Danida

KENYA

KITUI ARID AND SEMI-ARID LAND DEVELOPMENT PROGRAMME

Appraisal Report prepared for Danida by a Mission visiting Kenya from 29th May to 17th June 1988

April 1989

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APPRAISAL REPORT
KITUI ARID AND SEMI-ARID LAND DEVELOPMENT PROGRAMME

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104. KENYA 89

DANIDA, APRIL 1989

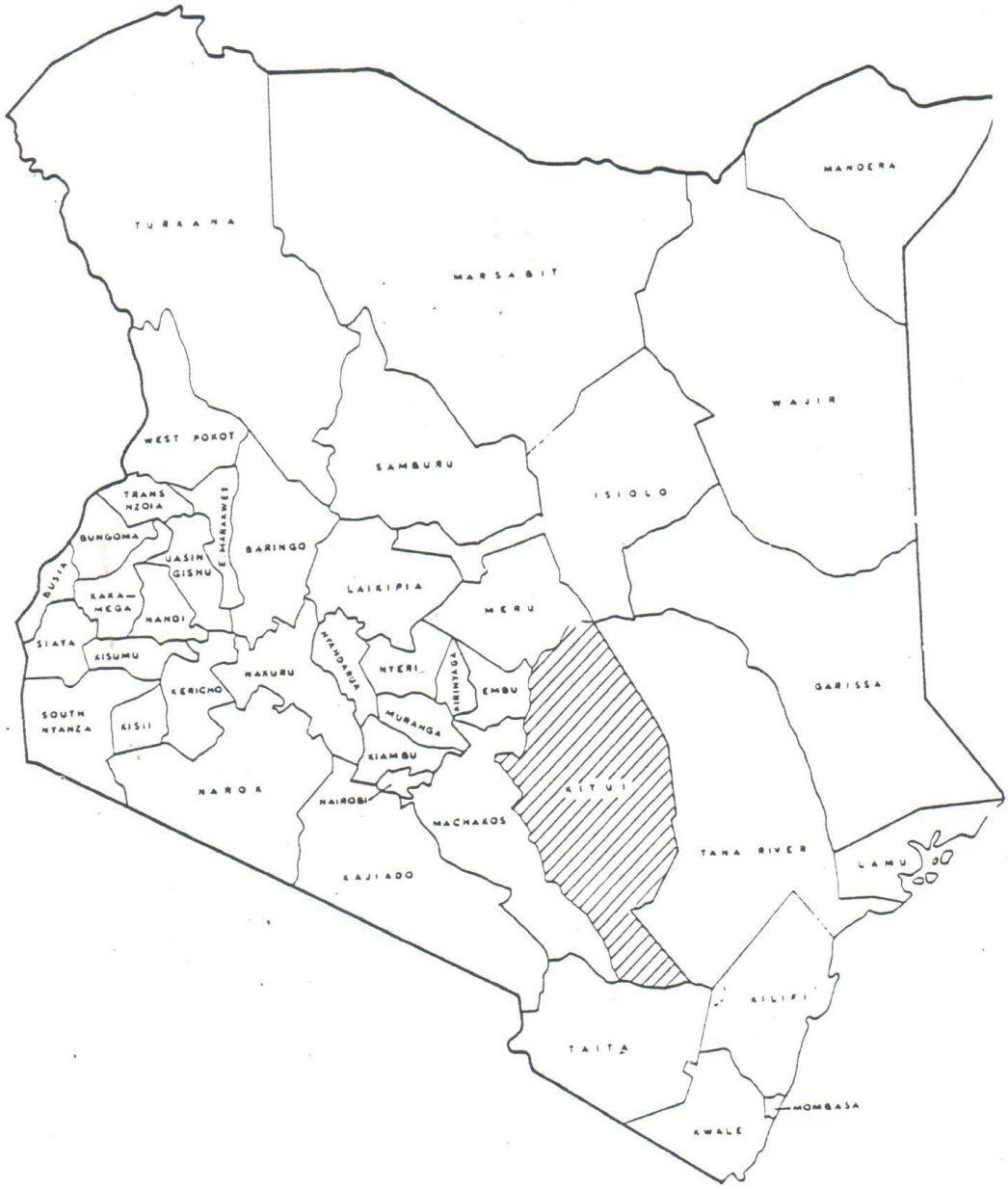
PROJECT IDENTIFICATION.

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Recipient Country:	Kenya
Project Area:	Kitui District.
Sector:	Rural Development
Responsible authority:	Ministry of Planning and National Development.
Objectives:	Within the overall objectives of the ASAL Programme as stated in the 1989-93 Development Plan, the overall development objective of the Kitui-ASAL Programme will be to support a development process in the district, based upon: - Regeneration and preservation of natural resources through soil and water conservation, afforestation and range rehabilitation. - Strengthening of community participation in development activities. - Improving agricultural and livestock practices. - Thus leading to increased agricultural and livestock production required to maintain the standard of living for the growing population.
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Fig. 1 MAP OF KENYA



KITUI ASAL DEVELOPMENT PROGRAMME

LIST OF CONTENTS

1. INTRODUCTION 1

2. SUMMARY 3

3. BACKGROUND 10

3.1 The Need for the Project 10
3.2 The Sector in its wider Content 10
3.3 Sector specific Background 12
3.4 The Project Area 15

4. PROGRAMME PROPOSAL 31

4.1 Brief Discription of Proposal and Logical Framework 31
4.2 Programme Objectives in General 44
4.3 Target Groups in General 45
4.4 Programme Strategy 46
4.5 Programme Proposal by Sector 50

4.5.1 Institutional Development 50
4.5.2 Water Development 54
4.5.3 Soil and Moisture Conservations 63
4.5.4 Agricultural Extension 68
4.5.5 Livestock Activities 70
4.5.6 Forestry Activities 73
4.5.7 Non-farm Activities 77
4.5.8 Mobilization and Training 78
4.5.9 Survey and Monitoring 87

4.6 Programme Organization and Finances 95
4.7 Programme Plan of Operation and Budget 102
4.8 Programme Reporting, Monitoring and Evaluation 106

5. PROGRAMME ANALYSIS 108

5.1 Technical Analysis 108
5.2 Institutional Analysis 126
5.3 Socio-Economic Analysis 129
5.4 Economic Analysis 130
5.5 Financial Analysis 131
5.6 Environmental Analysis 139

LIST OF ANNEXES

1. Terms of References for Appraisal Mission.
2. List of People met.
3. Programme of Appraisal Mission.
4. Programme Implementation Cycle; Phasing of Survey and monitoring Activities.
5. List of Documentation available to the A.M.
6. List of Office-, Stores, Workshop- and Guesthouse Requirements.
7. List of Equipment.
8. Job Descriptions and Terms of References for Consultancies.
9. Terms of Reference for Livestock Sector Study.
10. Livestock Development - Report on Interim Findings, 10th February, 1988
11. Kitui-ASAL Development Programme, Forestry Component, September 1989.
12. 1988/89 Kitui District Development Budget (excl. RDF).

LIST OF FIGURES.

Fig. 1	Map of Kenya
Fig. 2	Map of Kitui District
Fig. 3.1	Mean annual Rainfall
Fig. 3.2	Mutomo annual Rainfall (1957-1987)
Fig. 3.3	Topographical Features, Kitui District
Fig. 3.4	Agro-Ecological Zones, Kitui District
Fig. 4.6.1	Organizational Chart
Fig. 4.6.2	P.M.U organizational chart
Fig. 4.6.3	District organizational chart

ABBREVIATIONS.

A-in-A	Appropriation-in-Aid
AIE	Authority to Incur Expenditure
ASAL	Arid and Semi-arid Land
CDA	Community Development Assistance
DAEDO	District Agricultural Education Officer
DAO	District Agricultural Officer
DC	District Commissioner
DDC	District Development Council
DEC	District Executive Committee
DEO	District Educational Officer
DF	District Focus
DFO	District Forest Officer
DHO	District Health Officer
DPU	District Planning Unit
DSS	Department of Social Services
DWE	District Water Engineer
GOD	Government of Denmark
GOK	Government of Kenya
IMCC	Inter-ministerial Coordination Committee
IRR	Internal Rate of Return
K.Shs	Kenyan Shillings (2.6 K.Shs. = 1 danish Krone)
KWAHO	Kenya Water and Health Organizations
LU	Livestock Units (1 LU is the equivalent of one mature local breed, one donkey, 5 sheep or goats or 0.8 camel)
MOA	Ministry of Agriculture
MOA/AMS	Ministry of Agriculture Machinery Services
MOCSS	Ministry of Culture and Social Services

MOENR	Ministry of Environment and Natural Resources
MOLD	Ministry of Livestock Development
MOPND	Ministry of Planning and National Development
MOWD	Ministry of Water Development
M & T	Mobilization and Training
MTS	Mobilization and Training Section
NGO	Non Governmental Organization
OM	Operation and Maintenance
PSC	Programme Steering Committee
PMU	Programme Management Unit
RAES	Rural Afforestation Extension Service
SIDA	Swedish International Development Agency
SMS	Survey, Monitoring and Evaluation Section
SWCD	Soil and Water conservation Department (of MOA)
T & V	Training and Visit (Extension system)
UNICEF	United Nations Children's Emergency Fund
USAID	United States Agency for International Development
YP	Youth Polytechnic

1. INTRODUCTION

Denmark has provided support for the Mutomo Soil and Water Conservation Project in Southern Division, Kitui District since 1982. In September 1987 the Government of Kenya (GOK) requested the Government of Denmark to expand its engagement to the whole district and to take over the Kitui ASAL Programme, until then financed by USAID. The request was discussed during the annual aid negotiations in December 1987 and it was agreed that further action should await a report from the November 1987 evaluation of the Mutomo project. A draft evaluation report became available to Danida in early January 1988 and on the basis of its positive conclusions Danida decided to proceed with the preparation of the project.

A review of the material available showed, however, that the project proposal was very sketchy and required clarification on a number of issues and that Danida lacked a number of relevant documents (mainly from the USAID-financed project), so it was not possible to obtain a clear picture of which data were available and which were required.

Danida thus decided to field a pre-appraisal mission immediately to clarify the scope of the project and to get an overview of the data material.

The preappraisal developed a proposal for a Kitui ASAL Programme to be implemented through the Kenyan Administrative system in accordance with the District Focus strategy and prepared the T.O.R for a DANIDA appraisal mission. (See Terms of Reference Annex 1).

During the period 29th of May to 17th of June 1988, a DANIDA Appraisal Mission (AM) visited Kenya. The AM consisted of the following team:

- Mr. Kurt Moerck Jensen, Team Leader, Technical Adviser to Danida (Sociology)
- Mr. John Carlsen, Denconsult, (Economy and Management, responsible for final editing)
- Professor Eggert Hansen, External Consultant to Danida, (Water Development)
- Mr. Carl Harris, Mutiso Consultants Ltd. (Livestock Development)
- Professor G.-C.M. Mutiso, Mutiso Consultants (Institutional Development, Programme Strategy)
- Mr. Ove Sode, External Consultant to Danida, (Agricultural Development).

Discussions were held in Nairobi and Kitui District with the Ministry of Finance and Planning, The Ministry of Agriculture, The Ministry of Livestock Development, the Ministry of Water Development, the Ministry of Culture and Social Services, the District Commissioner in Kitui and his team. Experiences and plans of other ASAL Donors was investigated through meetings with Dutch aid, Norad and UNICEF.

The Appraisal Mission in May-June 1988 did not cover forestry activities. However, since the significance of including a forestry component in the ASAL Programme was realized a separate appraisal was undertaken in order to look into the needs and potentials for forestry activities by a DANIDA mission from 23rd August to 9th September 1988.

The Findings of this mission has been incorporated in this report (see chapter 4.5.6 and 5.1.4). The full text of the Forestry Appraisal is included as Annex 11.

In recognition of the overall importance of livestock for the successful implementation of the proposed Kitui ASAL Programme the AM in its Draft Report, August 1988, recommended that a "Livestock activities preparation study" be undertaken in order to prepare a framework for the preparation of activities and clearly identify which activities should be included in the final Plan of Operation for the Programme. The T.O.R. of the study is included as Annex 9.

This Livestock sector study was initiated by a Danida Consultant in late 1988 and a "Report of Interim Findings" dated 10th February, 1989 was made available for the AM for inclusion of the major findings in its final report.

The full text of the Livestock Interim Report is given in Annex 10, while its main findings are included as chapter 4.5.5: "The scope for Planned Change in the Livestock Sector" in replacement of the chapter on Livestock Development included in the Draft Appraisal Report.

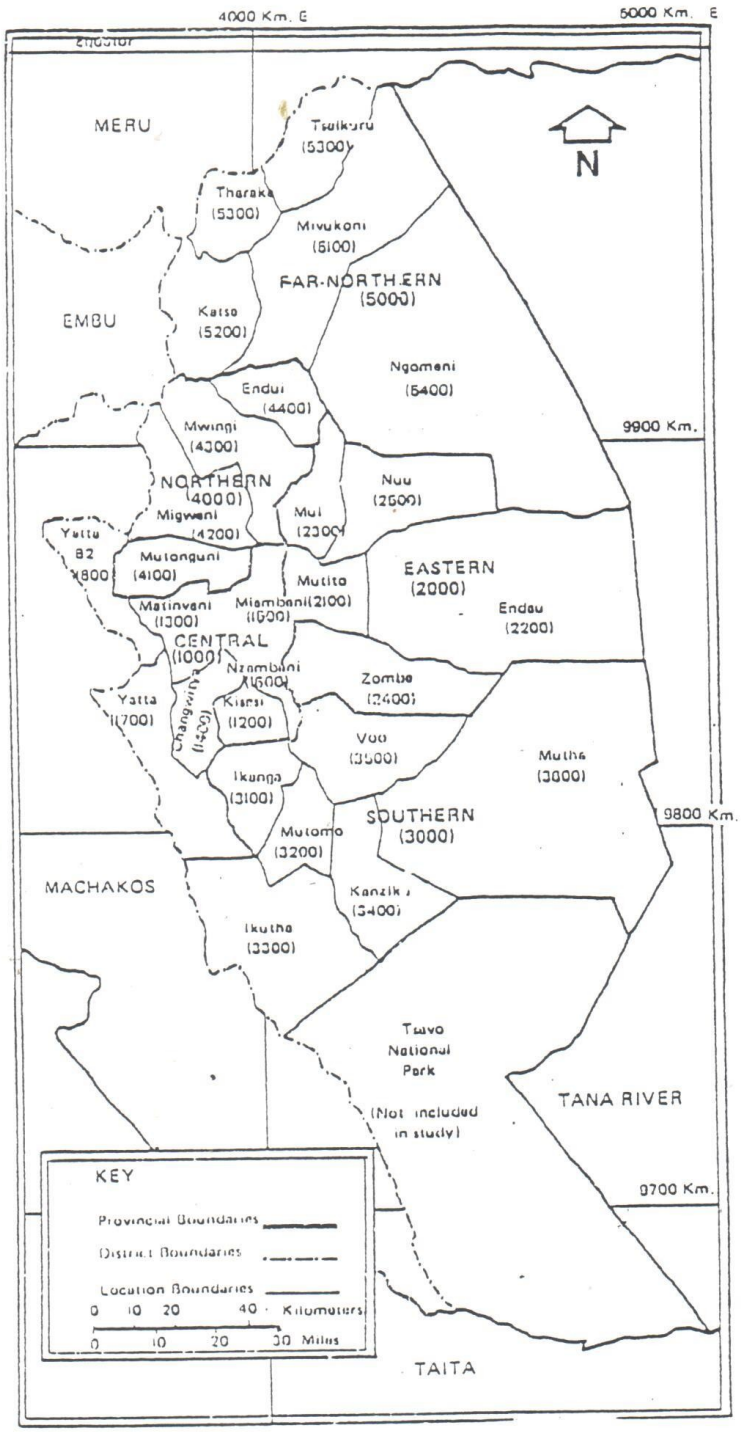
A list of people met and the missions programme are attached as Annexes 2 and 3.

The mission would like to express its thanks to all agencies and persons met for their kind support and the valuable information they gave the mission throughout its stay in Kenya. This support and information was highly appreciated by the mission and facilitated its work.

Prior to its departure from Kenya the mission handed over to and discussed with the involved ministries its Summary of Findings.

This report contain the views of the mission and do not necessarily correspond with the views of Danida or the Government of Kenya. All proposals are subject to approval by the two governments.

Fig. 2 MAP OF KITUI DISTRICT



2. SUMMARY

2.1 Background

The G.O.K. has requested DANIDA for assistance to a Kitui District ASAL - programme.

A similar programme was assisted by USAID in the period 1980/81-1987/88 but was terminated in 1987 as a consequence of changing donor priorities.

DANIDA has experience in assistance to ASAL activities from Mutomo Division, Kitui District (1982-1989) as well as Taita Taveta District Development Programme.

A preappraisal (Feb. 1988) developed a project proposal which formed the point of departure of this A.M. conducted in May-June 1988.

2.2 Major Findings

2.2.1 The Need for the Programme

The development of Kitui District is hampered by serious environmental problems which require immediate attention in order to enhance the ecological balance between natural resources, people and livestock.

The enhancement of this balance is a precondition for a sustainable mode of utilization of resources which can secure an acceptable standard of living of the population in the longer run, taking into account the present population reproduction rate.

2.2.2 Potentials and Constraints

ASAL areas are by definition dry areas. The various agricultural zones in Kitui District receive less than 900 mm of rain per year. The annual variations in rainfall are dramatic; so are the variations from one location to the next within the district.

A major resource in the district is rangeland for livestock, and the basic constraint is water. In the higher zones (Central Division and pockets in the other Divisions), there is a potential for intensified rainfed agricultural development based upon soil and water conservation and intensified mixed farming systems.

Land adjudication and the issuing of title deeds is a precondition for improved agricultural practices in the high potential areas of the district.

The experiences of previous development programmes in the district such as Kitui ASAL and Mutomo Soil and Water Con-

servation, clearly demonstrate that sustainable development will have to be based upon the active participation of the community in the identification, planning, implementation and operation and maintenance of projects.

Consequently, sustainable development projects will have to be based upon appropriate technologies that can be maintained by the local communities.

2.2.3 The Viability of the Programme Proposal

A thorough technical, institutional, economic and environmental analysis of the programme proposal is given in chapter 5. It can be summarized as follows:

2.2.3.1 Technical Analysis

The guiding principles in choice of technology for the various project components have been that they can be maintained by the community through the application of relatively simple techniques adapted to the local environment in the ASAL areas:

This deliberate choice of technology ensures technical viability of the Programme proposal.

2.2.3.2 Institutional Analysis

The proposed programme will be implemented within the Management Strategy for Rural Development termed District Focus for Rural Development (D.F.).

The pillars of this institutional framework is community participation and delegation of responsibility through a strengthening of government institutions at the district level.

The DF strategy was launched in 1983 and the planning as well as the implementation and financial management capabilities at the district level are still weak - and more so in Kitui District than in most Kenyan districts.

The weakness of the district capabilities in management of rural development thus is the major risk of the proposed project. It can only by overcome through the provision of sufficient funds and facilities as well as qualified and dedicated Kenyan staff into key positions and supplemented by DANIDA long-term advisers and short term consultants in relevant fields.

At the community level existing institutions like Mwethya and smaller self-help groups have to be built upon and strengthened in order to ensure that project benefits are being absorbed and sustained. Special attention will have to be given to the formation of well managed operation and maintenance committees in water projects. Experience shows

2.3 The Programme Proposal in Brief

Based upon an assessment of the need, the potentials and the constraints as well as the above analysis of the viability of a ASAL programme in Kitui District the A.M. recommends that Danida provide financial and technical assistance for a 5 year ASAL programme as outlined below. However, it should be emphasized that the problems of the District cannot be properly addressed within a 5 year time horizon. The A.M. therefore recommends that Danida considers the 5-year period as a first phase of a 15-20 years development programme.

2.3.1. The Overall Objectives

Within the overall objectives of the ASAL Programme as stated in the 1989-93 Development Plan, the overall development objective of the Kituí-ASAL Programme will be to support a development process in the district, based upon:

- Regeneration and preservation of natural resources through i.e. soil and water conservation, afforestation and range rehabilitation.
- Strengthening of community participation in development activities.
- Improving agricultural and livestock practices.
- Thus leading to increased agricultural and livestock production required to maintain the standard of living for the growing population.

2.3.2 The Target Group

The target group of the Programme includes all the rural households of the district.

A special emphasis will be given to the poorest section of the households in the upper agricultural zone as well as in the arid agro-pastoral zone. The heads of most of these poorer rural households are female. Special attention should be given to assist this group of households by decreasing their work burden and improving their access to profitable sources of income.

2.3.3 Programme Strategy

The A.M. has arrived at an ASAL PROGRAMME STRATEGY by combining the resources available for the fulfillment of overall objectives in an optimum manner, given the development potentials and constraints in the district.

The following are the main features of the Taita-Taveta ASAL Programme strategy:

- Utilize experiences from Mutomo, and other relevant programmes/projects in the area,
- Implement in accordance with District Focus for Rural Development within the framework of a phased catchment area approach,
- Strengthen community participation in all phases of the project cycle through mobilization and training activities,
- Use appropriate technology maintainable by the local community,
- Implementation through relevant Line Ministries. Establish clearly defined division of labour and responsibilities between involved institutions/departments and individuals,
- Delegate responsibility and accountability to levels as close to the community as possible (divisions, locations),
- Establish a decentralized management and implementation system,
- Plan and implement specific activities according to results from surveys and monitoring.

2.3.3 **Programme Sectoral Activities**

The A.M. proposes the following sectoral activities:

- Water development and water conservation.
- Soil and moisture conservation and related agricultural practices.
- Livestock development.
- Forestry activities including support to conservation measures within forest reserves and support to the Rural Afforestation Extension Service (R.A.E.S.).
- Non-farm activities.

As well as the following support components:

- General institutional development support.
- Mobilization and training of community members
- Agricultural extension and training.

- Survey and monitoring of programme activities and overall impact of programme activities on targets and target group.

2.3.5 **Plan of Operation, Budget Framework, DANIDA Contribution**

According to T.O.R. the A.M. is expected to prepare an outline Plan of Operation and a budget estimate.

The A.M. proposes that the Programme will be initiated gradually in the beginning of the Kenyan financial year 1989/90 i.e. from July 1989.

A Plan of Operation has been prepared for pre-programme activities and principles have been developed to serve as implementation frameworks for the first years of operation for each of the sectoral programme activities (see chapter 5.5).

A final detailed budget will be prepared along with a final Plan of Operation to be prepared in April-May 1989.

A preliminary budget is outlined in chapter 4.7 and further budget explanatives are given in chapter 5.5.

The estimated cost of the proposed 5 year programme is approximately

D.KR. 86.6 mill

2.3.6 **DANIDA Contribution**

The A.M. recommends that DANIDA contributes the following resources to the proposed Kitui ASAL Programme over a five-year period:

	Mill. D.KR.
Capital Cost	62.1
Recurrent Cost	24.5
Total grant (A-in-A)	86.6

In addition, DANIDA will provide 3 TAPs as follows:

1 Senior Rural Development Planning Adviser
1 Survey and Monitoring Adviser for the Survey and Monitoring Section of PMU
1 Senior Water Engineer Adviser

Local professionals will be recruited and employed by DANIDA in the following areas.

. 1 Training Officer
. 1 Livestock Development Officer
. 3 Survey and Monitoring Assistants
. 3 Training Coordinators.
. 6 Training Assistants
. 1 Computer Operator

Consultancies will be provided in a number of fields as outlined in chapters 4.5.2.-4.5.8.

As administrative support staff DANIDA will recruit and employ the following staff in the Programme:

1 Senior Administrative Officer
1 Accountant
5 Typist-cum-Office Assistants
2 Drivers

3. BACKGROUND

3.1 The Need for the Programme

It is the policy of the GOK to develop all the ASAL areas of the country. This commitment is justified in terms of:

a) the need to improve the human resources found in ASALs
b) the need to improve the productive potential of ASALs
c) the need to conserve the physical and biological resources
d) the need to integrate ASALs into the national economy.

Kitui District falls wholly into the ASAL areas of the country. The need for the Project from a national point of view is in keeping with the national needs for the development of ASALs.

In Kitui District, there is need to fill the development vacuum left by the Kitui Arid and Semi-Arid Lands Project whose development activities covered four of the five divisions. This Project, funded by the United States Agency for International Development (USAID), terminated in 1987. The project is needed to incorporate some of the development activities already initiated in Mutomo Division by DANIDA through the Ministry of Agriculture, and to expand to the other four divisions some of the development experiences learned in Mutomo Division.

3.2 The Arid and Semi-arid Lands (ASALs) Sector in general

Independent Kenya did not have specific policy and development programmes for the ASAL areas of the country until the end of the seventies. The severe droughts of that decade led to thinking about the development problems of these areas. It was clear by then that they were not getting the share of resources necessary for their long-term development.

This thinking within the GOK ultimately led to the issuing in 1979 of the still major document on the development of the areas. This is ARID AND SEMI-ARID LAND DEVELOPMENT IN KENYA: THE FRAMEWORK FOR IMPLEMENTATION, PROGRAMME PLANNING AND EVALUATION which was issued by the Ministry of Finance and Development. It specified that the development objectives for all ASALs were:

a) human resource development,
b) exploitation of productive potential and,
c) resource conservation
d) integration with the national economy.

From a policy planning point of view, this document had three objectives. First, it was to give guidance to activities which had been initiated by some donors. Second, it was to be used to attract donors to start specific development activities in the ASAL areas. Finally, it was to provide for the GOK a framework for planning and coordinating integrated development activities in ASAL areas outside Line Ministries under the supervision of the Ministry of Planning and National Development (MOPND).

The first ASAL development activities were studies funded by USAID under the Drought and Recovery Programme proposed in 1974. Pre-feasibility Studies of Kitui, Machakos; Embu and Baringo Districts were initiated in 1977.

The European Economic Community declared an interest in financing some ASAL development activity in 1975. Since it did not advocate large-scale studies like USAID, by 1977 it was already financing the Machakos Integrated Development Project which became the major laboratory for ASAL development planning, budgeting, and management, and what was to involve as District Focus. Since then, ASAL development projects have been started in other districts like West Pokot (Dutch funding), Elgeyo-Marakwet (Dutch funding), Kitui (USAID funding), Kajiado (Dutch funding), Embu, Meru and Isiolo (British funding), Baringo (World Bank funding), Turkana and Bungoma (1988) (Norwegian funding), Siaya, Kilifi and Kwale (International Fund for Agricultural Development, (IFAD funding), Laikipia (Swiss funding), Samburu (German funding) and Taita-Taveta (Danish funding).

By 1983, GOK was convinced that development activities should be planned and executed closer to the populations. The district level was seen as the level for planning and programming, as well as budgetary control. A major policy document was issued to specify this policy change. This is the DISTRICT FOCUS FOR RURAL DEVELOPMENT. It is routinely reissued every year to take into account evolving issues. These documents, while they address themselves to evolving issues of centre and district relations in development for the whole country, are of particular interest in ASAL districts which have not got a fair share of development resources, given their particular needs.

The most important contribution of District Focus in the development arena was the creation of a district based process in which local political processes merge with bureaucratic processes to set out the district development framework. The significant institutional innovations were the creation of development committees at various administrative levels and the creation of district based planning, budgeting, financial and audit functions. Committees at village, sublocation, location and divisional levels bring together community leaders, political leaders and government and donor officials, to priorities the development activities of their area. These localized development priorities are taken to the District Development Committees where they are priorities, planned and managed. It is at the District

level where the technical ministries have personnel for supervising both planning and implementation. The Line Ministries officials at the district level, forming the District Team, are expected to prepare long-term plans and budgets which, when pooled together and confirmed by the District Development Committees, are inputs into the District Development Plan. The formal document is prepared by the District Development Officer. Under District Focus, the management of district financial resources and their auditing is done at the district level. Donor development activities are expected to adhere to this framework.

3.3 Sector specific Background

3.3.1 Organizational Issues

Currently the GOK is re-evaluating its approach to ASAL development. At the beginning of 1988, consultants were appointed to evaluate all aspects of ASAL development since 1979. These reports have been submitted to GOK and a consolidation of their findings for inclusion in the Sixth National Development Plan which is due in a few months, has already been done. It is anticipated that the Sixth Development Plan will stress rehabilitation of ASAL lands for crop and livestock development as well as micro and small scale irrigation development to facilitate food security for the ASALs. Non-agricultural enterprise development and expansion in infrastructure will be stressed to facilitate off farm employment in the ASALs. This is in keeping with Sessional Paper No. 1 of 1986, which is the policy guide for the preparation of the 6th National Development Plan.

To date, donors have worked essentially in one district. Where the donor commits enough resources for the development of the district, there have not been problems. However, in thinking about the 'second generation' ASAL projects, issues of donors working exclusively in one district are being raised within GOK, for experience since 1979 shows that few have the desired resources of the long-term commitment necessary for systematic development of the ASALs.

Central to the 1979 policy document was the idea that the coordination of ASAL development activities would be by the Ministry of Planning. This practice has continued to date but is being increasingly challenged by the Line Ministries who argue that the rationale for making ASAL development a planning issue in 1979 was that they did not have ministerial planning capacities. They argue that they have this now. On its part, the Ministry of Planning and National Development argues that the character of ASAL development needs, calls for integrated development which can only be coordinated by planning ministries, for Line Ministries have capacities peculiar to their sectors.

The development, financial management, and audit functions have been transferred to the districts as a result of District Focus. Since the district level cannot contract with donors, donor money for ASAL development has gone either through the Exchequer to sector ministry votes or Ministry of Planning votes; through the Exchequer to specially established funds like RDF; through special accounts with Paymaster General thereby bypassing the Exchequer, or through direct donor disbursement.

In the first ASAL projects, donors were content to pass their funds through the established Exchequer methods for ministerial ceilings and the dictates of spending money in the budget year did not interfere with the activity for and the rate of disbursement. Over the last four years, many donors have resorted to either the Paymaster mode or direct donor disbursement for they argue that the ministerial vote system is slow and at times money is returned to the Exchequer for general GOK disbursement, rather than the activity it was planned for. GOK in general, and the Ministry of Planning and National Development in particular, are not particularly keen on the Paymaster General or the direct disbursement modes. Disbursement methods for all ASAL development are one of the major issues under discussion within the GOK.

3.3.2 Availability of resources

The available financial resources for ASAL development have not been adequate. This is primarily because the development base has been very poor. First the physical infrastructure has historically been underdeveloped. The social infrastructure similarly has been underdeveloped. Thirdly as economistic analyses of extraction potential of ASALs have argued for investments for highest return, the existing development potential of ASALs, particularly in livestock, has been ignored. Terms of trade for the ASALs have been unfavourable. Financial resources have also not been adequate, for few planners in GOK or within the donor community, have been willing to accept that given the relatively poor resource base, the return on development is only possible in the long-term. ASALs have not only had a poor record of attracting donor and GOK funds, but do not have the resource base for local authorities to raise revenue. As a result, their local authorities cannot make systematic development efforts.

With the establishment of District Treasuries to control funds being used in district development, the problem of financial control arose at the districts. The District Accountant's office, which subsumes supplies and audit, has been undermanned and has problems with both financial control and project audit, for those who must supervise these important activities are few and immobile. These are major problems where specific development activities demanding extensive procurement lines are scattered over vast distances.

Farming technologies for ASALs have been neglected historically. As a result, the available farming techniques, which were borrowed from more wet areas are unsuitable. This is compounded by an extension manpower trained in techniques for wetter areas.

Livestock, the leading production sector in all ASALs, has never got its fair budgetary allocation for extension, training and research. Even when funds were allocated for livestock research, it was essentially for dairy animals and not range. Consequently breed improvement and production techniques, range production technologies, economics and markets are less developed than for more humid areas.

Human resource development has lagged in the ASALs. The historical problem was the lack of schools in the ASALs. As a result, it has always been foreigners who are the development gatekeepers, defining development in images from other contexts and also taking significant resources out of the ASALs. This has resulted in marginal communities who are relatively inarticulate at national levels in defining development priorities.

In all ASALs, crop agriculture is a major tragedy, for the technologies pushed by the national and international development systems, have stressed crops like maize which are not viable. Given the global bias against the major ASAL foods - pulses, millets and sorghum - few resources have been put into their production, processing and marketing. More tragic is the fact that ASAL populations have been weaned out of the ecologically viable crops by the national marketing systems which peddle grains from elsewhere.

Water harvesting technologies, which ought to be central in ASALs production systems are not extended systematically, even though the knowledge exists on the global level. This is one of the technology packages which would enable the regions to assure themselves of food security.

3.3.3 Manpower needs

Overall the density of GOK officials in the ASALs has always been less than in the more humid areas. This was recognised at the onset of District Focus, but still there are relatively fewer officials on the ground. Such low density has impact on programmes, particularly on extension activities.

The issue is not just numbers of manpower on the ground. It is also the areas of specializations. For example, in ASAL districts manpower specialized in crops, rather than livestock is found. Among the agricultural specialists, very few equipment specialists are found. Similarly among the water specialists very few with small scale design are

found. Among health specialists, very few are found in primary health care.

Manpower conversant with the whole range of water harvesting technologies is often lacking in the ASALs. These technologies demand familiarization with production systems of the ASALs, for most of the technologies will have to be utilized at the household and community level to have impact.

Beyond the manpower needs of the Ministries charged with development, there is the key question of manpower development for the communities. ASAL districts have been extremely short of people with simple technical skills for the building of simple structures and equipment which are needed in the development of those areas. It is not just the technical skills which are short, but also the organizational skills necessary for ASAL sustainable production and marketing which are also not developed.

ASALs generally have strong community organizations. These have recently been discovered by development workers as avenues for getting development activity to the lowest levels. However, since traditional organizations are being asked by developers to undertake new functions, there are serious problems of fit. Ministries and donors invest very little in community organization support. Rather, they just raid community structures for implementation of programmes.

3.4 The Project Area

3.4.1 Natural Conditions and Resources

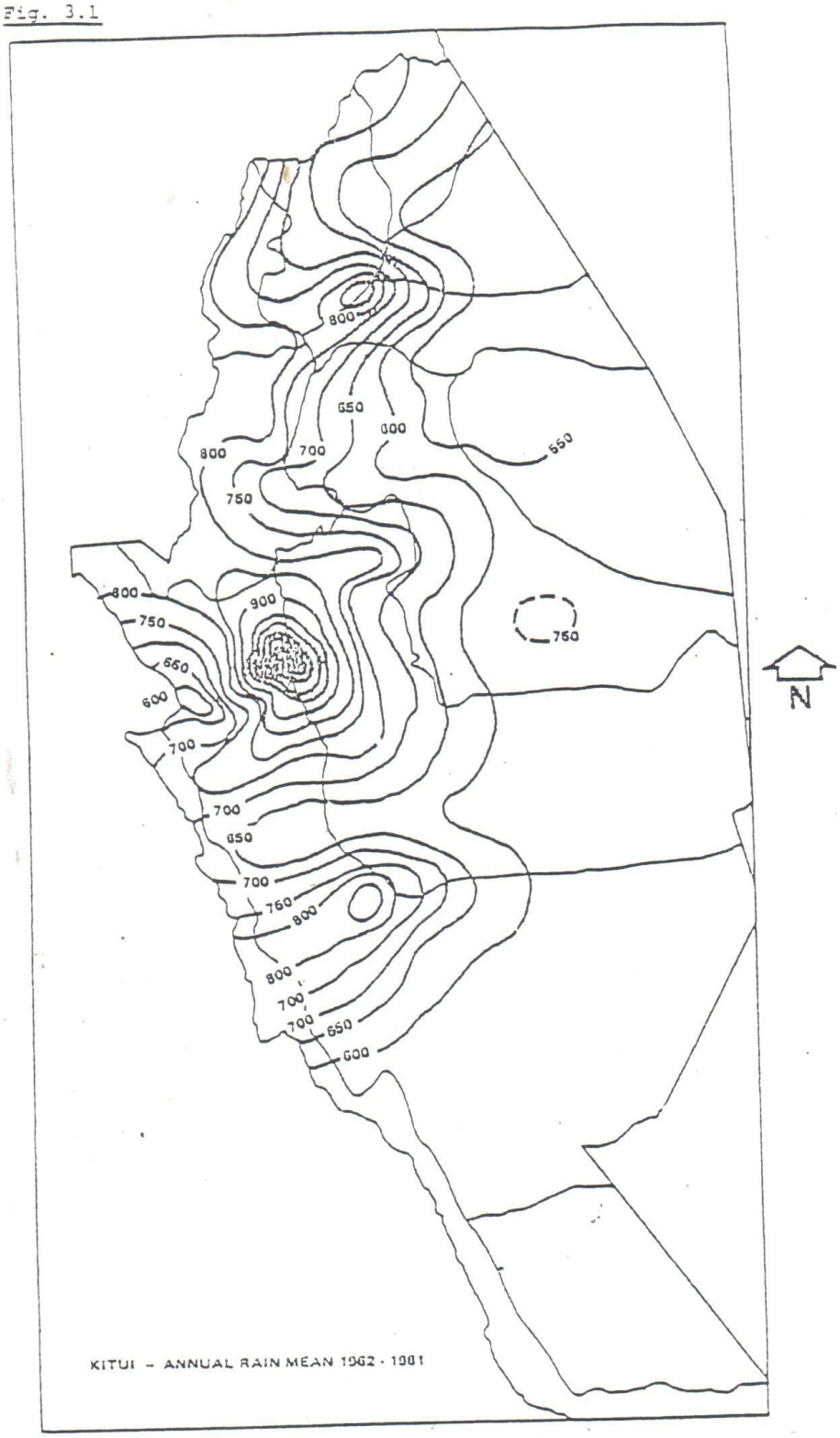
3.4.1.1 Climate

The climate is semi-arid in the western highlands of the District and close to arid in the eastern and southern plains. The temperatures are high, with an average of about 25^{0}C for the district. The potential evapotranspiration is therefore also high, close to 2000 mm's per annum as a district average.

The rainfall is normally concentrated in the months March - May and October - December, although occasionally some showers occur in the dry season. Of the two rainy seasons the October - December rains tend to be the most reliable.

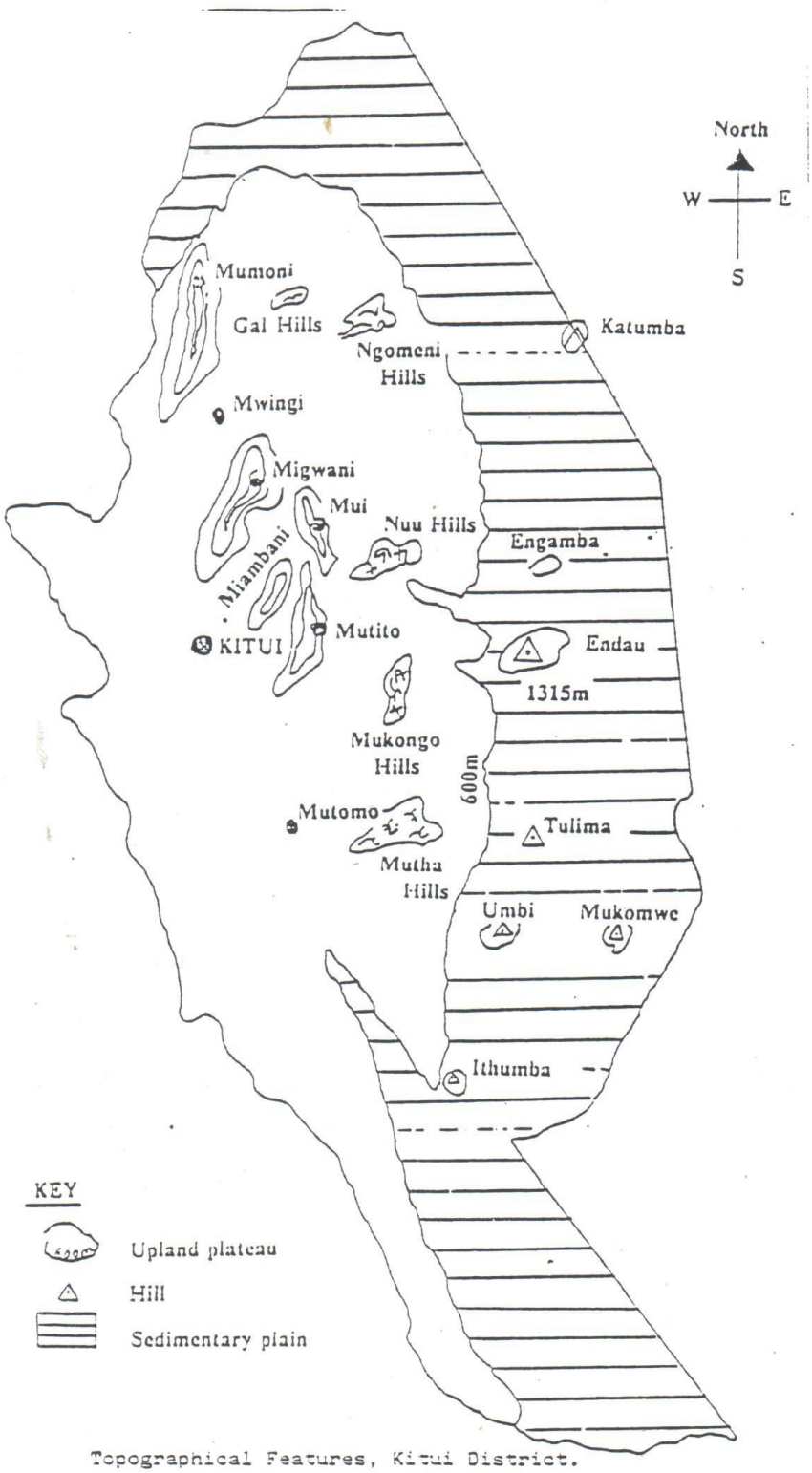
The rainfall pattern is illustrated by fig. 3.1, showing mean annual rainfall in the district from 1962-1981 (Kitui ASAL Project) and by fig. 3.2, showing annual rainfall data from Mutomo 1957-1987 (Source: Mutomo Project, annual report 1987). Fig. 3.1 clearly shows the geographic effect of the highland areas, while fig. 3.2 shows a clear tendency of decreasing rainfall in Mutomo in the period 1957-1987. This last indication, that the region is perhaps generally get-

Fig. 3.1



Mean Annual Rainfall, Kitui District, 1962 - 1981.

Fig. 3.3. Topographical Features, Kitui District



Topographical Features, Kitui District.

ting dryer, puts still more emphasis on the importance of water conservation and water resources development.

It should be noted that documentation of amount of rainfall in the eastern plains is very scarce. Thus it is not known exactly how dry the "dry plains" are.

3.4.1.2 Topography and Geology

The main topographic features of the district are shown in fig. 3.3 (Source: Kitui ASAL Project).

The upland plateau mainly consists of the precambrian basement complex rocks, metamorphosed as well as granitized, which are heavily folded and have been eroded continuously up through geologic history. An exception is the Yatta Plateau which consists of the tertiary phonolites, i.e. volcanic rocks much younger than the basement complex. The Yatta Plateau in Kitui District consists of a rather long, narrow belt along the Athi River from west of Kitui down to the southern end of the district. This plateau also represents the main topographical water divided between the Athi and Tana River Basins, the predominant part of Kitui District, thus draining towards the Tana River.

The sedimentary plains to the north, east and south of the district are generally flat and featureless except for the inselbergs occasionally protruding through the surface. These residues of eroded plateaus often differ from the surrounding plains not only topographically; due to the orographic effect, the inselbergs often attract considerably higher rainfall than the plains, resulting in forest cover, uphill springs (of which some are perennial), and certain ground water potential around the inselbergs. this is especially true at Endau, the largest inselberg in the district.

The plains mainly consist of residual soils, resulting from the very slow decomposition of the underlying rocks. This residual soil cover generally increases in thickness away from the hilly areas. In the numerous river beds, alluvial deposits from recent times are found.

The rocks underlying the residual soils are crystalling basement complex rocks, except for a limited area to the south, inside the Tsavo East National Park, where sedimentary rocks of the Karroo system occur.

3.4.1.3 Hydrology and Water Resources

The climate is briefly described in 3.4.1.1. Hereunder is a brief discussion of the river system and comments on the ground water resource.

Two perennial rivers flow on the edges of the Kitui District. The Athi River flows on the south-eastern corner. The Tana forms the district boundary in the north-west and the north. There are several major seasonal rivers. The Tiva river drains the central part of the district and flows

to the south-east out of the district through the Tsavo National Park where it recharges a traditional drought grazing area of the Southern Kitui people. The Thua river is the most important river, draining eastward and collecting water from the central hill areas. As it gets to the state lands, it recharges the groundwater system extensively, so much so that in most years it never discharges into the Tana. To the north-east of the district is the Thunguthu river, significant in the exploitation of the range. The Tyaa river plays the same role in the south western part of the district.

The main characteristic of the rivers in Kitui is that they flow for a very short period and dry up, other than in those areas where sand wells are found. The long-term strategy for the utilization of this storm water is to harvest it for human and livestock use and to recharge the ground water system for environmental benefits.

The extent of ground water potential in the district has not been systematically studied. The few boreholes located seem to be in proximity to rivers or in shatter zones. Development of wells in the Mutomo Project and in the Kitui ASAL Project suggests that the ground water table is low and does not lend itself to easy exploitation.

Numerous springs are found in the central highlands, as well as in the inselbergs rising out of the plains in the east and the northwest. These offer good opportunities for development of potable water sources.

The many inselbergs offer opportunities for the development of some water sources. In the lowlands these inselbergs are the only viable sources until much more work is done on the size of the ground water table and possible methods of recharging it with storm water.

3.4.1.4 Soils, Vegetation and Ecology

Apart from alluvium along the river beds and colluvium around hills, highlands and inselbergs, the soils of the district are residual soils, formed by the very slow chemical decomposition of the rocks by the percolating water and solutes. In the high-rainfall, hilly areas, the soils tend to be more clayey and loamy and rather fertile, while sandy loames dominate on the plains, the soils here being poorer.

The soil conditions are the rainfall relects in the natural vegetation, where forests are common in the highlands, while bush of various density is the lowland vegetation.

Based on studies of soil conditions and rainfall, the agro-ecological potential of the area have been determined by the Kitui ASAL Project. The district has been coarsely divided into four agro-ecological zones:

1: Semi arid farming,
2: Arid agro pastoral,
3: Semi arid ranching,
4: Arid pastoral,
as shown in fig. 3.4.

3.4.2 Socio-economic conditions

3.4.2.1 Population

According to the latest population census (1979), the population of Kitui district was 463,283. The average population desenty in the district was 20 persons per sq.km. With a projected growth rate at 3.76% between 1980 and 1990 the district population is expected to be 670.586 in 1988. However, population densities vary between the central highlands (Mwingi and Central division) and the lowlands. In the former the population density is 5 times higher than in the latter. The differences correspond to variations in the agropotential of the district due to variations in rainfall.

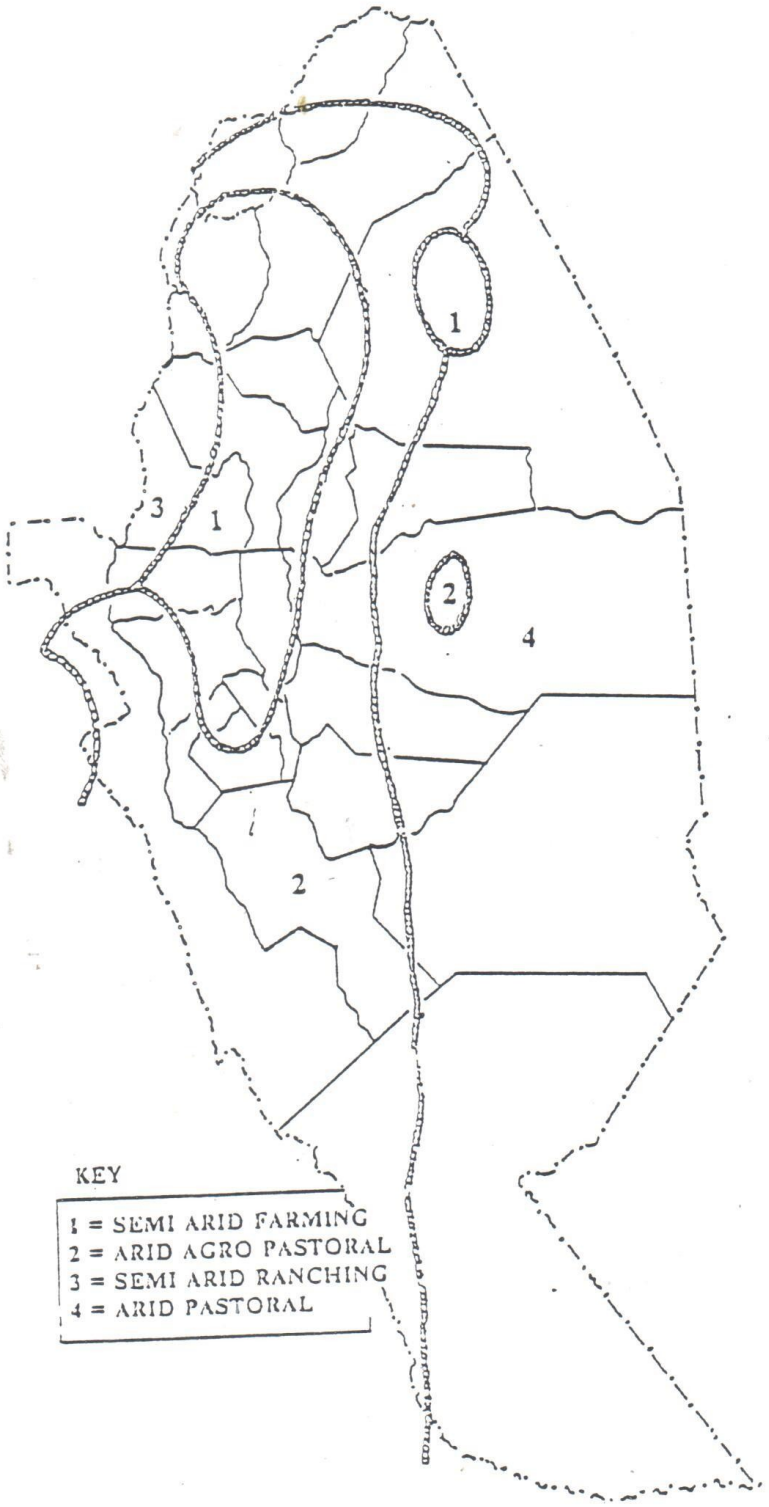
Over the recent years people from neighbouring districts have moved on and settled in the less densely populated areas where land is available. This is in contrast to the densely populated areas where land scarcity is increasingly felt. The Akamba constitute the main ethnic group. Most immigrants are also Akamba from neighbouring Machakos district, where land shortage is more acute. Somali and Orma pastoralists moving in from the dry eastern and north-eastern areas rarely settle permanently. They are primarily entering the Eastern State Lands with their livestock in search of browsing and grazing areas and water.

Although the Akamba are continuously becoming more sedentary they still retain semi-pastoralism which cause a high degree of population mobility within the district. Frequent draught conditions also force people to be mobile in search of water and additional income. There is a movement of people from the densely populated central highlands to the lower lying areas of the district.

Migration out of the district by young and middle-aged men in the productive ages in search of jobs in the urban sector also have great impact on the population profiles. Thus, in the age group 20-60 years the majority are females. It is estimated that about 50% of the household are female-headed.

The male out-migration is slightly more pronounced in the highlands. this reflects higher landpressure as well as diminishing possibilities for keeping livestock an activity which traditionally falls within the male domain according to the gender division of labour. As the consequence of male out-migration and a high birth rate 57% of the population is either under 15 or over 60 years old. The demo-

Fig. 3.4 · Agro-Ecological Zones, Kitui District



graphic profile is, in general, typified by women being the majority group and the ones responsible for the family as caretakers of the children and old men, who no longer find jobs in the towns.

3.4.2.2 Agriculture and Livestock

The Akamba were traditionally agro-pastoralists which, given the climate and ecological conditions of Kitui district, has been the most rational adaption to the environment. In the periods of drought livestock can be sold in order to pay for basis food stuff - although the value of livestock is being drastically reduced during such periods.

A mixed economy of farming and animal husbandry in a semi-arid and arid area such as it is found in Kitui is dependent on low population density and extensive rangelands for livestock. These conditions are now changing in Kitui as population increase and land becomes more scarce. Traditional systems of shifting cultivation and fallow cycles are no longer maintained, and a growing livestock population is being sustained on rangeland which is declining both in terms of acreage and quality.

3.4.2.3 Land Tenure and Land Resources

The traditional pattern of land tenure in Akamba society was based on usufruct rights to demarcated pieces of land by individual households. Usufruct rights were hereditary and based on membership of a lineage. The clan controlled land allocations while the lineage and the individual controlled the territory set aside for grazing lands. As population pressure increased the expansion of individual agricultural holdings took place on what had so far been communal grazing areas.

For various reasons this principle of land tenure system is now in transition. In the high potential areas of the central highlands, population increase has led to land scarcity and over-utilization of the carrying capacity of the land. Agricultural plots are small and the traditional shifting cultivation cycle of fallow cropping and grazing is no longer maintained. The typical size of holdings range from less than 1 hectare to around 20 hectare. A household's land is frequently fragmented into several parcels spread over a relatively large area - a result of the previous and now less common polygamic families. One or more of these parcels will be used for grazing of a limited number of livestock. Communally controlled land is rarely found.

Most of the land on the central highland has been adjudicated and is now registered by the Land Settlement Department with the owners holding title deeds to the land. It is the private property of the owner who can sell the land if he wants to.

In the lower lying and more thinly populated eastern, northern and southern parts of the district land adjudication has not yet taken place. Access to land is still extensively based on inherited usufruct rights to the land based on lineage membership. Lineage control over its traditional territory is, however, decreasing and there are few sanctions to apply against new settlers occupying parcels of communal grazing land. Although the individual farmer in these areas does not possess title deeds to his plots of land, the type of land tenure prevailing is in reality to be considered de facto private ownership of cultivated land.

