

APPRAISAL REPORT
KITUI ARID AND SEMI-ARID LAND
DEVELOPMENT PROGRAMME

KENYA

ANNEXES

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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).

ANNEX 1 - Terms of Reference for Appraisal Mission

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TERMS OF REFERENCE

for

Appraisal of Kitui ASAL Programme

1. BACKGROUND

Danida has since May 1982 provided support to the Mutomo Soil and Water Conservation Project, which is comprising three major components i.e. water supply, soil and moisture conservation and improved agricultural practices. The project is limited to Mutomo Division of Kitui District. The present project period would have expired in June, 1988, but has been extended for one year. During the same period USAID has supported an ASAL Programme in the remaining four Divisions in Kitui District. This programme was terminated in 1987.

Danida received in September, 1987, a request from the Government of Kenya to expand the Mutomo project in area and scope to become an ASAL Programme covering the entire Kitui District. In preparation of such a project Danida fielded a pre-appraisal mission which visited Kenya during the period 23 January and 10 February 1988. The report of the pre-appraisal mission containing an elaborate project proposal has been submitted to the GOK in March, 1988.

2. OBJECTIVES

The pre-appraisal has proposed that the overall development objectives of the project within the Arid and Semi-arid Land (ASAL) policy of FOK shall be to support a sustainable development process in the district based on:

- regeneration and preservation of natural resources,
- increased agricultural and livestock production, and,

- strengthening of local, institutional capacities leading to,
- improved living conditions for the population in the area.

The overall objective of the appraisal mission will be to prepare a project proposal which can be presented to the Danish financial authorities for approval. The mission shall thus:

- discuss the findings and recommendations of the pre-appraisal report with the concerned Kenyan authorities,
- undertake field studies to obtain additional information required mainly within soil conservation, range rehabilitation and agricultural extension,
- appraise the relevance and adequacy of the various project components,
- prepare a project proposal including a project budget and an outline plan of operation.

3. SCOPE OF WORK

The appraisal shall comprise but not necessarily be limited to the following:

Project design and management

- review and discuss with concerned authorities at central and district level the proposed organisational arrangement,
- discuss and elaborate on the proposed financial procedures,

Water conservation and supply

- propose a strategy for development of small scale water structures,
- prepare a programme for strengthening of survey capacity of DWE's department,
- outline a training programme for maintenance of water structures,
- make additional analysis of the potential water resources in the low eastern plains,

Livestock development

- determine the major constraints (social, economical and cultural) for strengthening livestock development through improved fodder and range rehabilitation based on controlled grazing,
- propose a strategy to deal with these problems,
- identify preliminary additional initiatives within livestock development - including possible ranching in the dry, eastern plains - which shall be considered for inclusion at a later stage.

Soil conservation

- assess the magnitude of soil conservation work required in the district for both cultivated land and grazing land,
- identify priority (catchment) areas for soil conservation activities,
- give recommendations regarding corrective and protective measures to be undertaken on various types of land for both sheet-, rill- and gully erosion,
- give recommendations regarding execution and maintenance of soil conservation work,

Agricultural extension

- look into the possibility of improving qualitatively the present "Training and Visit System" of agricultural extension where emphasis will be on demonstration plots, field days, i.e. activities which will be carried out on farmers' fields,
- propose suitable measures with respect to improved agricultural practices with regard to both plant production and animal husbandry,

Survey, monitoring and evaluation

- determine present and future need, scope and framework of survey, monitoring and evaluation activities,
- propose the specific content and methodology of a baseline survey and project monitoring system,

Training and mobilization

- determine the need, scope and framework of training and mobilization activities,
- propose the appropriate training, communication, and mobilization strategies for different target groups and types of training; identify types of communication materials needed,
- appraise the need, scope and framework of health, hygiene and family life education and consider a possible future community based health-care component,

Project implementation

- prepare a project budget,
- prepare an outline plan of operation,
- propose a strategy for the initial geographical concentration and subsequent expansion of the project,
- identify issues which shall be studied and/or clarified during the first two years with a view to be considered for inclusion of new components into the project, and
- prepare draft job descriptions for Danish advisers to be attached to the project.

4. REPORTING

Prior to its departure from Kenya the mission shall prepare and discuss with the involved GOK authorities a brief of findings and recommendations.

This brief should contain rough budget estimates.

The mission shall prepare a report in English according to "Danida Project Guidelines for Appraisal and Planning". The final report shall be submitted to GOK within one month of the missions departure from Kenya.

5. COMPOSITION AND TIMING OF THE MISSION

The mission shall cover the following fields of expertise:

- administrative and financial procedures,
- hydrology and water supply,

- agricultural extension services,
- soil and moisture conservation,
- fodder production, range rehabilitation and management,
- training and mobilization,
- survey and monitoring systems,
- social relations of rural Kenya.

The fields should be covered by Danish or Kenyan consultants to the extent possible.

The mission should take place during May or June, 1988.

ANNEX 2 - List of people met.

ANNEX 2.

LIST OF PEOPLE MET.

I. Government of Kenya, Nairobi

Ministry of Finance:

Mr. Mwaniki, Head of accounting Service
Mr. M.M. Shambi, Senior Ass. Secretary, External Resources

Ministry of Planning and National Development:

Mr. M. Gachako, Principle Economist, Rural Planning Div.
Mr. Kalikandar, Sen. Planning Officer, Rural Planning Div.
Dr. Oburu Oginga, Planning Officer, Rural Planning Div.
Mr. J.O. Nyamwange, Planning Officer, Rural Planning Div.
Mr. D.M. Katiku, Planning Officer, Rural Planning Div.

Ministry of Water Development:

Mr. Nchogo, Deputy Chief Engineer,
Mr. M.R. Anderson, SIDA Programme Coordinator

Ministry of Agricultural Development:

Mr. Kimaru, Head of soil conservation Branch
Mr. Muchuru, Dept. of Agr. Engineering
Mr. G. Muchiri, D.D.A. (engineering)
Mr. M.M. Mukolwe, D.D.A.
Mr. J.K. Mburu, Coordinator ASAL Soil & Water Cons.
Programme

Ministry of Livestock Development:

Mr. Chege, Chief Range Management Division
Mr. J.K. Tendwa, Project Management Officer
Mr. Muthi, S.R.O., Range Management Division
Mr. F. Nyarega, L.M.O., Livestock Marketing Division
Mr. J.K. Wanjaiya, L.P.O., Livestock Production Division
Mr. J.N. Hatei, Planning Officer, Livestock Planning Div.

Ministry of Environmental Natural Resources:

Mr. G.M. Kinyanjui, Forest Department, World Bank Project.

Ministry of Culture and Social Services:

Mr. C. Mathangani, Ass. Commissioner, Dept. of Social
Sciences.

Mr. J. Muli, Department of Social Sciences.

II. Government of Kenya, Kitui District.

Hon. P.N. Mbai, Ass. Minister, MP for Mutomo

Mr. C.A. Akello, Acting D.C.

Mr. S.M. Kitaka, D.D.O.

Mr. C.M. Maluli, D.W.E.

Mr. Maina, Senior Inspector of Water Supply

Mr. J.K. Omokamba, D.A.O.

Ms. W. Kamau, Ag. D.A.O.

Mr. D.K. Waithaka, Project Manager, Mutomo Project

Mr. P. Enhard, DANIDA Coordinator, Mutomo Project

Mr. E.N. Petersen, Water Conservation Adviser, Mutomo Project

Mr. W.M. Wandai, D.L.P.O.

Mr. B.M. Kithendu, Ag. D.L.P.O.

Mr. J.M. Ndeleva, D.H.O.

Mr. J.M.M. Mutunga, D.S.D.O.

Mr. B.K. Njuguna, D.S.D.O. I

Mr. R.M. Gicia, District Supplies Officer

Mr. E.W. Mathai, District Internal Auditor

Mrs. J.S. Nzelu, ASDO-I, Department of Social Services.

III. Others.

Mr. Jan Arne Munkeby, NORAD

Mr. Jonson, SIDA

Mr. Hendrichs, Dev. Officer, Royal Dutch Embassy

Ms. E. Kely, UNICEF.

Mr. John Spring, Programme Coordinator, UNICEF

Mr. M.S.T.C. Batson, consultant & Planner in Rural Health Engineering, UNICEF

Dr. Michael Halderman, World Bank Consultant, Sociologist/Livestock/range-rehabilitation

Mr. S. Jacobi, World Bank, Water Group, Nairobi

Mr. E. Ravdal, Engineer, Norconsult, Nairobi.

ANNEX 3 - Programme of Appraisal Mission

ANNEX 3. Programme of Appraisal Mission.

<u>DATE</u>	<u>TIME</u>	<u>PROGRAMME</u>
30.5	06.00	Arrival Nairobi
	08.00	DANIDA office
	09.00	Min. of Planning and National Development
	14.30	Min. of Agriculture
31.5	09.00	Min. of Finance
	10.00	Min. of Environment and Natural Resources, Forestry Department.
		Min. of Culture and Social Services.
	11.00	Min. of Planning and National Development.
	14.00	Min. of Water Development Min. of Livestock Development.
01.06	13.00	To Kitui.
02.06	09.00	District Commissioner
	11.00	Meeting with Mutomo Team
03.06	08.00	Field Trip to Central Division
04.06	08.00	Field trip to Mutomo Division
05.06		A.M. Discussions
06.06		Field trip to Kyuso, Mutitu and Mwingi Divisions
07.06		
08.06	08.00	Meetings with District Heads
	10.00	Meeting with D.D.O. and ASAL Programme Officer.
09.06	09.00	Debriefing D.C.'s Office, Kitui
	13.00	Return to Nairobi
10.06	10.00	Min. of Finance World Bank
	12.00	UNICEF
10.6-17.6		Report writing
13.06	8.00	Dutch Development Assistance Office
14.06	10.00	DANIDA (Mr. Jan Bahnsen)

15.06	08.00	NORAD
	09.30	Min. of Planning. Presentation of Summary of Findings
17.06	09.00	Min. of Planning and National Development. Debriefing meeting with representatives from implementing ministries.

ANNEX 4 - Programme Implementation Cycle

ANNEX 4 - Programme implementation cycle; phasing of survey and monitoring activities:

1	2	3	4	5	6
Socio-economic baseline survey	<p>Inventories of Catchment areas</p> <p>Inventory of existing community organisation and leadership structures as the initial point of community contact.</p> <p>Socio-demographic inventory</p> <p>Site selection for water points</p> <p>Land use pattern</p>	<p>Mobilization of development committees & self-help groups</p> <p>Final identification & siting of water project(s) & appropriate soil conservation and rehabilitation measures</p>	<p>Implementation of programme activities, water, livestock, soil, conservation etc.</p> <p>Extension & training of self-help groups/farmers</p> <p>Self-help labour campaigns</p>	<p>Operation & maintenance of physical achievements (water, soil conservation).</p> <p>Continued extension & training of self-help groups/farmers</p>	<p>Study of socio-economic impact of the Programme (year 5)</p> <p>Impact monitoring of selected activities</p> <p>Progress monitoring. Impact monitoring. Reporting.</p>
	<p>Potential and need for water harvesting and supply</p> <p>Need/potential for soil conservation & range rehabilitation</p>	<p>Training of self-help groups/farmers</p> <p>Progress monitoring. Reporting.</p>	<p>Demonstrations, trials</p>	<p>Impact monitoring of selected activities</p>	

ANNEX 5 - List of Documentation available to the A.M.

ANNEX 5.

List of Documentation available to A.M.

1. DANIDA, Mutomo Soil and Waterconservation Project, Evaluation Report prepared by Joint DANIDA/- G.O.K. Mission, December, 1987.
2. DANIDA, Kitui Arid and Semi-Arid Lands Development Programme. Pre-appraisal Report Prepared for DANIDA by a Mission Visiting Kenya 23 January to 10 February 1988. March 1988.
3. DANIDA, Strategisk Planlægning - Perspektiver og strategier delrapport: Kenya. Februar 1988.
4. Republic of Kenya, Kitui District Development Plan 1984/88. Ministry of Finance and Planning, 1987.
5. Republic of Kenya, District Focus for Rural Development, Office of the President. Revised March 1987.
6. Republic of Kenya, 1986 Sessional Paper No.1 on Economic Management for Renewed Growth. Office of the President 1986.
7. Republic of Kenya, Development Estimates for the year 1987/88. District Allocations. 1987.
8. Republic of Kenya, Economic Survey 1988. June 1988.
9. Republic of Kenya, Arid and Semi-Arid Lands Development Project. Five Year Development Plan for Continuation of Kitui ASAL Project Activities. Louis Berger International INC. August 1987.
10. Republic of Kenya, Kitui ASAL Final Report vol. I-V, Louis Berger. International Inc. for Ministry of Planning and National Development, February 1988.
11. Republic of Kenya, Kitui District Water Resources Study, Phase II. Prefeasibility, vol. 3, May 1983, Ministry of Economic Planning and Development.
12. Republic of Kenya, Ministry of Agriculture, Draft Development Plan 1988/92. Kitui 1988.
13. IFAD, A Second-Generation Strategy for Reclamation and Development in the Arid-and Semi-Arid Lands. Kenya, 1989-93. Draft, Nairobi, April, 1988.

ANNEX 6 - List of office-, stores, workshop- and guesthouse
requirements.

ANNEX 6a

Kitui District H.Q.

Proposed Buildings

A.P.O.	F.O.	Meeting/ Conference Hall (Library)	S.M.O.	F.O.	S.M.Adv.	A.T.O.	Toilet	152 m ²	Ksh 532.000 Dkr. 205.000
4m									

38 m

A.W.E	F.O.	A.W. adv.	ASAL store	60 m ²	ksh 210.000 d.kr. 81.000
4m					

15

NB! Equipment to be transferred
from Mutomo

Workshop

Cost of construction plus
cost of transfer:

ksh 300.000
d.kr. 115.000

Cost of Kitui ASAL District H.Q. Construction Activities:

205.000

81.000
115.000
d.kr. 401.000

ANNEX 6b

Divisional Office Block

Meeting-room	s t o r e	office	f o	office	t o i l e t	office	f o	office	s t o r e	office	f o	office
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6 m	48 m
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$$192 \text{ m}^2 = 672.000 \text{ shs} = 260.000 \text{ kr.}$$

18 m

B.R.	LIVING/DINING	B.R./OFFICE	8 m
TOILET			
B.R.	KITCH.	BATHROOM/TOILET	

$$144 \text{ m}^2 = 576.000 \text{ shs} = 225.000 \text{ kr.}$$

Cost of Divisional Constructions
in Kyuso and Mutito
 $2 \times (260.000 + 225.000) = 970.000 \text{ kr}$

Kyuso Division Forest Office

	s t o r e	office	f o	
MOWD	MENR		PMU	

In Kyuso an office, front office and store is added to the Divisional Office block (total 40 m² to serve the needs of MENR.
Extra cost approx.

55.000 kr

ANNEX 7 - List of equipment

Annex 7a

Existing and required equipment for
MOWD and MOA Water Component

Type of Equipment	(1) Equipment operational in Mutomo	(2) Equipment required in MOWD	(3) Equipment required in MOA	(4) Equipment to be procured by year (a) year 0 (b) year 3
<u>Construction Equipment</u>				
Tractores	7	3	5	1 7
Trailers	7	3	5	1 7
Watertanks	4	3	5	4 4
Waterbowzers (6m ³)	-	1		1
Concrete mixers	-	6	6	12
Vibrators	-	2	2	4
Handdrilling rig	1	1	2	1 1
Auger Survey Set	-	1	4	5 1
<u>Field equipment</u>				
Uni-nuts	-	20	20	40
Tents	-	20	20	40
Survey/Levelling e	-	3	3	6
Drawing Equipment	-	3		3
Hand tool sets	-	5	5	10
Water quality test equipment	-	2	-	2
<u>Transport Equipment</u>				
Lorries (3 1/2 t)	2	1	-	- 1
Lorries (7 t)	-	1	1	2 2
Hardtop 4 w.d.	2	1	1	2 2
Pick up 4.w.d.	2	4	4	6 25
Motorbikes	25	15	15	5 -
Bicycles	50	-	-	-

ANNEX 7b

Transport, Construction and Office Equipment to beprocured by DANIDA

	P.M.U. Plan. M.T. S.M.			Water devel. (Mowd + Moa)	Agr.devel. (Moa)	Livestock devel. (Mold)	Total
<u>Transport</u>							
st.w.4 wd.	1	1	1	3	3	1	10
pick up				8	2	5	15
4 wd.							
Hard tops				2			2
4 wd.							
lorries				2			2
(7t)							
lorries				1		1	2
(3 1/2)t							
buss					1		1
(12 seats)					16		126
Motorbikes	38	7		30	100	35	100
bicycles							
<u>Construc.</u>							
Tractors				8			8
Trailers				8			8
watertanks				8			8
water-							
bowser				1			1
concrete							
mixer				12			12
vibrators				4			4
handdril-							
ling				3			3
Survey set				5			5
<u>Office</u>							
<u>Equipment</u>							
Generators							2
Typewriter	2	4	3	2	4		15
Personal							
computers	1		1	1			3
Photo-							
coping	1	1					2
Duplica							
tors					2.		2

ANNEX 8 - Job descriptions

ANNEX 8a

DANIDA/KENYA

Kitui District ASAL PROGRAMME (1989-94)

Job Description

for

Senior Rural Development Planning Adviser

Objectives:

The Senior Rural Development Planning Adviser will work in close cooperation with the ASAL Programme Officer, who is the Head of the Programme Management Unit (P.M.U.) of the Kitui ASAL Programme. He/she will report to the Head of the Rural Planning Division, Min. of Planning and National Development.

The adviser will advise and assist in the overall planning, coordination, monitoring, project auditing and reporting on all Kitui-ASAL Programme Activities. The adviser is responsible for the preparation of accounts and reports to Danida and for the coordination and supervision of the work of the Danida advisers attached to the programme.

