

USAID/Somalia
CDA FORESTRY PHASE I - REFUGEE AREAS
(649-0122)

PROJECT PAPER ANNEXES

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ANNEX I

COORDINATION WITH OTHER DONOR ASSISTANCE TO GSDR FIVE YEAR PLAN

The project constitutes the first stage of a major U.S. initiative within the framework of a new multidonor cooperative effort to assist the Government of Somalia (GSDR) to undertake a larger volume of forestry and fuelwood planting programs as part of its overall social and economic development efforts. It supports specific GSDR priority objectives in reforestation and fuelwood production activities which are also receiving aid from other donors.

The following sections describe:

- The CDA multidonor coordination framework
- The GSDR Five Year Forestry Sector Plan as presented to the CDA donors
- The response to date by other donors in the context of the Five Year Plan
- Other U.S. assistance, including preliminary Phase II planning.

A. The CDA Multidonor Coordinating Framework

This bilateral US project has its origin in a broader multidonor coordinating approach dating back to October 1979. The following paragraphs provide some historical background for the Africa-wide efforts, together with the specific in-country coordinating approaches developed for the forestry/fuelwood sector in Somalia.

1. Background of the CDA Initiative

For the purpose of strengthening their economic assistance efforts in sub-Saharan Africa, representatives of Belgium, Canada, France, the Federal Republic of Germany, the United Kingdom and the United States met in Paris in October 1979. (Italy joined the group in 1982.) They agreed to work towards coordination of resources for joint projects within the framework of a Concerted Action for Development in Africa. The acronym "CADA" was adopted for this approach, subsequently shortened to "CDA" -- Cooperation for Development in Africa.

At the first CDA policy-level meeting held in Bonn in May 1980, the United States agreed to outline suggestions for specific programs and projects on which coordinated member action would be desirable, emphasizing the importance of choosing sectors that would reach the general population as a whole. One area identified early for priority treatment was the "fuelwood crisis" in sub-Saharan Africa. Based on the work of an AID-financed consultant, and discussions by an ad-hoc technical group of other CDA members and selected observers from other donor agencies, the CDA policy-level meeting in Brussels in December 1980 formally accepted a forestry/fuelwood initiative as part of the CDA program.

The program objective of the CDA forestry initiative is to have CDA donors collectively use their influence and overall assistance resources to help African governments to increase their capacity to undertake, as fast as technically possible, large scale forestry and fuelwood production programs as part of their overall land use planning and socio-economic development efforts.

Based on agreed criteria developed by the initial six CDA member representatives, five African countries -- Senegal, Upper Volta, Burundi, Malawi and Somalia -- were selected for further coordination of efforts in the field and the development and support of new activities pursuant to this general program objective.

2. Development of the Initiative by USAID Somalia

USAID/Somalia had expressed interest in participating in the CDA forestry initiative at an early stage in these discussions. At USAID's invitation, in September 1981 an AID consultant visited Somalia to examine the feasibility of a Title II supported reforestation and fuelwood project in Somalia, adapting the self-help approaches used in an Algerian Food-for-Work reforestation project called the "Chantiers Populaires de Reboisement". In October-November, at USAID's request, a forestry advisor visited the Mission and prepared a forestry sector analysis as background for the January 1982 CDSS and for the proposed project. These efforts became the basis for a draft Project Identification Document submitted to AID/Washington in late January 1982. An African Bureau Project Committee reviewed the PID and asked the Mission to carry out additional analyses and to submit a revised PID for further review. This was prepared in the field by a design team, working closely with the Refugee Self-Reliance design team. The revised PID was reviewed and approved by AID/W on July 14 1982, and USAID was authorized to prepare and approve a Project Paper in the field.

Concurrently, USAID encouraged the GSDR to establish an ad hoc CDA steering committee for continuing review of forestry needs and proposed donor assistance and asked AID/W for \$250,000 in Program Development and Support funds to keep up momentum during the interim before U.S. and other donor project agreements could be formally negotiated and signed. Section D below includes a brief description of activities, project design and other start up activities financed from PD and S and other AID funds.

B. The GSDR Five Year Forestry Sector Plan as presented to CDA and other donors

Responding to the encouragement of the USAID Director, the Director General of the Ministry of Planning organized a CDA Forestry and Fuelwood Steering Group, composed of representatives of the NRA, NRC, international and other foreign donors and voluntary agencies interested in reforestation resident in Somalia.

1. The CDA Steering Group and the Anti-Desertification Unit

Chaired by the Director General of Planning, the group has met approximately every four weeks since its inception November 5, 1981. A USAID staff member and an FAO/SIDA consultant on Community Development served as temporary secretariat to the steering group between November 5, 1981 and June 16, 1982, the date of the last formal meeting. As noted in the November 5, 1981, initial invitation, the primary role of the group was only to "discuss at this stage our reforestation and fuelwood production programs and will not commit any participants to undertake any projects in this area".

On March 4, 1982, the Director General issued a formal notice of the formation of an Anti-Desertification Unit, within the National Range Agency. The Unit initially was composed of Dr. Omar Adow, head of the NRA Forestry Service, and, as mentioned above, Mr. David Crabtree, FAO forestry consultant and Mr. Gary Cohen of USAID. Their functions were "to provide assistance to the NRA in the preparation of reports and other necessary documents, organizing of meetings, and making preliminary contacts with various donors and other international agencies involved in the Forestry Program".

The steering group has served as an informal forum for exchange of plans and proposed programs as well as more general discussion of critical problems involved in overcoming desertification in Somalia. At the January 21, 1982 meeting of the steering group, the REDSO/EA forestry advisor, Mr. James Saylor, outlined a systems approach to short and long term needs in the Forestry and Natural Resource Sector and described the preliminary assistance the U.S. was prepared to provide, pending development of the larger project. USAID's preliminary draft PID (January 1982) received written endorsement from the Minister of Planning, Dr. Mohamed Omar Giama, on January 25, 1982, and from Dr. Karani, General Manager of the National Range Agency on January 28, 1982. At the CDA steering group meeting on June 16, 1982, the general substance of the proposals contained in the draft PID were outlined informally before the members and received general endorsement.

2. The GSDR Five Year Sector Plan

At the meeting of the CDA steering group on December 10, 1981, the General Manager of the NRA, Dr. Karani, presented a list of seven Forestry Project Proposals for review and subsequent comment by the donors. Titles of the projects and their estimated costs were as follows:

Forestry Project Program Proposals

	<u>Estimated Cost in U.S. Dollars</u>
1. Creation of Fuelwood plantation in Northwest & Northern Regions:	\$ 1,300,000
2. Village level Reforestation in Rural areas:	200,000
3. Strengthening of the Forestry Department	
a) Inventory & Forest Reserves:	500,000
b) Demonstration of Forest Management:	200,000
4. Forestry Training	
a) Afgoi Forestry Training Center:	1,400,000
b) Extension Program:	712,000
5. Improvement of Charcoal Production:	580,000
6. Improvement of Frankincense & Myrrh:	579,000
7. Soil and Water conservation	570,000

Additionally, it should be noted that at the ICARA conference in Geneva in April 1981 the NRC and NRA requested emergency assistance totalling \$3,888,000 for "Afforestation for refugee camps in four regions of the country where refugee fuelwood demand had accelerated desertification".

There are a few differences between the list of projects presented as the Forestry Department's program and those included in the GSDR draft Five Year Plan: "Strengthening of Sand Dunes" is not included in the Forestry Department projects presented to the group but is part of the Five Year Plan. Omitted from the draft Five Year Plan are projects 1, 3 and 7 of the Forestry Department proposals: i.e., "Creation of Fuelwood Plantations on Northwest and Northern Regions", "Forestry Training" and "Soil and Water Conservation" projects in the North. There are also some divergencies in costing.

More important, however, is that after donors had responded informally, indicating their interest in participating in funding, it became clear that there was considerable overlap of interests and duplication of planning by donors. This, as a "Summary Paper of the Anti-Desertification Unit" presented at the March 17th meeting points out, "highlighted the need for greater coordination between the various donor and international agencies of the CDA group, and the Government of Somalia as represented by the NRA".

Given the size of the task of reforestation that needs ultimately to be undertaken -- between 40,000 and 50,000 hectares per year through the year 2000 -- the modesty of the plan and its internal discrepancies are less important than that donors rationalize their efforts so that the most efficient use can jointly be made of external resources which are now available and may be made in the future.

C. The Response by CDA and other donors in the context of the Five Year Plan

The response to date by the CDA and other donors has been encouraging although not yet fully confirmed. Summarized in the context of the Forestry Department's requests (including the emergency refugee reforestation asked for in June 1981 at the ICARA conference and the Sand Dune stabilization project) tentative donor commitments are as follows:

	<u>Estimated cost & tentative donor commitment (in U.S. \$ Thousands)</u>
1. <u>Creation of Fuelwood Plantations</u>	
in Northwest & Northern regions	1,300: GSDR request
in refugee areas	3,388: GSDR request
<u>Donor interest/commitment:</u>	
- North non-refugee areas: IBRD	amount NA
- Other, non-refugee areas:	
GTZ (Shelterbelts in Central region)	1,510
Yugoslavia (Mogadishu)	amount NA
- Refugee areas, North; World Vision	amount NA
- Refugee areas, other	
USAID (through PVOs)	3,688
OXFAM	200
Mennonite	amount NA
People's Republic of China	amount NA
ERDGS	amount NA
2. <u>Village Level Reforestation</u>	
in rural areas and	200
extension program (item 4b)*	
<u>Donor interest/commitment:</u>	
- FAO/SIDA (completed)	85
(proposed)	200
- USAID (woodstoves, conservation of fuelwood)	500

* Other voluntary agencies under USAID program have extension programs included under reforestation sub-projects mentioned in item 1.

Estimated cost & tentative
donor commitment
(in U.S. \$ Thousands)

3. Strengthening of the Forestry Department
- | | | |
|--|------|--------------|
| Inventory and forest reserves | 500: | GSDR request |
| Demonstration of forest management | 200: | GSDR request |
| <u>Donor interest/commitment:</u> | | |
| - USAID complete national land use survey: | 500 | |
| - USAID - one technician for ADU (3 years): | 450 | |
| - FAO - one technician (one year): | 100 | |
| - Yugoslavia - two forestry officers, 2 experts
for 3 years; nursery, survey and seed
testing, nationwide: | | amount NA |
4. Forestry Training 1,400: GSDR request
- | | | |
|--|----|-----------|
| Afgoi Forestry | | |
| <u>Donor interest/commitment:</u> | | |
| UK: Four lecturers and one expert: | | amount NA |
| USAID: Equipment: | 75 | |
| (It should be noted NRA has to date
financed construction of the school
and costs of 3 Pakistani lecturers.) | | |
5. Improvement of Charcoal Production 580: GSDR request
- | | | |
|-----------------------------------|----|-----------|
| <u>Donor interest/commitment:</u> | | |
| - UNIDO | 39 | |
| - UK | 30 | |
| - World Bank (studies 1982) | | amount NA |
6. Improvement of Frankinsence & Myrrh 579: GSDR request
- | | | |
|------------------------------------|--|-----------|
| <u>Donor interest /commitment:</u> | | |
| - France - in North | | amount NA |
| - Italy - in North | | amount NA |
| - Sweden- in North | | amount NA |
7. Soil and Water Conservation 570: GSDR request
- No donor interest as yet indicated
8. Sand Dune Stabilization 1,500,000: GSDR request
- | | | |
|-----------------------------------|-------|-----------|
| <u>Donor interest/commitment:</u> | | |
| - FAO: Training course 1982 | | amount NA |
| - UNSO: Expert, June 1982 | | amount NA |
| - Italy: Merca - Shallambod | 1,030 | |
| - WFP contribution | 450 | |

D. Other U.S. Assistance, including preliminary Phase II planning

In addition to the \$6 million provided for under this project, the US has used \$147,003 from the Project Development and Support funds earmarked for CDA forestry, to continue coordination within the ADU and CDA steering committee, accelerate project design and provide start up assistance pending approval and obligation of funds under this project. These were programmed as follows:

	<u>US \$</u>
Commodity support for the Afgoi Forestry Training School (noted in previous listing)	75,000
Funding to permit advance recruitment of a forester for a Gedo region project	32,800
Project Design Team (PID): USAID funded costs	39,203
	<u>147,003</u>

USAID and AID also provided under other allotments the service of two design officers, an engineer, a sociologist, an agronomist, a forester and two voluntary agency specialists for both the CDA Forestry and its companion project: Refugee Self Reliance. Approximately 9 months out of the combined 17 person months was devoted to the CDA Forestry project, representing an additional contribution of about \$70,000, including salaries, per diem and travel.

During this period, AID also financed, through a contractual arrangement with FAO, the services of a senior forestry official, Mr. George Booth. Mr. Booth, who had previous FAO/UNDP experience in Somalia, served as an advisor to the NRA General Manager and to the ADU and CDA steering committee for two months, from May 20 to July 11, 1982. His draft report of July 8, 1982, includes important and constructive recommendations on the future functions of the ADU, the purpose and frequency of CDA steering group meetings, and how combined donor assistance could (or should) be used in the organization of a stronger NRA and its accompanying Forestry Department.

With reference to preliminary Phase II planning, it is probable the obligation and implementation of \$6 million in some seven or more sub-project activities will fully occupy monitoring and project management capabilities of both the NRA and of the USAID personnel assigned to this project over the next three years.

However, USAID follow-on resources for additional FFW components of Phase I, after the first year, and for similar reforestation and fuelwood production activities in non-refugee areas are under consideration. Among other activities, we will wish to encourage, and as necessary, finance expansion of community forestry activities in areas unrelated to refugee camps.

In keeping with the CDA approach which is designed to avoid duplication of activities which other donors are ready to finance, we do not intend to program these activities in advance of a clear understanding and knowledge of commitment by other donors whose interest has been expressed but whose project plans and financial commitments are not as firm as are our own in this Phase I Project.

Among Phase II activities which deserve to be supported in Somalia outside of refugee related areas are the following:

Upgrading of 20 NRA regional and district nurseries, together with community extension methods to increase the annual volume of out-planting of trees, each to at least 80,000 seedling capacity (annual). 400,000

Land use Survey:

Permanent (as distinct from present movable) marking sites to permit regular monitoring of changes in wooded and forested areas and of livestock and population impact. Estimated cost for countrywide coverage: 200,000

Extension of cost accounting training and methodology to enable comparable accounting for all NRA related nurseries and tree plantations: workshops 200,000

Extension of species and site specific research trials methodology, to all NRA related nurseries and tree plantation: workshops 200,000

Possible Phase II activities: Total \$1,000,000

ANNEX II

INSTITUTIONAL SUPPORT TO THE NATIONAL RANGE AGENCY: THE ADU, DRAFT BUDGET AND PRELIMINARY TERMS OF REFERENCE

As noted in Section I of the Project Paper, the CDA Forestry project will fund one or two of the positions which has been recommended by the FAO/UNDP program development mission for Somalia, covering the years 1982-86, which coincide with the new GSDF draft Five-Year Plan. The CDA Forestry Project has tentatively budgeted \$450,000 for this purpose over three years, to cover salary and related costs of the position(s), plus short-term consultancies in NRA workshops. These, and positions funded by other donors, will support the Anti-Desertification Unit (ADU) as the monitoring and coordination group for forestry and related activities in the National Range Agency.

The future organization and staffing of a Forestry Department has not yet been fully determined by the GSDF. Final terms of reference and allocations of donor assistance will be worked out with the GSDF in the course of CDA Steering Group discussions and coordination.

This annex includes the following:

- A. Scope of work and budget for one U.S. technical advisor to the ADU.
- B. A summary description of the current staffing and organization of the Department of Forestry.
- C. The proposed functions and staffing of the Anti Desertification Unit.
- D. Supplementary details on the FAO/UNDP illustrative budget for proposed overall Forestry Department assistance, in which several donors will be cooperative.

A. SCOPE OF WORK AND BUDGET FOR U.S. FORESTRY ADVISOR PROVIDED UNDER PROJECT AID NO. 649-0122

A.1. Scope of Work

The incumbent will (a) work in and help to strengthen the newly-formed NRA Anti-Desertification Unit, in close coordination with Somali counterparts, (b) review current status of CDA forestry initiative and make technical and programming recommendations concerning CDA planning and technical progress in arid-zone forestry assistance, (c) visit fuelwood plantation sites, nurseries, charcoal production and planning operations, (d) recommend to USAID and the Somali Government what types of current and future inputs are needed to effectively manage Somalia's forestry and conservation activity through the Anti-Desertification Unit.

Skills requirement as follows:

(a) minimum B.S. in forestry science or related field with at least three years' arid zone forestry experience, preferably in Africa; (b) experience in propagation/plantation of appropriate dryland forest species - including species selection, seed harvesting, nursery design and layout, nursery management practices, plantation design/layout, planting techniques, care and maintenance of seedlings, etc.; (c) experience in community development, agroforestry and energy conservation practices (wood-stoves, improved charcoal kilns) would be useful; (d) innovativeness, resourcefulness, strong cross cultural skills and ability to work independently required; (e) incumbent should possess strong communication skills (oral and written) and be able to conceptualize problems/solutions in development of GSDF's natural resource sector under CDA initiative.

A.2. Estimated Budget

	<u>Year 1</u>
Salary (GS 12)	32,013
Post Differential	3,000
Transportation to Post	2,500
Unaccompanied Baggage	1,500
Shipment of Effects	25,000
Storage of Effects	1,000
ADU office & reference library equipment	15,000
Miscellaneous Costs	300
Overhead at 35%	10,360
Logistical Support	25,324
	<hr/>
Total:	130,000
Year Two:	110,000
	<hr/>
	240,000

B. FORESTRY DEPARTMENT STRUCTURE AND ACTIVITIES 1977-1981

B.1. General

It was late in 1976 that the National Range Agency was established as a semi-autonomous body within the Ministry of Livestock, Forestry and Range. The departments comprising the NRA are: Administration; Forestry; Range Environment; Training, Research and Planning; and Wildlife.

The period 1977 to 1981 was a bleak one for forestry. The only graduate forester, who had been head of forestry, transferred to the Resettlement Agency in 1976, and the post was filled by a transfer from the Plant Protection Division, Ministry of Agriculture. The UNDP/FAO assistance to the Strengthening of Forestry and Wildlife Project (SOM/72/012) terminated in 1976 - the whole team had been together for only two years, a somewhat short period to revitalize a forestry department which at the start of the project had only two trained foresters. In addition the termination of the project before the return of those sent abroad for forest ranger training meant that they could not benefit from a period of in-service training with experienced foresters. In the Three-Year Development Plan 1979-1981, forestry's share of international assistance was but 0.2 percent of the national development budget.

In spite of all this, there were some developments which now provide a framework for building up a viable forestry department in the FYDP 1982-1986 and onwards.

B.2. Staffing of Forestry Department

The present staff is:

Graduates: Director of Forests (Agronomy/Agricultural Entomology)
Deputy Director (Forestry)
Co-Manager, Dune Fixation (Agriculture)

Forest Rangers: seven, all trained abroad, with responsibilities for: forest protection; charcoal production (Counterpart to UNIDO Consultant); village level forestry: Principal, Forest Guards Training School, Jamame; Lecture, Forest Guards Training school, Jamame; Sand Dune Fixation: World Bank Counterpart.

The country has 15 Administrative Regions. In each Region there is an NRA Regional Coordinator who is responsible for administration and coordination of forestry, range and wildlife programmes. Forestry representation at Regional Forest Officer level is only in five Regions: North-West: Toghdere; Lower Shebelli; Lower Juba; and Bay Regions. None of these officers has had formal forestry training. The duties of the RFO's include: station control; charcoal production; wood-cutting; nurseries; and plantations. At District level, and there are 69 districts, there is an NRA District Coordinator, controlling the forestry, range and wildlife assistants.

B.3. Forestry Department Budgets

The approved budgets for 1979, 1980 and 1981 and the proposed budget for 1982 are as follows:

	1979 <u>Som. Sh.</u>	1980 <u>Som. Sh.</u>	1981 <u>Som. Sh.</u>	1982 <u>Som. Sh.</u>
Salaries	400,000	700,000	750,000	785,000
Allowances	100,000	150,000	150,000	135,000
P.O.L.	270,000	900,000	1,000,000	1,440,000
Vehicle Purchase	1,103,000	1,300,000	1,115,000	1,210,000
Equipment	225,000	340,000	340,000	220,000
Books/journals	9,000	25,000	25,000	..
Rents	36,000	200,000	200,000	235,000
T.A.	67,500	115,000	115,000	95,000
Pensions	-	40,000	40,000	40,000
Insurances	49,500	230,000	230,000	30,000
Total:	2,200,000	4,000,000	3,965,000	4,340,000

Labor costs in the past few years have been provided by WFP in the form of Food-for-Work, under WFP Project 719 Reforestation and Rangeland Development. In the TYDP 1979-1981 the value of foodstuffs was about Som. Sh. two million annually but this was supplemented from 1980 onwards by charcoal and fuelwood fees, amounting to about Som. Sh. one million. The WFP equivalent value in 1981 was Som. Sh. 3.4 million, based on an average employment of about 2000 workers. Regular operating costs were therefore established at about Som. Sh. 11 million per year, for protection of wildlife and forestry reserves, control of wildlife poaching, nurseries, and plantations and sand dune fixation.

WFP Project 719 started in July 1979 for a three-year period to June 1982. The assistance has been extended until December 1984 because the allocated food has not been used at the expected rate.

B.4. Field activities

The summary of Forest Department activities is taken from the NPA request to WFP for the second quarter of 1982, for nurseries, plantations, town shelter-belts and guards, as follows:

<u>Region</u>	<u>Nurseries</u>	<u>Numbers of Plantations</u>	<u>Shelterbelts</u>	<u>Guards</u>
North West	4	2	-	-
Toghdeer	-	4	1	-
Sanaag	1	6	1	20
Bari	2	-	1	-
Nugal	3	1	1	-
Mudug	4	5	4	-
Galgudud	7	5	1	160
Hiraan	3	5	3	50
Middle Shebelle	5	1	3	50
Lower Shebelle	7	2	3	17
Middle Juba	4	1	-	-
Lower Juba	2	2	1	-
Gedo	3	1	1	-
Bay	1	-	-	97
Bakool	1	-	-	45
Total:	49	45	20	444

The numbers of workers were: 770 in nurseries; 2,497 in plantations; 538 in town shelterbelts. The duties of the 444 guards were: 175 forest guards, 200 charcoal guards, 69 wildlife guards.

There are no details in headquarters of annual nursery production of annual planting programmes. Thus it is not possible to estimate what impact the present programme will have on national problems such as how many cubic metres of fuelwood can be expected from which plantations in which years. There are 49 nurseries, average production is said to be about 20,000 seedlings annually per nursery, eleven of the sites are for sand dune fixation: the major site to date has been Herca-Shallambod, where the programme started in July 1973; the other sites are all very recently started, so even at an average of 300 ha. per year the total can only be about 3,000 ha. most of which is Euphorbia and spiny Opuntia rather than the productive species such as Casuarina, Acacia or Evedyotus. There are no gazetted forest reserves, but it is noted that the relict Junipers procera forests at Daloh and Al Madow are now guarded. Meanwhile, Gaanlibaah-Bokh has ceased to be a forestry site: planting of Eucalyptus camaldulensis was stopped in 1977 because the soil was too shallow and mortality was excessive, and the area has been converted to a Range Reserve.

Comparing what has been done with what was proposed in the TYDP 1979-81, the programme was for: 39 forest reserves averaging 100 km² each; 12 plantations and 16 town shelterbelts each of 100 ha. or 2,800 ha. total; soil conservation, terracing of slopes where necessary; research at six sites; sand dune fixation at five locations with protection of 25 km² at each site and a total of 1,600 ha.

of plantations. The achievements are that sand dune fixation started at 11 sites rather than at five; there were 65 plantations and shelterbelts rather than 28, and two relict Juniperus forests were protected. Nothing could be done under Forest Reservation, Forest Inventory or Forest Research because of lack of trained staff.

B.5. Training

Training has been done at three levels: forest ranger, forest and wildlife guards; and nurserymen.

B.5.1. Afgoi Forestry Training School

The school is staffed by three forest officers from Pakistan, who are employed by the NRA.

It provides a two-year course: the first batch of 14 graduates will complete their course in May 1982. Successive courses with an intake of 40 students per course will start in 1983 and 1984. If 30 students complete each course, there will, by 1984, be a total of 44 new or relatively new forest rangers available for posting to various projects during the FYDP 1982-1986. Plus another 30 or so in 1987 ready for the next development plan period.

The school may then close to become a conference centre/short refresher course centre. The reason is that there are plans to open a multi-disciplinary school at Afgoi (with World Bank assistance) which will include a forest ranger course. The course will be 4 years, the first two years for general subjects followed by two years of specialization. If the school opens in 1984, the first forest ranger course will start in 1986, and thereafter there will be an annual outturn of 30 or so forest rangers from 1988.

B.5.2 Forest and Wildlife Guard School, Jamama

The school opened in 1975 and was moved in 1982 from Jamama to Afgoi. The number of guards trained was 140.

B.5.3. Nursery training school Afgoi

Nursery formen have been trained at Afgoi nursery since 1977. There is still much to be done to raise the efficiency of nursery operations.

C. THE ANTI-DESERTIFICATION UNIT

The principal that there must be an Anti-Desertification Unit (ADU) has been accepted as from April 1982 but it has not functioned because of lack of staff. The NRA also requires the appointment of a Forestry Coordinator/Advisor as the link between NRA and the CDA Programme, and this has been discussed by the General Manager, NRA, with USAID, UNDP, FAO, all of whom agree with the request. This appointment is additional to that of Project Manager, Forestry Development and Strengthening of the Forestry Department.

Although in the Terms of Reference the ADU is considered as incorporated into Forestry Department, the NRA wants the Unit to cover range as well as forestry matters in its responsibilities, since range developments are of equal importance in anti-desertification measures as are forestry ones. The idea is supported, and it is also a logical development of the project proposal for Technical Assistance to the NRA, in the report of the FAO Programme Development Mission. The activities of the proposed project would: provide advice and guidance on all technical matters pertaining to the execution of range development; assist in the development of a national land-use plan; assist in coordinating efforts in various parts of the country concerned with range development. The Forestry Coordinator/Advisor will be doing the same for forestry, so it is desirable that it be done in collaboration as part of an NRA Unit than as a separate ADU in the Forestry Department.

The project proposal (No. 5 in the FAO Programme Development Mission report) has not been included in the 1982-86 Country Programme financed by UNDP. It could, though, be taken up in part by USAID, which in its Project Identification Document on CDA Forestry Sector Assistance (Project No. 649-0122) has recommended that in cooperation with other donors, it will fund one of the following positions:

- A general programme coordinator, to be assigned as executive secretary to the newly-formed Anti-Desertification Unit.
- A senior forestry technical adviser.
- A community forestry technical adviser.
- Short term consultants for species trials and demonstrations.

The short term consultants for species trials will be provided in the consultancy programme of the Forestry Development and Strengthening of the Forestry Department (implemented by the Yugoslav Solidarity Fund) and there will also be an input by ICRAF through a workshop/seminar at a date yet to be fixed.