Individual land holdings in these areas typically range between 10 to 20 hectares. such holdings are often too small for the farmers to be able to maintain traditional agricultural practices of shifting cultivation with long bush-fallow periods, which is a necessary mode of exploitation in these marginal lands in order to allow natural rejuvenation of the soil and the vegetation cover. There is already evidence that the fragile ecological balance between the system of shifting cultivation and the natural environment has been broken in areas due to a reduction in fallow periods. In the more densely populated areas of the district the agropastoral system appears to enter into a vicious cycle of over-exploitation of grazing areas and agricultural land, resulting in soil erosion. reduced soil fertility and devegetation.

The adjacent rangeland in the Eastern Statelands functions as a safety valve for the animal husbandry in the area. The residents of eastern Kitui form herding partnerships which arrange to send large herds to the statelands to graze and browse on the pastures and trees there.

The Eastern Statelands were previously Crown Land under the colonial government. As the name implies, the land is the property of the Statelands. The mission was informed by the Ministry of Livestock Development (MOLD) that a number of ranches have been established in the Statelands. The ranches are organized either on a cooperative, group, company or individual basis.

Apart from being used by the Akamba for seasonal grazing of their livestock, the Eastern Statelands provide rangeland for migration pastoral Somali and Orma people. However, information about the extend to which these two groups use the land for grazing was not available for this AM.

3.4.2.4 Agricultural and Livestock Activities

Agricultural activities in the district can best be labelled as small-scale subsistence farming. 96% of the population depends on agriculture for their livelihood to varying degrees.

The agricultural land can be classified into three categories based on rainfall, viz.:

1) High agricultural potential land with semi-arid farming (762-1270 mm per annum); covering only 2.2% of the land.

2) Medium agricultural potential land with arid agropastoral land use (500-800 mm per annum covering 36.6% of the total land.

3) Low agricultural potential land (250-500 mm per annum with a chance that 5 out of 8 seasons will receive less than 250 mm) covering 62.2% of the total land. This land category covers two agro-ecological zones viz. the semi-arid ranching and arid pastoral zones.

The above classification refers to the relative potentials of the 3 regions within Kitui district. Thus high agricultural potential does reflect high potential in national terms. Almost the entire district falls, as mentioned above, within the arid and semi-arid region of Kenya, which within the national context are lowproductive areas.

High Potential Areas

These areas are concentrated in the Central and Mwingi Division. Cash crop farming is more reliable here than elsewhere in the district.

Sales of crops is the main farm income source. Cropping patterns, however, vary according to the economic stratification of the communities. Maize, beans, peas and sorghum are typical crops of the poorer household who aim at subsistence but are often forced to sell part of their crop immediately after harvest (when prices are at their lowest) in order to raise cash for other pressing expenditures.

Typical cash crops are maize and to a lesser extent cotton and coffee. Growing of various fruit and horticultural crops is common among richer farming house holds. Sisal is another important cash crop. Its fibres are used for making baskets which is an important income generating activity for women carried out during off hours. The livestock population in this densely populated part of the district is small and the economic importance less than in other areas of the district. Nevertheless, there is considerable competition between cropland and grazing areas for family herds. The limited rangelands retained as grazing areas in between agricultural plots are not able to sustain the present livestock population. Heavy grazing has led to critical reduction of perennial grasses and, in some places resulted in extensive bush encroachment or soil erosion. Some farmers therefore send their livestock away to better rangelands, mostly in the east, during some months of the year.

These densely populated areas expose a total shift from shifting cultivation to permanent cultivation on land which will require rigid soil and moisture conservation measures in order to sustain such agricultural practices in the

future without causing irrelevant damage to the environment. Experience indicate that increasing yields is an immediate result from soil conservation. This leaves room for optimism about the immediate adoption and long term impact of continued soil conservation activities.

Medium Potential Areas

As mentioned earlier these areas present a situation of shifting cultivation and inter-cropping which are in a transition process to more permanent cultivation practices. The main food crops cultivated are primarily for home consumption, i.e. maize, sorghum, millet, green grams, peas and beans. In certain areas, however, green grams are cultivated as a cash crop, i.e. on irrigated lands adjacent to the Tana river to the north. Most of these crops could not presently be termed cash crops in this area. Soil and moisture conservation methods could raise the productivity of the land in years with sufficient rainfall so that a share of the crops on larger farms may enter the market as cash crops.

Although becoming increasingly dependent on income from agricultural production livestock continue to be the major source of income. For many farmers, livestock represent the only possible way of obtaining cash income to cover other household expediture. However, in certain areas with a concentration of settlements the keeping of livestock has reached a level which exceeds the carrying capacity of the natural environment. It is becoming an increasingly pressing task to introduce systems of controlled grazing on rangelands in-between agricultural holdings in these areas.

In addition to being a security against crop failures ownership of livestock, in particular cattle, is a special status asset. The Mission recognize that any extension efforts aimed at changing the pastoral/livestock priorities and behaviour have to be carefully researched and planned.

Low Potential Areas

Due to the extremely low rainfall most of the low potential area, a larger part of which falls within the Eastern Kitui Statelands, is unsuitable for rainfed agriculture. Where the rainfall is within the range of 250-500 mm, sorghum and millet crops are grown in a system of shifting cultivation, but for the area as a whole livestock is the main agricultural output. The importance of cropping is insignificant. Livestock owners from the medium and high potential areas have traditionally been using this vast area as seasonal grazing lands for their cattle, goat and sheep. The area possesses an inbuilt prevention against overgrazing, since the larger part without perennial water sources can only be used as long as rainfed waterpans contain water. The traditional grazing cycle for livestock

herds, from the medium and high potential areas about two months till the water dries up and then return to the range land in their home area.

3.4.2.5 Other Economic Activities

Although production in the agriculture and livestock sectors is primarily geared towards household self-sufficiency, it does not presently suffice to feed the population and cater for other basic needs in all seasons of the year. A very large section of the population is therefore dependent on off-farm income on a more or less regular basis. But options for non-agricultural employment are very limited.

The trend to shift from a total dependency on farming and livestock rearing appears to be steadily increasing. Due to the shortage of land in some areas, uncertain climatic conditions and the absence of irrigation possibilities, intensification of farming will increasingly become only a partial solution to the establishment of secure household incomes. Improved soil and moisture conservation combined with better crops and rotation techniques has a good chance of enhancing farm productivity. The same goes for improve livestock management based on range land development. However, off-farm income is likely to continue to be of great importance for the economy of the families and the district.

The tendency is to push for incomes from the wage labour trade, small-scale business, home industries, transport sector or services. There is a strong tradition for wage labour employment outside the areas. Since the 1930s the Akamba have been working outside, either in the colonial army, on plantations or road construction or, as of late, doing a variety of unskilled jobs in Mombassa and Nairobi. By this time wage labour has become an integral part of any male Kamba's life to support his family.

Many household budgets are totally dependent on regular remittances from male household members working outside the district. figures from the 1979 population census reveal that more than 10% of the population born in Kitui has migrated to the urban centres for jobs. Due to excessive labour supply many migrants spend long periods searching for employment and often have to return to their farms in Kitui where they remain idle.

Most non-agricultural sources of income in the district are marginal and carry little potential for additional incomes. The most common activities include: sisal basket and clay pot making, charcoal and firewood selling, petty trade and minor service jobs. One of the more promising income generating activities is honey production, which is also promoted by the Department of Livestock Development under the ASAL programme and by the DANIDA assisted project in Mutomo. Honey production is primarily organized as a women's group activity.

The graduates from the district's 20 Youth Polytechnics (YP) face greater difficulties in finding employment than it is the case in the wealthier districts in Kenya. Due to the absence of surplus production, low level of income of the majority population and a subsequent slow process of commercialization, there is limited demand for the services of the graduates from the YPs. Most of the students in the YPs aspire to get a job in Nairobi or Mombassa. Among the ones trying to get jobs or establish themselves as independent craftsmen in the urban centres some get jobs in their trade whereas others may fall back on unskilled jobs.

The ones who manage to raise funds for investments in the service and transport sectors often come from the upper income group. Typically such investments are made in restaurants, small shops and transport vehicles where there is often good prospects of profits. However, in some areas with easy access to large range land investments in livestock is still a priority investment option.

The importance of non-agricultural income has been outlined above. In the perspective of the individual farming household, even the ones with sufficient land and some livestock, the aim will be to diversify their economics by allocating members in non-farm occupations. Such a strategy will contain an expansion of the household economy while at the same time spreading risks. This strategy seems to be the only rational adaption to climatic irregularities, population growth and land shortage.

3.4.2.6 Social Profile

Most agricultural and livestock activities are organized at the household level with the family being the basic source of labour. The practice of polygamy has resulted in family farms consisting of a number of individual plots looked after by a wife/wives and distributed within a larger area. But the phenomenon can also be observed in monogamous families. This practice serves the purpose of reducing risks, since the erratic rains are likely to benefit at least one if not more plots.

The prevailing gender division of labour allocates most of the agricultural and household work to women.

Traditionally, the only major activity assigned to men has been the plowing and preparation of the land before sowing. Younger men were also responsible for the movement of livestock to far away grazing grounds during the dry season.

With the increase in the male urban migration and more children and young people enrolling in school, these duties have become the responsibility of women and old people. Many families are in fact being pressed for labour and the ones who can afford to, will hire external labour as a solution. Poorer households short of labour are not able to bear the expense of hiring additional labour and may therefore have to leave the land untilled.

However, the stability and cohesion of Mwethya groups appears always to weaken over time. Fusion and fission of groups formed according to specific purpose and problems is common. The experience of governments and donors has been that once a specific task has been completed, a group tends to dissolve. This may happen because members have to attend to other more important activities and group memberships or because of the reported general view that the government or donor has to reciprocate, which in a context like the present may involve expectations that the project should take over the responsibility of maintenance of water projects completed through Mwetya activities.

Community leadership is in the hands of group leaders, elders, ass. chiefs and finally chiefs. Although the democratic element in Mwetya groups is strong, decision making on important issues is done by the individual authority holders. Any entry to or contact with the "grassroots" therefore has to be channeled through the above mentioned persons. Leadership is controlled by man and although women perform most productive activities, Kamba society is still male dominated. However, the influence of women within their spheres of activity is decisive wherever they express themselves collectively. Village elders and assistant chiefs are rarely able to bypass opinions and demands of women organized in a group.

Although women are gradually becoming more organized and cohesive as a gender group, they tend to be conservative and reluctant to enter public and political spheres traditionally under male control. Women seem to be aware of the fact that the position of men is weakened due to their low participation in most group activities and in the Harambe movement in general. Nevertheless women actively support male representation in public affairs in order not to antagonize the sensitive male opinion.

3.4.3 **Infrastructure**

3.4.3.1 Physical Infrastructure

The infrastructure is not evenly distributed in the district but concentrated in more densely populated areas of the central highlands around Kitui.

The total length of roads in Kitui District is 2,981 km. Due to the large area of the district and the low population density it is very difficult and costly to cover the district. Compared to other districts Kitui has less roads in terms of population (6.6 km. per 1000 inhabitants). Similarly the cash crop production in the district is very low and can not at present provide economic justification for an expanded road network. GOK must necessarily try to strike a balance between the wishes of the local population and the high cost of road construction. If cash crop pro-

duction increases as a consequence of the ASAL Programme further efforts might be considered.

The construction and maintenance of rural roads in Kenya takes place within the Minor Roads Programme which is supported by several donors including DANIDA,. As far as Kitui District is concerned, it is Sweden which provides external assistance. Kitui District and GOK may wish to consider requesting Sweden to intensify its assistance if a positive economic development can be observed.

3.4.3.2 Donor Development Infrastructure

The following donors have, or are planning development projects in Kitui:

1. UNICEF
2. SWEDISH INTERNATIONAL DEVELOPMENT ASSISTANCE (SIDA)
3. JAPAN INTERNATIONAL DEVELOPMENT ASSISTANCE (JICA)
4. DIOCESE OF KITUI DEVELOPMENT COORDINATION OFFICE
5. ACTION AID
6. CARE
7. CANADIAN FREEDOM FROM HUNGER
8. WORLD NEIGHBOURS.

At the outset, it should be pointed out that one of the major actors in development in the District for the past twenty years, has been the Diocese of Kitui Development Coordination Office.

Its activities range from community mobilization, small scale businesses, crop agriculture, livestock, small water projects, polytechnics - to adult literacy. Its development budget is about KShs.10m annually. Lately it has been coordinating other churches' development activities. The vast experience and range of activities should be of great use to DANIDA.

UNICEF is set to become a major actor in the development of potable water. It has gone through a pilot phase where it worked out modalities of an expanded programme which will involve a local NGO, Kenya Water for Health Organization (KWAHO). They are set to coordinate donors so as to get to 80 per cent population coverage with supply of potable water by the year 2000. They plan to fund only about 25 per cent of the target. UNICEF has a firm budget commitment of US$4,932,000 for start-up activities over 1989 and 1990, but is expecting a vast increase in resources in the immediate future.

Since the departure of the A.M. from Kenya an understanding has been reached between DANIDA and UNICEF that the DANIDA ASAL Programme will be lead programme in the physical implementation. UNICEF will only construct water supplies for demonstration purposes in areas where DANIDA is not supporting construction. DANIDA has in turn recognized the UNICEF/KWAHO Programme as leading in health support education.

The Kenya/Japan Social Forestry Training Project was started in 1987 and will continue until 1992 for a five year period. A national centre for the project has been set up at Muguga, Near Nairobi, and a Regional Centre to work for the semi-arid areas of the Eastern Province has been set up at Kitui. A Pilot Forest Scheme has been designed at Tiva River, Yatta B2 location, Kitui District.

The Muguga National Centre (starting October 1988) offers four training courses at national level for participants from all over Kenya:

1. Refresher course I for PFO-level, 1989: 2 courses of 5 days, 10 participants per course

2. Refresher course II for DFO-level, 1989: 2 courses of 10 days, 30 participants per course

3. Workshop on extension techniques for extension officers 1989: 3 workshops of 10 days, 40 participants per workshop

4. National Social Forestry seminar, 1989: 1 seminar of 1 day, 80 participants

The Kitui Regional Centre (starting Jan. 89) offers two training courses for:

1. Extension officers and workers in Eastern Province (MENR, MOA): Social Forestry Extension Course: 1989: 4 courses of 10 days, 40 participants per course

2. Leading Farmers and Representatives of Women's Groups in Eastern Province: Social Forestry grassroots course: 1989: 4 courses of 14 days, 40 participants per course.

In other words, in 1989 the Kitui Centre should reach 160 extension officers and 160 at grassroot level from Eastern Province (Kitui, Machakos, Embu, Meru, Isiolo). The Tiva Pilot Forest Scheme in operating a 500.000 seedling nursery and will establish trial plantings on a 2000 ha allocated area, assists voluntary mwethya groups planting and offer seedlings and technical help to farmers in Central Division.

Centre activities like identification and selection of trainees will be coordinated with relevant institutions like Forest Dept., MOA, MOE, etc. The Training Project is part of Kenya Forestry Research Institute (KEFRI) so far under Ministry for Research, Science and Technology.

JICA's financial support to operational costs will gradually be reduced by 20 % annually, from full JICA support the first year to complete GOK-committment after 5 years.

It is anticipated that an important part of the Social Forestry training needs in Kitui District will be catered for by the Centre.

Kenya Renewable Energy Development Project under the Ministry of Energy (MOE) is operating the Kitui Agroforestry Regional Centre together with 5 similar centres in Kenya. The project was supported by USAID/EDI up to Dec. 1987 and is at the moment without any donor assistance. The level of activity at the Kitui Centre is therefore low. The Centre is operating a nursery (cap. approx. 200.000 seedlings), fuelwood demonstration plots (guava, casuarina, cassia siamea), a seed orchard, a cookstove workshop and is conducting four agro-forestry training workshops annually-each consisting of 20 participants (women group leaders, etc.) for one week. Due to financial constraints the Centre is only able to do limited extension work.

The Kitui-ASAL Forestry Component should establish a close working relationship with the AF-Centre and the Social Forestry Training Centre.

The Rural Tree Development Support Project sponsored by Swiss Development Cooperation was supporting RAES significantly up to May 1988, bus has been temporarily suspended awaiting the outcome of a policy dialogue on upgrading RAES (status line, line of authority, scheme of service, budgetary separation). A renewed core-support to REAS could have an important impact on agroforestry extension work in Kitui District.

SIDA has a national soil conservation programme which covers, among others, Kitui District. It has not been particularly happy with the wet based soil conservation technologies which have been transferred to ASALs. In an ASAL specific soil conservation programme under discussion, there ought to be packages which can be utilized in districts like Kitui.

The NGOs have small programmes, but there is need to co-ordinate with them, particularly for mobilizational issues as their programmes are always implemented through community groups.

3.4.3.3 GOK - District Activities

Some donorprojects are implemented through the GOK system, but most are not.

The district team implements the District Specific Development Programmes funded by G.O.K. revenue and budgeted in the District Forward Budget as appearing in the District Allocations of the Forward Budget and Printed Estimate.

The G.O.K. funds for Kitui District Specific Development activities within water, Forestry, Agriculture and Livestock in the period 1988/89 is given in Appendix 10.

Logical Framework

Project Structure	Indicators of Achievement	Indicator Quantification/Assessment	Important Assumptions/ Assessment of Risk
Overall Development Objectives. . Regeneration and preservation and sustainable utilization of natural resources i.e. water, soils and vegetation.	Restoration of long term balance between humans, livestock and natural environment.	. Satelite photos of vegetation coverage . Measurement of water flow in natural springs and rivers. . Measurement of top soil composition and fertility. . Impact study.	. Rate of population increase . Regulation of livestock . Government Laws and Regulations regarding protection of natural resources i.e. gazetted forest, riverbanks, soilconservation. . Government Laws and Regulations regarding public versus private ownership to resources i.e. landadjudication and title deeds to agricultural land in upper zones. . Assurance of well defined user rights to grazing Land.

Locical Framework

Project Structure	Indicators of Achievement	Indicator Quantification/Assessment	Important Assumptions/ Assessment of Risk
Immediate objectives:			
. To strengthen the capacity of local authorities to plan, coordinate and implement the ASAL Programme in accordance with the DF Strategy.	. Successfull implementation of ASAL Programme in accordance with DF policies and procedures. . Gradual improvement in implementation capacity and quality of work.	. PMU review reports (see 4.5.1.3).	. GOK staff requirements fullfilled. . Successfull cooperation between P.M.U. and relevant Lineministries f.ex. in formulation of training programmes, for example.
. To strengthen the capacity of existing forms of community organizations to participate in ASAL Programme activities.	. Level of community participation. . Degree, quality and tempo of self-help activity with each programme component. . Level of activity of the self-help group after with-drawal of programme support . Functioning of the O.M. of waterprojects under the management of self-help groups.	. Quaterly an annual progress reports prepared by MT.	. Motivation of local communities. . Cooperation between local communities and frontline government personnel. . Cooperation between MT staff and frontline government personnel.

Locical Framework

Project Structure	Indicators of Achievement	Indicator Quantification/Assessment	Important Assumptions/ Assessment of Risk
Immediate objectives:			
. To improve the availability of and acces to safe and reliable sources of water for humans and livestock.	Annual production target equivalent to 1200 m2/day of new waterstructures.	Yearly implemented water capacity as per annual progress reports.	. G.O.K. staff requirements fullfilled . Consultancies in siting and design . Monitoring system functioning.
. To further the process of soil and waterconservation.	Targets set in annual work-programme.	Quarterly and annual progress reports.	. G.O.K. staff requirements fullfilled . Improvement of Soil Conservation concepts and methods for ASAL's. . Level of motivation of farmers. . Successfull mobilization through extension service and training.
. To increase agricultural and livestock production through improved agricultural and livestock practices in order to maintain/improve the standard of living of the growing population.	Annual household records of crop and animalproduction in target areas.	Special surveys of households in target areas conducted according to catchment target areas.	. G.O.K. staff requirements fullfilled . Improved drought resistance varieties, species and farm practices developed and adopted.

Locical Framework

Project Structure	Indicators of Achievement	Indicator Quantification/Assessment	Important Assumptions/ Assessment of Risk
. To conserve the catchment areas of perennial springs mainly located in hills and inselbergs and to support the production and distribution of seedlings as part of on-farm tree-planting and hilltop conservation.	. Conservation of all forest reserves in the District. . Increase the number of small community based nurseries significantly. . Establish an effective agro-forestry extention network.	. Water supply capacity in m^3/day by the end of dry season from piped gravity schemes based on protected springs in forest reserves. . Number of farmers reached by R.A.E.S. and the number of trees planted on-farm and surviving after on year.	. The issue of gazettement of forest reserves be pursued as a matter of high priority by all authorities involved. . Land adjudication and issue of title deeds in the target areas continue. . District Forest Department and R.A.E.S. in particular is strengthened in terms of staff and basic facilities. . The financial flow and administrative procedures will operate smoothly.
. To identify, plan and support non farming activities with special attention to the mobilization of the male labourforce.	Figures on non farming activities identified, planned and implemented.	Quarterly and annual progress reports.	. Funds for consultancies to undertake feasibility studies of various promising non-farming activities. . Existance of economic viable activities. . Well functioning marketing system.

Locical Framework

Project Structure	Indicators of Achievement	Indicator Quantification/Assessment	Important Assumptions/ Assessment of Risk
. To increase the awareness among the population of environmental issues and of the basic principles of water related hygiene and environmental sanitation.	. Level of community participation in soil and water conservation activities.	. Quarterly and annual progress reports of M.T.	. Successfull implementation of orientation of front-line and other government personnel. . Training and communication methodologies and materials to be developed by M.T.

Locical Framework

Project Structure	Indicators of Achievement	Indicator Quantification/Assessment	Important Assumptions/ Assessment of Risk
Output 1:			
Establishment of ASAL PROGRAMME Organisation a. P.M.U. b. ASAL Sections in MOWD, MOA, MOLD and M.E.N.R. c. Divisional Centers in Kyuso and Mutito.	. Buildings constructed and equipped by July 1989 . G.O.K. and DANIDA staff recruited and posted by July 1989. . Transport and other equipment procured and transfered by July 1989. . Budget prepared, approved and included in G.O.K. Printed Estimate.	. Commissioning Report . Minutes from joint G.O.K. - DANIDA meetings (April 1989). . Transport/import documents.	. G.O.K. recurrent funds available on time. . DANIDA funds available on time. . Contractor recruited in time. . Staff recruited posted in time. . Equipment procured in time.
Output 2:			
Watercomponent. Waterstructures producing 1200m^3/day every year in 5-years.	Yearly implemented water supply capacity.	Quarterly and annual progress reports.	. Funds for recurrent cost. . Construction material available on site. . Monitoring, supervision and project auditing. . Staff recruited/posted in time.

Locical Framework

Project Structure	Indicators of Achievement	Indicator Quantification/Assessment	Important Assumptions/ Assessment of Risk
Output 6:			
Forestry activities.	Annual achievements in coverage compared to annual targets.	Quaterly and annual progress reports.	. Funds for recurrent cost. . Proper management and maintenance of transport equipment. . Staff recruited/posted in time.
Output 7:			
Non-farming activities.	. Number of feasibility studies undertaken. . Number of people productively employed on assisted projects.	Quarterly and annual progress reports.	. Qualified consultants available. . People with entrepreneurial spirit. . Training and credit programmes satisfactorily implemented.
Output 8:			
Training and Mobilization according to concepts, methodologies and work-programmes to be developed.	Annual achievements in relation to annual work-programme.	Quarterly and annual progress reports.	. Funds for recurrent cost. . Cooperation with relevant local authorities and institutions. . Relevant G.O.K. staff available and motivated.

Locical Framework

Project Structure	Indicators of Achievement	Indicator Quantification/Assessment	Important Assumptions/ Assessment of Risk
Output 9:			
Survey and Monitoring	. Establishment of baseline survey. . Monitoring systems for selected project activities. . Socio demographic inventories of new catchment areas. . in year 5 a socio-economic impact study.	. Quarterly and annual progress reports. . Separate impact monitoring reports.	. Recruitment of qualified staff. . Cooperation with other programme components.

Locical Framework

Project Structure	Indicators of Achievement	Indicator Quantification/Assessment	Important Assumptions/ Assessment of Risk
INPUTS.			
G.O.K.			
1. Transfer of ASAL facilities to new ASAL Programme.	Document certifies transfer of facilities.	Copy of Document recieved by DANIDA.	D.D.C. Decision to be made.
2. Construction sites for Office Blocks, Workshop and Guesthouses.	Document certifies the transfer of land for construction of new facilities.	Copy of Document received by DANIDA.	Decision to be taken by relevant authorities.
3. Staff requirements.	Vacant G.O.K. positions filled. G.O.K. officers seconded to ASAL Programme.	Minutes from joint G.O.K.-DANIDA meeting in April 1989.	Lineministries H.Q's to make staff available.
4. Recurrent Funds.	Funds appearing in Printed Estimate.	Printed Estimate District Allocations 1989/90.	Min. of Planning succeeds in preparing budget and in coordinating line-ministries.

Locical Framework

Project Structure	Indicators of Achievement	Indicator Quantification/Assessment	Important Assumptions/ Assessment of Risk
DANIDA:			
1. Transfer of Mutomo facilities to new Programme.	Detailled plan prepared and implemented.	Mutomo halfannual report July-Dec. 1988.	DANIDA Desk Officer Nairobi supports.
2. Funds for officeequipment and recurrent cost.	. Programmebudget approved by DANIDA BOARD. . Plan of Operation approved by G.O.K. and DANIDA.	Pre-programme activities follow plan of operation.	DANIDA country programme accomodates the proposed Programme.
3. Recruitment of DANIDA Staff.	Staff recruited by April 1989.	Pre-programme activities follow plan of operation.	G.O.K. - DANIDA approve job descriptions.

4.2 Programme Objectives.

4.2.1 Overall Development Objectives.

The overall development objectives of the proposed programme takes as its point of departure the policies of DANIDA as outlined in the strategy paper on aid to Kenya as well as the policies of G.O.K. as outlined in various recent policy documents dealing with development policies in general and especially rural decentralization i.e. District Focus for Rural Development, ASAL-policies and budget rationalization.

Within the overall objectives of the ASAL Programme as stated in the 1989-93 Development Plan, the overall development objective of the Kitui-ASAL Programme will be to support a sustainable development process in the district, based upon:

- improvement of dev. infrastructure eg. a) roads, b. seed supplies, c. livestock supplies
- regeneration and preservation of natural resources

- strengthening of community participation in development activities.

4.2.2 Immediate Objectives.

The immediate objectives are those defined in detail in chapter 4.5 describing the various sectoral activities of the proposed programme. They are briefly summarize below as follows:

- in accordance with the District Focus Strategy to strengthen the capacity of local authorities to plan, co-ordinate and implement the ASAL Programme,

- to support existing forms of community organizations such as Mwethya and other groups, in order to increase their capacity to identify needs and to plan, organise and carry out self-help activities, including the maintenance of social organizations and physical structures,

- to improve the availability of and the access to safe and reliable sources of water for humans and livestock,

- to further the process of soil and moisture conservation on agricultural and range lands,

- to increase agricultural and livestock production through access to sufficient and relevant extension services, thus leading to increased agricultural and livestock production required to maintain the standard of living for the growing population.

- To support forestry activities, incl. afforestation of hilltops and agro-forestry,

- to increase the awareness among the population of

extended phase. For the female target group attention shall be paid to the fact that women in most cases are already overburdened with work. The male target group will therefore be given priority in this respect whereby the male labour force may be activated.

The specific target groups identified by the various sectoral activities are given in chapters 4.5.

4.4 Programme Strategy.

The A.M. has attempted to arrive at an ASAL programme strategy by combining the resources available for the fulfillment of overall objectives in an optimum manner, given the development potential and constraints in the district. The basic development constraints and potentials can be summarized as follows:

- ASAL areas are by definition dry areas. The various agricultural zones in Kitui District receive less than 900 mm of rain per year. The annual variations in rainfall are dramatic: so are variations from one location to the next within the district.

- A major resource in the district is range land for livestock, and the basic constraint is water. In the higher zones (Central Division and pockets in the other Divisions), there is a potential for intensified rainfed agricultural development based upon soil and water conservation and intensified mixed farming systems.

- In the higher potential areas land adjudication and the issuing of title deeds is a precondition for improved agricultural practices.

- The experiences of previous development programmes in the district such as Kitui ASAL and Mutomo Soil and Water Conservation Programme, clearly demonstrate that sustainable development will have to be based upon the active participation of the community in the identification, planning, implementation and operation and maintenance of projects.

- Consequently, sustainable development projects will have to be based upon appropriate technologies that are maintainable by the local communities.

The following are the main features of the Programme Strategy:

- Utilize relevant experiences from Mutomo and other relevant programmes/projects in the area.

- Implement programme activities in accordance with District Focus for Rural Development.

- Strengthen community participation in all phases of the project cycle through mobilization and training activities.

- Use appropriate technology maintainable by the local community.

- Implementation through relevant Line Ministries. Establish clearly defined division of labour and responsibilities between involved institutions/- departments and individuals

- Delegate responsibility and accountability to levels as close to the community as possible (Divisions, Locations).

- Establish a decentralized management and implementation system.

- Establish a system of institutional learning through a programme Survey and Monitoring System.

The proposed Kitui ASAL Programme will be based on experiences gained in the Danida supported Mutomo Soil and Water Conservation Project, the Taita-Taveta and other ASAL Programmes as well as the Kitui ASAL Programme financed by USAID. The Mutomo project has been implemented through an intensive effort involving considerable manpower and resources, and valuable experience has been gained particularly within community based smaller water projects.

The new programme will, however, to a much larger degree than it has been the case in Mutomo work through the Kenyan administrative system. It should be possible, to secure substantial progress towards the attainment of the immediate objectives outlined above through development of and support for the Kenyan system as described in 4.5 below.

With the magnitude of problems in Kitui District all experience indicates that these problems can only be solved through the active participation of the population. The most appropriate tool for such participation is the existing group structures of the Akamba and especially the self-help Mwethya groups which have been used extensively for development tasks in the past. Despite some of the impressive results achieved, there is room for further improvement of the functioning of the group structures. The programme will thus undertake an intensive training, communication and mobilization effort to develop the implementation capacity of these groups further.

Experiences have shown that access to water is the highest priority for the population of Kitui district. In its initial stages the project will thus start with a special effort to mobilize groups for the construction of smaller water structures in the rest of the district.

A special emphasis shall be given to utilize the natural springs of the inselbergs for piped gravity schemes since this has proven the most reliable and cheapest source of potable water. The programme will give first priority to rehabilitation and extension of existing gravity schemes, but will also identify, design and construct new gravity schemes.

Based on the involvement created through this effort the programme will intensify and strengthen the ongoing soil conservation activities. There has been a tendency to concentrate these activities on terracing of cultivated areas. They will be broadened, however, i.e. through the inclusion of range rehabilitation and biological soil conservation methods efforts. In many areas of the district soil conservation on crop and range land must go hand in hand in order to give emphasis on the catchment area approach. At the moment soil erosion is rampant on range lands situated between neatly terraced, cultivated plots.

Closely related to this will also be a continued extension effort providing training in cultivation practices, crop selection, forestry, etc.

The components mentioned above will be the main activities at programme start-up. This represents an intensification of efforts in relation to the USAID ASAL Programme and an extension of the scope of the Mutomo project. If these crucial components are to be successfully implemented, it will require a very strong effort which will put great demands on the management and implementing capacity of the programme. No other major components should thus be implemented during the first two years of programme operation. However, during the second year a review should take place on the basis of studies undertaken and observations made during the preceding period. It should be considered whether the scope of the programme could and should be extended and new activities taken up during the remaining period. If necessary, Danida should seek an additional, financial allocation for the project.

In order to limit the management burden at the start of the new programme it should be considered to expand the geographical coverage in phases and according to a catchment area approach. While it should be recognized that the previous activities have created expectations among the people in all the divisions and that the district's technical services have obligations towards the entire population of the district, such considerations should not lead to an indiscriminate scattering of project resources and efforts all over the district. Some kind of initial concentration should take place. This should be done by starting up activities in areas where the need for water supply and soil conservation is most pressing. This will often be the more densely populated areas.

The mere size of Kitui District has serious implications for the implementation strategy of a district wide ASAL Programme. Only the administration of MOA has been decentralized to Divisional level. It will not be possible to implement the proposed water and livestock component in all the divisions from one central base. The distance from Kitui Town to areas such as Kyuso, Mutitu and part of Mutomo division is simply prohibitive to active project implementation.

It is therefore envisaged that while activities such as planning, inspection, training/mobilization, surveys and monitoring will be based at the District Headquarters, the implementation of water, agriculture, forestry, livestock and training/mobilization programme components will operate from a divisional base.

The new ASAL Programme will utilize the existing facilities in Mwingi and Mutomo Divisions, but it will be necessary to establish the Divisional facilities of MOLD and MOWD in order to cater for the activities in Kyuso and Mutito Divisions. In this way it will be possible to implement the proposed programme activities from physical facilities in all of the Divisions of the District.

To sum up, the overall guiding principles of the proposed ASAL Programme will be the District Focus for Rural Development with a balanced emphasis on community participation and a strengthening of the implementation capacity of the relevant Government Institutions in the District.

4.5 PROGRAMME PROPOSAL BY SECTOR.

4.5.1 Institutional Development

4.5.1.1 Specific Objectives and Target Groups

The proposed Kitui ASAL Programme attempts to contribute to institutional development within the framework of the District Focus for Rural Development Strategy of GOK, partly by strengthening the community participation in development activities (see Section 4.5.8), and partly by strengthening the capabilities of the relevant Government Institutions in Kitui District.

The target group for this Programme component can be defined as follows:

- Professional staff in ASAL section of Rural Planning Division, Ministry of Planning HQ
- Professional staff involved with ASAL related activities in Line Ministry HQ
- Professional staff in the District Planning Unit and more particularly, the ASAL PROGRAMME MANAGEMENT UNIT
- Professional staff of Line Ministries at District Level, particularly those involved in planning and implementation of the proposed Kitui ASAL Programme.

4.5.1.2 Institutional Development - Programme Components

The proposed Programme aims at strengthening the capabilities of Government Institutions in the following areas:

- Accumulation and dissemination of relevant experiences from development work in Kenya's 27 ASAL districts
- Accumulation and dissemination of research - Kenyan as well as international - of relevance to development in ASAL areas - with particular emphasis on Kitui District
- District planning, monitoring and evaluation
- Planning, design and implementation capacity of the District Department of Ministry of Water Development, Ministry of Agriculture, Ministry of Livestock Development, Ministry of Environment and Natural Resources and Ministry of Culture and Social Services.

In order to achieve the required strengthening of capabilities of government institutions involved in the implementation of the proposed Kitui ASAL Programme, the ASAL Programme Management Unit established for the management of the proposed programme (PMU) (see chapter 4.6) will liaise with the relevant officers in order to identify:

- Areas in which reforms in established bureaucratic procedures and systems can contribute to increased efficiency in order to maximise the utilization of existing human and physical resources

- Areas in which formal as well as informal (i.e. on the job), training can contribute to strengthening the professional qualifications and capabilities of GOK officers involved in Kitui ASAL activities

- Systems and methods to be developed and implemented by the PMU for a systematic and thorough monitoring of ASAL project/programme implementation through financial as well as project auditing and reporting

- Progress reporting systems and formats in order to arrive at uniform, simple ways of reporting progress in the implementation of ASAL projects/programmes.

4.5.1.3 Targets and Indicators of Achievement

The ultimate target of this Programme component is, within a period of 5 years, to have an efficient, smooth, reliable and innovative Rural Development Management System in accordance with the intentions of District Focus for Rural Development, through a comprehensive and consistent support to and complementation of the overall GOK efforts in this area.

The immediate targets are for the PMU to produce the following review reports within the first year of the proposed ASAL Programme:

- An evaluation of the implementation of DF policies and procedures with an emphasis on identification of areas where action needs to be taken. The aim of this evaluation is not to revise District Focus policies but rather to secure an efficient implementation and to assist the GOK in the collection of experiences.

- An evaluation of the implementation capacity and capability of the Line Ministries involved in implementation of the proposed ASAL Programme. The report will include an identification of manpower requirements, staff development plans, such as formal and informal training, as well as a proposal for strengthening logistics when deemed necessary

- An evaluation of the capacity and capability of the District Treasury and the District Internal Auditing function. This report will emphasize ways and means of strengthening the financial management at the district level.

These reports will be discussed in the District Steering Committee, and subsequently by the DDC, which will decide upon an Institutional Development Programme to be implemented for the remaining 5-year ASAL Programme period.

4.5.1.4 Input Requirements

The implementation of the Institutional Development component will be the responsibility of the PMU which forms part of the DPU. (For a discussion of the organizational set up, see Chapter 4.6).

In order to operate efficiently, the PMU will have to increase its staff, its office space, transport facilities and other equipment, such as micro-computers and typewriters.

Staff houses for two DANIDA Advisers, and additional professional ASAL staff are available within the ASAL residential estate established under the first Phase of Kitui ASAL with USAID assistance.

Office Space

The office space available in the block constructed by ASAL Phase I presently consists of 2 offices for senior officers, each with a secretarial front office.

The additional requirements are 5 offices for Senior Officers (3) and DANIDA Advisers (2).

Staff

In addition to the ADDO, presently acting as DDO, as well as ASAL Programme Officer, the DPU needs to:

1) fill the established positions, presently vacant, of DDO and ASAL Programme officers

2) physically place the District Statistical Officer and the District Physical Planning Officer in DPU premises to be established in the previous ASAL office premises.

   The DDO and the District Statistical Officer will be assisted by the DANIDA Senior Rural Development Planning Adviser in establishing the District Information and Documentation Centre under the DPU.

3) Recruit a qualified Kenyan Training Officer to head the Mobilization and Training Section (M&T) of PMU. Since this post has not been established within the GOK system, DANIDA will undertake to recruit and employ this officer from Programme funds (for details see 4.5.7.).

4) Similarly a senior administrative officer, a typist-cum-office assistant, and an accountant will be recruited by DANIDA to relieve the ASAL Programme Officer and the DANIDA Senior Planning Adviser of most of the routine administrative duties and to ensure that financial accountability problems do not occur.

DANIDA, in addition, will undertake to recruit the following advisers to be posted to PMU:

1) 1 Senior Rural Development Planning Adviser

2) 1 Survey and Monitoring Adviser to the SM Section.

3) Short-term consultancies in various fields related to the MT Section of the PMU.

Vehicles

In order to make the PMU operational, three 4-wheel drive vehicle will be required. Programme vehicles will be on private registration, to be used only for programme purposes. They will be administered by the PMU and will remain the property of Danida.

Other Equipment

In addition to the office space mentioned above, DANIDA will provide office equipment in order to make PMU operational, such as

- Desks, chairs
- Typewriters
- Photo-copying facilities
- 2 Micro-computers
- Equipment and books for the District Information and Documentation Centre under PMU.

4.5.1.5 Activities and Plan of Operations

This component will be initiated in the following sequence:

1) Establishment of PMU, with its SM and MT Sections

   - construction of office facilities
   - procurement of vehicles and equipment
   - recruitment and posting of staff, incl. 2 DANIDA Advisers (Job descriptions and T.O.R. is given in Annex 8)

2) Preparation of a workplan for the first year of operation, including preparation of the TOR and the outline for the activities listed under 4.4.1.3.

3) Preparation of reporting, monitoring and evaluation procedures, methodologies and formats for PMU, as well as for the other Programme components in Water Development, Agricultural Development, Livestock Development, Forestry Development and for Community participation.

4.5.1.6 Reporting, Monitoring and Evaluation

The PMU will prepare quarterly and annual reports for discussion in PSC and ICC. The reports will be submitted to DANIDA for information as a basis for decisions on quarterly disbursements and annual budgeting.

The Programme will be reviewed annually by a joint Danida-/GOK review.

At a later stage the programme might be included in a Danida thematic evaluation of DANIDA supported ASAL activities.

4.5.2 **Water Development and Conservation**

4.5.2.1 Specific Objectives and Target Groups

Within the overall development objectives of the project, the Water Development and Conservation activities specifically aim at:

- improving the availability and quality of as well as the access to a reliable water supply for human and livestock consumption.

- reinforcing local capabilities of taking over the ownership and consequently the operation and maintenance (OM) of the implemented rural schemes by maximising local community participation in project identification, planning and implementation.

The target groups for the Water Development and Conservation activities include all families involved in small-scale agriculture and livestock activities in all 5 divisions of the district.

Geographically, the main focus will be on those low density areas comparatively underdeveloped in terms of water, particularly that infertile crescent the top point of which is the Katse-Tharaka area, bulging downwards towards Endau and curving westwards towards Mutomo.

The principle of community ownership and responsibility for OM will be a firm prerequisite for project involvement in water supplies for minor townships.

4.5.2.2 Categories of Technologies and Implementation Strategy

The emphasis will be on low to medium level technology. The reason for this is partly the financial situation in the country and partly that local management which is a necessary condition for the operation and maintenance of the schemes, has hitherto been connected to such technology.

Thus in order to achieve the objectives set above, the following water development and conservation technologies will be applied:

- Piped gravity supply from springs.
- Rock catchments.
- Sub-surface and sand dams.
- Small earth dams.
- "Slit" pans (deep and narrow pans along roads).
- Ground tanks (only at nurseries and institutions).
- Shallow wells.

The experience with regard to the construction and maintenance of medium and large scale earth dams in Rural Kenya shows that the design as well as the maintenance capability of MOA and MOWD is still a major constraint.

However the possibilities of including medium scale earth dams in the above list of categories of projects will be considered during the first two years of operation along with other solutions to increase the supply of water.

Rehabilitation of existing viable schemes, extension of existing piped gravity schemes and implementation of new schemes will be undertaken.

Particularly at the start of the project, high priority will be given to rehabilitation and extension of existing schemes.

High priority will be given to piped gravity schemes whenever feasible.

The implementation will start slowly and the achievements will be currently monitored in order to undertake necessary adjustments in the light of gained experience.

4.5.2.3 Targets and Indicators of Achievement

Targets

The target for the Water Development and Water Conservation Programme is an annual implementation of water supply capacity of approximately 1200 m^3/day equally divided between human and livestock consumption.

Hereby, on an annual basis approximately 30.000 people and 20.000 Livestock Units (LU) will be provided with untreated water at a rate of 20 litres per person per day (l/p/d) and 30 liters per LU per day (l/LU/d), respectively. (Observe: 1 LU is the equivalent of one mature local breed cattle, one donkey, 5 sheep or goats or 0.8 camel).

However, it will often be difficult to define exactly the specific supply area and user group of a given water scheme. Thus, although the access to water generally will be improved, unreliable supply and long walking distances, particulary at the end of the dry season, may still be experienced in connection with newly implemented schemes.

All the water will be provided without treatment implying that no guarantee can be given as to its quality although also in this respect a general improvement can be expected.

Table 4.5.2.1 suggests very tentative targets for water development activities by category, year, division and implementing agency. Based on the experience gained during the first years these targets will have to be revised.

Indicators of Achievement

The main indicator is the yearly implemented water supply capacity in m^3/day.

As for piped gravity schemes and shallow wells their water supply capacity in m^3/day by the end of the dry season is easily arrived at.

For the schemes involving volume-structures (rock catchments, sub-surface dams, small earth dams, slit pans and ground tanks) a nominal water capacity may be arrived at by dividing their effective storage volume (total volume less estimated evaporation and leakage losses) by the length of a design drought period say 150 days. Thus e.g. a ground tank of 75 m^3 may be assigned a water supply capacity of say 60/150 = 0.4 m^3/day. Similarly a rock catchment of 1500 m^3 may be assigned a water supply capacity of approximately 1200/150 = 8 m^3/day.

Thus it is possible to convert the implementation targets given in Table 4.5.2.1 into approximate numbers of schemes within each category depending on their individual sizes as well as to calculate the actual achievements.

Taking into account the present uncertainties, Table 4.5.2.1 should primarily be considered a possible model or framework for the purpose of expressing and updating implementation achievements and targets for water development and conservation activities.

4.5.2.4 Input Requirements

Implementation of water development and conservation will take place within MOWD and MOA.

Staff houses for the DANIDA-Senior Water Engineer Adviser, the MOWD-Senior Water Engineer in charge of the ASAL Water unit within MOWD and the MOA - Agricultural Engineer in charge of the water conservation implementation within MOA are available within the ASAL residential estate established under the phase I Kitui ASAL with USAID assistance.

In order for the MOWD-ASAL Water Unit to undertake a yearly implementation of a water supply capacity of 650 m^3/day the following minimum staff is required:

1 Senior Water Engineer (planning and design)	Head of unit
1 Senior Water Engineer	DANIDA-adviser
1 Senior Water Inspector	
10 Water Inspectors	
5 Engineering assistants	
1 Draughtsman	
1 Surveyor	
2 Surveyor assistants	
5 Masons (graded)	
5 Plumbers (graded)	
5 Carpenters (graded)	

By comparing these needs with the list of the existing MOWD-staff (Table 4.5.2.2) it is seen that in addition to a special posting or secondment of the MOWD Water Engineer there is also a lack of personnel in terms of draughtsmen, surveyors, masons, plumbers and carpenters.

It has to be taken into account that the programme can only count on part of the existing MOWD-manpower as some of it will remain being occupied with operation and maintenance of existing MOWD schemes as well as new construction beyond the ASAL-programme.

Ministry of Agriculture

Within the presently ongoing Mutomo-project the water construction activities involve a staff of 1 senior foreman, a number of junior foremen and approximately 40 work teams of different size, totally comprising approximately 60 fundis.

In addition to a special posting or secondment of a MOA-Agricultural Engineer to head the MOA-ASAL water unit, the water conservation activities within the MOA will be based on the manpower involved in water conservation implementation during the MOA-ASAL water conservation activities as well as the manpower presently working with water conservations within the Mutomo-project, either employed by the project on a casual basis or hired as private contractors. By combining these two manpower resources it should be possible - on a yearly basis - to implement approximately a supply capacity at 400 m^3/day. By involving other con-

tractors (e.g. MOA/AMS for the construction of slit pans) as well as NGO's (shallow wells) it should be possible to implement additionally 150 m^3/day on a yearly basis.

Other Inputs

In support of the water development and conservation activities it is recommended that

- an evaluation study on the overall effectiveness of sub-surface- and sand dams in terms of water supply as well as ecological and environmental impact be undertaken by a competent Kenyan Research Institute. (Estimated cost K.shs 0.8 mill.)

- a short term consultant looks into the feasibility of establishing Water User Associations which - as a prerequisite for DANIDA financing of such schemes - can take over the ownership and OM-responsibilities of the water schemes.

- as a pre-project activity, a short term consultant looks into ways and means of organizing the present Mutomo-water construction personnel in private/cooperative contractor units with the assistance of DANIDA.

- a short term consultant with extensive experience in small scale water conservation - constructions is employed in order to ensure sufficiently high quality of siting and work-manship of water conservation structures.

- as a pre-project activity the investigation of the need for rehabilitation of existing waterstructures, mentioned in chapter 3.4.3.4 above, should be finalized in accordance with the guidelines provided in the proposed revised Terms of Reference (See Annex 8e).

Recurrent Costs

With an estimated yearly implementation of 1200 m^3/day water supply capacity and an estimated a unit cost of 18,000 Ksh per m^3/day the total yearly figure will be approximately Kshs 22 mill.

Assuming, on a yearly basis, 650 m^3/day to be implemented by MOWD and 550 m^3/day by MOA the following ministerial budgets for the ASAL water units are arrived at:

- Ministry of Water Development

  Implementation including construction materials, repair of equipment, casual wages and allowances — 11.9 mill Kshs/year

Table 4.5.2.2

MOWD-staff in Kitui District as per March 1988

	HQ	Kitui Water supply	Divisions	Total
Water Engineer (DWE)	1			1
Senior Superinterdant	1			1
Senior Inspector	2			2
Inspector	8	5	11	24
Geologist	1			1
Engineering assistants	4	1	8	13
Water Bailiff.	1			1
Draughtsman	1			1
Surveyor assistants	3			3
Masons	2	2	5	9
Plumber	1	2		3
Carpenter			1	1
Drivers	6	1	3	10
Other staff (mostly subordinate)	61	36	54	157
Total	92	47	82	221

4.5.3 Soil and Moisture Conservation and related Agricultural Practices.

4.5.3.1 Specific objectives of this component of the Programme are to stimulate and support improvement of agricultural production and preservation of the agricultural resource base through more and better adopted soil and moisture conservation and agricultural practices.

The target group for this component is, in principle, all heads of farm households living in the target areas, insofar as soil and moisture conservation measures will be fully beneficial to individuals and to the community only if all households are involved, i.e. if full coverage of catchment/-sub-catchments is to be achieved.

The prime target areas will be cultivated land and grazing land in areas with high potential for agricultural production. These are found predominately in Central Division, in the southern part of Mwingi Division, and in pockets around inselbergs and along rivers in other divisions. The population is in general dense and consists of settled farmers who, to a high degree, depend on agriculture for their living.

The target areas are in particular in Central and Mwingi Division, hilly with relatively fertile clayey and loamy soils which, however, are open to soil erosion when deforested, overgrazed or cultivated. The rainfall pattern is bimodal but unreliable. The annual precipitation ranges from 700-1100mm.

4.5.3.2 Categories of techniques

In order to achieve the goals set above the following techniques and methods will be applied:

Soil conservation

On cultivated land:

- physical measures, including building of benches, digging of fanya juu terraces or laying of trash lines. Digging of cut-off drains and ditches and, in rare cases, of artificial waterways are also included.

- biological measures, including strip cropping, perennial vegetation on the contours, suitable land preparation before the rains, cultivation along the contours, early planting, rotation of crops, correct plant population, use of fertilizer, manure, compost, mulch, etc.

On eroded grazing land:

- establishment of live fencing, reseeding of grasses on the contours and in micro-catchments, planting of fodder trees and other trees and shrubs for stabilization and enrichment (N-fixation) of the soil. In severe cases of erosion, building of terraces might be necessary as well as gully control measures.

- controlled, rational grazing or even zero-grazing after completed rehabilitation.

Agro-forestry

Please refer to chapter 4.5.6, section 4.5.6.2 Rural Afforestation Extension Services.

Improved agricultural practices:

- development, field testing, introduction and support to local manufacture of appropriate animal-drawn agricultural implements, in particular for soil preparation and tillage. Improved availability, care and training of draught-animals.

- identification, field testing and introduction of improved drought resistant, early maturing varieties of the main staple crops, as well as promising cash crops.

- seed multiplication.

- development of improved handling techniques of foodgrains, including storage at farm level.

The above-mentioned points explain the most important inputs of the Programme which, however, will aim at supporting all aspects of soil conservation and improved agricultural techniques.

4.5.3.3 Implementation Strategy and Targets

All soil conservation activities shall be done following a catchment or rather sub-catchment area approach, and through participation of the local community. The final Plan of Operation shall identify the geographical areas of intervention and prepare a time sequence for implementation.

It is estimated that approximately 80 per cent of the cultivated land in all sub-catchments with high population density and in need of soil conservation in the high potential areas shall be covered, i.e. all cultivated land in the target area shall have been exposed to establishment of some type of soil conservation measures. Indicators of achievement will be TA's monthly progress reports.

Rehabilitation of eroded grazing land will start with field trials and demonstrations. The final Plan of Operation will select one site in one sub-catchment in each sublocation to be rehabilitated and laid out for trials of, in particular, verities of grass, fodder trees and live fencing. These trials shall be completed within 2 1/2 years (5 seasons) and immediately followed-up by trials on controlled grazing incl. zero grazing on the same sites. The grazing trials shall be completed by the termination of the first phase of the project (5 years). The trial sites shall be used intensively by the frontline extension staff for demonstration to farmers.

Intensified extension efforts, including mobilization of farmer groups to promote rehabilitation of eroded grazing sites in the target areas, shall start during year 2 of the Project.

It is estimated that all eroded grazing in sub-catchments which are fully covered with soil conservation on cultivated land, shall be rehabilitated during the first phase of the Programme (5 years).

Indicators of achievement will be TA's monthly progress reports.

Agro-forestry

The final Plan of Operation will identify the required inputs as well as areas of collaboration with M.O.E.N.R. (see chapter 4.5.6).

Mobilization of and support to farmers groups and individual farmers to establish small nurseries shall start after the first rainy season. It is expected that at least each location shall have a small nursery after 2 years. Field trials to identify suitable species of fruit, fodder and multi-purpose trees will start in year 2 and continue into the second phase of the Programme.

Development of techniques for direct seeding of trees will start in year 2 of the Programme and is expected to be completed during phase I. The required trials will be performed at the larger nurseries.

Indicators of achievement will be the DAEO's progress reports.

Improved Agricultural Practices.

All activities under this heading are part of the day-to-day work of the divisional subject matter specialists.

4.5.3.4 Input Requirements

Staff

The implementation of this component will be the responsibility of the divisional extension services, see Chapter 4.5.4.

Physical inputs

For transport of materials in connection with the activities mentioned above, two 4-wheel drive pick-ups will be required located at the divisional headquarters in Central and Mwingi Division.

Programme vehicles will be on private registration, to be used only for programme purposes. They will be administered by the PMU and will remain the property of Danida.

Tools and equipment for nurseries, field trials and as incentives to farmers groups.

Improved seeds and seedlings for field trials.

Seeds for multiplication.

Miscellaneous.

Other inputs

Local consultancies and research contracts as identified by Ministry of Agriculture in liaison with PMU. The following pertinent issues are identified by the A.M:

- technical assistance to develop animal drawn implements for land preparation and tillage, 3 man months.
- technical assistance to prepare a plan for field trials, 2 man months.
- preparation of plan for investigation of soil degradation on cultivated terraces.

DANIDA shall further finance short term consultancies as required.

Contracts with national institutions to conduct surveys and research in connection with work mentioned under consultancies.

4.5.3.5 Plan of Activities

The final Plan of operation will prepare the Plan of Activities.

4.5.3.6 Reporting, Monitoring and Evaluation

The District Agricultural Officer will prepare quarterly and annual reports to be submitted to PMU.

4.5.4. Agricultural Extension and Training

4.5.4.1 Specific Objectives and Target Groups

The objective of this component of the Programme is to ensure a proper implementation of the activities described in the previous chapter 4.5.3, through provision of support to the existing Extension Service in the target area.

The immediate target group will therefore be the Divisional Agricultural Extension staff.

4.5.4.2 Categories of Activities

Extension is the main tool to achieve the goals described in chapter 4.5.3, i.e. increased utilization of arable land and increased yields aimed at increased and sustained food production.