The adviser will work in close cooperation with the District Planning Team and the Heads of ASAL sections of Implementing Ministries. He/she will assist the ASAL Programme Officer as the secretary of the Programme Steering Committee (the P.S.C. is a subcommittee of the District Executive Committee under the D.D.C.).

Duties:

The advisory services will include the following activities:

- . Assist in the overall planning and coordination of Kitui Asal Programme Activities.
- . Prepare Plan of Operation and detailed work programmes based on inputs received from the implementing officers of the respective ministries and Danida advisers;
- . prepare project budgets based on the agreed Work Programme.
- . Assist in the development and implementation of monitoring and project auditing systems.
- . Ensure that results of survey and monitoring activities are integrated in project Work Plans and in preparation of a possible Phase Two of the project.

- . Countersign all documents involved in the procurement of services and materials for the ASAL such as tender documents, LPOs, LSOs and payment vouchers and assisted by the Programme accountant prepare monthly expenditure statements to G.O.K. and to DANIDA.
- . Be responsible for forwarding progress reports regularly to Danida.
- . Assist in the planning and implementation of the Institutional Development component of the Kitui ASAL Programme with special emphasis on identification of:
 - Areas in which reforms in established bureaucratic procedures and systems can contribute to increased efficiency in order to maximise the utilisation 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 G.O.K. 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.
- . Assist in the establishment of relevant links to other ASAL programmes with the objective of strengthening the communication and exchange of know how and experiences of relevance to development in ASAL areas.
- . Assist in the preparation and coordination of semi-annual workplans and budgets for the P.M.U. and the various ASAL programme components.

Duty Station.

P.M.U., Ministry of Planning and National Development, Kitui District.

Qualifications:

A master degree in Development Planning, Development Economics or similar.

At least 10 years of postuniversity professional experience in planning, coordination and monitoring of rural development programmes.

Experiences from development work with emphasis on Institutional Development and Personnel Development/Training, preferably from East Africa.

Readiness and ability to work with and inspire colleagues in the District civil service.

A full working knowledge of English is essential and knowledge of Kiswahili/kikamba an advantage.

DANIDA/KENYA

KITUI ASAL PROGRAMME

Job Description

for

Survey and Monitoring Adviser

Objectives

The Survey and Monitoring Adviser will assist the Survey and Monitoring Officer of the Project Management Unit in implementing the activities of Survey and Monitoring Component and shall support the project management with advice and assistance based on information generated from surveys and monitoring of project activities. In the planning and implementing of specific survey and monitoring activities he/she shall collaborate closely with relevant implementing officers and Danida advisers. He/she shall report to and work in close cooperation with the Programme Officer and Senior Rural Development Planning Adviser, and with departmental heads as required, in all activities related to the development efforts of the programme.

Duties

The advisory services will include the following activities:

- develop a system for monitoring project progress and impact including attention to socio-economic aspects; develop progress monitoring indicators, in collaboration with other project components and the project management;
- monitor community participation in the programme's agriculture, forestry and water sector work, in particular with regard to future full local takeover of operations once Danida support comes to an end; make recommendations for organizational and institutional set-up and inputs;
- collaborate with all implementing officers and advisers in data collection for the monitoring of activities;
- collaborate with relevant government departments and the training and mobilization section assessing support to be given to women's and other self-help groups;
- carry out socio-demographic and community organization inventories in each catchment area preceding water conservation/supply, soil conservation and range rehabilitation activities, to provide information for the planning of these activities; advise on community

organization such as establishment of soil conservation and water committees, on the basis of surveys and monitoring results.

- carry out special studies based on the project's identification of activities and, based on findings, recommend necessary action to be taken;
- prepare semi-annual work plans, budgets and reports for the project management;
- engage and supervise external consultant for special studies and for survey and monitoring tasks as required;
- In addition the activities shall be guided by all the specific recommendations of the appraisal report for the programme.

Duty Station

S & M section of PMU, Ministry of Planning and National Development, Kitui District.

Qualifications

A master degree in Social Anthropology, Sociology, Development Economics, or related fields of the social sciences. At least five years post-graduate professional working experience in social-economic monitoring, survey or evaluation, and community organization, within the framework of integrated rural development work or related development areas.

Preferably this experience should be based on working in developing countries. Fluency in spoken and written English is essential and ability to communicate in Kikamba and Kiswahili would be a great advantage.

DANIDA/KENYA

KITUI ASAL PROGRAMME

Job Description

for

Training Officer

Objectives

The training officer will be responsible for implementing the activities of the Project Management Unit Training Section and will support the project management with advise and assistance on the project's training, communication and community organization strategies. He/she shall report to the Programme Officer and the Project ASAL Planning Adviser and shall maintain close cooperation with both these officers concerning all activities related to development efforts of the programme. He/she will work in close cooperation with the Social Services Department of the Ministry of Culture and Social Services, and other relevant implementing officers/advisers. He/she shall collaborate with other relevant government, NGO and donor agencies in Kitui and elsewhere in Kenya involved in training, communication and community participation.

Duties

The advisory services will include the following activities:

- prepare a comprehensive project strategy and methodology for training, including community mobilization aspects, as a framework plan for training activities in Phase I of the programme,
- identify training needs in the programme area, including an inventory of target groups to be trained,
- liaise closely with Development Committees at various levels,
- establish and introduce appropriate communication techniques of specific relevance to the different social contexts of training and communication, prepare training curriculum and communication materials for each category of training based on experiences available in Kenya,

- organize and implement project training activities covering the immediate target groups, development committees, community leaders, government frontline staff and training of trainers as necessary,
- carry out follow-up on training activities based on immediate feed-back information and monitoring data/-reports,
- promote organizational and management skills to local committees and women's groups
- provide internal and external orientation about project objectives, strategy and range of activities,
- work together with each relevant government department to define their role in the project's training activities and subsequently ensure that activities are carried out through and in close collaboration with the departmental staff,
- prepare manuals for community organization and training and
- prepare semi-annual work plans, budgets and reports for the programme management.

In addition, the activities shall be guided by all the specific recommendations of the Appraisal Report for the programme.

Duty Station

The M & T section of PMU, Ministry of Planning and National Development, Kitui District. Extensive travelling within the district will be required.

Qualifications

A master degree in a relevant social science discipline such as Communication, Sociology or Social Anthropology. At least five years post-graduate professional working experience in training, communication and community organization within the framework of integrated rural development projects. Preferably this experience should be based on working in Government or NGO implemented programmes in Kenya. A full working knowledge of English is essential and some knowledge of Kikamba will be a great advantage.

DANIDA/KENYA

KITUI DISTRICT ASAL PROGRAMME (1989-94)

JOB DESCRIPTION

FOR

SENIOR WATER ENGINEER ADVISER

Objectives

The water Engineer Adviser will work in a special ASAL-water Unit to be established in the Kitui District Water Office. He/she will work in close cooperation with the MOWD - Senior Water Engineer in charge of the ASAL-Water Unit as well as with the District Water Engineer. He will assist in the planning, design and implementation of MOWD-water supply schemes within the ASAL-programm. He/she shall report to the Programme Officer and the Project Coordinator and shall maintain close cooperation with both these officers concerning all activities related to development efforts of the programme. Cooperation shall also be maintained with relevant implementing officers and DANIDA advisers within the ASAL programme.

Duties

The advisory services will include the following activities:

- assist and conduct on-the-job training for MOWD district and divisional staff in survey and design of spring-fed piped gravity schemes;
- assist in the selection of sites, in the design and supervision of construction of water conservation schemes (rock catchments, subsurface - and sanddams, small earth dams and shallow wells);
- assessment of present water supply situation and water demands in rural areas.
- elaboration of training programmes for local water committees and consumers in the proper use and maintenance of the water supply facilities;
- collaborate with the Survey and Monitoring Section of the P.M.U in the monitoring of the functioning of the Operation and Maintenance of completed water supply schemes;
- compile and consolidate data on water quality, spring flows, ground water conditions and meteorological

observations and prepare water balance calculations as required;

- prepare semi-annual work plans and budgets as well as quarterly and annual progress reports that will be submitted to the PMU through the DWE.

Duty Station

ASAL section of District Water Office, M.O.W.D, Kitui District.

Qualifications

At least 5 years of professional experience in the planning, design and implementation of small-scale water supply in developing countries, in particular piped gravity schemes; readiness and ability to work with and carry out on-the-job training of technical staff as well as local water committees/consumers. A full working knowledge of English is essential and some knowledge of Kiswahili will be an advantage.

DRAFT

Terms of reference

for

Preparatory Activities for the Kitui ASAL Programme

Water Development

1. Background

The Government of Kenya and DANIDA are presently preparing a Kitui ASAL Programme for the period 1989-94. It may partly be seen as a continuation of the previous USAID funded Kitui ASAL Project that terminated by the end of 1988, partly as an extension and expansion of the ongoing Mutomo Soil and Water Conservation Project funded by DANIDA. The Kitui ASAL Programme under preparation will start July 1989, at the same time the Mutomo-project will undertake some preparatory activities for the future ASAL Programme.

In particular during the upstart of the water component of the proposed ASAL Programme high priority is ascribed to rehabilitation/completion of schemes from the previous ASAL Project.

2. Objectives

The overall objectives of the preparatory activities are to create the best possible basis for the upstart of the water development component of the proposed Kitui ASAL Programme.

3. Scope of Work

The overall objectives are accomplished by the following activities:

- based on existing reports and files supplemented by field visits a survey of all water development and conservation schemes implemented during the previous Kitui ASAL Project should be undertaken (MOWD as well as MOA);
- based on the survey, a report should be prepared for each of the ASAL-schemes, describing the degree of completion, functioning and - if appropriate - the technical and economic viability of rehabilitation and/or completion.

4. Reporting and timing

A report shall be prepared in English, describing the activities carried out.

The report should be submitted to DANIDA in time for it to be utilized as an input connection with the preparation of the detailed Plan of Operation of the proposed Kitui ASAL Programme.

5. Staffing and Duration of Activities

The work will be carried out by Mr. Erik Nissen Petersen, Water Conservation Adviser, on a part-time basis, with necessary support regarding typing, drawing, etc. from the Mutomo Project Staff.

The total effective work-load of the described activities is estimated to be 3-4 months.

ANNEX 9 - Terms of Reference for Livestock Sector Study

Terms of Reference
for
a Livestock Sector Study
to plan Livestock Development Activities
under the Danida supported Kitui ASAL programme

Background

In 1979 the Government of Kenya issued a paper which set forth its policy on development of the arid and semi-arid lands (ASAL) of the country. As the paper explains, exploitation of the productive potential of these marginal areas will be pursued with special regard to the necessity of ensuring progress for their human population on the basis of conservation of the natural resources that sustain their livelihood. In 1983 GOK launched its District Focus for Rural Development Strategy which builds on the philosophy that development should be initiated, planned and implemented in close cooperation with the population of the rural areas concerned.

Taking the strategy of these combined policies into account, Danida set up a project in Mutomo/Kitui to investigate, on a pilot scale, the possibilities for contributing to development in the semi-arid areas in Kenya. Based on experience gained from this involvement and following the outcomes of a recent planning exercise to strengthen the efforts on natural resources rehabilitation and conservation in Danish development cooperation, Danida is presently considering a proposal from the Government of Kenya to expand its support to the entire Kitui District.

In February 1988 a preappraisal mission visited Kitui and presented an outline of the Kitui ASAL Development Programme. This proposal was subsequently subjected to an appraisal which took place in May-June 1988. The appraisal mission put forward its revised proposal for a programme which would provide support to development district-wide, utilizing environmentally sound and sustainable forms of agriculture and livestock husbandry.

The programme encompasses measures on soil and moisture conservation, water development and conservation, livestock development, forestry and allied support activities. The appraisal mission identified a need for

further study of livestock husbandry in the region as a prerequisite to identifying appropriate programme activities in this field. The present Terms-of-Reference provide the framework for undertaking this study and for recommending livestock husbandry activities which would fit into and complement the activities proposed in the outlined plan of operation of the Kitui ASAL Development Programme.

Arid and semi-arid areas, such as Kitui District, traditionally supported nomadic and semi-nomadic pastoralists. By moving their mixed herds of livestock in search of forage and water the pastoralists were able to exploit the low and uncertain rainfall of the drylands more successfully than settled agriculturalists. In recent times, however, the pastoral economy has been exposed to increasing pressure as a result of the encroachment of farmers on the territories of the nomads and a sequence of severe droughts.

The growing pressure of humans and livestock has resulted in degradation of the vegetation, soils and water resources of the district. To what extent this is an entirely new phenomenon or, rather, a recurring process associated with medium-term climatic fluctuations remains a matter of dispute. The interpretation of this problematique, obviously, has important implications for the choice of an appropriate development strategy.

Objectives

The objectives of the consultancy are to:

- describe livestock keeping practices in Kitui district over time,
- identify constraints to and potentials for the adoption of environmentally sound livestock husbandry in the district which at the same time would increase productivity,
- to recommend suitable areas of intervention and propose specific activities to be incorporated in the Plan of Operation for the Kitui ASAL Programme.

Scope of Work

While taking the recommendations and proposed activities of the Appraisal Report duly into account, the consultancy shall include but not necessarily be limited to the following tasks:

Part I:

Collection and analysis of information on technical, socio-economic and environmental aspects of livestock practices in Kitui District covering:

1. A brief description of the history of the pastoral economy in its various forms and with a focus on land use systems.
2. Identification of ethnic groups engaged in livestock activities and a description of their respective systems of pastoralism.
3. Analysis of socio-economic, legal, organizational and political factors of importance to the development of livestock husbandry.
 - mechanisms for maintaining and regulating access to grazing and browsing,
 - the role of livestock and derived products in maintaining social order and social relationships.
4. The role of climatic changes and related shifts in land used for sedentary agriculture or (nomadic) pastoralism.
5. An assessment of the relative importance of man-made versus climate induced reduction in vegetation cover and associated degradation of soil and water resources.
6. Systems of crisis management among pastoralists during droughts.
7. Changes in herd composition (permanent or temporary) covering number of species caused by e.g. environmental disturbance or other reasons,
8. Changes - permanent or temporary - in the socio-economic structure of pastoralist groups caused by shifts in livestock husbandry practices including e.g.:
 - changes in community and intercommunity social relations, cohesion and stratification,
 - changes in gender specific rights and division of labour within livestock activities.
9. Pastoralists own rationale for keeping livestock and their perception of and response to environmental threats, including actual "adaption" and "survival" strategies.

10. The impact of labour migration on livestock practices.
11. The consequence of changes in the spational mobility of people and livestock for possible further reduction of the vegetation cover and the viability of pastoralism.
12. The role of livestock and derived products in regional and national trade incl. the impact of pricing and trade policies.
13. Reduction of grazing and browsing areas due to e.g. expansion of areas under permanent cropping and number of livestock kept.
14. Institutional support to livestock husbandry in the district covering:
 - the role of land adjudication
 - the role of extension and education
 - the role of veterinary services,
 - the prospects of utilizing breeding technologies for livestock productivity improvement,
 - livestock marketing facilities/arrangements and price regulations,
 - facilities to advise on climatic fluctuations and early warning systems.

Part II

Recommendations of suitable areas of intervention, policy issues to be addressed and proposals for specific activities to be incorporated in the Kitui ASAL Programme covering:

1. A method to identify programme activities which ensures the participation of the concerned communities also in the subsequent planning and implementation stages. Such a participatory approach should be able to take into account the knowledge, ideas and priorities of the intended beneficiaries. The method should be adapted to the District Focus for Rural Development Strategy.
2. Specific livestock development activities: considering the following range rehabilitation and range management measures:
 - watershed management, e.g. grazing control (f.ex. through increased social control),
 - protection of rivers and streams,

- protection and improvement of severely degraded land,
 - improved management of ranges, and their water resources,
 - production of fodder and establishment of fodder reserves,
 - ways of improving or establishing integrated cropping and livestock activities.
3. The role of species, herd composition and cross-breeding.
 4. The scope for management of pests and livestock disease. Through traditional vector and disease control measures.
 5. The scope for improvement of livestock health through veterinary services.
 6. Facilities and arrangements required for an improvement of marketing of livestock and livestock products.
 7. Potentials for using animal traction.
 8. The needs for training and education in support of livestock development activities.
 9. Improvement of livestock extension services including size, scope, tasks and activities to be undertaken by a network of extension workers. The role and active involvement of the TAs of the Ministry of Agriculture should be carefully considered, especially in the higher potential areas (ref. Agricultural Extension chapter in the Appraisal Report).
 10. Proposals for institutional/ministerial arrangements and responsibilities for the list of activities identified in points 1 - 9 above.
 11. Proposals for time sequences and manpower requirements to implement the proposed activities.
 12. Prepare an outline for a Plan of Operation for a five year period including a detailed work plan and budget for the first year of implementation.
 13. Policy issues requiring action at the levels of location, district and national administration covering:
 - land adjudication and traditional rights of access and use of range lands,
 - favourable pricing of livestock and livestock pro-

ducts to create incentives for marketing,

- adaption of education and training facilities to serve the practical requirements of pastoralists.

14. Identification of topics which require further research and studies under the Kitui ASAL Programme.

Composition of the consultancy team

The team will consist of:

Mr. Martin Adams, Agriculturist and Rural Development Planner, Team leader

Mr., Kenyan Livestock Expert

Dr. Elisabeth.A. Wily, Social Anthropologist and Development Planner

Ms., Kenyan Sociologist.

The team shall work in close collaboration with the Ministry of Livestock Development in Kitui District all-through the period of the consultancy.

Timing

The consultancy shall take place in the period from 10th of January to 15th of April 1989. The Team leader shall work during the periods 10th January - 12th February and from 1st April to 15th April 1989.

The other three team members shall work throughout the consultancy period.

The consultancy shall be divided into two parts viz.:

- 1) The first two months will be spent on collecting and analysing data and information on technical, socio-economic and environmental aspects of livestock practices in the district.
- 2) During the third month operational proposals for livestock development activities to be taken up in the Kitui ASAL Programme shall be produced.