The senior forestry technical adviser (or general programme coordinator) could be funded by UNDP which can now offer one year's assistance in its 1982 Country Programme. The cost would be US \$100,000, made up of Forestry Officer \$85,000; Toyota Land Cruiser \$7,000; Pol \$4,000; local travel \$4,000. (The personnel cost and vehicle cost are as stated by Mr. Udo, Deputy Resident Representative UNDP). The amount is within the limit that a Resident Representative can approve without having to refer the matter back to UNDP Headquarters. FAO would be the Executing Agency. The responsibilities of the post are such that the incumbent must act impartially in the job of coordination, and an appointment under UNDP/FAO could do much in helping to achieve this. The problem is that one year is not a sufficiently long enough period to achieve the objectives - a 4 to 5 year period would be more appropriate, which raises the question of where the financing for the other years can be met. (Project Proposal No. 5 mentioned above was for a 5-year project). The financing of the post would be personnel cost, Pol and local travel. The cost in the first year is \$93,000, and using the 3% annual inflation figures for calculating UNDP Proforma Costs, the total for a further four year's support would be US \$453,000.

If USAID is given approval for one post, the general programme coordinator and the senior forestry technical adviser would form the ADU within the NRA. The Community Forestry Technical Adviser could be used in one of two ways: either working with the strengthening of Forestry Project, which would have the advantage that the administrative problems are taken care of by the project, leaving the officer more freedom to do his job, or the provision of this post could be a USAID input into the Village forestry project, in collaboration with another donor.

D.1. FAO/UNDP SUGGESTED PROJECT BUDGET COVERING GOVERNMENT CONTRIBUTION IN KIND

Country: Somalia

Project No:

Project Title: Strengthening of the Forestry Department of NRA in Reforestation Activities.

	TOTAL		1983		1984		1985	
	man months	So. Sh.	man months	So. Sh.	man months	So. Sh.	man months	So. Sh.
10 Project Personnel								
1001 National Director (Part-time)	9	21,000	3	7,000	3	7,000	3	7,000
1002 Foresters (4)	120	120,000	24	24,000	48	48,000	48	48,000
1003 Administrative Officer	36	36,000	12	12,000	12	12,000	12	12,000
1004 Typist	36	21,600	12	7,200	12	7,200	12	7,200
1005 Store-keeper	30	13,000	6	3,600	12	7,200	12	7,200
1006 Foremen (4)	120	72,000	24	14,400	48	28,800	48	28,800
1007 Mechanics (Part-time)	15	12,000	3	2,400	6	4,800	6	4,800
1008 Drivers (7)	189	113,400	21	12,600	84	50,400	84	50,400
19 Component total	555	414,000	105	83,200	225	165,400	225	165,400
29 Training (5 fellowships)	120	72,000	15	9,000	60	36,000	45	27,000
39 Buildings		6,000		3,000		3,000		-
49 Maintenance		163,800		40,600		78,400		44,800
59 Miscellaneous		55,000		5,000		20,000		30,000
Total Government Contribution So. Shs.		710,800		140,800		302,800		267,200

D.2. PROJECT BUDGET COVERING UNDP OR DONOR CONTRIBUTION

Country: Somalia

Project No:

Project Title: Strengthening of the Forestry Department of NRA in Reforestation Activities.

	TOTAL		1983		1984		1985	
	man months	US\$	man months	US\$	man months	U US\$	man months	US\$
10 Project Personnel								
11 Experts								
1101 Team Leader (P-5)	36	256,000	12	76,920	12	83,040	12	96,960
1102 Reforestation Expert (P-4)	30	136,730	6	34,020	12	73,440	12	79,320
1103 Consultants (P-5)	9	54,000	3	13,000	3	18,000	3	13,000
12 Associate experts								
1201 Reforestation (North)	30	-	6	-	12	-	12	-
1202 Reforestation (South)	30	-	6	-	12	-	12	-
13 Travel on official business		11,000		4,000		4,000		3,000
19 Component Total	135	508,700	33	132,940	51	178,480	51	197,280
29 Secretarial help	36	14,000	12	4,500	12	4,500	12	5,000
30 Training								
31 Individual fellowships	120	184,000	15	26,100	60	34,600	45	73,300
49 Equipment		266,000		183,000		53,000		30,000
59 Reports		3,000						3,000
69 Miscellaneous		13,000		3,000		4,000		6,000
99 Total contribution US\$		938,700		349,540		324,580		314,580

D.3. Terms of Reference

D.3.1. Team Leader

He will be a senior forester with experience in planning and execution of reforestation and nursery projects in arid and semi-arid zones. In consultation with the General Manager of the National Range Agency, he will perform the following tasks, in addition to his administrative and financial responsibility for the project:

- (a) arrive in the country six months earlier than the other team members and prepare the project for sound operation.
- (b) study and collect all relevant documents and information related to the activities indicated in the Project Document;
- (c) order equipment;
- (d) orientate project activities in cooperation with the Rangelands Development Projects;
- (e) make field trips to get acquainted with physical conditions in the country related to present and future sites of plantations, nurseries, trial plots;
- (f) coordinate the activities of the experts, associate experts and consultants;
- (g) prepare a training programme and execute it with the assistance of the reforestation expert;
- (h) prepare a terminal report.

Duty Station: Mogadishu duration: 36 man/months.

D.3.2. Reforestation Expert (experience in arid and semi-arid zones)

Under the supervision of the Team Leader and in consultation with the Director of Forestry of the NRA, he will:

- (a) study the present situation;
- (b) select areas for future nurseries, plantations and trial plots;
- (c) prepare work programmes for the associate experts and assist in execution of activities indicated in the Project Document.

- (d) assist the Team Leader in formulating and executing a training programme for 60 technical foresters and 20 foremen;
- (e) establish a simple seed-testing laboratory, and train personnel in its operation;
- (f) prepare manuals for nursery and seed-testing laboratory operations;
- (g) prepare guidelines on the establishment of irrigated/rainfed plantations and assist national staff in their implementation;
- (h) assist the Team Leader to draw up a national reforestation programme;
- (i) prepare a final report as required.

Duty Station: Mogadishu: duration: 30 man/months.

D.3.3. Consultants (3)

Their Terms of Reference will be decided during the operation of the project. Consultancies may be needed in the following fields:

- introduction of suitable charcoal kilns and demonstrations in selected areas;
- economic analysis and planning of reforestation projects;
- establishment and operation of the seed-testing laboratory.

Duty Station: Mogadishu: total duration 9 man/months.

D.3.4. Associate Experts (2)

They should have a basic knowledge of silviculture with particular emphasis on nurseries and plantations, preferably under arid and semi-arid conditions.

Under the supervision and guidance of the reforestation expert they will:

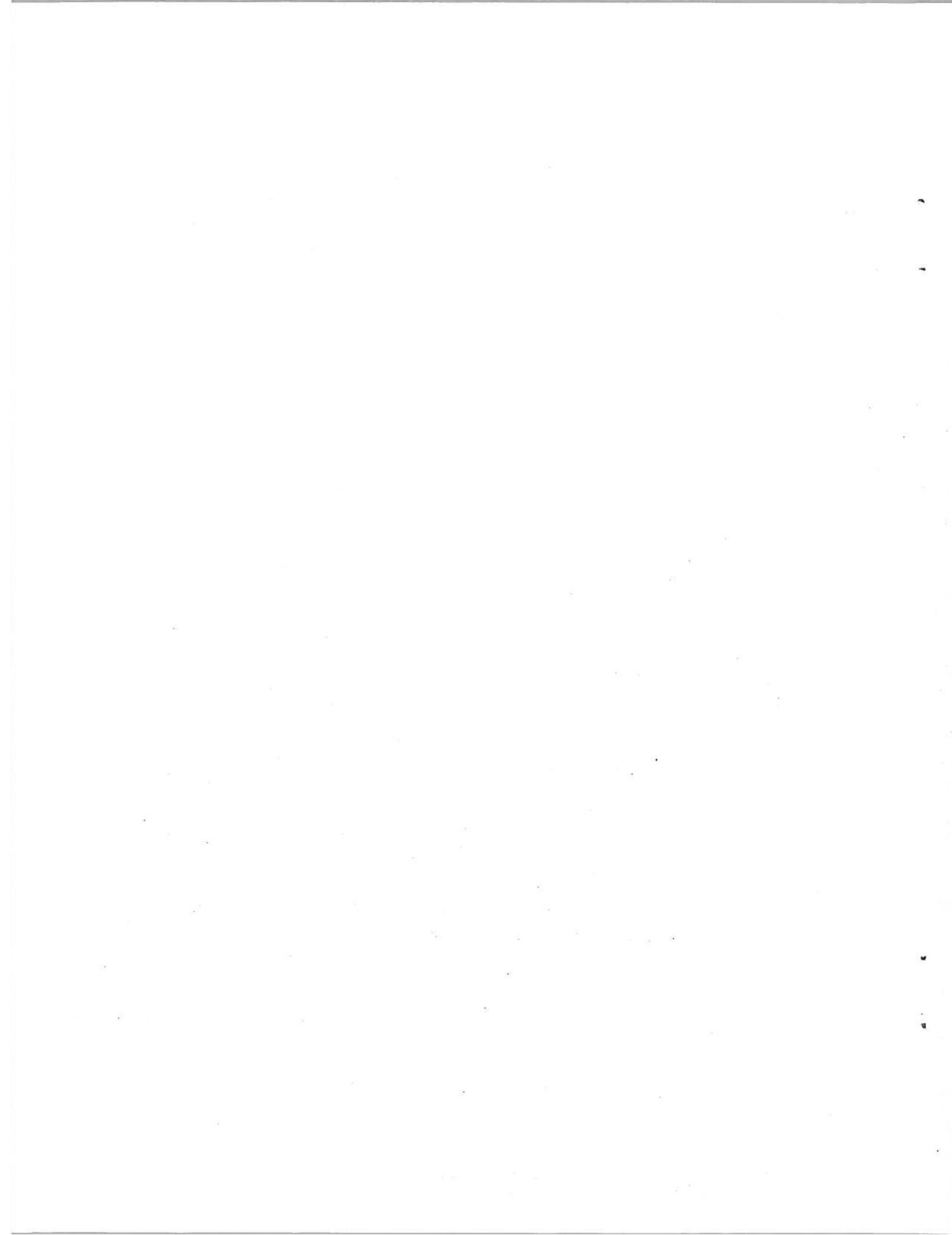
- (a) be outposted respectively in the northern and southern regions of the country;
- (b) establish nurseries, plantations and trial plots;
- (c) train nursery and plantation foremen;
- (d) perform other duties connected with project activities.

(e) prepare reports as required.

Duty Stations: Hargeisa and Kismayo: duration: 30 man/months each.

D.3.5 Working conditions

All project personnel will be required to work under difficult field conditions and take long field trips by vehicle, horse or on foot with occasional camping out in order to perform the duties indicated in the Project Document.



ANNEX III

TECHNICAL ANALYSIS: GUIDELINES AND CRITERIA

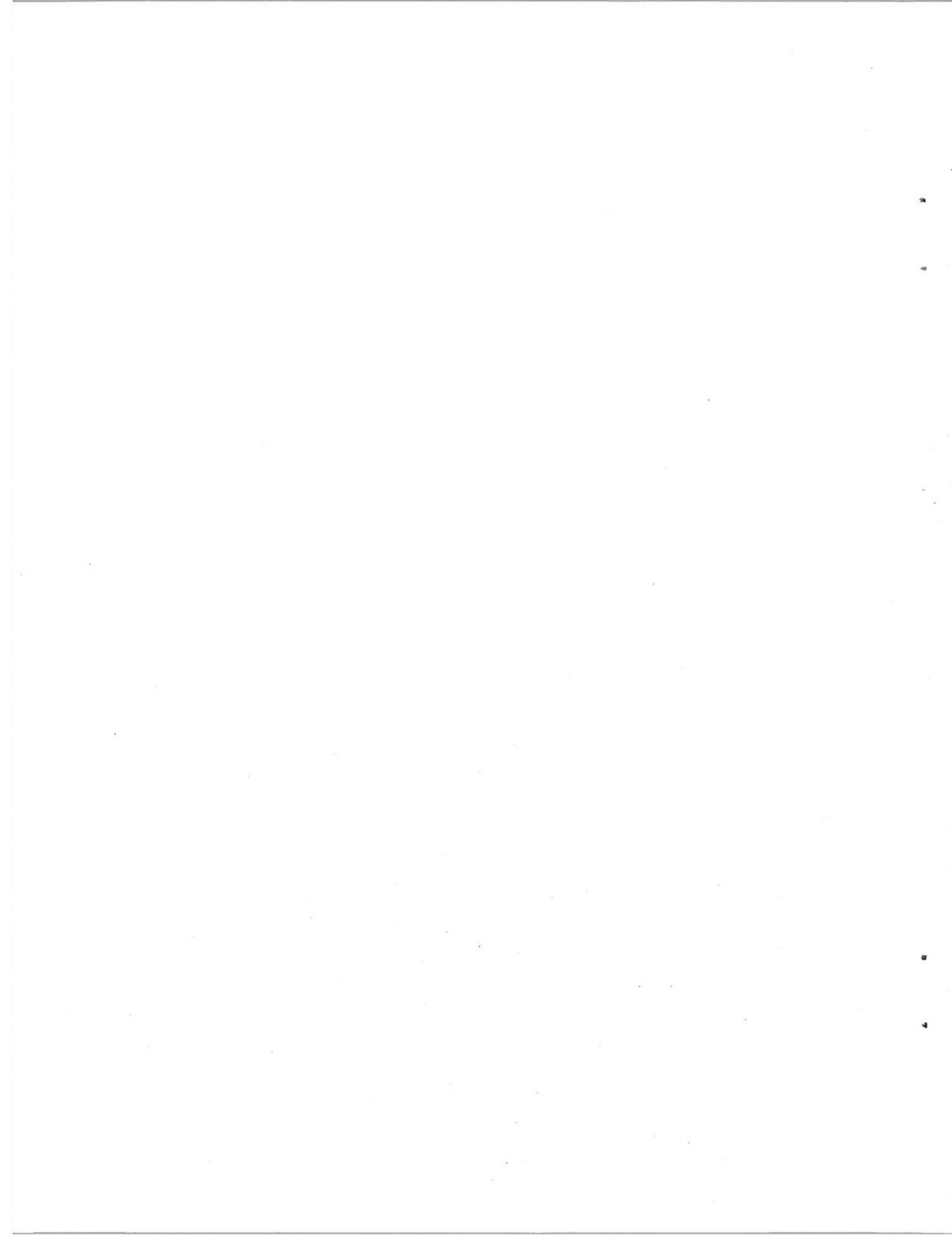


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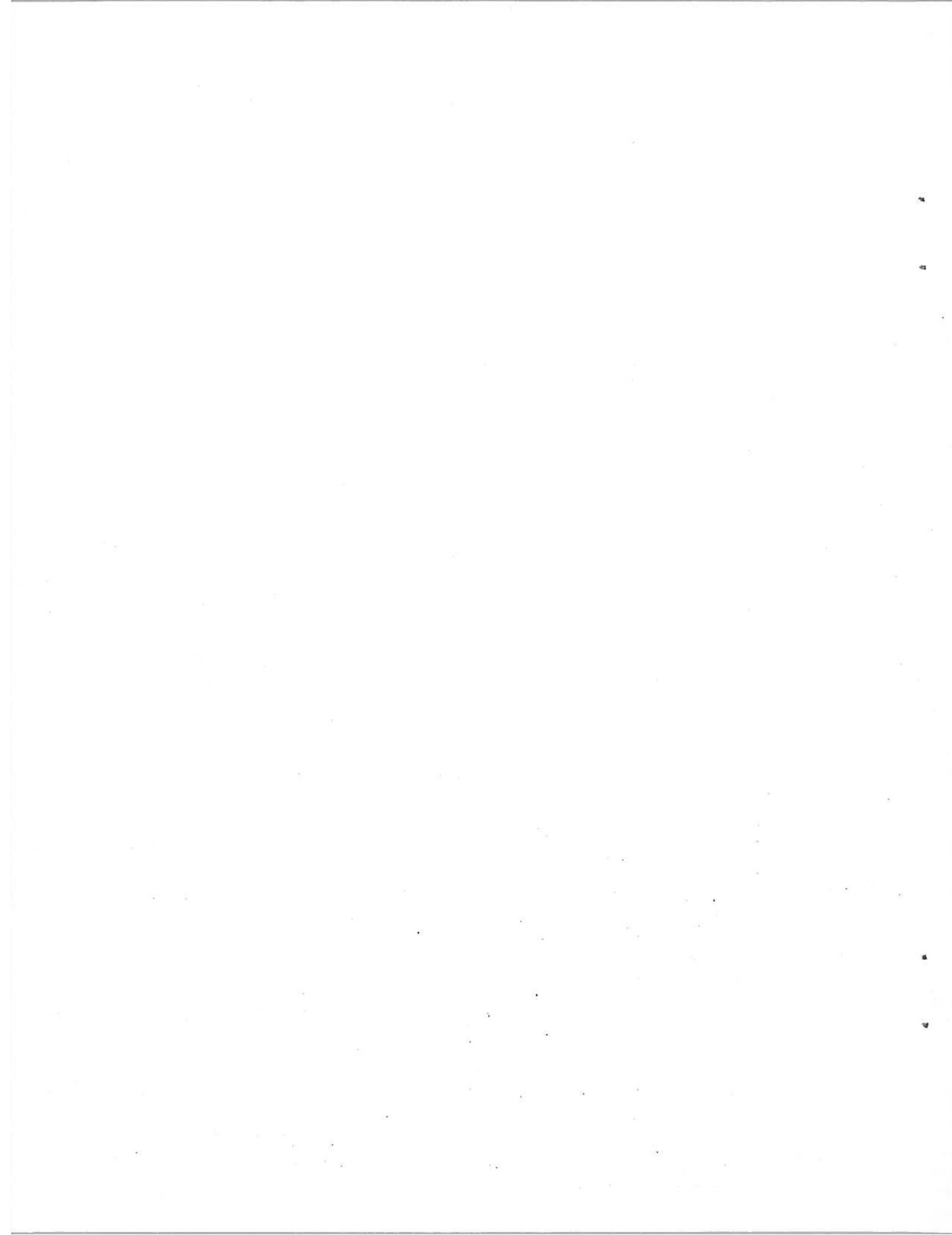
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ABSTRACT AND INTRODUCTION

This report has been prepared at the request of the Refugee Self-Reliance and CDA Forestry design teams to serve the following purposes:

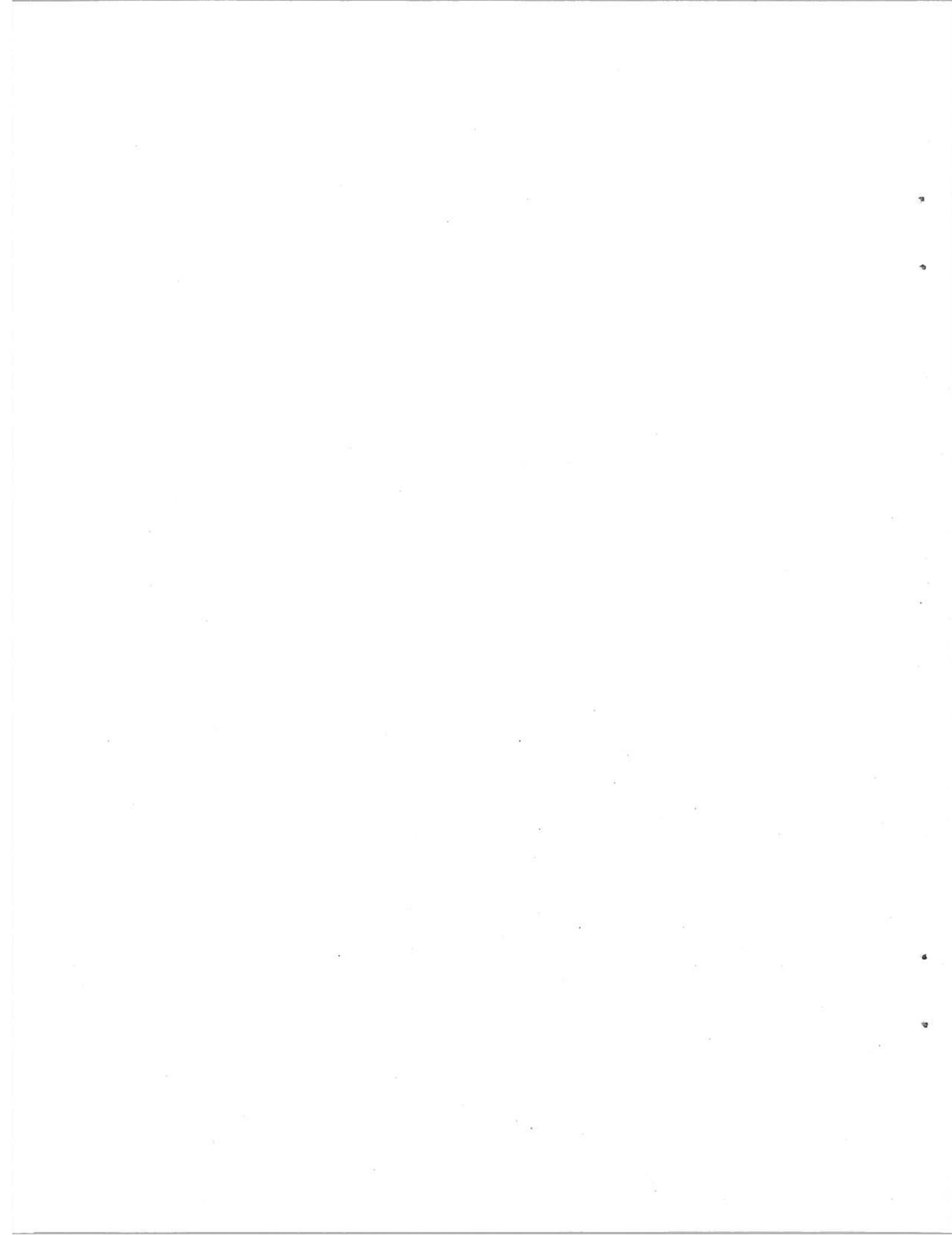
- To provide a set of guidelines by which seedling supply and tree planting projects proposed for financing under this project could be technically and financially evaluated;
- To assist project designers, both GSDR and cooperating voluntary agencies, to develop effective forestry and fuelwood programs in areas where no forestry services have yet been provided;
- To provide a checklist of essential seedling supply and tree planting project criteria, together with their approximate costs, so that programs already underway could be evaluated and improved for more effective use;

These guidelines have been developed for services and tree planting efforts intended specifically for activities to be supported in and near refugee camps, including neighboring non-refugee populations and lands. However, obviously, these guidelines could be applied to projects of this nature which are being considered anywhere in Somalia, or, for that matter, with appropriate adjustment in local costs and conditions, to any semi-arid country in Africa.

It is hoped that, together with the refugee camp related projects which the funds under this project will support, the guidelines may also be of assistance in supporting the establishment of the much broader and rapidly expanding forestry and fuelwood production programs which are among the priority development objectives of the GSDR's new Five Year Development Plan.

Given the absence of Somali specific information or research on species, spacing, site requirements, labor constraints/requirements, yields, etc., estimates for these guideline components have been drawn from literature and experience in other countries with similar ecological and physical constraints. It is therefore hoped that as additional experience is gained, forestry project managers will refine these components to reflect as accurately as possible, the specific Somali context.

Special appreciation is due to Fran Gulick, CDA Forestry Design Team Leader, George Booth and David Crabtree, FAO Forestry Advisors to the National Range Agency, and Howard Heiner, Forester with Interchurch Response, for their many helpful comments and suggestions.



I. THE PROPOSED CDA FORESTRY SECTOR ASSISTANCE PROJECT

The proposed CDA forestry project includes at least three kinds of tree planting activities in and near refugee camps, involving tree seedling supply services of varying scale:

- Amenity, shade, fruit, ornamental, hedgerow or agroforestry tree planting in individual refugee family enclosures and farm plots or around schools and other public buildings within the camps. For each camp of 20,000 population, a nursery of up to 10,000 might meet this need.
- Tree planting for more specialized tasks, for soil conservation or other purposes, not directly benefitting the refugees, such as roadside, canal and river bank planting, live fences or windbreaks at the perimeter of the camps. A demonstration fuelwood lot of, say, 10 hectares could also be planted. If these activities are taken up on any significant scale, the tree nursery would have to be enlarged to 20,000 or even 40,000 seedling capacity, or another nursery established to meet the additional demand. (A 10 hectares fuelwood lot alone might need 25,000 seedlings, but only for one time planting). Food-for-Work projects could cover labor costs of such plantings.
- Larger scale plantings, in management units of, say, 25 to 100 hectares or intensive or semi-intensive fuelwood lots, or about 5 kilometers of windbreak/shelterbelts, but probably a combination of all three. When projects of this scale are added, additional or expanded seedling supply nurseries are required. If a unit of 25 hectares of intensive woodlot is to be planted at one time of the year, a nursery of about 87,500 would be needed. This size could handle a one-time GU season planting of about 25 hectares. If the nursery is restocked concurrently with the GU season planting, that capacity could handle another 25 hectares during the DER season of the same year if rainfall data at the project site indicate that a DER planting is feasible. It should be clear that as soon as a systematic annual increase in the volume of tree planting is undertaken, the seedling supply capacity must also be enlarged. Tree seedling supply and the type of planting desired should be planned at the same time. Other things being equal, savings are likely to be achieved by situating the nursery services as close as possible to the planting sites.

The proposed CDA project, as currently conceived, would be supporting up to 34 small (about 20,000 seedling capacity) nurseries for an ultimate goal of one tree nursery per camp for amenity and small scale non amenity purposes; and up to 6 larger scale fuelwood supply plantations, with accompanying seedling nurseries of about 87,500 capacity each. Given the geographical distribution of the camps and the accompanying water transport and labor constraints, a system of

decentralized nurseries to meet both the small scale and the larger scale planting purposes appears to be the most practicable way to meet the goal of getting as many trees as possible into the ground and growing, during the project's first three years.

II. SEEDLING PRODUCTION ISSUES

At present, there are some 35 government built nurseries (NRA) and several volag nurseries (NRC) in existence throughout Somalia. However, seedling stock production from these nurseries is quite low and excluding the nurseries at Afgoi, Hargeisa and Qorioley, averages less than 10,000 plants/year/nursery. Given the visible demand for seedlings (fuel, fruit, shade and multipurpose species) by local and refugee populations and projected requirements of on-going and proposed reforestation, shelterbelt and sand dune fixation projects, it is estimated that current nursery production is sufficient to satisfy only 20 percent of Somalia's projected planted goals in the 1982-86 Five Year Plan. Thus, any reforestation/afforestation initiative, from village level community forestry and amenity plantings to larger scale plantations and shelterbelts must first carefully address seedling production problems before considering other design and implementation issues.