The programme shall give support to the existing MOA Extension Services in order facilitate operation and to improve productivity as follows:

- stimulate the use of contact groups instead of contact farmers. For certain activities like construction of soil and water conservation structures, the use of incentives, for instance tools, might be considered.
- increased use of field days demonstration and trials on farmers fields.
- make transport facilities available for the frontline staff i.e. motor bikes or bicycles depending on area to be covered. It shall be considered to give the officers the option of purchase on soft loan terms.
- stimulate the capacity to give area or even site specific advice to farmers and to develop area specific extension packages through technical courses for divisional subject matter specialist, TA's and JTA's.
- refresher courses for both frontline staff, contact farmers and contact group leaders in order to provide training in what is expected of them and how to do it.
- provision of equipment to produce training materials locally.
- development of a more effective feed-back system from the frontline staff to the subject matter specialists.

4.5.4.3 Targets

The overall target of this component of the Programme is to have professional and efficient agricultural extension service at divisional and locational level in the high potential areas of the district.

The immediate target is to achieve full implementation of the planned activities on soil conservation, improved agricultural practices and agroforestry as described in Chapter 4.5.3.

4.5.4.3 Input Requirements

Staffing

1. It is expected that MOA will fill the established posts, presently vacant, of TO's and TA's in order to cater for the proposed level of activities in Central and Mwingi Divisions.

2. GOK shall second a qualified Subject Matter Specialist to head the ASAL Section of MOA, Kitui.

Physical Inputs

Vehicles

In addition to existing transport facilities the AM recommends DANIDA to supply the following:

1. a 12-seats bus to cater for the intensified training and extension activities.
2. two 4-wheel drive station cars. One to be located in divisional HQ in Central Division and one in Mwingi. The vehicles are for the extensive use of the divisional subject matter specialist (Soil Conservation, Agriculture and Home Economics).

3. Motorbikes for all L.E.O.s and TA's at locational level in the target areas.

4. Bicycles for all TA's and JTA's at sublocational level in the target areas.

5. a 4-wheel drive station wagon for the exclusive use of the subject Matter Specialist seconded to the ASAL Programme.

Programme vehicles will be on private registration, to be used only for programme purposes. They will be administered by the PMU and will remain the property of Danida. Motorcycles can be registered on GK licence plates. All 4-wheel drive vehicles and motorcycles that exist in the Mutomo project will be replaced when they are worn out.

The A.M. finds that this report provides an excellent review of the major livestock development problems in the District and has decided to include its summary chapter as a suitable preliminary framework for implementation of Livestock Activities of the proposed DANIDA Kitui-ASAL Development programme. The full text of the "Report of Interim Findings" is given in Annex 10.

4.5.5.2 The Scope for planned Change in the Livestock Sector.

The study of the literature and an evaluation of the ASAL Phase II leads to the inevitable conclusion that the livestock production in Kitui is in a regressive stage resulting from the pressure of expanding human population, the conversion of grazing land to arable use and range deterioration through the removal of the grass and herb layer and bush encroachment. The demise of the Veterinary Service is also cause for concern, especially when herds and flocks are under stress.

An increasing number of households no longer have cattle and can support only a handful of goats of a donkey for fetching water. More information will emerge from the current household survey by the socio-economic team regarding the present status of stock-keeping in the main agro-ecological zones. However, the information gathered so far suggests a continuous adjustment to a more difficult situation. In these circumstances, it would be disingenuous to talk about "livestock development"; amelioration of the mounting crisis would be more appropriate.

The number and variety of feasible interventions are likely to be few and unspectacular. Much can be done to increase the effectiveness of the MOLD operation by the introduction of routine management procedures and the provision of an adequate operational budget. However, it is necessary to accept the harsh fact that a handful of qualified staff, however well trained and committed, are unlikely to be able to reverse current trends; certainly not in the foreseeable future.

The programme should be realistic and take account of current trends; not wasting effort on group ranches or on the promotion of dairying based on grade animals for small farmers - with their high demand for water, forage, AI and disease control. Dairy goats would be more appropriate. Some skilled and resourceful farmers will succeed in keeping grade dairy cattle, but they will be few and will no doubt be able to achieve this without the assistance of a heavily subsidized government services.

A major objective for the next two years should be the strengthening of the MOLD support services at district, divisional and locational levels, putting to work the cadre of recently qualified (and still enthusiastic) staff so that they can do the simple things well:

- Routine vaccination and disease control including small stock;

- Routine hides and skins inspection and extension;

- Improve basic market infrastructure, especially in remoter parts of the district and provide farmers and traders with the information that they need, based on a systematic survey and monitoring of the current situation: prepare contingency plan for accelerated offtake in times of drought and for accelerated re-stocking afterwards;

- Contribute to an integrated (crops and animals) soil and water conservation package for small mixed farms in the higher-potential adjudicated areas, working closely with MOA staff;

- Assist the community to operate sub location-level fodder bulking sites and offer seed contracts to farmers;

- Range management and stock-water advice for groups of stock keepers in those parts of the cattle/millet zone where the prospects for tenurial reform are favourable;

- Build on the ASAL goat development programme, but on the basis of a more complete evaluation of the GASP operation and the follow-up of progeny. Adopt the same approach for honey, KTBH and the marketing operation and poultry.

The divisional staff, being responsible for implementation, should also be involved in the planning. They should be encouraged to build and monitor their own programmes, but they should be given appropriate support and supervision from the district level.

The Livestock Production and Veterinary departments are currently in no position to take on ambitious new projects as they lack the capacity to implement even routine programmes. In any case, the proposed budgetary frame of an additional Ksh 1.5 million per annum, although a doubling of currently available operational funds, is unlikely go to very far when spread around five far-flung divisions.

4.5.5.3 Targets, Indicators, Input Requirements and Plan of Operation.

The findings of the Livestock Activities Preparation Study will be available in the form of a Draft report by April 1st, 1989. It will propose the specific activities to be incorporated in the Plan of Operation for the Kitui ASAL Programme.

4.5.6 Forestry Activities

4.5.6.1 Specific Objectives and Target Groups

Within the overall development objectives of the programme, the forestry activities specifically aim at:

- conservation of catchment areas of perennial springs mainly located in hills and inselbergs
- support to production and distribution of seedlings as part of on-farm tree-planting and hilltop conservation activities
- development of and support to extension activities to increase community participation in social forestry and conservation measures.

The target groups include all households in the target areas with special attention to mobilization of Mwethya groups.

The prime target areas will be a) forest reserves with perennial springs, b) cultivated land in areas with high potential for agricultural production. These are found predominantly in Central and Mwingi Divisions and in pockets around inselbergs and along rivers in other divisions. The population in these areas is in general dense.

4.5.6.2 Categories of Activities

In order to achieve the objectives set above, the following techniques and methods will be applied:

Hilltop conservation:

- boundary clearing to establish a visual boundary which at the same time will act as a firebreak,
- if the boundary delineation has been agreed upon by the local population, but not yet surveyed, the line should be surveyed, either by the District Survey Office or by the Forest Survey Branch, in order to have the area gazetted,
- on eroded land (cleared for cultivation or other reasons before gazetted as forest reserve) soil conservation methods may be applied e.g. gully control, digging of cut-off drains or fanya juu terraces to improve retention of precipitation and support natural regeneration,
- enrichment planting or direct sowing of preferably indigenous species for stabilization of the eco-system.

Rural Afforestation Extension Service:

- support to small-scale, decentralized nurseries within walking distance of consumers. The nurseries should ultimately be operated by farmers or farmers' Groups. Support should be given as technical support as well as incentives like seed, polythene tubes, watering cans, wheelbarrows or other tools,

- support to RAES and MOA nurseries with the aim of concentrating production on fruit-trees and multi-purpose species popular with the farmers. Production should aim at quality rather than quantity. Improved water facilities could be considered under the Kitui ASAL Water Component,

- support to establishment, management and monitoring, of agro-forestry demo-plots and field trials, including species trials, fodder blocks, alley cropping and other agroforestry systems on-farm as well as on public land,

- development, field testing and introduction of techniques for direct seeding of multi-purpose trees on grazing areas,

- support propagation techniques for fruit-tree production in RAES nurseries,

- coordinate social forestry training packages for RAES and MOA extension officers in addition to courses given at the Kitui Regional Centre with the aim of including agro-forestry into the T & V system,

- training programmes should be formulated and implemented with the assistance of the Kitui-ASAL Mobilization and Training Component, if necessary assisted by short-term consultants,

- stimulate the use of contact groups (including schools) rather than contact farmers,

- make transport facilities available for the extension staff, i.e. motor cycles or bicycles.

4.5.6.3 Targets

The targets for the Forestry Programme is:

- to secure conservation of forest reserves (1988: 22730 ha) in the District, and assist surveying of proposed, but not yet gazetted, forest reserves (80,700 ha),

- to increase the number of small community based nurseries significantly, thereby increasing the percentage of seedling production in small-decentralized nurseries from present 16% to at least 50% of total district seedling production. By decentralizing nurseries more farmers will get access to seedlings and more seedlings

will survive. Hand-in-hand with decentralizing nurseries, monitoring of seedlings distribution and survival is indispensable,

- to establish an effective agro-forestry extension network through collaboration with MOA's T&V system and Kitui Social Forestry Training Centre. Mobile extension foresters should concentrate on nurseries, assistance to schools and groups activities, demo-plots, trials and monitoring. Special attention should be given to population high-density areas in Central and Mwingi Divisions.

Indicators of Achievement

Hill-top conservation:

An indicator for piped gravity schemes based on protected springs in inselbergs/forest reserves would be the water supply capacity in m^3/day by the end of the dry season.

Rural Afforestation Extension Service: a main indicator would be the number of farmers reached and the number of trees planted on-farm and surviving after one year. It is anticipated that each farmer in Central and Mwingi Divisions could plant and tend 30 seedlings per annum. If 50% of all households in the two divisions plant this quantity the scheme would require 1 million seedlings/ year.

4.5.6.4. Input Requirements

The implementation of the forestry component will be the responsibility of the Forest Department under MENR.

Staff:

It is expected that MENR will fill the vacant postings as Divisional Forest Extension Officers to Central & Mwingi Divisions, thereby bringing the total number of Divisional Forest Extension Officers to 5 (one for each Division) headed by one District Forest Extension Officer.

Physical Inputs:

For transport of nursery materials and seedlings two 4-wheel drive Toyota pick-ups will be required located at the divisional headquarters in Central and Mwingi Divisions.

Programme vehicles will be on private registration, to be used only for programme purposes. They will be administered by the PMU and will remain the property of Danida. Motorcycles can be registered on GK licence plates.

Four Honda 125 with safety helmets should be assigned to the Divisional Forest Extension Officers in Central Mwingi, Eastern and Southern Divisions.

Tools and equipment for nurseries, field trials and as incentives to farmers groups and schools.

Improved seeds and seedlings for an increased production of fruit-trees. Seeds of agroforestry species in short supply or missing in the District.

Training materials.

Office facilities for the Divisional Forest Extension Officer, Kyuso as part of the planned Kitui-ASAL Programme office block in Kyuso.

Other inputs:

Short-term consultancies as identified by MENR and PMU. There may be need for technical assistance in the field of Agroforestry training and surveys.

If the proposed forest reserves are gazetted over the next few years, thereby bringing the total area of gazetted forest reserves in the District to approx. 120.000 ha, the cost of clearing and maintenance of forest reserve boundaries will increase proportionally. The question of increased allocations under the Kitui-ASAL budget should therefore be raised under the bi-annual reviews.

4.5.6.5 Plan of Activities

The final Plan of Operation will prepare the Plan of Activities.

4.5.6.6 Reporting, Monitoring & Evaluation

The District Forest Officer and the District Forest Extension Officer will prepare quarterly and annual reports, which shall be submitted to PMU with copies to the Director of Forests and Permanent Secretary, MOENR.

4.5.7 **Non-farm activities**

4.5.7.1 Background

The great need for off-farm incomes is obvious from the extensive emigration from the district. There is a shortage of employment opportunities for men in particular. The ones already existing, such as farming activities, are of low remuneration compared to income from wage labour in Nairobi or Mombasa. Opportunity costs involved in leaving the family farm, considering the low productivity of the land, are therefore small.

4.5.7.2 Objectives and Target Groups

In order to lessen the adverse social consequences of urban migration, and to create the basis for a more cohesive and sustainable economic development in the district, it would be desirable to create further employment opportunities through the promotion of income generating activities in the non-farm sector(s). The objective of this component will be to provide improved access to employment and self-employment as well as increasing incomes of the un- and under-employed sections of the population.

An important target group for income generating activities should thus be the under-employed men. However, female oriented activities of high remuneration which can compete with what women are already doing, should be encouraged. Thus, non-farm activities for women should only be promoted if income/profit can compete favourably with the present return on labour of women's activities, taking into account their already overburdened work schedule. A critical eye should be put on the promotion of low remunerative cottage industry activities for women with marketing outlets out of their control.

The female target group will primarily be women already organized in Mwethya and other (small) self-help groups.

The specific objectives of this component will be to promote non-farming activities in such areas as e.g. processing of agricultural and livestock products (such as honey production), manufacture of agricultural implements such as improved ploughs, ox carts and pumps for shallow wells. The component may also aim at promoting private entrepreneurship in areas such as construction of small water structures and protected, sanitary wells.

4.5.7.3 Categories of non-farming Activities

Initially, the major categories of activities in the non-farm activities component of the programme will be:

- feasibility studies of specific project proposals identified by PMU

and subsequently, if found to be viable

- support for existing and new productive, income-generating activities in the form of advisory services, training and possibly credit and marketing support.

The proposed ASAL Programme will initially promote non-farm activities by providing DANIDA assistance in the following areas:

- financial assistance to feasibility studies
- short-term consultancies
- financial assistance to advisory and training services undertaken and arranged by PMU (Training and Mobilization Section).

During the first two years of the programme the feasibility studies of possible income generating activities incl. their economic viability and employment opportunities shall be made. The programme shall engage local consultants to carry out the feasibility studies. The results of such studies should form the basis of a programme proposal to support income generating activities which may be in the form of skills training, credit and marketing support. If found to be feasible, such activities should be implemented from the third year of the programme period.

4.5.8 **Mobilization and Training**

4.5.8.1 Objectives and Target Groups

The immediate objectives of mobilization and training (M&T) activities will be to support and strengthen existing forms of community organization, such as Mwethya and other groups, as well as Development Committees and leadership structures representing such groups, aimed at increasing their capacity to:

- identify projects/activities through which basic needs may be fulfilled and general living conditions improved
- plan, organize and carry out self-help activities and management

- be responsible for future maintenance and management of physical and organizational improvements achieved during the period of project support.

The long term objectives is to ensure impact continuation and sustainability of project activities and outputs. M & T thus becomes a key support activity.

The target groups for M & T will include:

1. sub-locational and locational Development Committees (DC) and group committee members, chairmen, chiefs, sub-chiefs as the basic formal organization in developing community participation.

2. members of Mwethya and other (smaller) groups formed of farmers according to specific work/activity purposes. Most of the members will be women. Since the project aims at benefiting all households engaged in agriculture and livestock activities, all heads of households within a catchment area belong to the wider potential target groups to be reached through M & T efforts.

3. frontline staff of involved Ministries (trainers training) including MOCSS (Department of Social Services, Adult Education Department), MOA and MOLD.

All other categories of technical skills training/manpower development will be the responsibility of the respective line Ministries. (See 4.4.1 Institutional Development).

4.5.8.2 Categories of M & T

The major areas of M & T will be aimed at DCs, community leaders/representatives, Mwethya and smaller self-help groups, and relevant frontline and other government personnel. The categories of M & T are as follows:

1. M & T of DCs and Community leaders/representatives

This category of M & T includes orientation of sub-location and locational DCs, self-help group committees, in the objective and purpose of each project activity. This will cover planning and implementation of each specific activity. The activity will be carried out as the first point of contact/communication with a locality/catchment area. In the initial dialogue special attention will be given to issues of accountability of the Programme, in particular with regard to implementation of water projects. The specific content/curriculum of this M & T category should be flexible and may be related to area specific problems jointly identified with the DCs and community leaders. The MTS will have further identified the specific needs for and content of this type of M & T during the initial six months' mobilization period of the Programme.

2. M & T of Mwethya and other groups

Before commencing any programme activities, self-help groups will be informed about the specific activities of the Programme and the benefits and responsibilities involved in participating in project implementation on a group basis. The latter relates to maintenance and improvements of soil conservation and range rehabilitation measures, and to group responsibility for operation and maintenance (O&M) of water projects. At the completion of a water project, the self-help group will receive training in management and technical aspects of O & M. MTS, in collaboration with the SDAs of the MOCSS, should be flexible enough to take up ad hoc M & T sessions with groups who face organizational or other problems throughout the implementation cycle of each project activity.

Teachers from the Adult Education Department should be involved, to the extent possible, in giving project related functional education to organized self-help groups in topics like:

- group organization and management
- agro-forestry practices and nurseries (where applicable)
- O&M of water projects.

The MTS will undertake to develop simple functional educational materials and curricula in collaboration with local training officers and training institutes in relevant sectors. Experiences in other ASAL projects should be drawn upon in order to avoid a "reinvention of the wheel".

Health Technicians of the Department of Public Health should be involved in giving health and hygiene education (HHE) related to the kind of water usage appropriate to each category of water project.

The involvement of local groups in the timing of M & T is important. Considering the tight work schedule of most women farmers, there is a potential risk that they may feel overburdened by having to attend the numerous training calls. The ambitions laid down in the M & T activities therefore have to be adjusted to the activity calendar of women.

3. Orientation of frontline and other government personnel

The MTS will arrange internal orientation and training sessions for frontline, divisional and, if found necessary, also to district level government personnel in project objectives, implementation strategy and the need for community involvement. Such orientation will be aimed at improving their extension and communication efforts vis-a-vis the local population, upgrade the

laborate closely with the divisional and locational level staff of the implementing Ministries and in particular with the officers (SDAs) of the DSS. The PTCs will also be directly involved in training of Mwethya and other self-help groups in all aspects related to operation and maintenance of water projects.

Staffing (permanent)		Posting
- Senior Training Officer (Kenyan) (employed by the Programme/DANIDA)	1	Kitui HQ
- Programme Training Coordinators (PTC) (employed by the Programme/DANIDA)	3	Kyuso/Mutomo/ Mutito
- Programme Training Assistants (employed by the Programme/DANIDA)	6	Kyuso/Mutomo
- Typist-cum-office Assistants	4	Kitui/Kyuso/ Mutomo/Mutito
- Driver (employed by DANIDA)	1	Kitui

During the first two years of the Programme when M & T curricula, methodologies, manuals and other materials are being developed, the MTS will draw upon the assistance and inputs from local, short-term consultants with experience in the field of communication and training. In addition DANIDA may send short-term consultants if found required by PMU.

The institutional set-up outlined above will initially be in operation for 3 years whereafter the internalization of M & T procedures then established into existing Kenyan institutions will be considered. The 3 years will thus serve as a demonstration period.

Field level

The frontline officers of the DSS at divisional and locational level will, according to the nature of their work, be involved in direct communication with the self-help groups, their leaders, chiefs and sub-chiefs. They will be responsible for arranging barazas at the initiation of programme activities within a catchment area, or directly linked to a particular water project.

The initial mobilization may require the additional of approx. 6 training assistants.

A clear division of responsibilities between PTCs and their assistants and DSDAs/SDAs (MOCSS), has to be established as well as clearly defined lines of direct collaboration. The PTCs will be responsible for involving the locational DDCs and self-help group committees directly in the monitoring of water projects during all stages of implementation, in order to ensure that the Programme is made accountable

to the community/group in terms of timely delivery of quality structures according to plans, designs and above all, promises made to the beneficiary groups.

4.5.8.4 Training and Communication Materials

The main thrust of the mobilization and training activities shall be made through verbal and inter-personal communication. Printed communication materials (e.g. printed pamphlets, flipcharts and posters with pictorials and text), and audio-visuals, shall be used as reinforcements of the messages communicated verbally when found appropriate. In relation to farmers and groups, it is important to bear in mind the present high illiteracy rate and accordingly develop appropriate communication materials and techniques. This consideration is also valid in relation to the communication between the agricultural extension services and the farmers.

Local consultants and relevant training institutes in Kenya shall be involved in producing communication materials on topics/themes related to specific ASAL Programme activities.

The MTS will be responsible for organizing the production of training and communication materials covering printed and possibly audio-visual material. In the preparation of the material the area-specific environmental conditions and socio-cultural and agricultural practices must be taken well into account. Existing materials prepared by the Soil and Water Conservation branch of the MOA must be reviewed before embarking on production of new material.

Material aimed at individual farmers and groups must be based on established and field tested communication techniques for illiterate rural populations. The project should draw upon experiences in other ASAL programmes and in rural development programmes elsewhere in Kenya, before embarking on the development and production of new materials. The Programme shall also consider to develop communication material to be used by the extension workers of the MOA and MOLD. The material shall reflect the high priority given to simple communication techniques to facilitate easy dissemination and adoption of technical extension messages.

A number of training and extension manuals in the form of handbooks or brief guidelines (e.g. in the form of a handout) on specific activities and topics, shall be produced in close collaboration with the concerned technical departments.

Manuals and guidelines will e.g. contain messages on soil and moisture conservation, crop husbandry, range and management rehabilitation and management, and water conservation, aimed at two different layers of target groups:

1. frontline extension workers (TAs), as well as Adult Education Teachers and SDAs of the MOCSS

2. individual farmers and self-help groups, and community elders and assistant chiefs.

The material will include manuals/guidelines for, e.g.:

- group operation and maintenance of water structures
- environmental hygiene and sanitation of water supplies
- maintenance and improvement of soil and moisture conservation on agricultural and rangelands
- environmental stabilization through agro-forestry and range rehabilitation
- suggested models for group organization; management and accounting procedures related to income generation activities.

The A.M. envisages a one year period of the Programme for the preparation of the various M & T curricula, methodologies, manuals and other materials as the foundation for the M & T strategy of the Programme. This will have to be developed based on initial M & T experiences from the field level and as experiences in M & T methodologies from other ASAL Programmes are gathered.

4.5.8.5 Health and Hygiene Education

Water related health and hygiene education and environmental sanitation should be introduced in connection with water supply and water conservation activities. However, training and promotion of better hygiene and sanitation shall be planned only after a review of the ongoing activities implemented by the Public Health Department with assistance from UNICEF and SIDA. UNICEF is presently assisting a "Child Survival and Development Programme" covering, e.g. water supply/conservation, latrine construction and health education in two divisions in the district. SIDA supports an integrated environmental health and sanitation project in two locations involving different Ministries in the implementation.

The proposed ASAL Programme shall avoid starting activities which will duplicate ones already started by UNICEF which will only cause confusion to the communities and groups addressed.

However, the A.M. is convinced about the need and scope for promoting improved sanitation and hygiene as part of the overall training and communication strategy, e.g. through barazas, functional literacy classes of the Adult Education Department, and through the more direct interventions of the locational Public Health Technicians of the Public Health Department.

4.5.8.6 Targets and Indicators

Quantitative targets within the three categories of M & T cannot be precisely arrived at in the A.M. report. The pace of M & T will have to be mutually integrated with the progress and implementation cycle of other programme components. There will be specific M & T activities before, during and after physical implementation of a particular activity. Self-help activities, and their pace and progress will, to a very large extent, be dependent on the mobilization of the community, whereas proper operation and maintenance of water projects will also depend on whether self-help groups have been adequately trained. A specific sequence of categories 1 and 2 of M & T activities will therefore have to be worked out in the Programme Plan of Operation in conjunction with the planning of phasing and targets within other activities. Indicators of achievements of Categories 1 and 2 of M & T will include:

- level of community participation within a defined catchment area; i.e. numbers of families joining self-help activities and number of families not joining.

- degree, quality and tempo of self-help activity within each project component; i.e. soil conservation, range rehabilitation, water conservation.

- number/percentage of self-help group members participating in each working day

- level of activity of the self-help group after withdrawal of programme support

- functioning of the operation and maintenance of water projects under the management of self-help groups.

Overall targets of all M & T categories will be determined when preparing the Programme Plan of Operation, and in detail during the initial six months' mobilization period of the five-year Programme.

4.5.8.7 Draft Plan of Operations for Training and Mobilization

Activity	Year 1	Year 2	Year 3	Year 4	Year 5
1. Establishment of M&T incl. recruitment and staff training	——				
2. Mobilization period	——				
- Identification of training needs and formulation of specific M & T activities	——				
- orientation of frontline government staff	——	——	—	—	—
3. Development of training methodologies and materials	----——				
4. Mobilization and training of DC's and community leaders	---—				
5. Mobilization and training of Mwetnya and other groups	---—				
6. Reviews	—	—	—	—	
7. Evaluation					——

4.5.9 Survey and Monitoring

4.5.9.1 Objectives and Target Groups.

The major objectives of the survey and monitoring activities (S & M) in the Programme will be to:

- develop a system for recurrent progress monitoring and socio-economic impact monitoring of the ASAL Programme activities
- carry out quick socio-demographic inventories of each new catchment area before implementation of other programme activities and, as the initial activity within the entire project cycle of activities, in order to prepare communities for their active participation in programme activities.
- aim at establishing a permanent ASAL monitoring unit as part of the ASAL management unit which will continue to function even after donor assistance to the ASAL Programme is terminated.

The target groups for S & M will be: 1) selected sample populations within defined geographical areas before, during and after project implementation and 2) the P.M.U. and various departmental ASAL sections receiving and acting on S & M report being submitted by the S & M section.

4.5.9.2 Categories of Survey and Monitoring

The following activity categories with S & M will be undertaken:

- a socio-economic baseline survey in selected socio-ecological zones representative of the district,
- to supplement the baseline survey by supplying information on land utilization and vegetation cover analysis of satellite photos in order,
- based on the survey, develop indicators for socio-economic impact monitoring,
- carry out recurrent impact monitoring of selected project activities,
- assist in establishing a simple system for progress monitoring of physical/quantitative achievements within water, agriculture and livestock development activities,
- based on the monitoring data generated, assist in producing quarterly progress reports for the ASAL Programme in collaboration with the accountable officer in the line Ministries,

- land holding including different land categories
- soil conservation measures
- pattern of crop and on-farm animal husbandry practices
- livestock holding and grazing/browsing practices
- marketing of agricultural and livestock produce
- water availability and usage pattern for humans and livestock
- household labour allocation in sectors
- time utilization calendar of productive household members
- off-farm sources of income.

When designing the baseline study, experiences made by SIDA/MOA in establishing a methodology for documentation of socio-economic aspects in soil conservation shall be drawn upon. The experiences should also be drawn upon when developing socio-economic indicators for impact monitoring (ref. "Impact Monitoring" below).

The final reports from the four areas surveyed shall include e.g.:

- a socio-economic area description with an identification of key development constraints (situational analysis),

- profiles of various categories of rural households,

- an identification of socio-economic indicators for impact monitoring within each of the activity sectors of the ASAL Programme: viz. soil conservation, improved agricultural practices, range rehabilitation/management, water harvesting/supply.

Impact monitoring

Based on the socio-economic indicators developed as part of the baseline survey, recurrent impact monitoring in the form of sectoral impact studies of the results from specific activities e.g., like:

- performance of groups in the operation and maintenance of water projects,

- performance of self-help groups in soil conservation measures,

- performance of individual livestock holders in rehabilitation of rangelands and possible subsequent changes in livestock keeping patterns,

- the overall impact of a completed sub-catchment programme (in the higher potential areas), i.e. within soil conservation, water harvesting and improved agricultural practices,

- performance of MOA/MOLD extension staff after having received training.

Impact studies will ascertain whether any significant changes have taken place along the lines envisaged in the planned physical outputs, as envisaged in the immediate objectives of the programme. Indicators to be applied in this category of monitoring shall be developed by SMS based on the baseline survey data and in consultation with the implementing departments. In addition impact monitoring studies should clarify whether changes - positive or negative - can be ascribed to one or several factors, some of which may not have been envisaged at the time of project design.

The methodology for the monitoring studies will consequently include problem identification, development of impactindicators, data collection, analysis and recommendations for corrective activities to be taken by the Programme. Monitoring studies will be participatory in nature, ensuring that a community dialogue is established whereby the beneficiary population will be encouraged to express their views on problems, results from and satisfaction/dissatisfaction with programme activities. Suggestions for improvements (organizational or technical) will be elicited from the target group beneficiaries.

The SMS will, (in collaboration with each implementing department), suggest studies to be undertaken. The final decision to carry out a study will be made by the PMU and the Steering Committee.

Yearly implementation plans, indicating number, type and duration of impact studies will be prepared by the SMS to be included in the overall implementation plans of the Programme.

The sum of a number of impact studies within each programme activity becomes an ongoing internal evaluation of the entire ASAL Programme. Results from the impact studies are intended to benefit the programme management by allowing for an assessment of the appropriateness of specific activities and, if found necessary by the programme management a reconsideration and redesign of activities.

Progress Monitoring

Involvement of the Survey and Monitoring Section (SMS), in recurrent monitoring of the physical progress in various technical components will be based on a method of self-monitoring, whereby each implementing department collects and processes its own data which are passed on to the S and M section for compilation in the quarterly progress reports. Wherever possible, data will be collected by departmental staff (e.g. TAs and TOs). The SMS will according to capacity, support data collection in the field.

4.5.9.3 Targets and indicators

The ultimate target of survey and monitoring activities is to contribute with qualitative inputs to the planning, strategy formulation and self-evaluation capacity of the Programme. The specific targets of this component during the 5-year Programme period will be to complete a socio-economic baseline survey (year 1), make recurrent inventories of catchment areas (from year 1 to 5), carry out impact monitoring of specific programme activities (from years 2 to 5), establish a physical progress monitoring system for all programme activities (during year 1) and undertake recurrent monitoring (from second half of year 1 to year 5), carry out an impact assessment study of the overall socio-economic impact of the Programme as a follow-up of the baseline survey (year 5).

Indicators of achievements will be a submission of the following reports:

- socio-economic baseline report (1 main report and area reports)
- reports on inventories of catchment areas
- reports on impact monitoring of specific programme activities with recommendations (approx. 3 reports yearly)
- programme quarterly progress reports containing physical progress monitoring data from each programme component (4 reports yearly)
- report on the socio-economic assessment of the overall impact of the programme, with recommendations (year 5).

All reports will be discussed in the PMU, the ASAL Programme Steering Committee and the DDC and decisions made as to which action should be taken, based on the recommendations presented in the impact monitoring reports.

4.5.9.4 Input requirements

Institutional and Manpower

A Survey and Monitoring Section (SMS) will be established under the PMU. It is recommended that a Kenyan S & M Officer be posted to the SMS on secondment basis (from the MOPND). He/she will be assisted by a DANIDA Survey & Monitoring Adviser. In addition, the SMS will be staffed by three S & M Assistants to be located in Kyuso, Mutito and Mutomo.

Local (Kenyan) consultants will be engaged in connection with the initial baseline survey, sectoral monitoring studies and the final socio-economic impact study (see section 4.5.9.3).

The staffing requirements will be as follows:

SMS Staff Category		Posting
Survey & Monitoring Officer (seconded by MOPND)	(1)	Kitui HQ
DANIDA Survey & Monitoring Adviser	(1)	Kitui HQ
Survey & Monitoring Assistants (employed by the project/DANIDA)	(3)	Kyuso/Mutomo/ Mutito
Computer Operator (employed by the project/DANIDA)	(1)	Kitui HQ
Typist-cum-Office Assistant	(1)	Kitui HQ
Typist-cum-Office assistants	(3)	Kyuso/Mutomo/ Mutito
Driver (employed by DANIDA)	(1)	Kitui HQ

Physical

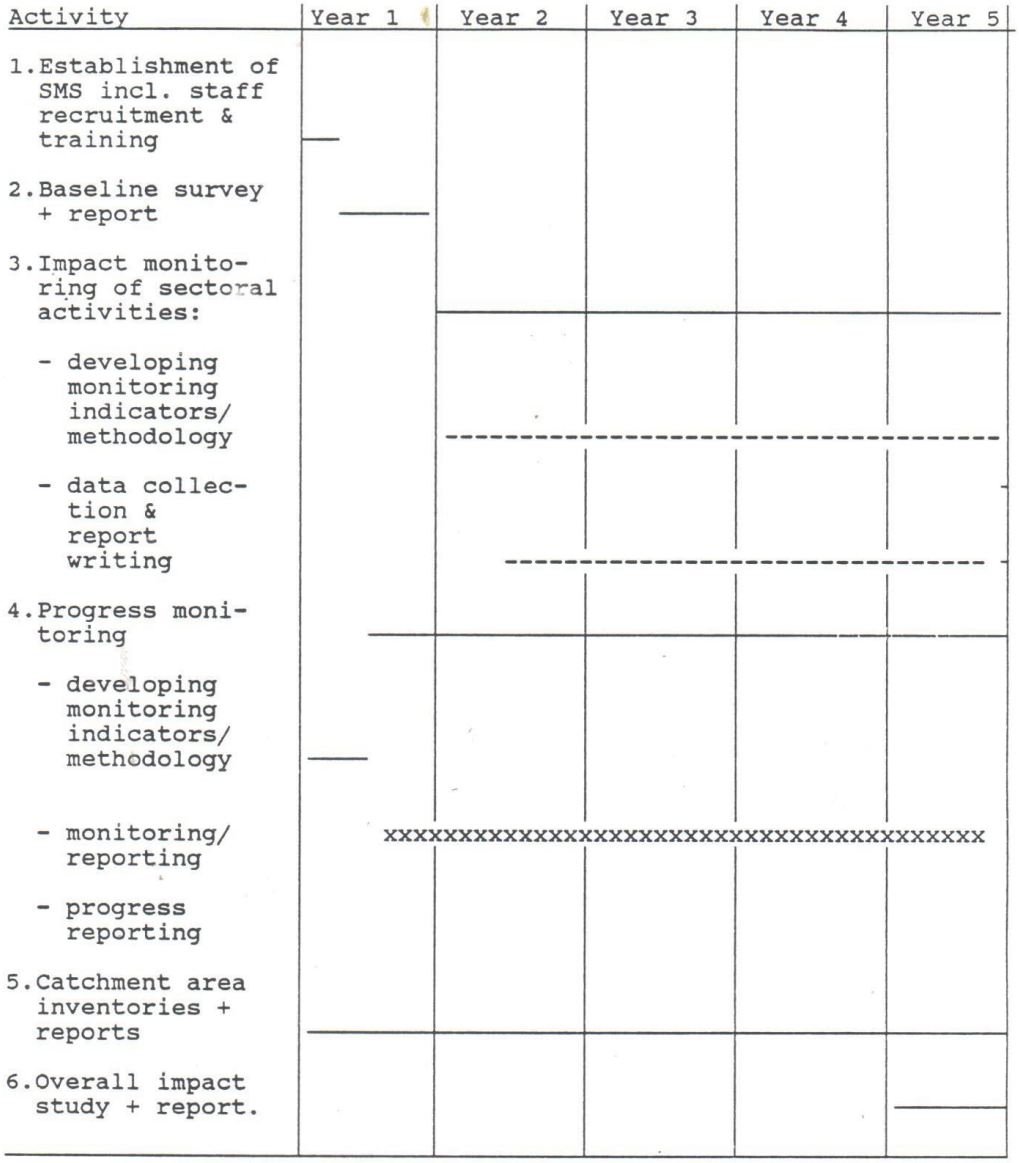
Office facilities for the SMS will be established at Kitui Headquarters and at the Divisional level in Kyuso, Mutito and Mutomo.

In Mutomo office facilities are already available. A computer (PC) with accessories and a Xerox machine will be installed in the Kitui office. Typing facilities will be available in all 3 SMS divisional offices.

Transportation will be provided in the form of one 4-wheel drive vehicle for the Kitui office and one motorcycle for each of the divisional offices. An additional pool of 4 motorcycles will be kept for use during periods when consultants are active in data collection activities.

Programme vehicles will be on private registration, to be used only for programme purposes. They will be administered by the PMU and will remain the property of Danida. Motorcycles can be registered on GK licence plates. All 4-wheel drive vehicles and motorcycles that exist in the Mutomo project will be replaced when they are worn out.

4.5.9.5 Draft Plan of Operation for Survey and Monitoring



as secretariat, and with heads of implementing ministries as members, the PSC will approve annual, semi-annual and quarterly work programmes and budgets. Similarly, it will review progress reports prepared quarterly by the Project Management Unit (PMU), in collaboration with ASAL officers of line ministries. The PSC will meet regularly and at least six times a year.

The day-to-day operations of the DANIDA Kitui ASAL Programme will be handled partly by PMU and partly by the ASAL section of the implementing ministries of Water Development, Agriculture, Livestock and Environment and Natural Resources.

In addition to the implementing ministries a supporting Ministry will be the Ministry of Culture and Social Services with which the programme will cooperate in training, mobilization and some of the survey activities as well as support to self-help groups through relevant implementing ministries.

The planning, coordination, project auditing and monitoring function will be performed by the Programme Management Unit (PMU) headed by a Senior Planning Officer as ASAL Programme Officer, assisted by a DANIDA Senior Rural Development Planning Adviser and a DANIDA Survey and Monitoring Adviser. (TOR for the advisers are found in annex 8).

The PMU will also advise the District Planning Unit on matters of overall environmental planning in the district.

In addition, the M & T Section of PMU will be responsible for the mobilization and training activities. (See PMU Organizational Chart fig. 4.6.2). The Appraisal Mission has also identified need for a Senior Administrative officer to relieve the P.O. and the Senior Planning Adviser of some of the daily administrative routines.

The implementation of the various sectoral components of water development, agricultural development, livestock development and forestry activities will be the responsibility of the respective District Heads of the Line Ministries. They will delegate day-to-day responsibility to an ASAL Section of their District establishment, to be headed by a Senior Professional Kenyan Officer either in an established position or on secondment. The Senior ASAL Water Engineer will be assisted by a DANIDA Water Engineer Adviser (TOR in annex 8) in all aspects of planning, siting, design and implementation of ASAL Water Projects.

The PMU will also recruit and administer staff that may need to be appointed on a contract basis to work on specific tasks in the line ministry components. Such staff should in principle only be recruited after the concerned line ministry headquarters has indicated that they will absorb the staff at the end of the programme period.

As indicated in fig. 4.6.3 it is the intention that the various ASAL sectoral offices will operate relatively autonomous within the approved work programmes and the DANIDA Kitui ASAL Annual Budget.

MOA has well established Divisional facilities, but it will be necessary to provide support in the form of office facilities, stores and guest houses in order to strengthen the implementation capacities of MOLD, MENR and MOWD in the new programme priority areas i.e. Kyuso and Mutito.

MOLD and MOWD will undertake to staff the Divisional Headquarters with qualified staff.

4.6.3 Planning

In accordance with the District Focus strategy, identification of possible programme activities will take place through the sub-locational, Locational and Divisional Development Committees. The feasibility of suggested schemes will be investigated by the concerned department for consideration by the DDC and the PMU. The PMU, in consultation with the District Planning Unit, will prepare semi-annual work plans that reflect the needs identified at the local level as long as they are in conformity with the Appraisal Report and the Plan of Operation.

The actual implementation, as well as the operation and maintenance of projects, will be the responsibility of community based projects committees and self-help groups.

The PMU, and particular the Senior Rural Development Planning Adviser and the Survey and Monitoring Adviser, will advise the District Development Officer and the District Environmental Officer in the overall environmental planning of the district. This will include advice on e.g. the operation of the District Planning Unit.

4.6.4 Disbursement procedures

DANIDA funds will be disbursed through Appropriations-in-Aid (A-in-A) procedures as approved by the Kenya Government for similar ASAL.

This will involve the programme following precisely the Kenya Government budgeting cycle and procedures. Forward budgets will be prepared in September/October for the following financial year and should appear in the District Annex. These will be revised in the January budget estimates, and will then appear in the national annual Development Estimates.

An overall programme budget will be broken down into component budgets, and each implementing ministry (including MOPND for the administration budget) will ensure that the expenditures are entered under the correct sub-votes, heads

and items in their respective forward budgets and revised budget estimates. The MOPND and the IMCC will be responsible for ensuring that the programme budget as approved by the Steering Committee is completely and accurately contained in the relevant sections of the Development Estimates. Danida should be kept informed of the progress of these steps.

As per the normal GOK procedures, funds can be disbursed after the budgets have appeared in the Development Estimates approved by Parliament. In this case the Ministry of Finance through its External Resources Department (ERD) will request Danida to disburse funds to a programme imprest account opened in a commercial bank in Kitui. Danida will copy its advisory communication regarding the transfer of funds to ERD and to the ASAL Section of MOPND. In regards reimbursing the imprest account, the programme will forward its accounts to MOPND and Danida, with a request for reimbursement copied to ERD. The MOPND will request Danida to transfer the funds, again with a copy to ERD. Danida will then reimburse the imprest account with copies to ERD and MOPND. The initial payment to the imprest account should be 25 % of the annual budget. When half of that is expended, the PMU should initiate the reimbursement procedure outlined above.

4.6.5 Financial Procedures

The signatories of the programme imprest account will be the Programme Coordinator and the Senior Rural Development Planning Adviser or their designees. Two signatures will be necessary for the signing of cheques.

Authorization of expenditures will take place in the following manner: the district department heads will prepare Local Purchase Orders/Local Service Orders that will be counter-signed by the PO and the Senior Rural Development Planning Adviser. Invoices will be verified by the responsible officers and the heads of the departments, and payment effected through the PMU Accountant. The PO and Senior Rural Development Planning Adviser together can authorise imprest to be held by the heads of department.

Procurement overseas will be carried out by Danida, following their established procedure which include a combination of competitive bidding, contract and specialist supplies. The PMU will 3-4 times a year forward a list of items needed to be procured overseas to MOPND who will forward it to ERD. ERD will then request Danida to effect the procurement. Danida will reimburse and debit the programme's imprest account for the expenditure incurred and send a statement of expenditure to the PMU copied to ERD and MOPND. In this way all expenditure will be reflected in the programme accounts, and the procedure will in principle follow Treasury Circular No. 3/1988.

Local procurement will in principle follow the normal government procedures and guidelines, as for example laid down in Treasury Circular No. 5/1987, which gives the financial limits of various methods of procurement. The District Tender Board will be fully involved.

The programme will maintain two sets of accounts, one for Danida and one for the MOPND. Monthly accounts will be submitted to both bodies, with original vouchers being sent to Danida and copies to MOPND.

Fig. 4.6.1

ORGANIZATIONAL CHART

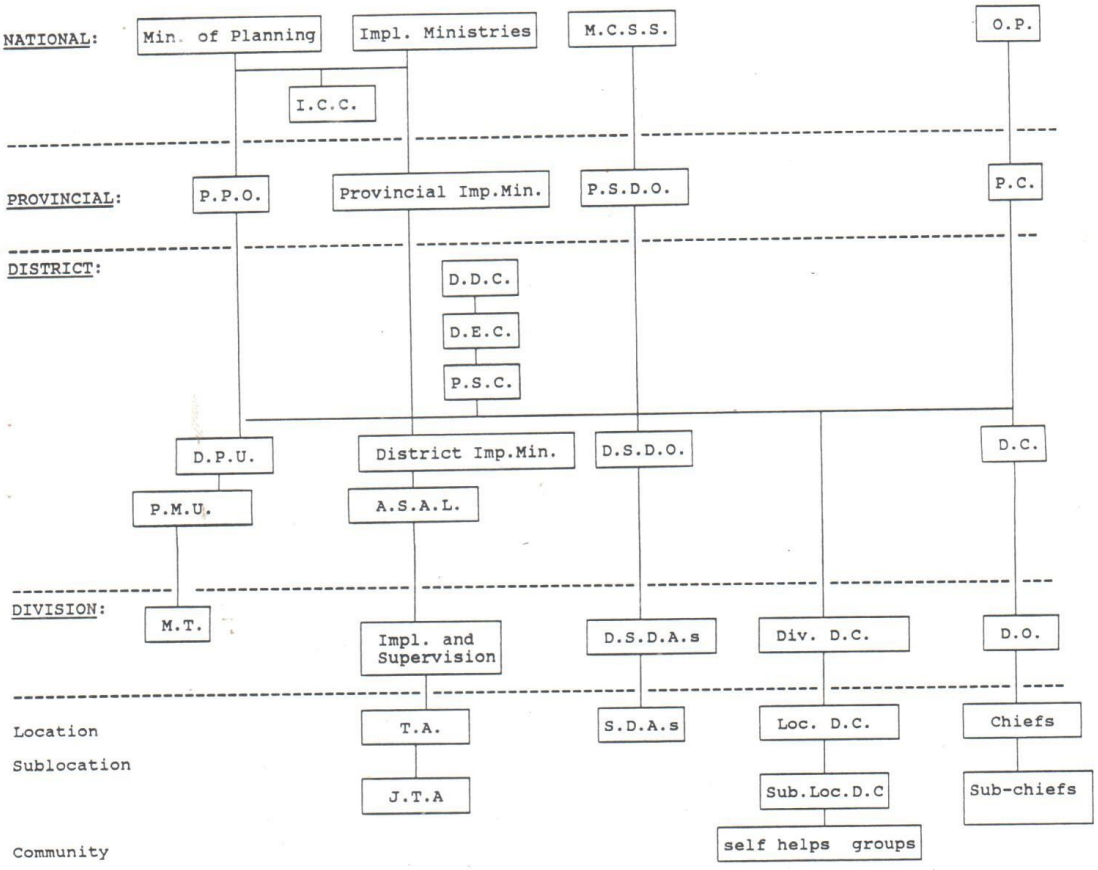


Fig. 4.6.2

PMU ORGANIZATIONAL CHART

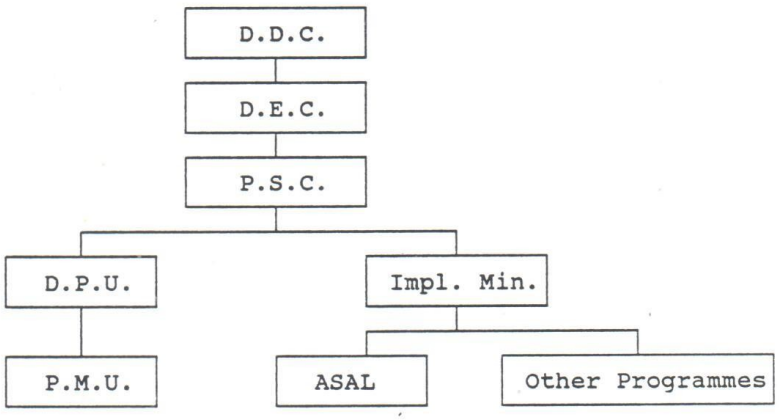
P.M.U

1 ASAL Programme Officer (MOPND)
1 Senior Rural Development Planning Adviser
1 Senior Administrative Officer
1 Programme Accountant
1 Typist-cum-Office Assistant

S.M.S	M.T.S
1 Survey & Monitoring Officer (MPND)	1 Training Officer
1 Survey & Monitoring Adviser	3 Training Coordinators
3 Survey & Monitoring Assistants	6 Training Assistants
1 Computer Operator	1 Driver
1 Typist-cum-Office Assistant	

Fig. 4.6.3

DISTRICT ORGANIZATIONAL CHART



timber production (cypress, pines, eucalyptus etc.) on isolated and inaccessible hilltops should be abandoned and replaced by conservation measures only (protection of water catchments) based on natural regeneration of indigenous species. The main objective for forestry activities in ASAL-areas should be social forestry.

Operation of the almost inaccessible Mumoni Forest Station high up on the slopes of Mumoni Hill may cost around 1 million Kshs. per annum (15% of total GOK budget for FD or 40% of RAES). A staff of 48 is mainly involved in an annual planting programme of 25 ha annually. If the station was closed down and moved to the base of the hill (where spring water is still available) it could serve the local community in a much better way and still maintain all necessary protection measures on the hill. Half of the annual budget for the station could be allocated RAES-operations in Kyuso Division, thereby boosting the total RAES GOK budget by 20%.

As all hilltops in question have an annual rainfall of 900-1000 mm per annum, the natural vegetation would in most cases regenerate over a few years if fully protected against human interference. In denuded areas it may be necessary to assist the natural regeneration by soil conservation measures, enrichment planting or direct sowing.

5.1.4.2 Soil Conservation

Tree planting may play an important part of soil conservation measures provided livestock is under control. However, only few successful agroforestry systems have been recorded from semi-arid zones. Multipurpose species should be planted in inter-cropping systems, along the contours, in hedges, around the homestead, as part of gully control, etc. The Forest Department should assist MOA in providing suitable species if MOA nurseries are in short supply or too far away from the eroded area.

5.1.4.3 Agro-forestry

Agroforestry should play an important role in improved agricultural practices in the high potential areas. Planting of fodder trees, fruit trees, live fencing and multipurpose trees is an important part of an ecologically and socially sound development.

However, Agro-forestry is not included in the curriculum for extension officers under MENR and MOA, which means that training of extension officers is imperative before a professional agro-forestry message can be brought out to farmers under the T&V system. Agro-forestry may be included soon in the curriculum for foresters training at Londiani, and the social Forestry Training Centre in Kitui will offer courses in Agroforestry for extension officers under MENR and MOA as from 1989. An Agro- forestry programme under the T&V system may therefore have to wait until 1990.

- The Mutomo Sociologist shall undertake impact monitoring related to programme activities in accordance with the impact monitoring methodology outlined in chapter 4.5.9 (third quarter 1988 until termination of project).

* Activities to be undertaken by DANIDA to prepare for Kitui ASAL.

- Finalize inventory of existing waterstructures in the District and prepare proposal for rehabilitation based upon an evaluation of technical and economical viability. (By end January 1989).

- Finalize DANIDA Study on membership and organization of Local Self-Help Groups involved in Soil and Water Conservation in Kitui District. (By end August 1988).

  Appraisal of the need for Forestry activities and prepare proposal for Forestry component to be included in programme plan of operation. (By end September 1988).

- Livestock preparation study (in collaboration with MOLD).

- Decision by DANIDA Board on Kitui ASAL programme proposals. (By end May 1989).

- Advertise DANIDA adviser positions pending Government Agreement (by February 1989).

- Preparation of Kitui ASAL Programme agreement to be signed by G.O.K. and G.O.D. (By June 1988).

- Prepare detailed Plan of Operation and final budget. (April-May 1989).

- Advertise positions of DANIDA employed programme employees and support staff. (By July 1989).

- Hire consultant for design of offices, stores and guesthouses in Kitui, Kyuso and Mutito. (July 1989).

- Hire contractor to construct same. (August 1989).

- Initiate procurement of project transport equipment and other equipment involving more than 3 month delivery time. (August 1989).

- continue existing activities in Mutomo at a reduced level
- gradual phased implementation of programme components according to Division Specific priority areas in accordance with a catchment area approach as follows:

Division:	1. Priority	2. Priority	3. Priority
Central	Soil conserv. impr. agr. practices	Livestock activities planning of water	water component
Kyuso	water component	preparation of livestock activities	implementation of livestock activities
Mutitu rangeland	water component	preparation of livestock activities	implementation of livestock activities
Inselbergs	water component	hill top afforestation	soil conservation
Mutomo	preparation of livestock activities	implementation of livestock activities	implementation of livestock activities
Mwingi	soil conservation	Livestock activities	water component

This prioritization may be revised subject to the recommendations of the livestock activities preparation study.

4.7.2 Budget

Based upon a draft framework Plan of Operation of the various project components, the following tentative budget emerges. The forest activities recommended by the special appraisal of this sector (September 1988) has been included in this budget. The budget is based upon the office, guesthouse and equipment specifications given in Appendix 6.

Details on the capital and investment costs of the programme are given in section 5.5.2. A detailed budget will be prepared in the Plan of Operation.
It should be emphasized that this budget does not include the G.O.K. contribution - in terms of salaries etc. of personnel and the related recurrent cost.

In view of the assumptions of the A.M. regarding the filling of vacant established posts in the various Line ministries involved in the implementation of the proposed programme it should be pointed out that G.O.K. budgets for these district departments would probably have to be significantly increased.

The G.O.K. contribution to the Kitui ASAL Programme should be included in the final budget.

4.7.3 DANIDA Contribution

The A.M. recommend that DANIDA contributes the following resources to the proposed Kitui ASAL Programme over a five-year period:

	mill.Dkr.
Capital Cost	62.1
Recurrent Cost	24.5
Total grant (A-in-A)	86.6

In addition, and financed outside the country programme DANIDA will provide 3 advisers as follows:

1 Senior Rural Development Planning Adviser

1 Survey and Monitoring Adviser for the Survey and Moni toring Section of PMU

1 Senior Water Engineer Adviser.

4.8 **Programme Reporting, Monitoring and Evaluation.**

A special survey, Monitoring and Evaluation section will be established in order to monitor the various programme activities and to assess the overall impact of the programme towards achieving the objectives. (See chapter 4.5.8).

The S.M. section of P.M.U. will produce monitoring and survey reports to be compiled in connection with semi-annual and annual progress reports.

The proposed Kitui-ASAL Programme will be reviewed every year by a joint GOK/Danida review mission.

The PMU will prepare semi-annual and annual reports for discussion in PSC and IMCC. The reports will be submitted to MOPND and DANIDA for information and as a basis for annual budgeting.

At a later stage the programme might be included in a Danida thematic evaluation of DANIDA supported ASAL activities.

5. PROJECT ANALYSIS

5.1. Technical Analysis

5.1.1. Water Development and Conservation

5.1.1.1. Setting of Target

Based on the huge amount of information collected during the Water Resource Study within the phase I (1979-83) of the Kitui ASAL Project, the total yearly rural water demand for domestic and livestock purposes in 1982 may be estimated at approximately 20,000 m^3/day (see Table 5.1.1.1). As the actual supply was approximately 8900 m^3/day, only 45% of the demand was covered through engineered sources. Of course the deficiency was partly covered by forced lowering of the water consumption and partly by utilization of traditional sources like hand-dug pits in river-beds. Large differences were found within the district. Thus Kyuso Division was found to have a coverage as low as 27% implying long walking distances for the consumers. The total unmet 1982 demand for the whole district was approximately 11,000 m^3/day. Based on a rough evaluation of the implementation achievements during the Phase II (1984-87) of the Kitui ASAL project as well as during the Mutomo Soil and Water Conservation Programme financed by DANIDA (1982-88) it may be estimated that the actual 1988-supply for the whole district has been increased to approximately 10,800 m^3/day (See Table 5.1.1.2). The total 1988 water demand may be estimated at 24,500 m^3/day taking into consideration a 3.3% yearly increase in population and livestock.