- 7 -

A draft report shall be ready by 1st of April before the team departs from Kenya. The team leader will be responsible for submission of the final report by 1st of May 1989.

DB.V., 14 December 1988

Kurt Mørck Jensen

ANNEX 10 - Livestock Development - Report on Interim Finding,
10th February, 1989

DANIDA KITUI ASAL PROJECT
LIVESTOCK DEVELOPMENT
REPORT ON INTERIM FINDINGS
10 February, 1989

1. Introduction

The purpose of the report is to set out the preliminary conclusions of the agricultural planner[1] for consideration by the various parties in preparation for the drafting of the proposed livestock sector programme and budget for 1989/90 - 1990/91. The report follows four weeks of field visits and discussions with government officials in January and February 1989.

This report is intended to be a consultative document. It is just one of the inputs into the programming exercise for the livestock sector in Kitui District. Specific technical issues raised by this preliminary report will be followed up prior to the final drafting session. Field studies are in progress to assess the problems of livestock production as perceived by local people.

The drafting of the final proposals is scheduled for the week beginning 3 April 1989, in Kitui, during which comments on this interim report will be taken into account.

In Sections 2 and 3 the report summarises the conclusions and recommendations of documents relating to the development of the livestock sector in Kitui District which were prepared in Phase I and II of the Kitui ASAL project.

2. USAID-funded Kitui ASAL Project

2.1 Water Development and Range Condition Study, Kitui District Water Resources Study, May 1983

The timing of the Danida Livestock Mission to Kitui District in January 1989 coincided with the end of one of the most satisfactory "short rains" that local people could remember. The countryside was uniformly green and luxuriant. However, these conditions were recognised to be positively misleading.

This is made clear by a study of the above-mentioned report. During October 1982, at the end of the dry season before the short rains, the Kenya Rangeland Ecology Monitoring Unit (KREMU) conducted a survey in the district as part of the USAID-funded Kitui District Water Resources Study. KREMU investigated the relationship between range condition and water point type and availability. The intention was to determine if the various

[1] Martin Adams, Danida Consultant

levels of intensity of grazing around water points caused significant damage to the vegetation and to the soil.

The survey included various types of water point (bore holes, dams, rock catchments, rivers, ponds, wells in river beds) of different yield and number of years operation. Forty-two vegetative stands around thirty-three water points were sampled in four divisions (Eastern, Southern, Northern and Mwingi). The preferences of cattle and goats for the various vegetative species were determined.

The conclusions of the survey are of considerable importance for the planning of livestock water development and range rehabilitation in the District. The survey found no correlation between the observed range condition and either water point type or its seasonality of use. The rangelands were found to be in such uniformly poor condition that the effects (if any) of water points were masked by dense bush, little or no perennial grass cover and fairly extensive soil erosion. Despite the fairly long distances to water (up to 10 km or more), range condition was more or less as bad as near permanent water.

This conclusion challenges the commonly held view (e.g. in the Danida Draft Appraisal Report, 1988, page 43) that grazing resources of the district can be developed by the provision of more water and also that uncontrolled water development could be damaging. KREMU concluded that as long as range condition was so poor, water development could scarcely worsen it.[2]

Although most stands had a high proportion of browse relished by goats, much of the vegetative cover was found to be woody and unpalatable, particularly to cattle. In contrast to the luxuriant woody layer, the herb/dwarf shrub layer was found to be extremely sparse and perennial grasses were virtually absent in all stands. The spotty cover of individual species suggested recent (i.e. in the last few decades) disturbance and severe and continuing impact of grazing.

KREMU conclude that, without a range rehabilitation programme (of rest, rotation, thinning, seeding, burning and planting) the woody bushland was best used for goat ranching and charcoal production, an option which KREMU explore in some detail.

Two of the sites (in Southern Division) were found to be anomalous and reflected the absence of stock which was confirmed by the local chief. All stock had been wiped out a few years previously by disease and had not been reintroduced. This was taken as evidence that elsewhere perennial grasses had succumbed to continued grazing pressure and that, with careful management, they could once again form the bulk of the herb layer.

[2] This is not to deny that additional provision of strategically placed watering points within specific range land units could be an aid to the introduction of range management, or that more or longer-lasting water sources could be useful for extending the range area for goats.

The KREMU survey quotes similar conclusions gathered by several earlier surveys. For example, Jordon (1957), an Agricultural Officer in the district (1951-61), noted that the problem was not reclamation itself, but the maintenance of grass cover afterwards. Using scratch ploughing and seeding, and "given favourable weather conditions, up to 80 per cent grass cover is established in 18 months after sowing and full cover in two years...". The problem was to protect areas to allow recovery and then to regulate the intensity of grazing afterwards.

Daines et al (1978) concluded that with proper management the land could probably support at least double the number of cattle on the land, except in extremely dry years. This conclusion is supported by the evidence that cattle numbers in the district (250,000 in 1986) are now considerably below their former level; Jordon (1957) recalled a 1949 estimate of 400,000 and Watson (1970) counted 427,000 in a systematic aerial census.

2.2 Range and livestock development proposals by Dr. Theuri J. Njoka, September, 1983

Due account of the KREMU findings was taken by Dr. Njoka of the Department of Range Management, University of Nairobi when he made recommendations for the range and livestock development component of the USAID-ASAL programme in September 1983. Part of the summary of his 75 page report to Government is reproduced below.

1. "Goat development for meat production is the most feasible livestock project for Kitui in the next two years. The importation of selected Galla goats from Tana River District or from other suitable areas can fulfill two major roles: 1) To establish goat multiplication centres for future production of superior breeding goats to meet the current high demand within and outside the district. 2) To supply superior Galla bucks to farmers for upgrading their East African goats without delay. The Galla x East African crosses are larger in size.
2. Promotion of dairy cattle industry around Kitui town will supply adequate milk for Kitui towns. Successful farmers will influence other farmers to go for dairy cattle.
3. Kitui is the leading district in honey production in the country, with an annual harvest of about 2000 metric tonnes. However, the industry is entirely dependent on traditional bee-keeping methods which produce poor quality honey in addition to wasting valuable bee wax. The honey and wax market is highly disorganised and over 80% of honey produced goes to the local brewing industry. The marketing of honey is the major constraint to the bee industry in Kitui.

4. Range rehabilitation programmes are very expensive and can only be justified in an extensive scale if the Kitui people agree to change traditional range resource use patterns. In view of the traditional range exploitation strategies, range rehabilitation measures are better carried out in the form of demonstration plots. Establishment of seed and fodder multiplication centres will provide rehabilitation materials to willing farmers. The demonstration centres may be sited in inaccessible bushland, low quality bushland, denuded areas and cultivated areas. A rest-rotation and a prescribed burning method may be experimented in one of the organized ranching enterprises such cooperative as or company ranches in Yatta plateau.
5. There is need for a multi-departmental range monitoring unit to study the long term effects of development activities in Kitui District. Relocation and documentation of old monitoring sites established by ALDEV, UNDP/FAO, KREMU and ILCA is a priority." (Njoka, 1983)

2.3 Livestock Development in the Kitui ASAL Project Phase II Work Plan

The recommendations of Dr. Njoka were set in the Phase II work plan. The rationale was explained in more detail in "Preliminary Proposals for the Second Phase Work Plan", dated July 1983. The work plan comprised the following:

"Broad Objectives: To bring about improved livestock production through adapted conservation and management techniques of low density range resources and high density mixed farming resources. This is to be done by applying and adapting current knowledge and research results to the Kitui situation through demonstration plots, expanded extension activities, and linkages with research and other livestock development institutions. Extension efforts will be coordinated with the soil and moisture conservation activities, in the catchments where overgrazing is a factor, for protecting water investments. Educational support will also be obtained through adult education and community development activities."

Activity/Targets

a. Range Resource Management

"During phase one, an analysis of the relationship between water development and range condition was carried out"....(see section 2.1 on KREMU findings). "A strong argument was made for exploitation of bushland through the use of goats who can feed on the bush, as well as possibly keep the bush under control, complemented by various other bush control measures.

The programme will therefore initiate the following activities:

- i. Range rehabilitation and bush control and demonstration plots. Five plots will be established to show various methods and techniques of bush control as well as a point of departure for extension."

Inputs: hand tools, fencing, casual labour: Ksh 116,000
- ii. "Grazing management demonstration. Extension assistance will be given to established ranches, with an emphasis on goat herding. Extension assistance will also be given in catchments where grazing must be controlled in order to protect water investments. Site plans will be coordinated with map-making activities in MOA. Advice in (i) and (ii) will be obtained through the USAID assisted Kiboko Range Research Station."

Inputs: no costs other than transport, see below
- iii. "Acquisition of fodder seed and establishment of fodder bulking sites for assistance in demonstration and extension. Seed will be acquired through Kiboko or other institutions. Four small bulking sites will be established in the district."

Inputs: seed, fencing, casual labour, hand tools: Ksh 164,000
- iv. "Establish range monitoring sites to detect and evaluate changes in range condition as a result of programme and development activities. A limited number would be established with the assistance of the existing Range Monitoring Unit in MOLD; presently at Kajiado."

Inputs: transport operation, travelling and accommodation (see below) misc. items, e.g. rain gauges: Ksh 90,000
- v. "Establish a pilot goat improvement scheme in coordination with the range management, bush control and exploitation activities noted in (i) and (ii) above. This will entail the acquisition of improved goats, either from MOLD ranches and research stations or other areas, such as

Garissa. The programme will purchase the animals, screen them for disease in a holding ground and resell them for cash to interested buyers in the district...."

Inputs: holding ground, infrastructure, drugs, chemicals, equipment and supplies: Ksh 510,000

- vi. "Assist in honey production as another form of bush utilization. This includes establishment of 22 modern apiary demonstrations, introducing production of modern hives at village polytechnics, construction of honey collection centres and extension support."

Inputs: apiary demonstrations, honey collection centres: Ksh 140,000

b. Mixed Farming Resource Management

"Increasing population pressure and land scarcity in the higher rainfall areas (primarily agroecological zone 4) is limiting grazing land available for family herds and the grazing pressure of these herds is causing severe erosion problems. If this problem is to be controlled, the traditional practice of maintaining large family herds needs to be reversed - people must be thinking in terms of quality not quantity.

The ASAL programme will attempt to begin this process through pre-extension trials with selected farmers within the higher potential areas. The focus will be upon upgrading cattle for primarily on-farm dairy production. The demonstrations will not only provide working examples of enhanced profitability of fewer animals per farm, but will hopefully also have beneficial health impacts from milk consumption and will show complementary benefits to crop production and water management through less land pressure and reduced soil erosion."

The activities proposed to achieve this end were:

- i. "Pre-extension farm inputs to be provided to cooperating farms; about 10-15 farms are envisaged for these activities. Farmers initially will be provided with some infrastructure for water and fodder production, as well as artificial insemination and health inputs, with the agreement that they assume annual costs thereafter."

Inputs: AI crushes, forage fertilizer, mineral supplements, water tanks, spray pumps, strip cups, drenching guns: Ksh 42,000

- ii. "Improving cattle health infrastructure in areas where extension activities are carried out. This will involve the repair of dips and if necessary construction of new dips."

Inputs: repair existing dips and construct new ones: Ksh 250,000

- iii. "Provide extension support through field days at pre-extension farms and advice to neighbouring farms. Education support will also be provided through adult education classes in adjacent areas. The 10 to 15 cooperating farmers will be required to attend training courses prior to and during the period of the programme. They will also be required to keep records and accounts of the work and transactions involved." (Phase II, ASAL-USAID Work Plan, 1983).

Transport, travelling, accommodation for MOLD staff and training of staff was estimated to cost Ksh. 1,776,000. The total budget for the Phase II programme was Ksh 3,118,000 or K£ 155,900, i.e. less than 2.5% of the planned costs of Phase II activities to be funded by USAID. Routine expenditure in the livestock sector within the district, e.g. the vaccination programme, was assumed to be covered by GOK.

2.4 Interim Evaluation of the Kitui ASAL Project USAID/Kenya, July 1985

An evaluation of the progress made by the Phase II project was carried out by USAID, two years after commencement. Dr. Njoka took part in this evaluation[3]. The following observations are extracted from the above-mentioned USAID report.

"Three immediate observations came to mind in reviewing the livestock component of the ASAL: a) it was something of an after-thought, b) it is wholly inadequately funded, and c) it is exceedingly important in the development of an arid semi-arid area. In Phase I, livestock development was not included. It was added when the Phase II Work Plan was formulated and, though it was recognised by many to be an essential element of smallholder development in Kitui, it was given a secondary place with a minimal budget, a

[3] His findings in a report entitled "Appraisal of ASAL Kitui Livestock Activities", June 1985, have yet to be reviewed. A copy of his report is not available in the ASAL office in Kitui.

total of US\$ 105,900 or £K 82,000, only a fraction of what was budgeted, for instance, for water development.[4]"

In evaluating the individual components of the programme, USAID made the following observations:

"Range rehabilitation:...Though there are various techniques for range rehabilitation, the focus of this activity is on revegetation or reseeding[5]. The demonstration plots are established on (five) individual farms"...."The objective is to motivate the individual farmers to use the reseeded plots as seed bulking or multiplication centres for their local areas and at the same time utilize the extra forage for their livestock.

By May 1985 six demonstration plots in three divisions were at various stages of revegetation. Though 80% of the total budget had been expended, only about 10% of the anticipated acreage had been covered. The principal constraint has been the non-availability of seeds and, obviously, limited funds, including a severe lack of logistic support for the livestock officer responsible for the work.

The success and possible spread or replicability of this activity is open to question, largely for two reasons: it is a relatively high investment activity and its effect is dependent upon the farmer accepting a whole package of livestock management techniques, including grazing management. Overgrazing and the consequent degradation of the ranges will continue."

"Grazing Management Demonstrations: The intent is to establish a viable grazing management system on three selected ranches, which will provide a model for other farmers. Grazing management involves a package that includes livestock management, range improvements such as firebreaks, water development and paddocking of the ranches.

[4] These figures are less than those given in the above-mentioned work plan. They presumably omit transport, travelling and accommodation of MOLD staff.

[5] The proposed work plan (July 1983) was more ambitious and included various methods of control for testing. Prescribed burning, hand clearing, arboricides as well as biological control - methods using goats and other species of animals were to be evaluated. Two pilot control plots were to be established - one in Eastern Division on "impenetrable" bush and one located in weedy bushland dominated by Duosperma (p.19).

The three ranches selected for development vary widely in their present level of management. The approach is to post technical officers at each to assist on an ongoing basis with ranch management. To date all three ranches are fully staffed and grazing plans are being prepared for each.

This effort involves improvement in a wide range of management skills and techniques. A concern is whether, given the complexity involved in improving management systems, the project approach can have an impact and whether it can be effectively replicated to a number of farmers. This is yet to be demonstrated."

"Range monitoring": ... "The activity was to establish baseline data on range resources - to be used to quantify changes over time".... "To date little has been achieved in terms of data collection"... "This is an important - and a long range activity".... "The project needs to move ahead with this work."

"Goat Improvement": ... "The objective, in general, is to improve the productivity of local goats through upgrading and cross-breeding. The target is to establish breeding stock - located at the GASP ranch - of 350 female goats which would be mated with selected Galla and Boer bucks. Initially the improved billies would be supplied to four mwethya groups at subsidized prices, as well as sold to individual farmers...."

"In addition to providing funds for the purchase of goats, the project was to finance GASP fencing materials, the construction of two water storage tanks, a pump and the necessary piping." [6]

"This activity was slow in being implemented" "and fails to address all the issues/problems relating to implementing an effective goat improvement scheme (e.g. an inefficient marketing system). Nevertheless, improved goat production holds considerable promise. The demand at present for improved bucks from GASP exceeds the supply by ten-fold."

Bee-Keeping: "The objective of this component is to introduce, on a demonstration basis, improved hives- which can produce 6 - 10 times more honey than log hives. The project is to provide 220 Kenya Top Bar Hives to

[6] The original proposal in the 1983 work plan was for the project to procure goats from Garissa and MOLD ranches and research stations. The idea of supporting the Goat and Sheep Project (GASP) of the Diocese of Kitui, came later.

twenty mwethya groups, as well as construct four collection centres and provide the inputs needed for proper honey harvesting. Presently 100 of the 220 hives have been purchased and provided to ten mwethya groups. One honey collection centre is already complete"

"Bee-keeping, like improved goat development""has considerable promise"...."a substantial number of households are presently involved in it, though using a technology that provides a low return. The proposed new technology is inexpensive and requires little change in behavioural patterns. And the potential return from bee-keeping is great - the costs are low and returns high. at the same time, project resources directed to this effort are miniscule; the activities will hardly leave a noticeable impact on either production levels or numbers of beneficiaries in Kitui"

"there is need for additional research related to bee-keeping. Low occupancy of some of these hives is being experienced. Likewise, the issue of drought and the effects of high temperature during the dry season needs attention."

Pre-Dairy Extension:..."The aim was to select 20 individual farmers from Central Division (a relatively high rainfall area) to carry out demonstration activities...."By early 1985 only seven farmers were involved and three dips renovated and functioning. In addition, three multi-purpose crushes were constructed to serve A.I centres."

"While some argue that dairy production should be actively encouraged, others demur[7]. The activity requires a substantial input per farmer and substantial reporting services. Further, the required level of management is high. While for some farmers it may be promising, for most such is not the case. Other productive activities have a greater potential." (USAID, 1985)

The USAID evaluation goes on to observe that the mwethya group involvement in the livestock component was far less than in any of the others. Only in goat and bee-keeping was there any direct participation. It concluded that the livestock activities had received insufficient resources. What was needed was a clear definition of programme objectives and the provision of adequate time and funds to accomplish it.

[7] Here the USAID advises readers to consult Dr. Njoka's appraisal for a discussion of issues - see footnote 3, referred to on page 7 of this report.

"The best that can be done in the present case, short of a considerably revised and expanded programme, is to provide adequate financing to complete the Work Plan, with the aim of learning from the limited period remaining". (page 47, USAID, 1985).