A. The case for a decentralized nursery system in Somalia

If a careful analysis were made of the reasons for failure or delays of forestry projects in sub-Saharan Africa, from community woodlots to large scale industrial plantations, one of the major contributing factors would most probably be the difficulties involved in trying to provide seedlings (in both quantity and quality desired) at the correct planting time. The causes of these difficulties can be simple, complicated and/or exacerbated by political overtones (national tree planting days), and are always frustrating. However, they usually fall into three categories:

- Transport problems: lack of vehicles, POL, spare parts and recurrent cost implication;
- Water problems: Over-complicated watering system, lack of POL, spare parts for pumps and recurrent cost implications;
- Organizational and particularly lack of technical and managerial problems: administrative skills.

1. Advantages of decentralizing

A decentralized nursery system can help avoid most of these difficulties by

- Placing the nursery site as close as possible to the planting site (whether it be a shelterbelt or village woodlot), thus increasing seedling accessibility and reducing transport costs (particularly recurrent costs) and the necessity of relying on an always unsure vehicle or fuel source;
- Gearing nursery production to actual demand for seedlings at a project site or in a limited area (20 kilometers radius) around the nursery in case of village or community forestry projects. This production figure will usually be lower than 50,000 seedlings and often lower than 40,000 seedlings, in which case the use of motorized pumps and sophisticated watering systems could possibly be avoided;
- Encouraging the establishment of collective or individual village level "mini-nurseries", school nurseries and planting programs and private sector initiatives in forestry wherever possible, all on a small, simple and easily managed scale. (see Annex III).

2. Disadvantages

The only disadvantage of a decentralized nursery system can be cost, particularly is establishing a permanent water supply. However, the attached economic analysis (Annex IV) shows favorable economic rates of return for most nursery/plantation systems requiring a borehole, even when benefits other than wood are not taken into consideration. Rates of return would obviously increase if use were made of existing water systems but this alternative should be weighed against transport constraints and access to seedlings

3. Jalalaqsi: A more specific illustrative example

Jalalaqsi currently has a small hand watered NRA nursery located close to town and the refugee camps and about 150 meters from the Shebelli river. The nursery produces about 8,000 plants annually including Leucaena leucocephala, Azadirachta indica, Conocarpus Lancifolius and several ornamentals. However, this production is not sufficient to meet demands of the local and refugee populations (estimated at about 1,500 seedlings/year); an on-going sand dune stabilization project located 7-20 kilometers away (6,000 seedlings/year); a proposed 30 hectares NRA plantation (about 9,000 seedlings/year) located 10 kilometers from the nursery; and a proposed Africare fuelwood plantation/shelterbelt project (85,000 seedlings/year) located 14 kilometers from the nursery.

The current nursery and permanent water source lend themselves

readily to expansion possibilities to meet this growing seedling demand. However, the question to ask is whether it would be more appropriate to establish an additional nursery at each project site and simply add a small pump to the existing nursery to increase seedling production for the local population and refugees. The answer to that question would involve a fairly detailed economic analysis and particular emphasis on recurrent costs vs. construction costs of new water supply systems for the two additional nurseries. Nevertheless, these are the kinds of issues that must be addressed in considering nursery construction or expansion possibilities and their importance cannot be overemphasized. In any event, these projects will require nursery or nurseries capable of providing at least 130,000 seedlings annually.

B. Five rules for a successful seedling supply program

Nursery production capabilities in Somalia (and resulting tree establishment possibilities) depend on being able to resolve from the onset one or usually more of five major problems. These are:

- Finding a permanent source of water, or gaining access to an existing water system;
- Absence of an assured/appropriate seed source (local or other);
- Lack of technical expertise;
- Lack of managerial expertise;
- inappropriate nursery design and/or choice of species.

The basic guideline for any successful effort is: solve these problems! More specifically, five rules for successful seedling supply and tree planting programs are:

1. find a permanent source of water or gain access to an existing water supply;
2. establish an assured and appropriate source of seeds;
3. obtain and apply appropriate technical knowledge;
4. obtain and apply appropriate management techniques;
5. choose the right nursery site and the kinds of trees best suited to needs.

1. Find a permanent source of water or gain access to an existing water system

Water is by far the most limiting factor in terms of nursery site selection or expansion possibilities. Nursery site selection usually involves a trade off between water availability/ease of access and distance to planing sites and/or demand centers. The amount and quality of water available year round can dictate maximum nursery output which in turn dictates pumping or irrigation needs and water storage

requirements. A nursery destined to produce 20,000 seedlings/year (approximately 1/8 hectare) requires about 4m³ of "sweet" water per day for 4-6 months and a storage capacity at least two times the daily water requirement in order to ensure optimum seedling growth and maximum survival rates. Unfortunately, this quantity is needed most when water tables and river levels in Somalia are at their lowest.

The quality of water is also important. Water containing more than 550 parts per million of dissolved salts (about .8/mhos/cm) is usually considered unfit for nursery work.

However, over-irrigation can be used in some cases to prevent salt build-up on the nursery beds.

Lastly, the trade-offs between water availability and quality, ease of access, desired production and eventual nursery location will in turn determine the type of water or irrigation system to be used. A general rule of thumb in choosing an irrigation system is "the simpler the better". Entire planting seasons have been lost for the lack of diesel fuel or a spare part for a pump. Existing and potential nursery water/irrigation systems in Somalia could fall into several categories:

- gravity fed from rivers;
- motor pump fed from rivers, boreholes or hand dug open wells;
- hand pump fed from rivers or hand dug open wells;
- watering by hand from nearby rivers or hand dug open wells.

a. - Gravity fed systems

This type of system lends itself particularly well to sites which already have an established irrigation system for agriculture and where desired (or future potential) production is greater than 100,000 seedlings. However, it is also easily adaptable to smaller scale or even mini-nurseries. Provided there is an adequate flow of water, this system requires little capital investment, has few recurrent costs and is relatively easy to maintain. This system is also particularly well suited to flood irrigation. The major factor influencing a decision to use an existing gravity fed facility is the distance between the nursery and the proposed planting site(s). Where no gravity fed irrigation exists and distance would seem to warrant consideration of such a system, construction costs and desired production should be weighed against alternative irrigation methods.

b. - Motor pump systems

Usually diesel powered, these systems become efficient

where desired nursery production approaches 40,000 seedlings/year and/or where labor is unavailable. Where water access is relatively easy (rivers and existing boreholes or wells), a diesel pump can provide the basis for a relatively low cost water supply for both small to medium and for industrial scale nurseries. The obvious problems with this type of system are recurrent costs and difficulty of maintenance. Windmills could also be considered for nurseries with lower water volume requirements and heads under 50m.

c. - Hand pump systems

Small handpumps, chain pumps, etc. can effectively be used in nurseries with a desired production of 10,000 to 40,000 seedlings per year. Their low cost, simple operation and maintenance requirements can provide an excellent small scale system where easy access to water is available (shallow hand dug, open wells, rivers, springs).

d. Hand watering

All of the above systems require hand watering of the seedlings from (a) centralized water storage point(s), as mechanized nursery irrigation systems are not yet warranted in Somalia. In hand watering, all that is needed is that water either be lifted and carried by hand from open wells or nearby rivers directly to the seedlings or to a water storage facility. As a general rule, this method can be used effectively when the quantity of water required is less than 1-2m³/day (depending on lifting height and walking distance) and there is sufficient labor. Hand irrigation is more than adequate for productions of less than 10,000 seedlings per year.

Again, it cannot be overemphasized that the location of a new nursery or expansion of an old one (or choice thereof) is a trade off between water supply/production capabilities and distance to planting sites and/or demand centers. Expansion of an existing nursery with an adequate water supply to produce 40,000 seedlings/year for a sand dune stabilization project located 20 kilometers away should be weighed against the possibility of establishing a new nursery, complete with borehole, at the plantation site. Careful consideration must be given to capital and recurrent costs of nursery operations, including water systems and transport needs, in order to maximize nursery production, seedling availability and accessibility, and minimize transport and/or opportunity costs.

2. Establish an assured and appropriate source of seeds

The lack of seeds in sufficient quantity and variety, either from indigenous or other sources, continues to hamper nursery construction/expansion possibilities and therefore,

increased outplanting possibilities. Although Somalia has sufficient seed stock reserves of several species (Leucaena leucocephala, Anacardium occidentale, Azadirachta indica, Cassia siamea, Conocarpus lancifolius, Acacia senegal, A. albida, Casuarina equisetifolia and Cordeauxia edulis to name a few), there is no systematic collection and distribution system. Seed collection is currently done in a haphazard fashion, on a nursery to nursery as needed basis, and with no regard to phenotypic characteristics of the parent trees. Some imported "exotic" seed is also available in Somalia from the NRA (or at least in neighboring countries) but nursery requirements, site requirements and growth characteristics of most of these species have yet to be systematically tested and evaluated. Also, it is doubtful whether Somalia's ecological constraints are taken into consideration when requesting provenances of certain species. Therefore, any nursery/plantation initiative of necessity will have to address seed availability in the short term in one or more of the following manners:

- Provide funds for labor in order to harvest seeds from locally available species. Ideally, this could include a simple training component to ensure that seeds are selected from parent trees with desired phenotypic characteristics and a simple distribution/communication system between volags/NRA where excess seed from a species collected in one region could be transported to other regions.
- Provide funds for the purchase of seeds from exterior sources. (Depending on the species imported, this would ideally include a small adaptive research component in order to test and evaluate nursery requirements, site requirements and growth characteristics in and around the nursery site). If seed is ordered from exterior sources, care should be taken to ensure that the provenance of this seed matches as closely as possible the ecological conditions of the planting site.)
- Develop on site or regional seed banks for certain species. The research plot suggested above can be the on-site source of seeds - even after the first year for species such as Leucaena and Sesbania. (This has already happened at Bur Dhubo in the Gedo region. Leucaena seeds are being supplied for direct seeding from last year's trees). In the long term, sustained or increased nursery production will depend on the eventual creation of a national seed bank/multiplication and distribution system. Potential for such a bank exists at Afgoi where a number of mature species (L. leucocephala, A. indica, and A. occidentale) exist in sufficient quantity and quality to supply the needs of the most ambitious

reforestation programs.

3. Obtain and apply appropriate technical knowledge

A close look at nurseries operating in Somalia reveals that a number of basic technical issues have yet to be addressed. These include:

- Inappropriate germinating techniques (particularly for Eucalyptus sp.);
- Improper watering techniques;
- Inappropriate use/size of polythene planting pots;
- Use of improper shading techniques;
- Use of improper soil mixtures for both seed beds and potting soil;
- No or limited use of sun and water hardening techniques;

- Little or no experimentation or adaptive research on germination techniques, use of stump and open root stock, possibilities of direct seeding (particularly *Leucaena* along irrigation canals), use of containerized seedlings, different pot sizes, soil mixes, optimum planting sizes, and no methodological framework for systematically testing, monitoring and evaluating such research. (This same lack of research holds true for species/provenance trials, site requirements, spacing trials, etc.)

As an example of one of these technical problems, thousands of seedlings and seeds are destroyed or washed away annually due to the use of coarse spray nozzles on watering cans. The use of simple, fine spray nozzles on the cans can up the nursery production considerably.

Seedling/seed losses can also be avoided by the use of germinating trays or by direct seeding into polythene pots. Flood irrigation and/or the use of misters for particularly fine seed (*Eucalyptus*) should also be considered where appropriate.

With regard to the use of planting pots, it should be noted that virtually all seed/cutting stock in Somalia is rooted in plastic pots. Potted seedlings do have certain advantages. These are:

- a ball of soil around the plant which reduces/prevents root disturbances at planting time;
- pots can be well watered before leaving the nursery so that they have a reserve of moisture if rainfall is erratic or there is a break in the rains soon after planting.
- nursery soil forming the ball can be inoculated with the necessary mycorrhizal fungi for species requiring mycorrhizae.

However, the disadvantages of potted seedlings are that they are difficult and costly to transport in any quantity.

One way to reduce these problems is to use the right size of pot for the species planted. The size of the pots currently being used in most nurseries in Somalia (20cmX20cm) is approximately four times the volume required for most species. If appropriate size pots are used (usually 10cmX20cm) - and nursery production is to remain constant - potting soil, water and space requirement could be quartered and the number of seedlings per transport vehicle quadrupled. (In fact, some species such as *Leucaena* can be germinated/planted in pots as small as 5cmX10cm.) Also, when using pots in the nursery, care should be taken to ensure that they are either the open-ended type cut from rolls of tubing, or the sack type in which holes have been punctured, to assure proper drainage.

The use of "stump transplants" should also be considered for certain species. "Stumps" are seedlings germinated and raised in seed beds whose stems and roots are severely cut or pruned prior to outplanting. A rough rule for most species is to "stump the seedlings when they are thicker than a pencil, but thinner than a thumb"; about 25cm long of which 3cm is above the root collar and 22cm below the root collar - all roots pruned off. Stumps take longer to raise in the nursery than do potted seedlings, but their advantages are ease and cheapness of transport and their toughness. Suitable species for "stump transplants" are *Azadirachta indica*, *Cassia siamea*, *Conocarpus lancifolius*, *Dalbergia sissoo* and *Gmelina arborea*.

The direct transplant of "open root stock" seedlings should be avoided although species such as *A. indica* and *Khaya senegalensis* can be planted "open root" if seedlings are carefully stripped of all leaves, except the terminal bud and the last two or three leaves near it.

The major objective of an efficiently run nursery is to produce seedlings of optimum size and maximum survival potential in a specified time, in accordance with the different requirements of the species being raised. Appropriate techniques help maximize a nursery's potential to accomplish this objective.

Upgrading nursery technical efficiency in Somalia could follow one (or a combination of) two directions:

- Recycling of NRA and VolAg nursery managers in a 2-3 week short course in the technical and administrative aspects of nursery management. (The majority of nursery managers in Somalia have had little if any formal training and most have simply learned by doing and observing over the past years);
- Providing VolAg/donor nursery technicians on a regional or rotating basis to conduct on-site "hands-on" training of nursery managers and generally up-grade nursery techniques, while establishing on-site nursery/species trials and

demonstration plots.

4. Obtain and apply appropriate management techniques

Upgrading of nursery managerial expertise goes hand in hand with upgrading of technical expertise. Seedling production must be geared to demand by projects and people, and to the seasons. Seedlings must reach optimum planting size during one or both of two, three week periods each year (Gu and/or Der rainy seasons). As each species has different growth rates, sowing schedules-taking into consideration germination times must ensure that all seedlings reach optimum size at planting-out time. For a maximum of one month planting season, nursery sowings must also be staggered to allow for the fact that all seedlings cannot be planted at once. This implies that the nursery manager is familiar with the growth characteristics and nursery requirements of the species desired, has the ability to develop realistic sowing schedules and is able to direct all nursery activities toward seedling maturity at the appropriate time. Unfortunately, in Somalia, this is not often the case. Sowing is usually done when seeds are available, and few, if any records of sowing dates, germination rates, survival rates or seedling distribution/sales are kept. However, as previously stated, a short term course in basic nursery management and/or periodic technical assistance by qualified nursery technicians would help considerably in upgrading nursery manager skills.

5. Choose the right nursery site and the kinds of trees best suited to needs

If all the above problems are resolved, a forestry project planner might have to address several additional issues in nursery development, particularly in terms of site selection and species choice.

a. Site selection

In addition to water, the right kind and volume of soil must be available, and protection from animals and wind must be provided.

(1) Soil requirements - If a significant percentage of nursery stock is to be open rooted and transplanted in stumps, the nursery site should ideally have soil that is rich, deep and well drained. The best soil is sandy clay which has a loose crumbly texture. However, soil quality can usually be ameliorated through the addition of organic matter, fertilizer, sand, etc., but the cost of these additions (including transport) should be reflected in the nursery budget. If these costs seem disproportionately high compared to desired nursery production, relocation of the nursery should be considered as an alternative solution. However, water, rather than soil, will remain

the most limiting nursery factor in Somalia.

(2) Protection - Not only from animals but from the dessicating effects of the wind. Wind damage to seedlings is prevalent in several nurseries in Somalia and care should be taken to locate new nurseries in sheltered areas, or if this is not feasible, to plant hedgerows/windbreaks of fast growing species (Leucaena) around the nursery site before establishment.

b. Species:

In Somalia, at least for the next several years, there will be a trade off between species desired (by projects and people) and species available. However, when Somali farmers and refugees alike are asked what type of tree species they would prefer, the answer is usually "fruit trees". Unfortunately, there appears to be a conflict over who actually produces fruit tree seedling stock. The Ministry of Agriculture believes that this should be their responsibility - thus the absence of fruit trees in most NRA nurseries. Nevertheless, a prerequisite for any successful communal, individual or family reforestation initiative is to determine the preferred species, produce and make available seedlings of those species and then encourage people to consider other species for other purposes (forage, multi-purpose, etc.). Thus, this policy and/or conflict between NRA and MOA must be addressed and resolved in the immediate future in order to permit NRA to begin producing and distributing fruit tree seedlings.

A suggested species list for Somalia by water requirement, primary end use and suggested propagation techniques is provided in Table II.

A Nursery Planner's guide outlining the above points is provided in Table I.

III. LARGER SCALE TREE PLANTING PROGRAMS WHICH COULD BE UNDERTAKEN ONCE A SOURCE OF SEEDLINGS IS ESTABLISHED

Once a soundly planned and managed tree seedling nursery is established and seedlings are ready to be planted, a forestry/fuelwood project manager can choose among several alternatives for outplanting of these seedlings, depending on what kind of land and water is available for the planting site and what purposes have the highest priority. (Shelterbelts or windbreaks can be designed which can also produce fuelwood, but they must be harvested correctly or they cease to serve their purpose as windbreaks or shelterbelts).

A. OUTPLANTING OPTIONS

The planting possibilities, given a nursery output of

87,500 seedlings/year could include one or usually a combination of the following fairly major fuelwood production activities:

1. 25 hectares of intensive fuelwood plantation/year @ 2,500 trees/ha (2mx2m) planted only on Class I or II rainfed or Class I-IV irrigated sites provided irrigation system is already in place.

or

2. 56.25 hectares of semi-intensive fuelwood plantation/year @ 1111 trees/ha (3mx3m) planted on rainfed Class III-VII sites, depending on the species chosen and primary end use.

or

3. 100 hectares of fuelwood plantation/year @ 625 trees/ha (4mx4m) planted on rainfed Class III-VII sites, depending on the species chosen and primary end use.

or

4. about 5 kilometers of windbreaks/shelterbelts (3-5 rows) in standard configuration resulting in about 250 trees/ha, planted on any site class and using a variety of species.

In addition to any one or combination of the above planting options, the nursery could provide 8,000 seedlings of various types (fruit, shade, ornamentals, fuelwood or multipurpose species) for household/amenity, canal, hedgerow or agroforestry plantings, or enough for a small 24 hectares camp woodlot at 625 trees per hectare. The remaining 17,000 seedlings constitute a safety factor, for replacement of ungerminated or otherwise failed seedlings.

Estimated yield figures and rotation ages for various species using these planting possibilities are given in table III. (As there have been no spacing trials conducted in Somalia the above examples are only used to indicate relative stocking density. Project managers are encouraged to experiment with other spacings depending on species, site constraints and primary end use).

B. Constraints on outplanting options

1. Water - Moisture availability is the most important factor as far as tree growth and survival are concerned. Although most regions in Somalia receive less than 500mm of rainfall, this is fortunately distributed in two seasons which effectively raises mean annual precipitation to about 750mm.

Additionally, the presence of underground water (high water tables, flood plains, etc.) can add significantly to available ground water with resulting increases in growth rates and yields. Also, a number of techniques exist to increase ground water availability. These are:

a. Hand watering - Hand watering of seedlings for 4-6 months after outplanting (between GU and DER or DER and GU rainy seasons) is a viable option for increasing ground water availability providing labor is assured and access to water is relatively easy (and costs can be met). The watering system outlined in Annex I with costs detailed in Annex II Table B uses a combination of donkey carts with 55 gallon drums to actually water the seedlings, and a small tractor and two bowsers to transport water to the plantation site. In this system, the seedlings would receive two litres of water every three days for five months which would effectively increase mean annual precipitation by about 350mm. Depending on rainfall data at the project site, the quantity of water could be reduced to one litre every three days. Estimated labor requirements per hectare and per planting option are given in Tables IV and V. (As a general rule, two people, one donkey, plus cart and drum are sufficient for one hectare of plantation with variations due to spacing and distance). Although relatively costly, hand watering can significantly increase seedling growth and survival rates while greatly facilitating first year plantation establishment - the most critical year in woodlot development.

b. Rainwater harvesting - Although it will not substitute for access to an assured water supply, hand dug, small rainwater catchment basins, adjacent to and placed within the planting site, can capture fresh rain water during GU and DER. This can serve as a supplementary and decentralized supply of water during the critical time for plantation establishment. In any case, such basins can provide a modest amount of flood control and serve to recharge ground water from rainwater which would otherwise be lost in uncontrolled flooding. The digging of these small catchment basins would provide additional food-for-work projects. Siting and depth should be part of the forester's initial plantation plan.

c. Use of microcatchments - Microcatchment systems can also be incorporated into plantation site preparation and pit digging activities. Although very labor intensive (100+man/days hectare in some cases), the use of these systems can effectively increase ground water availability (and growing season) by 1-2 months while enhancing seedling survival rates and

controlling erosion. Design of these systems varies according to rainfall, slope, species, etc., but their objective is to channel rain water to (and conserve water around) the seedling's root system.

A list of suggested species for Somalia by water requirement and primary end use is given in table II. Again, this list should serve as a general guideline only, as very little research has been done on actual site requirements/propagation techniques for most of these species.

2. Labor requirements - The lack of sufficient labor at the crucial planting and post planting watering and maintenance period has seriously retarded GSDR reforestation efforts in the past. In the first place, the period of greatest need, just before and for four months after the GU rains begin, is also the critical period for agriculture production. Non-farm workers are in great demand as hired labor by farm owners or managers, at premium rates, (a figure of 100 So.Sh. a day was quoted by one expat advisor). One WFP 719 sub-project, a plantation planned in the Northern Region for 3,000 hectares each, at Batalaleh and Gaanlibah, in three years proved impracticable. The total number of workers, 2,684 for both sites by the third year, could not be assembled. The maximum recruited was 450. The actual achievement was 50 hectares planted annually at Batalaleh, 100 hectares of reforestation and 20 kilometers of bunding at the other site.

More recently, the sand dune stabilization project near Shalambod, with planting and other tasks requiring 350 workers simulataneously, was able to round up only 25 the first day, expanded to about 90 by the end of the week, still well short of planting needs.

Forestry project managers should therefore carefully analyse the local labor pool and constraints thereon before determining planting targets. It is possible that afforestation activities in and near refugee camps may not encounter such severe labor shortages as noted above, but this as yet remains to be fully tested. In any case, an assured labor force, no less than an assured water supply is essential if quantitative planting targets of any size are to be achieved.

Estimated high, low and probable man/days of labor required per plantation activity and per hectare are given in table IV. Estimated total man/days necessary per activity and per planting option are given in table V. Graph I shows estimated labor requirements per activity and per season for a planting target of 25 ha of intensive woodlot/year. Graph II shows total estimated labor requirements per month given the same planting target.

3. Transport of seedlings - The timely transport of seedlings from the nursery to the plantation site remains a critical factor in outplanting possibilities. Locating the nursery as close as possible to or even on the planting site, using stump transplants whenever possible, and using smaller plastic planting pots will greatly reduce transport costs while increasing seedling survival rates and potential outplanting area.

If a nursery is located at any distance from the plantation site (say 5-10 kilometers maximum) some form of vehicle transportation (trucks, tractor and wagon with layered racks for potted seedlings) will be required. This transport can either be rented or purchased but project budgets should contain some provision for transport of seedlings.

Holding nurseries are another means of facilitating transport. Potted seedlings are raised in a main nursery and then transported to a holding nursery(ies) the plantation site(s) 2-4 weeks before outplanting. However, the use of holding nurseries assumes provision for care and watering of the seedlings exists at the sites.

Additionally transport of seedlings, particularly potted stock, at the plantation site itself can be facilitated by the use of plastic beer cases (or equivalent design in wood) which carry 25 (e.g. Tusker white cap) seedlings quite efficiently. When used in conjunction with the donkey carts (minus the drums) the system becomes even more efficient.

4. The plantation site - Although water will remain the limiting factor in Somalia to tree growth and development, and labor will be the limiting factor in outplanting possibilities, some reference to the site on which the trees will be planted is inevitable. Site and soils characteristics such as depth, permeability, pH, water holding capacity and fertility will influence species choice, spacing and resulting growth rates and yields. As a general rule, soils that are good for agriculture are good for trees. However, in practice, forestry activities usually find themselves relegated to marginal or even sub-marginal lands. The U.S. Soil Conservation Service uses eight classifications for determining land use capability which can be applied effectively on any site. These are:

Class I - Very good land that can be cultivated safely and easily with ordinary farming methods. These lands are usually smooth-lying with gentle slopes with medium to fairly fine textured deep soils and with a granular structure which allows for easy penetration of roots, air and water. However, the soils must have free drainage and good water holding capacity.

Class II - Land that can be cultivated safely with moderate conservation treatments. Soils in this class may be slightly

erodible or may have water or climate problems with a measurable lower productive capacity than Class I.

Class III - Soils with considerable limitations in use and that require intensive conservation treatments. Erosion, droughtiness, excessive wetness, overflow or salinity may be the causes of the problems. This site approaches marginal utility for general crop production.

Class IV - Soils that are severely limited in use. They can be cultivated only occasionally and with extreme care. These soils may be erodible, droughty, wet, overflowed or saline, so that the kinds of cultivated crops that can be grown as well as the number of years favorable for crop production are very limited.

Class V - Nearly level land that is best suited to permanent vegetation. These soils are often stony, wet, subject to damaging overflow, or have a short growing season.

Class VI - Land that is best suited for grazing or forestry, with minor limitations. These soils are usually steep sloping and/or may be severely eroded, shallow, wet subject to damaging overflow, or droughty.

Class VII - Soils in this class are severely limited in use. The size of the conservation problems exceeds those in Class VI. They be steep, stony, shallow, droughty, wet, subject to damaging overflow, or eroded. These soils are best protected by natural vegetation and limited use.

Class VIII - Very steep and rocky or sandy or wet land. Useful for wildlife food and shelter areas or for recreational or water yielding purposes. Not suited for commercial production of crops.

The above classification scheme (site classes I-VI) coincides roughly (site classes 1-6) with the Sir M. McDonald and Partners Ltd. irrigation site classification system and soils surveys. For forestry project planning/site selection purposes the McDonald Report can be used very effectively to determine soil site classes and soil characteristics. Estimated yields and rotation ages for several forestry species on different site classes are given in table III.

a) Site preparation and maintenance - Land clearing and site preparation methods for both woodlots and agricultural schemes should be based on an integrated evaluation of short and long term ecological, economic and sociological impacts. Differences in these impacts depend on a number of factors; e.g. method of clearing, season cleared, how much vegetation is removed, whether the site is burned or not, if the soil is laboured, type of labour, etc. Intensive clearing of existing vegetation at a site usually means that:

- "the micro-climate at the soil surface changes drastically; the amount of rain reaching the soil increases, radiation increases, maximum temperatures increase and minimum temperatures decrease, humidity decreases, wind increases, etc.