Thus, even though an additional supply capacity of approximately 1900 m^3/day has been introduced in the period 1982-88, the average coverage has nevertheless decreased to 44%. This is due to the fact that the increase in demand during the same period amounts to 4500 m^3/day and hereby exceeds the increased supply capacity. The total unmet 1988 - demand is consequently found to be approximately 13,800 m^3/day. Just to keep pace with the yearly increase in demand - following the increase in population and livestock - a yearly implementation activity of the order of magnitude of 800 m^3/day is needed. Of course additional implementation activity will have to be ensured if the still unmet demand as well as the replacement and/or rehabilitation of worn-out schemes will have to be coped with. Depending on the planning period this additional implementation capacity may be assumed to be approximately 300-800 m^3/day.

Based on available cost figures from the USAID-funded Kitui ASAL project as well as the DANIDA-funded Mutomo project the implementation costs for the water development and conservation technologies to be utilized in Kitui District are found to be of the order of magnitude of 10,000-30,000

K.Shs. per m^3/day supply capacity, say on an average 18,000 Kshs per m^3/day.
Thus the total yearly implementation costs of achieving full coverage of a reliable water supply in the whole of Kitui-District, within say a 30-50 year period, will be no less than K.shs 20-30 million. If additionally is it required that the water supply should be safe and that the walking distances should be reasonable, say max. 1-2 km, the required funds will be even higher.

Thus the financial requirements are substantial. Based on the above mentioned considerations, on an evaluation of the present implementation capacity within MOWD and MOA in the District, and on the absorption capacity of the local communities it is recommended that the forthcoming Kitui ASAL project proposed for DANIDA-funding aims at a yearly target of implementing 1200 m^3/day water supply capacity by means of a mixture of water development and conservation technologies already in use in the district. Hereby approximately 30,000 people and 20,000 Livestock Units (LU) will be provided yearly with untreated water at a rate of 20 litres per person per day (l/p/d) and 30 litres per LU per day (l/LU/d), respectively. Although the access to water is generally improved, walking distances could still be as high as 2-6 kms for some humans and 5-10 kms for some livestock in connection with newly implemented schemes.

Similarly, all the water will be provided without treatment implying that no guarantee can be given as to its quality although, also in this respect, a general improvement can be expected. Consequently, highest priority has been given to the benefits in terms of saved time and energy for humans (mostly women and children) as well as livestock in connection with water-collection. The result of accepting the proposed target will, after 5 years implementation and with start July 1989, be that 56% of the total demand will be met. The total unmet 1994-demand for the whole district will be approximately 13,000 m^3/day.

In order to put the recommended implementation target of 1200 m^3/day in perspective, the present 1988-implementation capacity of the Mutomo-project as well as within the MOWD is evaluated. Based on the last 3 years of implementation of water conservation structures in Mutomo and with the present set up of the project a yearly mean implementation capacity of approximately 250-300 m^3/day has been estimated.

Similarly, based on the available MOWD-manpower resources including 10 construction teams as left over by the USAID funded Kitui-ASAL project, a yearly implementation capacity of approximately 700-900 m^3/day may be estimated. Thus the suggested implementation target of 1200 m^3/day for water development and conservation implies an increase in implementation capacity in the order of magnitude of 100-200 m^3/day as compared with the available man power resources in the Mutomo project and in MOWD. The additional implementation capacity could be achieved in several ways, either

within the ministries involved (MOWD, MOA, MOLD) or by involving private contractors.

On the basis of the experiences gained during the coming 5 year period the yearly implementation targets for the following period should be considered carefully with a view to a substantial increase, say to 1500-1800 m^3/day in order to achieve full coverage at an early stage.

5.1.1.2 Water Development and Conservation Technologies

The technologies to be applied for water development and conservation within the project are the ones already in use in the district:

- Piped Gravity Supplies from Springs: These transfer high quality water from perennial springs on the hillsides of inselbergs and escarpments to the lower lying consumption areas on the foot-slopes and plains. In Kitui District, springs are mainly located in five areas: Mumoni, Nuu, Endau and Mutha Hills as well as the North-South escarpments separating Central and Mutito Divisions. The largest of the springs have already been identified and developed.

  However, some of these schemes could be extended. There are still a number of medium sized and minor perennial springs in these areas that could be developed. Investigations of these sources should be given high priority due to their perennial character, their high water quality and their relatively low development cost per m^3 supplied per day. Due to the high quality of the water these sources should preferably be reserved for human consumption.

  In order to conserve these valuable water resources, it is a matter of urgency that afforestation and conservation measures are taken within the catchment areas of these springs. Local people note that springs which were perennial in their childhood now dry up during the dry months.

- Rock Catchments: These are surface dams built on rock, collecting the runoff from the rock faces in a reservoir which is part of the rock area or an earth site close by. A large number of rock catchments have been built in Mutomo Division as part of the Mutomo project. Also within the Kitui ASAL project, rock catchments had a high priority, in particular in Kyuso Division. Except for Central Division there is a potential for rock catchments in the whole district and in particular in Kyuso Division. Most of the potential in Mutomo Division has been exhausted. The main disadvantage of rock catchments is the high rate of evaporation from the free water surface.

  Utilizing the design developed in the Mutomo project, it is possible to keep the construction cost per m^3

storage and consequently the development cost per m^3 supplied per day fairly low.

- Subsurface and sand dams (SSD): These structures are intended to impound water in an upstream subsurface reservoir in the alluvial riverbed by blocking the natural subsurface flow of water in the riverbed and, in case of a sand dam, additionally to built up the natural upstream riverbed by deposition of sand and gravel.

  The extraction of water will either take place downstream by a pipe through the dam or upstream by means of shallow wells. Possibly SSD's have the greatest potential for water development and conservation as well as for improving the riverain environment in all Divisions in Kitui District.

  A major advantage of storing water subsurface is the low evaporative losses. Leakage is the major problem involved . Consequently, correct siting of the dams is essential.

  Rigorously documented evidences of the effectiveness of sand dams in areas like Kitui District are not existing.

  In light of the great potential for SSD in Kitui District, it is recommended that an evaluation is undertaken as part of the proposed Kitui ASAL project with the aim of establishing a firm quantitative foundation for the evaluation of the effectiveness of SSD as a means of water development and conservation as well as of riverain environmental protection. A Kenyan research institution should be identified to work out a proposal for such a study.

- Earth Dams: These are constructions where catchment characteristics indicate that there will be substantial surface runoff but with little silt load. The major problems with earth dams are the silting up of the reservoir, high rate of evaporation, and leakage.

  Small earth dams can either be constructed on self-help basis utilizing oxen scoops or by contractors utilizing mechanical earthmoving equipment. Large earth dams will always have to be constructed by utilizing mechanical earthmoving equipment. Large earthdams are not recommended to be implemented within this project, mainly because of the environmental problems foreseen due to the large numbers of livestock to be concentrated on a small area around the reservoir, particularly during drought periods.

  There is a potential for earth dams all over the district to be utilized in particular for watering of livestock due to low water quality. If properly designed and constructed, the costs per m^3 storage of earth dams are low. It should be evaluated whether the project should

get involved in the desalting of some of the nearly 2,000 existing old earth dams in Kitui District of which most have been partially or completely filled with silt. Desalting alone, however, does not provide a long term solution unless soil conservation measures are taken within the catchment area of the dams.

- "Slit" pans: These are deep, narrow and elongated pans (approximately 2000 m^3) established e.g. near roads to harvest surface runoff from these. To keep evaporative losses low the ratio between surface area and volume ratio should be low. Most realistically the pans should be built by contractors of the AMS of MOA using mechanical earth moving equipment. Livestock are supposed to be the main consumers of the collected water.

- Shallow Wells: These are wells up to a depth of say 20 m. There are two types: the hand-dug and the hand augured tube well. The hand-dug well can either be left open or equipped with a hand-pump whereas the hand augured tube can very well be tapped by means of a hand-pump only.

  Installation of a hand-pump makes possible faster and easier withdrawal of water under strictly hygienic conditions. However, in case of a breakdown of the hand-pump it is not possible to draw water until the pump has been repaired even though there might be water in the well.

  There is a great potential for shallow wells all over the district. Good well sites are located along rivers and at the foot of hills and escarpments.

- Deep Boreholes: Water from deep quivers is obtained from boreholes established by means of mechanical drilling equipment. Of the 63 existing deep boreholes in Kitui District less than 15% are in operation, and of these most are either on private land or provide water for gazetted water suppliers. In some of the boreholes, the water is reported to be salty. Hand-pumps may be installed for depths up to 40-50 m whereas diesel pumps will have to be installed for large depths.

  The potential for deep bore holes cannot be disregarded. However, partly because of the high level of the technology involved - due to which they cannot be considered sustainable in a rural setting in Kitui District - and partly because of the uncertainties involved as regards water quality and -costs, it cannot be recommended that the deep bore holes are included in the proposed 5 year Kitui ASAL programme.

- Water Tanks incl. Ground Tanks: There is a concerted effort by various organizations to promote constructions of large tanks in communal places like schools, churches etc. They are also built by individiduals in homesteads with iron sheet roofing. With the exception of communities with nurseries, schools and other communal insti-

Table 5.1.1.2.

1988 Population, Livestock Units (LU), Domestic, Livestock and Total Water Demand, Supply, Coverage and Unmet Demand (Estimated)

Division	Rural Pop. ('000)	LU ('000)	Demand (m^3/day) Domestic (201/p/d)	Livestock (301/LU/d)	Total	Supply m^3/d)	Cover %	Unmet Demand (m^3/d)
Central	215	95	4300	2850	7150	2510	35	4640
Mutito	65	90	1300	2700	4000	2320	58	1680
Mutomo	100	75	2000	2250	4250	3209	76	1040
Mwingi	150	45	3000	1350	4350	1374	32	2980
Kyuso	95	95	1900	2850	4750	1330	28	3420
District	625	400	2500	12000	24500	10740	44	13760

1) Development in population and LU based on a yearly increase of 3.3%

2) Demand calculation based on assumptions 1) and 2) of Table 5.5.1.1.

3) Development in supply based on the following rough estimates of achievements:

Mutomo Division: 800 m^3/day (Mutomo Soil and Water Conservation, DANIDA)

Central Division: 100 m^3/day
Mutito Division: 600 m^3/day (ASAL, USAID)
Mwingi Division: 100 m^3/day
Kyuso Division: 250 m^3/day

Diocese of Kitui and NGO's keep pace with the deterioration of existing schemes.

tutions it is not expected that the proposed Kitui ASAL programme will be involved in the building of tanks.

- Piped Schemes involving Pumping: Such schemes in rural areas are not recommended to be included in the proposed 5 year Kitui ASAL programme because, due to the relatively high technological level and costs involved in diesel pumping, they cannot be considered sustainable in a rural setting in Kitui District.

Table 5.1.1.1.:

1982 Population, Livestock Units (LU), Domestic, Livestock and Total Water Demand, Supply, Coverage and Unmet Demand (Source: Kitui District Water Resources Study, ASAL, Prefeasibility phase II, Vol. 3, May 1983)

Division	Rural Pop. ('000)	LU ('000)	Demand (m^3/day) Domestic (201/p/d)	Livestock (301/LU/d)	Total	Supply (m^3/d)	Cover %	Unmet Demand (m^3/d)
Central	175	77	3500	2310	5810	2410	41	3400
Mutito	55	73	1100	2190	3290	1720	52	1570
Mutomo	80	61	1600	1830	3430	2409	70	1020
Mwingi	121	35	2420	1050	3470	1274	37	2200
Kyuso	79	79	1580	2370	3950	1080	27	2870
District	510	325	10200	9750	1995	8890	45	11060

1) 1 Livestock Unit (LU) is the equivalent of one mature local breed cattle, one donkey, 5 sheep or goats or 0.8 camel.

2) In accordance with MOWD-Design Manual, Domestic and Livestock Water Demands are estimated at 20 litres per person per day and 30 litres per LU per day, respectively.

5.1.2 Soil and Moisture Conservation and Improved Agricultural Practices

Soil erosion can be greatly reduced by applying proper soil conservation methods. Experience has shown that the loss of soil can be brought down to acceptable levels on most soil types and topographic profiles in Kenya.

Application of soil conservation measures not only reduces the erosion, but has in addition the advantage of increasing the capacity to retain moisture in the soil. In areas with low, erratic rainfall increases in yields of 20-50 per cent have been achieved.

Soil conservation has been done in Kitui District for several years. In recent years the policy has been to stimulate a catchment approach. Scattered soil conservation might cause increased soil erosion of the surrounding areas and ultimately lead to silting of natural waterways and water recipients like earth dams and dams in river beds.

However, many sites in the high potential areas still remain to be covered and complete coverage of sub-catchments is rarely seen. Particular attention shall be paid to grazing plots in between the cultivated land, which are most often deforested and overgrazed and therefore severely eroded and on the brink of denudation.

Soil conservation measures are traditionally divided into biological and physical measures. The criteria as to what measures to apply are for instance, slope of the field, amount and intensity of rainfall, soil type, crops grown and location of the field, i.e. if the surroundings are cultivated, natural well established vegetation, or deforested, overgrazed and eroded land.

Biological soil conservation measures on cultivated land include strip cropping, perennial vegetation on the contours, suitable land preparation before the rains, cultivation along the contours, early planting, rotation of crops, correct plant population, use of fertilizers, manure, compost or mulch, etc.

Physical measures include establishment of terraces by building of benches, digging of fanya juu terraces or laying of trashlines. Digging of cut-off drains or ditches and in rare cases, of artificial waterways are also included.

The above soil conservation measures are all suitable for application on cultivated land. In previous soil conservation activities in the district, there has been a tendency to simplify the design of measures to be applied on farmers' fields leading, in many cases, to over-designed structures and in a few cases, to inadequate and unsustainable soil conservation (see Joint Evaluation of the Mutomo Soil and Water Conservation Project, Nov. 1987).

In a future project far more emphasis must be laid on a site specific design of measures to be taken. Biological measures, which in general are less cumbersome for the farmer to establish, shall be taken into consideration to a far higher degree than previously. New training material for extension workers which takes into consideration the agro-ecological zones in Kenya, is under preparation at the Soil and Water Conservation Unit, Ministry of Agriculture, and will be available in the near future.

Maintenance of the conservation structures shall be facilitated through planting of suitable grasses, bushes and trees on the contours immediately after construction. The criteria for selection of plant materials shall be drought resistance, soil stabilizing and enriching quality, food or fodder value, availability and price. Although a wide range of suitable exotic varieties can be proposed, it is strongly recommended that indigenous varieties be taken into consideration when selection for field trials, multiplication and distribution, is done.

Site specific measures for rehabilitation of eroded grazing land will be made as a matter of priority. Often a well established live fencing, to keep out roaming animals during 5-6 seasons, is sufficient for the pasture to rehabilitate.

However, more severely eroded land will require reseeding of grass on the contours and in micro-catchments or even terracing and gully control. Included in the rehabilitation shall be planting of suitable fodder trees, be it as part of the live fencing, along the contours for stabilization and enrichment (N-fixing) of the soil, etc. Completed rehabilitation shall always be followed by rigid management of the site, be it zero-grazing, i.e. cutting of fodder and carrying it to the animals or a controlled, rotational grazing programme.

Introduction of improved agricultural techniques shall go hand in hand with soil conservation. As mentioned above, suitable agricultural practices reduces the risk of soil erosion. Furthermore, these practices, in combination with the soil conservation measures described earlier, increase the moisture retention capacity of the soil considerably. As water is the limiting factor for increased agricultural production in the area, it should be conserved to the greatest possible extent.

The soil in the area tends to seal very easily, creating a hard surface which reduces infiltration of rainwater. Loosening of the soil before the rains start, as well as during the rainy season is therefore very important. As the rainy season is very short, timely/early planting of the crops has a crucial effect on the yield. Consequently, the introduction of proper land preparation and tillage methods is one of the major factors contributing to an increase in crop yields. Lack of appropriate animal-drawn implements has been reported as a major constraint in adoption of improved tillage methods. Efforts shall be

made to develop, test and arrange for manufacture of suitable equipment to be introduced to the farmers by the extension service as part of a total extension package on land preparation and tillage.

The increased availability of water in sub-surface dams and shallow wells as a result of soil conservation of whole catchments, makes it possible to keep draught animals in shape for work in the crucial period before the rains start. An extension package for improved handling and training of draught animals shall be developed.

The intensified farming and higher yields achieved as a result of soil conservation will eventually tap the soil for essential nutrients and affect its structure and texture. The risk of crop failure caused by the erratic rainfall makes the farmers abstain from using fertilizer. Measures to maintain the soil fertility, like crop rotation with N-fixing crops or grass, and more use of manure, compost and mulch will therefore have to be developed, field-tested and introduced to the farmers through the extension service.

New, improved, drought-resistant and early maturing varieties of the main crops, i.e. maize, sorghum, millet, cow peas and pigeon peas, as well as promising cash crops, shall continuously be identified and field-tested in the target areas. If found suitable, arrangements shall be made for seed bulking at district level or through contracts with farmers.

Handling of food grains, including storage at farm level, is reported to require improvement. Losses of grain caused by insects, moulds and pests are at an unacceptable level. Development of a suitable extension package and other support shall be considered by the Programme.

The role of Agro-forestry in intensified agricultural production systems is analysed in section 5.1.4 below.

5.1.3 Agricultural Extension

In order to ensure a proper implementation of the programme it is of utmost importance that the agricultural extension service functions efficiently.

The national extension programme which aims at providing relevant and timely advice to farmers in Kitui District is since 1984 based on the Training and Visit System (T & V).

The T & V system implies that each Technical Assistant (TA) and Junior Technical Assistant (JTA) assists a group of farmers (one contact farmer and 4-8 follow farmers) on a fixed day and time once every fortnight.

Once every fortnight the TA's and JTA's receive training, normally at the divisional headquarters in which the extension messages they are expected to deliver to the farmers

during the forthcoming 14 days are given. The training is performed by subject matter specialists from Divisional and District headquarters.

The content of the extension messages follows the agricultural calendar and covers crop husbandry, soil conservation and home economics.

The system has definite advantages like regular and continuous training of the frontline officers, concentration of efforts, a single line of command and close linkages with research.

However, the rigidity of the system has caused problems. Thus surveys show that farmers adoption rate of important points has been 30-40%.

Main constraints have been:

- Heavy reliance on transport facilities to reach the number of farmers which is often fixed without taking distance, and other local conditions into account.
- drop out of contact farmers and in particular follow-farmers.
- training in and delivery of irrelevant extension messages as regard time and content for the local situation.
- irrelevant research for the local situation.

There is a growing awareness of theses constraints in the Ministry of Agriculture and certain adjustments of the system in order to make it fit better to local conditions are encouraged. In Kitui district where it is tradition to form farmers groups it is evident that more farmers can be reached by addressing contact-groups of farmers. Promising results have already been achieved in this way.

Experience has shown that demonstration is a good method for introduction of improved techniques of crops in particular if the farmers are involved from the beginning and if the demonstration or trial is made on their own fields. When planning field demonstrations or trials it is imperative that they shall be relevant for the local farmers i.e. rather demonstration of an improved or an already practiced technique than introduction of a totally new way of doing things.

It is also necessary that the frontline officer can relate the different extension messages to each other. It is for instance obvious that advice to the farmers on how to plant grass to protect the terraces must be followed by advice on how to feed the grass to the cattle i.e. advice on zero grazing technique.

According to projected figures from the 1979 Census the Endau Location consists of approx. 11500 people (2130 households) of which 10% or around 1000 (150-200 households) may live on the hill. The hill was uninhabited during 1948-1963, but resettlement has taken place over the last 25 years. According to a satellite imagery from June 1979 around 30% of the hill area (2000 ha) was affected by farming, all concentrated on the hill-top.

The number of people living on the hill is now considered constant or somewhat declining. The hill contains a number of springs (according to one source, 22) of which 3 are piped, one is the Ikasaya pipeline developed by Kitui ASAL. There is scope for rehabilitation and further development of piped schemes in the area with sufficient capacity for household water for the existing population in the Location. However, the implementation of such schemes has to await the time when the conservation and protection of the water catchment has been restored. A gazetting of the Endau Hill Forest Reserve, with a gradual resettlement of the hill farmers into the surrounding plain would enable the Forest Department - given the necessary means - to restore the natural regeneration of trees and bush necessary to secure the valuable water resources.

If the local people in the Endau area or around the other hills in the district claim a decline in spring water, the reasons could be:

1) an increase in consumption, thereby giving the individual consumer the impression of less available water;

2) a general decline in rainfall in the region over the last 25 years;

3) destruction of vegetation cover in the water catchment, followed by erosion and uncontrolled water run-off.

The forestry component under the Kitui-ASAL project should assist the Forest Department in conservation and protection measures in the Forest Reserves. The activities in the gazetted areas should be supplemented by a range of activities in ungazetted areas such as awareness campaigns, mobilization of village authorities (formal and traditional) and provision of improved facilities below the hill tops.

The forestry component should also support surveying of areas identified for gazetting, if transport of survey teams is a constraint. The assistance to conservation and protection could be support to boundary clearing and maintenance, as well as enrichment planting of indigenous species in denuded areas, while establishment of plantations with a production purpose in general is not considered viable in these remote and often inaccessible areas.

There is a need for the Forest Department to update policy and plan of operation to make better use of limited resources. Antiquated planting programmes with exotics for

A precondition for an intensification of the extension activities as described above is that the staff i.e. front-line officers as well as TO's are given the possibility to do their jobs properly. It is thus very important continuously to provide relevant training to the extension staff at all levels in the form of technical refresher courses, courses in extension technique and specific training in preparation of area specific extension packages. The programme shall ensure that all extension staff be given possibility to participate in relevant courses arranged by Ministry of Agriculture and if required take steps to arrange courses exclusively for the staff in the target areas. Lack of transport is a main hurdle for an effective extension service. The programme shall provide bicycles to the frontline staff; in the low density areas it shall be considered to provide motorbikes to ensure that the TA's can reach all the contact groups in the stipulated time. All TA's at locational level shall be provided with motorbikes while the TO's at divisional level shall share a 4-wheel drive station car.

Lack of possibilities for promotion has often been mentioned as a reason for frustration among the staff of Ministry of Agriculture. Incentives in the form of fellowships for formal upgrading of respective TA's and TO's shall be provided by the Programme.

5.1.4 Forestry

5.1.4.1 Conservation of Hills

Almost all springs in the Kitui District are located high in the hills and are mainly found in five areas: Mumoni, Nuu, Endau, Mutha as well as in the north-south ridge separating Central and Eastern Divisions. In order to conserve these valuable water resources, it is a matter of urgency that conservation measures are undertaken within the catchment areas of these springs. The AM found that the hills gazetted as forest reserves Mumoni, Nuu, Mutisu, Museve, Kyawea and Kabonge are all well protected under the Forest Act enforced by the Forest Department.

Of the remaining hills identified as important water catchments, Endau, Mutha and Musuluni are surveyed, but not gazetted as forest reserves. Of these, Endau is deteriorating due to widespread farming in the upper zones along the crest. Mutha is intact, presumably because the population density around the hill is very low, while Mutuluni was not visited, but the hill is undoubtedly under pressure by encroaching, shifting cultivators and charcoal burners, who are very active in that area.

Charcoal burning is widespread in the Kitui District and was observed in Southern, Eastern and Northern Divisions. Many farmers in the marginal areas are under the present adverse weather conditions forced into charcoal burning as an alternative means of income. Most charcoal is exported to urban areas outside the District. Cutting and burning for charcoal requires permission by the local Chief. Permission is rarely given and so most charcoal burning in Kenya is illegal. The Forest Department has no power to enforce the law outside gazetted forest reserves. While a total ban is considered impossible and undesirable to enforce, the only acceptable long-term solution to the problem is to enforce the issue of permits for controlled burning, limiting the numbers of trees cut or pruned/pollarded per hectare. In other words, the existing vegetation should be managed on a sustained basis. A general control of charcoal burning based on management plans for the natural vegetation would, however, require a very substantial strengthening of the Forest Department's resources in general.

The Forest Department is only able to enforce the Forest Act provided the area in question is gazetted as a Forest Reserve. The issue of further gazetting is, therefore, of immediate importance and should be pursued by the Administration as a matter of very high priority - especially in areas of Kitui District where the fragile eco-system is threatened by collapse due to the increasing pressure from the local population. The only legal alternative to the Forest Act is the Chief's Act, but as seen, for example, in the Endau hill area, the Chief's Act has not been sufficient to prevent widespread encroachment on the fragile water catchment.

timber production (cypress, pines, eucalyptus etc.) on isolated and inaccessible hilltops should be abandoned and replaced by conservation measures only (protection of water catchments) based on natural regeneration of indigenous species. The main objective for forestry activities in ASAL-areas should be social forestry.

Operation of the almost inaccessible Mumoni Forest Station high up on the slopes of Mumoni Hill may cost around 1 million Kshs. per annum (15% of total GOK budget for FD or 40% of RAES). A staff of 48 is mainly involved in an annual planting programme of 25 ha annually. If the station was closed down and moved to the base of the hill (where spring water is still available) it could serve the local community in a much better way and still maintain all necessary protection measures on the hill. Half of the annual budget for the station could be allocated RAES-operations in Kyuso Division, thereby boosting the total RAES GOK budget by 20%.

As all hilltops in question have an annual rainfall of 900-1000 mm per annum, the natural vegetation would in most cases regenerate over a few years if fully protected against human interference. In denuded areas it may be necessary to assist the natural regeneration by soil conservation measures, enrichment planting or direct sowing.

5.1.4.2 Soil Conservation

Tree planting may play an important part of soil conservation measures provided livestock is under control. However, only few successful agroforestry systems have been recorded from semi-arid zones. Multipurpose species should be planted in inter-cropping systems, along the contours, in hedges, around the homestead, as part of gully control, etc. The Forest Department should assist MOA in providing suitable species if MOA nurseries are in short supply or too far away from the eroded area.

5.1.4.3 Agro-forestry

Agroforestry should play an important role in improved agricultural practices in the high potential areas. Planting of fodder trees, fruit trees, live fencing and multipurpose trees is an important part of an ecologically and socially sound development.

However, Agro-forestry is not included in the curriculum for extension officers under MENR and MOA, which means that training of extension officers is imperative before a professional agro-forestry message can be brought out to farmers under the T&V system. Agro-forestry may be included soon in the curriculum for foresters training at Londiani, and the social Forestry Training Centre in Kitui will offer courses in Agroforestry for extension officers under MENR and MOA as from 1989. An Agro- forestry programme under the T&V system may therefore have to wait until 1990.

Many farmers in Central and Mwingi Divisions are already motivated for on-farm tree-planting. One constraint has been the distance to the nearest nursery.

Experience in seedling distribution campaigns from other parts of Kenya clearly shows that most people lack access to motor vehicles and are therefore faced with carrying seedlings by hand or in wheelbarrows/carts. They tend not to walk more than 2-3 km. for seedlings. In Kitui District only one planting season (November) is reasonably reliable making the distribution of 1-2 mill. seedlings within a couple of weeks a formidable task.

According to available information compiled from various sources, the present tree seedling production in Kitui District is from 314 nurseries, with a capacity of 1.7 mill. seedlings. The production is concentrated in Central Division (61%) followed by Mwingi (14%), Mutomo (12%), Kyuso (8%) and Eastern (5%). 84% of the production is concentrated in 26 (or 8%) large institutional nurseries, while the 288 small community based nurseries produced only 16% of the total production. The biggest single production of seedlings is the Forest Training Project under KEFRI with 500,000 seedlings in two nurseries, both in Central Division.

The vast majority of the nursery production is meant for on-farm tree planting, but due to the lack of an efficient distribution system, more than half of the production in the large institutional nurseries may be lost before actually reaching the farmers. Until efficient distribution of seedlings is organized, efforts should be concentrated on decentralization of nurseries rather than focusing on production of large quantities in a few centres far from the consumers.

Fruit trees seem to be the most popular for on-farm tree planting. The production is at the moment limited to around 200,000 seedlings, mainly in MOA and MOE nurseries. The production of fruit trees should, therefore, be encouraged in MENR nurseries by assistance from MOA, through training programmes for nursery staff. The traditional pattern has been that MOA concentrated on fruit trees, while MENR raised tree species for plantation production. Therefore the technical know-how in the production of fruit trees is still concentrated mainly with MOA staff and there is a shortage of high quality seed and grafting material.

Among the low-density population areas of Kyuso, Eastern and Mutomo Divisions, there is generally a very low motivation for on-farm tree planting. The reasons are:

a) semi arid to arid climatic conditions
b) no recognition of fuelwood shortage
c) lack of adjudication
d) large numbers of livestock

From the point of landownership, the population in Central and Mwingi Divisions representing 58% of the total population in the District, should be the most interested target group for on-farm tree planting activities. Extension officers operating in the two populous Divisions indicate a growing concern for trees. An awareness is projected in the fact that 72% of seedlings raised in small community-based nurseries in the District is produced in Central and Mwingi Divisions. The forestry component of Kitui ASAL should therefore support decentralized community-based small nurseries, with a preference to Central and Mwingi Divisions, and with special support to fruit tree production. To ease distribution, the two Divisions should be provided with one Toyota 4-WD pickup each for the RAES operations. Further transport assistance during peak seasons could be given through the Kitui ASAL transport pool. Improvement of water supplies to nurseries approved by Kitui-ASAL could be catered for under the Programme Water Component.

The extension foresters should, beside supervision and advice to nurseries, follow up on the survival rate of seedlings distributed, assistance to schools and group activities, establish agroforestry demo plots and trials in his Division and assist the Kitui Social Forestry Training Centre in identifying participants for grass- root training courses.

Based on the results from training of extension officers under MENR and MOA at the Kitui Regional Centre for Social Forestry it should be decided whether and when agroforestry could be included in the MOA T&V extension package.

5.2 Institutional Analysis

The proposed programme will be implemented within the Management Strategy for Rural Development termed District Focus for Rural Development.

The framework for Programme Implementation and the proposed Institutional set-up was described in chapter 4.6 and fig. 4.6.1, 4.6.2 and 4.6.3.

The pillars of this institutional framework is community participation and delegation of responsibility through a strengthening of government institutions at the District Level.

The DF strategy was launched in 1983 and the planning as well as the implementation and financial management capabilities at the district level are still weak - and more so in Kitui District than in most Kenyan districts.

The weakness of the district capabilities in management of rural development thus is the major risk of the proposed project. It can only be overcome through the provision of sufficient funds and facilities as well as qualified and dedicated Kenyan staff into key positions and supplemented by DANIDA long-term advisers and short term consultants in relevant fields.

Thus, the major role of the Danida advisers concerns institutional development, personnel development and training as described in chapter 4.5.1. In this way the Institutional Development Component of the Programme will contribute to the sustainability of the programme.

At the community level existing institutions like Mwethya and smaller self-help groups have to be build upon and strengthened in order to ensure that project benefits are being absorbed and sustained. Special attention will have to be given to the formation of well managed operation and maintenance committees in water projects. Experience show that preparation and training of the community is essential to make sure that a community based system operates satisfactory.

Community participation in government- or donorinitiated development projects has often been too weak to maintain and sustain long term impacts. This problem has been particular severe in ASAL areas. Where the socio-economic, cultural and ecological environment differs dramatically from the situation familiar to most civil servants and aid workers. Consequently, community participation via mobilization and training has become integrated elements of most ASAL programmes in Kenya. The Training and Mobilization Unit in the Danida assisted Taita-Taveta ASAL programme is a case in point. Similarly, NGO's such as KWAHO has been established in order to assist line ministries - Ministry of Water Development -in this area. (In cooperation with Ministry of Culture and Social Services).

to rally the population within a catchment area around water conservation projects for livestock, and simultaneously introduce range rehabilitation techniques, through the livestock extension service, applying a group approach. The traditional version of the training and visit system will not work in these areas. The distances which the TA will have to cover to visit contact farmers will be too long and it is unlikely that far off follower farmers will show up on the visiting day. The community participation/extension approach should here be to gather as many farmers as possible in a catchment area within the framework of a larger Mwethya group. The initial rallying point could be a self-help based project for livestock watering.

Being an innovative field with rural development, M & T activities will have to draw upon experiences within M & T and community participation made elsewhere, in particular regarding strategy formulation and development and use of communication methods and materials. Of immediate relevance is the M & T activities presently being introduced in DANIDA assisted Taita-Taveta ASAL Programme. Of particular interest is the strategy being developed for community participation and training in operation and maintenance of water projects.

Other experiences to be drawn upon would include among others the FINIDA supported KEFINCO project (Western Kenya Rural Water Supply) in Kakamega District, the SIDA supported NGO, KWAHO (Kenya Water and Health Organization) and Kwale Water and Sanitation project. Collaboration with the Rural Services Training and Coordination Unit (RSTCU) of the MOPND and the Provincial Government Training Institute (GTI) should also be established.

Considering that UNICEF is planning a large scale involvement in ASAL related rural development activities with a strong emphasis on community participation calls for close cooperation with the proposed ASAL programme's M & T activities. In this connection it is recommended to establish a district level committee for coordination of community mobilization and participation activities representing all organizations including NGOs operating in Kitui district in particular in order to work towards a uniform approach to community participation which would then avoid confusion and overlapping of efforts to mobilize and involve the target groups.

5.3 Socio-economic Analysis

Through the provision of water for households and animals, improved agricultural production methods and livestock and range management, the programme will make it possible to increase production and revenue from sales for the individual rural household.

It is estimated that existing packages of inputs and technologies could enable rural households to increase yields by 40-60 per cent under average farm management conditions.

Improved farm management could add another 40-60 per cent to yields.

Consequently, a successful implementation of the proposed programme is likely to have a significant impact on agricultural and livestock production in the area.

The more wealthy farmers will be able to diversify their agricultural and livestock production, agricultural surpluses will be sold in local markets and in a few cases income will be invested in non-farming activities. Many farming households, especially in the high potential areas, are likely to reach self-sufficiency and food security.

In the drier areas, where only one out of five years gives a good harvest, the dependency on off-farm incomes and remittances is likely to continue to remain high.

However, population increases of estimated 3.3 per cent and poor prospects for increased wage employment outside the District, make it an almost impossible task to raise agricultural and livestock production sufficiently in order to improve the general standard of living for all of the rural population of Kitui District.

A differentiation process is presently taking place and is likely to be strengthened even taking into consideration that the proposed programme will attempt to put special emphasis on the poorest section of the population.

As the prevailing gender division of labour allocates most, if not all, farm work to women, the programme activities will inevitably put additional strain on their already heavy workload. The programme should therefore be aware that mobilization of women farmers, in particular in peak agricultural seasons, is likely to be constrained by their tight work schedule. The progress of activities will therefore depend on the capacity of women farmers to participate in self-help labour arrangements. An attempt should be made to mobilize the under utilized male labour force. However, in doing so, the programme must be aware of potential areas of conflict stemming from the traditional culturally defined division of labour between men and women.

From Mutomo and elsewhere it is known that a number of households (up to 15-20 per cent) in a catchment area are not members of self-help groups. Non-members come from poor and better-off households alike. Reasons for households not participating are many and the programme will face the risk of not reaching all households if the mobilization and training activities are not given a very high priority.

5.4 Economic Analysis

The macro economic impact of the proposed ASAL programme is likely to be marginal.

In accordance with the 1986 White Paper on "A New Strategy of Economic Management for Renewed Growth" the 1988/89-1992/93 5-year Development Plan envisages a new active role for ASAL areas. In the past, ASAL-districts have been a burden on government finances (Famine Relief) as well as on the national economy (through the remittances for consumption purposes of salaries and wages of "ASAL-labourers" employed in the larger cities outside the districts).

In the future ASAL Programmes are expected to:

* reduce the financial cost and administrative burdens of periodic and recurrent famine relief and post draught recovery programmes in ASAL areas.

* reduce the rural-urban migration from ASAL areas through the provision of self-employment in agriculture and non-agricultural activities.

* increase the national marketed agricultural surpluses through increased production and achievement of self-sufficiency in food in ASAL areas.

* reduce the overall cost to the country of ensuring an adequate natural resource base for continued development by taking earlier, more appropriate and cheaper restorative and preventive conservation measures.

The proposed Kitui ASAL programme will contribute marginally to these national objectives. In addition it is envisaged that the programme will have a significant indirect impact on the development in other ASAL-areas through the development and dissemination of new concepts, technologies and through the communications of experiences gained in the implementation of the programme.

5.5 Financial Analysis.

5.5.1 Economic Justification of the Proposal.

While it is reasonably simple to calculate the approximate cost of the proposed Kitui ASAL-Programme as well as to list the expected benefits, the valuation of direct as well as indirect benefits generated becomes rather speculative.

In the preappraisal report internal rates of return was calculated for typical programme components such as a soil and moisture conservation scheme and a rock catchment waterstructure. It was shown that these projectcomponents seen in isolation are likely to have a high internal rate of return (I.R.R.)

However, while selected project components may appear to have a rather high I.R.R. the same is not likely to be the case for the proposed ASAL programme in its total.

This has to do partly with the community participation requirements of the programme which gives priority to participation over cost-efficiency and sophisticated technical solutions. Finally, the nature of the District in itself; its size; its poor infra-structure and its unreliable rainfall make the programme a very costly and very risky challenge.

In this chapter we will cost the various project components and list the likely direct and indirect benefits of the proposed programme. Due to the uncertainties involved we do not calculate the I.R.R. of the proposed programme. It should be realized that the I.R.R. for such an integrated "core resource management programme" is likely to be low.

However, taking into account the alternatives for rural development in Kitui District, the A.M. finds that the proposed Kitui ASAL programme is justified.

5.5.2 Capital Costs

5.5.2.1 Buildings, Installations, Office-equipment.

The proposed ASAL programme will utilize existing facilities in Mutomo and Mwingi, but it requires new offices, a workshop, 2 staff houses and guesthouse facilities as follows: (See also sketches in Annex 6).

The A.M. recommends that the design and construction of these facilities be tendered locally by Danida. The estimated cost is based upon recent experiences of constructing offices for RDF in Embu.

The total cost of buildings, installation and office equipment is estimated at D.kr. 1.8 mill.

5.5.2.2 Land for Office-buildings.

According to the discussions between the DC's office and the A.M. land will be made available by the relevant Kenyan Authorities for the above mentioned buildings.

5.5.2.3 Construction-, office- and transportequipment.

In order to determine the need for transport equipment and construction equipment (for the water component) the A.M. has taken the existing stock of operational equipment in DANIDA's Mutomo project as its point of departure (see Annex 7a).

The equipment assessed operational by July 1989 will be transferred to the proposed new ASAL Sections of MOWD and MOA in the new programme in accordance with the equipment list.

The total equipment requirements of the P.M.U, M.O.W.D., MOA and MOALD is given in Appendix 7b.

This equipment will be procured by DANIDA and most of it will have to be imported. The A.M. recommends that DANIDA procure the make of vehicles already available in Mutomo in order to economize on spareparts and maintenance cost.

The cost has been estimated as follows:

	mill. D.kr.
Toyota landcruisers 29 pieces at d.kr. 125.000	3.6
Lorries (available in Kenya) 4 pieces	1.5
Bus (12 seats)	0.2
Motorbikes (available in Kenya)	4.3
Bicycles (available in Kenya)	0.3
Construction equipment	5.0
Office Equipment	0,5
Total	15.4

Kitui:

P.M.U. Offices/Conference hall	m^2	est.cost (K.shs)
5 offices	80	
3 secretarial front offices	36	
1 conference hall/library	24	
2 toilets	12	
	152	532.000
ASAL Water Office		
2 offices	32	
1 secretarial front office	12	
1 store	16	
	60	210.000
ASAL Workshop		
1 workshop (Mutomo size using Mutomo equipment)		300.000
Staff Houses		
2 staff houses (3 bedrooms) for advisers/programme officers 100 m^2 each	200	1.200.000

Kyuso/Mutito:

P.M.U/MOWD/MOALD offices/meeting rooms.		
2 x 5 offices	160	
2 x 3 secretarial frontoff.	72	
2 x 2 store rooms	48	
2 x toilets	24	
2 x meetingroom	32	
	304	1.064.000
Kyuso Division Forest Office.		
Office-facilities for the Divisional Forest Extension Officer in extension of Kitui-ASAL programme office Block in Kyuso		
1 office	16	
1 secretarial frontoffice	12	
1 storeroom	12	
	40	140.000
Guesthouses		
2 x 144 m^2		1.152.000

Most of this equipment will be procured to be ready for use in July 1989. However, some of the construction equipment and transportequipment will be replacement of equipment taken over from the Mutomo project. This replacement can take place in the third year of the programme period. Thus the investment will be distributed over time like this:

1989: 12,4 mill. d.kr.
1992: 3,0 mill. d.kr.

5.5.2.4 Construction of water structures.

The construction of water structures is the most expensive of the programme components. It has been estimated that the annual cost of construction amounts to K.shs. 22.0 mill. including contingencies (See chapter 4.5.2.4).

5.5.2.5 Total Capital Cost

The total investment cost can be summarized as follows:

	mill. D.kr.
Buildings	1.8
Equipment	15.4
Total	17.2
Contingencies (15%)	2.6
Construction of water structures	42.3
Total estimated cost (rounded)	62.1

5.5.3 **Recurrent costs**

5.5.3.1 Salaries to Kenyan Staff employed by DANIDA.

A number of Kenyan Professionals and supportive personnel will be recruited and employed by DANIDA. They will be paid according to "Salary System for Locally Employed Staff with DANIDA Projects in Kenya".

(DANIDA advisers recruited by DANIDA is paid from special DANIDA funds. Their cost is not included in the Programme Budget).

The annual salary cost is estimated as follows:

	K.shs.
Professional staff:	
2 Senior Professionals	600.000
12 Junior Professionals	2.160.000
1 Senior administrative officer	180.000
1 Accountant	180.000
Supportive staff:	800.000
Drivers	
Others (workshop, offices)	
Total annual staff expenses	3.920.000

5.5.3.2 Transport Cost.

Due to the size of the District the running cost of vehicles (and motorbikes) will be a major cost component.

Based upon assumptions regarding fuel consumption and maintenance cost as well as vehicles usage we estimate total annual transport running cost at K.shs. 4.7 mill.

5.5.3.3 Cost of Agricultural Development and Livestock Development.

Besides salary and transportcost the agricultural and livestock development components will need funds for farm implements, seed and planting material. There will also be a need for funds for formal training activities. The Appraisal Mission estimates that the annual cost of these activities will be approximately K.shs. 500.000 for each of the ministries.

5.5.3.4 Implementation Cost of Forestry Activities.

Besides the transport cost included in 5.5.3.2 the Forestry Activities require funds for nursery equipment, soil-conservation (labour, materials), training, AF-demo plots and trials, Forest reserve boundaries, and Survey support. The total estimated annual cost is K.shs 600.000.

5.5.3.5 Implementation Cost of P.M.U.

Besides the salary and transport cost the P.M.U. with its S.M. and M.T. sections require funds for stationary, training activities and training material. The annual cost is estimated at K.shs. 500.000.

5.5.3.6 Local Consultancies.

A number of local short term consultancies is recommended in chapter 4. The A.M. recommends that K.shs. 10 mill. be set aside for the programme in its 5 year period. Most of these funds will be utilized in the initial phase of the programme.

5.5.3.7 Total Recurrent Cost (to be paid by DANIDA).

The total estimated implementation cost of the programme can be summarized as follows:

	K.shs.	
	Annual cost	5 year cost
Local Staff	3.920.000	19.600.000
Transport cost	4.700.000	23.500.000
Agricultural Developm.	500.000	2.500.000
Livestock Development	500.000	2.500.000
Forestry Activities	600.000	3.000.000
P.M.U.	500.000	2.500.000
Local consultanties*	2.000.000	10.000.000
Total Implementation		63.600.000

The A.M. recommends that local Danida employees and local consultants be paid directly by DANIDA. The other implementation cost will be budgeted and paid through the relevant line ministries as A.I.E.-holders. A draft budget by ministry is given in figure 5.5.3:

Fig. 5.5.3

Draft Budget by implementing Ministry

District Implementing Ministry in Kitui District	Estimated Implementation Cost of Programme Proposal by Implementing Ministry (K.shs)					
	Year 1	Year 2	Year 3	Year 4	Year 5	Total
	Mill K.shs					
Ministry of Planning						
P.M.U.						
transport	0.5	0.5	0.5	0.5	0.5	2.5
other	0.5	0.5	0.5	0.5	0.5	2.5
M.O.W.D						
ASAL-section						
transportcost	1.125	1.125	1.125	1.125	1.125	5.625
construction	11.9	11.9	11.9	11.9	11.9	59.0
M.O.A.						
ASAL-water						
transport	1.125	1.125	1.125	1.125	1.125	5.625
construction	10.1	10.1	10.1	10.1	10.1	50.5
ASAL-agriculture						
transport	0.75	0.75	0.75	0.75	0.75	3.75
other	0.5	0.5	0.5	0.5	0.5	2.5
M.O.L.D.						
ASAL-section						
transport	1.0	1.0	1.0	1.0	1.0	5.0
other	0.5	0.5	0.5	0.5	0.5	2.5
M.O.E.N.R.						
ASAL-section						
transport	0.15	0.15	0.15	0.15	0.15	0.75
other	0.6	0.6	0.6	0.6	0.6	3.0
TOTAL						
transport	4.65	4.65	4.65	4.65	4.65	23.25
construction	22.0	22.0	22.0	22.0	22.0	110.0
other	2.1	2.1	2.1	2.1	2.1	10.5
	28.75	28.75	28.75	28.75	28.75	143.75

5.5.4 **Total Programme Cost to DANIDA.**

The total programme cost can thus be summarized as follows:

	Total mill. D.kr.
Capital Cost	62.1
Recurrent Cost	24.5
Total Cost	86.6

Of the total cost approximately 30 per cent will be used for importation of goods and services.

It should be emphasized that the above cost figures only include the programme components to be funded by DANIDA.

In order to arrive at the total cost of implementation the cost of the G.O.K. contribution in terms of land, salaries and operational expenses will have to be included.

5.5.5 **Benefits of the proposed Kitui ASAL Programme.**

5.5.5.1 Direct Benefits.

The proposed ASAL programme will deliver various services which will benefit the target groups directly. These include the following:

* Water for humans and livestock
* implements as incentives in soil- and moisture conservation programmes
* free inputs such as seeds and seedlings in relation to agricultural demonstrations
* agricultural consultancy services free of charge
* livestock consultancy services free of charge
* education and training in relation to construction and maintenance of waterstructures.

5.5.5.2 Indirect Benefits.

The programme activities will enable the target group to improve its natural resourcebase and thereby its standard of living through the following:

* the restoration and enhancement of natural resources i.e. soils, vegetation and watersources
* The improved resourcebase combined with the result of agricultural and livestock training

Danida

KENYA

KITUI ARID AND SEMI - ARID LAND DEVELOPMENT PROGRAMME

Draft Appraisal Report prepared for Danida
by a Mission visiting Kenya
from 29 th May to 17 th June 1988

August 1988

This report contains restricted information and is for official use only

Danida 104. Kenya 89.

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PROJECT IDENTIFICATION.

Title of Project:	Kitui Arid and Semi-Arid Land Development Programme.
Recipient Country:	KENYA
Project Area:	Kitui District.
Sector:	Rural Development
Responsible authority:	Ministry of Planning and National Development.
Objectives:	Within the overall objectives of the ASAL Programme as stated in the 1989-93 Development Plan, the overall development objective of the Kitui-ASAL Programme will be to support a development process in the district, based upon: - Regeneration and preservation of natural resources through i.e. soil and water conservation, afforestation and range rehabilitation. - Strengthening of community participation in development activities. - Improving agricultural and livestock practices. - Thus leading to increased agricultural and livestock production required to maintain the standard of living for the growing population.
Duration of project:	Proposed phase of 5 year. However, 15-20 years of involvement should be envisaged in order to achieve a sustainable development impact.

Proposed DANIDA Constribution:

The A.M. recommends that DANIDA contributes the following resources to the proposed Kitui ASAL Programme over a five-year period:

	Mill. D.KR.
Plant and Equipment	19.0
Funds for implementation in the form of A-in-A:	62.2
Total grant (A-in-A)	81.2

In addition, DANIDA will provide 3 TAPs as follows:

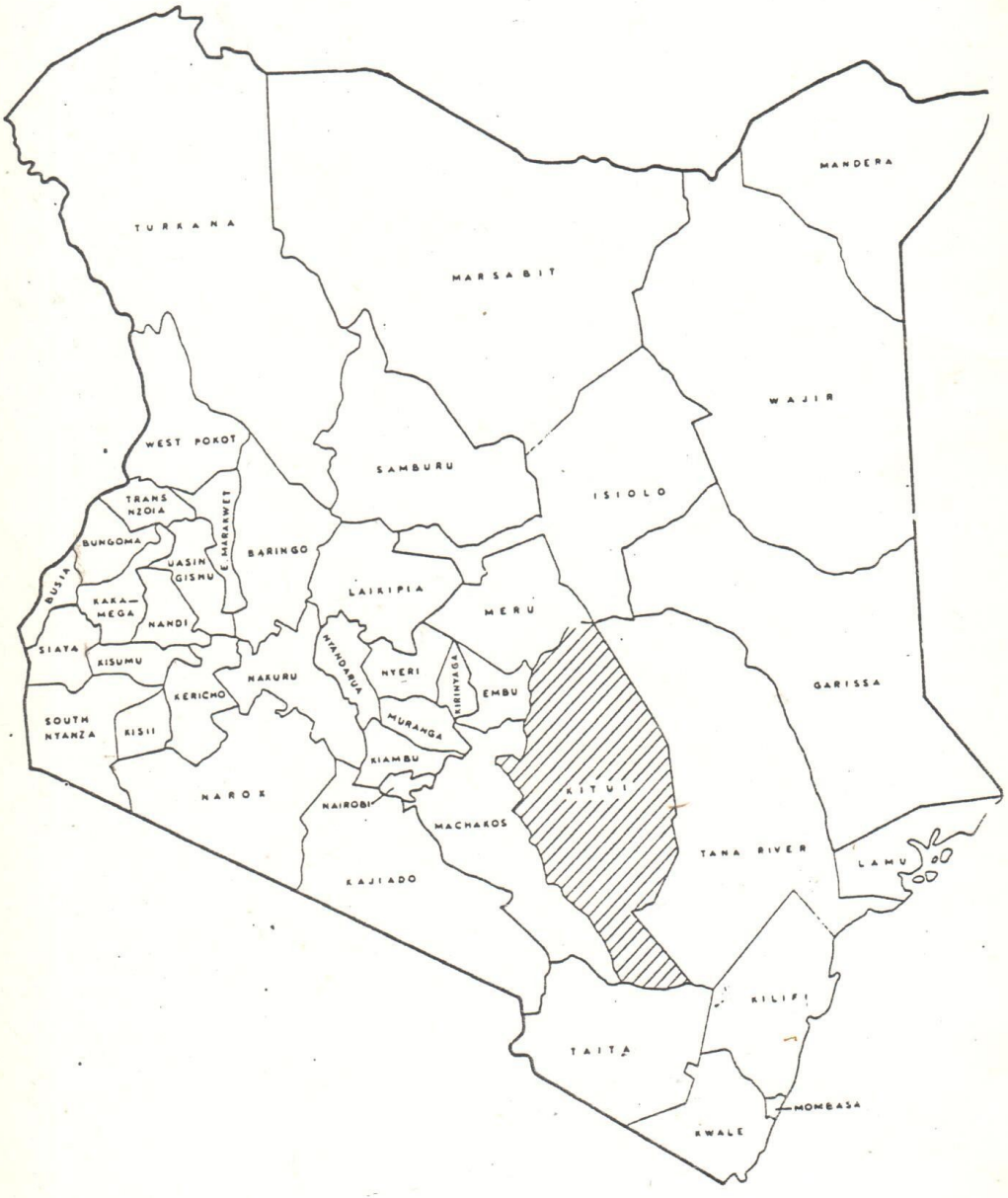
1 Senior Programme Planning Adviser
1 Socio-economist for the Survey and Monitoring Section of PMU
1 Senior Water Engineer Adviser

Local professionals will be recruited and employed by DANIDA in the following areas.

. 1 Training Officer
. 1 Livestock Development Officer
. 3 Survey and Monitoring Assistants
. 3 Training Coordinators.

Consultancies will be provided in a number of fields as outlined in chapters 4.5.2.-4.5.8.

Fig. 1 MAP OF KENYA



KITUI ASAL DEV. PROGRAMME

LIST OF CONTENTS

1. Introduction

2. SUMMARY

3. BACKGROUND

3.1 The need for the project
3.2 The sector in its wider content
3.3 Sector Specific Background
3.4 The project area

4. PROGRAMME PROPOSAL

4.1 Brief Discription of Proposal and Logical Framework
4.2 Project Objectives in General
4.3 Target Groups in General
4.4 Programme strategy
4.5 Project Proposal by sector

4.5.1 Institutional Development
4.5.2 Water Development
4.5.3 Soil and Moisture Conservations
4.5.4 Agricultural Extension
4.5.5 Livestock Development
4.5.6 Non-farm Activities
4.5.7 Mobilization and Training
4.5.8 Survey and Monitoring
4.5.9 Forestry activities

4.6 Framework for Programme Implementation
4.7 Programme Plan of Operation
4.8 Programme Reporting, Monitoring and Evaluation

5. PROJECT ANALYSIS

5.1 Technical Analysis
5.2 Institutional Analysis
5.3 Socio-Economic Analysis
5.4 Financial Analysis
5.6 Environmental Analysis
5.7 Risk Analysis

LIST OF ANNEXES

1. Terms of References for Appraisal Mission.
2. List of people met.
3. Programme of appraisal mission
4. Summary of Findings and Recommendations
5. List of reports available to the A.M.
6. List of office-, stores, workshop- and questhouse requirements.
7. List of equipment.
8. Job descriptions and Terms of references for consultances.
9. Budget details.
10. 1988/89 Kitui District Development Budget (excl. RDF).

List of Figures.

Fig. 1	Map of kenya
Fig. 2	Map of Kitui District
Fig. 3.1	Mean annual rainfall
Fig. 3.2	Mutomo annual rainfall (1957-1987)
Fig. 3.3	Topographical Features, Kitui District
Fig. 3.4	Agro-Ecological zones, Kitui District
Fig. 4.6.1	Organizational Chart
Fig. 4.6.2	P.M.U. - organizational set-up.

ABBREVIATIONS.