2.5 Final report of the Kitui ASAL Project, Volume II, Section 4, Ministry of Livestock Development, Louis Berger, February 1988.

This report, which was the responsibility of the in-house consultants, could have been a useful review of the lessons of success and failure of the Phase II livestock development activities and a pointer to Phase III. Unfortunately the document falls far short of expectations.

It is less than critical of the results of the programme and all too hopeful about prospects. There is little attempt to set out the original objectives and targets of the work plan, to relate these to actual inputs and outputs and to consider the significance of the results achieved.

The livestock section of the report mainly consists of notes on the range rehabilitation methods and techniques adopted (e.g. seed bulking, re-vegetation of denuded range areas with pits), but apparently overlooks the well published conclusions of Jordan working in Kitui District in the fifties (and quoted by KREMU in their Phase I survey[8]), that reclamation is not the problem. The difficulty is to maintain the grass cover afterwards given the prevailing systems of land use.

Tenurial and related management problems are glossed over:

"Stocking control is only possible after the real potential of the land is known and can be achieved through logical and systematic elimination of all human bottlenecks that lead to excessive land exploitation." (Final Report, 1988, p. 71).

Precisely what the human bottlenecks are and how they might be eliminated remains unclear.

On other project activities, the report is equally superficial. There is no attempt to answer the questions raised by the USAID Interim Evaluation, e.g. on the percentage occupation of KTBH hives; on the economics of honey collection and refinery operation; on the performance of the "improved" goats and their impact on the genetic make up of host flocks; on the economics of the dairy operation and so on.

[8] see Section 2.1, page 3.

3. Existing Proposals for Livestock in the DANIDA Kitui ASAL Project

3.1 Proposal prepared for the Danida Mutomo Soil and Water Project by J.O. Egessa, John M.N. Mututho and Dr. J.W. Gathirwa, January 1987.

This proposal was prepared at the request of Danida by district-level MOLD staff. It comprises a comprehensive five year development programme for the livestock sector involving an expenditure of some Ksh 82 million shillings. The animal health component alone would require an annual commitment of Ksh 17 million in the first year.

Even allowing for the ritual overbidding (and pruning) associated with the preparation of ministry budgets, the proposals are clearly far too ambitious. The document lacks a clear definition of programme objectives and priorities. In the circumstances, it provides a useful checklist of what might be done if resources were unlimited (see Table 3.1) and a reminder of the high costs of animal health programmes, especially cattle dips. It remains to be determined what should receive priority and how it might be organised given the experience gained in Phase II and the resources of manpower and finance available.

Table 3.1 Kitui Danida Project, Estimated Project Costs (five years £K)

Veterinary & Animal Health

Disease control holding ground	510,000
Rinderpest & CBPP vaccination	203,000
Tannery for Village Polytechnic	43,000
Artificial Insemination	210,000
Cattle dips; rehabilitation and new construction	2,765,000
sub-total	3,731,000

Livestock Production

Range rehabilitation	145,113
Honey development	25,898
Poultry development	44,257
KTB Hives factory	81,412
Staff training	33,250
Donkey traction	18,000
sub-total	347,930

Total Programme Costs	£K 4,078,930
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Source: Egessa, Mututho and Gathirwa, 1987

3.2 Five Year Development Plan for Continuation of Kitul ASAL Project
August 1987, Louis Berger International

The preliminary work of the district level livestock staff (Egessa et al) was no doubt useful in the ASAL Phase III preparation that followed six months later. On this occasion the work was done by an outside consultant over a period of six weeks assisted by staff of the cooperating agencies, including MOLD.

The plan contains a summary review of Phase I and Phase II and a makes detailed proposals for a subsequent five year development plan. The proposals are based on sectoral priorities set by the DDC, i.e.:

- (a) Water conservation and development
- (b) Livestock development
- (c) Rural roads
- (d) Soil and water conservation/reafforestation
- (e) Training

Besides training, three activities were proposed in the livestock sector:

- (i) Range Improvement Ksh 38,000,000
 Range rehabilitation: distribution of grasses and fodder legumes for range reseeding, rotational grazing and fencing;
 Ranch water development: opening new areas for development with small water schemes;
 Ranch development: replacing communal grazing schemes with cooperative ranches;
 Water-shed management: range pitting, hedge cutting, cut off drains, check dams (presumably for the "high potential areas".
- (ii) Goat Improvement Ksh 8,080,000
 Breeding stock purchase and the distribution of improved billies.
- (iii) Honey Development Ksh 16,100,000
 Collection centres, local plant to manufacture KTB hives and hive distribution, marketing support.

(iv)	Training	Ksh 7,067,000
(v)	Overall support: vehicles, fuel, fld. allow.	Ksh 11,947,500
	Total	Ksh 81,194,500
		(KE 4,059,725)

No expenditure was envisaged in the area of animal health. Dairy development was not included as it "could easily dilute the more pressing rangeland activities". Nevertheless, the estimated cost of the livestock development project exceeded that proposed by the district livestock staff (Egessa et al). The programme envisaged a doubling of the divisional-level field staff of the MOLD to 125.

3.3 Danida Appraisal of the Kitui ASAL Development Programme, 1988

The draft report of the Danida Appraisal Mission (August 1988) has yet to be finalised. As it stands, the document is somewhat nebulous and lacks focus compared with the previously-mentioned Five-Year Plan prepared by Louis Berger[9]. It is not clear exactly what is proposed or what the costs are likely to be, except that ceilings appear to have been set for each component. However, the objectives and strategy of the overall Danida support would appear to be, in principal, agreed between the governments and these provide a frame of reference for this mission. They may be paraphrased as follows:

Wider objectives:

- * The regeneration, preservation and sustainable utilization of natural resources; i.e. water, soils and vegetation;
- * Institutional development.

Immediate Objectives:

- * To improve the availability of and access to safe and reliable water for people and their animals;
- * To further the work of soil and water conservation already commenced;

[9] The extent to which the Danida Appraisal Mission considered the proposals in the previously described preparation report for a Phase III project is not clear, although it is apparent that some introductory material on the district which occurs in the Louis Berger report is reproduced in the appraisal document.

- * To increase agricultural and livestock production;
- * To strengthen the capacity of the local authorities to plan, coordinate and implement the above;
- * To support existing forms of community organization within the district.

Target Group:

- * All households engaged in agricultural and livestock production within the catchments and sub-catchments where soil and water conservation work is planned;
- * Specific emphasis on the poorest and female-headed households.

Strategy:

- * District focus: decentralised planning, implementation and monitoring of development;
- * Four ministries (MOWD, MOA, MOLD, MENR) responsible for implementation down to the divisional level and below;
- * Rangeland development in the drier areas and intensification of rainfed agriculture in the higher altitude cultivated areas;
- * Appropriate technology and active participation for sustainability;
- * Working with groups rather than individuals

The livestock development proposals are schematic and formulated within the context of four "projects": Range Water; Range Management (range rehabilitation and enhancement); Animal Production (improved genetic potential - goats, cattle, poultry - livestock marketing, bees); Training of staff and farmers. A different combination is envisaged in each of three principal ecological zones based upon the intensity of land use and the expected development potential. The report points to the potential for the introduction of range improvements within the context of clearly delineated grazing rights. It draws attention to the apparent lack of information about livestock keeping practices and calls for further study of this aspect[10].

3.4 MOLD (Nairobi) Proposal for Kitui ASAL Development Programme.
13 January 1989

In response to the Danida Appraisal Mission and the arrival of the Danida Livestock Mission of January 1989, the MOLD HQ in Nairobi issued a briefing paper proposing the content of future Danida support to the MOLD.

[10] Hence the current study of which this report forms a part.

The list is comprehensive and covers all possible activities in each functional division of the Ministry.

3.5 Conclusions

The four documents (reviewed in Sections 3.1 to 3.4) may be characterised as follows:

District livestock development proposals emanating from MOLD are short on strategy and priorities and (understandably) seem to be concerned mainly with bolstering the flagging MOLD budget.

Not one of the four proposals addresses the economic and technical questions frequently raised regarding previous ASAL interventions, e.g. hives, goats, etc.

The range component lacks any analysis of the long history of tenurial and management problems associated with attempts to introduce range improvement and ranch development on communally grazed lands in Kitui District. In fact these endemic factors seem to be conveniently overlooked.

The Louis Berger and Danida proposals pay little regard to the current sorry state of routine veterinary work in the district, notably disease control.

There is a general failure to consider the current needs and capacities of the MOLD at district level and to relate the proposed project activities to under-funded routine work (which will inevitably make demands on any resources which might be allocated to new projects).

4. Current activities of the MOLD in Kitui District

Between 1983 and 1988, the Ministry of Agriculture and Livestock Development was responsible for livestock development in the district. In 1988, the Ministry of Livestock Development was created, headed by the Minister and Permanent Secretary.

At the district level, the MOLD are subdivided into two departments: Veterinary and Livestock Production, each responsible to the departmental heads in Nairobi HQ.

4.1 Veterinary Services: Administrative and Financial Resources

The accompanying tables (Table 4.1 and 4.2) show the present strength of the Veterinary Department's establishment in the District and the available infrastructure.

Table 4.1 Staff Establishment of the Veterinary Department in Kitui

Group	No.	Post	Deployment
M	1	Senior Vet. Officer	District
L	5	Veterinary Officer I	District and Division
K	3	Veterinary Officer II	Division
G	6	Livestock Officer III	District (1) Division (5)
G	1	Executive Assistant	District
F	56	Animal Health Assistant	Division
D	11	3 Drivers, 8 Clerical	Division and District
A-C	54	Subordinate staff & and drivers	Division and District

Note: Estimated annual cost of wages and salaries: Ksh 180,540

Table 4.2 Physical Resources of the Veterinary Department, Kitui District

Transport	Number operational
4WD vehicles	1 in good condition, 5 in poor condition - over 7yrs
Lorries	(1 non-operational, over 7 yrs old, estimated cost of repair: Ksh 60,000)
Pick-up	1 in poor condition, over 7 yrs old
Motor cycles	2 (1 over ten years old, unreliable)

Buildings	Offices m2	Houses no.
Kitui HQ		
AI Clinic		
Mwingi Division	4.5	2 LG
Kyosu, Northern Division	9	nil
Mutito, Eastern Division	48	nil
Mutomo, Southern division	47	1 MG
Central	12	nil

Table 4.3 Veterinary Department Budget, 1988/89, Ksh

Project Code	Project Name	Allocation
<u>Recurrent</u>		
299	Disease and Pest Control	78,040
286	District Veterinary Services	148,360
87	Veterinary Clinical Services	311,640
275	Artificial Insemination	224,220
293	Hides and Skins Improvement	27,740
sub total		790,000
		(KE 39,500)[11]
<u>Development</u>		
299	Range Areas Veterinary Services	110,000
299	Rabies Control	69,100
513	Veterinary Clinical Services	11,000
513	Management Support and Training	53,440
513	Disease and Pest Control	129,920
sub total		373,460
		(KE 18,673)
Total		(KE 58,173)[12]

4.2 Function of the Veterinary Department in the District

The Department has a diagnostic clinic at Kitui which is the centre for clinical work in the district. The Veterinary Service is responsible for disease control, hides and skins improvement and artificial insemination.

(a) Disease Control

Disease control legislation in Kenya falls under the Animal Diseases Act which stipulates notifiable diseases and the actions which are to be taken by MOLD in the event of an outbreak. The more common notifiable diseases found in Kitui are Foot and Mouth, CBPP, ECF, trypanosomiasis and rabies. Anthrax is rare and so is rinderpest, although the proximity of Kitui to N.E. Province and Somalia requires constant vigilance.

[11] 22 per cent of salaries and wages

[12] 32 per cent of salaries and wages

Disease control work of MOLD consists of preventive measures by injection (trypanosomiasis, FMD, rinderpest, lumpy skin disease, anthrax, blackquarter and CBPP), by dosing (internal parasites) and dipping (tickborne diseases). MOLD controls some 69 dips (only 10 are reported to be operating).

- (b) The hides and skins improvement service administers the licences and registration of premises certificated for the processing of hides and skins. It assists with the distribution of proper tools and provides training to workers.
- (c) A.I. services using Friesian, Ayrshire and Guernsey, Jersey and Sahiwal are provided in Central and part of Mwingi Divisions.

The standard of service provided by the Veterinary Department at the district and divisional level in Kitui has lapsed in recent years. In the absence of funds for transport and operating costs, clinical work is confined to the district and divisional clinics. Individual visits outside these centres are rarely possible.

The MOLD's response to disease outbreaks is to impose quarantine orders and restrict the movement of stock. These can remain in force for over a year as there are insufficient funds for vaccination. The livestock producers of Kyuso and Mutumo have recently endured marketing bans lasting over a year due to CBPP and these have caused considerable financial distress to the communities involved. Annual vaccination campaigns have all but lapsed. For example in 1988, the resources available to the district permitted a month's campaign in only three locations of Mutito Division in September and October when only 7550 of the estimated 29,000 cattle were vaccinated against Rinderpest and CBPP; and a month's campaign in two locations in Mwingi when some 10,100 of the estimated 30,000 cattle were vaccinated. The time of the year at which campaigns are conducted is determined by cash flow within the financial year, rather than the convenience of the farmers or the veterinary staff.

Despite the increasing economic importance of goats in the district, no vaccination against CCPP is provided. In Mwingi 91 cases were reported in November, probably the tip of the iceberg.

In the past, the hides and skins improvement work of the MOLD was judged to be one of its most cost-effective activities, yet H&S inspectors in each division are unable to get around the weekly markets to advise producers because they have no transport. Funds for the reimbursement of travelling expenses are scarce.

AI in the District is rudimentary. It uses "room temperature" semen and the AI run has a poor reputation for reliability among the scattered local producers along its route. According to the ASAL Final Report (Louis Berger, 1988), there were 342 inseminations in 1985 (the highest for 3

years). With a budgetary allocation of K£ 10,943[13] for A.I. (excluding staff salaries) the cost per insemination would have been Ksh 640. The charge to the farmer is Ksh 5. There is a lack of information on conception rates, although these are expected to be low. Clearly, AI is uneconomic given the operational constraints in the district.

4.3 Livestock Production: Administrative and Financial Resources

The District Livestock Development Office has three sections (Animal Production, Range and Marketing) which parallel national and provincial-level organizations. Each is headed by a specialist officer. Each of the five divisions within the district is headed by a graduate or diplomate Divisional Livestock Extension Officer. There is also an Assistant Range Officer in each Division. Technical Range Assistants and Technical Assistants are posted at the locational level. Table 4.4 shows the present strength of the district MOLD establishment.

One of the immediate effects of forming a separate ministry for the livestock sector was the disruption of administrative procedures and loss of office space and vehicles. Nowhere is the problem more acutely felt than in the district HQ in Kitui where small offices, on temporary loan from the ASAL project, are shared by five or six officers. At the divisional level, staff are housed in the honey collection centres constructed under Phase II of the ASAL Project. Table 4.5 lists transport and buildings available for the Livestock Production Department.

[13] This was the allocation for 1986/86. K£ 11,211 was allocated in 1988/89 for AI. One notes that the current allocation of Ksh 224,220 for AI exceeds the allocation for disease and pest control (recurrent and development).

Table 4.4 Staff Establishment of the Livestock Production Department

Group	No.	Post	Deployment
L	3	District Livestock Production Officer	D
		District Range Officer	D
		Range Officer (I) (study leave)	
K	4	District Animal Production Officer	D
		District Livestock Marketing Officer	D
		District Range Planner	D
		District Livestock Project Coordinator	D
G	19	Assistant Range Officer (9)	Dv
		Assistant Animal Production Officer (8)	Dv
		Executive Officer	D
		Supplies Assistant	D
F	31	Technical Range Assistant (21)	L
		Technical Assistant (8)	L
		Animal Health Assistant (2) (seconded)	BLI
D/E	4	Clerical Officer (4)	D
1-3	5	Driver (5)	D
B	1	Junior Technical Range Assistant	L

Note: Estimated annual cost of wages and salaries: Ksh 120,858

Table 4.4 Physical Resources of the Livestock Production Department

Transport	Number operational	Non operational
4WD vehicles	1	2
Lorries	-	-
Water Tanker	-	-
Pick-up	1	1
Tractor	-	-
Motor cycles	2	3

Buildings	Offices m2	Stores	Houses no.
Kitui HQ (on loan from MOA)	1 x 25	-	-
(on loan from ASAL)	4 x 8	-	-
Mwingi Division	-	1 (HCC)	-
Kyosu, Northern Division	-	1 (HCC)	-
Mutito, Eastern Division	-	1 (HCC)	-
Mutomo, Southern Division	-	-	-
(on loan from MOA)	1	-	-

(HCC = honey collection centre)

The budget allocated to the Livestock Production Department in the District is shown in Table 4.6. In the current year it has been allocated funds for only two development projects, poultry and extension.

Table 4.6 Livestock Production Department Budget, 1988/89, Ksh

Project Code	Project Name	Allocation
<u>Recurrent</u>		
269	District Administrative Services	64,600
273	District offices, Animal Production	27,800
278	District Livestock Marketing Services	14,720
279	Holding Ground Services	4,480
297	Ranch Management Services	105,800
394	District Livestock Education & Extension Services	50,600
sub total		268,000
		(K£ 13,400)[14]
<u>Development</u>		
280-046	Poultry Development Project	59,920
512-000	National Extension Project	257,400
sub total		317,320
		(K£ 15,866)
Total		(K£ 29,266)[15]

[14] 11 per cent of salaries and wages

[15] 24 per cent of salaries and wages

4.4 Function of the Livestock Production Department in the District

The objective is to improve the overall standard of animal husbandry of small farmers. The department participates in the National Extension Project (funded by IDA and IFAD). Monthly workshops are held with divisional livestock extension staff in the BLI in Kitui. Fortnightly sessions are conducted for those location-level TAs involved in the project[16]. An unfortunate consequence of the subdivision of the former MOALD is that livestock production and crop specialists no longer attend joint workshops. The district also receives development funds for poultry. The objective is to upgrade local birds through exchange of local cockerels with hardened "browneggers". Secondary schools are a focus of support and funds are available for the construction of poultry housing from RDF.