- "large amounts of organic material will be momentarily deposited on the ground and in the soil, while at the same time, the annual addition of litter will cease." (Lundgren, 1980).

In Somalia, intensive site preparation for forest plantations spells disaster in terms of increased wind and water erosion, higher evapotranspiration, lower ground water availability and a rapid deterioration of topsoil structure. In short, intensive or even semi-intensive site preparation is not justified in forest plantations in Somalia or in most semi-arid lands. What growth is gained by release of nutrients and reduced competition in intensive site preparation is lost by general site degradation and a harsh micro-climate around the seedlings. Site preparation/maintenance should be limited to:

-- cutting back existing vegetation (to reduce competition and shade somewhat and to facilitate site layout - but, leaving the larger, more valuable trees in place - rows do not have to be straight).

-- digging appropriate size pits (60 cm x 60 cm is recommended)

-- a maximum of three weedings around the trees (1 m radius) the first year, two weedings plus one brush cut back the second year and one brush cutback plus some spot weeding the third year.

b) Site protection - If water, labor and site constraints have been resolved, protection of the seedlings from animals must be assured or outplanting efforts will come to naught. Fortunately, in Somalia, a simple two strand barbed wire fence with a guard system seems to provide sufficient authority to deter most pastoralists from grazing their animals on plantation sites. Several grazing reserves using this system (with the fence in great disrepair!) were observed in Somalia and the difference in vegetation levels between the outside and inside of the reserves was staggering. The model described in Annex II with costs outlined in table B provides for barbed wire and 1 guard for every 5 ha of plantation. The latter estimate could be somewhat lower depending on the location of the planting site and the species used.

TABLE I

A NURSERY PLANNER'S CHECKLIST

SEEDLING DEMAND:

Quantity:
For what purpose(s):
Species required/desired:
Seed available locally or imported:
No. stump transplants:
No. potted stock:

WATER SUPPLY:

Distance from planting site to nearest easily accessible
water source:
(if greater than 20 kilometers, consider borehole or hand
dug well construction)

Water quality:

Quantity water needed:

Water storage capacity needed:

Type of water system required:
(based on production needs and accessibility of water)

NURSERY SITE:

Soil type/quality:

Fertilizer, manure needed?
If so, how far is nearest source and how much is needed?

Is site protected?
If not, what is needed?

LABOR SUPPLY:

Is sufficient labor available locally?

What, if any, are the constraints of the local labor force?

What training is needed?

WHAT EXPERIMENTATION/DEMONSTRATION PLOTS ARE NEEDED OR COULD BE
INCORPORATED INTO NURSERY ACTIVITIES:

HAVE YOU PLANTED TREES INTENDED AS FUTURE SEED SOURCE?

POSSIBILITIES FOR EXPANSION:

TABLE 11

SUGGESTED DRYLAND REFORESTATION SPECIES FOR USE IN SOMALIA
(Adapted from weber 1977, and Getahun 1981)

Dry sites - 200 - 500 mm Mean Annual Precipitation

<u>Species</u>	<u>Propagation Method</u>	<u>Primary End Use</u>
Acacia albida	S, DS	FOD, RED, CONS, MULT
A.cyanophylla	S, DS	FOD, RED
A.tortilis	S, DS	FOD, RED
A.nilotica	S,DC	RED, FOD, CONS
A.senegal	S,DS	RED, C
Balanites aegyptica	VC	RED, FOD
Boswellia sp.	VC	RED, C
Commiphora sp.	VC	RED, C
Parkinsonia acculeata	S, DS	RED, FOD
Prosopis juliflora	S, DS	FOD, RED
Ziziphus sp.	S, DS	RED, HORT
Atriplex sp.	S, DS	FOD, CONS
Euphorbia sp.	VC	RED

Medium sites - 500 - 900 mm Mean Annual Precipitation

<u>Species</u>	<u>Propagation Method</u>	<u>Primary End Use</u>
Anacardium occidentale	S, DS	HORT, RED, CONS
Azadirachta indica	S, ST, DS, SR	RED, MULT
Cassia siamea	S, ST, DS	RED, TIM, CONS
Eucalyptus camaldulensis	S	RED, TIM
E. microtheca	S	RED, TIM
Conocarpus lancifolius	S, ST	RED, TIM
Leucaena leucocephala	S,DS	RED, FOD, MULT
Parkia biglobosa	S	HORT, RED
Tamarex articulata	VC	RED
Cordeauxia edulis	S	MULT

Moist sites - 900 - 1,200 mm Mean Annual Precipitation (or high water table)

<u>Species</u>	<u>Propagation Method</u>	<u>Primary End Use</u>
Casuarina equisetifolia	S	RED, TIM
Tamarindus indica	S	HORT, RED
Albizzia lebbeck	S, ST, DS	RED, FOD, CONS
Dalbergia sissoo	S, ST	TIM, RED, FOD, CONS
Gmelina arborea	S, ST	RED, CONS
Sesbania grandiflora	S, VC	RED, CONS, MULT
Khaya senegalensis	S, SR	TIM, FOD, RED

KEY:

Propagation method: S = potted seedling
ST = stump transplant
SR = stripling
DS = direct seeding possibility
VC = vegetative cutting

Primary End Use: RED = species more for renewable energy development
HORT = horticulture
TIM = timber, poles, construction
FOD = fodder, browse, green manure
C = cash crop
CONS = soil conservation, site and habitat improvement
MULT= multi-purpose species

TABLE III
ESTIMATED YIELDS FOR SELECTED SPECIES

SPECIES	Site Class	Stocking Rate ¹ trees/ha	MAI (m3)	COPPICE (yrs)	Sensitivity		ROTATION (yrs)
					MAI m3	COPPICE (yrs)	
Eucalyptus camaldulensis	I-II	1111	13	8	11-17	7-10	28-40
Eucalyptus camaldulensis	III-IV	625	8.5	8	7-12	7-10	28-40
Cassia siamea)	IV-V	625	8.5	7	7-10	5-8	20-32
Azadirachta) indica)							
Casaurina equisetifolia	I-II-III	625	10	(5) ²	9-11	-	4-6
Prosopis juliflora )	)IV-V	1111	5.4	5	4-6	4-6	20-30
Dalbergia sissoo)							
Acacia nilotica)	)VI-VII						
Albizzia lebbek)							
A.tortilis)							
Leucaena leucocephala irrigated		2500	31	4	30-40	3-6	15-30
Leucaena leucocephala	I-II	2500	16.4	5	15-20	4-6	20-30
Leucaena leucocephala	III-IV	1111	10	6	9-12	5-7	25-35
Leucaena leucocephala	IV-V-VI	625	8.6	6	7-10	5-7	25-35
Windbreaks/ Shelterbelts	---	250	1.67	5	1-3	5-7	25-35

¹ In addition to site, stocking rate can vary with primary end use desired and resulting management system. For example *E. camaldulensis* could be planted on a marginal site at 1111 trees/ha, then thinned at perhaps year 3 for fuelwood, leaving about 625 trees/ha which could then be harvested in year 7 or 8 for poles and timber. Other species could be managed in a similar fashion.

² *C. equisetifolia* does not coppice.

TABLE IV

ESTIMATED MAN/DAYS OF LABOR/HA NECESSARY FOR PLANTATION ESTABLISHMENT ACTIVITIES

ACTIVITY	SPACING(m) STOCKING RATE	2X2			3X3			4X4			WINDBREAKS/ SHELTERBELTS 250 trees/ha		
		HIGH	AV	LOW	HIGH	PROB	LOW	HIGH	PROB	LOW	HIGH	PROB	LOW
<u>SITE PREPARATION AND CLEARING</u> ¹	2500 trees/ha	100	60	25	100	60	25	100	60	25	50	25	15
<u>HOLE DIGGING</u> ²		500	167	83	222	74	37	125	42	21	50	17	9
<u>PLANTING</u> ³		100	50	33	45	22	16	25	13	8.5	10	5	3.5
<u>WEEDING</u> ⁴		94	75	60	41	33	26	24	19	15	10	8	6
<u>WATERING</u> ⁵		480	370	315	215	164	140	120	93	79	48	37	31
<u>TOTAL</u>		1274	722	516	623	353	244	394	227	148.5	168	92	64.5

1. Would vary with type/extent of vegetation on the site, the method used for clearing the vegetation and to some extent the topography. The high and the average figure includes the number of man/days necessary to construct a two strand barbed wire fence around the perimeter of 1 ha.

2. Would vary with soil type. Obviously, however, one would not be planting at a stocking rate of 2500 trees/ha on a Class VII site.

3. Would vary with transport/walking distance from seedling delivery point to actual planting site, species and method of transport used.

4. Assumes maximum three weedings the first year, two weedings plus one brush cut back the second, and one brush cutback plus spot weeding the third year, totals of which are averaged over three years.

5. Assumes trees will receive two litres of water every three days for 5 months using donkey cart watering system. Man/days would vary with distance to water point, topography, and willingness of donkeys to participate in the activity.

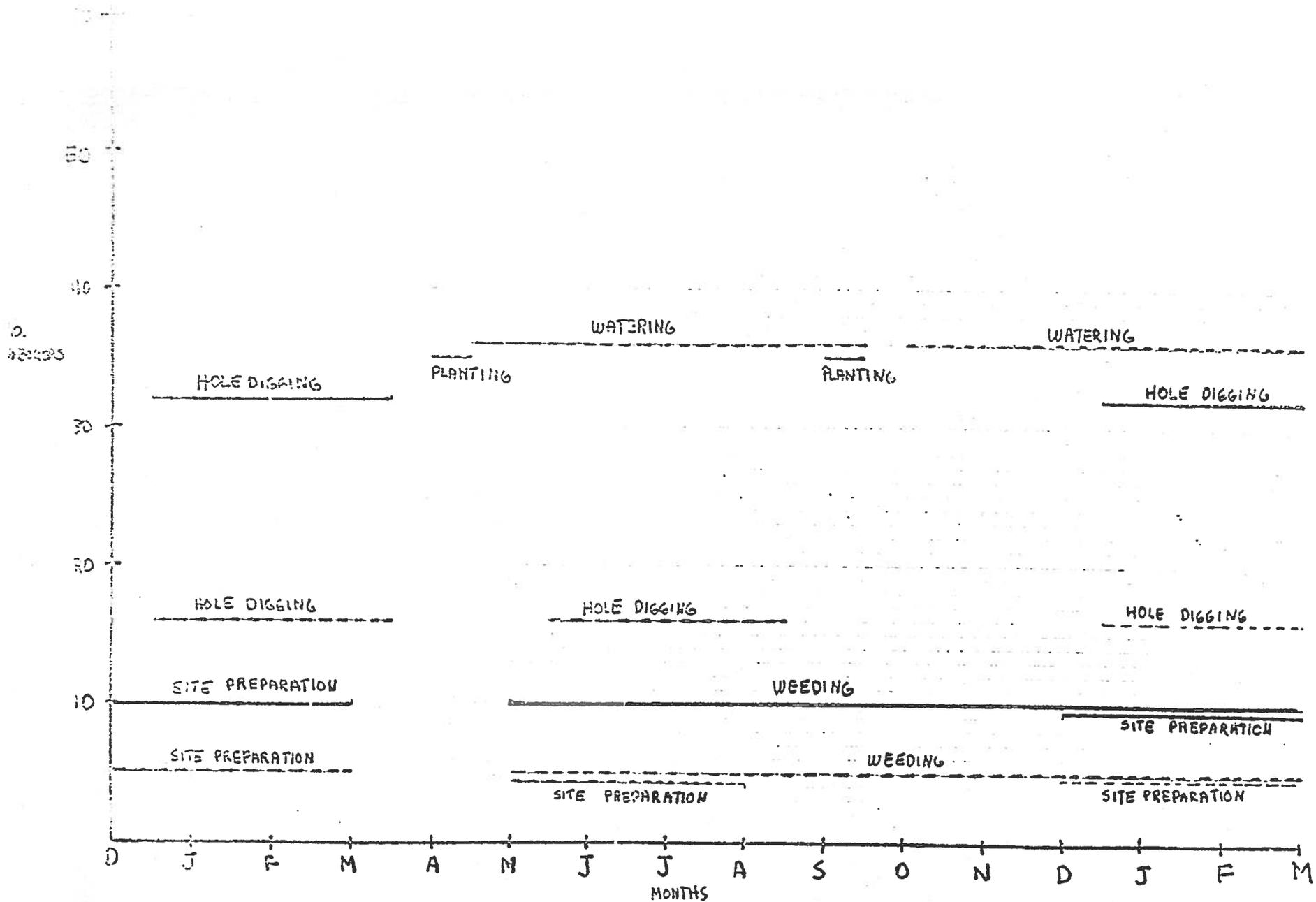
6. The "probable" estimates in this case would be the low figures as increased stocking density requires better than average sites, soil types, access to water, etc.

TABLE V

ESTIMATED PROBABLE TOTAL MAN/DAYS PER PLANTING OPTION
(based on using full nursery production of 87,500 seedlings)

	SPACING(m) STOCKING RATE	2X2 2500 trees/ ha	3X3 1111 trees/ ha	4X4 625 trees/ ha	WINDBREAKS SHELTERBELTS 250 trees/ha
ACTIVITY SURFACE		25 ha	56.25 ha	100 ha	250 ha (or about 5 k's)
SITE PREPARATION AND CLEARING(66 days) ¹	625		3,375	6,000	12,500
HOLE DIGGING(66 days) ¹	2075		4,163	4,200	8,500
PLANTING (12 days) ¹	825		1,237	1,300	2,500
WEEDING(154 days) ¹	1500		1,856	1,900	4,000
WATERING(110 days) ¹	7875		9,225	9,300	18,500
TOTAL		12,900	19,856	22,700	46,000
AVERAGE FFW MAN/DAY COST/HA		516	353	227	184

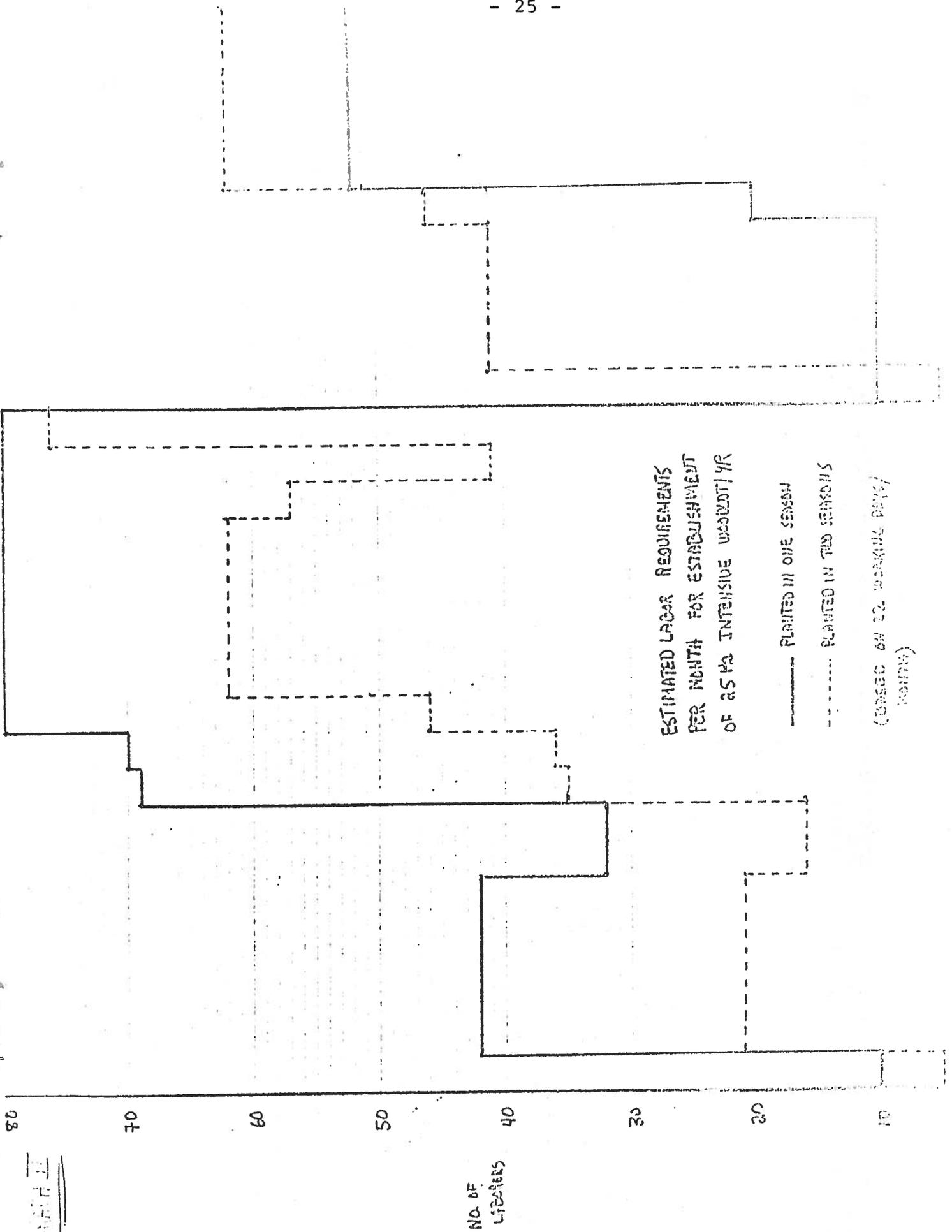
¹ Based on 22 working days/month.



ESTIMATED LABOR REQUIREMENTS PER ACTIVITY AND PER SEASON FOR ESTABLISHMENT OF 25ha INTENSIVE WOODLOT/YEAR

———— PLANTED IN ONE SEASON
 - - - - - PLANTED IN TWO SEASONS

BASED ON 22 WORKING DAYS/MONTH



ANNEX I
AN ILLUSTRATIVE FUELWOOD PLANTING PROJECT

The following describes how one of these planting programs could be carried out in or near one refugee camp. For purposes of this example, let us assume that the camp is one located near Belet Uen.

Let us assume that the project manager has surveyed all the possible planting sites available in the vicinity of the camp. Although he would prefer a more intensive planting option, the soil in that area is only Class III - V and he will have to depend on rainfed yields. There is, however, a grazing reserve of 150 hectares already established by the NRA, which is already fenced in, only 20 kilometers from the camp. It is not due to be rotated for grazing for two years, by which time the trees can withstand livestock browsing. Trucks are available to transport a labor force to and from the site daily. He therefore makes arrangements with the NRA to plant a combination of Leucaena, A. albida, A. nilotica, D. sissoo and P. juliflora along the borders of this reserve and within it, not only for fuelwood but to provide supplementary forage and increased fodder grass yields as well.

Now the project manager must decide what is the best place to put his nursery. In this hypothetical example, the nearest source of easily accessible water is located 40 kilometers from the plantation site. There is a small NRA nursery there which could be expanded to meet production needs. However, economical and technical analysis shows that drilling a borehole at the plantation site is a feasible alternative especially given the alternative transport and recurrent costs involved in expanding the existing nursery.

He decides therefore to locate his seedling nursery at the site of the grazing reserve itself. The NRA gives him permission to use four hectares of land in one corner of the land near where he has located water and has sunk his borehole and placed his pump.

Beginning in December he lays out his nursery, following the five rules for a successful seedling supply system with the following results:

SEEDLING DEMAND

Quantity:	87,500
Purposes:	Primarily for fuelwood, forage and site amelioration, also some species for amenity, fruit and ornamentals.

Species: He chooses primarily L.leucocephala, A.albida, B.nilotica, P.juliflora, D.sissoo, but will also plant 8,000 in A.indica, C.lancifolius, C.siomia and E.camaldulensis, plus ornamentals and fruit trees (mango, papaya, guava, citrus, cashew) for refugee and nearby farmer demand.

Seed availability: All except D.sissoo and P.juliflora are available locally. They can, however, be ordered in Kenya. He will have to arrange for harvesting seed of local species since there is no seed bank established yet in Somalia.

Stump transplant: 72,000

Potted stock: 15,500 (leucaena, fruit trees, A.albida, A.nilotica and E.camaldulensis.)

WATER SUPPLY

Water quality and quantity: Tested to be less than 550 parts per million dissolved salts. A maximum of 18m³/day will be needed since he plans that planting is to take place in the first "Gu season". No other demands will be made on this well during the planting season.

Water system: Borehole - 100mm head
Pump requirements/diesel unit
2m³/hr for Gu planting only, 35m³ storage capacity.

NURSERY SITE

Soil type: Class III site, will need some amelioration, but manure is available in Belet Uen.

Site protection: Barbed wire fencing is already in place. Site is protected from wind.

LABOR SUPPLY

Is sufficient labor available locally?

The project planner has estimated that approximately 400 refugees are available for forestry activities on a year round basis. Giving planned nursery production, this labor pool would indicate that a planting target of 50 ha/year of semi-intensive woodlot (as determined by site class and species) is feasible.

Training:

A nursery manager has been identified, but he needs technical and managerial skills upgraded. Could be provided by a 3 week short course at Afgoi. GTZ has agreed to lend a nursery technician to project for one month. Also, some mechanic's training is needed.

DEMONSTRATION

PLOTS:

The four hectares will be sufficient for both the nursery, a local seed bank, and for test and demonstration plots.

EXPANSION

POSSIBILITIES:

Could expand up to 250,000 trees/year with current water system and borehole capacity. (The Central Range Lands Project Manager has need for trees to plant in its planned Belet Uen 1,000 hectares shelterbelt and the existing NRA nursery is too small to meet the CRLP needs).

Now it is April 1983 (or perhaps 1984). The seedlings are matured to planting out size. The Gu rains are about to begin. At the camp, the refugee women are clamoring for some fast growing trees for shade in their akuls. The potted *Leucaena* and other trees are given out, with demonstrations and instructions on how to dig the holes, how to plant and how often watering with waste water or other water must be done during the first few months until they are well established.

During January through March he has had his food-for-work laborers preparing the site and digging the necessary planting holes along the border of the grazing reserve and within the reserve according to the planting pattern designed for that site. Now he and his nurseryman instruct them in planting the stump stock seedlings. They supervise the planting of 60,000 seedlings during the next three weeks.

As it turns out, the Gu rains come late this year, and in addition, rainfall is well below average. However, the project manager has prudently allowed for such a hazard. He has equipment ready for handwatering, using water from the borehole sunk on site. He has chosen species that do well in semi-arid climates. With confidence he carries out his planting program.

By the end of May all 50 hectares are harboring 60,000 young multipurpose forage and fuelwood trees. Four months later by September's end, having been faithfully watered and weeded, most of the Leucaena are already six feet tall even before the Derr rains begin. The Acacias and others are not yet that tall, as they are slower growing at this stage, but they, too, are doing well.

The following April, the manager tests his crop to determine the initial year's yield. Selective cuttings show incremental growth that can be projected to about 6m³ of firewood per hectare after the fifth year, with the additional benefits of about 2T of forage ha.

He decides that fuelwood plantations can be profitable and economically justifiable development projects, with substantial potential revenue returns for the NRA.

ANNEX II

A PRELIMINARY ASSESSMENT OF COSTS OF LARGER PLANTING
PROJECTS, INCLUDING THE RELATED DECENTRALIZED WATER AND
SEEDLING SUPPLY SYSTEMS

Ideally, given Somali's critical fuelwood shortage, planners should be looking at some multiples of annual incremental units of managed plantations which can support the equivalent of about 25 hectares of intensively planted fuelwood trees. This presupposes, as was indicated in earlier sections, that land, soil quality and water availability have been taken into account in deciding on layout of the plantation site, location of the nursery and choice of water supply system. It also presupposes a water and labor requirement that peaks sharply at the out-planting time, regardless of the kind of outplanting required.

The following tables provide illustrative components and costs for a total plantation requiring 62,500 trees per 25 hectares, a relatively densely planted fuelwood lot, together with the associated seedling and water supply systems to service the planting.

It should be emphasized that these costs, although based on estimated costs of existing pilot projects in Somalia, are purely illustrative and would need to be adapted to the specific soil quality, water and labor constraints of any given site under consideration.

Costs are given over a period of three years in estimated foreign exchange costs and local currency costs, both of which are expressed in terms of U.S. dollars.

Estimates on the number of worker days of labor required assume a wage of 30 Somali Shillings a day, in cash or commodities, for refugee laborers who already receive care and maintenance rations. If non-refugee labor is required, labor costs would need to be adjusted accordingly. The labor task assumptions on which worker days are calculated according to the estimates provided in tables IV and V. These tables can also be used to project costs of larger outplanting efforts with adjusted increases in capital/recurrent costs (e.g. barbed wire, POL, guards). Nursery costs for all outplanting options would remain the same.

TABLE A

TREE NURSERY: 87,500 SEEDLING CAPACITY
Estimated Establishment and Recurrent Costs Over Three Years

Components	Foreign Exchange Costs (expressed in US \$)			Local Currency Costs* (expressed in US \$)		
	<u>year 1</u>	<u>year 2</u>	<u>year 3</u>	<u>year 1</u>	<u>year 2</u>	<u>year 3</u>
I. Personnel						
(Forester (expatriate): Salary costs are included under plantation estimated costs).						
Nursery manager/ extension agent	-	-	-	1000	1150	1323
Nursery site prepara- tion (200 man days)	-	-	-	417*	-	-
Labor, permanent (8) (over 10 months)	-	-	-	3667*	4216*	4849*
Labor, seasonal (6) (over 88 days)	-	-	-	1100*	1265*	1455*
Labor, seed collection (150 man days)	-	-	-	313*	360*	414*
Watchman (1)	-	-	-	761*	875*	1006*
Driver (1)	-	-	-	875	1006	1157
Subtotal:	(0)	(0)	(0)	<u>1875</u>	<u>2156</u>	<u>2480</u>
Total:				<u>6258*</u> 8133	<u>6716*</u> 8872	<u>7724*</u> 10,204

II. Materials

Toolshed/office Prefab 5 x 7m	2,000	-	-	-	-	-
Wheel barrows 7 @ \$60.00	420	-	-	-	-	-
Watering cans 10 @ \$14.00	140	-	-	-	-	-
Spades 10 @ \$10.00	100	-	-	-	-	-
Shovels 10 @ \$15.00	150	-	-	-	-	-

*Calculated at 30 So.Shs.per working day, which could be provided under refugee FFW programs. Inflation calculated at 20% per year for travel and 15% per year for local costs and commodities; 1 US\$ = 15 So.Shs.