A-in-A	Appropriation-in Aid
AIE	Authority in Incur Exprenditure
ASAL	Arid and Semi-arid Lands
DAEDO	District Agricultural Education Officer
DAO	District Agricultural Officer
DC	District Commissioner
DDC	District Development Council
DEO	District Educational Officer
DF	District Focus
DFO	District Forest Officer
DHO	District Health Officer
DPU	District Planning Unit
DSS	Department of Social Services
DWE	District Water Engineer
GOD	Government of Denmark
GOK	Government of Kenya
ICC	Interministerial Coodination Committee
IRR	Internal Rate of Return
K.Shs	Kenyan Shillings (2.6 K.SHS. = 1 danish Krone)
MOA	Ministry of Agriculture
MOCSS	Ministry of Culture and Social Services
MOENR	Ministry og Environment and Natural Resources
MOLD	Ministry og Livestock Development
MOPND	Ministry og Planning and National Development
MOWD	Ministry of Water Development
PSC	Programme Steering Committee
PMU	Programme Management Unit

SIDA	Swedish International Development Agency
SMS	Survey, Monitoring and Evaluation Section
TMS	Training and Mobilization Section
T and V	Training and Visit (Extension system)
UNICEF	United Nations' Children's Emergency Fund
USAID	United States Agency for International Development
YP	Youth Polytechnic

1. INTRODUCTION

Denmark has provided support for the Mutomo Soil and Water Conservation Project in Southern Division, Kitui District since 1982. In September 1987 the Government of Kenya (GOK) requested the Government of Denmark to expand its engagement to the whole district and to take over the Kitui ASAL Programme, until then financed by USAID. The request was discussed during the annual aid negotiations in December 1987 and it was agreed that further action should await a report from the November 1987 evaluation of the Mutomo project. A draft evaluation report became available to Danida in early January 1988 and on the basis of its positive conclusions Danida decided to proceed with the preparation of the project.

A review of the material available showed, however, that the project proposal was very sketchy and required clarification on a number of issues and that Danida lacked a number of relevant documents (mainly from the USAID-financed project), so it was not possible to obtain a clear picture of which data were avialable and which were required.

Danida thus decided to field a pre-appraisal mission immediately to clarify the scope of the project and to get an overview og the data material.

The preappraisal developed a proposal for a Kitui ASAL Programme to be implemented through the Kenyan Administrative system in accordance with the District Focus strategy and prepared the T.O.R for a DANIDA appraisal mission. (See Terms of Reference Annex 1).

During the period 29th of May to 17th of June 1988, a DANIDA Appraisal Mission (AM) visited Kenya. The AM consisted of the following team:

- Mr. Kurt Moerck Jensen, Team Leader, Technical Adviser to Danida (Sociology)
- Mr. John Carlsen, External Consultant to Danida, (Economy and Management)
- Proff. Eggert Hansen, External Consultant to Danida, (Water Development)
- Mr. Carl Harris, External Consultant to Danida, (Livestock Development)
- Professor Mutiso, External Consultant to Danida, (Institutional Development, Programme Strategy)
- Mr. Ove Sode, External Consultant to Danida, (Agricultural Development).

Discussions were held in Nairobi and Kitui District with the Ministry of Finance and Planning, The Ministry of Agriculture, The Ministry of Livestock Development, the Ministry of Water Development, the Ministry of Culture and Social Services, the District Commissioner in Kitui and his team. Experiences and plans of other ASAL Donors was investigated through meetings with Dutch aid, Norad and UNICEF.

The mission did not cover forestry activities (hill top afforestation in particular). A separate appraisal will look into the needs and potentials for forestry activities to be incorporated in the project. This mission will take place in August-September 1988 (see chapter 4.5.9).

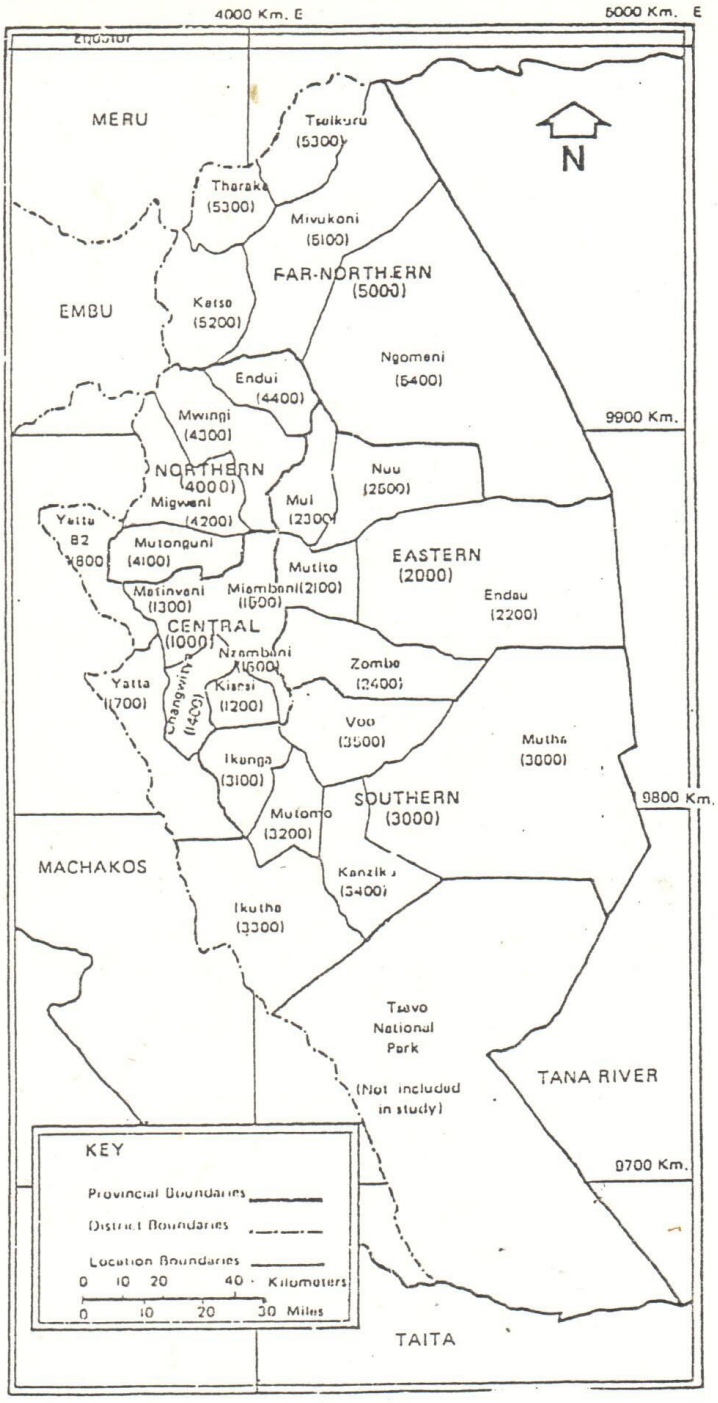
A list of people met and the missions programme are attached as Annexes 2 and 3.

The mission would like to express its thanks to all agencies and persons met for their kind support and the valuable information they gave the mission throughout its stay in Kenya. This support and information was highly appreciated by the mission and facilitated its work.

Prior to its departure from Kenya the mission handed over to and discussed with the involved ministries its Summary of Findings attached as Annex 4.

Both the Summary of Findings and this report contain the views of the mission and do not necessarily correspond with the views of Danida or the Government of Kenya. All proposals are subject to approval by the two governments.

Fig. 2 MAP OF KITUI DISTRICT



2 Summary

2.1 Background

The G.O.K. has requested DANIDA for assistance to a Kitui District ASAL - programme.

A similar programme was assisted by USAID in the period 1980/81-1987/88 but was terminated in 1987 as a consequence of changing donor priorities.

DANIDA has experience in assistance to ASAL activities from Mutomo Division, Kitui District (1982-1989) as well as Taita Taveta District Development Programme.

A preappraisal (Feb. 1988) developed a project proposal which formed the point of departure of this A.M. conducted in May-June 1988.

2.2 Major Findings

2.2.1 The Need for the Project

The development of Kitui District is hampered by serious environmental problems which require immediate attention in order to enhance the ecological balance between natural resources, people and livestock.

The enhancing of this balance is a precondition for a sustainable mode of utilization of resources which can secure an acceptable standard of living of the population in the longer run, taking into account the present population reproduction rate.

2.2.2 Potentials and Constraints

ASAL areas are by definition dry areas. The various agricultural zones in Kitui District receive less than 900 mm of rain per year. The annual variations in rainfall are dramatic; so are the variations from one location to the next within the district.

A major resource in the district is range land for livestock, and the basic constraint is water. In the higher zones (Central Division and pockets in the other Divisions), there is a potential for intensified rainfed agricultural development based upon soil and water conservation and intensified mixed farming systems.

Land Adjudication and the issuing of title deeds is a precondition for improved agricultural practices in the high potential areas of the district.

The experiences of previous development programmes in the district such as Kitui ASAL and Mutomo Soil and Water

2.2.3.3 Socio-economic Analysis

Through the provision of water for households, crops and animals and improved agricultural production methods and livestock and range management, the programme will make it possible to increase production and revenue from sales for the individual rural household.

Many farming households, especially in the higher potential areas, are likely to reach self-sufficienty and food security. In the drier areas, where only one out of five years gives a good harvest, the dependency of off-farm incomes and remittances is likely to continue to remain high.

2.2.3.4 Economic Analysis

The 5-year plan 1988/89-1992/93 envisages that ASAL areas will have to become self-supportive economic units.

The Kitui Asal programme wil only marginally contribute to these National Economic Objectives. Nevertheless, from an alternative point of view the contribution, however small, will still be significant even from the National Economy point of view.

2.2.3.5 Financial Analysis

While some of the project components taken in isolation such as a soil and moisture conservation scheme or a rock catchment may appear to have a very high IRR the same cannot by said about the proposed ASAL programme in its totality.

This has to do partly with the community participation requirements of the programme which gives priority to participation over cost-efficiency (and high tech:) technical solutions. Finally, the nature of the District in itself; its size; its poor infra-structure and its unreliable rainfall make the programme a very costly and to some extent uncertain endevour.

The IRR of the proposed programme in its totality, including all cost elements, is probaly very low. However, taking into account alternatives for the rural Development in Kitui District, A.M. finds that the proposed Kitui ASAL programme is justified.

2.2.3.6 Environmental Analysis

The physical environment in Kitui District, as in all ASALs, is fragile. Damage has already been done to it, given the rapidly increasing populations resulting in farming and range use practices which are inappropriate. It is expected that the appropriate technologies recommended in the Project for activities in soil and water conservation will not only slow the degradation of the physical environment, but also contribute significantly to its rehabilitation.

2.3 The Programme Proposal in Brief

Based upon and assessment of the need, the potentials and the constraints as well as the above analysis of the viability of a ASAL programme in Kitui District the Appraisal Mission (A.M.) recommends that Danida provide financial and technical assistance for a 5 year ASAL programme as outlined below. However, it should be emphasized that the problems of the District cannot be properly addressed within a 5 year timer horizon. The A.M. therefore recommends that Danida considers the 5-year period as a first phase of a 15-20 years development programme.

2.3.1. The overall objectives

Within the overall objectives of the ASAL Programme as stated in the 1989-93 Development Plan, the overall development objective of the Kitui-ASAL Programme will be to support a development process in the district, based upon:

- Regeneration and preservation of natural resources through i.e. soil and water conservation, afforestation and range rehabilitation.
- Strengthening of community participation in development activities.
- Improving agricultural and livestock practices.
- Thus leading to increased agricultural and livestock production required to maintain the standard of living for the growing population.

2.3.2 The Target Group

The target group of the Programme includes all the rural households of the district.

A special emphasis will be given to the poorest section of the households in the upper agricultural zone as well as in the arid agro-pastoral zone. The heads of most of these poorer rural households are female. Special attention should be given to assist this group of households by decreasing their work burden and improving their access to profitable sources of income.

2.3.2 Programme Strategy

The A.M. has arrived at an ASAL PROGRAMME STRATEGY by combining the resources available for the fulfilment of overall objectives in an optimum manner, given the development potentials and constraints in the district.

The following are the main features of the Project Strategy:

- Utilize experiences from Mutomo and other relevant programmes/projects in the area.

- Implement in accordance with District Focus for Rural Development within the framework of a phased catchment area approach.

- Strengthen community participation in all phases of project cycle throught mobilization and training activities.

- Use appropriate technology maintainable by local community.

- Implementation through relevant Line Ministries. Establish clearly defined division of labour and responsibilities between involved institutions/departments and individuals.

- Delegate responsibility and accountability to levels as close to the community as possible (Divisions, Locations).

- Establish a decentralized management and implementation system.

- Plan and implement specific activities according to results from surveys and monitoring.

2.3.3 Programme Sectoral Activities

The A.M. proposes the following sectoral activities:

- Water development and water concervation.

- Soil and moisture conservation and related agricultural practices.

- Livestock Development.

- Non-farm activities.

- Forestry activities incl. afforestation to protect catchment areas and natural springs and agroforestry. A special apprisal of the need to include a comprehensive forestry component to be implemented through the Ministry of Environment and Natural Resources will be undertaken in August-September 1988. (See T.O.R. Annex .)

As well as the following support components:

- General Institutional Development support.
- Specific support to:
- Mobilization and training of community members
- Agricultural extension and Training.
- Survey and monitoring of programme activities and overall impact of programme activities on targets and target group.

2.3.4 Plan of operation, Budget framework, DANIDA Contribution

According to T.O.R. the A.M. is expected to prepare a outline plan of operation and rough budget estimates.

The A.M. proposes that the Programme will be gradualy started in the beginning of the Kenyan Financial year 1989/90 i.e. from July 1989.

A detailed plan of operation has been prepared for pre-programme activities and principles have been developed to serve as implementation frameworks for the first years of operation for each of the sectoral programme activities (see chapter 5.5).

A final detailed budget will be prepared along with a final plan of operation after a programme agreement has been signed between the G.O.K. and G.O.D.

A prelininary budget is outlined in chapter 4.7.

The estimated cost of the proposed 5 year programme is approximately

D.KR. 81.2 mill

And additional budget for forestry activities may be added after appraisal of these activities (see section 4.5.9).

DANIDA Contribution

The A.M. recommends that DANIDA contributes the following resources to the proposed Kitui ASAL Programme over a five-year period:

	Mill. D.KR.
Plant and Equipment	19.0
Funds for implementation in the form of A-in-A:	62.2
Total grant (A-in-A)	81.2

In addition, DANIDA will provide 3 TAPs as follows:

1 Senior Programme Planning Adviser
1 Socio-economist for the Survey and Monitoring Section of PMU
1 Senior Water Engineer Adviser

Local professionals will be recruited and employed by DANIDA in the following areas.

. 1 Training Officer
. 1 Livestock Development Officer
. 3 Survey and Monitoring Assistants
. 3 Training Coordinators.

Consultancies will be provided in a number of fields as outlined in chapters 4.5.2.-4.5.8.

3. BACKGROUND

3.1 The need for the Project

It is the policy of the GOK to develop all the ASAL areas of the country. This commitment is justified in terms of:

a) the need to improve the human resources found in ASALs
b) the need to improve the productive potential of ASALs
c) the need to conserve the physical and biological resources
d) the need to integrate ASALs into the national economy.

Kitui District falls wholly into the ASAL areas of the country. The need for the Project from a national point of view is in keeping with the national needs for the development of ASALs.

In Kitui District, there is need to fill the development vacuum left by the Kitui Arid and Semi-Arid Lands Project whose development activities covered four of the five divisions. This Project, funded by the United States Agency for International Development (USAID), terminated in 1987. The project is needed to incorporate some of the development activities already initiated in Mutomo Division by DANIDA through the Ministry of Agriculture, and to expand to the other four divisions some of the development experiences learned in Mutomo Division.

3.2 The Arid and Semi-arid Lands (ASALs) Sector in general

Independent Kenya did not have specific policy and development programmes for the ASAL areas of the country until the end of the seventies. The severe droughts of that decade led to thinking about the development problems of these areas. It was clear by then that they were not getting the share of resources necessary for their long-term development.

This thinking within the GOK ultimately led to the issuing in 1979 of the still major document on the development of the areas. This is ARID AND SEMI-ARID LAND DEVELOPMENT IN KENYA: THE FRAMEWORK FOR IMPLEMENTATION, PROGRAMME PLANNING AND EVALUATION which was issued by the Ministry of Finance and Development. It specified that the development objectives for all ASALs were:

a) human resource development
b) exploitation of productive potential and
c) resource conservation.

From a policy planning point of view, this document had threefold objectives. First, it was to give guidance to activities which had been initiated by some donors. Second, it was to be used to attract donors to start specific development activities in the ASAL areas. Finally, it was to provide for the GOK a framework for planning and coordinating integrated development activities in ASAL areas outside Line Ministries under the supervision of the Ministry of Planning.

The first ASAL development activities were studies funded by USAID under the Drought and Recovery Programme proposed in 1974. Pre-feasibility Studies of Kitui, Machakos; Embu and Baringo Districts were initiated in 1977.

The European Economic Community declared an interest in financing some ASAL development activity in 1975. Since it did not advocate large-scale studies like USAID, by 1977 it was already financing the Machakos Integrated Development Project which became the major laboratory for ASAL development planning, budgeting, and management, and what was to envolve as District Focus. Since then, ASAL development projects have been started in other districts like West Pokot (Dutch funding), Elgeyo-Marakwet (Dutch funding), Kitui (USAID funding), Kajiado (Dutch funding), Embu, Meru and Isiolo (British funding), Baringo (World Bank funding), Turkana (Norwegian funding), Siaya (International Fund for Agricultural Development, (IFAD) funding), Laikipia (Swiss funding), Samburu (German funding) and Taita-Taveta (Danish funding). Others are proposed in Bungoma, Kilifi and Kwale.

By 1983, GOK was convinced that development activities should be planned and executed closer to the populations. The district level was seen as the level for planning and programming, as well as budgetary control. A major policy document was issued to specify this policy change. This is the DISTRICT FOCUS FOR RURAL DEVELOPMENT. It is routinely reissued every year to take into account evolving issues. These documents, while they address themselves to evolving issues of centre and district relations in development for the whole country, are of particular interest in ASAL districts which have not got a fair share of development resources, given their particular needs.

The most important contribution of District Focus in the development arena was the creation of a district based process in which local political processes merge with bureaucratic processes to set out the district development framework. The significant institutional innovations were the creation of development committees at various administrative levels and the creation of district based planning, budgeting, financial and audit functions. Committees at village, sublocation, location and divisional levels bring together community leaders, political leaders and government and donor

officials, to prioritize the development activities of their area. These localized development priorities are taken to the District Development Committees where they are prioritized, planned and managed. It is at the District level where the technical ministries have personnel for supervising both planning and implementation. The Line Ministries officials at the district level, forming the District Team, are expected to prepare long-term plans and budgets which, when pooled together and confirmed by the District Development Committees, are inputs into the District Development Plan. The formal document is prepared by the District Development Officer. Under District Focus, the management of district financial resources and their auditing is done at the district level. Donor development activities are expected to adhere to this framework.

3.3 Sector specific background

3.3.1 Organizational issues

3.3.1.1 Currently the GOK is re-evaluating its approach to ASAL development. At the beginning of 1988, consultants were appointed to evaluate all aspects of ASAL development since 1979. These reports have been submitted to GOK and a consolidation of their findings for inclusion in the Sixth National Development Plan which is due in a few months, has already been done. It is anticipated that the Sixth Development Plan will stress rehabilitation of ASAL lands for crop and livestock development as well as micro and small scale irrigation development to facilitate food security for the ASALs. Non-agricultural enterprise development and expansion in infrastructure will be stressed to facilitate off farm employment in the ASALs. This is in keeping with Sessional Paper No. 1 of 1986, which is the policy guide for the preparation of the 6th National Development Plan.

3.3.1.2 To date, donors have worked essentially in one district. Where the donor commits enough resources for the development of the district, there have not been problems. However, in thinking about the 'second generation' ASAL projects, issues of donors working exclusively in one district are being raised within GOK, for experience since 1979 shows that few have the desired resources of the long-term commitment necessary for systematic development of the ASALs.

3.3.1.3 Central to the 1979 policy document was the idea that the coordination of ASAL development activities would be by the Ministry of Planning. This practice has continued to date but is being increasingly challenged by the Line Ministries who argue that the rationale for making ASAL development a planning issue in 1979 was that they did not have ministerial planning capacities. They argue that they have this now. On its part, the Ministry of Planning and National Development argues that the character of ASAL development needs, calls for integrated development which can only be coordinated by planning ministries, for Line Ministries have capacities peculiar to their sectors.

3.3.1.4 The development, financial management, and audit functions have been transferred to the districts as a result of District Focus. Since the district level cannot contract with donors, donor money for ASAL development has gone either through the Exchequer to sector ministry votes or Ministry of Planning votes; through the Exchequer to specially established funds like RDF; through special accounts with Paymaster General thereby bypassing the Exchequer, or through direct donor disbursement.

In the first ASAL projects, donors were content to pass their funds through the established Exchequer methods for ministerial ceilings and the dictates of spending money in the budget year did not interfere with the activity for and the rate of disbursement. Over the last four years, many donors have resorted to either the Paymaster mode or direct donor disbursement for they argue that the ministerial vote system is slow and at times money is returned to the Exchequer for general GOK disbursement, rather than the activity it was planned for. GOK in general, and the Ministry of Planning and National Development in particular, are not particularly keen on the Paymaster General or the direct disbursement modes. Disbursement methods for all ASAL development are one of the major issues under discussion within the GOK.

3.3.2 Availability of resources

3.3.2.1 The available financial resources for ASAL development have not been adequate. This is primarily because the development base has been very poor. First the physical infrastructure has historically been underdeveloped. The social infrastructure similarly has been underdeveloped. Thirdly as economistic analysis of extraction potential of ASALs have argued for investments for highest return, the existing development potential of ASALs, particularly in livestock, has been ignored. Terms of trade for the ASALs, particularly in livestock, have been ignored. Terms of trade for the ASALs have been unfavourable. Financial resources have also not been adequate, for few planners in GOK or within the donor community, have been willing to accept that given the relatively poor resource base, the return on development is only possible in the long-term. ASALs have not only had a poor record of

attracting donor and GOK funds, but do not have the resource base for local authorities to raise revenue. As a result, their local authorities cannot make systematic development efforts.

3.3.2.2 With the establishment of District Treasuries to control funds being used in district development, the problem of financial control arose at the districts. The District Accountant's office, which subsumes supplies and audit, has been undermanned and has problems with both financial control and project audit, for those who must supervise these important activities are few and immobile. These are major problems where specific development activities demanding extensive procurement lines are scattered over vast distances.

3.3.2.3 Farming technologies for ASALs have been neglected historically. As a result, the available farming techniques, which were borrowed from more wet areas are unsuitable. This is compounded by an extension manpower trained in techniques for wetter areas.

3.3.2.4 Livestock, the leading production sector in all ASALs, has never got its fair budgetary allocation for extension, training and research. Even when funds were allocated for livestock research, it was essentially for dairy animals and not range. Consequently breed improvement and production techniques, range production technologies, economics and markets are less developed than for more humid areas.

3.3.2.5 Human resource development has lagged in the ASALs. The historical problem was the lack of schools in the ASALs. As a result, it has always been foreigners who are the development gatekeepers, defining development in images from other contexts and also taking significant resources out of the ASALs. This has resulted in marginal communities who are relatively inarticulate at national levels in defining development priorities.

3.3.2.6 In all ASALs, crop agriculture is a major tragedy, for the technologies pushed by the national and international development systems, have stressed crops like maize which are not viable. Given the global bias against the major ASAL foods - pulses, millets and sorghum - few resources have been put into their production, processing and marketing. More tragic is the fact that ASAL populations have been weaned out of the ecologically viable crops by the national marketing systems which peddle grains from elsewhere.

3.3.2.7 Water harvesting technologies, which ought to be central in ASALs production systems are not extended systematically, even though the knowledge exists on the global level. This is one of the technology packages which would enable the regions to assure themselves of food security.

3.3.3 Manpower needs

3.3.3.1 Overall the density of GOK officials in the ASALs has always been less than in the more humid areas. This was recognised at the onset of District Focus, but still there are relatively fewer officials on the ground. Such low density has impact on programmes, particularly on extension activities.

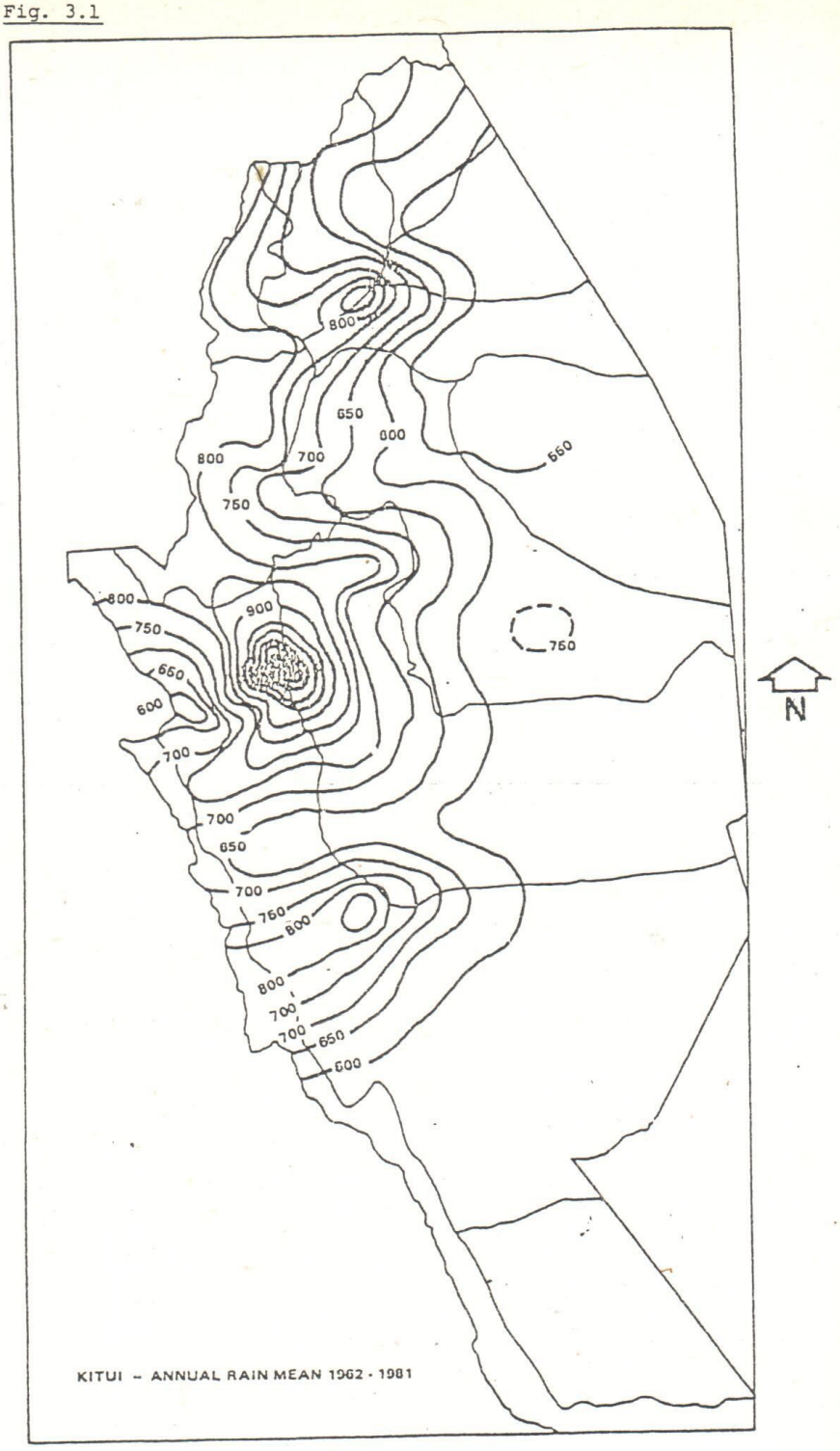
3.3.3.2 The issue is not just numbers of manpower on the ground. It is also the areas of specializations. For example, in ASAL districts manpower specialized in crops, rather than livestock is found. Among the agricultural specialists, very few equipment specialists are found. Similarly among the water specialists very few with small scale design are found. Among health specialists, very few are found in primary health care.

3.3.3.3 Manpower conversant with the whole range of water harvesting technologies is often lacking in the ASALs. These technologies demand familiarization with production systems of the ASALs, for most of the technologies will have to be utilized at the household and community level to have impact.

3.3.3.4 Beyond the manpower needs of the Ministries charged with development, there is the key question of manpower development for the communities. ASAL districts have been extremely short of people with simple technical skills for the building of simple structures and equipment which are needed in the development of those areas. It is not just the technical skills which are short, but also the organizational skills necessary for ASAL sustainable production and marketing which are also not developed.

3.3.3.5 ASALs generally have strong community organizations. These have recently been discovered by development workers as avenues for getting development activity to the lowest levels. However, since traditional organizations are being asked by developers to undertake new functions, there are serious problems of fit. Ministries and donors invest very little in community organization support. Rather, they just raid community structures for implementation of programmes.

Fig. 3.1



Mean Annual Rainfall, Kitui District, 1962 - 1981.

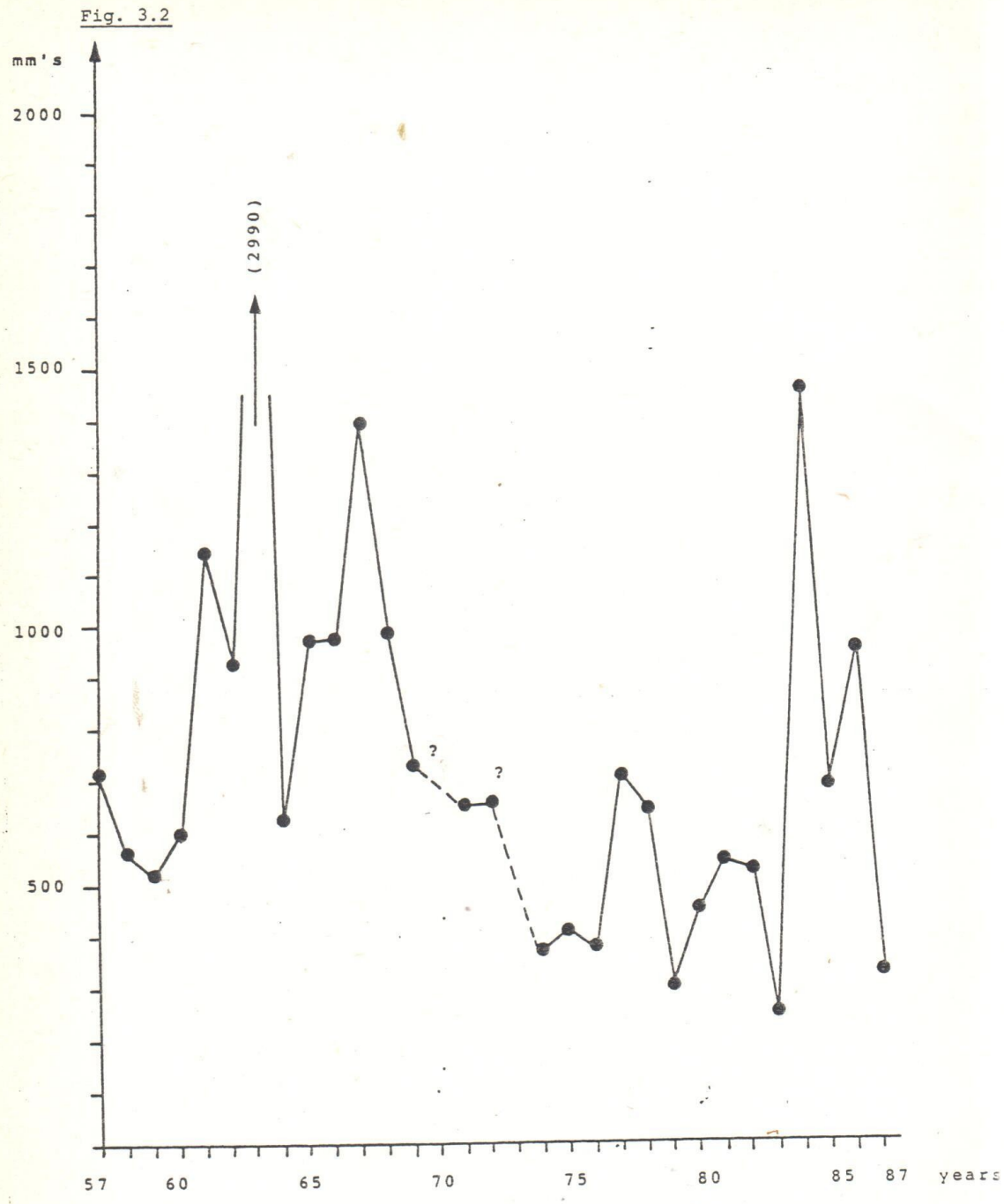
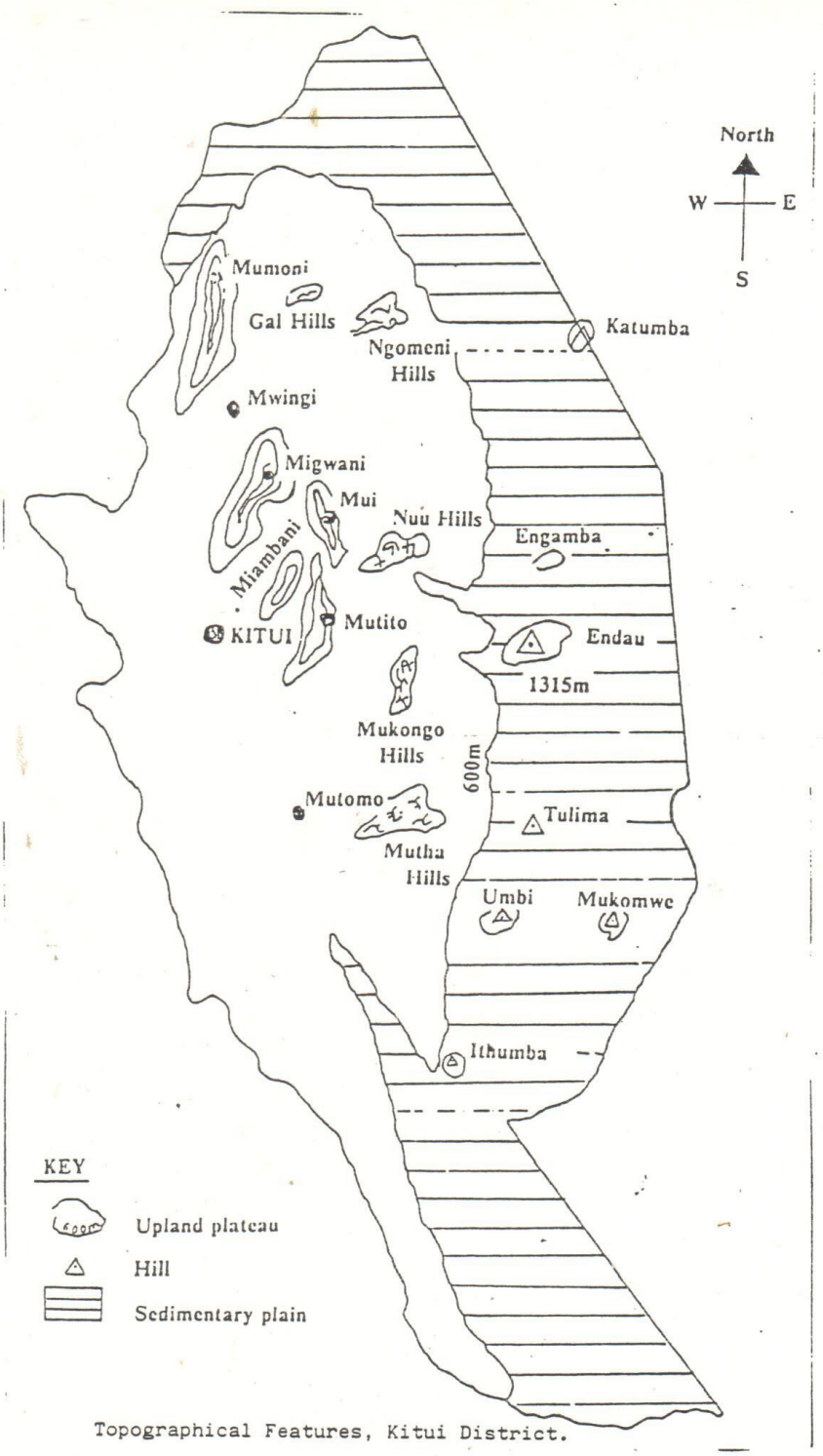


Fig. 3.2 Mutomo Rainfalls 1957 - 1987, mm's per annum.

Fig. 3.3. Topographical Features, Kitui District



Topographical Features, Kitui District.

The sedimentary plains to the north, east and south of the district are generally flat and featureless except for the inselbergs occasionally protruding through the surface. These residues of eroded plateaus often differer from the surrounding plains not only topographically; due to the orographic effect, the inselbergs often attract considerably higher rainfall than the plains, resulting in forest cover, uphill springs (of which some are perennial), andcertain ground water potential around the inselbergs. this is especially true at Endau, the largest inselberg in the district.

The plains mainly consist of residual soils, resulting from the very slow decomposition of the underlying rocks. This residual soil cover generally increases in thickness away from the hilly areas. In the numerous river beds, alluvial deposits from recent times are found.

The rocks underlying the residual soils are crystalling basement complex rocks, except for a limited area to the south, inside the Tsavo East National Park, where sedimentary rocks of the Karroo system occur.

3.4.1.3 Hydrology and Water resources

The climate is briefly described in 3.4.1.1. Hereunder is a brief discussion of the river system and comments on the ground water resource.

Two perennial rivers flow on the edges of the Kitui District. The Athi River flows on the south-eastern corner. The Tana forms the district boundary in the north-west and the north. There are several major seasonal rivers. The Tiva river drains the central part of the district and flows to the south-east out of the district through the Tsavo National Park where it recharges a traditional drought grazing area of the Southern Kitui people. The Thua river is the most important river, draining eastward and collecting water from the central hill areas. As it gets to the state lands, it recharges the groundwater system extensively, so much so that in most years it never discharges into the Tana. To the north-east of the district is the Thunguthu river, significant in the exploitation of the range. The Tyaa river plays the same role in the south western part of the district.

The main characteristic of the rivers in Kitui is that they flow for a very short period and dry up, other than in those areas where sand wells are found. The long-term strategy for the utilization of this storm water is to harvest it for human and livestock use and to recharge the ground water system for environmental benefits.

The extent of ground water potential in the district has not been systematically studied. The few boreholes located seem to be in proximity to rivers or in shatter

zones. Development of wells in the Mutomo Project and in the Kitui ASAL Project suggests that the ground water table is low and does not lend itself to easy exploitation.

Numerous springs are found in the central highlands, as well as in the inselbergs rising out of the plains in the east and the northwest. These offer good opportunities for development of potable water sources.

The many inselbergs offer opportunities for the development of some water sources. In the lowlands these inselbergs are the only viable sources until much more work is done on the size of the ground water table and possible methods of recharging it with storm water.

3.4.1.4 Soils, vegetation and Ecology

Apart from alluvivum along the river beds and colluvium around hills, highlands and inselbergs, the soils of the district are residual soils, formed by the very slow chemical decomposition of the rocks by the percolating water and solutes. In the high-rainfall, hilly areas, the soils tend to be more clayey and loamy and rather fertile, while sandy loames dominate on the plains, the soils here being poorer.

The soil conditions are the rainfall relects in the natural vegetation, where forests are common in the highlands, while bush of various density is the lowland vegetation.

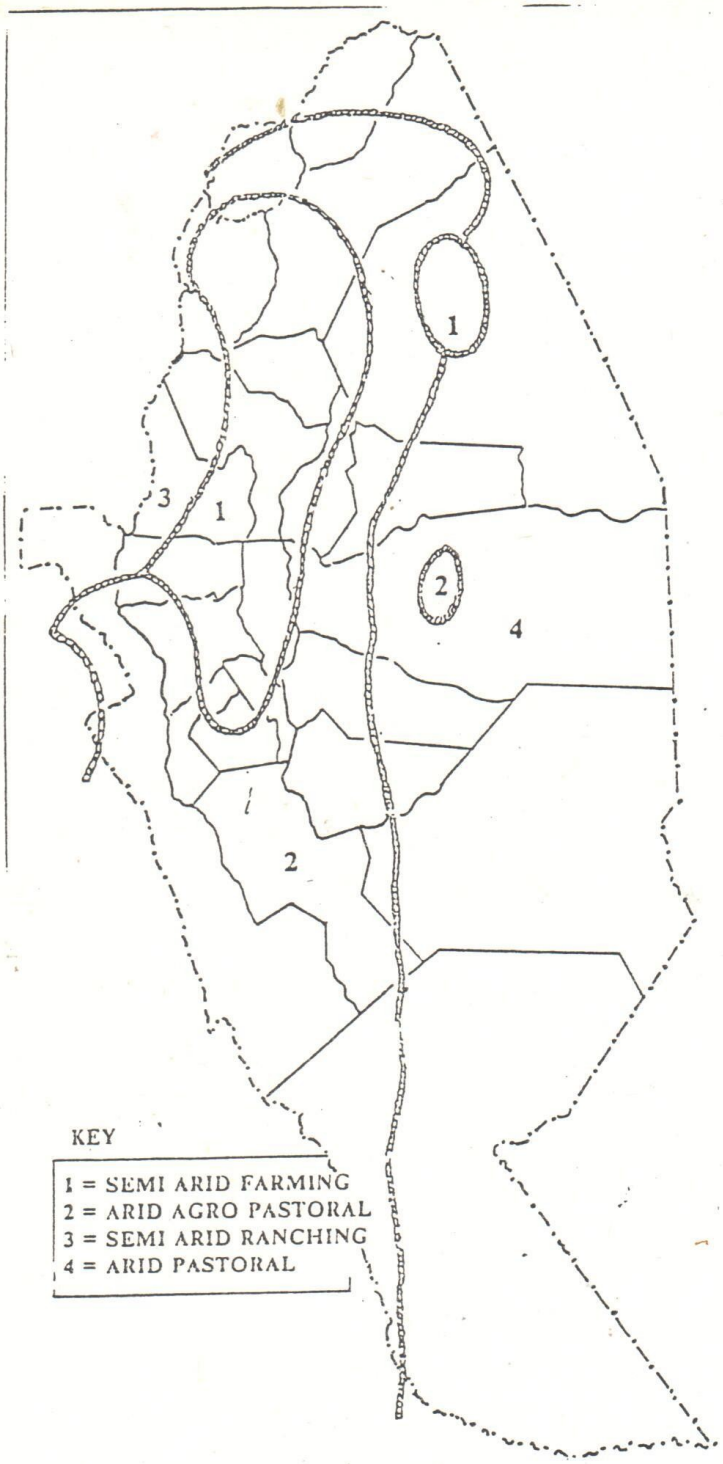
Based on studies of soil conditions rainfall, the agri and ecological potential of the area have been determined by the Kitui ASAL Project. The district has been coarsely divided into four agro-ecological zones:

1: Semi arid farming,
2: Arid agro pastoral,
3: Semi arid ranching,
4: arid pastoral,
as shown in fig. 3.4.

3.4.2 Socio-economic conditions
Population

According to the latest population census (1979), the population of Kitui district was 463,283. The average population desenty in the district was 20 persons per sq.km. With a projected growth rate at 3.76% between 1980 and 1990 the district population is expected to be 670.586 in 1988. However, population densities vary between the central highlands (Mwingi and Central division) and the lowlands. In the former the population density is 5 times higher than in the latter. The differences correspond to variations in the gro-potentiale of the district due to variations in rainfall.

Fig. 3.4 · Agro-Ecological Zones, Kitui District



Over the resent years people from neighbouring districts have moved on and settled in the less densely populated areas where land is available. This is in contrast to the densely populated areas where land scarcity is increasingly felt. The Akamba constitute the main ethnic group. Most immigramts are also Akamba from neighbouring Machakos district, where land shortage is more acute. Somali and Orma pastoralists moving in from the dry eastern and north-eastern areas rarely settle permanently. They are primarily entering the Eastern State Lands with their livestock in search of browsing and grazing areas and water.

Although the Akamba are continuously becomming more sedentary they still retain semi-pastoralism which cause a high degree of population mobility within the district. Frequent draught conditions also force people to be mobile in search of water and additional income. There is a movement of people from the densely populated central highlands to the lower lying areas of the district.

Migration out of the district by young and middle-aged men in the productive ages in search of jobs in the urban sector also have great impact on the population profiles. Thus, in the age group 20-60 years the majority are females. It is estimated that about 50% of the household are female-headed.

The male out-migration is slightly more pronounced in the highlands. this reflectes higher landpressure as well as diminishing possibilities for keeping livestock an activity which traditionally falls within the male domain according to the gender division of labour. As the consequence of male out-migration and a high birth rate 57% of the population is either under 15 or over 60 years old. The demographic profile is, in general, typified by women being the majority group and the ones responsible for the family as caretakers of the children and old men, who no longer find jobs in the towns.

Agriculture and Livestock

The Akamba were traditionally agro-pastoralists which, given the climate and ecological conditions of Kitui district, has been most rational adaption of the environment. In the periods of drought livestock can be sold in order to pay for basis food stuff - although the value of livestock is being drastically reduced during such periods.

A mixed economy of farming and animal husbandry in a semi-arid and arid area such as it is found in Kitui is dependent on low population density and extensive rangelands for livestock. These conditions are now changing in Kitui as population increase and land becomes more scarce. Traditional systems of shifting cultivation and fallow cycles are no longer maintained, and a growing

livestock population is being sustained on rangeland which is delining both in terms of acreage and quality.

Land Tenure and Land Resources

The traditional pattern of land tenure in Akamba socity was based on usufruct rights to demarcated pieces of land by individual households. Usufruct rights were hereditary and based on membership of a lineage. The clan controlled land allocations while the lineage and the individual controlled the territory set aside for grazing lands. As population pressure increased the expansion of individual agricultural holdings took place on what had so far been communal grazing areas.

For various reasons this principle of land tenure system is now in transistion. In the high potential areas of the central highlands, population increase has led to land scarcity and over-utilization of the carrying capacity of the land. Agricultural plots are small and the traditional shifting cultivation cycle of fallow cropping and grazing is no longer maintianed. The typical size of holdings range from less than 1 hectare to around 20 hectare. A household's land is frequently fragmented into several parcels spread over a relatively large area - a result of the previous and now less common polygamic families. One or more of these parcels will be used for grazing of a limited number of livestock. Communally controlled land is rarely found.

Most of the land on the central highland has been adjudicated and is now registrered by the Land Settlement Department with the owners holding title deeds to the land. It is the private property of the owner who can sell the land if he wants to.

In the lower lying and more thinly populated eastern, northern and southern parts of the district land adjucation has not yet taken place. Access to land is still extensively based on inherited us fruct rights to the land based on lineage membership. Lineage control over its traditional territory is, however, decreasing and there are few sanctions to apply against new settlers occupying parcels of communal grazing land. Although the individual farmer in these areas does not possess title deeds to his plots of land, the type of land tenure prevailing is in reality to be considered defacto private ownership of cultivated land.

Individual land holdings in these areas typically range between 10 to 20 hectares. such holdings are often too small for the farmers to be able to maintain traditional agricultural practises of shifting cultivation with long bush-fallow periods, which is a necessary mode of exploitation in these marginal lands in order to allow natural rejuvenation of the soil and the vegetation cover. There is already evidence that the fragile egological balance between the system of shifting cultivation and the

natural environment has been broken in areas due to a reduction in fallow priods. In the more densely populated areas of the district the agropastoral system appears to enter into a vicious cycle of over-exploitation of grazing areas and agricultutal land, resulting in soil erosion. reduced soil fertility and devegetation.

The adjacent rangeland in the Eastern Statelands functions as a safety valve for the animal husbandry in the area. The residents of eastern Kitui form herding partnerships which arrange to send large herds to the statelands to graze and browse on the pastures and trees there.

The Eastern Statelands were previously Crown Land under the colonial government. As the name implies, the land is the property of the Statelands. The mission was informed by the Ministery of Livestock Development (MOLD) that a number of ranches have been estabilished in the Statelands. The ranches are organized either on a cooperative, group, company or individual basis.

Apart from being used by the Akamba for seasonal grazing of their livestock, the Eastern Statelands provide rangeland for migration pastoral Somali and Orma people. However, information about the extend to which these two groups use the land for grazing was not available for this AM.

Agricultural and Livestock Activities

Agricultural activities in the district can best be labelled as small-scale substensience farming. 96% of the population depend on agriculture for their livelyhood to varying degrees.

The agricultural land can be classified into three categories based on rainfall, viz.

1) High agricultural potential land with semi-arid farming (762-1270 mm per annum); covering only 2.2% of the land.

2) Medium agricultural potential land with arid agropastoral land use (500-800 mm per annum covering 36.6% of the total land.

3) Low agricultural potential land (250-500 mm per annum with a chance that 5 out of 8 seasons will receive less than 250 mm) covering 62.2% of the total land. This land category covers two agro-ecological zones viz. the semi-arid ranching and arid pastoral zones (ref. section 3.3.4, fig. 4).

The above classification refers to the relative potentials of the 3 regions within Kitui district. Thus high agricultural potential does not reflect high potential in national terms. Almost the entire district falls, as mentioned above, within the arid and semi-arid region of

Kenya, which within the national context are lowproductive areas.

High Potential Areas

These areas are concentrated in the Central and Mwingi Division. Cash crop farming is more reliable here than elsewhere in the district.

Sales of crops is the main farm income source. Cropping patterns, however, vary according to the economic stratification of the communities. Maize, beans, peas and sorghum are typical crops of the poorer household who aim at substensence but are often forced to sell part of their crop immediately after harvest (when prices are at their lowest) in order to raise cash for other pressing expenditures.

Typical cash crops are maize and to a lesser extent cotton and coffee. Growing of various fruit and horticultural crops is common among richer farming house holds. Sisal is another important cash crop. Its fibres are used for making baskets which is an important incomegenerating activity for women carried out during offhours. The livestock population in this densely populated part of the district is small and the economic importance less than in other areas of the district. Nevertheless, there is considerable competition between cropland and grazing areas for family herds. The limited rangelands retained as grazing areas in between agricultural plots are not able to sustain the present livestock population. Heavy grazing has led to critical reduction of perennial grasses and, in some places resulted in extensive bush encroachment or soil erosion. Some farmers therefore send their livestock away to better rangelands, mostly in the east, during some months of the year.

These densely populated areas expose a total shift from shifting cultivation to permanent cultivation on land which will require rigid soil and moisture conservation measures in order to sustain such agricultural practices in the future without causing irrelevant damage to the environment. Experience indicate that increasing yields is an immediate result from soil conservation. This leaves room for optimism about the immediate adoption and long term impact of continued soil conservation activities.

Medium Potential Areas

As mentioned earlier these areas present a situation of shifting cultivation and inter-cropping which are in a transition process to more crops cultivated are primarily for home consumption, i.e. maize, sorghum, millet, green grams, peas and beans. In certain areas, however, green grams are cultivated as a cash crop, i.e. on irrigated lands adjacent to the Tana river to the north. Most of these crops could not presently be termed cash crops in

this area. Soil and moisture conservation methods could raise the productivity of the land in years with sufficient rainfall so that a share of the crops on larger farms may enter the market as cash crops.

Although becoming increasingly dependent on income from agricultural production livestock continue to be the major source of income. For many farmers, livestock represent the only possible way of obtaining cash income to cover other household expediture. However, in certain areas with a concentration of settlements the keeping of livestock has reached a level which exceeds the carrying capacity of the natural environment. It is becoming an increasingly pressing task to introduce systems of controlled grazing on rangelands in-between agricultural holdings in these areas.

In addition to being a secutity against crop failures ownership of livestock, in praticular cattle, is a special status asset. The Mission recognize that any extension efforts aimed at changing the pastoral/livestock priorities and behaviour have to be carefully researched and planned.

Low Potential Areas

Due to the extremely low rainfall most of the low potential area, a larger part of which falls within the Eastern Kitui Statelands, is unsuitable for rainfed agriculture. Where the rainfall is within the range of 250-500 mm, sorghum and millet crops are grown in a system of shifting cultivation, but for the area as a whole livestock is the main agricultural output. The importance of cropping is insignificant. Livestock owners from the medium and high potential areas have traditionally been using this vast area as seasonal grazing lands for their cattle, goat and sheep. The area possesses an inbuilt prevention against overgrazing, since the larger part without perennial water sources can only be used as long as rainfed waterpans contain water. The traditional grazing cycle for livestock herds, from the medium and high potential areas about two months till the water dries up and then return to the range land in their home area.

Other Economic Activities

Although production in the agriculture and livestock sectors is primarily geared towards household self-suffucuency, it does not presently suffice to feed the population and cater for other basic needs in all seasons of the year. A very large section of the population is therefore dependent on off-farm income on a more or less regular basis. But options for non-agricultural employment are very limited.

The trend to shift from a total dependency on farming and livestock rearing appears to be steadily increasing. Due

to the shortage of land in some areas, uncertain climatic conditions and the absence of irrigation possibilities, intensification of farming will increasingly become only a partial solution to the establishment of secure household incomes. Improved soil and moisture conservation combined with better crops and rotation techniques has a good chance of enhancing farm productivity. The same goes for improve livestock management based on range land development. However, off-farm income is likely to continue to be of great importance for the economy of the families and the district.

The tendency is to push for incomes from the wage labour trade, small-scale business, home industries, transport sector or services. There is a strong tradition for wage labour employment outside the areas. Since the 1930s the Akamba have been working outside, either in the colonial army, on plantations or road construction or, as of late, doing a varity of unskilled jobs in Mombassa and Nairobi. By this time wage labour has become an integral part of any male Kamba's life to support his family or cover the cost of marriage.

Many household budgets are totally dependent on regular remittances from male household members working outside the district. figures from the 1979 population census reveal that more than 10% of the population born in Kitui has migrated to the urban centres for jobs. Due to excessive labour supply many migrants spend long periods searching for employment and often have to return to their farms in Kitui where they remain idle.