Other development activity by the department is more or less at a standstill following the withdrawal of the USAID support to the ASAL project. The recurrent funds available amount to £K 200 per staff member per annum, or 11 per cent of the wages and salaries of the MOLD staff. It is not surprising therefore that when vehicles break down they cannot be repaired or that staff sit in empty offices with little to occupy them. Even the telephones are silent because the bill has not been paid.

Kitui is a large district and the range land covers vast areas. In Kitui, the graduate staff in the Range Management Division are confined to the district office. Their principal source of information is a circular sent out to the divisions enquiring about progress in the establishment of the various cooperative and group ranches on their files. However, Assistant Range Officers are unable to provide the information requested as they are also office-bound (sitting in converted honey collection centres). With luck, the occasional motorised visitor may be escorted to the fodder seed bulking site (for which there is no money to pay casuals to harvest). The District Livestock Marketing Officer is also confined to the district HQ, his only source of information being the monthly reports from divisional level. Little wonder that he is less well informed about the movement of prices than the farmers he is expected to advise. As for the movement of stock, the network of traders and agents who move about the district in buses and matatus, he knows nothing. If there is a marketing problem, the DLMO is unlikely to get to hear about it. A graduate has recently been assigned to the district after completing a six months' training course in beekeeping and honey production. Without transport to get about the district and a budget for materials and equipment to demonstrate to farmers, the training will be wasted.

[16] Only the higher potential locations within each district are covered by the NEP

5. Issues

5.1 Range Management and Land Allocation

" Improving the productivity of rangelands cannot be treated in isolation from decisions about who is to use the land and to what degree. One cannot control the number of livestock, how they use an area or what investment shall be made on it, without knowing whose livestock they will be or who will use and benefit from the investment. Land management and land allocation cannot sensibly be separated. Yet a surprising number of range management development programmes are started in which attention has been paid only to the technical aspects of range productivity, and the question of whom the programme should or will benefit (or injure!) has been either unconsciously or deliberately ignored. "[17]

It would appear that these technical aspects have dominated much of the ASAL efforts to introduce range management in Kitui District. The problem is not the lack of knowledge about techniques of range improvement, but finding an appropriate socio-economic environment to apply them. It is likely that many people know how to improve the quality and quantity of fodder species but lack the opportunity or the incentive to do so.

A striking example of this is provided by Mwakini and Yatta B2 ranches.

Mwakini Ranch is a Directed Agricultural Company on 8000 ha. of medium density Commiphora, Acacia mellifera bushland savanna showing clear evidence of over-grazing (bare patches between the bushes and devoid of grass species). The ranch, on leasehold land (99 years), was first registered in 1974. The members have their own livestock holdings rather than share capital[18]. The stock are individually marked and allocated to 7 camps or bomas and herded by ranch employees, numbering 70 (6 to 12 in each boma - headman, graziers and guards). There are no fences and boundaries are marked by cut traces.

The company comprises 96 members drawn from people who formerly lived in the locality, many of whom are now employed elsewhere in Kenya in Government and business. Members are entitled to graze 30-40 cattle at any one time. The largest holding is 170 animals, which belongs to the Chairman of the Board of Directors who is also the Chairman of B2 Yatta Cooperative Ranch. The grazing fee is fixed at Ksh 350 per month, whatever the size of a member's herd. There is also a ranch herd of 380 cattle under the control of the manager.

[17] S.Sandford "Management of Pastoral Development in the Third World", ODI and Wiley, 1983. (p.91)

[18] The most common system for "group ranches" in Kitui District.

The stocking rate recommended is 3000, but it is difficult for the MOLD range staff to monitor individual holdings and stocking rates and they suspect that the cattle numbers are in excess of the 3700 currently reported. Members (and non members) are known to bring in animals and park them on the ranch for varying periods of time without authority. The MOLD staff are trying to persuade the management to move to a cooperative system in which members own share capital rather than individual livestock, e.g. like B2 Yatta. It is reported that in 1988, the ranch lost 150 animals during a dry spell because there was inadequate forage available for the 7000 or so stock on the ranch at that time.[19]

B2 YATTA RANCH: This ranch of 22,000 ha is seen by the MOLD as a model for cooperative ranches in the area, having won the President's National Soil Conservation Award in 1985. It is in the same ecological zone and is adjacent to Mwakini, but the range condition is significantly better, with a good grass cover. There are currently 2185 shareholders, each of which may own up to 400 x Ksh 500 shares. Some may have only one share (e.g. employees). Membership is restricted to local people but the number of shareholders can expand to include heirs, etc. Initially there were only 600 members. Employment on the ranch is also restricted to local people. The dividend in 1987 was 40 per cent (Ksh 200) and 100 per cent in 1985. During the drought, the ranch made a lot of money from buying in stores for fattening.

The herding system is basically the same as that for Mwakini ranch but with 17 bomas and 115 employees. The ranch runs a 50 per cent cow/calf and 50 per cent steer-fattening operation. Steers are bought in twice a year if range conditions are good and are fattened for 3 months. The ranch was also running a flock of 626 goats to make use of the browse. Capital improvements include 2 boreholes, 40 km of pipeline and 7 pans/dams and 7 storage tanks. There is a spray race as well as a well constructed dip.

Conclusion: B2 Yatta is apparently more successful than Mwakini, with respect to stocking rates and range management. The incentive structure of a cooperative ranch in which land and animals are owned jointly by members is not uncondusive to destocking when necessary. At Mwakini, on the other hand, where the animals are owned by individuals and where there is a wide range in livestock holdings, it is more difficult to obtain members' consent to move their animals off the ranch so as to balance numbers with the available fodder. Individual members are reluctant to destock if they have no guarantee that others will not do the same.

The question arises why the members of Mwakini (who are also members of B2 under the same Chairman) do not introduce the necessary reforms and register Mwakini as a cooperative ranch. The answer to this question is no doubt complex and is briefly characterised in the MOLD files as "bush politics". What is clear is that members cannot be ignorant of the principles of range management and the benefits of applying the techniques

[19] They were unable to shift animals off the ranch because of movement restrictions arising from outbreaks of CBPP and FMD in the area.

involved. The contrast between the range condition on the two ranches is so striking. No "demonstrations" laid out by the MOLD staff could be more striking.

A similar situation prevails over much of the district's rangeland. There is clear evidence that both individuals and groups are trying to bring the range under control so that they can put into practice what is well known and well understood. The problems are not technical but institutional. What applies to range management also applies to soil and water conservation in arable areas. Until an individual has title to that land, he/she will be reluctant to invest in permanent improvements. It is not the lack of knowledge but the lack of incentive which is the problem.

Of course, it is useful in training staff and farmers to lay out demonstrations. It provides a reminder of what is possible given the right conditions, but the limited application of these exercises should be kept in mind, particularly when designing ASAL Phase III. For these reasons I am uneasy about the proposals for expenditure of large sums on range rehabilitation contained in the proposals described under Sections 3.1, 3.2 and 3.3. It would be more appropriate to spend scarce resources on unravelling "bush politics" and advising and assisting individuals to improve their holdings once they have stock under control. The opportunities for this are much greater in the areas where land allocation has gone ahead, i.e. in Central Division.

5.2 The Future of Ranching in Kitul District

Mwakini and Yatta B2 provide examples of the type of ranch organization prevailing in Kitui. Despite the problems described at Mwakini, it is one of the more successful of the 12 group[20] ranches listed in the district. Only seven of these are classified by the MOLD as operational. The total area of land covered by the operational group ranches is estimated to be 160,000 ha, about 5 per cent of the district or 9 per cent of the area classified as non-arable rangeland.

The history of group ranches in Kitul goes back to the 1960s. In the late 1970s, there were as many as 23 listed as operational[21]. The known area covered was 914,000 ha, half the range area of the district. However, this probably reflected an optimistic definition of "operational". An ILCA report[22] of about the same time recorded only six operational covering a total area of 56,000 ha. Three of the largest "proposed" ranches were in

[20] Includes group, cooperative and directed agricultural companies but excludes private and individual ranches.

[21] Appendix B Kitul District Environmental Assessment Report, National Environmental Secretariat, December, 1981.

[22] District Ranch Development Briefs, Working Document 13, 1979, ILCA, Nairobi.

the Eastern Statelands (Sosoma Cooperative Society, 304,000 ha, Nzlu Directed Agricultural Ranching Company Ltd., 150,000 ha and Kamuvukoni D.A. Ranching Company Ltd. 200,000 ha). The documents concerning the last two were said to be with the Commissioner of Lands in Nairobi. Since that date, Kamuvukoni has disappeared from the record, Nzlu is now recorded as 76,000 ha and Sosoma has been reduced to 45,000 ha. The latter still awaits its title deeds from the Commissioner of Lands.

Most of the existing or proposed group ranches in Kitui are located in what was formerly crown land. Part of the colonial policy to prevent conflict between neighbouring peoples was to surround reserve lands allotted for settlement with crown land. This acted as a buffer zone while people were forbidden to use it. This demarcation took place at the beginning of the century. There were three main areas of crown lands in the Kitui: the Eastern Kitui Crown Lands (now Stateland) which formed a corridor from 25 to 50 kilometres wide along the eastern boundary of the district; and the Yatta and the Athi Tiva Crown Lands (now Trustland administered by the County Council) on the western boundary with Machakos. In drought years, Akamba pastoralists encroached on the crown lands. These forays were usually condoned since they enabled the Akamba to provide fodder and water for their cattle and thereby weather the effects of the drought. Indeed these areas constituted inbuilt safety nets. Competition in the Eastern Crown Lands for suitable but scarce pastures often led to disputes and armed conflict with Somali and Orma pastoralists. The Yatta Crown Lands became the target pastures of graziers from the central highlands and Machakos District. The Athi-Tiva rangelands were less used by the Akamba because of tse-tse fly infestation.[23]

According to a document[24] published prior to independence, Yatta B2 Crown Land was awarded (!) to the Kitui Akamba on the recommendation of the Kenya Land Commission in 1932, "not to satisfy a permanent need but for temporary relief in order to recondition the adjoining locations (Mutonguni, Matinyani, Yatta, Changwithia, Mulango and Migwani)." Apparently the system of rotational relief never worked. Both the Yatta B2 Crown Land and the locations it was intended to relieve became so heavily denuded that in 1946-47 the Yatta was completely closed. Good rain in 1947 helped to restore the grass cover and the area was re-opened under very rigid control to limited and branded herds on payment of fees which were later waived for bush clearing by the herdsmen. A loan was raised in 1952 from the ALDEV Board for the development of boreholes and this was repaid with grazing money collected from Akamba grazing animals in the scheme. According to the same report, the Akamba were allowed to use the much drier Eastern Crown Lands as wet weather grazing. In 1951 the District Team proposed that the Crown Lands should be developed on the lines of B2 Yatta, with a loan to sink and equip several boreholes, to give permanent

[23] Michael F. O'Leary, *The Kitui Akamba: economics and social change in semi-arid Kenya*. Nairobi, Heinemann 1984.

[24] *African Land Development in Kenya*, Ministry of Agriculture, Animal Husbandry and Water Resources, Nairobi 1962 (p.60).

accommodation to 20,000 fee-paying cattle at a grazing rate of one beast to 100 acres. A survey was carried out of water, soil and vegetation resources. The report of the investigation advised that the Eastern Crown Lands could never provide permanent accommodation for cattle; they should therefore be used as wet weather grazing in conjunction with the eastern locations, but under good management. This report was treated with some scepticism by the ALDEV Board and further investigations were carried out in 1956 and 1957, but these showed that the cost of sinking wells and carrying a pipeline from the River Tana would be prohibitive and the scheme was abandoned.[25] The report also carries an account of attempts to develop the Athi-Tiva area as a grazing scheme by mechanised clearing of tsetse-infested bush. The scheme was unsuccessful at that time because there was "really little incentive for Kamba stock owners to use it on a controlled fee-paying basis when they have available the enormous area of free grazing in the Eastern Crown Lands.[26]

The idea of developing the Eastern Statelands for Ranching resurfaced again in 1971 when an eight-man FAO team[27] of range ecologists, water engineers and animal production economists were asked by the Ministry of Agriculture to conduct ground and air surveys in the area over a twelve-month period. Their conclusions basically confirmed the earlier studies. The area was shown to be an inseparable part of a large seasonal grazing system and therefore unsuitable for development in isolation. Tentative proposals were made for water development and grazing control through the formation of several grazing associations formed from people who were already using the area, but it was stressed that these were likely to be modified when the whole seasonal grazing system was evaluated. Rehabilitation measures were suggested without which the range was expected to deteriorate further.

Almost two decades later, the scope for opening up new areas for group cattle ranching in the east must be considered negligible. The chances of success with goats are better. However, if some of the proposed schemes go ahead, which is unlikely, it will be at the expense of the seasonal grazing of the stock owners in the locations to the west, who are hard pressed by cultivators moving down from the hills. In the Athi-Tiva and Yatta area on the western boundary of the district, many of the group ranches registered in the 1970s (e.g. Nguni and Mbeu) have been encroached upon by squatters. Papers have been "with the authorities" for more than five years. Offenders are instructed to move on, but remain pending the allocation of an alternative site. The situation has rapidly become irretrievable.

[25] *ibid.* page 64.

[26] *ibid.* page 68

[27] Range Development in the East Kitui Statelands, Working Paper 11, AGP:SF/Ken. 66/55, FAO, Nairobi 1972.

It is generally accepted that there is no point in contemplating new group ranches until the problems of the existing ones are sorted out. Some would argue that group ranching will never succeed in Ukambani because of the preference of farmers to work their own piece of land[28]. There is little doubt that this is the direction in which stock rearing is moving in the rangeland areas. Thus in addition to helping the few group ranches get on their feet, the MOLD needs to consider how it can develop a capacity to respond to the needs of small-scale private stock farms by providing the necessary advice and assistance, especially in the area of stock water development and range rehabilitation in the adjudicated areas. Will it be possible to move at a quicker pace by working with groups to reinforce farmers' confidence and develop common facilities (e.g. for watering stock)? Another problem to consider is that of the inevitable drought year when farmers will have difficulty in retaining their stock on lowlying farms. What contingency plans can be made for accelerated offtake and restocking after drought now that the traditional fall back areas are taken up?

5.3 Environmental Implications of Range Water Development

During Phase I, a rangeland ecology survey[29] was conducted to analyse the current condition of the rangelands, to determine critical factors (particularly the existence of water points) which affect range condition and to consider possible development alternatives which might prove fruitful for these range areas.

Devegetation and soil erosion can occur as a direct result of the increased livestock trampling to a water point. Examples can be seen throughout the range areas of Africa. In fact water point development in these areas and the ensuing destruction has been seen as a critical factor, not so much in causing, but in increasing the severity of the consequences of droughts. Most of the rangeland areas of the district have higher and a more favourable rainfall (quantity and seasonal distribution) than the uni-modal monsoon conditions of Sahelian Africa. The secondary climax vegetation on the north east coast is typically dense bushland thicket. In the Sahel with a similar annual total, the secondary climax is open annual grassland with scattered thorn trees. Over large areas fossil sand dunes have been reactivated by over-cultivation and grazing. Sahelian ecology is more fragile than in the rangelands of Kitui.

The findings of the rangeland ecology survey have already been described. All areas sampled were found to be dominated by wood plants and it was noted that perennial grasses were virtually absent in all stands. Regarding the effect of water points on range condition, in virtually all

[28] Olang, M. (1982) "Organizations and Procedures in Group Ranch Development in Kenya", Pastoral Network Paper 13c, Overseas Development Institute (para 1.04)

[29] See Section 2.1 of this report

cases, the tests conducted upheld the null hypothesis that there is no relationship between waterpoint type and range condition. These findings would suggest that new water point development would probably not adversely affect the current condition either. However, if and when range restorative measures are taken, it may be that water point development will have a demonstrable negative impact on the process.

In these circumstances one can only endorse the recommendations of the Phase I study[30] that:

1. That minimal range water point development be done immediately;
2. That in cases where a strong need for a range water point is clearly demonstrated, it is not installed prior to an impact evaluation and, if necessary, the implementation of a range management plan for the area;
3. That major rangeland water point development be done only as a part of a more comprehensive range development or management plan; and
4. That a range monitoring programme be implemented.

The area most likely to be damaged by the provision of perennial water is the Eastern Stateland which, according to KREMU[31] and FAO[32], are devoid of water during the latter part of the dry season, which forces stock to retreat westwards or move down to the Tana River. This provides some respite for the grasses at the beginning of the rains[33]. Thus the installation of perennial water must be approached with great caution.

"The possibility of increased utilization exists only in those areas where seasonal water supplies last for a short time. The opening up of these areas can only be justified if it results in reducing grazing pressure on the presently overgrazed better watered areas. Such water developments should act as an essential part of an overall range rehabilitation programme, rather than merely becoming a means of increasing overall stock numbers" FAO[34]

[30] Kitui District Water Resources Study, Volume 4, Annex F, Environmental Analysis, Louis Berger Int. Nairobi 1983.

[31] *ibid.* page 31

[32] *ibid.* page 5

[33] Remember the stockman's adage "care for your stock during the dry season and your grazing during the rains".

[34] *ibid.* page 17

The pastoral history of Kitui District does not give much cause for believing that such control will be possible.

5.4 The Scope for Planned Change in the Livestock Sector

A 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 or 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 subsidised 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 plans for accelerated offtake in times of drought and for accelerated restocking 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.[35]

The divisional staff, who will be responsible for implementation, should also be involved in the planning.[36] 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 to go very far when spread around five far-flung divisions.

[35] Dr. A.B. Carles to follow up in the coming weeks.

[36] It was agreed at the meeting in the ASAL office on 9 February that Danida would be asked to sponsor a workshop for the purpose on 5 April, 1989 at the District HQ.