TABLE A (CONTINUED)

II. Materials (Cont'd)	Foreign Exchange Costs (expressed in US \$)			Local Currency Costs (expressed in US \$)		
	<u>year 1</u>	<u>year 2</u>	<u>year 3</u>	<u>year 1</u>	<u>year 2</u>	<u>year 3</u>
Axes, 5@ \$20.00	100	-	-	-	-	-
Rakes, 10 @ \$16.00	160	-	-	-	-	-
Hoes, 10 @ \$6.00	60	-	-	-	-	-
Picks/Mattocks 10 @ \$12.00	120	-	-	-	-	-
Pails, 7 @ \$ 12.00	84	-	-	-	-	-
Seed (imported)	100	115	132	-	-	-
Carpentry tools (1 set)	100	-	-	-	-	-
Mechanics tools (1 set)	100	-	-	-	-	-
Shading	-	-	-	1,000	500	575
Fencing - 200 m hog @ \$2.00/m	400	-	-	-	-	-
Fence Posts	-	-	-	800	-	-
Potting Sacks	1000	-	1150	-	-	-
Grafting Knives 6 @ \$10.00	60	-	-	-	-	-
Grafting Tape 10 rolls @ \$2.00	20	-	-	-	-	-
Insecticide/sprayers	800	-	-	-	-	-
Manure: 4 tons @\$50.00	-	-	-	200	115	132
Misc. (cement, nails, etc.)	-	-	-	350	150	173
Subtotal	<u>5,914</u>	<u>115</u>	<u>1,282</u>	<u>2,350</u>	<u>765</u>	<u>880</u>
<u>III. Water Source Development</u>						
Borehole (100 m depth)	-	-	-	50,000	-	-
Pump (Generating Unit) (need 2m ³ /hour	12,000	-	-	-	-	-
Storage Tank (need 35m ³)	6,000	-	-	1,000	-	-
Materials for Distribution system (cement; rebar, etc.)	-	-	-	1,800	345	377
POL/pump	-	-	-	1,200	1,380	1,587
Parts/maintenance	1,750	-	-	250	288	331
Water survey/test hole	-	-	-	5,000	-	-
Subtotals	<u>19,750</u>	<u>(0)</u>	<u>(0)</u>	<u>59,250</u>	<u>2,013</u>	<u>2,295</u>

TABLE A (CONTINUED)

<u>IV. Transport</u>	<u>year 1</u>	<u>year 2</u>	<u>year 3</u>	<u>year 1</u>	<u>year 2</u>	<u>year 3</u>	
One 4WD Pickup (diesel)	19,000	-	-	-	-	-	
POL	-	-	-	2,500	2,875	3,306	
Parts/maintenance	5,000	-	-	700	1,150	1,323	
Subtotals	<u>24,000</u>	<u>(0)</u>	<u>(0)</u>	<u>3,200</u>	<u>4,025</u>	<u>4,629</u>	
<u>V. Shipping</u>							
40% of commodities	19,866	-	-	-	-	-	
Totals	<u>69,530</u>	<u>115</u>	<u>1,282</u>	<u>66,675</u>	<u>8,959</u>	<u>10,284</u>	
		70,927			85,918		
Totals		156,845					
FFW Labor (valued @ \$2.00 day)	-	-	-	6,258	6,716	7,724	
TOTALS (including FFW)	69,530	115	1,282	72,933	15,675	18,008	
		70,927			106,616		
Total Establishment Costs for a nursery with an initial capacity of 87,500 seedlings in one season.			177,543				

TABLE B

LARGE SCALE FUELWOOD PLANTATIONS

Estimated Establishment Components and Costs over Three Years
(For a total plantation size of 75 ha - 25 ha/year)

Components	Foreign Exchange Costs (expressed in US \$)			Local Currency Costs* (expressed in US \$)		
	<u>year 1</u>	<u>year 2</u>	<u>year 3</u>	<u>year 1</u>	<u>year 2</u>	<u>year 3</u>
I. PERSONNEL						
Forester (expatriate)	60,000	70,000	81,700	10,000	11,500	13,225
Somali Counterpart	-	-	-	1,667	1,917	2,205
Plantation crew						
Chiefs/extension agents (4@ \$1,000)	-	-	-	4,000	4,600	5,290
Labor (site preparation) (625 man days)	-	-	-	1,250*	1,438*	1,654*
Labor (hole digging) (2,075 man days)	-	-	-	4,150*	4,773*	5,489*
Labor (planting) (825 man days)	-	-	-	1,650*	1,898*	2,183*
Labor (weeding) (1,500 man days)	-	-	-	3,000*	3,450*	3,968*
Labor (watering) (7,875 man days)	-	-	-	15,750*	18,113*	20,830*
Guards (5 for year 1) (10 for years 2 & 3)	-	-	-	3,802*	4,373*	5,029*
Subtotals	<u>60,000</u>	<u>70,000</u>	<u>81,700</u>	<u>15,667</u>	<u>18,017</u>	<u>20,720</u>
				<u>29,602*</u>	<u>34,045*</u>	<u>39,153*</u>
				<u>45,269</u>	<u>52,062</u>	<u>59,873</u>
II. MATERIALS						
Donkeys, 20 @ \$290	-	-	-	5,800	-	-
Donkey carts, 20 @ \$290	-	-	-	5,800	-	-
55 gallon drums, 20 @ \$12.50	-	-	-	250	-	-
Barbed wire: 4 pt, 10,000 meters	3,600	-	-	-	-	-
Picks, 100 @ \$12.00	1,200	-	-	-	-	-
Spades, 100 @ \$10.00	1,000	-	-	-	-	-
Machettes, 100 @ \$5.00	500	-	-	-	-	-
Axes, 10 @ \$20.00	200	-	-	-	-	-
Subtotals	<u>6,500</u>	<u>(0)</u>	<u>(0)</u>	<u>11,850</u>	<u>(0)</u>	<u>(0)</u>

	<u>year 1</u>	<u>year 2</u>	<u>year 3</u>	<u>year 1</u>	<u>year 2</u>	<u>year 3</u>
<u>III. TRANSPORT</u>						
Tractor (75hp)	12,000	-	-	-	-	-
Bowser 2 @ 3000	6,000	-	-	-	-	-
4 running gear wagon	5,000	-	-	-	-	-
Motorcycles 4 @ \$1,500	6,000	-	-	-	-	-
Parts/maintenance	6,500	-	-	1,000	1,150	1,323
POL	-	-	-	3,000	3,450	3,968
Subtotal:	<u>35,500</u>	<u>(0)</u>	<u>(0)</u>	<u>4,000</u>	<u>4,600</u>	<u>5,291</u>

IV. SHIPPING

40% of 35,500	10,800	-	-	-	-	-
TOTALS: (excluding FFW)	118,800	70,000	81,700	31,517	22,617	26,001
		270,500			80,145	
FFW Labor (valued @ \$2.00/day)	-	-	-	29,602	34,045	29,153
TOTALS: (including FFW)	118,800	70,000	81,700	61,119	56,662	65,164
		270,500			182,945	
			453,445			

*Calculated at 30 So.Shs. per working day, which could be provided under refugee FFW programs. Inflation calculated at 20%/year for travel, 15%/year for local costs and commodities; 1 US \$ = 15 So.Shs.

ANNEX III

MINI-NURSERIES AND THEIR COSTS

Demand for seedlings in the camps for amenity, shade and fruit trees far exceeds production from most existing NRA and Volag nurseries. Even if a nursery existed within a reasonable distance from a number of camps (80 kilometers maximum radius), transport costs and conditions and recurrent cost implications would probably preclude expansion or renovation of this nursery to meet refugee demand. A logical, simple and low cost alternative would be to construct a "mini-nursery" at each of the camps.

A mini-nursery has essentially the same requirements as a larger nursery -- water, land and labor, but on a greatly reduced scale and with a much higher self-help component. Using the nursery planner's guide, a typical refugee camp nursery with a capacity to produce 20,000 seedlings a year would be as follows, using two refugee camps located in the Northwest region as examples:

REFUGEE CAMPS:	Agabar and Las Dhure	
<u>POPULATION</u>	18,000	40,000
<u>AREA OF CAMPS</u>	60 ha.	150 ha.
<u>DISTANCE BETWEEN CAMPS</u>	11 kilometers	
<u>SITE CLASS</u>	Mostly soil class V and VI with some II and IV along the tug-about 20 hectares total for both camps.	
<u>SEEDLING DEMAND</u>	15,000	
Purpose	<u>year one</u> , approximately 2 trees/family for amenity, shade and fruit tree planting and court yards of public buildings.	
	<u>years two and three</u> , 20,000 trees/year for hedgrow, small fuel plantations, shelterbelts, windbreaks, watershed management, agroforestry, etc. in close proximity to the camps. These outplantings in years two and onward will depend on labor availability and incentives.	

Species Required L. leucocephala, A. indica, C. siamea,
some ornamentals and fruit trees.

Seeds Available All seed and cutting stock can be
harvested or procured in Hargeisa.
These will be included as cost item in
nursery budget.

No Stump
Transplants 5,000

No Potted Stocks 15,000

WATER SUPPLY

Distance to nearest
easily accessible
water source Agabar has a permanent source of sweet
water in the form of a natural spring.
The nursery will be placed
approximately 50 meters from the
spring. Agabar can provide seedlings
for both camps as Las Dhure is within
easy walking distance, 10 kilometers.

Water quantity 2m³/day. (This represents one half of
normal requirement as seedlings can be
outplanted early and maintained by
refugees).

Storage capacity Small (1 or 2m³) sunken concrete basin
placed in center of nursery.

Water system
required Small diesel pump capable of pumping a
maximum of 25 gal/min. with a 1.5m head.

NURSERY SITE

Soil type Class III on nursery.

Amelioration
needed Some organic material, refugees would
need to agree to collect manure as
self-help component. About 1 MT
needed, for seed beds and potting
mixture. Sand is available from the
tug.

Site protection Site is well sheltered but needs fencing. Acacia sp. and Commiphira sp. thorn is available 10 kilometers away. Refugees ought to be willing to provide fencing as self-help contribution.

LABOR

Labor is available locally. Have identified gardener who will be sent to 3 week short course at Afgoi in basic nursery techniques.

EXPERIMENTATION

DEMONSTRATION PLOTS

None

POSSIBILITIES FOR

EXPANSION

None

In the case of this hypothetical example, the nursery would provide seedlings for amenity plantings for 2 camps (Agabar and Las Dhure), reforesting a total of about 210 hectares (inside the camps) at an average density of 95 trees per hectare.

In subsequent years, nursery production would suffice for roadside plantings, windbreaks, hedgerows and canal and river bank planting, limited only by the capacity of the nursery and the willingness of the refugees to participate in the Food-for-Work incentive program.

Total estimated nursery costs are about \$11,000 over a period of three years, as laid out in the following table. Additional plantation costs would be primarily for labor, presumably available under a Food-for-Work incentives or in cash payments.

NURSERY COSTS: MINI OR SATELLITE NURSERY - ONE OR CONTINUOUS PLANTING SEASON

	20,000 trees <u>maximum</u>			LOCAL CURRENCY \$		
	year 1	year 2	year 3	year 1	year 2	year 3
<u>WATER SYSTEM (1)</u>						
Head 10 ft.)						
Need Pump 25 gal/min max)						
50m distance	600	-	-	-	-	-
Pipe-hose = 50 m	200	-	-	-	-	-
Storage basin	-	-	-	200	-	-
POL	-	-	-	100	100	100
Parts/Maintenance	200	-	-	50	75	75
Subtotal:	(1,000)	(0)	(0)	(350)	(175)	(200)
<u>NURSERY MATERIALS (2)</u>						
Wheel barrows 2 @100.00	200					
Watering cans 4 @ 14.00	56					
Spades 4 @ 10.00	40					
Axes 2 @ 20.00	40					
Rakes 4 @ 16.00	64					
Hoes 4 @ 6.00	24					
Axes (Mattocks)4 @12.00	48					
Pails 2 @ 12.00	24					
Tools-Masonry Selected	50					
Carpentry						
Fencing ⁽³⁾ 40 m/days	-	-	-	100	100	100
Potting sacks 5000 @ .01	50					
Grafting Knives 2 @10.00	20					
Grafting tape 2 @ 2.00	4					
Manure ⁽³⁾ 1 T @ 5.00	-	-	-	50	30	30
Insecticide	90	-	-	-	-	-
Subtotal:	(710)	(0)	(0)	(150)	(130)	(130)
<u>PERSONNEL</u>						
1 nursery manager/ watchman	-	-	-	1,000	1,000	1,000
Labor (33 men x 180 days x 2.50	-	-	-	1,350	1,350	1,350
Seed collection (325 man days)	-	-	-	63	63	63
Subtotal:	(0)	(0)	(0)	(2,413)	(2,413)	(2,413)
<u>SHIPPING (40% commo- dities)</u>						
Total:	684	-	-	-	-	-
	2,394	(0)	(0)	2,913	2,718	2,743
		2,394			8,374	
				10,768 = \$.18 tree		
				60,000		

(1) A small diesel/gas pump would be the most sophisticated watering system needed. Some camps would need only hand watering or a hand pump depending on distance/height to water. Pump could also be used for irrigating small vegetable garden.

(2) Nursery materials (axes, picks, shovels, etc.) would be lent to refugees for amenity plantings etc.

(3) These items (labor, fencing, manure) could be paid for by a self-help contribution and/or FFW plus incentives program (sugar).

Note: If a borehole has to be drilled this will obviously increase the costs. Digging of rainwater catchment basins or other water spreading devices should be encouraged to supplement the water supply.

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ANNEX IV

Project Monitoring and Management RPA Position Description

I. Position Title: Refugee Project Assistant.

II. Supervision.

The USAID Refugee Affairs Officer (RAO) will be responsible for supervising the activities of the Refugee Project Assistant (RPA). In developing and periodically revising the RPA's daily/weekly/monthly work plan, the RAO will consult and collaborate with the Food-for-Peace Officer (FFPO), refugee project managers and the Planning Unit of the NRC in determining specific work assignments and schedules.

III. Responsibilities - Overview

The RPA will assist in the design, coordination, management, monitoring and evaluation of a range of refugee assistance efforts fully or partially funded by the United States Government. These efforts will include self-reliance and forestry projects and care and maintenance activities. In carrying out these activities, the RPA will work closely with GSDR refugee assistance agencies and the UNHCR. He will assist them in field monitoring, and, while fully responsible to USAID, will be attentive to supplying data collection needs of these other agencies. The majority of the RPA's time will be spent in the field at refugee camps and other areas of dense refugee population.

IV. Duties.

1. Monitors the performance and assists in the evaluation of State/RP and AID funded refugee development and care and maintenance projects including, Refugee Self-Reliance and CDA Forestry Phase I - Refugee Areas Projects, Food-for-Work sites, refugee food distribution systems and end use activities and water availability and health services system performance.
2. Assists in the development of refugee self-reliance and care and maintenance projects as required.
3. Prepares complete reports covering refugee assistance projects and activities, identifying problems and recommending remedial actions.
4. Acts as liaison between USAID and the National Refugee Commission (NRC) and/or the National Range Agency (NRA), PVOs, UNHCR in the regions with respect to the implementation of US funded refugee assistance projects and activities.

5. Collects refugee related data available from field sources and, to the extent possible, up-dates records on refugee influx and departure, reporting on general socio-economic conditions in the refugee camps and on port operations as directed.
6. Offers analysis when warranted of specific issues affecting the implementation of US supported refugee projects and activities and assists as directed in the implementation of limited research and study projects dealing with the refugee situation in Somalia.
7. Performs other duties as required.

V. Reports.

The RPA will prepare, on a twice per quarter basis, a "Situation Report" in the format prescribed below. Reporting in each category will cover situation, progress towards objectives, problems, and recommended actions. In addition, various special reports will be produced as the situation demands or as requested by the Mission Director.

Situation Report Format

- I. Summary.
- II. Refugee Population (growth/decline, health, diet, self-help productivity and other).
- III. Commodity Management (food basket status, commodity management system/ELU monitoring and special problems).
- IV. GSDR Administration and Management (NRC, RHU and other).
- V. International Agencies (UNHCR, WFP and others).
- VI. Voluntary Agencies (items of interest, problems, progress of self-help and forestry programs).
- VII. USAID (activities in PL-480, activities sponsored for rehabilitation and others).

ANNEX IV
 DETAILED FINANCIAL PLAN (\$)
 PROJECT MONITORING AND MANAGEMENT
 (Illustrative)

	Year 1	Year 2	Total
A. Project Assistant #1			
Salary	25,000	25,000	50,000
Post Differential (25%)	6,250	6,250	12,500
Sunday Dif. (25%)	1,250	1,250	2,500
Interpreters & Admin.	2,000	2,000	4,000
FICA (6.7%)	2,000	2,000	4,000
DBA Insurance (4.82%)	1,200	1,200	2,400
Trans. & Travel	3,400	3,400	6,800
Per Diem	13,000	13,000	26,000
250 lbs. U.A.B.	2,000	2,000	4,000
Miscellaneous	200	200	400
Sub-Total A	<u>56,300</u>	<u>56,300</u>	<u>112,600</u>
B. Project Assistant #2 (2)			
Same cost basis as A	9,600	56,300	65,900
C. Project Assistant #3 (3)			
Same cost basis as A	-	56,300	56,300
D. Housing	X 1.17	X 3	
Rent @ 10,000	11,700	30,000	41,700
Furnishings @ 5,000	5,850	15,000	20,850
Maintenance @ 3,000	3,510	9,000	12,510
Guards @ 4,000	4,680	12,000	16,680
Utilities @ 6,000	7,020	18,000	25,020
Other @ 2,000	2,340	6,000	8,340
Sub-Total D	<u>35,100</u>	<u>90,000</u>	<u>125,100</u>
E. Housing - Hargeisa	-	25,000	25,000
F. Local Personnel (4)			
Project Assistant	-	17,500	17,500
Driver/Mechanic	12,500	13,200	25,700
Sub-Total F	<u>12,500</u>	<u>30,700</u>	<u>43,200</u>
G. Incountry Air Travel	4,000	6,000	10,000
H. Vehicles/Support			
LWB, Diesel, 4X4 (X2)	31,000	-	31,000
Spare Parts & Equip.	20,000	5,000	25,000
Maintenance X 6	12,000	12,000	24,000
Diesel Fuel X 6	21,000	21,000	42,000
Field Storage Facil.	2,000	1,400	3,400
Sub-Total H	<u>86,000</u>	<u>39,400</u>	<u>127,400</u>
Sub-Total All	<u>203,500</u>	<u>360,000</u>	<u>563,500</u>
Contingencies (10%)	20,500	36,000	56,500
External Evaluation	-	40,000	40,000
GRAND TOTAL	<u>224,000</u>	<u>436,000</u>	<u>660,000</u>

FOOTNOTES TO ANNEX

- (1) Funding for Project Monitoring and Management activities is shared between this project and the CDA Forestry Phase I - Refugee Areas Project (649-0122). The budget total of \$660,000 is to be supplied by \$330,000 from each project.
- (2) Funding for 10 months of PA #2 in Year 1 is covered by State/RP funds, not Self-Reliance Project.
- (3) Funding for PA #3 in Year 1 is covered by State/RP funds, not Self-Reliance Project.
- (4) Cost includes salary, overtime and per diem.

ANNEX V

FUELWOOD SUPPLY AND MARKETING IN SOMALIA

The PID approval cable requested "a more complete description of (1) the existing fuelwood ownership, use, supply and marketing systems, with special emphasis on the role of private entrepreneurs and local fuelwood management systems, and (2) existing sources and levels of forest department revenues to finance post project recurrent costs." In addition, it was requested that the Project Paper establish guidelines and criteria for administratively, financially and socially feasible marketing operations.

The sub-sections to this Annex address these requests under the following topics:

- A. General Overview.
- B. Charcoal Production and Marketing.
- C. Forest Department Role and Revenues.
- D. Financing Recurring Costs.
- E. Post-Project Management Options.
- F. Socio-Economic Guidelines.
- G. Conclusions.

Introduction

As recognized in the PID review, information on these topics is extremely sparse and uneven. Descriptions of the "marketing system" are limited to a 1976 U.N. Economic Commission for Africa Study which describes the then known charcoal supply and marketing system for the capital city of Mogadishu. Supplementary information is available from annexes to a 1982 draft report by Keith Openshaw, obtained during two one-day field trips, to Baidoa and Mogadishu. Neither report deals more than tangentially with fuelwood -- as contrasted to charcoal -- markets in town and urban areas.

Charcoal accounts for about one fourth of all fuelwood cut and used in Somalia. Since marketing information to date is limited to charcoal, this leaves three fourths of the fuelwood supply system virtually unaccounted for. It is not even known how much fuelwood is sold through commercial markets.

It is clear from even the fragmentary price data on retail costs that shortages of charcoal and fuelwood in the town and urban areas area already reaching critical levels. Reports that rural householders, as well as refugee families, are buying charcoal and fuelwood in town commercial markets are an indication that urban demand is already encroaching on woodland supplies from which traditionally the rural populace could gather its daily needs without cost.

An indepth study of the current situation is long overdue. The fuelwood supply/marketing analyses to be funded under this project is intended to provide up-to-date insights on the supply, marketing and pricing situations.* This annex is intended only to summarize currently known information, pending the results of the forthcoming study.

* See page 15 of the Project Paper for a description of this study.

A. General Overview of Fuelwood Supply and Use

Fuelwood, including charcoal, is the largest single source of all energy in Somalia, accounting for 82% of total energy consumption, and all except 8% of this is devoted to household use.

The source of supply, both for the relatively well organized charcoal commercial market and for the unorganized traditional rural collection system for individual household use is the same; Somalia's remaining open woodlands and grazing range. Even before 1976, these woodlands and grazing ranges in the vicinity of settled communities were being overcut every year at a rate well in excess of the annual incremental growth in the area. The addition of refugee communities, whose combined population exceeds that of Mogadishu, has accelerated the depletion of fuelwood resources to an alarming degree.

Fuelwood consumption in Somalia has been estimated at 5 million cubic meters in 1980. At an estimated annual incremental yield of around one cubic meter per hectare, about 5 million hectares would have sufficed to meet this need without eating into the nation's capital stock of wood, if no more than the annual increment had been permitted to be harvested.

However, cutting is in fact not controlled at such levels. Nor is it evenly spread throughout the country's range. Demand and, therefore, cutting to meet the demand is concentrated around populated areas where both the annual increment and the capital stock of remaining trees are being deeply and swiftly mined. Localized shortages around cities, towns and refugee camps are placing increasing pressure on the availability of wood and its price. Fuelwood prices in Mogadishu in 1980 were twice the levels of neighboring Nairobi and nearly three times the prices in Dar es Salaam.* Charcoal producers servicing the capital, Mogadishu, are reportedly cutting at distances of up to 600 kilometers from the city. As the radius of collection for urban use increases, urban and rural collectors compete for the same diminishing supplies.

Collection for rural household use has proceeded much as in the past -- daily or every few days -- by women scavenging for available supplies. Fuelwood collection for the rural and urban commercial market also takes place but virtually nothing is known of how it is conducted. Although as noted below, a large part of the charcoal market has been organized into cooperatives, fuelwood production for the cash market appears largely to take place by individual collectors, (usually male) supplementing income by this virtually free cash "crop".

* Openshaw, Keith, Somalia: The Forest Sector, Problems and Possible Solutions, draft report, July 1982.

As noted above, together charcoal and fuelwood contribute 82% of total energy in Somalia. Charcoal is almost exclusively an urban fuel while fuelwood is principally a rural fuel. Charcoal accounts for only 7% of woodfuel consumption in energy terms; however, because so much energy is wasted in converting fuelwood to charcoal, in terms of round wood equivalent 23% of all woodfuel is used for making charcoal. Consequently, not simply existing production methods but also the savings possible from improved production are of crucial importance in developing future GSDR fuelwood management policies.

As has been emphasized elsewhere in the project paper, much more needs to be known about the fuelwood production and marketing systems currently in operation before national management programs for future supplies can be designed. One of the sub-projects to be financed by this project is intended to provide that information as soon as possible, particularly about the non-organized charcoal and fuelwood collection sector.

Section B. summarizes the limited information now available on charcoal production and marketing which, in Somalia, is subject to some degree of government control and is comparatively highly organized.

B. Charcoal Production and Marketing.*

Cutting of trees in gazetted land has been subject to token fees by the government for a number of years. Deforestation by charcoal producers exporting to nearby countries in these areas had proceeded so fast that in 1969 the government banned the export of charcoal, even though the return in foreign exchange had to be sacrificed, amounting to So.Sh. 9 million in 1968-9 or \$1.5 million at the then current rate of exchange.

1. Organization of Charcoal Production Cooperatives.

In January 1973, the government established two types of cooperatives, one for charcoal production and one for charcoal marketing. About 80 cooperatives for production, each with 15 to 30 workers supervised by a foreman and managed by a businessman, supply Mogadishu with its charcoal requirements. Every charcoal camp (or small cooperative) is represented in the cooperative council by the foreman and a businessman. The latter is responsible for production and transport. All the workers are members of the cooperative but do not participate in the council's decisions. The wages of the workers are paid by the businessman, partly in food rations and partly in cash. The charcoal produced by the cooperative is sold to the marketing cooperative (one per town) which is responsible for selling the charcoal to the end-users.

* Except as otherwise noted, the information in sections B and C is drawn from a report by Uhart, Edmund, Charcoal Production in Somalia, United Nations Economic Commission for Africa, February 1976, mimeo.

Not all charcoal is produced within the charcoal cooperative system. The Ministry of Planning estimates that charcoal cooperatives accounted for only 56% of total consumption. The remainder is produced outside the government system, using significantly less effective techniques, including felling the tree by building a fire at the base, stacking, burning the tree and extinguishing with dirt. Only the larger pieces are collected for sale while the smaller pieces are used locally, if at all. *

2. Production Methods.

Charcoal is produced in ordinary earthen kilns. The wood, after cutting, is transported by donkey carts to the burning place, where it is stacked and covered with grass, soil and mud. The kiln is fired in the center and in the middle of this kiln from the top, and the charcoaling process is controlled by opening and closing different vents for air entry and smoke outlet. When the operation is finished, that is when red burning charcoal can be seen on the bottom of the kiln, the kiln is completely closed with soil and mud for cooling. Then when the fire has gone out, the kiln is opened and the charcoal is loaded on a truck.

The yield of this process, i.e., the relation in percentage between the weight of charcoal produced and the weight of the air-dry wood, is very low and is estimated to be between 8 and 12 percent of the raw material.

3. Raw Material

The raw material used is generally only one of the species of acacia available (Acacia bussei). The charcoal produced is of high density and its quality is highly regarded on the domestic market and for the former export to Arab countries.

The rule of the Forest Department is that only dead or unsound wood can be used. In the south and central regions, reportedly the workers are only cutting trees of Acacia bussei (at the largest diameter possible), which are dead or have been attacked by termites or other insects or fungal diseases. However, recent information on charcoal production in the north indicates live trees are being cut in the Hargeisa area.

The result of the utilization of only one species and only of dead or unsound trees to produce charcoal has been the rapid move of the charcoal camps far away from the consumer centers, the towns. Every year, this distance increases by more than 15 km to 30 km. As noted above, charcoal producers are reportedly collecting for the Mogadishu market from areas as far as 600 km distant. The charcoal burners can return to the same site twice in an 18 year period,** after the trees have grown large enough but during the time between the two cuttings, the forest may suffer damage from livestock, bushfires or from felling for firewood.

* Information from Resch, T., Trip Report, Mission to Somalia, September 1981

** According to Openshaw, in 1982 charcoal cutters near Baidou had returned only once after a 20 year period.

4. Marketing Cooperatives.

In every town there exists one cooperative for marketing. The municipality gives licenses to manage charcoal stores to individual people who constitute the members of the cooperative.