Most non-agricultural sources of income in the district are marginal and carry little potential for additional incomes. The most common activities include: sisal basket and clay pot making, charcol and firewood selling, petty trade and minor sevice jobs. One of the more promising income generating activities is honey production, which is also promoted by the Department of Livestock Development under the ASAL programme and by the DANIDA asisted project in Mutomo. Honey production is primarily organized as a women's group acticity.

The graduates from the district's 20 Youth Polytechnics (YP) face greater difficulties in finding employment than it is the case in the wealthier districts in Kenya. Due to the absence of surplus production, low level of income of the majority population and a subsequent slow process of commercialization, there is limited demand for the services of the graduates from the YPs. Most of the students in the YPs aspire to get a job in Nairobi or Mombassa. Among the ones trying to get jobs or establish themselves as independent craftsmen in the urban centres some get jobs in their trade whereas others may fall back on unskilled jobs.

The ones who manage to raise funds for investments in the service and transport sectors often come from the upper

income group. Typically such investments are made in restaurants, small shops and transport vehicles where there is often good prospects of profits. However, in some areas with easy access to large range lands investments in livestock is still a priority investment option.

The importance of non-agricultural income has been outlined above. In the perspective of the individual farming household, even the ones with sufficient land and some livestock, the aim will be to diversify their economics by allocating members in non-farm oppupations. Such a strategy will contain an expansion of the household economy while at the same time spreading risks. This strategy seems to be the only rational adaption to climatic irregularities, population growth and land shortage.

Social Profile

Most agricultural and livestock activities are organized at the household level with the family being the basic source of labour. The practice of polygamy has resulted in family farms consisting of a number of individual plots looked after by a wife/wives and distributed within a larger area. This practice serves the purpose of reducing risks, since the erratic rains are likely to benefit at least one if not more plots.

The prevailing gender division of labour allocates most of the agricultural and household work to women.

Traditionally, the only major activity assigned to men has been the plowing and preparation of the land before sowing. Younger men were also responsible for the movement of livestock to far away grazing grounds during the dry season.

With the increase in the male urban migration and more children and young people enrolling in school, these duties have become the responsibility of women and old people. Many families are in fact being pressed for labour and the ones who can afford to, will hire external labour as a solution. Poorer households short of labour are not able to bear the expense of hirering additional labour and may therefore have to leave the land untilled.

Decision-making in matters related to agriculture, livestock and other major household economy issues has and still is primarily within the control of men.

Co-operation beyond the household level through local self-help groups have a central position in Akamba society. Theese groups have different functions and organization but often get together in the larger so called Mwethya groups to perform particular tasks. Such groups are traditionally composed of both men and women, but due to the absence of men groups are now primarily (90%) composed of women. Leadership functions, however,

are performed by both men and women. In 1985 there were reported to be approximately 2768 Mwethya groups in Kitui with a membership ranging from 15 to 50 and sometimes up to 150, depending on the activity according to which the group has been organized. The strong female bias in Mwethya groups has resulted in them being labelled women's groups.

Mwethya groups, as small institutions, are organized according to the principle of mutual social assistance and relations of reciprocity which at this level ensures social integration of Kamba society. Social reciprocity in its most formal expression takes place in connection with marriage and bridewealth through which families are mutually tied together in a "give and take" relationship. Organization of agricultural activities through exchange of labour and services are observed to be based on kinship as well as reciprocity between non-kin neighbours, with the latter mode gradually replacing the former.

In the Mwethya groups each member will contribute and cook food for all other group members whenever they rotate from one framer's field to the next, Usually Mwethya membership requires payment of a certain membership fee, an expense which, like the provision of food, becomes a burden for the poor.

Mwethya groups are important elements in much of the development in Kitui district. They are essential to the implementation strategy of the foreign assisted projects. It is also recognized by GOK that Mwethya women's and other groups are most appropriate and productive grassroot organizations when it comes to implementation of development projects. The Department of Social Services DSS is responsible for the registration of and other support to Mwethya and women's groups.

From being formed with the original purpose of assisting individual households in certain agricultural activities (like weeding, field preparation and harvesting) Mwethya groups have over time been modified to take care of a wider range of activities of community and individual needs. These activities include e.g. road construction, schools and healt centres and smaller commericial projects like honey production purely for economic benefits.

However, the stability and cohesion of Mwethya groups apprears always to weaken over time. Fusion and fission of groups formed according to specific purpose and problems is common. The experience of goverrtments and donors has been that once a specific task has been completed, a group tends to disolve. This may happen because members have to attend to other more important activities and group memberships or because of the reported general view that the government or donor has to reciprocate, which in a context like the present may involve expectations that the project should take over the responsibility of

maintenance of water projects completed through Mwetya activities.

Community leadership is in the hands of group leaders, elders, ass. chiefs and finally chiefs. Although the democratic element in Mwetya groups is strong, decision making on important issues is done by the individual authority holders. Any entry to or contact with the "grassroots" therefore has to be channeled through the above mentioned persons. Leadership is controlled by man and although women perform most productive activities, Kamba society is still male dominated. However, the influence of women within their spheres of activity is decisive whereever they express themselves collectively. Village elders and assistant chiefs are rarely able to bypass opinions and demands of women organized in a group.

Contradictory

Although women are gradually becoming more organized and cohesive as a gender group, they tend to be conservative and relacant to enter public and political spheres traditionally under male control. Women seem to be aware of the fact that the position of men is weakened due to their low participation in most group activities and in the Harambe movement in general. Nevertheless women actively support male representation in public affairs in order not to antagonize the sensitive male opinion.

3.4.3 Infrastructure

Financial capacity at district level financial allocations shall be issued directly to the departmental heads at district level and cannot be reallocated without the conscent of the DDC.

Staff. Ministeries have been advised to strengthen their technical staff at district level and has done so far the extent possible.

3.4.3.2 Physical infrastructure

The infrastructure is not evenly distributed in the district but concentrated in more densely populated areas of the central highlands around Kitui.

Roads

The total lenght of roads in Kitui District is 2,981 km. Due to the large area of the district and the low population density it is very difficult and costly to cover the district. Compared to other districts Kitui has less roads in terms of population (6.6 km. per 1000 inhabitants). Similarly the cash crop production for the district justification for an expanded road network. GOK must necessarily try to strike a balance between the wishes of the local population and the high cost of road construction. If cash crop production increases as a consequence of the ASAL Programme further efforts might be considered.

The construction and maintenance of rural roads in Kenya takes place within the Minor Roads Programme which is supported by several donors including DANIDA,. As far as Kitui District is concerned, it is Sweden which provides external assistance. Kitui District and GOK may wish to consider requesting Sweden to intensify its assistance if a positive economic development can be observed.

3.4.3.2 Donor Development Infrastructure

The following donors have, or are planning development projects in Kitui:

1. UNICEF
2. SWEDISH INTERNATIONAL DEVELOPMENT ASSISTANCE (SIDA)
3. JAPAN INTERNATIONAL DEVELOPMENT ASSISTANCE (JICA)
4. DIOCESE OF KITUI DEVELOPMENT COORDINATION OFFICE
5. ACTION AID
6. CARE
7. CANADIAN FREEDOM FROM HUNGER
8. WORLD NEIGHBOURS.

At the outset, it should be pointed out that one of the major actors in development in the District for the past

twenty years, has been the Diocese of Kitui Development Coordination Office.

Its activities range from community mobilization, small scale businesses, crop agriculture, livestock, small water projects, polytechnics - to adult literacy. Its development budget is about KShs.10m annually. Lately it has been coordinating other churches' development activities. The vast experience and range of activities should be of great use to DANIDA.

UNICEF is set to become a major actor in the development of potable water. It has gone through a pilot phase where it worked out modalities of an expanded programme which will involve a local NGO, Kenya Water for Health Organization (KWAHO). They are set to coordinate donors so as to get to 80 per cent population coverage with supply of potable water by the year 2000. They plan to fund only about 25 per cent of the target. UNICEF has a firm budget commitment of US$4,932,000 for start-up activities over 1989 and 1990, but is expecting a vast increase in resources in the immediate future.

JICA has a very extensive tree research and planting programme which is implemented through the Kenya Forestry Research Institute. The budgets are not available but a large nursery has been set-up at Tiva. According to the 1987/88 Development Estimate (District Allocations) a total of Kenyan pounds 1.688.000 has been committed as A in A. Offices and other support facilities are under construction in Kitui town. It is expected that most of the forestry and agro-forestry needs of the district will be catered for under this Project.

SIDA has a national soil conservation programme which covers, among others, Kitui District. It has not been particularly happy with the wet based soil conservation technologies which have been transferred to ASALs. In an ASAL specific soil conservation programme under discussion, there ought to be packages which can be utilized in districts like Kitui.

The NGOs have small programmes, but there is need to coordinate with them, particularly for mobilizational issues as their programmes are always implemented through community groups.

3.4.3.3 GOK - District Achtivities

Some donorprojects are implemented through the GOK system, but most are not.

The district team implements the District Specific Development Programmes funded by G.O.K. revenue and budgetted in the District Foreward. Budget as appearing in the District Allocations of the Foreward Budget and Printed Estimate.

The G.O.K. funds for Kitui District Specific Development activities within water, Forestry, Agriculture and Livestock in the period 1988/89 is given in Appendix 10.

3.4.3.4 Need for rehabilitation of waterstructures

During the visit to a number of waterstructures implemented by the US Aid Kitui ASAL Programme such as rock catchment, sand dams and sub-surfaces dams as well as some piped gravity schemes it became clear to the A.M. that a major rehabilitation programme may be required.

Some of the projects may even have to be abandaned due to poor designs and poor siting.

A DANIDA consultant is presently preparing an investigation of existing waterstructures in the district. An assessment of the technical and economic viability of these projects will form the basis for a 5-year rehabilitation programme.

4. PROGRAMME PROPOSAL

4.1 Brief description of proposal by Preappraisal and Logical Framework.

A stated in the T.O.R. (see Annex 1) the A.M. has taken the Proposal prepared by the Preappraisal as its point of departure.

The preappraisal recommends Danida to proceed to finalize preparations for its support to a new Kitui ASAL 5 year programme with emphasis on the following areas:

- The programme shall as far as possible be implemented through the Kenyan administrative system with the full involvement of the local community in accordance with District Focus for Rural Development Policy.

- The following components were foreseen:

  - Water Development
  - Soil and Water conservation
  - Agricultural Extension
  - Livestock Development
  - Income Generating Activities

- Further more the need to strengthen

  - Training and mobilization for community involvement as well as
  - Programme monitoring and evaluation was strongly emphasized.

The A.M. has discussed this preappraisal project proposal with the Kenyan Authorities and have on the basis of these discussions and complementary field studies and analyses prepared the project proposal outlined below in chapters 4.2 - 4.8, briefly presented in the logical frame work below and analysed in detail in chapter 5.

Project Structure	Indicators of Achievement	Indicator Quantification/Assessment	Important Assumptions/ Assessment of Risk
Wider Objectives. . Regeneration and preservation and sustainable utilization of natural resources i.e. water, soils and vegetation.	Restoration of long term balance between humans, livestock and natural environment.	. Satelite photos of vegetation coverage . Measurement of water flow in natural springs and rivers. . Measurement of top soil composition and fertility. . Impact study.	. Rate of population increase . Regulation of livestock . Government Laws and Regulations regarding protection of natural resources i.e. gazetted forest, riverbanks, soilconservation. . Government Laws and Regulations regarding public versus private ownership to resources i.e. landadjudication and title deeds to agricultural land in upper zones. . Assurance of well defined user rights to grazing Land.

.Strengthening of local institutions and local community participation in development activities.	Improved performance in "projectcyle" for ASAL project activities i.g. community maintenance of waterstructures.	Quarterly and annual Progress Reports produced by P.M.U., S & M section. . G.O.K. staff requirements fullfilled . Institutional Development Component of proposed ASAL Programme successfully implemented . Mobilization and Training Component of proposed ASAL Programme successfully implemented.	
Immediate objectives:			
. To improve the availability of and acces to safe and reliable sources of water for humans and livestock.	Annual production target equivalent to 1200 m2/day of new waterstructures.	Yearly implemented water capacity as per annual progress reports.	. G.O.K. staff requirements fullfilled . Consultancies in siting and design . Monitoring system functioning.

. To further the process of soil and waterconservation.	Targets set in annual work-programme.	Quarterly and annual progress reports.	. G.O.K. staff requirements fullfilled . Improvement of Soil Conservation concepts and methods for ASAL's. . Level of motivation of farmers. . Successfull mobilization through extension service and training.
. To increase agricultural and livestock production through improved agricultural and livestock practices in order to maintain/improve the standard of living of the growing population.	Annual household records of crop and animalproduction in target areas.	Special surveys of households in target areas conducted according to catchment target areas.	. G.O.K. staff requirements fullfilled . Improved drought resistance varieties, species and farm practices developed and adopted.
. To identify, plan and support non farming activities with special attention to the mobilization of the male labourforce.	Figures on non farming activities identified, planned and implemented.	Quarterly and annual progress reports.	. Funds for consultancies to undertake feasibility studies of various promising non-farming activities. . Existance of economic viable activities. . Well functioning marketing system.

Output 1: Establishment of ASAL PROGRAMME Organisation a. P.M.U. b. ASAL Sections in MOWD, MOA and MOLD and possibly M.E.N.R. c. Divisional Centers in Kyuso and Mutito.	. Buildings constructed and equipped by July 1989 . G.O.K. and DANIDA staff recruited and posted by July 1989. . Transport and other equipment procured and transfered by July 1989. . Budget prepared, approved and included in G.O.K. Printed Estimate.	. Commissioning Report . Minutes from joint G.O.K. - DANIDA meetings (April 1989). . Transport/import documents.	. G.O.K. recurrent funds available on time. . DANIDA funds available on time. . Contractor recruited in time. . Staff recruited in time. . Equipment procured in time.
Output 2: Watercomponent. Waterstructures producing 1200m3/day every year in 5-years.	Yearly implemented water supply capacity.	Quarterly and annual progress reports.	. Funds for recurrent cost. . Construction material available on site. . Monitoring, supervision and project auditing. . Staff recruited in time.

Output 3:			
Soil and moisture conservation and related agricultural practises according to annual workprogrammes.	Annual achievements in coverage of catchment areas compared to annual targets.	Quarterly and annual progress reports.	. Funds for recurrent cost. . Seeds and planting materials available. . Other inputs available. . Staff recruited in time.
Output 4:			
Agricultural Extension and Training.	Successful implementation of output 3 above.	Quarterly and annual progress reports.	. Funds for recurrent cost. . Proper management and maintenance of transport equipment. . Staff recruited in time.
Output 5:			
Livestock Development as per annual work programme.	Annual achievements in coverage compared to annual targets.	Quarterly and annual progress reports.	. Funds for recurrent cost. . Proper management and maintenance of transport equipment. . Staff recruited in time.

Output 6:			
Non-farming activities.	. Number of feasibility studies undertaken. . Number of people productivity employed on assisted projects.	Quarterly and annual progress reports.	. Qualified consultants available. . People with entrepreneurial spirit. . Training and credit programmes satisfactority implemented.
Output 7:			
Training and Mobilization according to concepts, methodologies and work-programmes to be developed.	Annual achievements in relation to annual work-programme.	Quarterly and annual progress reports.	. Funds for recurrent cost. . Cooperation with relevant local authorities and institutions. . Relevant G.O.K. staff available and motivated.

Output 8:			
Survey and Monitoring	. Establishment of baseline survey. . Monitoring systems for selected project activities. . Socio demographic inventories of new catchment areas. . in year 5 a socio-economic impact study.	. Quarterly and annual progress reports. . Separate impact monitoring reports.	. Recruitment of qualified staff. . Cooperation with other programme components.
INPUTS.			
G.O.K.			
1. Transfer of ASAL facilities to new ASAL Programme.	Document certifies transfer of facilities.	Copy of Document recieved by DANIDA.	D.D.C. Decision to be made.
2. Construction sites for Office Blocks, Workshop and Guesthouses.	Document certifies the transfer of land for construction of new facilities.	Copy of Document received by DANIDA.	Decision to be taken by relevant authorities.
3. Staff requirements.	Vacant G.O.K. positions filled. G.O.K. officers seconded to ASAL Programme.	Minutes from joint G.O.K.-DANIDA meeting in April 1989.	Lineministries H.Q's to make staff available.
4. Recurrent Funds.	Funds appearning in Printed Estimate.	Printed Estimate District Allocations 1989/90.	Min. of Planning succeeds in preparing budget and incoordinating line-ministries.

DANIDA:			
1. Transfer of Mutomo facilities to new Programme.	Detailled plan prepared and implemented.	Mutomo halfannual report July-Dec. 1988.	DANIDA Desk Officer Nairobi supports.
2. Funds for offices equipment and recurrent cost.	. Programmebudget approved by DANIDA BOARD. . Plan of Operation approved by G.O.K. and DANIDA.	Pre-programme activities follow plan of operation.	DANIDA country programme accomodates the proposed Programme.
3. Recruitment of DANIDA Staff.	Staff recruited by April 1989.	Pre-programme activities follow plan of operation.	G.O.K. - DANIDA approve job descriptions.

4.2 Programme objectives.

4.2.1 Overall Development Objectives.

The overall development objectives of the proposed programme takes as its point of the departure partly the policies of DANIDA as outlined in the strategy paper on aid to Kenya and partly the policies of G.O.K. as outlined in various recent policy documents dealing with development policies in general and especially rural decentralization i.e. District Focus for Rural Development, ASAL-policies and budget rationalization.

Within the overall objectives of the ASAL Programme as stated in the 1989-93 Development Plan, the overall development objective of the Kitui-ASAL Programme will be to support a sustainable development process in the district, based upon:

- regeneration and preservation of natural resources
- strengthening of community participation in development activities.

4.2.2 Immediate objectives.

The immediate objectives are those defined in detail in chapter 4.5 descriping the various sectoral activities of the proposed programme. They are briefly summarize below as follows:

- in accordance with the District Focus Strategy to strengthen the capacity of local authorities to plan, co-ordinate and implement the ASAL Programme,
- to support existing forms of community organizations such as Mwethya and other groups, in order to increase their capacity to identify needs and to plan, organise and carry out self-help activities, including the maintenance of social organizations and physical structures,
- to improve the availability of and the access to safe and reliable sources of water for humans and livestock,
- to further the process of soil and moisture conservation on agricultural and range lands,
- to increase agricultural and livestock production through access to sufficient and relevant extension services, thus leading to increased agricultural and livestock production required to maintain the standard of living for the growing population.
- To support forestry activities, incl. afforestation of hilltops and agro-forestry,

- to increase the awareness among the population of environmental issues such as the causes of soil erosion and measures to combat it,

- to increase the awareness of the population of the basic principles of waterrelated hygiene and environmental sanitation and

- to identify, plan and support marketing and income generating activities, with special attention to the mobilization of the male labour force.

4.3 The Target Group.

In principle, the target group includes all households engaged in agriculture and livestock activities. This target group identification is based on two principles:

1) Soil and water conservation can only by optimally successful if all households participate within a catchment area. If some household and fields are left out, the possibility of further soil erosion remains with the economic consequence of not optimizing benefits from the ongoing labour investment. The potential productivity of the total land within a catchment area is thereby not being released,

2) only by including all households in the activities of the programme can it be ensured that also the poorer households will benefit.

However, specific emphasis will be given to include the poorest 15-20% of the households. Experience from ongoing soil and water conservation projects has shown that it is often for various reasons very difficult to ensure that all households from this group achieves access to project benefits. Ways to mobilize these poorest households shall be worked out, possibly by suggesting additional designs for group organization and/or incentives specifically catering for the this section of the population.

It should also be kept in mind that a major share of the households have female heads. Special attention shall be given to ensure that project implementation recognizes this fact.

The target group shall be reached in each designated area for soil and moisture conservation (i.e. catchment area) and in relation to each water conservation project. The aim is to include at least on member (who in most cases will be a woman) from existing households in the area to take part in and benefit from the activities being implemented. Participation of all target group members shall be ensured through a self-help group approach based on existing forms of self-help groups.

Special support to income-generating activities for women and men shall be an integral part of the project in its espanded phase. For the female target group attention shall be paid to the fact that women in most cases are already over-burdened with work. The male target group will therefore be given priority in this respect whereby the male labour force may be activated.

The specific target groups identified by the various sectoral activities are given in chapters 4.5.

4.4 Programme Strategy.

The A.M. has attempted to arrive at an ASAL PROGRAMME STRATEGY by combining the resources available for the fulfilment of overall objectives in an optimum manner, given the develpment potential and constraints in the district. The basic development constraints and potentials can be summarized as follows:

. ASAL areas are by definition dry areas. The various agricultural zones in Kitui District receive less than 900 mm of rain per year. The annual variations in rainfall are dramatic: so are variations from one location to the next within the district.

. A major resource in the district is range land for livestock, and the basic constraint is water. In the higher zones (Central Division and pockets in the other Divisions), there is a potential for intensified rainfed agricultural development based upon soil and water conservation and intensified mixed farming systems.

. In the higher potential areas land adjudication and the issuing of title deeds is a precondition for improved agricultural practices.

. The experiences of previous development programmes in the district such as Kitui ASAL and Mutomo Soil and Water Conservation Programme, clearly demonstrate that sustainable development will have to be based upon the active participation of the community in the identification, planning, implementation and operation and maintenance of projects.

. Consequently, sustainable development projects will have to be based upon appropriate technologies that are maintainable by the local communities.

The following are the main features of the Project Strategy:

- Utilize relevant experiences from Mutomo and other relevant programmes/projects in the area.

- Implement programme activities in accordance with District Focus for Rural Development.

- Strengthen community participation in all phases of the project cycle through mobilization and training activities.

- Use appropriate technology maintainable by local community.

- Implementation through relevant Line Ministries. Establish clearly defined division of labour and responsibilities between involved institutions/-departments and individuals

- Delegate responsibility and accountability to levels as close to the community as possible (Divisions, Locations).

- Establish a decentralized management and implementation system.

- Establish a system of institutional learning through a programme Survey and Monitoring System.

The proposed Kitui ASAL Programme will be based on the two previous projects: the Danida supported Mutomo Soil and Water Conservation Project and the Kitui ASAL Programme financed by USAID. The Mutomo project has been implemented through an intensive effort involving considerable manpower and resources, and has been valuable experience gained particularly within community based smaller water projects.

The new project will, however, to a much larger degree work through the Kenyan administrative system than it has been the case in Mutomo. It should be possible, to secure substantial progress towards the attainment of the immediate objectives outlined above through development of and support for the Kenyan system as described in 4.5 below.

With the magnitude of problems in Kitui District all experience indicates that these problems can only be solved through the active participation of the population. The most appropriate tool for such participation is the existing group structures of the Akamba and especially the self-help Mwethya groups which have been used extensively for development tasks in the past. Despite some of the impressive results reached, there is room for further improvement of the functioning of the group structures. The project will thus undertake an intensive training, communication and mobilization effort to develop the implementation capacity of these groups further.

Experiences have shown that access to water is the highest priority for the population of Kitui district. In its initial stages the project will thus start with a special effort to mobilize groups for the construction of smaller water structures in the rest of the district.

A special emphasis shall be given to utilizer the natural springs of the inselbergs for piped gravity shemes since this has proven the most reliable and cheapest source of potable water. The programme will give first priority to rehabilitation and extension ofexisting gravity schemes, but will also identify, design and construct new gravity schemes.

Based on the involvement created through this effort the project will intensify and strengthen the ongoing soil conservation activities. There has been a tendencyto concentrate these activities on terracing of cultivated areas. They will be broadened, however, i.e. through the inclusion of range rehabilitation and biological soil conservation methods efforts. In many areas of the district soil conservation on crop and range land must go hand in hand in order to give emphasis on the catchment area approach. At the moment soil erosion is rampant on range lands situated between neatly terraced, cultivated plots.

Closely related to this will also be a continued extension effort providing training in cultivation practices, crop selection, forestry, etc.

Possible Forestry activities covering hilltop afforestation and agro-forestry are subject to a separate appraisal to be carried out immediately often the submission of this appraisal report (see T.O.R. for this appraisal in annex 8).

The components mentioned above will be the main activities at project start-up. This represents an intensification of efforts in relation to the USAID ASAL Programme and an extension of the scope of the Mutomo project. If these crucial components are to be successfully implemented, it will require a very strong effort which will put great demands on the management and implementing capacity of the project. No other major components should thus be implemented during the first two years of project operation. However, during the second year a review should take place on the basis of studies undertaken and observations made during the preceding period. It should be considered whether the scope of the project could and should be extended and new activities taken up during the remaining period. If necessary, Danida should seek an additional, financial allocation for the project.

In order to limit the management burden at the start of the new project it should be considered to expand the geographical coverage in phases and acording to a catchment area approach. While it should be recognized that the previous activities have created expectations among the people in all the divisions and that the district's technical services have obligations towards the entire population of the district, such considerations should not lead to an indiscriminate scatttering of project resources and efforts all over the district. Some kind of initial concentration should take place. This should be done by starting up activities in areas where the need for water supply and soil conservation is most pressing. This will often be the more densely populated areas.

The mere size of Kitui District taken into account has serious implications for the implementation strategy of a

districtwide ASAL Programme, only the administration of MOA has been decentralized to Divisional level. It will not be possible to implement the proposed water and livestock component in all the divisions from one central base. The distance from Kitui Town to areas such as Kyuso, Mutitu and part of Mutomo division is simply prohibitive to active project implementation.

It is therefore envisaged that while activities such as planning, inspection, training/mobilization and monitoring/evaluation will be based at the District Headquarters, the implementation of water, agriculture livestock and training/mobolization programme components will operate from a divisional base.

The new ASAL Programme will utilize the existing facilities in Mwingi and Mutomo Divisions, but it will be necessary to support the Divisional Headquarters of MOLD and MOWD in order to cater for the activities in Kyuso and Mutito Divisions.

To sum up, the overall guiding principles of the proposed ASAL Programme will be the District Focus for Rual Development with a balanced emphasis on community participation and a strengthening of the implementation capacity of the relevant Government Institutions in the District.

4.5.1 Institutional development

4.5.1.1 Specific objectives and target groups

The proposed Kitui ASAL Programme attempts to contribute to institutional development within the framework of the District Focus for Rural Development Strategy of GOK, partly by strengthening the community participation in development activities (see Section 4.5.7), and partly by strengthening the capabilities of the relevant Government Institutions in Kitui District.

The target group for this Programme component can be defined as follows:

- Professional staff in ASAL section of Rural Planning Division, Ministry of Planning HQ
- Professional staff involved with ASAL related activities in Line Ministry HQ
- Professional staff in the District Planning Unit and more particularly, the ASAL PROGRAMME MANAGEMENT UNIT
- Professional staff of Line Ministries at District Level, particularly those involved in planning and implementation of the proposed Kitui ASAL Programme
- Professional staff at the District Treasury, such as District accountant and District Internal Auditor(s).

4.5.1.2 Institutional development - Programme components

The proposed Programme aims at strengthening the capabilities of Government Institutions in the following areas:

- Accumulation and dissemination of relevant experiences from development work in Kenya's 27 ASAL districts
- Accumulation and dissemination of research - Kenyan as well as international - of relevance to development in ASAL areas - with particular emphasis on Kitui District
- District planning, monitoring and evaluation
- Planning, design and implementation capacity of the District Department of Ministry of Water Development, Ministry of Agriculture, Ministry of Livestock Development and Ministry of Culture and Social Services
- Financial management capacity and capability, including accounting and financial, as well as project auditing functions.

In order to achieve the required strengthening of capabilities of government institutions involved in the imple-

mentation of the proposed Kitui ASAL Programme, the ASAL Programme Management Unit established for the management of the proposed programme (PMU) (see chapter 4.6) will liaise with the relevant officers in order to identify:

- Areas in which reforms in established bureaucratic procedures and systems can contribute to increased efficiency in order to maximise the utilization of existing human and physical resources

- Areas in which formal as well as informal (i.e. on the job), training can contribute to strengthening the professional qualifications and capabilities of GOK officers involved in Kitui ASAL activities

- Systems and methods to be developed and implemented by the PMU for a systematic and thorough monitoring of ASAL project/programme implementation through financial as well as project auditing and reporting

- Progress reporting systems and formats in order to arrive at uniform, simple ways of reporting progress in the implementation of ASAL projects/programmes.

4.5.1.3 Targets and indicators of achievement

The ultimate target of this Programme component is, within a period of 5 years, to have an efficient, smooth, reliable and innovative Rural Development Management System in accordance with the intentions of District Focus for rural development, through a comprehensive and consistant support to and complementation of the overall GOK efforts in this area.

The immediate targets are for the PMU to produce the following review reports within the first year of the proposed ASAL Programme:

- An evaluation of the implementation of DF policies and procedures with an emphasis of identification of areas where action needs to be taken

- An evaluation of the implementation capacity and capability of the Line Ministries involved in implementation of the proposed ASAL Programme. The report will include an identification of manpower requirements, staff development plans, such as formal and informal training, as well as a proposal for strengthening logistics when deemed necessary

- An evaluation of the capacity and capability of the District Treasury and the District Internal Auditing function. This report will emphasize ways and means of

strengthening the financial management at the district level.

These reports will be discussed in the District Steering Committee, and subsequently by the DDC, which will decide upon an Institutional Development Programme to be implemented for the remaining 5-year ASAL Programme period.

4.5.1.4 Input requirements

The implementation of the Institutional Development component will be the responsibility of the PMU which forms part of the DPU. (For a discussion of the organizational set up, see Chapter 4.6).

In order to operate efficiently, the PMU will have to increase its staff, its office space, transport facilities and other equipment, such as micro-computers and typewriters.

Staff houses for two DANIDA Advisers, and additional professional ASAL staff are available within the ASAL residential estate established under the first Phase of Kitui ASAL with USAID assistance.

Office space

The office space available in the block constructed by ASAL Phase I presently consists of 2 offices for senior officers, each with a secretarial front office.

The additional requirements are 5 offices for Senior Officers (3) and DANIDA Advisers (2).

Staff

In addition to the ADDO, presently acting as DDO, as well as ASAL Programme Officer, the DPU needs to:

1) fill the established positions, presently vacant, of DDO and ASAL Programme officers

2) physically place the District Statistical Officer and the District Physical Planning Officer in DPU premises to be established in the previous ASAL office premises.

   The DDO and the District Statistical Officer will be assisted by the DANIDA Senior Planning Adviser in establishing the District Information and Documentation Centre under the DPU.

3) Recruit a qualified Kenyan Training Officer to head the Mobilization and Training Section (M&T) of PMU. Since this post has not been established within the

GOK system, DANIDA will undertake to recruit and employ this officer from Programme funds for details see 4.5.7.

DANIDA, in addition, will undertake to recruit the following advisers to be posted to PMU:

1) 1 Senior Rural Development Planning Adviser

2) 1 Senior Socio-economic Adviser to the SM Section.

3) Short-term consultancies in various fields related to the MT Section of the PMU.

Vehicles

In order to make the PMU operational, a GOK registered 4-wheel drive vehicle will be required in addition to the 2 similar vehicles made available by DANIDA on private registration to the DANIDA Advisers.

Other equipment

In addition to the office space mentioned above, DANIDA will provide office equipment in order to make PMU operational, such as

- Desks, chairs
- Typewriters
- Photo-copying facilities
- 2 Micro-computers
- Equipment and books for the District Information and Documentation Centre under PMU.

4.5.1.5 Activities and Plan of Operations

This component will be initiated in the following sequence:

1) Establishment of PMU, with its SM and MT Sections

   - construction of office facilities
   - procurement of vehicles and equipment
   - recruitment and posting of staff, incl. 2 DANIDA Advisers (Jobdescriptions and T.O.R. is given in Annex)

2) Preparing a workplan for the first year of operation, including preparation of the TOR and the outline for the activities listed under 4.4.1.3.

3) Preparing reporting, monitoring and evaluation procedures, methodologies and formats for PMU, as well as for the other Programme components in Water Develop-

ment, Agricultural Development, Livestock Development and for Community participation.

4.5.1.6 Reporting, Monitoring and Evaluation

The PMU will prepare quarterly and annual reports for discussion in PSC and ICC. The reports will be submitted to DANIDA for information as a basis for decisions on quarterly disbursements and annual budgeting.

The Programme component will be part of a General bi-annual DANIDA Review and an evaluation of the Phase I of the Kitui ASAL Programme after 5 years.

4.5.2 Water Development and Conservation

4.5.2.1 Specific Objectives and Target Groups

Within the overall development objectives of the project, the Water Development and Conservation activities specifically aim at:

- improving the availability and quality of as well as the access to a reliable water supply for human and livestock consumption.

- reinforcing local capabilities for taking over the ownership and consequently the operation and maintenance (OM) of the implemented rural schemes by maximising local community participation in project identification, planning and implementation.

The target groups for the Water Development and Conservation activities include all families involved in small-scale agriculture and livestock activities in all 5 Divisions of the District.

Geographically, the main focus will be on those low density areas which are comparatively under-developed in terms of water, particularly that arable infertile cresent whose top point is the Katse-Tharaka area, bulging downwards towards Endau and curving westwards towards Mutomo.

The principle of community ownership and responsibility for OM will be a firm prerequisite for project involvment in water supplies for minor townships.

4.5.2.2 Categories of Technologies and Implementation Strategy

The emphasis will be on low to medium level technology water development since local management, when it occurs, is typically around such schemes and since local management will be a necessary condition for operating and maintaining those schemes, given the financial situation in the country.

Thus in order to achieve the objectives set above, the following water development and conservation technologies will be applied:

- Piped gravity supply from springs.

- Rocks catchments.

- Sub-surface and sand dams.

- Small earth dams.

- "Slit" pans (deep and narrow pans along roads).

- Ground tanks (only at nurseries ans institutions).
- Shallow wells.

Rehabilitation of existing viable schemes, extension of existing piped gravity schemes and new implementation will be undertaken.

Particularly in the start of the project, high priority will be given to rehabiltation and extension of existing schemes.

High priority will be given to piped gravity schemes whenever feasible.

The implementation will start slowly and currently monitor the achievements in order to undertake necessary adjustments in light of the gained experience.

4.5.2.3 Targets and Indicators of achievement

Targets

The target for the Water Development and Water Conservation Programme is an annual implementation of water supply capacity of approximately 1200 m^3/day equally divided between human and livestock consumption.

Hereby approximately 30.000 people and 20.000 Livestock Units (LU) will yearly be provided with untreated water at a rate of 20 litres per person per day (l/p/d) and 30 liters per LU per day (l/LU/d), respectively. (Observe: 1 LU is the equivalent of one mature local breed cattle, one donkey, 5 sheep or goats or 0.8 camels).

However, it will often be difficult to define exactly the specific supply area and use groups of a given water scheme. Thus, although the access to water generally will be improved, unreliable supply and long walking distances, particulary by the end of the dry season, may still be experienced in connection with newly implemented schemes.

All the water will be provided without treatment implying that no guarantee can be given as to its quality although also in this respect a general improvement may be foreseen.

Table 4.5.2.1 suggests very tentative targets for water development activities by category, year, division and implementing agency. Based on the experience gained during the first years these targets will have to be revised.

Indicators of achivement

The main indicator is the yearly implemented water supply capacity in m^3/day.

For piped gravity schemes and shallow wells their water supply capacity in m^3/day by the end of the dry season is easily arrived at.

For the schemes involving volume-structures (rock catchments, sub-surface dams, small earth dams, slit pans and ground tanks) a nominal water capacity may be arrived at by dividing their effective storage volume (total volume less estimated evaporation and leakage losses) by the length of a design drought period say 150 days. Thus e.g. a ground tank of 75 m^3 may be assigned a water supply capacity of say 60/150 = 0.4 m^3/day. Similary a rock catchment of 1500 m^3 may be assigned a water supply capacity of approximately 1200/150 = 8 m^3/day.

Thus it it possible to convert the implementation targets given in Tabel 4.5.2.1 into approximate numbers of schemes within each category depending on their individual sizes as well as to calculate the actual achievements.

Taking into account the present uncertainties, Tabel 4.5.2.1 should primarily be considered a possible model or framework for expressing and updating implementation achievements and targets for water development and conservation activities.

4.5.2.4 Input requirements

Implementation of water development and conservation will take place within MOWD and MOA.

Staff houses for the DANIDA-Senior Water Engineer Adviser, the MOWD-Senior Water Engineer in charge of the ASAL Water unit within MOWD and the MOA - Agricultural Engineer in charge of the water conservation implementation within MOA are available with the ASAL residentiel estate established under the phase I Kitui Asal with USAID assistance.

Office space

Within MOWD at District level in Kitui, the ASAL Water Unit is in need of two fully equipped offices for the MOWD-Senior Water Engineer in charge of the unit as well as for the DANIDA adviser. They will share a secretarial front office. Space will be provided by MOWD while DANIDA will provide the necessary office equipment for the functioning of the MOWD-ASAL Water Unit .

Similary within MOA at Distict level in Kitui, the ASAL Water Unit is in need of a fully equipped office with a secretarial front office for the MOA -Argicultural Engineer in charge of the MOA-ASAL Water Unit. Space will be provided by MOA while DANIDA will provide the necessary office equipment for the functioning of the MOA-ASAL Water Unit.

At the Divisional level DANIDA will in Kyuso and Mutito provide the MOWD-ASAL Water Unit with minor office, store and guesthouse facilities. Meeting/seminarhall will be shared with MOLD and MOSS.

Transport and Equipment

To undertake a yearly implementation of approximately 650 m^3/day within the MOWD the transport and equipment facilities needed is shown in Annex (). the project can not rely on using any of the existing transport and equipment facilities in the District Water Office as they are either in bad shape or heavly occupied for opreration and maintenance of existing MOWD-schemes. Thus the MOWD needs given in Annex ? is in addition to what is existing in the District Water Office.

To undertake a yearly implementation of a supply capacity of the approximately 550 m^3/day within the MOA the transport and equipment facilities needed is shown in Annex (?). Part of the need will be satisfied by taking over these facilities from the Mutomo-project that will still be operational at the start of the ASAL-project. Hereby the needs for new equipment to the MOA Water activities are found to be as given in Annex (?).

Staff requirements

. Ministery of Water Development

During its visit to the District the AM was informed that the MOWD staff in Kitui District as per March 1988 was as summarized in Table 4.5.2.2.

The minimum staff requirement for the MOWD-ASAL Water Unit to undertake a yearly implementation of a water supply capacity of 650 m^3/day is:

1 Senior Water Engineer (planning and design)	Head of unit
1 Senior Water Engineer	DANIDA-adviser
1 Senior Water Inspector	
10 Water Inspectors	
5 Engineering assistants	
1 Draughtsman	
1 Surveyors	
2 Surveyors assistants	
5 Masons (graded)	
5 Plumbers (graded)	
5 Carpenters (graded)	

By comparing these needs with the list of the existing MOWD-staff (Table 4.5.2.2) it is seen that in addition to a special posting or secondment of the MOWD Water Engineer there is also a lack of personel in terms of draughtsmen, surveyors, masons, plumbers and carpenters.

It has to be taken into account that the project can only rely on part of the existing MOWD-manpower as another part will remain occupied with operation and maintenance of existing MOWD schemes as well as new construction outside the ASAL-programme.

Ministery of Agriculture

Within the presently ongoing Mutomo-project the water constructions activities involve a staff of 1 senior foreman, a number of junior foremen and approximately 40 work teams of different size, totally comprising approximately 60 fundis.

In addition to a special posting or secondment of a MOA-Agricultural Engineer to head the MOA-ASAL water unit the water conservation activities within the MOA will be based on the manpower involved in water conservation implementation during the MOA-ASAL water conservation activities as well as the manpower presently working with water conservations within the Mutomo- project either employed on a casual basis by the project or hired as private contractores. By combination of these two manpower resources it should be possible on a yearly basis to implement approximately a supply capacity af 400 m^3/day. By involving other contractors

(e.g. MOA/AMS for construction of slit pans) as well as NGO's (shallow wells) it should be possible to implement additionally 150 m^3/day on a yearly basis.

Other inputs

In support of the water development and conservation activities it is recommended that

- an evaluation study on the overall effectivness of sub-surface - and sand dams in term of water supply as well as ecologically and environmentally be undertaken by a competent Kenyan Reseach Institute. (Estimated cost K.shs 0.8 mill.)

- a short term consultant looks into the feasibility of in minor townsship to establish Water User Associations that can take over the ownership and OM-responsibilities of the water schemes as a prerequisite for DANIDA-financing of such schemes. (Estimated cost K.shs 0.4 mill.)

- a short term consultant, as a pre-project activity, looks into ways and means of organizing the present Mutomo-water construction personnel in private/cooperative contractor units with the assistance from DANIDA.

- a short term consultant with extensive experience in small scale water conservations constructions is employed to ensure sufficiently high quality of siting and workship of water conservation structures.

- As a pre-project activity, a short term consultant, books into whether and how to incorporate afforestation and conservation measures as a project activity within the catchment areas of perennial springs in the District with the aim of conserving these very important water resources. (See Annex for Draft terms of Reference).

- As a preprojectactivity the investigation of the need for rehabilitation of existing waterstructures mentioned in chapter 3.4.3.4 above should be finalized in accordance with the guidelines provided in the proposed revised termsof Reference (See Annex).

Recurrent costs

Assuming a yearly implementation of 1200 m^3/day water supply capacity and assuming a unit cost of 18,000 Ksh per m^3/day a total yearly figure of approximately 22 mill. Kshs is arrived at.

Assuming 650 m^3/day to be implemented by MOWD and 550 m^3/day by MOA on a yearly basis the following ministerial budgets for the ASAL water units are arrived at

. Ministery of Water Development

Implementation including construction materials, repair of equipment, casual wages and allowances	11.9 mill Kshs/year

. Ministery of Agriculture

Implementation including construction materials, repair of equipment, casual wagos and allowances	10.1 mill Kshs/year

4.5.2.5 Activities and Plan of Operation

This component will be initiated in the following sequence:

1) Preparation of a Plan of Operation partly based on Tabel 4.5.2.1 as well as preparation of the TOR and the outline of the activities listed under 4.5.2.4.

2) Establishment of the ASAL-Water Units within the MOWD and MOA.

- recruitement and posting of staff, including 1 DANIDA adviser (See Annex 8 for Job Description).
- allocation of office-space in MOWD and MOA at HQ-level in Kitui.
- construction of MOWD-office, store and guesthouse facilities on Divisional level.
- procurement of vehicles and equipment.

3) Preparation of a workplan for the first year of operation.

4.5.2.6 Reporting, Monitoring and Evaluation

The ASAL-Water Units in MOWD and MOA will prepare quarterly

and annual progress reports that will be submittet to PMU through their respective Departmental Heads.

Tabel 4.5.2.1

Tentative Water Development Targets (m^3/day) by year, Division and Implementing Agency.

Year / Category		89/90	90/91	91/92	92/93	93/94	Total
Piped gravity supply from springs (MOWD)	r	100 kyuso	150 kyuso	100 kyuso	100 kyuso	100 kyuso	550
	e	100	150	200 mutito	200 mwingi	200 mwingi	850
	n	100 mutito mutomo	150 mutito	200	300 mutito	300 mutito	1050
Roch catchment (MOWD)	r	140 Mwingi	100 mwingi	100 mwingi	100 kyuso kyuso	100 kyuso kyuso	540
	n	100 kyuso	100 kyuso	100 kyuso	150 mwingi mutito	150 mwingi mutito	600
Subsurface and sandanis (MOWD)	r	100 central	100 central	50 central central	0	0	250
	n	100	150	150 mutito	150 central	200 central	150
small earth dams (MOA)	r		50	50 central		0	100
	n	100 mutomo	100 mutomo	50	100 mutito	150 kyuso	500
"slit pans" (contractor) (MOA)	n	50 kyuso mutito	100 kyuso mutito	100 kyuso mutito	100	100	450
Ground tanks (nurseries, schools etc.) (MOA)	n	10 all division	10 all division	10 all division	10 all division	10 all division	50
Shallow wells (MOA)	n	0	40 mutito (NGO)	90 mutito (NGO)	90 kyuso (NGO)	90 central (NGO)	310
Total	(MOWD)	540	650	650	700	700	3240
	(MOA)	900 360	1200 550	1200 550	1300 600	1400 700	60 2760

r: Rehabilitation n: New construction e: Extension

Tabel 4.5.2.2

MOWD-staff in Kitui District as per March 1988

	HQ	Kitui Water supply	Divisions	Total
Water Engineer (DWE)	1			1
Senior Superinterdant	1			1
Senior Inspector	2			2
Inspector	8	5	11	24
Geologist	1			1
Engineering assistants	4	1	8	13
Water Bailiff.	1			1
Draughtsman	1			1
Surveyor assistants	3			3
Masons	2	2	5	9
Plumber	1	2		3
Carpenter			1	1
Drivers	6	1	3	10
Other staff (mostly subordinate)	61	36	54	157
Total	92	47	82	221

4.5.3 Soil and Moisture Conservation and Related Agricultural Practices.

4.5.3.1 Specific Objectives of this component of the Programme are to stimulate and support improvement of agricultural production and preservation of the agricultural resource base through more and better adopted soil and moisture conservation and agricultural practices.

The target group for this component is, in principle, all heads of farm household living in the target areas, insofar as soil and moisture conservation measures will be fully benificial to inviduals and to the community only if all households are involved, i.e. if full coverage of catchment/-sub-catchments is to be achieved.

The prime target areas will be cultivated land and grazing land in areas with high potential for agricultural production. These are found predominately in Central Division, in the southern part of Mwingi Division, and in pockets around inselbergs and along rivers in other divisions. The population is in general dense and consists of settled farmers who, to a high degree, depend on agriculture for their living.

The target areas are in particular in Central and Mwingi Division, hilly with relativily fertile clayey and lomay soils which, however, are open to soil erosion when deforested, overgrazed or cultivated. The rainfall pattern is bimodal but unreliable. The annual precipitation ranges from 700-1100mm.

4.5.3.2 Categories of techniques

In order to achieve the goals set above the following techniques and methods will be applied:

Soil conservation

On cultivated land:

- physical measures, including building of benches, digging of fanya jus or laying of trash lines. Digging of cut-off drains and ditches and, in rare cases, of artificial water ways are also included.

- biological measures, including strip cropping, perennial vegetation on the conturs, suitable land preparation before the rains, cultivation along the contours, early planting, rotation of crops, correct plant population, use of fertilizer, manure, compost, mulch, etc.

On eroded grazing land:

- establishment of live fencing, reseeding of grasses on the contours and in micro-catchments, planting of fodder trees and other trees and shrubs for stablization and enrichment (N-fixation) of the soil. In severe cases of erosion, building of terraces might be necessary as well as gully control measures.

- controlled, rational grazing or even zero-grazing after completed rehabilisation.

Agro-forestry:

- support to existing nurseries operated by Ministry of Agriculture.

- support to establishment of small nurseries in locations and sub-locations to be operated by individual farmers or farmers' groups.

- provision of seed of suitable trees and support to field trials.

- development, field testing and introduction of techniques for direct seeding of multi-purpose trees on grazing areas.

Improved agricultural practices.

- development, field testing, introduction and support to local manufacture of appropriate animal-drawn agricultural implements, in particular for soil preparation and tillage. Improved availability, care and training of draught-animals.

- identification, field testing and introduction of improved drought resistant, early maturing varieties of the main staple crops, as well as promising cash crops.

- seed multiplication.

- development of improved handling techniques of foodgrains, including storage at farm level.

The above-mentioned points explain the most important inputs of the Programme which, however, will aim at converting all aspects of soil conservation and improved agricultural techniques.

4.5.3.3 Implementation Strategy and Targets

All soil conservations activities shall be done following a catchment or rather sub-catchment area approach, and through partipation of the local community. The final Plan of Operation shall identify the geographical areas of intervention and prepare a time sequence for implementation.

It is estimated that approxemately 80 per cent of the cultivated land in all sub-chatchments with high population density and in need of soil conservations in the high potential areas shall be coverd, i.e. all cultivated land in the target area shall have been exposed to establishment of some type of soil conservation measures. Indicators of achievement will be TA's monthly progress reports.

Rehabilitation of eroded grazing land will start with field trials and demonstrations. The final Plan of Operation will select one site in one sub-catchment in each sublocation to be rehabilitated and laid out for trials of, in particular, varities of grass, fodder trees and live fencing. These trials shall be completed within 2 1/2 years (5 seasons) and immediately follow-up with trial on controlled grazing incl. zero grazing on the same sites. The grazing trials shall be completed by the termination of the first phase of the project (5 years). The trial sites shall be used intensively by the frontline extension staff for demonstration to farmers.

Intensified extension efforts, including mobilization of farmer groups to promote rehabilitation of eroded grazing sites in the target areas, shall start during year 2 of the Project.

It is estimated that all eroded grazing in sub-catchments which are fully covered with soil conservations on cultivated land, shall be rehabliltated during the first phase of the Programme (5 years).

Indicators of achievement will be TA's monthly progress reports.

Agro-foresty

The Programme will start immediately, by giving support to upgrading of the existing larger nurseries operated by ministry of Agriculture. The final Plan of Operation will identify what inputs are required and possible areas of collaboration with M.O.E.N.R.

Mobilization of and support to farmers groups and individual farmers to establish small nurseries shall start after the first rainy season. It is expected that at least each location shall have a small nursery after 2 years. Field trials to identify suitable species of fruit, fodder and multi-purpose trees will start in year 2 and continue into the second phase of the Programme.

Development of techniques for direct seeding of trees will start in year 2 of the Project and is expected to be completed during phase I. The required trials will be performed at the larger nurseries.

Indicators of avhievement will be the DAEO's progress reports.

Improved Agricultural Practices.

All activities under this heading are part of the day-to-day work of the divisional subject matter specialists.

4.5.3.4 Input requirements

Staff

The implementation of this component will be the responsibility of the divisional extension services, see Chapter 4.5.4.

Physical inputs

For transport of materials in connection with the activities mentioned above, two 4-wheel drive pick-ups will be required located at the divisional headquaters in Central and Mwingi Division.

Tools and equipment for nurseries, field trials and as incentives to farmers groups.

Improved seeds and seedlings for field trials.

Seeds for mulitplication.

Miscellaneous.

Other inputs

Consultancies:

Local consultancies and research contracts as identified by Ministery of Agriculture in liaison with PMU. The following pertinent issues are identified by the A.M:

- technical assistance to develop animal drawn implements for land preparation and tillage, 3 man months.
- technical assisance to prepare a plan for field trials, 2 man months.
- preparation of plan for investigation of soil degradation on cultivated terraces.

DANIDA shall further finance short term consultancies as required.

Contracts:

- contracts with national institutions to conduct surveys and research in connection with work mentioned under consultancies.

4.5.3.5 Plan of Activities

The final Plan of operation will prepare the Plan of Activities.

4.5.3.6 Reporting, Monitoring and Evaluation

The District Agricultural Officer will prepare quaterly and annual reports, which shall be submitted to PMU.

4.5.4. Agricultural Extension and Training

4.5.4.1 Specific Objective and Target Group

The objective of this component of the Programme is to ensure a proper implementation of the activities described under point 4.4.3, through provision of support to the existing Extension Service in the target area.

The immediate target group will therefore be the Divisional Agricultural Extension staff.

4.5.4.2 Categories of Activities

Extension is the main tool to achieve the goals described under point 4.4.3, i.e. increased utilization of arable land and increased yields aimed at increased and sustained food production.

The programme shall give support to Extension Services in order to facilitate operation and to improve productivity:

- stimulate the use of contact groups instead of contact farmers. For certain activities like construction of soil and water conservation structures, the use of incentives, for instance tools, might be considered.

- increased use of fiels days demonstration and trials on farmers fields.

- make transport facilities available for the frontline staff i.e. motor bikes or bicycles depending on area to be covered. It shall be considered to give the officers the option of purchase on soft loan terms.

- stimulate the capacity to give area or even site specific advice to farmers and to develop area specific extention packages through technical courses for divisional subject matter specialist, TA's and JTA's.

- refresher courses for both frontline staff, contact farmers and contact group leaders in order to provide training in what is expected of them and how to do it.

- provision of equipment to produce training materials locally.

- development of a more effective feed-back system from the frontline staff to the subject matter specialists.

4.5.4.3 Targets

The overall target of this component of the Programme is to have professional and efficient agricultural extension service at divisional and locational level in the high potential areas of the district.

The immediate target is to achieve full implementation of the planned activities on soil conservation, improved agricultural practies and agroforestry described in Chapter 4.5.3.

4.5.4.3 Input requirements

Staffing

1. It is expected that MOA will fill the established posts, presently vacant, of TO's and TA's in order to cater for the proposed level of activities in Central and Mwingi Divisions.

2. GOK shall second a qualified Subject Matter Specialist to head the ASAL Section of MOA, Kitui.

Physical inputs

Vehicles

In addition to existing transport facilities the AM recommands DANIDA to supply the following:

1. a 12-seater bus to cater for the intensified training and extension activities.
2. two 4-wheel drive station cars. One to be located in divisional HQ in Central Division and one in Mwingi. The vehicles are for the extensive use of the divisional subject matter specialist (Soil Conservation, Agriculture and Home Economics).

3. Motorbikes for all L.E.O.s and TA's at locational level in the target areas.

4. Bicycles for all TA's and JTA's at sublocational level in the target areas.

5. a 4-wheel drive station wagon for the exclusive use of the subject Matter Specialist seconded to the ASAL Programme.

Other Equipment

1. Typewriters for the two divisional Headquaters.

2. Equipment for production of extension and training materials like duplicators etc.

Other Inputs

1. Funds for informal Training

   a) Technical refresher courses for TOs, one course a year.
   b) Technical refresher course for TAs and JTAs, one course a year.
   c) Training course for contact farmers and contact group leaders.
   d) Field days and infield training of farmers.

2. Funds for Formal Training

   a) 1-2 fellowship per year to upgrade TA's from diploma to BA level.

   b) 2-4 fellowship per year to upgrade TA's from certificate to diploma level.

3. Funds for participation in:

   a) National seminars and workshops
   b) Study tours within the country.

4.5.4.4 Activities and Plan of Operation

The acitivities of the Agricultural Extension Service are based on the agricultural calender. The final Plan of Operation will be included in the annual Programme of Work for the Agricultural Extension Sevices in the target areas.

4.5.4.5 Reporting, Monitoring and Evaluation

The ASAL Subject Matter Specialist will, based on the quaterly Progress Reports from the DAO, propose semi-annual reports to be submitted through PMU to DDC copied to DANIDA.

