocking on RDA common areas compared with non-RDAs.

ii The rates of offtake from the respective areas.

iii Changes in family incomes from livestock between the two areas.

iv Differences in livestock capital assets between RDAs an non-RDAs.

v The improved carrying capacities of pastures in RDAs to balance stocking rates.

vi Savings and investment attitudes for surplus family incomes in the light of low interest rates for deposits in the banking system and the overall low opportunity cost for money versus investment in cattle.

vii Other policies regarding accumulation or disposal of cattle with special reference to the role of the CRBD.

viii Descernible movement trends of livestock into or out of RDAs.

ix Increased offtake from RDAs due to the provision of cattle trucks.

x Production parameters between RDAs and non-RDAs.

The above aspects are specific to test the hypothesis that the RDAP would increase productivity, increase offtake through inter-alia destocking, and through better herd management, pasture improvement and animal health facilities.

H. The review analysis should consider economic and environmental implications of:

i Common grazing land as a free commodity, and suggest a taxation scale to encourage offtake;

ii Low interest rates and the lack of investment opportunities as an alternative to cattle;

iii The cost of veterinary services in the recurrent and capital budgets.

I. PROJECT MANAGEMENT:

An account should be given of the structure and staffing of the RDAP at central and area levels together with an analysis of the linkages with the ministries involved at all levels. The appropriateness of the management structures in relation to the scope of the project should be studied in detail.

J. EVALUATION:

A review should be made of all relevant reports produced by the Ministry of Agriculture and Co-operatives. There should also be a review of the evaluation system evolved by the RDA management unit through its field liaison services.

K. PROJECT COSTS AND BENEFITS:

An analysis is required of actual and projected costs by component together with an analysis of anticipated social, financial and economic benefits as compared with original goals. This should include an analysis of farm incomes inside and outside the RDAs to provide an objective assessment of project impact.

251

L. REPORTING FORMAT:

For the purpose of reporting and to avoid duplication, the consultant QOS report should take the form of the normal project completion repo The main contents are as follows:-

M. BASIC DATA SHEET:

1. Introduction.
2. Project history-identification, preparation and appraisal.
3. Implementation.
4. Operating performance.
5. Financial performance.
6. Institutional performance and development.
7. SOCIO-Economic evaluation.
8. Conclusion.

Annexes

Maps

Department of Economic Planning
and Statistics

Mbabane

10th June, 1982