In 1975, the selling price to the end-users was So.Shs. 180 per ton and the difference between the retail and the wholesale price of So.Shs. 35 was used to cover license fees, rent for the store, equipment for the store and staff wages. By 1982, however, the selling price to the end-users in Mogadishu had risen to approximately So.Shs. 700 per ton at the controlled price but was actually selling at about So.Shs. 1,140 per ton.*

The various stages from harvesting to market include costs for cutting the wood, (15 days) transport of wood by donkey cart to the charcoal kiln (one week) burning (5 days), cooling (5 days), loading into a truck, transport, fee to the forestry department, fee to the municipality, payment to the cooperative fund and parking fees in the town.**

C. Forestry Department Role and Revenues.

The role of the Forest Department includes approval of site location for the charcoal camp in the forest. The area of the concession is about 10,000 ha., and the cooperatives may use only dead, dying or diseased trees. In general this rule is applied in about 70% of cases. The Forest Department is responsible for checking in every charcoal camp the cutting and utilization of dead trees, the charcoal production and its transport.

The Forest Department also determines together with each municipality the number of charcoal stores in each town quarter, and the distribution of the selling licenses.

All forest products are subject to fees and taxes. The relatively highly taxed items are by far charcoal and fuelwood, although the fees rates imposed on them remain very low. Actual fees rates are 2 So.Shs. per 100 kgs of the charcoal and 1.5 So.Shs. per 100 kgs of fuelwood and paid to both the municipalities and government. The government share was recently allocated to the Forestry Department which was authorized to collect and use these fees for afforestation activities. According to the Forestry Department these fees amounted to only 1 million So.Shs., in 1980. Considering the low rate of these fees and the increasing pressure on the wood resources, there is a need for reviewing and raising the level of fees. ***

* One ton = 1,000 kilograms; one quintal = 100 kilograms. One cubic meter of wood = 0.6 tons. Current charcoal production methods, in use in Baidou, require between 10m³ to 14m³ to produce one ton of charcoal.

** Openshaw, op.cit p.70.

*** Forestry and Wildlife Sector Study, Ministry of Nat'l Planning, Somali Democratic Republic, 7/81, Mogadishu, mimeo. p.12.

The inadequacy of returns from fees at current levels as a means of paying for recurring costs of fuelwood plantations established during the project period is obvious. Return from forestry fees in 1980 were sufficient only to cover one quarter of the regular Forestry budget, none of which to date includes establishment costs of fuelwood plantations.

The approved budgets for 1979, 1980 and 1981 and the proposed budget for 1982 are as follows:*

	1979 <u>So. Shs.</u>	1980 <u>So. Shs.</u>	1981 <u>So. Shs.</u>	1982 <u>So. Shs.</u>
Salaries	400,000	700,000	750,000	785,000
Allowances	100,000	150,000	150,000	185,000
P.O.L.	270,000	900,000	1,000,000	1,440,000
Vehicle Purchase	1,103,000	1,300,000	1,115,000	1,210,000
Equipment	225,000	340,000	340,000	220,000
Books/Journals	9,000	25,000	25,000	-
Rents	36,000	200,000	200,000	285,000
T.A.	67,500	115,000	115,000	95,000
Pensions	-	40,000	40,000	40,000
Insurances	49,500	230,000	230,000	80,000
	<u>2,200,000</u>	<u>4,000,000</u>	<u>3,965,000</u>	<u>4,340,000</u>

This budget, it should be noted does not include labor costs for protection of wildlife and forestry reserves, control of poaching, nurseries, tree planting and sand dune fixation, which are largely covered by Food-for-Work under WFP Project 719, Reforestation and Range Development. The equivalent value of foodstuffs provided under this project in 1981 was So. Shs. 8.4 million. Thus, total Forestry Department operating costs in 1981, including labor, were about So. Shs. 12 million, offset by only So. Shs. 1 million from fees.**

D. Financing Post Project Recurring Costs.

If fees currently collected are to be devoted to offset part of the regular budget, some other source of funds must be found to pay for recurring costs of fuelwood plantation after the PVO relinquishes control to some local Somali management entity. Decisions on how this can be done will depend on the level of recurring costs which must be covered and where other sources of revenues can be found. These are discussed below.

* Source: Booth, George; CDA Forestry Assistance Program, Draft report on Completion of mission to advise NRA, July 8, 1982.

** Ibid.

1. Estimated Annual Recurring Costs

Post project recurring costs for fuelwood plantations can be divided into two categories: pre-harvest costs of management, guarding and some casual labor for replacing dead trees or weeding if needed; and harvesting and marketing costs.

a. Recurring Cost Before Harvesting

As estimated in the Technical Annex (See Table III) pre-harvest recurring costs could total about \$10,000 a year for a fully established plantation of 75 hectares, divided as follows:

	<u>Local costs expressed as \$ U.S.</u>
Somali plantation manager annual salary	\$ 2,205
Guards (10) @ 30 So.Shs. per day	5,029
Casual labor 625 man days	1,654
Misc. POL for motorcycles etc.	<u>1,000</u>
Total	\$10,000 rounded
costs per hectare,* approx.	\$ 133

b. Harvesting and Marketing Costs

Harvesting and marketing costs have been estimated at about \$15 per m³ harvested, based generally on costs provided by Openshaw,** and include the following:

	<u>So.Shs. per m³</u>
Cutting	122
Fee to Forest Dept.	6
Carting to lorry	2
Loading lorry	15
Transport (50 km)	<u>80</u>
TOTAL:	225

(converted at So.Shs. 15: \$15 per m³)

(converted at So.Shs. 18: \$12.6 per m³)

* At average annual yields of 10 cubic meters of wood per hectare, this would average \$13 per cubic meter. Pre-harvest costs however are largely fixed in terms of the area to be managed and fluctuate only slightly with differing yields.

** Openshaw, op.cit, p. 71

2. Possible Sources of Revenue.

There are several possible ways a post-project management entity could cover some of the recurring costs.

- sharply increasing fees charged to charcoal and fuelwood producers
- draw on increased WFP 719 rations for non salary labor costs
- selective sales of non fuelwood proceeds, such as poles, fodder
- assuming management responsibilities for all harvesting and wholesale marketing so as to draw on wholesale sales returns to cover recurring costs.

a. Increase Forest Department Fees.

Openshaw suggests that, given current prices for charcoal and fuelwood, the fee for fuelwood cut from any new plantations, more conveniently located near markets, could be raised to So.Shs. 75 per m3 and still permit a reasonable profit to the charcoal producer/marketing cooperative.*

However, it does not seem likely that so drastic a change in cutting fees could realistically be made without major accompanying changes in the land use management system and in expanded Forest Department staffing. Nor is it clear that the government would choose to institute such changes since one of the initial reasons for organizing the charcoal production and marketing cooperatives was to assure a regular supply of charcoal to urban and rural populations who relied on the cash market for their supplies. Supply of cooking fuel was considered to be an essential public service and the low cutting fee may have served as a subsidy which permitted a lower than market price to be imposed. In any case (converted at 15 So.Shs.), only the equivalent of \$5.00 could be realized from fee increases of this amount, which would only be enough to cover about one-third of pre-harvest recurring costs.

b. Draw on Increased WFP 719 Rations for Non-Salaried pre-harvest Recurring Costs.

With the exception of the salary of a local manager and POL, pre-harvest costs could be met, as is the case today, from food rations under WFP Project 719 or its successor. The labor costs for the five 75-hectare (or equivalent) plantations contemplated under this project would be equal to 9% of the value of rations provided under the 1981 WFP Food-for-Work programs. It would not necessarily constitute any net addition to those outlays if, as is contemplated, work norms and ration rolls of existing WFP activities are rationalized. The plantation managers' salaries and POL could be accommodated within the current and projected NRA budget.

* *ibid.*, p.71-2

c. Selective Sales of Non-Fuelwood Products.

Alternatively, if pre-harvest recurring costs of each plantation are to be met from revenues from the plantation itself, e.g. through a self-contained revolving fund, all post-project costs could be easily met by direct sale of poles, a wood commodity not usually handled by cooperatives and therefore not in competition with these entrepreneurs. Poles represent about 9% of total wood demand in Somalia and are in short supply. Retail prices for building poles are at least four times the current price for fuelwood (Openshaw estimates an average retail price of about \$450 per m³ for poles): a third of a cubic meter, in poles could cover the average pre-harvest recurring costs of one hectare, assuming an annual yield of 10m³ per hectare. Sale of fodder would be an additional source of revenue, not competitive with charcoal producing cooperatives.

d. Draw on Revenues from Wholesale Sales of Fuelwood Produced in the Plantation.

Use of this source by any fuelwood plantation management entity would place that agency in direct competition with existing charcoal producing and marketing cooperatives. At current wholesale prices estimated by Openshaw in the neighborhood of \$32 per m³ (480 + 15 So.Shs.), this would be sufficient to cover costs. Although at the outset the incremental supply might not provide an economic threat to cooperatives in any given locality, it would present potentially a very drastic shift in the current marketing structure and probably would incur hostility and suspicion which would make continuing management security much more difficult.

e. Implications for Alternative Post-Project Management Options.

Whether only pre-harvest recurring costs or all recurring costs would have to be financed by the plantation management agency will depend on how the cutting, collection, transport and marketing of wood for any given plantation is organized.

Three possible management options can be visualized.

- total management by a combined charcoal/fuelwood producer and marketing cooperative;
- pre-harvest management by a public entity, such as the district NRA or local municipality, with harvesting and marketing handled as is the case now, through the cooperatives;
- total management by a public entity, from initial planting and production to at least the level of wholesale sales.

1. Full Management by a Cooperative.

If project negotiations with the community to be served result in a decision that all management should be taken over by a combined producing and marketing cooperative supplying a nearby town market, all recurring costs would be borne by the cooperative: pre-harvest guarding, and management, coppicing, thinning, conversion to charcoal if so desired, transport and sale in the market.

As indicated above, combined recurring costs for these tasks for 75 hectares of densely planted woodlots are estimated at about \$2. for each cubic metre of wood harvested. About 1 m³ per hectare, in annual yield, is assumed. Once trees have matured to coppicing/marketing size, at wholesale prices estimated at up to \$32/m³ and retail prices in the neighborhood of \$100 per cubic metre, these recurring costs to the cooperatives could readily be covered by sales returns and still leave a reasonable margin of profit.

There may be an interval of several years before full maturity enables revenues from sales. In this case the \$13 per m³ would need to be covered by other funds. It seems reasonable to assume that FW rations could be allocated to cover labor and guard costs and that the cost of the Somali manager could be met from the cooperative's revenues from fuelwood harvested on continuing concessions in natural woodland outside the project area.

It is doubtful, however, whether cooperatives would wish to take on the management tasks of planting and maintaining fuelwood plantations. Since their concession areas have been natural woodlands, they have no experience, nor probably incentive to take on these additional tasks.

2. Pre-harvest Management by a Public Body, Harvest and Marketing by a Cooperative.

The second option would more closely approximate the current situation and should be incorporated in all RFP Sub-Project agreements. The Forestry Department has responsibility for deciding on site concessions for a charcoal cooperative ready to cut and for checking to be sure only trees of the right maturity and/or condition are cut. More basically, the Forest Department has responsibility for keeping cutters and livestock out of gazetted forests.

Allowing charcoal cooperatives concessions to harvest from fuelwood plantations ready for coppicing, or selective thinning, or clear cutting would simply be an extension of their present role over cutting in natural woodlands to cutting in man-made woodlands. The closer the plantation was to the market, the greater the incentive for charcoal (and commercial fuelwood) cutters to cooperate with controls in order to have access to more convenient supplies. Leaving the local harvesting and marketing system intact would produce the least friction and disruption to current supply systems.

Under these circumstances, the public entity would only need to find food rations and some supplemental income (perhaps from pole and fodder sales) to cover salaries and FOL pre-harvest costs.

- Much depends on how negotiations are conducted by the PVOs with local authorities on location of the site, the type of planting and accompanying land use management involved, and particularly on who has post-project management control.

If the decisions on these factors reached at the outset of the project genuinely represent full community consensus, it is possible that year round guarding would not be needed once the trees had matured to at least the first year's growth.

3. Full Management by a Public Entity.

Somalia's experience with parastatals and other publicly managed producing agencies has led to a substantial abandonment of this form of management. However, it is possible that a municipality, a range association, or the NRA may choose to maintain full control of all management, including harvesting down to at least the level of wholesale sales. There may be some location-specific arguments favoring this, particularly if, for example, a military base's fuelwood needs were to be met from one controlled location and if, the location to be served is not one serviced by existing producer coops. Given current wholesale prices, both pre-harvest and wholesale costs could be covered from wholesale revenues alone, assuming that the manager's salary is met from a regular departmental budget. It is to be emphasized that this is the least desirable alternative, given previous experience and given the desirability of maintaining the existing quasi-entrepreneurial cooperative collection, distribution and marketing system intact. The discussion serves to highlight the fact that even under these conditions it should be possible to meet recurring costs from a combination of regular NRA revenues and wholesale sales returns.

4. Comment on Cost Estimates and GSDR Development Strategy.

It must be emphasized that these recurring cost calculations, both post project maintenance up to the time of harvest and post project harvesting and marketing, should be considered to be very rough approximations from the limited data available on known costs and prices as of mid 1982. Expression in terms of U.S. dollars equivalents additionally increases the margins of error possible since the exchange rate has changed since the initial costs and prices were developed and the official rate does not necessarily represent the real rate to be applied to labor costs within Somalia.

Nevertheless, they serve to illustrate the fact that post project recurring costs can be accommodated within the institutional framework of the indigenous charcoal/fuelwood production and marketing system, as well as within the limits of revenues and resources currently or potentially available to the Forestry Department, the NRA, or other public and/or private entrepreneurial entities.

It should be noted that the GSDR Five Year Plan 1982-86 includes as part of the sector development strategy, the provision that "Feasibility studies will be prepared, by appropriate consultants, on the establishment of commercial plantations to be operated on a joint venture basis".*

Actual experience with financial and institutional management programs developed by the RFP sub-projects can provide additional experience which could support and accelerate this national strategy.

F. Socio-Economic Guidelines.

The fuelwood plantations which will be established under the CDA Forestry project will be publicly financed interventions into an economy in which all fuelwood supplies, urban and rural, have up to now been provided as a "free" resource, subject to only token collection fees, if at all. Charcoal cooperatives and individual users have borne the costs of harvesting, transport and sale and, presumably, would or could do so in the future. The fuelwood planting interventions represent a major, almost paradigm, shift in government and popular attitudes towards the value of natural resources and the rights of the general public to free access to and use of their benefits.

It will be all the more important to ensure that, at the outset of each major fuelwood plantation effort, the guidelines to promote social as well as economic effectiveness are well understood and followed by the voluntary agencies to whom sub-project management is entrusted.

The following preliminary guidelines are suggested for any voluntary agency or other entity planning to establish a fuelwood plantation enterprise in Somalia. They address social and administrative (training, cost accountin) considerations:

a. Social Guidelines. Before any decisions as to site location or type of planting are made, discussions must be entered into by the agency with representatives and leaders from the towns or villages near potential plantation sites, and with individuals (e.g. fuelwood entrepreneurs) likely to be affected by the plantation. These discussions should include, but not be limited to, eliciting community preferences and choices, and reasons for them, on

- Type of planting option desired: fuelwood only; fuelwood plus shelter-belt; fuelwood as a perimeter planting for a town or village grazing reserve; other land management options depending on the adjacent Somali community concerned.

* GSDR. The Five Year Development Plan 1982-86, Draft, Ministry of National Planning, November 1981. p. 125.

- Location of the site to be planted: before planting proposals are made, there should be at least an informal understanding that the site is consistent with the planting option desired.
- The kind of post project management arrangements preferred or desired: these need not be settled at the beginning of the planting, but it should be made clear before planting is started that post project management will be turned over to local management after three years and that decisions on how that should take place should be discussed and decided during the project period.

Also care should be taken to ensure that entrepreneurial opportunities and private sector participation is encouraged in any marketing system established. Other social guidelines, applicable to planning and negotiating the management of fuelwood plantations, are found in Annex VII, "Guidelines for Social Analysis in Subproject Submissions". In addition, more precise guidelines should emerge from the Fuelwood Supply and Marketing Study to be funded under the project.

b. Training Guidelines. It is important that from the outset the choice of trainees for management positions in the fuelwood plantation component of the sub-project be indigenous Somalis, rather than refugees. (Refugee trainees can be accommodated in the camp-based nurseries but fuelwood manager trainees should be Somalis). The relevant guidelines are:

- As soon as possible after the post project management decision referred to above is made, the Somali counterpart appropriate to post management control should be brought on board to receive the requisite training for post project management.
- If the Somali trainee in place is not the same as the one identified for post project management control, dual trainee incumbency can be permitted for a short time. (The NRA will need trained managers in other posts and the trained manager can be transferred when appropriate.)

c. Cost Accounting Guidelines. Regardless of social benefits, it is important that actual overall costs be recorded from the outset of the project. Hence it is expected that a common form of cost accounting will be developed by USAID and recommended to the sub-project plantation managers. These should include AID project costs but not be limited to them. The following costs should be included in a cost accounting system:

- Pre-project establishment costs, subdivided by related tree-seedling nursery costs, and pre-project planting costs.
- An estimate of all post USAID project costs, whether financed by the USAID project or not, broken down by source of funding.

G. Conclusions

It is recognized that the larger scale fuelwood plantations to be supported under this project will, in the initial stages, be publicly financed investments. Ensuring that charcoal and fuelwood cooperatives and other private entrepreneurs manage all harvesting and marketing operations provides some protection from what otherwise might seem to be public interventions in the private sector.

However, such interventions have an historical precedent in the United States -- the Civilian Conservation Corps and the Forest Service's large scale replanting efforts similarly were needed to reverse severe land degradation and restore badly eroded soils and watersheds. Private companies subsequently took over lumbering but on more ecologically prudent management rules.

In China and Korea, large scale government support and funding was needed to reverse similarly disastrous trends in deforestation. In both countries, a massive enlistment of popular participation enabled planting on a large enough scale so that government investment could be withdrawn and the resulting woodlots were returned to local control.

A very small pilot project in community forestry undertaken by an FAO technician during the first six months of 1982 provides some encouragement that popular participation on a larger scale, with very early assumption of management authority and responsibility by local village councils or private entrepreneurs can be the prevailing patterns in Somalia also. Without national support, reforestation is not likely to occur on the scale that is needed. But without widespread popular participation and enlistment of local community participation and authority for long term management, no national program will be able to succeed.

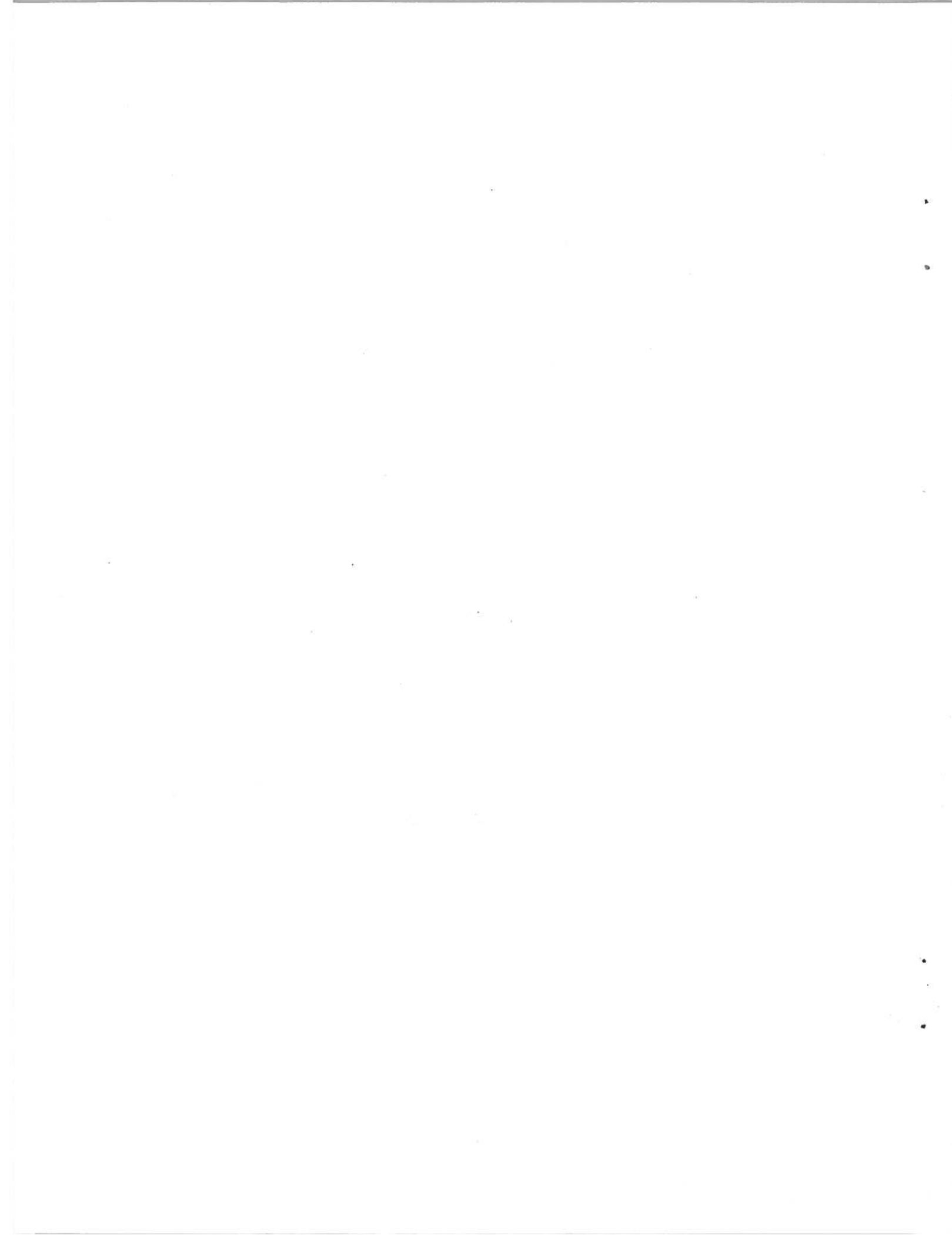
ANNEX VI

SOCIAL ANALYSIS - AMPLIFIED



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SOCIAL ANALYSIS ANNEX

Both the Refugee Self-Reliance and the Refugee Reforestation Project address the pressing need to assist Somalia's refugee population to become more productive and self-reliant through participation in development activities. Forestry activities, to include small-scale tree planting and larger scale fuelwood planting in and near the camps, are a major first step in meeting national problems of environmental degradation and resource loss in capital fuelwood. As a result of the refugee influx, these problems are of unprecedented magnitude both for the country and for individual and community fuel users. The projects are designed to (1) provide productive options in a context which builds on current skills, interests and aspirations of refugee and nearby host populations; (2) transfer skills to refugees and to local Somalis which are both useful and marketable in the short term and, in the refugee case, are transportable; (3) support refugee work opportunities which not only provide economic and social benefits to individuals but contribute as well to building the national infrastructure and environmental resource base.

The development efforts proposed respond creatively to a special situation by working through voluntary organizations already in the field and by supporting a series of modest efforts which build on those organizations' intimate familiarity with the problems of camp occupants and the social and economic context shaping their lives. In fact, project success will depend upon on-site understanding of refugee and host populations' interpretation of their current needs, and collaboration with those populations in decision-making concerning the execution of specific activities. The project designs incorporate a learning process whereby the experience gained in these discrete efforts and ongoing assessment of their impact may help to form national capacity to find and undertake larger scale and longer term solutions to development problems.

Without the efforts proposed the refugee population will remain, as a result of recent events, in a situation which constrains their options for productivity, limits their initiative, encourages their dependence and places them in a regrettable position where, in the process of meeting basic needs for cooking fuel, they contribute to degradation of the country's environment and natural resource base.

The following discussion will (1) analyze the project rationale as it derives from the unique social landscape, (2) assess feasibility of planned activities given specific social and economic characteristics of the beneficiary population and (3) discuss social consequences and impact of planned activities on the populations involved.

I. SOCIAL LANDSCAPE/BENEFICIARIES

A. Overview

Primary beneficiaries of the projects are refugees living in camps along with village dwellers and pastoralists living near the camps. Those camps located near or on the banks of the Juba and Shabelli rivers in the southern part of the country, in the Hiran, Shabelli and Gedo regions, tend to be located where land and water resources are proportionately better than for those camps in the northwest region. There is, however, variability from camp locale to camp locale in both quality and availability of land and water for forestry or agriculture, and this must be assessed on a case-by-case basis.

A population figure of from 500,000 to 700,000 refugees in camps is used for planning purposes. The actual number is both difficult to estimate and subject to erratic fluctuation, since travel across camp boundaries is little restricted and trips of varying duration from camps to rural areas and towns and the reverse are frequent. Movement across national borders is frequent as well and equally difficult to estimate. An unknown but substantial number of refugees in Somalia live primarily or entirely outside of the camps; some may have been incorporated into a nomadic lifestyle along with relatives; others are in the villages; still others are in towns and in Mogadishu,

Given such fluidity, figures on sex and age composition can only be approximate. UNHCR survey figures report sixty percent children, thirty percent women, and ten percent men, many of whom are old or ill. The answer to the question "Where are the men", is that some were killed, some are fighting, some are in towns or in rural areas, employed in the pastoral sector or other-wise employed. We do not have more precise figures. There is indication, however, that the male-to-female ratio has equalized somewhat over the last several months, with a 1.5 or 2.0 to 1.0 ratio between women and men adults. (This is in contrast to the demographic composition for a sample of nomads in the Bay and Shabelli regions, where a ratio of 1.4 men to 1.0 women is estimated, and the imbalance is due to the fact that many women family members live as settled agriculturists.)

UNHCR survey figures show the average nuclear family size to be approximately five persons and suggest that extended families will vary widely in size and composition. The figure used for planning purposes is ten individuals. The proportion of households which are headed by women is not known; however, this figure is likely to be high, given the male-to-female ratio and the known migration patterns of men.

The NRC Refugee Health Unit estimated the monthly crude mortality rate in the camps for the first quarter of 1982 to be five per 10,000, about the same rate as found in developing countries, but much lower than the overall rate for Somalia of 17 to 20 per 10,000. For the same period the neonatal mortality rate in the Gedo region was estimated at forty per thousand live births, in contrast to a national rate of 170 per thousand live births. Fertility measures for mixed farmers living in nearby Bay and Shabelli regions, where crude birth rate is 49 per thousand and total fertility rate is 7.1 births per woman, may or may not be reflected in the camp groups. Also for Bay and Shabelli, 45 percent of the population are aged under fifteen years, and the overall life expectancy is 41 years; this is similar to figures for the country as a whole.