The Programme component will be part of a general bi-annual DANIDA review and an evaluation of Phase I of the Kitui ASAL Programme after 5 years.

4.5.5 Livestock Development

4.5.5.1 Specific objectives and target groups

The overall objective of this component of the programme is to improve livestock production.

The specific objectives are to:

- develop smaller livestock watering points closer to, or on homesteads.
- develop smallerwater points in waterless range lands.

This will be persued in collaboration with MOA (See 4.5.2) In addition the MOLD will:

- enchance on-homesteads fodder and browse availability.
- improve range land holding capacity.
- support genetic improvement of Livestock.
- lessen livestock diseases.
- improve marketing capacity.
- upgrade the technical skills, and mobility of Ministry of Livestock Development field staff.

Target groups

- Owners of small to medium size livestock herds in the range lands.
- Small holder farmers.

4.5.5.2 Categories of Livestock Development

Livestock managemant systems in Kitui District are elevation/rainfall specific and can be divided into three basic subsets as described in Chapter 3.4.2.

1. High agriculture potential areas. Livestock grazes proximate to owers farms in uncultivated patches and in gullies near rivers and strems. some farmers plant grasses on the terraces for both erosion control and as supplementalry fodder for livestock. Fodder trees have become rare in this area, the dominant remaining indigenous fodder tree seen being Araoia Trotillis. Much more in this area could be done to increase animal fodder, particularly in relation to soil erosion and water catchment. More grasses, fodder trees and shrubs such as mulberries, whose leaves have an extremly high protein content, could be planted along terrace lines, in gullies and in poor soils on farms.

   Except for dairy cattle, livestock is watered in the streams near where they graze and walked back to the homesteads in the evening to enclosures. Very little

has been done to develop on farm livestock watering points such as ground tanks which catch road and pathway runoff. Such tanks could be constructed very cheaply and be large enough to supply all the water needs for small farm livestock populations. Average head sizes in the highlands are small, about four herd cattle and eight to ten goats and sheep. The potential for zero grazing is good on the high potential areas.

2. Medium agricultural potential. Grazing lands in the medium potential zone constitute about one half of the total area and is severely over grazed in most places. During most of the year livestock stay near the farms, but during drought years livestock may be trekkes into the Eastern statelands. Livestock water in streams in the area, from boreholes and from springs. Water harvesting for livestock consumption has not been exploited in these area and is relevant.

3. Low agricultural potential. Landholdings are larger in this area and virtually unterraced because of the emphasis on cattle, because permanent access based on usufruct rights to land is not always clearly defined and because 5 out of every 8 seasons have belove 250mm of rain and therefore crop failure. The low potential lands are severely overgrazed where there are permenent water sources are found and there is a marked increase in browsing among livestock in this zone. This zone could benefit from extension in range management, particularly hedge cutting along contours, controlled burning, wamatengo pits and grass and fodder tree and shrub reseeding and sub-surface dams in seasonal streams, existing water system maintenance and rehabilitation, and controlled grazing.

Presently Livestock keeping practises are not adequately known and documented in the low and medium potential areas.

It is therefore felt that a follow-up study in the form of a "Livestock activities preparation study" is required in order to prepare a framework for the preparation of activities and clearly identify which activities should be included in the final Plan of Operation for the programme (to be prepared in January-Fberuary 1989).

It is recommended that the study will take its point of departure in the findings and recommendations of the present Appraisal Report. The study should take place in October-November over a 5-6 weeks period and include two phases as follows:

1. A socio-economic inventory/documentation of Livestock keeping practises which e.g. focus on access to and use of graxing-browsing areas in the medium and low

potential areas. In this connection the social/community mechanisms behind the present livestock keeping practises should be documented.

The purpose of this part of the study will be to make recommendations on how to regulate access to rangelands so that overgrazing can be curtailed as well as point at ways to upgrade and expand the extension service network in a way that can be adjusted to existing and/or planned livestock activities.

2. Based on the findings of phase 1 of the study this part will focus on technical and economical aspects of livestock activities to be supported by the proposed programme. The focus will be on range rehabilitation measures (e.g. bush control), livestock herd composition, genetic improvement, local consumption and marketing of livestock.

   Attention will be paid to how the proposed activities can be promoted through an upgraded extension service.

T.O.R. for the study will be worked out jointly by DANIDA and MOLD, and the study will be undertaken by DANIDA consultants in collaboration with MOLD.

With the above ecological areas in mind the project should implement the following activities:

RANGE AND FODDER MANAGEMENT/REHABILITATION

- Establishment of demonstation plots in each Division to educate livestock owners on area specific fodder enhancement and range conservation techniques and extension to individual holdings.

- Establishment of grass and legume seed bulking and fodder tree nurseries on demonstration plots.

- Initiate range rehabilitation projects along river banks where permanent water is found and over grazing is worst.

- Extension of range management and fodder enhancement techniques to individual land holders.

- Initiate bush clearing and pasture establishment techniques in areas overgrown by bush.

LIVESTOCK PRODUCTION

- Establishment of cattle, goat and poultry multiplication centers to enhance genetic breed improvement in indigenous livestock.

- Initiate on farm/range tick born disease control innovations within reach of small holders.

- Construction of strategically placed crushes for vaccination to control epizootic diseases.

- Encouragement of private veteriary services and indigenous livestock disease control.

- Support for bee keeping and poultry production through the establishment of more honey and egg collection centres as well as improved hives and coops.

RANGE WATER

- Working closely with the relevant Ministeries, establish water points closer to homesteads/grazing areas.

- With the relevant Ministeries, siting and construction of small water points in the waterless grazing lands.

- See chapter 4.4.2. Water Development, for a detailed description of range and livestock water activities.

MARKETING

- Development and support of groups and cooperatives and development of marketing strategies by therm.

- District and national current price information through publications and radio broadcasts.

- Construction of sales yards near vaccination chruses and dips, and establishment of more honey, egg and poultry collection points.

- Nationwide contacts for sale of livestock to ranches, butcheries, feedlots etc.

TRAINING

- Initial training of MOLD T.A.'s and MOA T.A.'s in rangerehabilitation and management techniques.

- Feasibility study for the establishment of a pastoral training institute in Kitui District, specifically designed to cater to livestock and their owners.

4.5.5.3 Production targets

Activity areas are shown below. Precise targets will be worked out during the proposed Livestock activities preparation study for inclusion in the Final Plan of Operation.

Range water:

See section 4.5.2.

Range management:

wamatengo pits ha.
countour hedges kms.
cutoff drains kms.
demo plots ha.
farm plots ha,
fencing km.
terrace fodder kms.
fodder trees nos.
legumes planted ha.
tree nurseries
seed bulking ha.

Animal production

Breeding stock:

galla goats nos
boran bulls nos.
cockrells nos.
dips nos.
sprayers nos
chrushe/s/yards nos.

Bee keeping:

marketing points
improved hives

Poultry:

improved coops

Training:

Trainees:

livestock owners
M.O.L.D staff
women, bees & poultry

Land adjunction, ha

pretraining contacts
posttraining

INPUT REQUIREMENTS

a. Physical -

1. Office space

At the Divisional level DANIDA will provide office-facilities for MOLD ASAL-staff in Kyuso and Mutito. In each Division an office bloc consisting of 2 offices and a joint front-office plus storeroom will be provided and equipped by DANIDA. For training purpose the MOLD ASAL staff will share the ASAL meeting/seminarfacilities provided by DANIDA with MOWD and MCSS.

2. Vehicles, motorcycles

1 - 3 ton truck
5 - 4wheel drive short wheel base station wagons
2 - 4wheel drive long wheel base station wagons
30 - motorcycles

3. Hand tools, survey equipment, plows etc.

buildings materials
rental of heavy equipment

4. Grass and tree seeds and nursery supplies

5. Books and other training materials

6. Improved goat, cattle and poultry breeding stock

b. Manpower

1. Senior Range Management and livestock Expert (Kenyan)
(To be recruted and employed by DANIDA)

Responsibilities:

Overall management of the livestock component of the ASAL project.
(for job discription see Annex)

4.5.5.5 Project activities and plan of operation

The livestock development component will be divided into four major projects with several acticities some of which will differ, depending if they are in the high and medium potential areas or low potential/range areas (for plan of operation see annex).

Range management project.

Activities - high and medium potential areas: Central and Mwingi Divisions.

1. Fodder enhancement on terraces by planting grasses, fodder trees and shrubs.
2. Digging wamatengo pits on grazing areas, hillsides and in gullies for fodder tree planting and grass seeding.
3. Establishment of on farm fodder tree nurseries and grass and legume seed bulking.
4. Demonstration plots for range management activities.
5. Community awareness and participation, choosing livestock owners for training.

Activities - low potential areas: Northern, Eastern and Southern Divisions.

1. Fodder enhancement by cutting contour hedge rows on land with heavy brush and tree cover, but no grass, and subsequent controlled burning. This would be started on land settled by people, but uncleared, and along rivers with permanent water where the worst land degradation takes place.
2. Establishment of range management demonstration plots, fodder tree nurseries and seed bulking demonstration plots.
3. Identification of livestock owners for training, community awareness.
4. Extension of techniques to livestock owners.

Range water project.

Activities - high and medium potential areas - Central and Mwingi Divisions.

1. Site survey and identification
2. Ground water tank construction
3. Sand and sub-surfaces dam construction
4. Mini catchment construction

Activities - low potential areas - Northern, Eastern and Southern Divisions.

1. Site survey and identification
2. Sand and sub-surface dam construction
3. Shall well construction
4. Pan and slit pan construction

Animal production project - Northern, Eastern and Southern Divisions.

1. Genetic improvement - cattle, goats and poultry
2. Bee keeping
3. Disease control
4. Marketing

Training - all Divisions

1. Extension service to and probably training of livestock owners
2. MOLD staff training
3. Extension service support

4.5.5.6 Reporting, Monitoring and Evaluation

Reporting and monitoring will be the responsibility of the JTA's at locational level, through the Divisional TA's who will forward the reports to the Kitui ASAL MOLD Officer-in-charge, copies to the Senior Range Management and Livestock Expert on a regular basis. TA's will be given activity targets and expected to complete their assignmnets within a given period.

The MOLD District Team at the P.M.U will evaluate the report as compared with field visits.

This information will form the basis of the quaterly progressreports and the semi-annual reports to be submitted through P.M.U. to the P.S.C. copied to DANIDA.

The Programme component will be a part of a general bi-annual DANIDA review and an evaluate of phase I of the proposed Kitui ASAL Programme after 5 years.

Livestock Development tentative Plan of Operation

Division	Component Plan of Operating	Year 1	Year 2	Year 3	Year 4	Year 5
Kyuso	1. Range Management					
	2. Range water - site survey					
	a) implementation					
	3. Livestock production					
	4. Training					
	a) formal					
	b) t + v					
Mwingi	1. Range management					
	2. Range water site survey					
	a) implementation					
	3. Livestock production					
	4. Training					
	a) formal					
	b) t + v					
Central	1. Range management					
	2. Range water site survey					
	a) implementation					
	3. Livestock production					
	4. Training					
	a) formal					
	b) t + v					

Division	Component Plan of Operating	Year 1	Year 2	Year 3	Year 4	Year 5
Southern Mutomo	1. Range Management					
	2. Range water - site survey					
	a) implementation					
	3. Livestock production					
	4. Training					
	a) formal					
	b) t + v					
Eastern Mutito	1. Range management					
	2. Range water site survey					
	a) implementation					
	3. Livestock production					
	4. Training					
	a) formal					
	b) t + v					

4.5.6 Non-farm activities

4.5.6.1 Background

The great need for off-farm incomes is obvious from the extensive emigration from the district. There is a shortage of employment opportunities for men in particular. The ones already existing, such as farming activities, are of low remuneration compared to income from wage labour in Nairobi or Mombasa. Opportunity costs involved in leaving the family farm, considering the low productivity of theland, are therefore small.

4.5.6.2 Objectives and target groups

In order to lessen the adverse social consequences of urban migration, and to create the basis for a more cohnsive and sustainable economic development in the district, it would be desirable to create further employment opportunities through the promotion of income generating activities in the non-farm sector(s). The objective of this component will be to provide improved access to employment and self-employment as well as increasing incomes of the un- and under-employed sections of the population.

An important target group for income generating activities should thus be the under-employed men. However, female oriented activities of high remuneration which can compete with what women are already doing, should be encouraged. Thus, non-farm activites for women should only be promoted if income/profit can compete favourably with the present return on labour of women's activities, taking into account their already overburdened work schedule. A critical eye should be put on the promotion of low remunerative cottage industry activities for women with marketing outlets out of their control.

The female target group will primarily be women already organized in Mwethya and other (small) self-help groups.

The specific objectives of this component will be to promote non-farming activities in such areas as e.g. processing of agricultural and livestock products (such as honey production), manufacture of agricultural implements such as improved ploughs, ox carts and pumps for shallow wells. The component may also aim at promoting private entrepreneurship in areas such as construction of small water structures and protected, sanitary wells.

4.5.6.3 Categories of non-farming activities

Initially, the major categories of activities in the non-farm activites component of the programme will be:

- feasibility studies of specific project proposals identifed by PMU and subsequently, if found to be viable

- support for existing and new productive, income-generating activities in the form of advisory services, training and possibly credit and marketing support.

The proposed ASAL Programme will initially promote non-farm activities by providing DANIDA assistance in the following areas:

- financial assistance to feasibility studies

- short-term consultancies

- financial assistance to advisory and training services undertaken and arranged by PMU (Training and Mobilization Section).

During the first two years of the programme the feasibility studies of possible income generating activities incl. their economic viability and imployment opportunities shall be made. The programme shall engage local consultants to carry out the feasibility studies. The results of such studies should form the basis of a programme proposal to support income generating activities which may be in the form of skills training, credit and marketing support. If found to be feasible, such activites should be implemented from the third year of the programme period.

4.5.7 Mobilization and training

4.5.7.1 Objectives and target groups

The immediate objectives of mobilization and training (M&T) activities will be to support and strengthen existing forms of community organization, such as Mwethya and other groups, as well as Development Committees and leadership structures representing such groups, aimed at increasing their capacity to:

- identify projects/activities through which basic needs may be fulfilled and general living conditions improved
- plan, organize and carry out self-help activities and management
- be responsible for future maintenance and management of physical and organizational improvements achieved during the period of project support.

The long term objectives is to ensureimpact continuation and sustainability of project activitiesand outputs. M & T thus becomes a key support activity.

The target groups for M & T will include:

1. sub-locational and locational Development Committees (DC) and group committee members, chairmen, chiefs, sub-chiefs as the basic formal organization in developing community participation.
2. members of Mwethya and other (smaller) groups formed of farmers according to specific work/activity purposes. Most of the members will be women. Since the project aims at benefiting all households engaged in agriculture and livestock activities, all heads of households within a catchment area belong to the wider potential target groups to be reached through T & M efforts.
3. frontline staff of involved Ministries (trainers' raining) including MOCSS (Department of Social Services, Adult Education Department), MOA and MOLD.

All other categories of technical skills training/manpower development will be the responsibility of the respective line Ministries. (See 4.4.1 Institutional Development).

4.5.7.2 Categories of T & M

The major areas of T & M will be aimed at DCs, community leaders/representatives, Mwethya and smallerself-help groups, and relevant frontline andother government personnel. The categories of T & M are as follows:

1. T & M of DCs and Community leaders/representatives

This category of T & M includes orientation of sub-location and locational DCs, self-help group committees, in the objective and purpose of each project activity. This will cover planning and implementation of each specific activity. The activity will be carried out as the first point of contact/communication with a locality/catchment area. In the initial dialogue special attention will be given to issues of accountability of the Programme, in particular with regard to implementation of water projects (see 4.4.7.3) above. The specific content/curriculum of this T & M category should be flexible and may be related to area specific problems jointly identified with the DCs and community leaders. The TMS will have further identified the specific needs for and content of this type of T & M during the initial six months' mobilization period of the Programme.

2. T & M of Mwethya and other groups

Before commencing any programme activities, self-help groups will be informed about the specific activities of the Programme and the benefits and responsibilities involved in participating in project implementation on a group basis. The latter relates to maintenance and improvements of soil conservation and range rehabilitation measures, and to group responsibility for operation and maintenance (O&M) of water projects. At the completion of a water project, the self-help group will receive training in management and technical aspects of O & M. TMS, in collaboration with the SDAs of the MOCSS, should be flexible enough to take up ad hoc T & M sessions with groups who face organizational or other problems throughout the implementation cycle of each project activity.

Teachers from the Adult Education Department should be involved, to the extent possible, in giving project related functional education to organized self-help groups in topics like:

- group organization and management
- agro-forestry practices and nurseries (where applicable)
- O&M of water projects.

The TMS will undertake to develop simple functional educational materials and curricula in collaboration with local training officers and training institutes in relevant sectors. Experiences in other ASAL projects should be drawn upon in order to avoid a "reinvention of the wheel".

Health Technicians of the Department of Public Health should be involved in giving health and hygiene education (HHE) related to the kind of water usage appropriate to each category of water project.

The involvement of local groups in the timing of M & T is important. Considering the tight work schedule of most women farmers, there is a potential risk that they may feel overburdened by having to attend the numerous training calls. The ambitions laid down in the M & T activities therefore have to be adjusted to the activity calendar of women.

3. Orientation of frontline and other government personnel

The TMS will arrange internal orientation and training sessions for frontline, divisional and, if found necessary, also to district level government personnel in project objectives, implementation strategy and the need for community involvement. Such orientation will be aimed at improving their extension and communication efforts vis-a-vis the local pupulation, upgrade the staff of these services and sensitize them to the social issues involved in the project.

The Programme intends to give special attention initially to the orientation of the staff of the Department of Social Services (DSS) and Adult education of the MOCSS. In particular, the frontline staff of the DSS will, as outlined above, have a key role to play in T & M of self-help groups.

A more precise identification of training needs within the above-mentioned three categories, and a more detailed formulation of specific T & M activities to be carried out will be made at the time of preparation of the Plan of Operations for the envisaged five-year Programme and during the initial six months mobilization period of the Programme.

4.5.7.3 Input requirements

In addition to the manpower requirements presented and below, the TMS will require office facilities in Kitui and a 4-wheel drive vehicle. Training room and office facilities in the sub-centres in Kyuso, Mutito and Mutomo will be established. A building will have to be constructed in Kyuso, and Mutitio while one of the DANIDA staff houses in Mutomo will be takenover as office and training room facilities. Mobility of the PTCs and divisional SDAs will be ensured through the provision of motorbikes, possibly on a purchase/soft loan basis. The motorcycles will be allocated

to divisional and locational SDAs according to the geographical phasing of Programme activities and performance of SDAs.

Institutional

In order to carry out the envisaged training and mobilization activities a Training and Mobilization Section (TMS) will be established in the PMU. A Senior Training Officer/Adviser will head the TMS as a project employee. She/he will be responsible for developing project related training curricula and training methodologies and overallplanning and coordination of T & M activities in the district in close collaboration with other sections of the PMU and the implementing line Ministries. Terms of Reference for the Senior Training Officer are presented in Annex ... She/-he will liaise closely with the Department of Social Services DSS) of the MOCSS, who will second a senior district level officer at the district level to the Programme, to be responsible for the coordination of DSS staff at the divisional and locational level in connection with community level T & M activities.

The TMU will be represented at the Programme sub-centres in Kyuso, Mutito and Mutomo by Project Training Coordinators (PTCs) (recruited and employed by DANIDA), who will collaborate closely with the divisional and locational level staff of the implementing Ministries and inparticular with the officers (SDAs) of the DSS. The PTCs will also be directly involved in training of Mwethya or self-help groups in all aspects related to operation and maintenance of water projects.

Staffing (permanent)		Posting
- Senior Training Expert (Kenyan) (employed by the Project/DANIDA)	1	Kitui HQ
- Project Training Coordinators (PTC)	3	Kyuso/Mutomo/ Mutito
- Typist-cum-Office Assistants	4	Kitui/Kyuso/ Mutomo/Mutito
- Driver	1	Kitui

During the first two years of the Programme when T & M curricula, methodologies, manuals and other materials are being developed, the TMS will draw upon the assistance and inputs from local, short-term consultants with experience in the field of communication and training. In addition DANIDA may send short-term consultants if found required by PMU.

The institutional set-up ontlined above will initially be in operation for 3 years whereafter the internalization of T & M procedures then established into existing Kenyan institutions will be considered. The 3 years will thus serve as a demonstration period.

Field level

The frontline officers of the DSS at divisional and locational level will, according to the nature of their work, be involved in direct communication with the self-help groups, their leaders, chiefs and sub-chiefs. They will be responsible for arranging barazas at the initiation of programme activities within a catchment area, or directly linked to a particular water project.

A clear division of responsibilities between PTCs and DSDAs/SDAs (MOCSS), has to be established as well as clearly defined lines of direct collaboration. The PTCs will be responsible for involving the locational DDCs and self-help group committees directly in the monitoring of water projects during all stages of implementation, in order to ensure that the Programme is made accountable to the community/group in terms of timely delivery of quality structures according to plans, designs and above all, promises made to the beneficiary groups.

4.5.7.4 Training and communication materials

The main thrust of the training and mobilization activities shall be made through verbal and inter-personal communication. Printed communication materials (e.g. printed pamphlets, flipcharts and posters with pictorials and text), and audio-suals, shall be used as reinforcements of the messages communicated verbally when found appropriate. In relation to farmers and groups, it is important to bear in mind the present high illiteracy rateand accordingly develop appropriate communication materialsand techniques. This consideration is also valid in relation to the communication between the agricultural extensionservices and the farmers.

Local consultants and relevant training institutes in Kenya shall be involved in producing communication materials on topics/themes related to specific ASAL Programme activities.

The TMS will be responsible for organizing the production of training and communication materials covering printed and possibly audio-visual material. In the preparation of the material the area-specific environmental conditions and socio-cultural and agricultural practices must be taken well into account. Existing materials prepared by the Soil and Water Conservation branch of the MOA must be reviewed before embarking on production of new material.

Material aimed at individual farmers and groups must be based on established and field tested communication techniques for illiterate rural populations. The project should draw upon experiences in other ASAL programmes and in rural development programmes elsewhere in Kenya, before embarking on the development and production of new materials.

The Programme shall also consider to develop communication material to be used by the extension workers of the MOA and MOLD. The material shall reflect the high priority given to simple communication techniques to facilitate easy dissemination and adoption of technical extension messages.

A number of training and extension manuals in the form of handbooks or brief guidelines (e.g. in the form of a handout) on specific activities and topics, shall be produced in close collaboration with the concerned technical departments.

Manuals and guidelines will e.g. contain messages on soil and moisture conservation, crop husbandry, range and management rehabilitation and management, and water conservation, aimed at two different layers of target groups:

1. frontline extension workers (TAs), Adult Education Teachers and SDAs of the MOCSS

2. individual farmers and self-help groups, community elders and assistant chiefs.

The material will include manuals/guidelines for, e.g.:

- group operation and maintenance of water structures
- environmental hygiene and sanitation of water supplies
- maintenance and improvement of soil and moisture conservation on agricultural and rangelands
- environmental stabilization through agro-forestry and range rehabilitation
- suggested models for group organization; management and accounting procedures related to income generation activities.

The A.M. envisages a two year period of the Programme for the preparation of the various T&M curricula, ethodologies, manuals and other materials as the foundation for the T & M strategy of the Programme. This will have to be developed as experiences are gained through initial T&M experiences from the field level and as experiences in T&M methodologies from other ASAL Programmes are gathered.

4.5.7.5 Health and hygiene education

Water related health and hygiene education and environmental sanitation should be introduced in connection with water supply and water conservation activities. However, training and promotion of better hygiene and sanitation shall be planned only after a review of the ongoing activities implemented by the Public Health Department with assistance from UNICEF and SIDA. UNICEF is presently assisting a "Child Survival and Development Programme" covering, e.g. water supply/conservation, latrine construction and health educa-

tion in two divisions in the district. SIDA supports an integrated environmental health and sanitation project in two locations involving different Ministries in the implementation.

The proposed ASAL Programme shall avoid starting activities which will duplicate ones already started by UNICEF which will only cause confusion to the communities and groups addressed.

However, the A.M. is convinced about the need and scope for promoting improved sanitation and hygiene as part of theoverall training and communication strategy, e.g. throughbarazas, functional literacy classes of the Adult Education Department, and through the moredirect interventions of the locational Public HealthTechnicians of the Public Health Department.

4.5.7.6 Targets and indicators

Quantitative targets within the three categories of T & M cannot be precisely arrived at in the A.M. report. The pace of T & M will have to be mutually integrated with the progress and implementation cycle of other programme components. There will be specific T & M activities before, during and after physical implementation of aparticular activity Self-help activities, and their pace and progress will, to a very large extent, be dependent on the obilization of the community, whereas proper operation and maintenance of water projects will also depend on whether self-help groups have been adequately trained. Aspecific sequence of Categories 1 and 2 of T & M activities will therefore have to be worked out in the Programme Plan of Operation in conjunction with the planning of phasing and targets within other activities. Indicators of achievements of Categories 1 and 2 of T & M will include:

- level of community participation within a defined catchment area; i.e. numbers of families joining self-help activities and number of families not joining.
- degree, quality and tempo of self-help activity within each project component; i.e. soil conservation, range rehabilitation, water conservation.
- number/percentage of self-help group members participating in each working day
- level of activity of the self-help group after with drawal of programme support
- functioning of the operation and maintenance of water projects under the management of self-help groups.

Overall targets of all T & M Categories will be determined when preparing the Programme Plan of Operations, and in

detail during the initial six months' mobilization period of the five-year Programme.

4.5.7.7 Draft Plan of Operations for Training and Mobilization

Activity	Year 1	Year 2	Year 3	Year 4	Year 5
1. Establishment of MTS incl. recruitment and staff training	——				
2. Mobilization period	———				
- Identification of training needs and formation of specific T&M activities	———				
- orientation of frontline government staff	——	———			
3. Development of Tand Methodologies and materials	----	———	———		
4. Tand of DC's and community leaders	---	———	———	———	———
5. Tand M of Mwetnya and other groups	---	———	———	———	———
6. Reviews	—	—	—	—	
7. Evaluation					——

4.5.8 Survey and Monitoring

4.5.8.1 Objectives

The major objectives of the survey and monitoring activities (S & M) in the Programme will be to:

- develop a system for recurrent progress monitoring and socio-economic impact monitoring of the ASAL Programme activities
- carry out quick socio-demographic inventories of each new catchment area before implementation of other programme activities and, as the initial activity within the entire project cycle of activities, in order to prepare communities for there active participation in programme activities.
- aim at establishing a permanent ASAL monitoring unit as part of the ASAL management unit which will continue to function even after donor assistance to the ASAL Programmes terminated.

The target groups for S & M will be: 1) selected sample populations within defined geographical areas before, during and after project implementation and 2) the P.M.U. and various departmental ASAL sections receiving and acting on S & M report being submitted by the S & M section.

4.5.8.2 Categories of Survey and Monitoring

The following activity categories with S & M will be undertaken:

- a socio-economic baseline survey in selected socio-ecological zones representative of the district,
- to supplement the baseline survey by supplying information on land utilization and vegetation cover through the analysis of satellite photos.
- based on the survey, develop indicators for socio-economic impact monitoring,
- carry out recurrent impact monitoring of selected project activities,
- assist in establishing a simple system for progress monitoring of physical/quantitative achievements within water, agriculture and livestock development activities,
- based on the monitoring data generated, assist in producing quarterly progress reports for the ASAL Programme in collaboration with the accountable officer in the line Ministries,

- to carry out quick socio-demographic inventories of each new catchment area in conjunction with other more technical inventories within water, agriculture and livestock, as a basis for the planning of project activities; if required, to be supplemented by data on land utilization and vegetation cover from aerial or satellite photos,

- in year 5 of the Programme, undertake a socio-economic impact study assessing the overall impact of the Programme at the household/farm and community level.

Socio-economic Baseline Survey

The purpose of the survey is twofold:

- to establish a data base (i.e. pre-project situation) against which the progress and impact of the proposed ASAL Programme towards achieving its overall objectives can be measured,

- through the situational analysis of selected areas in the district, provide the project with information which will enable them to better plan activities according to the needs of the target population and to ensure their participation in all aspects of the project implementation cycle.

The survey will include data and information on the socio-economic, community organization and ecological conditions for development. The baseline data shall be of relevance to the overall project objectives and specific activities of each project component. The survey shall be carried out in selected areas, (single catchment areas where such are clearly defined) representative of the different socio-ecological zones of the district. One such area in each of the four district major agro-ecological zones within Mutomo, Kyuso, Mutito and Central Division will be selected.

The time frame of the study will be one year covering the following activities:

- design and pretesting of the baseline survey methodology
- data collection
- data processing
- data analysis
- report writing.

When designing the baseline study, close collaboration with each implementing department shall be ensured in order to incorporate all necessary data required for planning and impact monitoring purposes. Major relevant household/farm level data will include:

- land holding including different land categories
- soil conservation measures
- pattern of crop and on-farm animal husbandry practices
- livestock holding and grazing/browsing practices
- marketing of agricultural and livestock produce
- water availability and usage pattern for humans and livestock
- household labour allocation in sectors
- time utilization calendar of productive household members
- off-farm sources of income.

When designing the baseline study, experiences made by SIDA/MOA in establishing a methodology for documentation of socio-economic aspects in soil conservation shall be drawn upon. The experienses should also be drawn upon when developing socio-economic indicators for impact monitoring (ref. "Impact Monitoring" below).

The final reports from the four areas surveyed shall include e.g.:

- a socio-economic area description with an identification of key development constraints (situational analysis),

- profiles of various categories of rural households,

- an identification of socio-economic indicators for impact monitoring within each of the activity sectors of the ASAL Programme: viz. soil conservation, improved agricultural practices, range rehabilitation/management, water harvesting/supply.

Impact monitoring

Based on the socio-economic indicators developed as part of the baseline survey, recurrent impact monitoring in the form of sectoral impact studies of the results from specific activities e.g., like:

- performance of groups in the operation and maintenance of water projects,

- performance of self-help groups in soil conservation measures,

- performance of individual livestock holders in rehabilitation of rangelands and possible subsequent changes in livestock keeping patterns,

- the overall impact of a completed sub-catchment programme (in the higher potnential areas), i.e. within soil

conservation, water harvesting and improved agricultural practices,

- performance of MOA/MOLD extension staff after having received training.

Impact studies will ascertain whether any significant changes have taken place along the lines envisaged in the planned physical outputs, as envisaged in the immediate objectives of the project. Indicators to be applied in this category of monitoring shall be developed by SMS based on the baseline survey data and in consultation with the implementing departments. In addition impact monitoring studies should clarify whether changes - positive or negative - can be ascribed to one or several factors, some of which may not have been envisaged at the time of project design.

The methodology for the monitoring studies will consequently include problem identification, development of impact-indicators, data collection, analysis and recommendations forcorrective activities to be taken by the Programme. Monitoring studies will be participatory in nature, ensuring that a community dialouge is established whereby the beneficiary population will be enconuraged to express their views on problems, results from and satisfaction/dissatisfaction with programme activities. Suggestions for improvements (organigational or technical) will be elicited from the target group beneficiaries.

The SMS will, (in collaboration with each implementing department), suggest studies to be undertaken. The final decision to carry out a study will be made by the PMU and the Steering Committee.

Yearly implementation plans, indicating number, type and duration of impact studies will be prepared by the SMS to be included in the overall implementation plans of the Programme.

The sum of a number of impact studies within each project activity becomes an ongoing internal evaluation of the entire ASAL Programme. Results from the impact studies are intended to benefit the project management by allowing for an assessment of the appropriateness of specific activities and, if found necessary by the project management, reconsider and redesign activities.

Progress Monitoring

Involvement of the Survey and Monitoring Section (SMS), in recurrent monitoring of the physical progress in various technical components will be based on a method of self-monitoring, whereby each implementing department collects and processes its own data which are passed on to the S and M section for compilation in the quarterly progress reports. Wherever possible, data will be collected by departmental staff (e.g. TAs and TOs). The SMS will according to capacity, support data collection in the field.

Indicators for progress monitoring will be established during the first three months of the Programme, taking into account already established systems of progress reporting in the implementing Ministries. During the subsequent three months the practical formulas and procedures for the progress monitoring system will be worked out and officers in the respective departments will be trained in simple data collection and reporting procedures. Experience gained by the Monitoring and Evaluation Unit in the SWCD of the MOA should be drawn upon in this connection in order to avoid a "reinvention of the wheel".

Inventories of Catchment areas

As a pre-implementation activity, quick socio-demographic inventories of each new catchment area will be done in order to be able to plan and carry out community participation and training activities. The socio-demographie inventory will include an inventory of existing community organization and leadership structures. The inventories will therefore become the programmes initial point of communication/liaison with the beneficary communities. Inventories thereby become participatory and communities are ensured early orientation and information about programme actiorties, benefits and the need for their own involvement.

These inventories will be carried out as a regular activity of the phased implementation cycle. They will be supplemented by the more technical inventories within the areas of water, agriculture and livestock. The principle of phasing of activities within the project cycle will be as follows:

Project implementation cycle; phasing of S & M activities:

1	2	3	4	5	6
Socio-economic baseline survey of Catchments	Inventories of development areas	Mobilization of programme management committees & self-help groups	Implementation maintenance activities	Operation of socio-economic monitoring of physical achievements (water, soil conservation)	Study economic impact the Programme (year 5)
	Inventory of existing community organisation and leadership structures as the initial point of community contact.				
	Socio-demographic inventory	Identification & siting of water project(s) & appropriate soil conservation & range rehabilitation measures	Extension & training of self-help groups/ farmers	Continued extension & training of self-help groups/ farmers	
	Land use pattern		Self-help labour campaigns	Range rehabilitation management	
	Potential and need for water harvesting and supply	Training of self-help groups/ farmers	Demonstrations, trials	Impact monitoring of selected activities	
	Need/potential for soil conservation & range rehabilitation	Progress monitoring	Progress monitoting Impact monitoring		

4.5.8.3 Targets and indicators

The ultimate target of survey and monitoring activities is to contribute with qualitative inputs to the planning, strategy formulation and self-evaluation capacity of the Programme. The specific targets of this component during the 5-year Programme period will be to complete a socio-economic baseline survey (year 1), make recurrent inventories of catchment areas (from year 1 to 5), carry out impact monitoring of specific programme activities (from years 2 to 5), establis a physical progress monitoring system for all programme activities (during year 1) and undertake recurrent monitoring (from second half of year 1 to year 5), carry out an impact assessment study of the overall

socio-economic impact of the Programme as a follow-up of the baseline survey (year 5).

Indicators of achievements will be a submission of the following reports:

- socio-economic baseline report (1 main report and area reports)
- reports on inventories of catchment areas
- reports on impact monitoring of specific programme activities with recommendations (approx. 3 reports yearly)
- programme quarterly progress reports containing physical progress monitoring data from each programme component (4 reports yearly)
- report on the socio-economic assessment of the overall impact of the programme, with recommendations (year 5).

All reports will be discussed in the PMU, the ASAL Programme Steering Committee and the DDC and decisions made as to which action should be taken, based on the recommendations presented in the impact monitoring reports.

4.5.8.4 Input requirements

Institutional and Manpower

A Survey and Monitoring Section (SMS) will be established under the PMU. It is recommended that a Kenyan S & M Officer be posted to the SMS on secondment basis (from the MOPND). He will be assisted by a DANIDA Survey & Monitoring Adviser. In addition, the SMS will be staffed by three S & M Assistants to be located in Kyuso, Mutito and Mutomo.

Local (Kenyan) consultants will be engaged in connection with the initial baseline survey, sectoral monitoring studies and the final socio-economic impact study (see section 4.5.8.3).

The staffing requirements will be as follows:

SMS Staff Category		Posting
Survey & Monitoring Officer (seconded by MOPND)	(1)	Kitui HQ
DANIDA Survey & Monitoring Adviser	(1)	Kitui HQ
Survey & Monitoring Assistants (recruited by the Project; paid by DANIDA)	(3)	Kyuso/Mutomo/ Mutito
Computer Operator	(1)	Kitui HQ
Typist-cum-Office Assistant	(1)	Kitui HQ

Typist-cum-Office assistants	(3)	Kyuso/Mutomo/ Mutito
Driver (employed by DANIDA)	(1)	Kitui HQ

Physical

Office facilities for the SMS will be established at Kitui Headquarters and at the Divisional level in Kyuso, Mutito and Mutomo.

In Mutomo office facilities are already available. A computer (PC) with accessories and a Xerox machine will be installed in the Kitui office. Typing facilities will be available in all 3 SMS divisional offices.

Transportation will be provided in the form of one 4-wheel drive vehicle for the Kitui office and one motorcycle for each of the divisonal offices. An additional pool of 4 motorcycles will be kept for use during periods when consultants are active in data collection activities.

4.5.8.5 Draft Plan of Operation for Survey and Monitoring

Activity	Year 1	Year 2	Year 3	Year 4	Year 5
1. Establishment of SMS incl. staff recruitment & training					
2. Baseline survey + report	———				
3. Impact monitoring of sectoral activities:		———	———	———	———
- developing monitoring indicators/ methodology		----------	----------	----------	----------
- data collection & report writing			----------	----------	----------
4. Progress monitoring	———	———	———	———	———
- developing monitoring indicators/ methodology	——				
- monitoring/ reporting		xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx			
- progress reporting					
5. Catchment area inventories + reports	———	———	———	———	———
6. Overall impact study + report.					———

4.5.9 Forestry Activities.

Forestry activities was not included in the proposal and T.O.R. prepared by the preappraisal mission. However, during the touring of the District and discussion with G.O.K. Officials it became clear that there is a need to consider the inclusion of a forestry component in the Kitui ASAL-programme. This component would include hill top afforestation as well as generel agroforestry practises.

The A.M. therefore recommends that an appraisal of the need to include forestry component be undertaken in accordance with the Terms of Reference given in Annex 8.

The overall objective of the mission is to appraise forestry activities in the proposed Kitui ASAL Programme.

The range of activities have preliminarily been identified as follows:

1. Afforestation and conservation measures within the catchment areas of the perennial springs in the District with the aim of conserving these very important water resources,

2. Support to existing and possibly additional (decentralized) nurseries, incl. operation and management of nurseries,

3. Seedling distribution of various tree species as part of agro-forestry and environmental conservation practises.

4. Extension activities to support the activities mentioned above.

The active role of MOENR and MOA (incl. its extension services) as well as peoples participation will be necessary to ensure successful implementation and sustainability of efforts.

The recommendations presented by the mission shall, after being commented upon by Danida and GOK, be utilized as an input in connection with the preparation of a detailed Plan of Operation for the proposed Kitui ASAL Programme to be prepared in January 1989. And cost of the proposed activities will be incorporated in the Danida and GOK contributions to the project.

4.6 Framework for Programme Implementation

4.6.1 Organization and Management

An overview of the Institutional set-up of the proposed Kitui ASAL Programme is given in Fig.4.6.1 below.

The Ministry of Planning and National Development will be responsible for the overall planning, coordination and monitoring of the proposed Kitui ASAL Programme.

Implementation will take place through the Line Ministries of Water Development, Agriculture and Livestock Development.

Other Ministries such as Culture and Social Services, Ministry of Health and Office of the President, will provide support services at the Divisional, Locational and Sub-locational levels in areas such as community participation, adult education and health and hygiene education.

At the National Level, a special Sub-committee of the Inter-ministerial Coordination Committee (ICC) shall be established. This Committee is responsible for overall coordination at the Central Level. It will ensure that planned Kitui ASAL activities are included in the Forward Budgets and Development Estimates under the relevant Heads and Items of the involved Ministries. Moreover, the ICM will ensure that qualified Kenyan Officers are posted to the ASAL Sections of their respective District establishments.

The ICC Sub-committee will meet at least semi-annually to discuss Programme Progress Reports produced by the PMU. (see below).

At the District Level the planning, coordination, project auditing and monitoring function will be performed by the Programme Management Unit (PMU) under the District Planning Unit, headed by a Senior Planning Officer as ASAL Programme Officer, assisted by a DANIDA Senior ASAL Programme Planning Adviser and a DANIDA Senior Adviser for the SM Section of the PMU.

In addition, the M&T Section of PMU will be responsible for the mobilization and training activities (see 4.5.7). (See PMU Organizational Chart fig.4.6.2).

The implementation of the various sectoral components of water development, agricultural development and livestock development will be the responsibility of the respective District Heads of the Line Ministries. They will delegate day-to-day responsibility to an ASAL Section of their District establishment, to be headed by a Senior Professional Kenya Officer either in an established position or on secondment. The Senior ASAL Water Engineer will be assisted by a DANIDA Water Engineer Adviser in all aspects of planning, siting, design and implementation of ASAL Water Projects.

Whereas sectoral planning, design and preparation of work programmes and budgets will be done at the district level, the supervision of physical project activities, such as soil conservation, range habitation and construction of water structures will be the responsibility of the Divisional Officers of the Line Ministries.

MOA have well established Divisional facilities, but it will be necessary to provide support in the form of office facilities, stores and guest houses in order to strengthen the implementation capacities of MOLD and MOWD in the new programme priority areas i.e. Kyuso and Mutito.

MOALD and MOWD will undertake to staff the Divisional Headquarters with qualified staff (see 4.4.2 and 4.4.5).

The identification of project ideas, and the priority setting takes place through Sub-DDCs at the Sub-locational, locational and divisional levels in accordance with District Focus for Rural Development.

The actual implementation, as well as the operation and maintenance of the projects will be the responsibility of community based project committees/self-help groups.

A Sub-committee of the DDC shall be established as the Programme Steering Committee (PSC). Chaired by the DC and with the ASAL Programme Officer, assisted by the DANIDA Senior ASAL Programme Planning Adviser, the PSC will approve annual, semi-annual and quarterly work programmes and budgets. Similarly, it will review progress reports prepared quarterly by PMU, in collaboration with ASAL officers of Line Ministries.

4.6.2 Disbursement procedures

While construction of new office facilities in Kitui, Kyuso and Mutito, as well as procurement of programme transport and other equipment will be undertaken by DANIDA, along with special services in the form of consultancies and related services such as DANIDA employed programme staff, the majority of funds for operation of the proposed programme will be voted through the respective budgets of the implementing Ministries, in accordance with District Focus Budget Cycle Procedures. Thus District Heads will be AIE holders.

DANIDA Funds for the Programme will be disbursed to a special Kitui ASAL account with the Paymaster General, in the form of Appropriations-in-Aid (A-in-A) on a quarterly basis. The quarterly payments into this account will be conditional upon the receipt of quarterly programme progress reports, with proper accounts, and quarterly activity programmes, workplans and budgets prepared by the PMU, in collaboration with Line Ministries and approved by the PSC.

As a precondition for DANIDA assistance to the proposed Kitui ASAL Programme, Treasury will ensure that the Kitui District Treasury Imprest of Shs.2.3 mill. presently replenished on a weekly basis, will be significantly increased in order to accommodate the increased District Float at the Kitui District Treasury, caused by the increase in activity level due to the proposed Kitui ASAL Programme.

Based upon the 1988 price level and the proposed expenditure level of the Kitui ASAL Programme, the A.M. recommends that the District Float be increased by 50 per cent as per financial year 1989/90.

4.6.3 Financial Management

The District Heads of the involved Ministries are, as AIE holders, accountable officers as far as implementation of the various programme components are concerned.

However, the Head of PMU is the overall responsible officer for the ASAL Programme. In order to ensure proper financial management, all documents involved in the procurement of services and materials such as tender documents, LPOs, LSOs and payment vouchers, will be countersigned by the ASAL Programme Officer and by the DANIDA Senior Programme Planning Adviser.

In addition, the management of the PMU will undertake proper project auditing in collaboration with the District Internal Auditor, in order to ensure that proper financial management and project implementation has taken place, i.e. that project quality standards are achieved.

Whenever found necessary the PMU will employ qualified consultants to undertake independant project auditing.

The physical inspection and project auditing will be undertaken by PMU and the District Internal Auditor in order to check materials flow, construction progress and quality of work. The Completion certificates will be countersigned by PMU.

Quarterly project audit reports will be prepared by PMU and submitted to the DDC through the PSC and the District Monitoring and Evaluation Committee with copy to DANIDA.

Fig. 4.6.1
Administrative Level

Organizational Chart

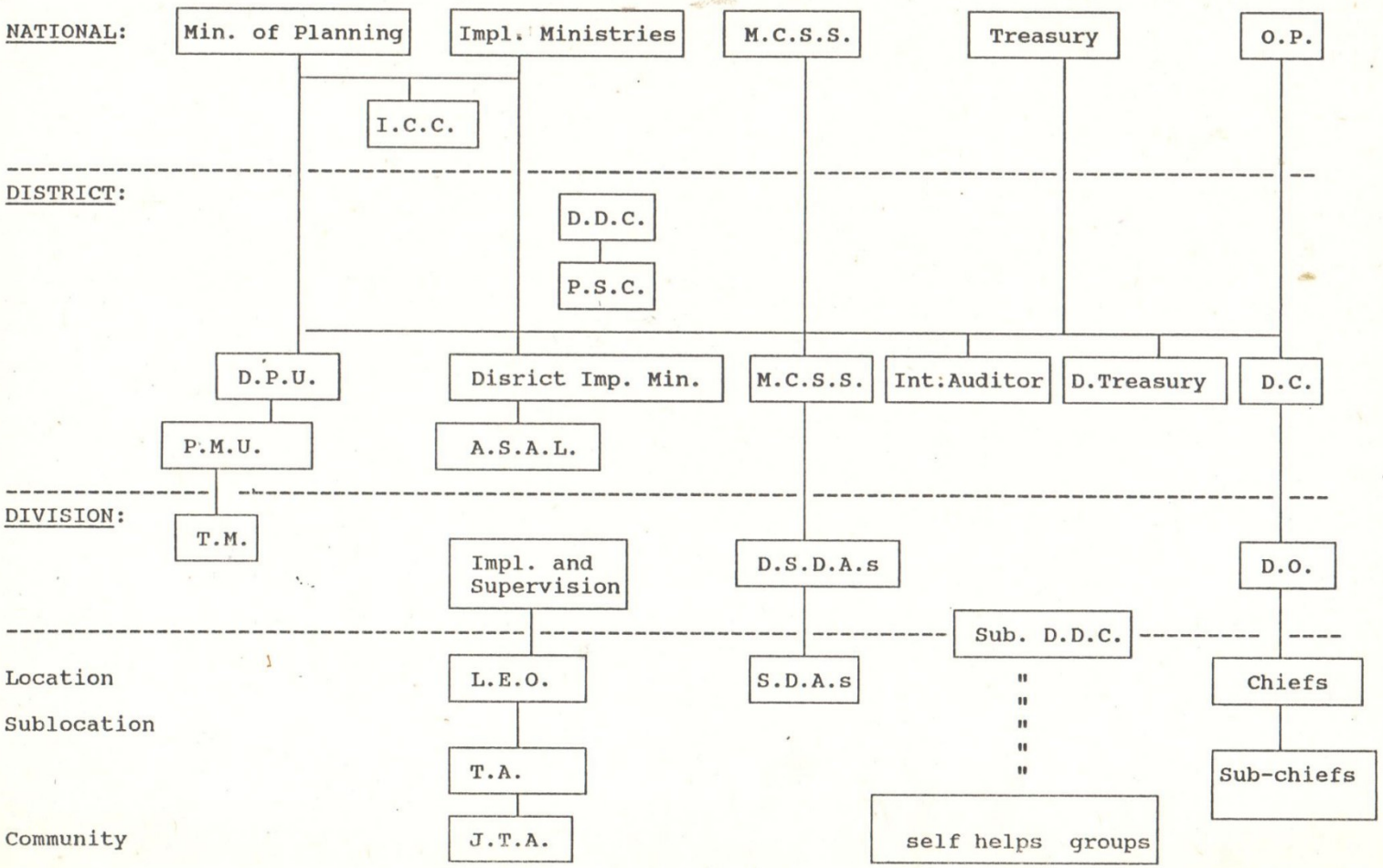
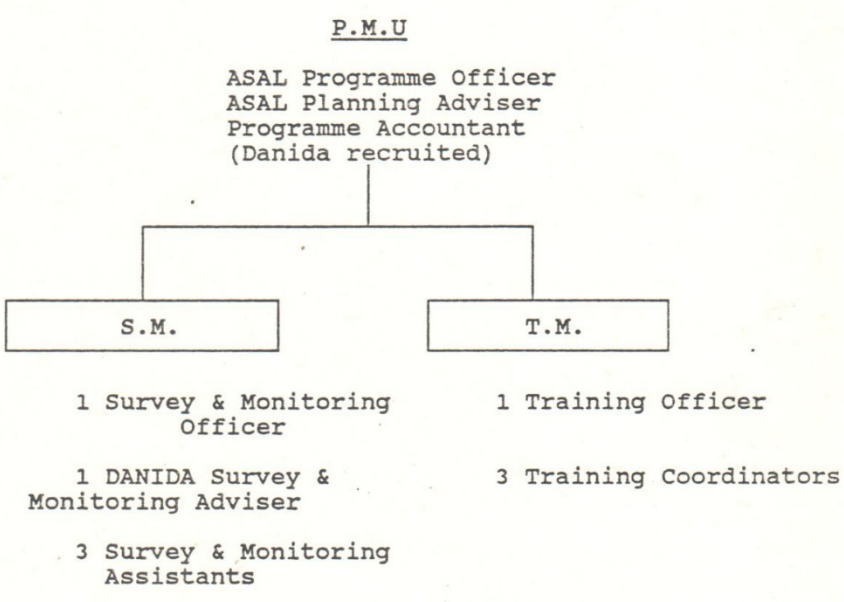


Fig. 4.6.2

PMU ORGANIZATIONAL CHART



4.7 Programme Plan of Operation and Budget.

According to T.O.R. the A.M. is expected to prepare an outline plan of operation and a rough budget estimate.

A final detailed budget will be prepared along with a final Plan of operation after project agreement has been signed between the G.O.K. and G.O.D. Consequently, we here concentrate on activities to be initiated uptill June 89.

In the outline plan of operation a distingtion is made between the following activities:

. Activities to be undertaken in the Danida assisted Mutomo Project in order to prepare for the gradual termination of this project and transfer its assets to the proposed new Danida programme. This will include the following:

- The transfer of office facilities, staff houses, equipment and transportequipment to the new DANIDA Kitui ASAL Programme. (First quarter of 1989).

- The transfer of the vehiclerepair workshop to the new DANIDA KITUI ASAL PROGRAMME HQ in Kitui Town, New building to be constructed. (Second quarter 1989).

- The gradual transfer of the handpump production unit to either Y.P.'s or private institution. (Second quarter 1989)

- The transfer of personnel i.e. project employees to the new DANIDA Kitui ASAL Programme to the extent found appropriate. (End of second quarter 1989).

- DANIDA pilot project in Mutomo to provide advisory assistance to waterstructure construction teams wanting to form cooperative/private construction companies (third quarter 1988).

- The gradual development of the Livestock Development activities in accordance with recommendations as outlined in chapter 4.5.5. (third quarter 1988).

- The gradual development and introduction of the T. & M. concept as outlined in chapter 4.5.7. (third quarter 1988 untill expiry of project).

- The termination of the contracts of the DANIDA Mutomo advisers. (as per contract with DANIDA).

- The Mutomo Sociologist shall undertake impact monitoring related to programme activities in accordance with the impact monitoring methodology outlined in chapter 4.5.8. (third quarter 1988 untill expire of project).

Activities to be undertaken by DANIDA to prepare for Kitui ASAL.

- Finalize inventory of existing waterstructures in the District and prepare proposal for rehabilitation based upon an evaluation of technical and economical viability. (By end January 1989).

- Finalize DANIDA Study on membership and organization of Local Self-Help Groups involved in Soil and Water Conservation in Kitui District. (By end August 1988).

  Appraisal of the need for Forestry activities and prepare proposal for Forestry component to be included in programme plan of operation. (By end September 1988).

- Livestock preparation study (in collaboration with MOLD).

- Decision by DANIDA Board on Kitui ASAL programme proposals. (By end Nov. 1988).

- Advertise DANIDA adviser positions pending Government Agreement (by end Nov. 1988).

- Preparation of Kitui ASAL Programme agreement to be signed by G.O.K. and G.O.D. (By end Dec. 1988).

- Prepare detailed plan of operation and final budget. (3 weeks during Jan.-Febr. 1989).

- Advertise positions of DANIDA employed programme employees i.e. Senior Training Officer and Senior Livestock Officer and support staff. (By end Jan. 1989).

- Hire consultant for design of offices, stores and guesthouses in Kitui, Kyuso and Mutito. (Jan. 1989).

- Hire contractor to construct same. (Febr. 1989).

- Initiate procurement of project transport equipment and other equipment involving more than 3 month delivery time. (Jan. 1989).

. Activities to be undertaken by the G.O.K.

- Transfer of office facilities, staffhouses in Kitui to the proposed DANIDA Kitui ASAL programme. (Second quarter of 1989).

- The filling og the vacant positions in the district establishment as outlined in chapters 4.5.1-4.5.8 above.

  This includes the staff for P.M.U., Ministry of Water Development, Ministry of Agriculture, Ministry of Livestock Development, Forestry Dept., as well as District Treasury.

  In the view of the A.M. the programme can not be successfully implemented unless these officers are deployed to the District during the second half of 1988/89 in preparation for the programme to start in 1989/90 financial year.

- The secondment of senior officers as Heads to the PMU and the ASAL sections of MOWD, MOA and MOLD. (Second quarter 1989).

- The inclusion of the proposed Kitui ASAL programme in the G.O.K. Foreward Budget, and the 1989/90 Printed Estimate. (As per budgetting procedures).

- The opening of a special DANIDA Kitui ASAL account with the Paymaster General. (After signing of project agreement).

- The initiation of activities leading to an increase in the Kitui District Cash Fund. (As per budgetting procedures).

- The formation of the various committies as outlined in chapter 4.6 i.e. I.C.C. and PSC. (Second quarter 1989).

When the Kitui ASAL PROGRAMME Agreement has been signed by G.O.K. and G.O.D. a DANIDA mission will undertake to prepare a final plan of operation in cooperation with the relevant District Authorities in Kitui District.

The A.M. recommends that the senior Rural Development Planner identified by DANIDA for the position as Senior Rural Development Planning Adviser be included in the planning mission.