ANNEX 11 - Kitui-ASAL Development Programme, Forestry
Component

ANNEX 11

DRAFT

DANIDA

K E N Y A

Kitui-ASAL Development Programme,
Forestry Component

Draft Appraisal Rapport and Project Proposal
prepared by a Danida Mission visiting Kenya
from 23rd August to 9th September 1988
- as a supplement to the main Draft appraisal
dated August 1988

September 1988

This report contains
restricted information
and is for official use
only.

Danida Ref.no. 104.Ken.89

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Abbreviations:

ASAL	:	Arid and semi-arid lands
AM	:	Appraisal mission
AF	:	Agroforestry
DC	:	District Commissioner
DDO	:	District Development Officer
DFO	:	District Forest Officer
DFEO	:	District Forest Extension Officer
DAO	:	District Agricultural Officer
DDC	:	District Development Committee
FD	:	Forest Department
GOK	:	Government of Kenya
GTZ	:	German Agency for International Development
JICA	:	Japanese Agency for International Development
KEFRI	:	Kenya Forest Research Institute
LAS	:	Local Afforestation Scheme
MOPND	:	Ministry of Planning & National Development
MENR	:	Ministry of Environment & Natural Resources
MOWD	:	Ministry of Water Development
MOE	:	Ministry of Energy
MOA	:	Ministry of Agriculture
PFO	:	Provincial Forest Officer
PMV	:	Programme Management Unit
RAES	:	Rural Afforestation Extension Service
TOR	:	Terms of Reference
T&V	:	Training and Visit

1. INTRODUCTION

Forestry activities were not included in the proposal and Terms of Reference prepared by the pre-appraisal mission to the District in January-February 1988. However, during the visit to the District by the Appraisal Mission in May-June 1988 it became clear that there is a need to consider the inclusion of a forestry component in the Kitui ASAL-programme. The AM therefore recommended that an appraisal of the need to include a forestry component should be undertaken according to TOR given in Annex 1.

During the period 23rd August to 9th September 1988, a Danida Appraisal Mission (AM) visited Kenya. The AM consisted of:

Mr. Nils Kjølsten, Technical Adviser to Danida,
(Forestry)

The AM has undertaken field visits in all Divisions of Kitui District as well as having discussions with the concerned Kenya authorities in Nairobi and Kitui District.

A list of people met and the AM travel programme are attached as annexes 2 and 3.

The Mission would like to express its thanks to all officials and individuals met for the kind support and valuable information which the mission received during its stay in Kenya and which highly facilitated the work of the mission.

Prior to its departure from Kenya the Mission presented a summary of findings and recommendations to MENR and MOPND, see Annex 4.

This report contains the views of the Mission, which do not necessarily correspond to the views of Danida or the Government of Kenya. All proposals are subject to approval by the two Governments.

2. SUMMARY

2.1. Background

The Government of Kenya (GOK) and Danida are presently preparing a Kitui ASAL Programme for the period 1989-94. Water development and environmental conservation are foreseen to play a central role in the Programme. High priority is given to the development and utilization of perennial springs on the hillsides of inselbergs and escarpments. In this connection rehabilitation and extension of existing schemes, as well as implementation of new piped gravity schemes, are the preferred water development technologies. There are, however, strong indications of increased human activities in terms of deforestation and agriculture, as well as grazing livestock within the catchment areas of these springs. Hereby the yield of the springs is affected negatively. Thus local people note that springs which used to flow perennially all the year round now dry up in the dry season. Hence improved control and management of the vegetation surrounding the springs would appear to be necessary.

Likewise, support to existing nurseries, increased distribution of various tree seedlings and adoption of tree planting practices for conservation, fodder and fuelwood purpose are required.

2.2. Findings and conclusions

Based on field observations and information received during its stay in Kenya, the Mission concludes that there is a need and a potential for a forestry component, implemented by MENR, to be included into the proposed Kitui ASAL Programme.

2.3. Recommendations

The Mission recommends that a forestry component:

- 2.3.1. should be implemented by MENR, through the Kitui District based Forest Department staff in close cooperation with the extension staff under MOA and other line ministries implementing the Kitui-ASAL Programme.
- 2.3.2. should support conservation measures within ~~gazetted~~ forest reserves with emphasis on catchment areas of perennial springs
- 2.3.3. should support the Rural Afforestation Extension Service (RAES) in its efforts to reach as many individuals and self-help groups as possible in order to place rural tree planting on a fully participatory and sustainable basis.

2.4. Project Proposal

2.4.1. Conservation of gazetted forest reserves:

- 2.4.1.1. boundary clearing and maintenance
- 2.4.1.2. support to surveying of boundaries
- 2.4.1.3. support to soil conservation on eroded land
- 2.4.1.4. support to enrichment planting or seeding
- 2.4.1.5. support to local awareness campaigns

2.4.2. Rural afforestation Extension Service:

- 2.4.2.1. include office facilities for the divisional extension forester into the proposed Kitui-ASAL office block, Kyus. Division
- 2.4.2.2. Provide adequate transport facilities for extension foresters including AWD-vehicles for Central and Mwingi Divisions
- 2.4.2.3. Provide necessary basic equipment especially for small, decentralized nurseries
- 2.4.2.4. Improve nursery water facilities, where necessary, under the Kitui-ASAL water component
- 2.4.2.5. support establishment of agroforestry demo plots and species trials as part of the extension work packages.
- 2.4.2.6. support training programmes in social forestry for extension workers, women's groups, individual farmers and community leaders assisted by the Kitui-ASAL Mobilization and Training component.

2.5. Assumptions

The programme will be implemented under the following assumptions:

- that most households in the target areas will participate actively in tree-planting and soil and water conservation activities
- that the issue of gazettelement of forest reserves will be pursued as a matter of high priority by all authorities involved
- that land adjudication and issue of title deeds in the target areas continue
- that close cooperation is secured between District Administration, DDC, implementing ministries and PMU
- that the local Forest Department and RAES in particular is strengthened in terms of staff and basic facilities
- that financial flow and administrative procedures will operate smoothly

2.6. Major problems

The natural resources of the District are limited. Soil conditions are generally poor and with insufficient rainfall the agricultural potential of the area is low.

The region is generally getting dryer. Rainfall data from Mutomo show a dramatic decline over the last 25 years. Since 1974, five years have had less than 400 mm per annum.

Despite these unfavourable natural conditions, Kitui District has experienced a significant increase in population owing to a high birth rate and an influx of people from neighbouring districts. The projected population is now 670,000, with a density ranging from 14 persons/km² in Eastern and Kyuso Division to 88 persons/km² in Central Division. Due to the limited economic opportunities, a significant number of young males migrate to urban areas outside the District in search of employment, leaving females as the main source of agricultural labour.

Trees are cut in the district at an increasing rate for land-clearing for cultivation, for tobacco curing and for building poles. Bush fires are caused either by people clearing for cultivation or by honey hunters. During the dry season, livestock owners burn dry grass annually to give good grass stand when the rains come. This traditional practice destroys a considerable amount of biomass, causing damage to the eco-system. Furthermore, destruction of trees due to over-grazing is serious in some areas. Under the present drought, uncontrolled charcoal burning is on the increase, as farmers in marginal areas are unable to make a living at farming.

3. BACKGROUND
(reference: Draft Appraisal Report for Kitui-ASAL
Development Programme, Aug. 1988, p.10)

3.4.3.2. Donor Development Infrastructure

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 River Pilot Forest Scheme is operating a 500.000 seedling nursery and will establish trial plantings on a 2000 ha allocated area, assist 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-commitment 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 Agro-forestry 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, but has been temporarily suspended awaiting the outcome of a policy dialogue on upgrading RAES (status, line of authority, scheme of service, budgetary separation). A renewed core-support to RAES could have an important impact on agroforestry extension work in Kitui District.

4. PROGRAMME PROPOSAL
(Reference: Draft appraisal Report for Kitui-ASAL
Development Programme, August 1988 p.31)

4.5.9. Forestry activities

4.5.9.1 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) gazetted 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.

4.5.9.2. 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 juus 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,
- 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.

4.5.9.3. Targets

The targets for the Forestry Programme is:

- to secure conservation of gazetted forest reserves (1988: 22730 ha) in the District, and assist surveying of proposed, but not yet gazetted, forest reserves (80,700 ha). See annex 5.

- 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 ~~gazetted~~ forest reserves would be the water supply capacity in m³/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.

4.5.9.4. 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.

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.

Budget

Kitui ASAL Forestry Component:

<u>Investment:</u>		<u>K.shs.</u>
2 Toyota 4WD Pickups	:	900.000
4 MC's HONDA 125/helmets	:	180.000
25 Bicycles	:	70.000
Office Kyuso	:	250.000
Total investment	:	<u>1,400.000</u>

Recurrent Costs per annum:

Transport, operating	:	150.000
Nursery, equipment	:	200.000
Training	:	100.000
AF-demo plots, trials	:	100.000
Forest Reserve boundaries 1)	:	100.000
Survey support	:	50.000
Total recurrent per annum	:	<u>700.000</u>

Total investment	:	1.400.000
Total recurrent (5 years)	:	<u>3.500.000</u>
Grand total	Kshs :	<u>4.900.000</u>
		=====

(DKR: 1.96 million at rate 2.50)

1) note: 15-20 kshs/ha forest reserve

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.

4.5.9.5. Plan of activities

The final Plan of Operation will prepare the Plan of Activities, see annex 6.

4.5.9.6. 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.

5. PROJECT ANALYSIS

5.1. Technical Analysis

5.1.5. Forestry

Conservation of Hills:

Almost all springs in the Kitui District are located high in the hills and are mainly found in five areas: Mumoni, Nuui, 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, Nuui, Mutisu, Museve, Kyawea and Kabonge (see Annex 5) 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 gazettement 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.

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 imager, 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 gazettement 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 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 runoff.

The forestry component under the Kitui-ASAL project should assist the Forest Department in conservation and protection measures in the gazetted Forest Reserves

only, while the procedure of gazetting is a political/administrative matter. 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 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.

Soil Conservation

(See Draft Main Appraisal Report, August 1988, p. 124)

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 Dept. should assist

MOA in providing suitable species if MOA nurseries are in short supply or too far away from the eroded area.

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 (Nov) 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 (see Annex). The production is concentrated in Central Division (61%) followed by Mwingi (14%), Southern (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. (see annex 7).

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 Southern 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 Katui Regional Centre for Social Forestry it should be decided whether and when agroforestry could be included in the MOA T&V extension package.

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DRAFT
Terms of Reference
for
A Danida mission
to appraise forestry activities
to be included in the Kitui ASAL Programme

1. Background

The Government of Kenya and DANIDA are presently preparing a Kitui ASAL Programme for the period 1989-94. Water development and environmental conservation are foreseen to play a central role in the Programme. High priority is given to the development and utilization of perennial springs on the hillsides of inselbergs and escarpments. In this connection rehabilitation and extension of existing schemes as well as implementation of new piped gravity schemes are the preferred water development technologies. There are, however, strong indications of increased human activities in term of deforestation and agriculture as well as grazing livestock within the catchment areas of these springs. Hereby the yield of the springs is affected negatively. Thus local people note that springs which used to flow perennially all the year around now dry up in the dry season. Hence improved control and management of the vegetation surrounding the springs would appear to be necessary. Likewise, support to existing nurseries, increased distribution of various tree seedlings and adoption of tree planting practises for conservation, fodder and fuelwood purposes are required.

2. Objectives

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. Seedlings distribution of various tree species as part of agro-forestry and environmental conservation practices.
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.

3. Scope of work

The appraisal mission shall comprise but not necessarily be limited to the following aspects:

- based on available information supplemented by field visits, briefly describe the present state and utilization of the catchment areas of the springs in the District;
- collect information on all ongoing activities in the District relevant to the conservation of spring water resources inclusive of the activities financed by the Japanese Government;
- propose afforestation and conservation measures needed on the hilltops and hillsides of inselbergs and escarpments in the District with the aim of conserving the spring water resources;
- analyze the feasibility and modality for spring resource protection and indicate the constraints;
- analyze the institutional arrangements, including the role of the individual ministries represented at the district level, and the participation of the local population for implementation of spring protection and identify practicalities and costs;
- give recommendations on whether and how to include afforestation and conservation activities in the proposed Kitui Asal Programme with the aim of conserving

the spring resources of the District. All input requirements (manpower, transport, office and nursery facilities etc.) and cost involved shall be included.

- based on the findings and recommendations of the draft Danida appraisal report and field observations analyze and recommend on the type of agro-forestry activities to be carried out, including a delineation of responsibilities and respective degrees of involvement MOA and MOENR regarding operation and management of nurseries, the need and scope for establishing additional (decentralised) nurseries, seedlings distribution and, in this connection, the capacity and role of existing extension services;
- recommend on the timing of commencement of the various activities and their integration with other activities of the proposed Kitui ASAL programme; prepare a framework plan of operation for the proposed programme;
- assess the functioning of the established social forestry college in Kitui and recommend on its possible role and need for support in connection with the proposed programme;
- assess the implementation capacity of the district and local level staff of the MOENR and the MOA recommend on possible training needs and their role in the implementation of proposed activities;
- assess the quality and management of the seedling distribution programme from, already established nurseries in the district (under MOENR, MOA and other institutions and organizations) and recommend on possible support within the programme.

4. Staffing

The mission will be carried out by a Danida forester with background and experience in tropical afforestation and catchment conservation, preferably from Kenya. He will collaborate closely with the MOENR and the MOA and its district personnel during the appraisal.

5. Timing and reporting

The appraisal mission shall take place from 22 August to 9 September 1988. A summary of findings and recommendations shall be presented to the Danida mission and the Government of Kenya before the departure of the mission.

- 4 -

The report with analysis and recommendations shall be submitted to DANIDA and GOK not later than 22 September 1988 in time for it to be utilized as an input in connection with the preparation of the detailed Plan of Operation of the proposed Kitui ASAL Programme.

DB.IV, 2 August 1988


Kurt Mørck Jensen

Annex-2

List of People Met

F.M. Kalikandar	-	Principal Economist,	MOPND
K. Marekia	-	Planning Officer	MENR
K.M. Kimemia	-	Planning Officer	MENR
F.K. Keitany	-	DC	Kitui District
S.M. Kitaka	-	DDO	" "
J.N. Mutuku	-	Programme Off. ASAL	" "
G.M. Kinyanjui	-	Planning Officer	F.D. HQ Nairobi
G.N. Njenga	-	Acting DFO	Kitui
C.N. Manyara	-	ASAL Coordinator	F.D. Kitui
C.K. Kiriinya	-	Project Manager	KEFRI Kitui
J.N. Njue	-	Forester, RAES	Mutitu
T.K. Githimji	-	Forester, LAS	Mutitu
E.M. Mweu	-	MP, Ass. Min. MOWD	Endau
B.I. Njeru	-	DFEO	Mwingi
K.M. Maina	-	Forester, RAES	Kyoso
T.M. Muasya	-	Forester, LAS	Mumoni
J.I. Musyoki	-	Councillor	Nuu
J.N. Musembi	-	Councillor	Endau
F.M. Kungu	-	Project Manager	AF Centre, Kitu
M.W. Kamau (Miss)	-	Crops Officer	Repr.DAO, Kitui
P. Enhard	-	Danida Coordinator	Mutomo Project
E.N. Petersen	-	Water Cons. Adviser	Mutomo Project
K. Watanabe	-	Chief Adviser	Training Project
O.O. Okoiti	-	Principal Planning Officer	MENR
J.T. Maina	-	Under Secretary	MENR
T. Litscher	-	Development Attaché	Swiss Embassy
C. Keil	-	Forester	World Bank
C. Davey	-	Reg. Director	Bellerive Foundation
A. Klingshirn	-	Progr. Officer	GTZ

Travel Programme

<u>Date</u>	<u>Programme</u>
23.8.88	Arrival Nairobi Meeting Danida Mission Meeting MOPND
24.8	Departure Kitui Meeting DC's Office Meeting DFO's Office
25.8	Visits Social Forestry Training Centre and Pilot Forest Scheme, Tiva Meeting DFO's Office
26.8	Visit Mutitu Forest Station Departure Mutomo Division
27.8	Visit Mutomo Project, Mutha Hills
28.8	Return to Kitui
29.8	Visit Mwingi Division: Nzeluni Nursery, Kyuso Division: Katse Nursery, Mumoni Forest Station
30.8	Visit Nguni nursery Nuu Hills, Endau Hills
31.8	Meeting DFO's Office Visit Agroforestry Centre (MOE, Kitui) Meeting MOA, Kitui
1.9	Meeting DFO's Office Meeting DC's Office
2.9	Departure TTDAP, Wundanyi
3.9	Meeting TTDAP-staff
4.9	Visit FTC, Taita Hills Return to Nairobi
5.9	Report writing Visit Social Forestry Training Centre Muguga
6.9	Report writing
7.9	Report writing Meeting Swiss Embassy
8.9	Meeting MENR Meeting MOPND
9.9	Meeting World Bank Meeting Bellerive Foundation Visit East African Herbarium Departure Copenhagen

APPRAISAL
OF
KITUI ASAL PROGRAMME
FORESTRY ACTIVITIES
SUMMARY
OF
FINDINGS AND RECOMMENDATIONS

1st Draft for discussion

8 September, 1988

With reference to:
Draft Appraisal Report for
Kitui ASAL Programme, Aug. 1988.

1.

INTRODUCTION

During the period 23 August to 9 September 1988, a Danida Mission visited Kenya to appraise forestry activities to be included in the Kitui ASAL Programme. The Mission has undertaken field visits in all divisions of Kitui District as well as having discussions with the concerned Kenyan authorities in Nairobi and Kitui District.

The preliminary assessment of the Mission has confirmed that a forestry component, implemented by MENR, is suitable for inclusion in the proposed Kitui ASAL Programme. The main purpose of the Mission was to appraise:

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 decentralised nurseries;
3. Seedling distribution as part of agro-forestry and environmental conservation practices;
4. Extension activities to support the activities mentioned above.