B. General Socio-economic Profile

The locational and ethnic origins of particular camp populations vary widely. We do not have precise data on numbers of refugees by ethnic group, but the proportion of the influx who are Oromo has probably increased since 1979; Oromo tend to cluster in the Gedo and Lower Shabelli regions. In some camps much of the population or entire sections of the camp will derive from the same general area; in others such regularity does not exist. Most Oromo come from Bale and Sidamo regions in Ethiopia's southeast lowlands, with some of them originating in the more distant south central highlands. Somali refugees may originate in both of these regions, but they come primarily from the Harar region, where the Ogaden proper is located. Localities of Kelafo, Godey, Wardher, Gabredaharre, Dagahbour, Jigjiqa and Harar are often mentioned by Somali refugees as their place of origin.

The Oromo, sometimes called Somali Abo by the Somalis, are a large sub-group of the Galla whose home is in southern and southeastern Ethiopia. Their own long-standing anti-Ethiopian movement has often allied them politically with the Somalis. Somalis and Oromo share characteristics of language, political organization and economy, but similarities are modified by geographical and climatic factors. Both groups are basically pastoralists, but the Oromo place highest value on cattle, not camels. Mixed farming is more and more common among Oromo and probably more characteristic of them than of the Somalis. Oromo farming is concentrated, as is Somali farming, along and between the rivers which rise in Bale and Sidamo before flowing as the Juba and Shabelli to the coast of Somalia. Oromo refugees report expertise in traditional irrigation and flood farming, and mention crops of coffee and tea in addition to sorghum, maize, vegetables and fruit. Some report use of the ox-plough, and storage of grain in pit-granaries similar to those of the Somalis. As with the Somalis, those who live in the less well-watered and vegetated scrub areas towards the Ogaden rely to a greater extent on their herds, with the husbandry of sheep and goats managed by women and that of camels or cattle managed by men.

Somalis form a single ethnic unit who inhabit a territory which includes Somalia (the most ethnically homogeneous country in Africa) and parts of Ethiopia Djibouti and Kenya. In general terms, this territory is bounded on the west by a line from the Awah Valley in the north to beyond the Tana River in the south; from there the territory extends east to the sea. Its area is estimated at 1.2 million square kilometers, of which 538,999 square kilometers are in Somalia and another 384,000 are in Ethiopia. Linguistically, the Somalis are Cushitic speakers, along with the Afar of Djibouti and the Oromo and Borana Galla of Ethiopia and northern Kenya.

Somalis occupy several physiographic zones. Along the coast is a dry plain where rainfall is limited to 100 to 200 mm annually and permanent water is unavailable. A central high plateau rises from the plain and extends into Ethiopia's Ogaden. Water and grass tend to improve toward the interior of this plateau and toward the watershed of the Juba and Shabelli rivers. A southern plateau has the best conditions for farming, with rainfall as much as 500 mm per year. Within Somalia, 70 percent of the population is termed nomadic while most of the rest keep some stock as well as farm. However, this distinction hides a much more gradual transition from full-time farmer to full-time nomad, which corresponds in part to geographic location. At least two of the six major Somali clans have customary transhumance routes that extend from what is now northwestern Somalia deeply into the Ogaden.

Social characteristics reflect the different resource and land use situations faced by the mixed farmer or the "pure nomad". Nomads have a highly flexible and fluid social organization. While clans and lineage groups have roughly established spheres of influence, often in areas defined by the location of dry season wells, actual transhumant patterns are a complex adaptation to the constraints of limited and variable water and range resources. Two types of grazing patterns separate the family into two units: sheep and goats form part of the domestic unit and camels (or cattle in the south) are cared for by young men and boys. Individual family camps (gurim from the verb gur, to move), composed of a married man with wife and family, will move and camp with related families in temporary encampments (degmo) whose size and composition will vary. When water and pasture are adequate, such encampments may include thirty or more families. In the wet seasons, the camel and small stock units tend to be closest and families tend to be more densely settled: the reverse is true in dry seasons.

In the south the agricultural tradition dates back several centuries and sorghum, maize and some sesame and vegetables are raised using simple hand-tool technology. Most of the farmers live in or near the area between the Juba and Shabelli rivers. The two Somali clans who occupy the area -- Dijil and Rahanwin -- speak their own dialect (termed Af-maymay) and are of varied origins, incorporating elements from all of the more nomadic Somali clans as well as Oromo who have settled there over the centuries, and others. The area is a refuge of sorts for those who have been siphoned off from a more pastoral life. Here there are villages of 100 to 1,000 population or more. Rainfed farming with rotational cropping is the norm in the upland areas between the rivers; crop failures are common and farming is a risky business. Traditional flood recessional irrigation of cut-channel irrigation is common along the rivers. Fields are smaller and more densely planted and while labor demands are higher so are yields.

Land tenure is more fixed among the farmers, with fields associated with particular families and wells and public works the responsibility of the community. There is a noteworthy system of community regulation, which operates through lineage and clan to manage access to land and water and the tasks of land clearing, well construction, water harvesting, irrigation construction and maintenance, and minor public works. Cooperative work parties, organized by clan elders through lineage connections, provide individual farmers with help in cultivation, clearing

virgin bush, planting and harvest. As described by P. Roark for the Bay region, elected or appointed water committees are in charge of water management, especially access to hand-dug wells and ponds. The committees establish fees and collect them, establish rules of use and enforce them, limit access and amount of water available when it is short, and establish and manage the required maintenance work. Farm families may also have substantial herds, with younger family members moving semi-nomadically. Nomads move into the area seasonally and the status of "guest nomads" reflects this regular contact. Not only is there contact between settled and nomadic people, they may even exchange places for a time. Women, however, tend to stay with the farm.

There is another farming center in the northwest located west of Hargeisa, where nomads have turned to dryland cultivation over the last 100 years. Here the use of animal traction is on the increase. The majority own herds which are tended by family members of close kin. There is evidence that cultivating Oromo of the adjacent Jigjiga area have been influential in demonstrating new farming techniques to the settlers. Settlements, which are smaller than those in the south, expand in size at harvest or when conditions permit the return of the herds. As in the south, artificial ponds (wars) are excavated and collectively maintained by the users.

Just as the Somalis and the Oromos comprise a mixture of nomad and farmer, so do the refugees. Responses to questions such as "are you a farmer", or "were you a nomad" may be somewhat unreliable and need clarification from the respondent. The above discussion shows that over a span of years an individual might have been either.

C. Adaptive Strategies - Precedent

Traditional Somali strategies to cope with limitations in resource base and with crises of recurrent drought shed light on current responses to political crisis. Pastoralist lifestyle, land use and economy was quite effective in providing subsistence and also in permitting the formation of substantial capital stock in animal wealth. An intimate knowledge of ecology and natural resources and a system of human allies spread over a wide area facilitated traditional herding management, whose patterns were complex and characterized by variety and flexibility. Routes of movement and expansion and contraction of social groups varied according to resource conditions: they were supported by a "communications system" which permitted knowledge of water and grass conditions over very wide areas.

Those responses which have historically accompanied periodic crises are most relevant to this discussion. As L. Casanelli showed, there is a sequence of drought responses which come into play as conditions worsen: (1) at times of scanty rains people may abandon seasonal grazing grounds earlier than normal or not move at all to rainy season pasture; (2) if this does not serve, herds are divided into ever-smaller specialized units and men and boys take camels or cattle and search for available grazing land held by their allies; (3) as conditions worsen, families send women, children and the elderly to stay with kinsmen or allies in towns or in farming villages, "sloughing off dependents into refuge areas", thus

allowing young men to move quickly with stock and reducing the demand for milk from the animals; (4) in the worst case, men would seek employment outside the pastoral sector, especially in cultivation. The majority of these refugees would return to pastoralism once water and range conditions improved; a proportion to nomadic life. This last option has been one source for the centuries-old pattern of gradual incorporation of newcomers into the agricultural sector in Somalia.

This pattern depended upon pre-existing ties to supportive allies and kinsmen. Even in normal years, kinship ties would provide access to land occupied by neighboring herders where range and water conditions were better. Such contracts, built up over generations via marriage, the exchange of animals, and commercial ties, are a basic aspect of traditional Somali social organization which has provided both physical protection and social security to herders away from home. Over the centuries similar ties were built up with kin living in the more settled areas and this facilitated moving into and out of farming, on a temporary basis, or more permanent settlement.

Casamelli sees the willingness of the nation as a whole to offer shelter to political refugees, and the willingness of kin to assist relatives from across the border, as reflective of these historical precedents. The precedent for moving into farming in crisis time is centuries old: "the refugee camps provide shelter for nomadic dependents much as traditional refuge areas did in times of drought". The camps of the 1980's appear to be more permanent than those of the past because of the duration of the crisis and the degree of external support through international channels. It remains to be seen whether or not this difference will result in a greater willingness on the part of these resilient people to settle permanently.

Somalia's experience in settling drought refugees offers another point for comparison. Herders who had lost their animals in the 1973-1975 drought were settled in temporary relief camps; the majority of refugees left the camps as conditions improved. Later, three agricultural settlements were set up in the interriverine area to assist re-aiming "former nomads" to become settled farmers. Observations at one of the settlements, Kurtenwaarey, show that the original population of some 30,000 was cut by half in the first few years as food shortages and low yields left many too discontent to stay. A somewhat stable population continues in the settlement but yields remain low, in part because of lack of adequate training and inputs, but most importantly because settlers do not appear to be given adequate reward for their labor. Families have no control of their produce, but are provided rations, social and education services and some wages for work performed. Another factor limiting the success of the settlement may be the administration of affairs through a hierarchy of somewhat artificial committees. It appears that men are leaving the settlement in disproportionate numbers. Many of the leavers are returning to a more nomadic lifestyle as a result of gradually, over the years, building up their herds through the help of kin.

A different basis for comparison comes from a retrospective view of the effects of settlement of Somali pastoralists in northeastern Kenya, where as a result of political conflict and then severe drought, up to 100,000 were provided famine relief and, following that, opportunities to join irrigated agricultural settlements. Research performed by H. and J. Merryman examines these settlements over about a ten-year period. Those who have remained are those whose camel losses were too severe to permit rebuilding of the herd. During the period the surrounding pastoralists have been able to rebuild their herds, but the sedentized group now works in agriculture, small industry and at wage jobs, along with keeping some animals. The settlers are judged to be marginally self-sufficient. A major economic change has been the accelerated integration into the cash economy, which, significantly has been accompanied by and enhanced through a greater economic contribution to the household on the part of women. Women's independent decision-making power has increased and there is much greater flexibility in family roles than obtained in the previous pastoral lifestyle. Overall, the farming projects have led to a local economy in which individual families do not need the large herds they previously did in order to meet milk requirements for subsistence. In this case, pastoralists appear to have been moving into permanent and viable mixed farming.

D. Rationale

Evidence reviewed above suggests that pastoralists can become effective farmers, can integrate into the modern cash economy, and can continue to be active in the livestock sector at the same time. Results may be beneficial for women as their economic input is more valued in the household. Both Gromo and Somalis have turned to farming more and more over the years, although in the past most who adopted farming in crisis time returned to pastoralism as conditions improved.

Among the refugees in the camps, farming is now expressed as the activity of first choice, and most refugees claim an agricultural background. This is not surprising, since (1) pastoralists, especially the women, turn to farming in crisis time, (2) many of the people from the Juba/Shabelli regions are coming from a mixed farming or farming livelihood, and (3) the camps may attract farmers disproportionately to nomads, especially nomads who have been able to maintain a proportion of their herds.

Clear lessons emerge which suggest that the most effective approach is to create situations whereby economic rewards are concomitant with work performed, individual refugee households have control of farm plots, local social organization is allowed to thrive, and women's potential economic contribution is not thwarted.

While there are precedents for shifts in productive activities, there is no easy precedent to provide guidance for solutions to the fuelwood shortage now experienced by refugees and among the local rural population. The density of population in the camp areas is best described as urban and the wood consumption of the massive camp population is additional to that of the indigenous rural population. Both the newcomers and the local residents rely on wood harvesting for fuel, construction and other purposes. Deforestation is occurring as demand far exceeds supply, with ecological damage the result. In most areas, the denudation of tree and shrub cover is severe around camp perimeters, and the radius of cut trees continues to extend outward.

Somalia as a whole is beginning to feel the constraints of its reliance on wood resources. Approximately 70 percent of national energy consumption is based upon wood or on charcoal made from wood. Alternate, petroleum-based fuels are prohibitively expensive and unavailable. For the most part, the country's energy needs will not be easily solved and the forestry and energy sectors are little developed. While this poses a constraint to the rapidity with which massive reforestation efforts can be undertaken, there is an acute awareness of such problems at the national level. This project will support a series of exploratory activities in tree planting, fuel production and fuel saving and will help to build government capability to manage a forestry program.

II. SOCIAL FEASIBILITY

Feasibility is enhanced by a careful identification of who, specifically, should be reached by project activities, within the community and within the household, and how -- through what organizational channels -- they are to be reached. Points of input whereby project participants have a say in project decisions regarding site selection and access to water and land need to be identified. Therefore, the following is a discussion of (1) local level social organization and patterns of resource use and decision-making, (2) the needs, motivations and interpretations of development problems on the part of beneficiaries, as this affects their participation in productive self-reliance and forestry/fuelwood activities, and (3) organizational approaches by which sustained participation in project activities will be enhanced.

A. Social Organization

It must be remembered that the current life of refugees in camps derives from a situation of political (and for some, drought) crisis, and that they are now living away from their homeland and its resources. Their current social organization is a mixture of what people have brought with them and what they have created in place, and the formal camp structure established by the government. In order to assure social feasibility of project activities and ensure sustained participation, it is necessary to examine this evolving situation and the channels it provides to reach the intended beneficiaries.

1. Community Organization

Formal camp infrastructure, first established to maintain order and to manage the relief effort, is now the local system through which refugees have access to development resources. Camp commanders have ultimate control of camp matters but since their positions are changed frequently they do not customarily come to know the workings of the camp with any depth. The refugee camps are broken down into sections ranging in number from six to eighteen. Each section has its own section leader. Sections are divided into sub-sections of fifty families, headed by a kontonle, or leader of fifty, the sub-sections are again sub-divided into groups of ten families, headed by a tobanley, or leader of ten.

Assistant camp commanders and section and sub-section leaders may be appointed by the camp commander or nominated or elected by local residents on the basis of leadership qualities. URC-sponsored and voluntary agency farming activities are managed, in addition, by refugee farming committees. Each camp with a farm will have a farm manager chosen by the URC or in some cases by the commander - the manager may be a seconded employee of the Ministry of Agriculture or may be a skilled refugee from the camp. Farm managers work in concert with expatriate agriculturalists representing NRC, UNHCR or a voluntary agency. Farming committees are composed of section representatives, whose selection may be made by the farm manager or by the people to be represented. There is variation from camp to camp in the degree of control a camp commander exerts over agricultural and productive activities and in the degree of autonomy that voluntary agency representatives have both in style of working with these committees and in program implementation.

Camp officials and the farming committees are an important link between the voluntary agencies, government representatives and the camp population, and the nature of this link will affect how decisions are made as to location of projects, criteria for allocation of land to refugees and involvement of local populations in project management.

The national women's organization (the Somali Women's Democratic Organization) has set up local chapters and Women's committees in villages throughout the country which serve political, social service and education functions and help facilitate women's access to development opportunities. The SWDO sent representatives to many of the camps to help organize women's committees - these committees persist in some of the camps where they function in varying capacities. In one camp where the women's committee is active, it has lodged a complaint with voluntary agency staff that outside development resources could effectively be channelled through them to reach refugee women. In camps where the women's organization is active and for activities which primarily involve women, this should be explored.

For the Somalis, the elders are the traditional clan and lineage leaders, the decision makers and the intermediary link between government representatives and the rural population. Their role is more defined among the settled Digil and Bahawin clans, where elders are involved in the management of land and water resources and community labor. These are the leaders who can bring people together to discuss issues of importance or who can organize parties of men to perform community tasks. Gorno elders play a similar executive and judicial role, but it derives from a traditional system of eight-year calendar periods through which all men must pass. Leaders emerge who can better perform the tasks associated with each age grade, and younger leaders are closely instructed by older ones.

Mechanisms by which indigenous leaders influence camp decision making, and the ways that indigenous resource management may still operate within the camp structure are topics which bear research. Indigenous community leaders and local organizations for management of resources which operate within the camp structure may be more important than the official structure. (In some cases, section or committee leaders are indigenous leaders.) We know that local leaders are better able to call groups together for meetings than are appointed camp leaders and that in some camps an active community spirit prevails. Work parties have been effectively organized to perform specific tasks. Patterns of mutual support exist among camp women and in fact a women's network is the channel by which the new technology of mud-stoves is spreading. Understanding the current operation of indigenous social infrastructure is a prerequisite to establishing linkages between the camp and outsiders. Local leaders form an important nexus between the population and outside project extension or technical staff and are the basis for local participation in project decisions. Most particularly they can be involved in decisions about land allocation, to better ensure their equity, and can help with the organization of work, such as for irrigation construction and maintenance. Local organizations are potentially very important in negotiations between camp populations and local villages concerning land or water. The effectiveness, cohesiveness and functions of various formal and informal organizations will vary from site to site and assessment of their potential role in development projects is necessary on a case-by-case basis.

2. Household Organization

In order to assess who in the refugee household needs to be reached and the preferred approaches for reaching them, it is necessary to examine current styles of work, patterns of resource allocation, and decision making.

Decision making and allocation of resources within the household is a difficult topic to research and it has not been researched in depth in Somalia. However, we know that women bear primary responsibility for the direct support of the household and the nurturing and care of their children. In the camp situation women's domestic responsibilities may have increased, especially in households where husbands are not present. Women's time and labor burdens are substantial, with daily or regular activities including water collection (which even in the camps can be several kilometers' travel per day), tasks related to cooking, gathering of firewood, child care and household maintenance, as well as the collection of rations. Women also construct house structures (the dome-shaped traditional mat-covered wooden structures termed akals) and sometimes will participate in the construction of more substantial and permanent wattle-daub structures. They perform agricultural work both in kitchen gardens and in the fields, where they undertake the regular tasks of breaking soil, hoeing, weeding and water hauling and the harvesting, transport, processing and storage of grain and vegetables. Men are not traditionally tasked with household maintenance or the regular agricultural tasks, although they participate in the latter, and perform land clearing and short-term work. Both men and women care for poultry and both perform traditional artisanal work. As for the latter, men are well known for leatherwork and woodwork and women for work with grass reeds. While artisanal work is traditionally viewed as related to personal use, the items are becoming more and more marketable.

Women earn small amounts of cash through the sale of food, occasionally the sale of milk or small stock, and to some extent from the sale of crafts (pottery, cloth, basketry and mats). Some women sell small amounts of firewood. Cash earnings go to purchase milk, fuel, meat, soap, and clothes. We have less information on the range of economic endeavors in which men are currently involved; their access to the few camp jobs such as watchmen, store-keepers and farm assistants should be noted. The extent of livestock wealth held by men is unknown. Although stock were undoubtedly lost, some may have been able to gradually build up their herds.

Activities related to fuelwood bear special mention. Fuelwood collection is a primary consumer of most women's time; women may travel two to four times a week and spend from six to twelve hours (or longer) to reach wood sources, perform the collection and return. However as the preferred resources grow further away from the camp and overnight trips are required, women prefer to purchase, if they can, using cash from small market transactions or ration sales. In the latter case purchase of fuel may cut into family food; the extent of this is unknown. Women who have been surveyed show a range of preferences from gathering to purchase, which depend on the particular resource situation in a camp. Drier camps or those in more heavily vegetated areas still have a predominance of gatherers.

The transition to fuel purchase is engendering economic opportunities for refugees and surrounding residents. As wood becomes a marketable item, however, its gathering and sales turn to the domain of male entrepreneurs, who travel on donkey carts, return with them full, and sell the proceeds. Women market wood as well, but at a much smaller scale or under more limited conditions of profit. For example, women whose cooking responsibilities are limited (e.g. smaller families) may make gathering trips, for the purpose of selling part or all of their load. One woman told of dividing her load into two, with one half for family use and one half to sell. We spoke with one woman who had taken a loan to purchase a donkey cart load (value approximately 20 shillings) and was cutting and selling individual pieces at one shilling each. Women who cannot afford an entire cart may purchase part of it, and divide the wood into saleable pieces. In this instance profits are clearly meager.

Women's potential for participation in economic activities may be limited relative to men's due to their time constraints, however the evidence of demand for employment opportunities on women's part tends to belie this. Participants in an income-generation project surveyed in May 1982 claim to have a few hours of free time a day, which they prefer to use in additional productive activities. (In fact, one of the reasons for the poor attendance at government-sponsored domestic schools is that the activities, while viewed as pleasant, are secondary to cash-earning activities and domestic responsibilities.) A need for flexibility in work schedules was expressed by these women, and design of non-farm opportunities as well as agricultural work should take this into account. Some women (e.g., those with only young children) may have more of a time constraint than others and may prefer home-based opportunities. An informal labor-sharing system does operate among women whereby tasks are performed in small groups in rotation fashion, thus benefitting different women in turn. Project activities should assess the conditions under which such mutual support can permit greater participation.

The project aims to reach both male and female heads of households and aims at maximum participation of these with the interest in and need to farm. Because women have primary responsibility for family well-being, have farming skills and need and desire to work, project activities should ensure that they (especially women heads-of-household) are given opportunities for farm plots. Differential access of women to opportunities in the past, as well as women's economic needs, may necessitate special steps to reach these groups. As shown above, women are traditionally active as small farmers and may indeed settle as farmers prior to, and for longer periods than the men.

B. Participation in Productive Activities

Over the past two to three farming seasons there has been a dramatic shift in the attitudes of refugees toward food production. Data were systematically collected at a recent series of regional agricultural workshops sponsored by NRC and UNHCR (ending in early 1982), in order to assess refugee interest, past experience and expertise in farming. At the workshops, attended by camp administration, voluntary agency representatives, farming committee members, and farmers, camp representatives stated their willingness to farm. Many complained about plots the size of a kitchen garden comparing them to the plots of several hectares which they had previously farmed, and stated that soil quality and rainfall were inadequate and land unproductive by comparison.

A. Rahman found in his survey of farmers at Jalalaqsi I that residents have experience with dryland, stream runoff, flood recession and pump-irrigated farming (see Table). Sorghum and maize were the primary crops and sesame was a popular cash crop. Only six percent of respondents had had no animals. Sixty-eight percent had been farmers in the Kellafo, Goday, Imra, Duhun, and Elkarey areas, where the Shabelli river formed their major water source. Approximately one-third of the farmers came from Danan, Kabre Dahre and Dagabur, where they had been mixed farmers.

<u>Original Locality</u>	<u>Type of Farming</u>	<u>Percent of Farmers</u>
Kellafo	Along Shabelli river/farmland receives alluvial deposits/river irrigation and rainfed agriculture.	10
Goday	Cooperative pump irrigation and rainfed agriculture.	33
Imra	Rainfed farming, flood farming of small patch areas and farm along hill sides.	16
Elkarey	Rainfed farming along southern Shabelli.	2
Danan	Irrigation by seasonal stream/rainfed farming/ semi-nomads farm during rainy season.	20
Kabre Dahre	Seasonal streams/semi-nomads farm during rainy season.	10
Dagabur	Same as above.	2

Source: Table 2

"Socio-Economic Study of the Refugee Farmers, Camp I, Jalalaqsi, Miran, Somalia," Ed. Azizur Rahman, UNHCR, Regional Agronomist. Paper presented at the National Workshop on Refugee Agriculture, March 1-4, 1982, Mogadishu.

Background on recent changes in government agricultural policy for refugees sheds light on reasons why demand is now high. UNRWA first introduced two agricultural projects in Somalia in 1979, and the Ministry of Agriculture made land available which had been part of a government farm. By early 1980, agricultural programs had expanded somewhat, but participation in the projects was limited and yields were low, due in part to a shortage of technical assistance, but more important, due to tenure policy. While, previously, farmers received only one-third of what they produced on communal farms, in the spring of 1981 refugee farms were allocated on an individual family basis with each family responsible for all work on its plot and for the distribution of all farm produce. The response was enthusiastic.

By the start of Gu season 1982, two-thirds of the camps had small farms attached to them, totalling approximately 1,200 hectares under NRC or voluntary agency management. Plans are to expand to about 3,000 hectares by Der season 1982, and to reach approximately 3,000 families.

In addition, refugees have been taking steps to gain access to farmland themselves, clearing land on their own, renting small plots from nearby villagers or renting access to water from irrigation pump owners, sometimes at very high cost. Especially in those camps where river water is more easily available, kitchen gardens are common. Motivation for participation may vary according to factors of risk and potential return and may depend on access to other income opportunities. In Qorioley, which has the best agricultural potential and the best irrigation land of the camp areas, three irrigated crops are possible per year and farmers can earn relatively substantial amounts from small (e.g., 1/3 hectare) plots. Here, participation would probably be high even with irrigated plots as small as 1/6 hectare. By comparison, on the rainfed land at Qorioley much larger plots are appropriate. Plots of 7/16 hectare are being farmed in an area where, according to the farm manager (a skilled refugee) irrigation yields may be as low as rainfed yields due to uncorrected problems in the old irrigation system. At Sigalow camp, where soils are extremely saline and poor and yields very low, and in addition, alternate income-earning opportunities are available in the nearby town, the farm manager reported poor participation. At BurDhubo demand for farmland is high, even with the small size of 1/20 of a hectare, in part because soils are better and the irrigation system is well managed.

According to the 1981 NRC decree on agriculture, farm management authority can be given to voluntary agencies. As a result, individual agencies may have substantial responsibility to work with local authorities to decide criteria for selection and allocation of land and establish guidelines for refugee labor on such tasks as irrigation construction and maintenance.

The different farm management approaches taken by voluntary agencies offer a basis for discussion of appropriate and effective organizational arrangements for project decision making. Voluntary agencies have -- potentially if not currently -- significant latitude to contribute to decisions on amount of land to be allocated per family, on criteria for family selection, on selection or amount of inputs to be provided, on extension approaches, and on refugee labor contribution for such tasks as irrigation construction and maintenance.

There has been substantial camp-to-camp variation in the selection process whereby refugees have been given land to farm. Field questioning showed that participating families have been selected by (1) the camp commander, (2) the farming committee, (3) section and subsection leaders, with selection approved by the farming committee, (4) the farm manager, and (5) on a first-come, first-served basis, with a review by the farming committee. Since the selection process for camp officials, especially farm officials, also varies widely, these officials may or may not be representative of camp population interests and will vary in their tendency to allocate development resources equitably or on the basis of need. In one case, participating families were selected by farming committee members who used criteria established jointly with voluntary agency staff to select families from their camp sections. In this case public scrutiny and checking mechanisms operating through indigenous leaders appear to be controlling favoritism; in at least one instance a farming committee member who was judged at fault by local leaders was replaced. Since local leaders may be effective in representing the camp population, they can and should assist project technical and extension staff in decisions about (1) land allocation, to better ensure equity, and (2) the organization of work, such as for irrigation construction and maintenance. Local organizations are potentially very important in negotiations between camp populations and local villages concerning land or water. The effectiveness, cohesiveness and functions of various formal and informal organizations will vary from site to site and assessment of their potential role in each project is necessary on a case-by-case basis. Implementing agencies can and should assess community structure in advance of establishing criteria, in order to ensure judicious and equitable selection. Distribution must be monitored and criteria should be more specific. Further, channels for claims to be made publicly or privately could be identified. Agencies which are most effective in generating an equitable situation for participant selection appear to be those who build up trust with local leaders and come to understand their various roles in the community, and together with them establish selection criteria.