The plan of operation will take its point of departure in the objectives, principles and preliminary plans of operation for various sectors as outlined in chapters 4.5.1-4.5.8 above as well as in the following guidelines:

- continue existing activities in Mutomo at reduced level

- gradual phased implementation of programme components according to Division Specific priority areas in accordance with a catchment area approach as follows:

Division:	1. Priority	2. Priority	3. Priority
Central	Soil conserv. impr. agr. practices	range rehab. genetic impr. planning of water	water component
Kyuso	water compo nent	preparation of livestock component	implemen tation of component
Mutitu rangeland	water compo nent	preparation of livestock component	implemen tation of component
inselbergs	water compo nent	hill top afforestation	soil conser vation
Mutomo	preparation of livestock	implementation of livestock	implemen tation of livestock
Mwingi	soil conser vation	range rehabil itation	water com ponent

*) This prioritization may be revised subject to the recommendations of the Livestock activities preparation study and the appraisal of forestry activities.

BUDGET

Based upon a draft framework Plan of Operation of the various project components, the following tentative budget emerges. Please note that an additional budget for forestry activities may be added after the appraisal of the proposal to include these activities.

The budget is based upon the office, questhouse and equipment specifications given in Appendix 6.

It should be emphasized that this budget does not include the G.O.K. contribution - in terms of salaries etc. of personnel and the related recurent cost. The G.O.K. contribution should, however, be included in the final budget.

DANIDA CONTRIBUTION

The A.M. recommend that DANIDA contributes the following resources to the proposed Kitui ASAL Programme over a five-year period:

	mill.Dkr.
Plant and Equipment:	19.0
Funds for operation in the form of A-in A:	62.2
Total grant (A-in-A)	81.2

In addition, and financed outside the country programme DANIDA will provide 3 TAPs as follows:

1 Senior Programme Planning Adviser

1 Socio-econoc Adviser for the Survey and Monitoring Section of PMU

1 Senior Water Engineer Adviser.

4.8 PROGRAMME REPORTING, MONITORING AND EVALUATION.

A special survey, Monitoring and Evaluation section will be established in order to monitor the various programme activities and to assess the overall impact of the programme towards achieving the objectives. (See chapter 4.5.8).

The S.M. section of P.M.U. will produce impact monitoring and survey reports as well as quarterly and annual progress reports.

According to DANIDA practice the proposed Kitui-ASAL Programme will be reviewed every year.

After the first phase of 5 years a DANIDA evaluation will be undertaken - based upon among other things a thorough impact study of the programme.

5. PROJECT ANALYSIS

5.1. Technical Analysis

5.1.1. Water Development and Conservation

5.1.1.1. Setting of Target

Based on the huge amount of information collected during the Water Resource Study within the phase I (1979-83) of the Kitui ASAL Project, the total yearly rural water demand for domestic and livestock purpose in 1982 may be estimated to approximately 20,000 m^3/day (see Table 5.1.1.1). As the actual supply was approximately 8900 m^3/day, only 45% of the demand was covered through engineered sources. The deficiency was of course partly covered by forced lowering of the water consumption partly by utilisation of traditional sources like hand-dug pits in river-beds. Large differences were found within the District. Thus Kyuso Division was found to have a coverage as low as 27% implying long walking distances for the consumers. The total unmet 1982 demand for the whole District was approximately 11,000 m^3/day. Based on a evalution of the implementation achievements during the Phase II (1984-87) of the Kitui ASAL project as well as during the Mutomo Soil and Water Conservation Programme financed by DANIDA (1982-88) it may be estimated that the actual 1988 - supply for the whole Dsitrict has been increased to approximately 10,800 m^3/day (See Table 5.1.1.2). The total 1988 water demand may be estimated to 24,500 m^3/day taking into consideration a 3.3% yearly increase in population and livestock. Thus, even though an additional supply capacity of approximately 1900 m^3/day has been introduced in the period 1982-88, nevertheless the average coverage has decreased to 44%. This is due to the fact that the increase in demand in the same period amounts to 4500 m^3/day and hereby exceedes the increased supply capacity. The total unmet 1988 demand is consequently found to be approximately 13,800 m^3/day. Just to keep pace with the yearly increase in demand - following the increase in population and livestock - a yearly implementation activity in the order of magnitude of 800 m^3/day is neaded. Of course additional implementation activity will have to be ensured if the still unmet demand as well as the replacement and/or rehabilitation of worn out schemes will have to be coped with. Depending on the planning period this additional implementation capacity may be assumed to be approximately 300-800 m^3/day.

Based on available cost figures from the USAID-funded Kitui ASAL project as well as the DANIDA-funded Mutomo project the implementation costs for the water develpoment and

conservation technologies to be utilized in Kitui District are found to be of the order of magnitude of 10,000-30,000 K.Shs. per m^3/day supply capacity say on average 18,000 Kshs per m^3/day.

Thus the total yearly implementation costs to achieve full coverage of a reliable water supply in the whole of Kitui-District within say a 30-50 year period will be no less than K.shs 20-30 million. If it is additionally required that the water supply should be safe and that the walking distances should be reasonable say max. 1-2 km, the required funds will be even higher.

Thus the financial requirements are substantial. Based on the above mentioned considerations, on an evaluation of the present implementation capacity within MOWD and MOA in the District and on the absorption capacity of the local communities it is recommended that the forthcomming Kitui ASAL project proposed for DANIDA-funding aim at a yearly target of implementing 1200 m^3/day water supply capacity by means of a mixture of water development and conservation technologies already in use in the District. Hereby approximately 30,000 people and 20,000 Livestock Units (LU) will yearly be provided with untreated water at a rate of 20 litres per person per day (l/p/d) and 30 litres per LU per day (l/LU/d), respectively. Although the access to water is generally improved, walking distances could still be as high as 2-6 kms for some humans and 5-10 kms for some livestock in connection with newly implemented schemes. Similarly, all the water will be provided without treatment implying that no guarantee can be given as to its quality although also in respect a general improvement may be foreseen. Consequently, higest priority has been given to the benefits in terms of saved time and energy for humans (mostly women and children) as well as livestock in collecting water. the result of accepting the proposed target will after 5 years implementation, with start July 1989, be that 56% of the total demand will be met. The total unmet 1994-demand for the whole District will be approximately 13,000 m^3/day.

In order to put the recommended implementation target of 1200 m^3/day in perspective, the present 1988-implementation capacity of the Mutomo-project as well as within the MOWD is evaluated. Based on the last 3 years of implementation of water conservation structures in Mutomo, a yearly mean implementation capacity of approximately 250-300 m^3/day has been estimated with the present setup within the project. Similarly, based on the available MOWD-manpower ressources including 10 construction teams as left over by the USAID funded Kitui-ASAL project, a yearly implementation capacity of approximately 700-900 m^3/day may be estimated. Thus the suggested implementation target of 1200 m^3/day for water development and conservation implies an increase in implementation capacity in the order of magnitude of 100-200 m^3/day as compared with the available manpower resources in the Mutomo project and in MOWD. The additional implementation capacity could be achieved in several ways either

within the ministeries involved (MOWD, MOA, MOLD) or by involving private contractors.

On the basis of the experiences gained during the coming 5 year period the yearly implementation targets for the following period should be considered carefully to be increased substantially say to 1500-1800 m^3/day in order to achieve full coverage at an early stage.

5.1.1.2 Water Development and Conservation Technologies

The technologies to be applied for water development and conservation within the project are the ones already in use in the district:

- Piped Gravity Supplies from Springs: These transfer high quality water from perennial springs on the hillsides of inselbergs and escarpments to the lower laying areas of consumption on the foot-slopes and plains. I n Kitui District, springs are mainly located in five areas: Mumoni, Nuu, Endau and Mutha Hills as well as the North-South escarpments separating Central and Mutito Divisions. The largest of the springs have already been identified and developed. Some of these schemes could however be extended. There are still a number of medium sized and minor perennial springs in these areas that could be developed. Investigations of these sources should be given high priority due to their perennial character, their high water quality and their relatively low development cost per m^3 supplied per day. It should preferably be reserved for human consumption due to its good quality.

  In order to conserve these valuable water resources, it is a matter of urgency that afforestation and conservation measure are undertaken within the catchment areas of these springs. Local people note that springs which were perennial in their childhood now dry up during the dry months.

- Rock Catchments: These are surface dams built on rock and collecting the runoff from the rock faces in a reservoir which is part of the rock area or an earth site close by. A large number of rock catchments have been built in Mutomo Division as part of the Mutomo project. Also within the Kitui ASAL project, rock catchments had a high priotity in particular in Kyuso Divison. Expect for Central Division there is a potential for rock catchments in the whole District and in particular in Kyuso Division. Most of the potential in Mutomo Division has been exhausted. The main disadvantage of rock catchments is the high rate of evaporation from the free water surface.

  Utilizing the design developed in Mutomo project, it is possible to keep the construction cost per m^3 storage and consequently the development cost per m^3 supplied per day fairly low.

- Subsurface and sand dams (SSD): These structures are intended to impound water in an upstream subsurface reservoir in the alluvial riverbed by blocking the natural subsurface flow of water in the riverbed and in case of a sand dam additionally to built up the natural upstream riverbed by deposition of sand and gravel.

  The extraction of water will either take place downstream by a pipe thorugh the dam or upstream by means of shallow wells. Possibly SSD's have the greatest potential for water development and conservation as well as for improving the riverine environment in all Divisions in Kitui District.

  A major advantage of storing water subsurface is the low evaporative losses. Leakage is the major problem involved . Consequently, corret siting of the dams is essential.

  Rigorously documented evidences for the effectiveness of sand dams in areas like Kitui District are not existing.

  In light of the great potential for SSD in Kitui District, it is recommended that an evaluation is undertaken as part of the proposed Kitui ASAL project with the aim of establishing a firm quantitative foundation for the evaluation of the effectiveness of SSD as a means of water development and conservation as well as for protecting the riverbank environment. A Kenyan research institution should be identified to work out a proposal for such a study.

- Earth Dams: These are constructions where catchment characteristics indicate that there will be substantial surface runoff but with little silt load. The major problems with earth dams are silting up the reservoir, high rate of evaporation and leakage.

  Small earth dams can either be constructed on self-help basis utilizing oxen scoops or by contractors utilizing mechanical earthmoving equipment. Large earth dams will always have to be undertaken by utilizing mechanical earthmoving equipment. Large earthdams are not recommended to be implemented within this project mainly because of the environmental problems foreseen due to the large numbers of livestock to be concentrated on a small area around the resevoir, particularly during drought periods.

  There is a potential for earth dams all over the District. To be utilized in particular for watering of livestock due to low water quality. If properly designed and constructed, the costs per m^3 storage of earth dams are low. It sholud be evaluated whether the project should get involved in the desilting of some of the nearly 2,000 existing old earth dams in Kitui District of which most have been partially or completely filled with slit. Desilting alone, however, does not provide a long term

solution unless soil conservation measures are taken within the catchment area of the dams.

- "Slit" pans: These are deep, narrow and elongated pans (approximately 2000 m^3) established e.g. near roads to harvest surface runoff from these. To keep evaporactive losses low the between surface area and volumeratio should be low. Most realistically they should be built by contractors of the AMS of MOA using mechanical earth moving equipment. Livestock are supposed to be the main consumers of the collected water.

- Shallow Wells: These are wells up to a depth of say 20 m. There are two types: the hand-dug and the hand augered tube well. The hand-dug well can either be left open or equipped with a hand-pump whereas the hand augered tube well can be tapped by means of a hand-pump only.

  Installation of a hand-pump enables faster and easier withdrawal of water under strictly hygienic conditions. However, in case of a breakdown of the hand-pump it is not possible to draw water until it has been repaired even though there is water in the well.

  There is a great potential for shallow wells all over the District. Good well sites are located along rivers and at the foot of hills and escarpments.

- Deep Boreholes: Water from deep quifers is obtained from boreholes established by means of mechanical drilling equipment. Of the 63 existing deep boreholes in Kitui District less than 15% are in operation, and of these most are either on private land or provide water for gazetted water suppliers. In some of the boreholes, the water is reported to be salty. Hand-pumps may be installed for depths up to 40-50 m whereas diesel pumps will have to be installed for large depths.

  Although the potential for deep boreholes cannot be disregarded it is not recommended to be included in the proposed 5 year Kitui ASAL project. This is due to the high technologies level involved whereby it is not considered sustainable in a rural setting in Kitui District as well as to the uncertainties involved as regard water quality and costs.

- Water Tanks incl. Ground Tanks: There is a concerted effort by variuos organizations to promote constructions of large tanks in communal places like schools, churches etc. They are also built by invididuals in homesteads with iron sheet roofing. Except for in communities with nurseries, schools and other communal institutions it is not foreseen that the proposed Kitui ASAL project will be involved in building tanks.

- Piped Schemes involving Pumping: Such schemes in rural areas are not recommended to be included in the proposed

5 year Kitui ASAL project. This is due to the relatively high technological level and costs involved in diesel pumping whereby it is not considered sustainable in a rural setting in Kitui District.

Table 5.1.1.1.:

1982 Population, Livestock Units (LU), Domestic, Livestock and Total Water Demand, Supply, Coverage and Unmet Demand (Source: Kitui District Water Resources Study, ASAL, Prefeasibility phase II, Vol. 3, May 1983)

Division	Rural Pop. ('000)	LU ('000)	Demand (m^3/day) Domestic (201/p/d)	Livestock (301/LU/d)	Total	Supply (m^3/d)	Cover %	Unmet Demand (m^3/d)
Central	175	77	3500	2310	5810	2410	41	3400
Mutito	55	73	1100	2190	3290	1720	52	1570
Mutomo	80	61	1600	1830	3430	2409	70	1020
Mwingi	121	35	2420	1050	3470	1274	37	2200
Kyuso	79	79	1580	2370	3950	1080	27	2870
District	510	325	10200	9750	19950	8890	45	11060

1) 1 Livestock Unit (LU) is the equivalent of one mature local breed cattle, one donke , 5 sheep or goats or 0.8 camel.

2) In accordance with MOWD-Design Manual, Domestic and Livestock Water Demands are estimated at 20 litres per person per day and 30 litres per LU per day, respectively.

Table 5.1.1.2.

1988 Population, Livestock Units (LU), Domestic, Livestock and Total Water Demand, Supply, Coverage and Unmet Demand (Estimated)

Division	Rural Pop. ('000)	LU ('000)	Demand (m^3/day) Domestic (201/p/d)	Livestock (301/LU/d)	Total	Supply m^3/d)	Cover %	Unmet Demand (m^3/d)
Central	215	95	4300	2850	7150	2510	35	4640
Mutito	65	90	1300	2700	4000	2320	58	1680
Mutomo	100	75	2000	2250	4250	3209	76	1040
Mwingi	150	45	3000	1350	4350	1374	32	2980
Kyuso	95	95	1900	2850	4750	1330	28	3420
District	625	400	2500	12000	24500	10740	44	13760

1) Development in population and LU based on a yearly increase of 3.3%

2) Demand calculation based on assumptions 1) and 2) of Table 5.5.1.1.

3) Development in supply based on the following estimates of achievements:

Mutomo Division: 800 m^3/day (Mutomo Soil and Water Conservation, DANIDA)

Central Division: 100 m^3/day
Mutito Division: 600 m^3/day (ASAL, USAID)
Mwingi Division: 100 m^3/day
Kyuso Division: 250 m^3/day

Diocese of Kitui and NGO's keep pace with the deterioration of existing schemes.

5.1.2. Soil and Moisture Conservation and Improved Agricultural Practices

Soil erosion can be greatly reduced by applying proper soil conservation methods. Experience has shown that the loss of soil can be brought down to acceptable levels on most soil types and topographic profiles in Kenya.

Application of soil conservation measures not only reduces the erosion, but has in addition the advantage of increasing the capacity to retain moisture in the soil. In areas with low, erratic rainfall increase in yields of 20-50 per cent have been achieved.

Soil conservation has been done in Kitui District for several years. In recent years the policy has been to stimulate a catchment approach. Scattered soil conservation might cause increased soil erosion of the surrounding areas and ultimately lead to silting of natural waterways and water recipients like earth dams and dams in river beds.

However, many sites in the high potential areas still remain to be covered and complete coverage of sub-catchments is rarely seen. Particular attention shall be paid to grazing plots in between the cultivated land, which are most often deforested and overgrazed and therefore severely eroded and on the brink of denudation.

Soil conservation measures are traditionally divided into biological and physical measures. The criteria as to what measures to apply are for instance, slope of the field, amount and intensity of rainfall, soil type, crops grown and location of the field, i.e. if the surroundings are cultivated, natural well established vegetation, or deforested, overgrazed and eroded land.

Biological soil conservation measures on cultivated land include strip cropping, perennial vegetation on the Contours, suitable land preparation before the rains, cultivation along the contours, early planting, rotation of crops, correct plant population, use of fertilizers, manure, compost or mulch, etc.

Physical measures include establishment of terraces by building of benches, digging of fanya jus or laying of trashlines. Digging of cut-off drains or ditches and in rare cases, of artificial waterways are also included.

The above soil conservation measures are all suitable for application on cultivated land. In previous soil conservation activities in the district, there has been a tendency to simplify the design of measures to be applied on farmers' fields leading, in many cases, to over-designed structures and in a few cases, to inadequate and unsustainable soil conservation, are Joint Evaluation of the Mutomo Soil and Water Conservation Project, Nov. 1987.

In a future project far more emphasis must be laid on a site specific design of measures to be taken. Biological measures, which in general are less cumbersome for the farmer to establish, shall be taken into consideration to a far higher degree than previously. New training material for extension workers which takes into consideration the agro-ecological zones in Kenya, is under preparation at the Soil and Water Conservation Unit, Ministry of Agriculture, and will be available in the near future.

Maintenance of the conservation structures shall be facilitated through planting of suitable grasses, bushes and trees on the contours immediately after construction. The criteria for selection of plant materials shall be drought resistance, soil stabilizing and enriching quality, food or fodder value, availability and price. Although a wide range of suitable exotic varieties can be proposed, it is strongly recommended that indigenous varieties be taken into consideration when selection for field trials, multiplication and distribution, is done.

Site specific measures for rehabilitation of eroded grazing land will be made as a matter of priority. Often a well established live fencing, to keep out roaming animals during 5-6 seasons, is sufficient for the pasture to rehabilitate.

However, more severely eroded land will require reseeding of grass on the contours and in micro-catchments or even terracing and gully control. Included in the rehabilitation shall be planting of suitable fodder trees, be it as part of the live fencing, along the countours for stabilization and enrichment (N-fixing) of the soil, etc. Completed rehabilitation shall always be followed by rigid management of the site, be it zero-grazing, i.e. cutting of fodder and carrying it to the animals or a controlled, rotational grazing programme.

Introduction of improved agricultural techniques shall go hand in hand with soil conservation. As mentioned above, suitable agricultural practices reduces the risk of soil erosion. Furthermore these practices, in combination with the soil conservation measures described earlier, increase the moisture retention capacity of the soil considerably. As water is the limiting factor for increased agricultural production in the area, it should be conserved to the greatest possible extent.

The soil in the area tends to seal very easily, creating a hard surface which reduces infiltration of rainwater. Loosening of the soil before the rains start, as well as during the rainy season is therefore very important. As the rainy season is very short, timely/early planting of the crops has a crucial effect on the yield. Consequently, the introduction of proper land preparation and tillage methods is one of the major factors contributing to an increase in crop yields. Lack of appropriate animal-drawn implements has been reported as a major constraint in

adoption of improved tillage methods. Efforts shall be made to develop, test and arrange or manufacture of suitable equipment to be introduced to the farmers by the extension service as part of a total extension package on land preparation and tillage.

The increased availability of water in sub-surface dams and shallow wells as a result of soil conservation of whole catchments, makes it possible to keep draugth animals in shape for work in the crucial period before the rains start. An extension package for improved handling and training of draugth animals shall be developed.

The intensified farming and higher yields achieved as a result of soil conservation will eventually tap the soil for essential nutrients and affect its structure and texture. The risk of crop failure caused by the erratic rainfall makes the farmers abstain from using fertilizer. Measures to maintain the soil fertility, like crop rotation with N-fixing crops or grass, and more use of manure, compost and mulch will therefore have to be developed, field-tested and introduced to the farmers through the extension service.

New, improved, drought-resistant and early maturing varieties of the main crops, i.e. maize, sorghum, millet, cow peas and pidgeon peas, as well as promising cash crops, shall continuously be identified and field-tested in the target areas. If found suitable, arrangements shall be made for seed bulking at district level or through contracts with farmers.

Handling of food grains, including storage at farm level, is reported to require improvement. Losses of grain caused by insects, moulds and pests are at an unacceptable level.

Development of a suitable extension package and other support shall be considered by the Programme.

Agro-forestry plays an important role in the intensified agricultural production system which is emerging in the high potential areas. Planting of fodder trees, fruit trees, live fencing and multipurpose trees is an important part of an ecologically and socially sound development. The existing nurseries under the Ministry of Agriculture require strengthening in order to fulfil the requests from the community.

Distribution of seedlings is very time consuming and costly. Support to the establishment of smaller nurseries in the locations and sublocations operated by farmers, and farmers groups, shall be provided by the Programme.

Likewise, development of techniques for direct seeding of, in particular fodder trees and live fences, shall be considered.

5.1.3 Agricultural Extension

In order to ensure a proper implementation of the programme it is of utmost importance that the agricultural extension service function efficiently.

The national extension programme which aims at providing relevant and timely advice to farmers in Kitui District is since 1984 based on the Training and Visit System (T & V).

The T & V system implies that each Teachnical Assistant (TA) and Junior Technical Assistent (JTA) assists a group of farmers (one contact farmer and 4-8 follow farmers) on a fixed day and time once every fortnight.

Once every fortnight tha TA's and JTA's receive training normally at the divisional headquarters in which the extension messages they are expected to deliver to the farmers during the forthcoming 14 day are given. The training is performed by subject matter specialists from Divisional and District headquarters.

The content of the extension messages follows the agricultural calendar and covers crop husbandry, soil conservation and home economies.

The system has definite advantages like regular and continious training of the frontline officers, concentration of efforts, a single line of command and close linkages with research.

However, the rigidity of the system has caused problems. Thus surveys show that farmers adoption rate of important points has been 30-40%.

Main contraints have been:

- Heavy reliance on transport facilities to reach the number of farmers which is often fixed without taking distance, and other local conditions into account.
- drop out of contact farmers and in particular follow-farmers.
- training in and delivery of irrelevant extension messages as regard time and content for the local situation.
- irrelevant research for the local situation.

There is a growing awareness of theses constraints in the Ministry of Agriculture and certain adjustments of the system in order to make it fit better to local conditions are encouraged. In Kitui district where it is tradition to form farmers groups it is evident that more farmers can be

reached by adressing contact farmers. Promising results have already been achieved in this way.

Experience has shown that demonstration is a good method to introduce improved techniques or crops in particular if the farmers are involved from the beginning and if the demonstration or trial is made on their own fields. When planning field demonstrations or trials it is imperative that they shall be relevant for the local farmers i.e. rather demonstration of an improved of an already practised technique than introduction of a totally new way of doing things.

It is also necessary that the frontline officer can relate the different extension messages to each other. It is for instance obvious that advice to the farmers on how to plant grass to protect the terraces must be followed by advice on how to feed the grass to the cattle i.e. advice on zerograzing technique.

A precondition for an intensification of the extension activities as described above is that the staff i.e. front-line officer as well as TO's are given the possibility to do their jobs properly. It is thus very important continuously to provide relevant training to the extension staff at all levels in the form of technical refresher courses, courses in extension technique and specific training in preparation of area specific extension packages. The programme shall ensure that all extension staff be given possibility to participate in relevant courses arranged by Ministery of Agriculture and if required take steps to arrange courses exclusively for the staff in the target areas. Lack of transport is a main hurdle for an effecitive extension service. The programme shall provide bicycles to the frontline staff; in the lower density areas it shall be considered to provide motorbikes to ensure that the TA's can reach all the contact groups in the stipulated time. All TA's at locational level shall be provided with motor-bikes while the TO's at divisional level shall share a 4-wheel drive station car.

Lack of possibilities for promotion has often been mentioned as a reason for frustration among the staff of Ministery of Agriculture. Incentives in the form of fellowships for formal upgrading of respective TA's and TO's shall be provided by the Programme.

5.1.4 Livestock Development

5.1.4.1 Constraints to Technical Innovations and District Statistics

Livestock Development in the grazing lands of Kitui District is hampered by the lack of a formal land tenure system and without clearly defind user rights to rangelands. Most of the Eastlands of Kitui are national statelands reserved for grazing or, unsurveyed settled lands occupied by people, being farmed and grazed without adjudication and therefore without title deeds. Until socially acceptable and socially regulated userrights are established (through extisting community structures/leadership) the intensive range management/conservation activities that are so much needed to strike a balance in human and livestock resource utilization cannot be thoroughly undertaken.

The range lands are characterized by areas such as Voo and Zombe, proximate to permanent water sources, being severely over graced and in immediate danger of ecological disaster. Some indigenous grasses, browse trees and shrubs have already disappeared from these areas. Other areas such as Yindovoi and the lands North of Eyuku, too far from water for cattle and goats to walk, except immediately after the rains, are underutilized and ecological balanced vegetation wise. They could support more livestock if very carefully planned water points could be developed. This could also take the presure off over grazed areas, leading to the regeneration of vegatation cover. Until the advent of the land adjudincation, however, these vast grazing lands will remain undermanaged and underdeveloped.

Livestock development extension in the potential areas of Kitui District has traditionally been over shadowed by crop extension and soil conservation activities. On farm livestock support innovations will significantly increase livestock production potentials in these areas.

It is generally found that livestock keeping practises are not well documented regarding e.g. socio-economic aspects usufruit rights and herd composition. A thorough knowledge of these practises, and problems related hereto, is a necessary precondition for planning of the specific activities proposed in chapter 4.5.5. as well as for the implementation of a wider extension service network.

Kitui District has a total land area of 3,109,900 hectares of which 67,000 ha. (2,2%) is classified high agricultural potential, 1,137,000 ha. (36,6%) is classified medium agricultural potential and 1,905,900 ha. (61,2%) is of low agricultural potential.
According to the Ministry of Livestock Development, district Livestock Production Officer, the district livestock population is:

Zebu cattle	271,576	Goats	449,329
Dairy cattle	4,973	Donkeys	38,600
Sheep	63,911	Poultry	424,402

This represents 424,159 Standard Livestock Units (SLU's), assuming 300kgs. weight per SLU.

This livestock population requires 12,725 cubic meters of water per day, at 30 litres water per SLU, or 4,644,625 cubic meters of water per year.

Dry matter intake for this number of animals, assuming 3000kgs. dry matter intakes per SLU is, 1,272,477 tons per year, or 3486 tons per day.

Potential carryring capacity in Zone IV pe SLU is 1 ha., in Zone V, 1-4 ha. and in Zone VI is 4-20 ha. The actual carrying capacity in Kitui District is probably one half the potential, considering the present condition of range and grazing lands and concentration of water points.

Browsing by livestock in the District has not been researched as to actual seasonal intakes. It is common kownledge however, that browsing is significant, particularly during the dry season.

Assuming Zone V, low agricultural potential lands, can support 1 SLU per 4 ha., this area alone could support, properly managed 476,475 SLU's, more than presently in the entire District.

There are 55 Kitui District Ministery of Livestock Development personnel. They have three four wheel drive vehicles and two motorcycles to cover the entire District.

5.1.4.2 Livestock Production Enhancement Technologies

The technologies to be applied for range and livestock production improvement within the project are already in use in some parts of the District or on other range lands in Eastern Africa. They are explained below by category:

a. Range and On-farm Water

Ground tanks and small earth dams, utilizing small gully and rock catchments, road water and pathway runoff, terraces overflow and roof catchments, similar to those presently being built at schools in southern Division of Kitui District, with DANIDA assistance should be encouraged by the project. They are low cost, labour intensive and within the tecnical skills levels of farmers and low level artisans. These tanks can be built to capacities up to 60,000 litres for 4 mature

cows and 9 goats for an entire year. The tanks can easily be desilted and the soil returned to the farm. Maintenance of these tanks would be assured as they would be privately owned. The possibility of constructing the tanks deeper and more narrow to limit evaporation should be investigated.

Sub-surface dams, sand dams, pans, and slit pans, (long, deep, narrow, pans designed to minimize evaporation, found in Sudan), would be ways of significantly increasing the amount of water available to livestock in all parts of Kitui's low potential and range areas. Sand and sub-surface dams are virtually maintenance free as long as animals are kept out of the stream bed. Their biggest assets are low cost, community based construction techniques, lateral ground recharge and consequent raising of the water table, clean and disease free water for human and livestock consumption,minimal evaporation of stored water and long, low cost service life. Sand and sub-surface dams built in series in seasonal stream beds could store enormous amounts of flood water and have a significant impact on growth rates of vegetation near the stream. See chapter 5.1.1, Water Development and Conservation, for further explanation.

b. Fodder Production and Range Management/Rehabilitation

Grasses, fodder trees and shrubs planted along crop land terraces as an integral part of soil and water conservation as well as cutting and feeding of green grass and fodder, drying and storage of dry grass (hay), edible tree seed pods and leaves of browse species as well as greater utilization of poultry feeds, are the most practical ways of enhancing fodder production in the high and medium potential areas. Properly managed fodder crops would compete very little with the normal food crops grown in the farm. Fodder crops could be extended into poor or/and uncropped areas, such as hill sides, gullies and enhanced by digging wamatengo pits and other micro catchment systems, and along roads and pathways.

Methods of range and grazing lands rehabilitation include:

- Hedge cutting by notching and knocking of live trees and bush along alley ways following the contour. This is a modification of traditional pastoral browse harvesting techniques. By laying over the tree or bush without killing it. animals have greater acces to leaves and seed pods, but are unable to reach any grass which may grow underneath the tree branches, helping slow water runoff during the rains after it has established itself. Cutting bush and tree alley ways on the countour would assist in the rapid reestablishment of grass along countours. This would slow water runoff and reseed denuded areas between alley ways. After several seasons there will be enough grass for controlled burning of the bush, leaving large open spaces in the bush lands and subsequent increase in pasturage.

- Wamatengo pits and other micro catchment techniques, are very good in assisting range grass reseeding programmes as well as for planting fodder trees. The techniques are simple, digging holes in the ground to trap rain and runoff water so that the water soaks into the ground rather than running over it. These water retention techniques allow the grass seeds or tree seedlings to rapidily establish their root system and guarantee enhanced foliage growth rates when compared to unprepared areas.

- Clearing of dense bush, leaving only the larger trees and fodder species, will give the grass a chance to establish itself in areas that have become overgrown by bush.

- Grazing control systems using live fencing to define paddocks would make it easy to monitor when a specific area has reached the limits of its grazing potential so that livestock could be roated to an ungrazed paddock before seriuos ecological damage has been done.

- Controlled burning is way of using the traditional African method of bush and pest control on range lands. It kills the thick bush allowing grass to reemerge as well as adding valuable nutrients to the soil. After many years of bias against bush burning in

Kenya, it is beginning to be recognized for its attributes in range management.

- Demonstration plots should be established that would show livestock owners the best range management/rehabilitation and land use techniques for their specific range land. These plots should double as grass and legume seed bulking and fodder tree nursery sites.

  Demonstration plots should be followed up by extension service messages reaching a larger group of individual livestock keepers.

Suggested fodder crops for Kitui District are:

Trees and shrubs - Acacia Tortilis, Acacia Albida, Acacia Senegal, Acacia Nilotica, Luceana Leucocephola, Sesbania species and Morus Alba.

Grasses - Eragrostis Supeba, Cenchrus Ciliaris, Cynodon Dactylon, Chloris Roxburgiang, C. gayana, Panicum Coloratum, P. Matimum and Sporobulus Marginatus.

Legumes - Glycine Javnica, Glysine Wightii and various potato vines.

c. Disease Control

Tick born disease control in Kitui Distric is weak, with about 1% of the total livestock population being regularly dipped. The major constraints is dip management and insufficient water. Epizootic disease control is hampered by lack of transportation and crush facilities as well as uncontrolled grazing by livestock from other Districts.

Project emphasis will be on small holder livestock owners. Formal training, extension and application of hand spraying or dobbing for tick control for small herds, dusting of poultry and drenchning of goats and sheep will be the project focal point for disease control.

Dips for groups, societies and ranches must be sited near permanent water and be entirely self financed and maintained.

Encouragement of private, entrepreneurial services would be of great assistance to livstock owners. Indigenous treatment of livestock diseases should be encouraged and researched and taken seriously by formally trained field staff.

d. Genetic Improvement of Livestock

Goats - improved Galla and Boer goat stock, cross bred to local goats to increase frame size and milk output has been undertaken in Kitui District and should be supported.

Cattle - Boran stock cross bred with the local East African Zebu to increase frame size and milk output, without increasing fodder and water needs significantly, nor diseases susceptibility is the genetic improvement technique of choice in Kitui district. These crosses could subsequently be bred to Sahiwal stock to further increase carcass weight.

Poultry - introduction of improved cockrells which have been vaccinated for Newcastle disease. Breeds would be selected which would increase egg production.

Boran cattle, Galla goats and improved, locally bred and vaccinated cockrells should be introduced, through purchase, after buyers have attended a training course on improved range management, livestock keeping and disease control. Private ranchers and livestock owners should be encouraged to keep Boran bulls and support the animals through service fees to other farmers interested in improving their stock.

Interested farmers should be trained at a pastoral school and then have to pay for improved breeding stock. This would assure that the farmer understands the importance of herd improvement and how to manage breeding of livestock.

e. Training and extension.

Extension workers should have regular training to keep them up to date in latest development in animal disease control, breed improvement, new drugs, range managemnt, water and soil conservation and other topies relevant to their professions. The extension service would have to be upgraded to cover lager number of livestock keepers.

The need for a formal, localized training facility catering to all types of livestock owners found in the District should be explored, given the deteriorated condition of grazing and browse, population pressures, both human and animal and low technical levels of the average livestock owner. A pastoral training center which has research, demonstration and applied components in range management, animal husbandry, water development, disease control, breeding improved structures, home economics, marketing, bee keeping, appropriate technology and animal power, as well as affording trainees to purchase improved livestock breeds, grass seeds, and fodder tree seedlings etc., after they had been trained in their prope use, could have a mesurable effect on livestock and range improvement on these peoples lands.

If a pastoral training centre is found to be a feasible proposition the MOLD field staff should be fully involved in identifying and encouraging potential training candidates and then following up their progress after course completion.

f. Bee Keeping

There are over 150,000 traditional log bee hives in Kitui District producing an average of 13kgs. of honey per year and over 1600 improved hives which produce an average of 55kgs. per year. Current potential yearly honey production is therefore 2038 tons. It is obvious that bee keeping is becoming an increasingly important activity in Kitui District and should be further extended, particularly to women. Honey collection points need to be increased so as more families can take advantage of the added income brought by honey. Improved local hives is another area needing more attention.

IN CONCLUSION

The most important technical/training inputs for enhancing livestockproduction and range land/farm livestock holding capacity are:

1. Upgrading of the extension service to improve the dialogue with a wider network of livestock keepers.

2. Community identified and constructed small, scattered water points within grazing areas, and on farm small catchment and ground tank development.

3. Improved management and rehabilitation of grasses and browse on farm and range in conjunction with soil and water conservation techniques.

4. Genetic improvement of indigous cattle, goats, and poultry.

5. Herd composition ensuring higher economic rates of return.

6. Improved disease control for all livestock through small scale, on farm control of tick-borne, and by promoting and supporting private, entreprenurial veterinary services.

7. Delineation of permanent and well defined usufruit rights to range lands in the medium and low potential agricultural areas through existing community and leadership mechanisms.

5.2 Institutional Analysis

The proposed programme will be implemented within the Management Strategy for Rural Development termed District Focus for Rural Development.

The framework for Programme Implementation and the proposed Institutional set-up was described in chapter 4.6 and fig. 4.6.1 and 4.6.2.

The pillars of this institutional framework is community participation and delegation of responsibility through a strengthening of government institutions at the District Level.

The DF strategy was launched in 1983 and the planning as well as the implementation and financial management capabilitis at the district level are still weak - and more so in Kitui District than in most Kenyan districts.

The weakness of the district capabilities in management of rural development thus is the major risk of the proposed project. It can only be overcome through the provision of qualified and dedicatd Kenyan staff into key positions and supplemented by DANIDA long-term advisers and shortterm consultants in relevant fields.

Thus, the major role of the Danida advisers will be institutional development, personell development and training as described in chapter 4.5.1. In this way the Institutional Development Component of the Programme should secure long-term sustainability of the programme.

At the community level existing institutions like Mwethya and smaller self-help groups have to be build upon and strengthened in order to ensure that project benefits are being absorbed and sustained. Special attention will have to be given to the formation of well managed operation and maintenance committees in water projects. Experience show that preparation and training of the community is essential to make sure a community based system operate satisfactor.

Community participation in Government or Donorinitiated development projects has often been too weak to maintain and sustain long term impacts.

This problem has been particular severe in ASAL areas. Where the socio-economic, cultural and ecological environment differs dramatically from the situation familiar to most civil servants and aid workers.

Consequently, community participation via mobilization and training has become integrated elements of most ASAL programmes in Kenya. Similarly, NGO's such aas KWAHO has been established in order to assist line ministries - Ministry of Water Development -in this area. (In cooperation with Ministry of Culture and Social Services).

The proposed programme intends to establish an inbuild Training and Monitoring activity through a Section of PMU.

As explained in chapter 4.5.7. this section will be based upon and developed according to the relevant experience from Community Participation work in other relevant Development Programmes. In its practical work the T.M. section will cooperate with other relevant programmes in the District such as the Diocese of Kitui Water Development Programme and the proposed UNICEF Water Development Programme. (See chapter 3.4.3.2).

Since the ASAL Programme implementation-strategy is based in the procedures of the District Focus for Rural Development, new project ideas and plans must emerge from the community and its representatives (community leaders and members of Development committes at various levels). The project mobilization activities aim at strengthening group/-community involvement at the initial project identicication and planning stage.

The initial points of community contact and dialogue will be with DC's at sub-location and location level, as well as with sub-chiefs and chiefs.

In connection with water projects groups and beneficiaries must also be clearly informed about their responsibilities during project implementation (providing unskilled labour= and, later in the operation and maintenance of project structures. To enable the beneficiary group to become self-supporting in operation and maintenance of water projects, group management training is required. Mobilization activities in the form of group training sessions will therefore have to take place both before, during and after the completion of a water project. This community participation and training expertise is not avialable within any of the implementing Ministries of the Programme. Unlike MOA and to some extent MOLD, MOND does not have an established network for extension service.

Considering the great need for water in the district, community mobilization around water projects could in most areas, be seen as an entry point to involve people for other project activities within soil conservation, agriculture and livestock/range management. The primary technical training load within these areas should be taken care of by the extension services of the MOA and the MOLD. It is important, however, that the extension service takes into account, and also, to the extent possible, builds upon the lines of communication already established with existing self-help groups during the initial mobilization.

In the lower range areas to the north, south and east of the district community, participation in range rehabilitation and range management will be constrained by a scattered population over larger areas with longer distances in between households/- households clusters as compared to the density populated and well demarcated catchment areas in Central

populated and well demarcated catchment areas in Central and part of Mwingi divisions. In these areas the Programme has to undertake special mobilization efforts to rally the population within a catchment area around water conservation projects for livestock, and simultaneously introduce range rehabilitation techniques, through the livestock extension service, through a group approach. The traditional version of the training and visit system will not workin these areas. The distances which the TA will have to cover to visit contact farmers will be too long and it is unlikely that far off follower farmers will show up on the visiting day. The community participation/extension approach should here be to gather as many farmers as possible in a catchment area within the framework of a larger Mwethya group. The initial rallying point could be a self-help based project for Livestock Watering.

Being an innovative field with rural development, T & R activities will have to draw upon experiences within T & M and community participation made elsewhere, in particular regarding strategy formulation and development and use communication methods and materials. Of immediate relevance is the T & M activities presently being introduced in DANIDA assisted Taita-Taveta District Development Programme (TTDDP). Of particular interest is the strategy being developed for community participitation and training in operation and maintenance of water projects which will be formulated into implementation manuals.

Other project experiences to be drawn upon would include among others the FIINIDA supported KEFINCO project (Western Kenya Rural Water Supply) in Kakamega district, the SIDA supported NGO, KWAHO (Kenya Water and Health Organization) and Kwale Water and Sanitation project. Collaboration with the Rural Services Training and Coordination Unit (RSTCU) of the MOPND and the Provincial Government Training Institute (GTI) could also be established.

Considering that UNICEF is planning a large scale involvement in ASAL related rural development activities with a strong emphasis on community participation calls for close cooperation with the proposed ASAL programme's T & M activities. In this connection it is recommended to establish a district level committee for coordination of community mobilization and participation activities representing all organizations, NGOs in particular active in Kitui district in order to work towards a uniform approach to community participation which would then avoid confusion and overlapping of efforts to mobilize and involve the target groups.

5.3 Socio-economic Analysis

Through the provision of water for households and animals, improved agricultural production methods and livestock and range management, the programme will make it possible to increase production and revenue from sales for the individual rural household.

It is estimated that existing packages of inputs and technologies could enable rural households to increase yields by 40-60 per cent under average farm management conditions.

Improved farm management could add another 40-60 per cent to yields.

Consequently, a successfull implementation of the proposed programme is likely to have a significant impact on agricultural and livestock production in the area.

The wealthier farmes will be able to diversify their agricultural and livestockproduction, agricultural surplusses will be sold in local markets and in a few cases income will be invested in non-farming activities. Many farming households, especially in the higher potential areas, are likely to reach self-sufficiency and food security.

In the drier areas, where only one out of five years gives a good harvest, the dependency on off-farm incomes and remittances is likely to continue to remain high.

However, population increases of estimated 3.3 per cent and poor prospects for increased wage employment outside the District, make it an almost impossible task to raise agricultural and livestock production sufficiently in order to improve the general standard of living for all of the rural population of Kitui District.

A differentiation process is presently taking place and is likely to be strengthened even taking into consideration that the proposed programme will attempt to put special emphasis on the poorest section of the population.

As the prevailling gender division of labour allocates most, if not all, farm work to women, the project activities will inevitably put additional strain on their already heavy workload. The programme should therefore be aware that mobilization of women farmers, in particular in peak agricultura seasons, is likely to be constrained by their tight work schedule. The progress of activities will therefore depend on the capacity of women farmers to participate in self-help labour arrangements. An attempt should be made to mobilize the underutilized male labour force, although this will conflict with the culturally defined division of labour between men and women.

From Mutomo and elsewhere it is known that a number of households (up to 15-20 per cent) in a catchment area are not members of self-help groups. Non-members come from poor and better-off households alike. Reasons for households not participating are many and the programme will face the risk of not reacing all households if the mobilization and training activities are not given a very high priority.

5.4 Economic Analysis

The Macro Economic impact of the proposed ASAL programme is likely to be marginal.

In accordance with the 1986 White Paper on "A New Strategy of Economic Management for Renewed Growth" the 1988/89-1992/93 5-year Development Plan envisages a new active role for ASAL areas. In the past ASAL-district has been a burden on Government Finances (Famine Relief) as well as on the National Economy (through the remittancies for consumption purposes of salaries and wages of "ASAL-labourers" employed in the larger cities outside the Districts).

In the future ASAL Programmes are expected to:

- Reduce the financial cost and administrative burdens of periodic and recurrent famine relief and post draught recovery programmes in ASAL areas.
- Reduce the rural-urban migration from ASAL areas through the provision of self-employment in agriculture and non-agricultural activities.
- Increase the National marketed agricultural surplusses through increased production and achievement of self-sufficiency in food in ASAL areas.
- Reduce the overall cost to the country of ensuring an adequate natural resource base for continued development by taking earlier, more appropriate and cheaper restorative and preventive conservation measures.

The proposed Kitui ASAL programme will contribute marginally to these National Objectives. In addition it is envisaged that the programme will have a significant indirect impact on the development in other ASAL-areas through the development and dissemination of new concepts, technologies and through the communications of experiences gained in the implementation of the programme.

5.5 FINANCIAL ANALYSIS.

5.5.1 Economic Justification of the Proposal.

While it is reasonable simple to calculate the approximate cost of the proposed Kitui ASAL-Programme as well as to list the expected benefits, the valuation of direct as well as indirect benefits generated becomes rather speculative.

In the preappraisal report internal rates of return was calculated for typical programme components such as a soil and moisture conservation scheme and a rock catchment waterstructure. It was shown that these projectcomponents seen in isolation are likely to have a high internal rate of return (I.R.R.)

However, while selected project components may appear to have a rather high I.R.R. the same is not likely to be the case for the proposed ASAL programme in its totally.

This has to do partly with the community participation requirements of the programme which gives priority to participation over cost-efficiency and sofisticated technical solutions. Finally, the nature of the District in itself; its size; its poor infra-structure and its unreliable rainfall make the programme a very costly and very risky challenge.

In this chapter we will cost the various projectcomponents and list the likely direct and indirect benefits of the proposed programme. Due to the undertainties involved we do not calculate the I.R.R. of the proposed programme. It should be realized that the I.R.R. for such an integrated "core resource management programme" is likely to be low.

However, taking into account the alternatives for rural development in Kitui District, the A.M. finds that the proposed Kitui ASAL programme is justified.

5.5.2 Programme Investment Cost

5.5.2.1 Buildings, Installations, Officeequipment.

The proposed ASAL programme will utilize existing facilities in Mutomo and Mwingi, but it requires new offices, a workshop and guesthouse facilities as follows:
(See also sketches in Annex).

Kitui:

P.M.U. Offices/Conference hall	m^2	est.cost (K.shs)
5 offices	80	
3 secretarial front offices	36	
1 conference hall/library	24	
2 toilets	12	
	152	532.000
ASAL Water Office		
2 offices	32	
1 secretarial front office	12	
1 store	16	
	60	210.000
ASAL Workshop		
1 workshop (Mutomo size using Mutomo equipment)		300.000

Kyuso/Mutito:

P.M.U/MOWD/MOALD offices/meeting rooms.		
2 x 5 offices	160	
2 x 3 secretarial frontoff.	72	
2 x 2 store rooms	48	
2 x toilets	24	
2 x meetingroom	32	
	304	1.064.000
Guesthouses		
2 x 144 m2		1.152.000

The A.M. recommends that the design and construction of these facilities be tendered locally by Danida. The estimated cost is based upon recent experiences of constructing offices for RDF in Embu.

The total cost of buildings, installation and office equipment is estimated at D.kr. 1.5 mill.

5.5.2.2 Land for officebuildings.

According to the discussions between the DC's office and the A.M. land will be made avialable by the relevant Kenyan Authorities for the above mentioned buildings.

5.5.2.3 Construction-, office- and transportequipment.

In order to determine the need for transport equipment and construction equipment (for the water component) the A.M. has taken the existing stock for operational equipment in DANIDA's Mutomo project as its point of departure (see Annex).

The equipment assessed operational by July 1989 will be transfered to the proposed new ASAL Sections of MOWD and MOA in the new programme in accordance with the equipment list.

The total equipment requirements of the P.M.U, M.O.W.D., MOA and MOALD is given in Appendix.

This equipment will be procured by DANIDA and most of it will have to be imported. The A.M. recommends that DANIDA procure the make of vehicles allready available in Mutomo in order to economise on spareparts and maintenance cost.

The cost has been estimated as follows:

	mill. D.kr.
Toyota landcruizers 27 pieces at d.kr. 125.000	3.4
Lorries (available in Kenya) 4 pieces	1.5
Bus (12 seater)	0.2
Motorbikes (available in Kenya)	4.2
Bicycles (available in Kenya)	0.2
Construction equipment	5.0
Office Equipment	0.5
Total	15.0

Most of this equipment will be procured to be ready for use in July 1989. However, some of the construction equipment and transportequipment will be replacement of equipment taken over from the Mutomo project. This replacement can take place in the third year of the programme period. Thus the investment will be distributed over time like this:

1989: 12 mill. d.kr.
1992: 3 mill. d.kr.

5.5.2.4 Total Investment Cost

The total investment cost can be summarized as follows:

	mill. D.kr.
Buildings	1.5
Equipment	15.0
Total	16.5
Contengencies (15%)	2.48
Total estimated cost (rounded)	19.0

5.5.3 Cost of implementation

5.5.3.1 Salaries to Kenyan Staff employed by DANIDA.

A number of Kenyan Professionals and supportive personnel will be recruited and employed by DANIDA. They will be paid according to "Salary System for Locally Employed Staff with DANIDA Projects in Kenya".

(DANIDA advisers recruited by DANIDA is paid from special DANIDA funds. Their cost is not included in the Programme Budget).

The annual salary cost is estimated as follows:

	K.shs.
Professional staff:	
2 Senior Professionals	600.000
6 Junior Professionals	1.080.000
1 Accountant	180.000
Supportive staff	500.000
Drivers	
Others (workshop, offices)	
Total annual staff expenses	2.360.000

5.5.3.2 Transport Cost.

Due to the size of the District the running cost of vechicles (and motorbikes) will be a major cost component.

Based upon assumptions regarding fuelconsumption and maintenance cost as well as vehicles usage we estimate total annual transport running cost at K.shs. 4.5 mill.

5.5.3.3 Construction of waterstructures.

The construction of waterstructures is the most expensive of the programme components. It has been estimated that the annual cost of construction including local research and consultancies amount to K.shs. 22.8 mill. (See chapter 4.5.2.4).

5.5.3.4 Cost of Agricultural Development and Livestock Development.

Besides salary and transportcost the agricultural and livestock development components will need funds for farm implements, seed and planting material. There will also be a need for funds for formal training activities. We estimate that the annual cost of these activities will be approximately K.shs. 500.000 for each of the ministries.

5.5.3.5 Implementation Cost of P.M.U.

Besides the salary and transport cost the P.M.U. with its S.M. and T.M. sections require funds for stationary, training activities and training material. The annual cost is estimated at K.shs. 500.000.

5.5.3.6 Local Consultancies.

A number of local shortterm consultancies is recommended in chapter 4. The A.M. recommends that K.shs. 10 mill. be set aside for the Programme in its 5 year period. Most of these funds will be utilized in the initial phase of the programme.

5.5.3.7 Total Implementation Cost (to be paid by DANIDA).

The total estimated implementation cost can be summarised as follows:

	mill. K.shs.	
	Annual cost	5 year cost
Local Staff*	2.360.000	11.800.000
Transport cost	4.500.000	22.500.000
Waterdevelopment	22.000.000	110.000.000
Agricultural Developm.	500.000	2.500.000
Livestock Development	500.000	2.500.000
P.M.U.	500.000	2.500.000
Local consultanties*	2.000.000	10.000.000
Total Implementation		161.800.000

* to be paid directly by Danida.

The A.M. recommends that local Danida employees and local consultants be paid directly by DANIDA. The other implementation cost will be budgetted and paid through the relevant lineministries as A.I.E.-holders. A draft budget by ministry is given in Annex.

5.5.4 Total Programme Cost to DANIDA.

The total programme cost can thus be summarized as follows:

	Total mill. D.kr.
Investment Cost	19.0
Implementation Cost	62.2
Total Cost	81.2

Of the total cost approximately 30 per cent will be used for importation of goods and services.

It should be emphasized that the above cost figures only include the programme components to be funded by DANIDA.

In order to arrive at the total cost of implementation the cost of the G.O.K. contribution in terms of land, salaries and operational expenses will have to be included.

5.5.5 Benefits of proposed Kitui ASAL Programme.

5.5.5.1 Direct Benefits.

The proposed ASAL programme will deliver, various services which will benefit the target groups directly. These include the following:

- Water for humans and livestock
- implements as incentives in soil- and moisture conservation programmes
- free inputs such as seeds and seedlings in relation to agricultural demonstrations
- agricultural consultancy services free of charge
- livestock consultancy services free of charge
- education and training in relation to construction and maintenance of waterstructures.

5.5.5.2 Indirect Benefits.

The programme avtivities will enable the target group to improve its natural resourcebase and thereby its standard of living through the following;

- the restoration and enhancment of natural resources i.e. soils, vegetation and watersources
- The improved resourcebase combined with the result of agricultural and livestock training will enable the households to utilize the potential of existing appropriate farming and livestock technologies. This will lead to increased production and increased self-employment.
- The increased production will result in a combination of self sufficiency and selling of surplus food. In either cases more income will be available for buying of other products of which some will be locally made.
- Through this multiplier effect income and employment opportunities will be created in various non-farming processing and serviceindustries.
- The experiences gained by the ASAL programme will be accumulated with the P.M.U and through the various institutional bodies i.e. the P.S.C., the D.D.C. and at the National Level the I.C.C. the relevant lessons learned will be dissiminated.

This indirect impact - although unmeasureable- of knowledge transfer could through an achievement oriented effort in the area of institutional development very well prove to be the most valuable result of the Proposed Programme.

5.6 Environmental Analysis.

The physical environment in Kitui District, as in all ASAL's, is fragile. Damage has already been done to it, given the rapidly increasing population whose farming and range use practices are inappropriate. It is expected that the appropriate technologies recommended in the Project for activities in soil and water conservation will not only slow the degradation of the physical environment, but also contribute significantly to its rehabilitation.

The social environment has also been under attack because of the demographis explosion which forces families to split for survival. As population densities got beyond what can be supported by the physical environment, significant numbers of males outmigrated, leaving many female-headed households and the attendant socail decay and female labour overload. The proposed community organizing for development and the provision of water closer to homesteads, will ameliorate some of the female labour overload for the immediate future. However, it is clear that in the long term the land will not carry the total district population without negative impacts on the physical and social environments. It follows then that only by taking people off the land through provision of income earning opportunities off-farm, will viable physical and social environments be assured in the long term.

5.7 Risk Analysis.

The proposed Kitui-ASAL programme has been analysed from a technological, institutional, economical and environmental point of view above.

From this analysis it becomes evident that the programme is basicly a "software" programme. Except for transport-equipment very little mashinery is involved.

The proposed technologies are basicly known and little technical risk is involved in programme implementation.

The major risk factor involved is institutional. By suggesting that the programme be implemented in accordance with District Focus for Rural Development through the G.O.K. District Administration based upon active community participation a risk is taken of reducing the speed of implementation, decreased donor control and accountability vis a vis-funds and materials as compared to the implementation model of f.ex. DANIDA's Mutomo project.

On the other hand the implementation model suggested by the A.M. aims at involving and improving the capacity of local institutions. If successfull it will secure long term viability of the proposed programme and a sustainable impact.