The findings summarised below have been presented to the Kenyan authorities and constitute a proposal to be incorporated into a detailed Plan of Operation for the proposed Kitui ASAL Programme to be prepared in January 1989.

2. BACKGROUND

The Government of Kenya (GOK) and Danida are presently preparing a Kitui ASAL Programme for the period 1989-94. Water development and environmental conservation are foreseen to play a central role in the Programme. High priority is given to the development and utilization of perennial springs on the hill-sides of inselbergs and escarpments. In this connection rehabilitation and extension of existing schemes, as well as implementation of new piped gravity schemes, are the preferred water development technologies. There are, however, strong indications of increased human activities in terms of deforestation and agriculture, as well as grazing livestock within the catchment areas of these springs. Hereby the yield of the springs is affected negatively. Thus local people note that springs which used to flow perennially all the year round now dry up in the dry season. Hence improved control and management of the vegetation surrounding the springs would appear to be necessary.

Likewise, support to existing nurseries, increased distribution of various tree seedlings and adoption of tree planting practices for conservation, fodder and fuelwood purposes are required.

3. PROBLEMS AND CONSTRAINTS

The natural resources of the District are limited. Soil conditions are generally poor and with insufficient rainfall the agricultural potential of the area is low.

The region is generally getting dryer. Rain-fall data from Mutomo show a dramatic decline over the last 25 years. Since 1974, five years have had less than 400 mm per annum.

Despite these unfavourable natural conditions, Kitui District has experienced a significant increase in population owing to a high birth rate and an influx of people from neighbouring districts. The projected population is now 670,000, with a density ranging from 14 persons/km² in Eastern and Kyuso Divisions to 88 persons/km² in Central Division. Due to the limited economic opportunities, a significant number of young males migrate to urban areas outside the District in search of employment, leaving females as the main source of agricultural labour.

Trees are cut in the District at an increasing rate for land-clearing for cultivation, for charcoal and firewood, for tobacco curing and for building poles. Bush fires are caused either by people clearing for cultivation or by honey hunters. During the dry season, livestock owners burn dry grass annually to give good grass stand when the rains come. This traditional practise destroys a considerable amount of biomass, causing damage to the fragile ecosystem. Furthermore, destruction of trees due to over-grazing is serious in some areas. Under the present drought, uncontrolled charcoal burning is on the increase, as farmers in marginal areas are unable to make a living at farming.

The District Administration has insufficient resources to provide the services necessary to create a sustainable development in the 31,000 km² large District.

4. OBJECTIVES

Within the overall objectives of the Kitui ASAL Programme, as stated in the 1989-93 Development Plan, the overall development objective of this 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.

5. FORESTRY COMPONENT

The component aims at:

- A. Conservation of catchment areas of perennial springs;
- B. Support to production and distribution of seedlings as part of agro-forestry and conservation activities;

- C. Support and development of extension activities to increase community participation.

- A. Conservation of hilltops

According to the findings of the Appraisal Mission in June 1988, springs in Kitui District are mainly located in five areas: Mumoni, Nuu, Endau and Mutha Hills, as well as in the North-South hill range separating Central and Eastern Divisions.

Investigations of these sources should be given high priority due to their perennial character, high water quality and relatively low development cost per m³. In order to conserve these valuable water resources, it is a matter of urgency that afforestation and conservation measures are undertaken within the catchment areas of these springs. Local people note that springs which were perennial in earlier days now dry up in the dry season.

In September therefore the Mission investigated the above mentioned hills and found (see Annex 1) that the gazetted hills Mumoni, Nuu and Mutisu, Museve, Kyawea and Kabonge in the North-South range are all well protected under the Forest Act enforced by the Forest Department.

Of the remaining hills mentioned as the most important water catchments, Endau, Mutha and Musuluni (the latter is part of the North-South range) are surveyed, but not gazetted hills. Of these, Endau is rapidly 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 Mututuni 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 way 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 almost all 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 gazettement 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 ecosystem 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.

According to available information, the Endau Location consists of approx. 16,000 people, of which 1-5,000 may live on the hill, following about 20 years of resettlement. This hill was uninhabited during 1948-1963. 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 increased 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 could assist the Forest Department in conservation and protection measures in the gazetted Forest Reserves only, while the procedure of gazetting is a political/administrative matter. The forestry component could also, if necessary, consider a possible support to 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.

B. Support to production and distribution of seedlings

According to available information compiled from various sources, the present tree seedling production in Kitui District is from 314 nurseries, with a capacity of 1.9 mill. seedlings. (see Annex 2). The production is concentrated in Central Division (61%), followed by Mwingi (14%), Southern (12%), Kyuso (8%) and Eastern (5%). Eighty-four per cent of the production

is concentrated in 26 (or 8%) large, institutional nurseries, while the 288 small community based nurseries produce only 16 per cent of the total production. The biggest single production of seedlings is the Forest Department under MENR with a production of 646,000 (34%), followed by the new Social Forestry Training Project under KEFRI with 500,000 (26%), planned to soon produce 1,000,000 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 has been 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.

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 two to three kilometers for seedlings. In Kitui District only one planting season (Nov.) is reasonably reliable, making the distribution of 1-2 mill. seedlings within a couple of weeks a formidable task.

The Mutomo Soil and Water Conservation Programme (which, as from 1989 is integrated into the Kitui ASAL), has, as a consequence of distribution

problems, scaled down production in the three tree nurseries operated by the Programme, from 150,000 to 50,000, and decided to concentrate on support to school nurseries rather than individuals and women's groups.

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 Southern 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.

The adjudication completed in Aug. 1988 was:

Central	:	6 locations out of 8
Mwingi	:	2 - do - 4
Southern	:	2 - do - 7
Kyuso	:	1 - do - 7
Eastern	:	0 - do - 5

and present operations are in Southern and

Mwingi Divisions. From the point of landownership, the population in Central and Mwingi Divisions representing 58 per cent 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 per cent 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.

C. Support to RAES-extension activities

At the moment four RAES-extension foresters are posted to the Districts as follows:

Central	:	0
Mwingi	:	1 District Forest Ext. officer (DFEO)
Kyuso	:	1 Divisional Forest Ext. officer
Eastern	:	1 - do -
Southern	:	1 - do -

There is a need for posting another two Divisional Extension Foresters to Central and Mwingi Divisions.

The extension staff is virtually grounded due to lack of transport. Only one dilapidated Toyota Hilux is with the Mwingi Forester, and one Motorcycle is with the Kyuso Forester. The annual budget for RAES transport operating costs is K.Shs.24,000/-, maybe sufficient to keep the Hilux on the road for six months a year. In addition to the two Toyota 4-WD pickups mentioned under item B: Nursery support, the Kitui ASAL Forestry Component should provide each extension forester with a Motorcycle to make the foresters mobile.

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.

Out of a total of 195 technical staff in the District, MOA has an extension force of 183 (TOs, TAs, JTAs). Of these, the following are posted to:

Central	: 29)	all locations covered
Mwingi	: 34)	high potential areas
Southern	: 34)	
Eastern	: 26)	50% of locations covered
Kyuso	: 18)	

The extension officers under the T & V Scheme visit six contact farmers a day for four days a week or 48 contact farmers in a fortnight. Ten per cent of the MOA-extension officers are women.

Rather than trying to duplicate the T & V System, MENR should assist and supplement. So far, MOA has had no agroforestry component in the T & V package, and is therefore in need of a training input in agroforestry.

Agroforestry is a new technical discipline and is not yet included in the curriculum for extension foresters in Kenya. It is anticipated that the new Kenya/Japan Social Forestry Training Project will provide facilities and training to fill the gap within the next 2-3 years for extension foresters in Eastern Province.

The JICA-supported project has established two centres for the training:

1. Muguga National Centre offering training courses at national level for forestry officers (PFO and DFO level), workshops on extension techniques for extension officers and seminars for foresters and non-foresters. The training is starting November 1988.
2. Kitui Regional Centre for semi-arid areas of the Eastern Province offering training courses for extension officers (MENR and MOA) and training for grass-roots level leaders (women's group leaders, community leaders, leading farmers). The Centre is planned to open in December 1988. The tentative plan for 1989 is as follows:
For extension officers: 4 courses each with 40 participants in 10 days.
For women's group leaders and farmers: 4 courses each with 40 participants in 14 days.

In addition to the two centres, the project is operating a Pilot Forest Scheme at Tiva River, 20 kms west of Kitui town, aiming at trial planting for selection and growing of suitable species, helping voluntary group planting and providing seedlings and technical guidance for the location.

The Social Forestry Training Project is placed under Kenya Forestry Research Institute (KEFRI) under the Ministry for Research, Science and Technology. The Project is so far supported by Japan up to 1992.

Implementation and Organization

The Forestry component under the Kitui ASAL Programme is proposed implemented by MENR as Line Ministry on a par with the other Line Ministries under the Programme. To reach targets, the Forest Department in Kitui District will operate in close cooperation with the Management Unit (MU) of the Programme, the other Line Ministries, the Agroforestry Centre in Kitui under MOE, the Social Forestry Training Centre in Kitui under KEFRI and other relevant bodies.

A draft Plan of Operation is attached (Annex 3). The Programme will be reviewed after two years from start of implementation.

Programme Funding, Reporting, Monitoring and Evaluati

As outlined in the Draft Appraisal Report dated August, 1988, a proposed budget for the Forestry Component is attached, (Annex 4).

SURVEYED AND GAZETTED HILLS

Division	Name	Area, ha.
Central	Museve	48.2
	Kyawea	63.2
	Kabonge	31.8
Northern	Mumoni	10441.0
Eastern	Mutitu	1958.7
	Nuu	3533.0
	Engamba	3222.3
	Makongo	3431.8
Total		22730.0

SURVEYED BUT NOT GAZETTED HILLS

Division	Name	Area, ha.
Central	Mutuluni	596.0
Northern	Gaikuyu	3075.0
	Maaï	769.0
Eastern	Endau	6718.0
	Imba/Chakuyu	1377.0
Southern	Mutha	2469.0
	Nzoani	596.0
Total		15600.0

PROPOSED HILLS FOR GAZETTING

Division	Name	Area, ha.
Central	Ilima Yimwe)	
	Kwavonza)	
	Mwakini)	40.0
	Maavani)	
Eastern	Mutaitho	5000.0
	Kimongo Valley	2500.0
	Nzanzu	2000.0
	Kyambaa Mui	5000.0
	Kyui Range	1000.0
Southern	Ndoani	13800.0
	Tendelu	1700.0
	Mbiti	1500.0
	Ngali	1600.0
	Kanyunga	12700.0
	Maungu	13900.0
	Kyongoani	5800.0
	Nzaayani	13600.0
	Maimu	560.0
Total		80700.0

DRAFT PLAN OF OPERATIONS FOR FORESTRY ACTIVITIES

Activity	Year 1	Year 2	Year 3	Year 4	Year 5
<u>Conservation</u>					
Boundary clearing					
Survey of boundaries					
<u>Nurseries</u>					
Improvement					
Operation					
Training					
Extension					
Monitoring					
<u>Farm-forestry</u>					
On-farm trials					
Species trials					
Demo plots					
Input T & V					
Training					
Extension					
Monitoring					

TREE NURSERIES, KITUI DISTRICT

Number of nurseries (1)

Number of seedlings produced (2)

August, 1988

Division	MENR		MOA		KEPRI		MOE		BAT Prison		CHIEFS		WOMEN		OTHER GRPS		SCHOOLS		INDIVIDUALS	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
Central	1	204000	2	47000	2	500000	1	200000	2	100000	6	32000	18	66000	11	6000	3	6000	1	2000
Mwingi	6	145000	1	14000							6	2000	41	80000	10	5000	15	10000	30	15000
Southern	3	136000	3	50000							2	1000	10	20000	23	17000	98	12000		
Eastern	1	32000	2	29000							7	28000								
Kyuso	1	129000	1	14000							6	4000			1	5000				
Total	12	646000	9	154000	2	500000	1	200000	2	100000	27	67000	69	166000	45	33000	116	28000	31	17000

TOTAL: 314 tree nurseries with a production of 1.9 mill. seedlings.

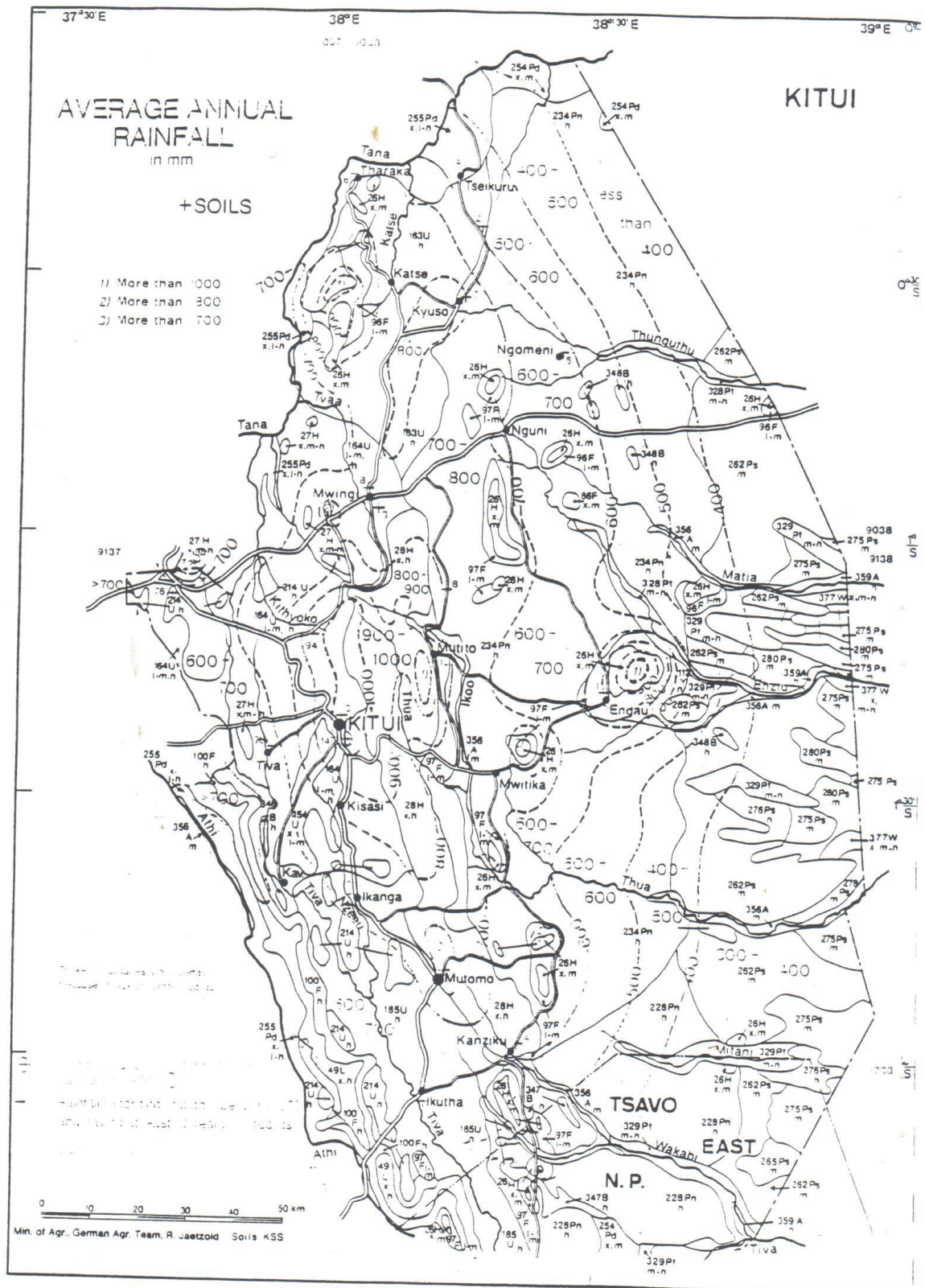
Of these, 288 (92%) have a production of 312000 (16%) small community based nurseries.

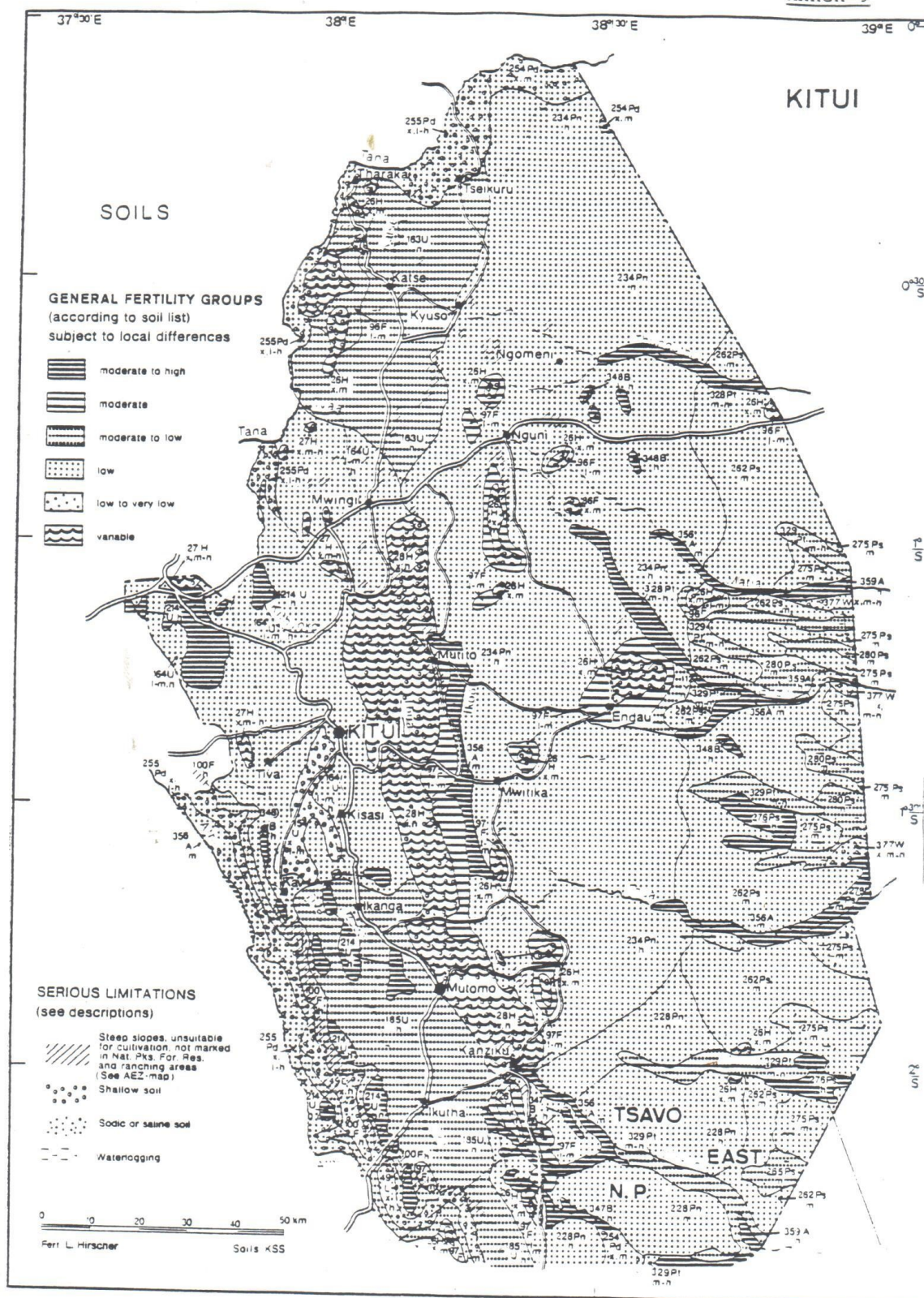
These figures are approximate. Exact records do not exist.

Of the MENR production in 1987, only 27% was utilized: (13% free issues to farmers, 2% sold and 12% used for the planting programme in the forest reserves). The remaining balance of 73% was either scrapped or kept as overgrown stock for the 1988 season. These figures illustrate the lack of an efficient distribution system and speak for decentralised small nurseries close to the consumers.

The annual planting allocation within the Forest Reserves has been: 1985: 75 ha.
1986: 64 ha.
1987: 46 ha.

out of an annual target of 100 ha.





KENYA FORESTRY DEPARTMENT
P O BOX 30513
NAIROBI

POLICY OF THE FOREST DEPARTMENT IN SOCIAL FORESTRY

MR. C. R. J. NYAGA
DIRECTOR OF FORESTRY

A PAPER PRESENTED AT THE KENYA NATIONAL SOCIAL FORESTRY SEMINAR
MURUGA, 31ST AUGUST 1988

1. OBJECTIVES AND TARGETS

1.1 Short-Term Objectives - Social Forestry

Enable the community to grow wood on their farm lands to meet their energy and other needs.

Aim at creating self-sufficiency in supplies of fuelwood and poles for every house-hold and encourage the people to grow surplus for sale. In this way, community forestry as part of rural development will be serving the important role of improving the economic conditions of the rural poor.

1.2 Long-Term Objective - Social Forests Creative

Promote community forestry projects in all parts of the country, whether in individually owned holdings or communally for sustainable rural development.

2. PROPOSED STRATEGIES FOR SOCIAL FORESTRY
(RURAL AFFORESTATION) IN KENYA

2.1 The principal objective of Social Forestry is to place wood supplied (primarily firewood) on a sustainable basis through the promotion of local and on-farm self-sufficiency in tree products. The scope and intensity of rural tree (and shrub) planting must, therefore, be such that deficits are eliminated and buffer stocks are created. It is a key part of RAES's mandate to co-ordinate and motivate rural tree planting efforts towards this principal objective.

2.2 Soil Conservation and Fertility Improvement

The second most important objective of social forestry is the prevention of soil erosion and soil chemical (fertility) degradation. Rural tree planting must, therefore, be closely integrated into sound agricultural practices. Trees and non-tree crops must be well integrated at the farm as they are part of the same ecological system, and thus cannot be considered separately.

2.3 Social Economic Benefits

Rural Afforestation is also part of overall rural development. As such it must be purposeful, that is, it must respond to specific needs, including the need for higher cash incomes, with both the right kind and quantity of trees and shrubs. Rural afforestation contributes, in addition, to the environmental well-being of rural residents (shade, windbreaks, beauty, etc).

- 2.4 In order to be purposeful, Rural Afforestation must have clear, quantified objectives set as part of District Planning. These objectives and the division of labour that goes with them must be arrived at in consultation with other governmental and non-governmental organizations engaged in tree planting, as well as with the public at large. In other words, social forestry must be well integrated with other forms of rural development at the DDC Planning.

2.5 Self Help Approach

We must, as a government eliminate all obstacles that guides smooth tree growing in the rural country-side. Rural Afforestation is primarily a self-help activity, to meet basic food and fuel-wood needs in harmony with local customs and expectations, with RAES and other governmental agencies playing a predominantly advisory, motivational and supportive role. We must encourage people to do much work on their own.

- 2.6 The supportive role of the government includes not only the supply of forestry materials, but also land-tenure and land-use policies that favour tree planting, the promotion of tree planting through the public media and the political process, and the promotion of tree-planting awareness and skills through the educational system.

3. THE RURAL AFFORESTATION EXTENSION SERVICE

- 3.1 RAES is an extension service. As such, its primary role is to reach out, to motivate and to educate as many individuals and self-help groups as possible in order to place rural tree planting on a fully participatory and sustainable basis.

Extension foresters must, therefore, be not only technically competent, but also mobile and skilled at communication and education. Rural extension education must be well articulated in all forms of pre-service training in forestry - (Certificate, Diploma and Degree Courses).

3.2 Extension Service

Though a well conceived extension service, we should be able to support:

School approach tree growing and environmental conservation programmes

Chiefs and Kanu tree nurseries

Individual farmers and farmer groups tree nurseries

Social forestry competitions by farmers, co-operative groups, ranchers, local authorities, and all schools and colleges.

3.3 In order to reach the principal objective of sustainable wood supplies more than 100 million trees must be planted each year. Rural Afforestation is necessarily a largely self-help activity. The willingness of so many individuals and groups to plant trees is rural forestry's greatest asset, and it must be exploited to the fullest extent. It is neither possible nor desirable for RAES or any other government agency to carry out the bulk of rural tree planting.

3.4 The number of RAES nurseries should be around 200 or roughly one in each division. RAES nurseries serve primarily as demonstration nurseries; as such, they should be well-run, have a maximum diversity of agro-forestry species well-adapted to the local conditions and local needs, act as seed orchards, and experiment with technically difficult species.

RAES nurseries also serve as storage and distribution depots for materials in support of tree-planting groups and individuals. The size and capacity of the RAES nursery must reveal economics of raising tree seedlings and over-all tree growing.

3.5 RAES should not aim to increase steadily the number of seedlings it distributes, but rather to increase the quantity and quality of tree seed it makes available to farmers and groups.

In the long run it is much more efficient and inexpensive to distribute seed rather than seedlings. This means, however, that extension must concentrate more on imparting tree growing skills to the community or farmers.

- 3.6 RAES should promote appropriate, small-scale farm forestry. Farm forestry means simple, inexpensive but effective methods and materials. For example, polythene tubes should not be advocated when used tins and milk-paks will do; similarly, fast-growing small trees and shrubs that provide firewood in 18 months may be preferable to trees that take more than 10 years to mature. Farm forestry strives to meet needs with least input of labour and materials.

4. MONITORING TREE PLANTING EFFORTS

The Forest Department must increasingly monitor and evaluate the benefits that become available to the end users. This means that intermediate outputs, such as seedlings produced in nurseries, should no longer be the key measure to RAES's activities. Forestry extension at some point must meet needs or at least reduce scarcity, or else it is not doing its job. Monitoring of impact beyond the nursery rates must increasingly become RAES's concern. Improved survival rates, and establishment of self help farm level and community (even small scale tree nurseries) will be good indicators of our success.

5. BEYOND FARM LANDS

- 5.1 An effort should be made to reforest all idle and derelict lands such as road-sides and eroded and abandoned farmland. Trees and shrubs on such lands would act as reserve woodstocks, they would provide tree products to the landless, and they would control erosion restore soils and reduce sedimentation.

They may also improve the environmental quality of rural areas, e.g by providing shade along the roads.

- 5.2 In arid regions, tree stocks and the related fodder supplies must be protected and increased primarily through rotational land use and exlosures and the creation of new wood and fodder reserves.

Research Arm

- 5.1 Research work to boost fast growing trees suitable trees for inter-planting with crops, suitable trees for arid and semi-arid areas suitable trees for restoring soil fertility and soil conservation.

Our Research Workers must be fully awake to the current political will and national policy in fuel wood production, indigenous tree growing and tree growing for beauty and environmental production.

6. CO-ORDINATION

To-day the climate is excellent for social tree growing in Kenya. We have many Government, NGOs and even private voluntary organizations ready and willing to give us a hand. All these efforts must be welcomed, encouraged and well-co-ordinated by the RAES.

8.9.88.

Following the trip to Kitui between 24th August and 2nd September 1988 at which MENR officials and the Danida officials were involved in appraising forestry activities to be included in the forthcoming Kitui ASAL programme, the following observations and recommendations were identified:

I GAZZETEMENT OF THREATENED WATER CATCHMENT SOURCES

To facilitate the afforestation and protection of Mutuluni, Endau Imba/Chakuyu, Mutha, Nzoani, Gaikuyu and Masi Hills, it is necessary that these hills are gazetted with immediate effect. The hills have already been surveyed, and it is only for the Ministry to initiate the gazzement process. Eviction of squatters particularly on Endau hill (6,719 Ha) should be effected immediately.

II MANAGEMENT OF FORESTRY COMPONENT IN KITUI ASAL PROGRAMME

To ensure smooth operational and management practices, the forestry component should be managed by a new forester seconded to the programme, akin to the Machakos Integrated Development programme.

RECOMMENDATIONS TO DANIDA MISSION

1. Broad areas of required assistance.
 - (a) Extension work package.
 - (b) Establishment and maintenance of boundaries in gazetted land and trust land (using chief's Act for the latter).
 - (c) To aid in the surveying of non-surveyed areas.
 - (d) Afforestation of hilltops and enrichment planting where the need arises.
 - (e) Rehabilitation and/or construction of departmental RAES offices within each division in Kitui district.
 - (f) Training and workshops (pamphlets and related awareness campaigns).
 - (g) Extend assistance to Chiefs and women's groups nurseries.
 - (h) Maintain and rehabilitate forest roads.

DETAILS

- (a) Extension work package.
 - (I) Transport
 - (II) Office and equipment.
 - (III) Nursery requirements for departmental and non-departmental nurseries.

I. Transport

(i) - Each division 1 light vehicle, therefore 5 light vehicles (preferably landrover at 0.5 million shillings each, therefore a total of Kshs. 2.5 million)

(ii) Motor cycles:

5 Motorcycles (one per division) at the cost of Kshs. 60,000 each therefore Kshs. 300,000 in total.

(iii) Bicycles: one per nursery headman, and for patrolmen, thus 34 bicycles at a total cost of Kshs. 74,000 - for Nursery Headmen.

(iv) Lorries

3 Lorries, one for Northern region, one for central region and one for southern region at a total cost of Kshs. 9 million

(v) Tractor

3 tractors with trailer at a cost of Kshs. 1.2 million

Transport operating Expenses Kshs. 250,000 per year.

II Office and Equipment

(a) Within each P.M.U we need an office block (Therefore 5 office blocks)

(b) Office equipment also required.

(c) Small stores required.

III Nursery Requirements (Forest Department & RAES)

To decentralize our activities in the District, we need at least 4 RAES nurseries placed at strategic points and the existing ones to be rehabilitated (water facilities made better), so as to reach farmers with ease.

Kitui Central

Nzeeo nursery (be rehabilitated), and 2 additional nurseries necessary.

Southern

Voo, Mutha, Mwangeni to be rehabilitated, and 1 additional nurseries welcomed.

Eastern.---

Muthua and Katitu to be rehabilitated/added, and 2 additional nurseries required.

Kyuso/Mwingi

Muthamo, Nzeluni, Tyaa Nguni, and 2 nurseries may be added Katse and Ngomeni to be rehabilitated at an advanced stage/the programme.

Water facilities per nursery

Tanks	2	20,000/-
Hose pipes	2	1,000/-
Watering cans	20	2,000/-

Tools

Wheelbarrows	4	approx	1,200/-
Hoes/Jembes	10	"	500/-
Fork Jembes	4	"	200/-
Pangas (Matches)	50	"	1,500/-
Rakes	5	"	150/-
Shovels	4	"	200/-
Sieve	1	"	200/-
Polythene tubes		"	1,000/-
Fencing materials		"	2,000/-
			<hr/> 57,950/- <hr/>

NB for all the twenty nurseries Kshs. 1,159,000/-

NONE DEPARTMENTAL NURSERIES

(KANU Myethya, Chiefs etc)

Possible assistance:- watering cans, Polythene tubes, wheelbarrows, pangas and Jembes.

These could be possible quantities of issue

1 Wheelbarrow	300/-)
3 Watering cans	200/-)
2 Pangas	100/-)
2 Jembes	100/-)
polythene tubes	560/-)

All these are per single nursery

Kshs. 1,260/-

We hope to cater for about 100 nurseries of this category at the end of five years i.e (1989 - 1994). The total cost approximated is Kshs. 126,000/- for the first year.

(c) Boundary Cleaning

Gazetted 22730 ha

Surveyed and ungazetted 15601.3 ha.

Roughly, there are 7 metres of boundary per hectare

This requires 89439.7 mandays

Each manday Kshs. 25

So the operation costs Kshs. 2,235,992.50

NB These boundaries will be maintained for the gazetted forests and for the surveyed and ungazetted we shall use chief's act for protection as the legal tool. Also we shall plant boundary-distinguishing species around the boundaries upon clearing.

Surveying of proposed hills for gazettment should be funded.

(d) Afforestation of Hill Tops

Where feasible indigenous species will be undertaken along the line of enrichment planting, especially on Endau hill. Consideration shall be given to planting programme on the hills e.g. Mumoni, Museve, Mutha with the aim of achieving sound protection of these important water sources.

(e) Construction and Maintenance of Forest Roads.

This is a major component of forestry, hence assistance is required

(f) Training

Training of MENR Extension officers at social forestry centre Kitui working hand in hand with TA's from M.O.A. be considered. The Ministry of energy should be incorporated in making effective institutional jikos

Checklist of some species for rural planting, Kitui District
 semi-arid region,
 agro-climatic zones IV 2-4, V 2-4,
 altitude 900-1800 mm, rainfall 500-1000 mm.

Species	E	FO	FU	H	M	N	O	P	T	F
<i>Aberia caffra</i>	X	X		X						
<i>Acacia albida</i>		X	X		X	X		X		
" <i>mearnsii</i>	X		X			X		X		
" <i>mellifera</i>	X			X						
" <i>nilotica</i>		X	X					X		
" <i>polyacantha</i>			X		X		X	X		
" <i>seyal</i>		X	X					X		
" <i>tortilis</i>		X	X				X			
<i>Albizia lebbek</i>			X		X		X			
<i>Anacardium occidentale</i>	X		X							X
<i>Atriplex nummularia</i>	X	X	X							
<i>Azadirachta indica</i>			X		X		X			
<i>Balanites aegyptiaca</i>		X	X							
<i>Cajanus cajan</i>	X	X	X	X		X				
<i>Cassia siamea</i>			X				X	X		
<i>Cassia spectabilis</i>					X		X	X		
<i>Cassia sturtii</i>		X								
<i>Casuarina equisetifolia</i>			X		X	X		X	X	
<i>Combretum molle</i>			X				X	X		
<i>Croton megalocarpus</i>			X	X			X			
<i>Delonix elata</i>			X				X			
<i>Erythrina abyssinica</i>			X		X	X	X			
<i>Euphorbia tirucalli</i>	X		X	X						

ANNEX 12 - 1988/89 Kitui District Development Budget
(excl. RDF)

ANNEX 12 - Kitui District Development Estimates 1988/89 (Kf) of Major Implementing Ministries.

<u>Ministry</u> <u>Vote</u>	<u>Head</u>	<u>Item</u>	<u>Title</u>	<u>Approved Estimate</u> <u>1987/88</u>	<u>Estimate</u> <u>1988/89</u>
					Kf
<u>Vote D 06 Ministry of Planning and National Development</u>					
			<u>Kitui ASAL</u>	34.350	57.850
<u>Vote D 10 Ministry of Agriculture.</u>					
			<u>Kitui Integrated Development</u>	357.957	-
			FTC Kitui	-	12.138
<u>Vote D 17 Ministry of Livestock</u>					
			<u>Kitui ASAL</u>	14.040	-
<u>Vote D 20 Ministry of Water Development</u>					
			203. Rural Water Supply. 523. Feasibility Studies etc.		
			194. Muthale	2.000	6.000
			195. Kitui Rural	15.000	10.000
			524. Construction	128.000	930.000
			525. Misc. small schemes		
			431. Construction of Ikanga W.S	30.000	10.000
			432. " " Mutomo W.S.	25.000	5.000
			204. Self help water Supplies		
			527. Feasibility Studies etc.	5.000	5.000
			561. Construction	30.000	23.000

206. Special Water Programmes

896. Water Conservation and Dam Construction:	50.000	25.000
928. Integrated Water Development Project:		
420. Construction of W.S. Kitumula	50.000	50.000

Vote D 21 Ministry of Environmental and Natural Resources:

211. Forestry Department

678. Local Afforestation Schemes	158.109	217.012
679. Rural Afforestation Extension	45.966	124.583
738. A.S.A.L. Lands Forestry Dev. Schemes	9.600	12.000