Farmland is made available by government authorities through the Ministry of Agriculture. Plot size varies and ranges from 1/20 hectare (which is rare) to one hectare or more. Inputs and seeds are generally provided free and farm families are required to perform all manual labor on the farm. As for land clearing, construction of secondary and tertiary canals, and canal clearing, farmers have either been asked to contribute their labor or have been paid for this work. In one camp, participants who had been selected by the camp commander

did not wish to perform the required canal work in the next season only families who agreed to perform canal work were given plots, and participation, including the participation of women farmers, was higher.

Amount of technical assistance a particular voluntary agency will provide varies widely. Some leave most decisions to others, let farmers plant and care for crops as they see fit, and provide advice only when asked. Others intervene with advice at many more points in the production process.

Care should be taken not to draw off local resources (e.g., water) unless the local Somali population is somehow remunerated for the loss, and to permit local Somalis with prior interest in the land to participate in land development. Agency staff find that their familiarity with a local situation forms the basis for finding a solution to competing claims and to arranging a suitable mechanism to incorporate local Somalis into refugee farm projects. Where irrigation channels cross the land of local farmers or irrigation systems use water claimed by them, local arrangements will be particularly important. Host-refugee relations are not well understood and must be assessed by implementing organizations in order to assure that projects do not negatively affect local farmers and that conflict is not generated.

Development of an appropriate distribution policy must take into account the tradeoffs between larger and smaller plots and the benefits of maximizing the number of participants through provision of smaller plots to a greater number of interested families. Given that even the larger plots will not provide self-sufficiency, there is some justification to the view that the smallest plot which people are willing to farm is the preferable size. Such an approach may more equitably distribute available land, provide some productive opportunities to many more people and vastly extend the audience for training and technical assistance, and in general more widely distribute social benefits. The exception would appear to be in the case of relocation, where the intent is to experiment with approaches to self-sufficiency. Because of the potential importance of relocation, however, sub-projects which involve relocation should be based upon an assessment of social feasibility and the needs and preferences of participants and incorporate participants' input in a range of project decisions. Since viable full-scale relocation projects are difficult to plan and implement, this sub-project will support only relatively small-scale pilot relocation efforts whereby a portion of a camp will be permitted to move to nearby farmland. This will minimize risks of adjustment to new sites and disruption of local organizational capacity. The social impact of such pilot efforts should be closely monitored.

An issue which bears mention is level of technology in agriculture. While mechanization will permit large areas to be brought under cultivation rapidly, drawbacks include dependency on access to spare parts and on imported fuel to run equipment. Shortages can cause delays which can seriously hamper production. Further, if programs are not only designed to support agriculture but to assist

farmers to work productively, labor intensive methods are preferable. Refugees who return home or settle elsewhere should carry with them skills that are practical and mechanized agricultural practices may not be so in the long run. Alternate possibilities for water-moving include use of donkey carts and hand pumps. Land preparation can be achieved by hand for the most part; however, in areas where large areas need to be cleared quickly this is not practical. Other than for initial clearing, tractor use may not be appropriate.

The distribution of land to women-headed households bears special attention on the part of implementing agencies. Not only are women experienced farmers, they hold substantial responsibility for family support. Women-headed households are numerous, but we do not have figures on numbers of women-headed households which have been selected for family-agricultural plots. Discussions with farm managers and voluntary agency staff show that in the initial round of dispersal of land, most parcels have gone to families in men's names. (We were told of one camp, however, where most of the parcels were registered in women's names.) A major obstacle to provision of parcels to women heads-of-household may be that local administration and agency staff make an appropriate judgement that women are "too busy to farm". Also, if the selection process is left entirely in the hands of official camp leadership (e.g., section heads), women are unlikely to be offered plots. In addition, women have received far fewer camp jobs and food-for-work opportunities to date, the latter because the jobs (construction, road work, water supply) have been assumed to be the province of men. However, the need women have for work opportunities is known, and the time constraint factor is not well understood. Women interviewed prefer to use what free time they have to earn income. Flexibility in work hours and innovation in scheduling may be called for to incorporate women into farming, in camp or food-for-work jobs, or in training programs. (It is interesting to note that in a study of Somali settlers in northeastern Kenya, agricultural plots were originally given to men, who claimed that new technology was too complex for women. However, when irrigation works suffered mechanical problems, men left for other work and wives maintained and later took over management of many of the farms. Agriculture is now a major income-earner for women.)

Small-scale rural industry programs should be supported by the project, especially for women who lack access to requisite technical assistance and training to increase the economic viability of their endeavors. Referring again to the long-term effects of resettlement of Somalis in Kenya, where women's economic role in the household is an important factor in the self-sufficiency which has been achieved by the community as a whole. Forty percent of employed workers are women and women's major sources of employment are agriculture, the sale of wood or charcoal, and the sale of fibers or fiber products. The latter, originally a domestic task, is now a marketable skill.

Cottage industry programs need to be carefully undertaken, however, since economic viability depends on critical factors of demand, access to markets, the cost of production and the availability of inputs, and the cost involved in teaching new or upgrading existing skills. Numerous very small industries exist in Somalia, especially in food processing, pottery, leather and footwear production, and tailoring. Much of this production uses local available goods and builds upon traditional skills. Refugees are already involved as producers or as marketers of food, fuel, or miscellaneous items (soap, cigarettes, etc.). We do not know the potential for expansion of this sector; the success of project activities in small industry will depend on a positive assessment of their economic feasibility. (For areas such as beekeeping or poultry, demand may be high but the constraint, especially in the camps, may be the availability of forage.)

C. Participation in Forestry Activities

As a result of the presence of some 500,000 to 700,000 refugees in camps, problems of environmental degradation and resource loss in capital fuelwood are of unprecedented magnitude in Somalia. Refugee and nearby population efforts to meet basic needs for cooking fuel involve greater and greater time and cost burdens, especially for women, many of whom are reaching the physical limit of fuel collection.

Improving the national stock of fuelwood will depend upon actions which increase its supply or reduce its demand. Among the former are tree planting and fuelwood plantations; the latter include cooking methods which use fuel more efficiently. Such interventions involve changes in behavior, the adoption of new attitudes and the use of new technologies. Successful interventions will be those which meet social and cultural preferences and serve economic needs.

While in the camps farming is now expressed as a development priority, forestry activities have not been widely expressed as a need on the part of refugees, with the exception of amenity planting within the household. However, there is a strong perceived need on the part of women for easier access to fuelwood for domestic use. In pilot projects, fuel-efficient cooking technologies are showing increased acceptance.

Long-term success of forest management will depend on its compatibility with the economic, political and social life of various sub-groups: (1) women who bear primary responsibility for provision of fuel and who are the major users of wood products for cooking and construction; (2) community leaders, who have a say in the management of land resources and the use of community labor; and (3) the individual (usually male) collectors, processors and marketers of woodfuel.

Even without wood collection, women's household time and labor burdens are substantial and include domestic and child care tasks and a range of income-generation and agricultural tasks. Fuelwood collection is a primary consumer of most women's time -- women may travel two to four times a week and take from six to twelve hours (or longer) to reach wood sources, perform the collection and return. As longer trips are required, many women prefer to purchase wood if they can afford it. In newer camps or those where shrubs and trees are more abundant, most women still gather. When wood becomes a marketable item in the camps, its gathering and sale becomes largely the domain of male entrepreneurs, who bring the wood on donkey carts and sell it.

The readiness to commit time and labor to activities which entail planting and caring for trees in order to gain benefits from them at a later time is new, as is commitment of time and labor to learning about constructing and maintaining a new type of stove or construction material. Cash and labor are scarce resources and new and unfamiliar activities must compete with on-going, survival activities which have a far more immediate and striking benefit. However, work opportunities which make easier the purchase of fuel may directly meet locally-perceived needs. Refugees who have no long-term interest in the land and who cannot be assured any long-term benefits from it, may have little inclination to devote their scarce time to care and maintenance of trees. But refugees offer potential labor for large-scale efforts and such labor provides an alternative to dependency. Further, the intensity of cutting damage is greatest, and the individual burden of fuelwood collection most strongly felt, in and near the camps. Thus, it is logical to begin a reforestation program in the vicinity of camps and to involve refugee labor.

A long-term perspective on reforestation implies that, for programs to be effective, simply "getting trees into the ground" is not adequate. Environmental benefits and sustained yield management will be more likely where there is popular participation and support. This applies to refugees as much as to anyone else. (While a certain degree of policing is necessary, policing alone is likely to be ineffective if there is opposition from the community.) While from a technical standpoint optimal land management can be relatively easily assessed, the social feasibility of forestry options is a more complex matter.

Effective extension and non-formal education efforts will enhance the feasibility of forestry activities and magnify their impact beyond simple payment for work. Such efforts will be the channel whereby attitudes may change and understanding of proper management of wood resources may spread. Effective extension and small-scale demonstration plantings should precede larger scale efforts, to build in advance a basis for support.

The feasibility of agro-forestry and farm plantings and of larger scale reforestation will depend upon creating opportunities for participation which offer some immediate benefits, are low-cost and entail little risk. Because of women's daily involvement with wood products and their acute perception of the wood shortage, projects which are implemented through them and have their support are more likely to be successful. However, community support is also necessary, this implies that local organizations and local leaders -- including women's organizations and women's leaders -- must be involved and their support ascertained.

Relevant local social infrastructure includes both camp officials and local leaders, who serve to link implementing agencies and local government, on the one hand, to the camp population on the other. The nature of this link will affect decisions as to criteria for land allocation, location of projects and local involvement in project management. Formal and informal networks of women's organizations exist in many camps: mutual support among camp women is the channel by which the new technology of mud-stoves is spreading. Elders and other traditional leaders still function within the camps to varying degrees, and they can call groups together or influence local participation. In some of the host communities, community leaders manage water and land resources and tasks of land clearing, well construction, irrigation construction and maintenance, and water management. Similar community organization may exist in the camps. All of the above should be taken into account in sub-project implementation.

Project activities respond creatively to a special situation by working through voluntary organizations already in the field, thus benefitting from their familiarity with the local setting and their ability and potential to work collaboratively with the appropriate local representatives. Voluntary agency staff must take the necessary steps to assess local conditions before selection of particular types of planting activities, their location, or the way in which they are to be managed. The success of project efforts will depend upon the effectiveness of voluntary agency staff in maximizing local participation.

Amenity plantings and agro-forestry activities should be practical and feasible and in addition serve as a demonstration of tree benefits. Small-scale planting around the periphery of camps, along canals and riverbanks and farm perimeters are unlikely to be effected through community self-help (as they might be elsewhere in Somalia) because of the uncertain land tenure situation of camp residents. Food-for-Work labor is appropriate for initial planting, for protection and for maintenance -- however, some community involvement will be required. Support from local leaders and effective extensions will be important.

Camp social infrastructure and organizational links between refugee and local populations will be important if substantial land and water resources are to be allocated to reforestation. As with the discussion above for agriculture forestry activities will be facilitated (and potential negative effects verted) if the selection of land units, particular uses within them (agro-forestry, grazing reserve, intensive fuelwood, etc.), allocating of end products, and the conditions for labor are arrived at based on (1) on-site understanding of existing management and use, (2) decisions which involve not only local leaders but the population at large, and (3) recognition of rights on the part of those with valid claims. (The latter can be addressed through such compensatory measures as alternative plots, permission to graze, cash reimbursement, guaranteed share of benefits, etc.). When making all such arrangements, involvement of the local decision structure is critical.

Labor participation will depend on the reward structure in which food-for-work will be provided, and, especially for women, on flexibility in timing and scheduling of work. Again, on-site assessment is necessary to maximize labor participation. The record is good for participation in small-scale forestry activities on a food-for-work basis with non-refugees in Somalia. This project should aim the majority of forestry work opportunities toward women beneficiaries: women's wages will have to be adequate to justify -- in their terms -- their removal from other activities. Ideally, wages should be adequate to assist in fuel purchase. The heavy demand for labor at crucial planting and post-planting periods may necessitate special efforts.

An important issue is local preference for particular species. Use priorities should be reflected in tree planting efforts, where those priorities will affect long-term demand. Preference for Acacia busii must be better understood, since, for example, this is the only species used in charcoal production. (It is also used for skal production: its bark is woven into camel mts, used for water vessels and ropes, and used in tanning; its fruit is used as fodder and its leaves are used for browse.) Assessment of demand for alternate species and ways to accommodate species demand are needed since whatever species are most preferred are likely to be valued and purchased.

III. SOCIAL CONSEQUENCES AND BENEFIT INCIDENCE

A. Refugee Self-Reliance

Access to productive activities is clearly a high priority for the refugees, and activities will build on existing skills and will not introduce radically new technologies. However, the feasibility of self-reliance activities will be enhanced by steps taken on the part of implementing voluntary agencies to creatively develop (1) working relationships with local leaderships and (2) extension strategies which enhance input into project decisions on the part of project beneficiaries. Collaboration with existing community-based groups

(e.g., elders, committees for land and water management, women's organizations, other) is encouraged. In this way, the local perception of costs and benefits to involvement in project activities, as well as valid local interests, will be better represented in allocation of project inputs. Economic feasibility and social soundness -- including allocation of resources to those with the greatest need for them -- will be increased.

Allocation of land and selection of participants should be managed through an existing, preferably indigenous, system of distribution, using jointly established criteria. Although implementing agency staff should have some oversight function, they should not be performing the selection themselves. Special attention to women's participation in productive activities is called for because, first, women (especially women heads-of-household) have tended to be left out of previous camp agricultural and training opportunities, and secondly, there may be particular constraints to women's participation, such as time constraints, which need to be carefully addressed.

Greater participation of women will depend (1) carefully developed criteria for participant selection, (2) addressing the need women have for technical assistance in non-farm employment, and (3) flexibility in work schedules and encouraging informal labor-sharing among women. Provided the agency has established participatory work relationships with the community, implementation problems relating to motivation, participation or equity which may still arise should be practical to address.

Benefits of project activities include the transfer of skills, extension information, and the income and food production generated on farm plots. The benefits in actual income generated are likely to provide only a portion of total needs for most farmers, but the social benefits of productive work on the part of a dependent population -- benefits which include the encouragement of initiative and participation in problem solving -- are inestimable. The small industry program for women will test out a model for similar activities which can be replicated elsewhere in Somalia.

In sub-project locations the provision of irrigation systems, cleared land and the like, will benefit the local residents in the long term. A substantial amount of counterpart training in technical areas and in extension implies long-term benefits at a national level, and enhances potential for replication and spread effects. In a sense, the voluntary agencies are involved in implementing an experimental or transitional phase of a larger scale development effort to be undertaken by national institutions. Impact on future efforts is assured through effective sub-project monitoring and the information-gathering, coordination and planning functions to be strengthened within the NRC.

B. Refugee Reforestation

Arrangements for distribution of long-term wood benefits can only be established after on-site assessment. In some of the sub-projects the management units are to be under the immediate control of the NRA who may sell the products, contract for their sale, allow cutting by permit, or otherwise distribute the wood. Purchasers may or may not be refugees. It is unlikely that demand will be a problem, given current trends toward increased cost and scarcity of fuelwood. Particular arrangements should await results of studies (included in the project) of the impact of alternative arrangements on demand, on the local economy and on individuals now involved in the woodfuel and charcoal industries.

Effective diffusion of energy-saving technologies will depend on careful extension efforts and on working through existing women's organizations and networks. Evidence suggests that mud-stoves can be highly acceptable to refugee women, who assume for themselves the tasks of construction and maintenance. User acceptability of the mud-stove may be high precisely because of the magnitude of the fuel shortage. Sustainability will depend on careful training of trainers in the new techniques. New technologies which are simple and inexpensive, have immediate benefit, and involve locals in decisions about construction, design and use will be more effectively transferred. Approaches to diffusion of mud-stove technology as a replacement for traditional three-stone cooking fires, as currently underway on a pilot basis, meet these criteria. Pilot efforts must be monitored to assess the conditions of user acceptability and the process of diffusion. Also pilot efforts must be supported long enough to assess conditions for sustainability. Pending evidence of sustainability, such efforts should be widely replicated.

For maximum success, sub-project activities should include a strong extension component. Training of extension workers should include social issues, and their scope of work should incorporate approaches to community participation. Involvement of women in extension activities will bring long-term benefits, since they are in a position to publicize and demonstrate the effectiveness of tree planting and its long-term value to the community.

Each sub-project will incorporate baseline assessments to be performed as part of the sub-project. Such assessments will include current practices of fuel gathering and use, attitudes about forest resources, current practices of land tenure and use, the household economy as it affects potential recommendations for site-specific approaches to participant involvement, selection of management approach and allocation of benefits. In addition, forest resources will be assessed, along with the completion of the national natural resource survey and mapping.

Thus, the project will support studies which will be directly useful to project implementation, monitoring and evaluation and whose results will be able to inform national forestry sector planning. The forestry sector study will strengthen Somali institutional capacities for fuel and energy research.

In the long run, each well-documented sub-project activity will test potentially replicable models for plantation management including both community management of fuelwood plantations (among the Somali population) and private fuelwood production. Since wood production is a major income-generating activity in rural areas, private production may be feasible after effective and economically viable management schemes are demonstrated.

Social impact and benefit incidence of forestry activities for refugee participants include in the short-term, (1) the generation of employment opportunities, especially for individuals most in need of them; (2) training in the care and maintenance of wood resources, information which is transportable and of potential long-term benefit to the environment; (3) household and farm planting which provide shade and comfort and improve farm yields. Training support will benefit refugee counterparts and government institutions.

Reduced wood consumption implying savings in labor and cash should result if energy-saving technologies are effectively diffused, and spread effects will be substantial.

Long-term benefits of forestry activities will be (1) increased availability of additional sources of fuelwood, which, if they are more easily available, may ease women's work burden; (2) reduced wood consumption and cost of gathering; (3) reduced land deterioration on managed plots. A major benefit will be to strengthen the national capacity to plan and manage a forestry program.

ANNEX VI

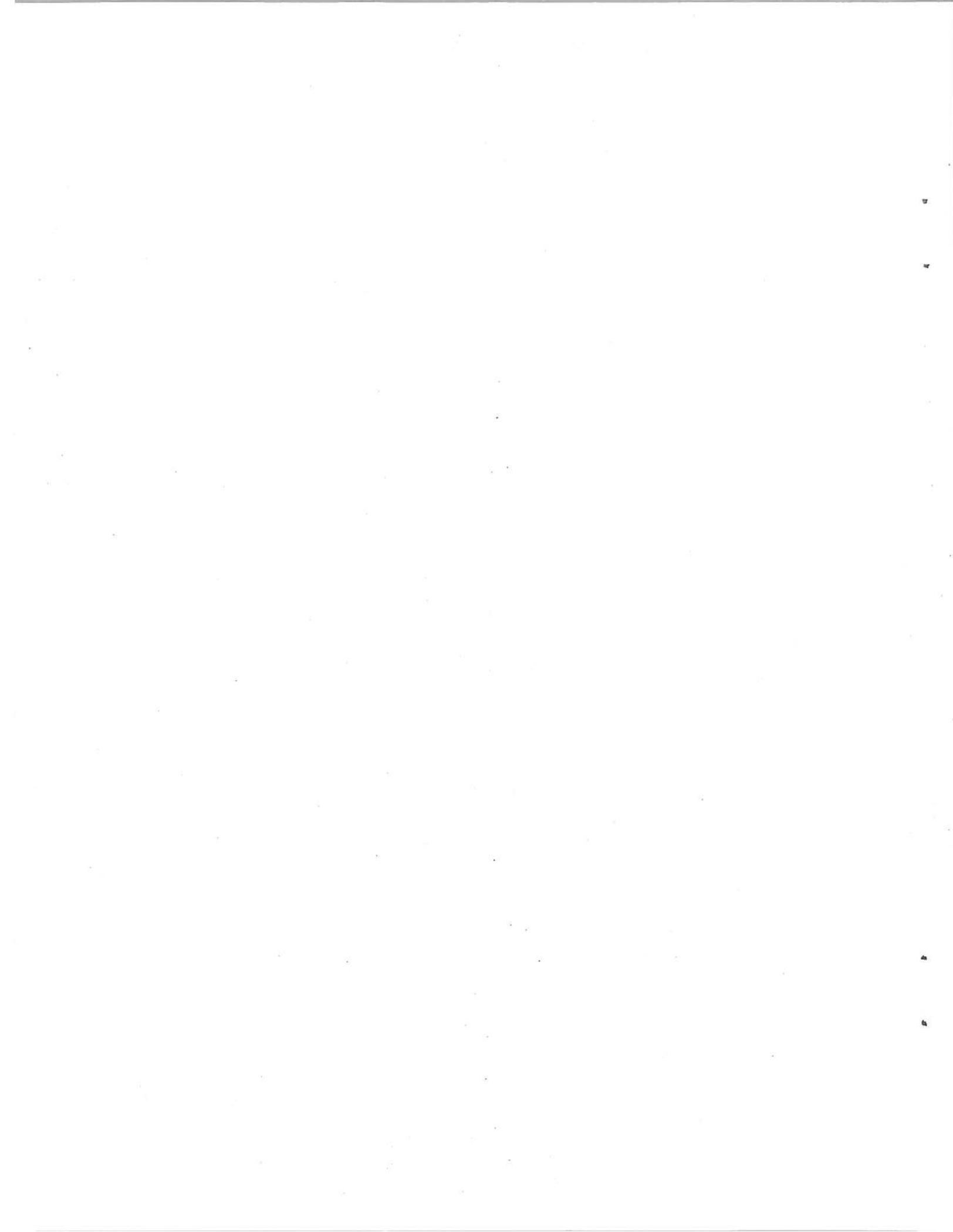
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ANNEX VII

Guidelines for Social Analysis
in Sub-Project Submissions



In general, social analysis can be a component of project development, implementation, evaluation and monitoring, and its ultimate purpose is to enhance the appropriateness, feasibility, effectiveness and impact of development activities.

Social analysis is not synonymous with "study" or "research", although it depends on study results and usually involves the collection of new information. Usually, some kind of project-specific data collection is required, especially in the design and early implementation phases. This is even more the case here, because the social life in the refugee camps is a recently-established mix of what people have brought with them and what they have created in place. What kind of study is required to inform social analysis, and its scope of work, will depend on what the particular agency already knows about the project site and proposed beneficiaries, what has already been written on these topics, and whether the activities to be undertaken are new and involve significant changes in attitudes or behavior, or the adoption of new technology. (The social analysis for a project to extend a proven pilot effort would require less new information than, for example, a project to establish a community-managed fuelwood plantation). Above all, social analysis must be focused and project-specific and the social information (e.g., who are the indigenous leaders in a community and what are the decisions they make) must be linked to project activities (e.g., recommendations of feasible ways for leaders to be involved in project decisions). Specialized skills (an anthropologist, agricultural economist, etc.) may be required, but the analyses should be performed by someone who has the ability to relate social information to problems and solutions. Sometimes the field staff of an implementing agency will have both the technical expertise and the requisite development experience.

Guidelines

1. Beneficiaries. Projects must offer broad opportunities for refugee and nearby indigenous population to benefit. Criteria for selection of who participates and who benefits (refugees and non-refugees, different groups within the camps, women and men) should be carefully examined and discussed. Sub-project proposals should elaborate on specific criteria and procedures to be used in each case for selection of participants and beneficiaries.
2. Participation. Development experience has shown that project success often depends on local participation in project-related decisions. Sub-projects must provide a means for refugees and host groups to take an active part in decision-making concerning activities in which they will be involved or which will affect them. The interests and needs of those to be involved in the sub-project must be solicited during the course of project design and collaboration should continue through project implementation. It is important that the local social infrastructure -- organizations and decision making, formal and informal -- be understood. Relevant social infrastructure includes both camp officials and local

leaders, formal and informal women's organizations, elders and other traditional leaders (who can call groups together or influence local participation) and any community organizations which manage access to resources or provide labor. This implies a familiarity with the local scene which is general in project design stages but which becomes more specific in implementation, since these are the social "structures" with which project staff will be working.

3. Baseline Data Collection and Evaluation. In order to enhance the feasibility and impact of sub-project activities, baseline data collection, monitoring and evaluation of sub-projects must include a way to assess beneficiary participation in project activities, a plan to resolve any implementation problems that result from social issues, and evaluation of the sub-project's social impact. Data on beneficiaries and benefits should refer to subgroups of refugees and non-refugees (where applicable), to categories of households (women-headed, male-headed, other) and to men and women. The terms "family" or "household" should be clearly defined, such as a household with both parents or a single-headed (male or female) household, and should be used consistently. Data should be disaggregated by sex and household type in analyses, baseline data collection, monitoring and evaluation.

Proposal Requirements

Social analyses in sub-project proposals should address the following topics:

1. The social and economic factors that demonstrate a need for the project;
2. The local decision making structure;
3. Description of beneficiaries and rationale for the assumption that they will be likely to respond to project opportunities;
4. Ways local participation will be included in project implementation;
5. How the project will lead to benefits; and
6. The long term impact of the project.

For the most part, these are general guidelines, not rigid instructions. Each voluntary agency should take the initiative to organize their analysis in a way suitable to their sub-project, appropriate to the local setting, and relevant to readily available information.

Proposals should also discuss the types of information which will be gathered during implementation, including a plan for baseline data collection, monitoring and evaluation. (See discussion pp. 5-6, below.)

1. Social and Economic Context. It is important to focus on significant features of the social, economic and political "landscape" which relate to and demonstrate the need for the proposed project. In general, what are the current status, economic, skills and interests of potential refugee participants; their aspirations and expressed needs; the skills they desire and why; their experience and interest in agricultural activities.

It would be useful to provide a brief history of the refugee camps to be involved and a general description of camp residents, subgroups of refugees, and categories of households and individuals. Does refugee population fluctuate very much? What might be the relationship of family members present to other family members?

Describe agricultural and other productive or entrepreneurial activities now undertaken by camp residents, describe their experience and interest in these activities, and constraints experienced by them to expanding their productive activities. Discuss differences in productive activities undertaken by men and women or by men or women-headed households, and comment on constraints experienced by each group.

With reference to forestry and fuelwood activities, it would be useful to show needs for fuelwood, the time or cost involved in obtaining it and how it is obtained. What is the demand in the project area for fuelwood? Briefly describe local marketing of fuelwood. Refer to any forestry or tree planting activities now underway and refugee participation in them.

2. Local Decision Making Structure. Who are the leaders, both formal and informal, with whom your agency staff will work? In what ways will the project involve local leaders in the selection of participants and beneficiaries?

What roles do official camp leaders play, and what are the roles of traditional leaders vis a vis development activities? What community organizations or committees (e.g. women's organizations) exist which are relevant to the project? Are any traditional types of organization for the sharing or work now operative? How would they be incorporated into the project? Within potential project sites, what is the land tenure and land use (both within the camps and nearby) as these affect allocation of resources for agricultural or forestry activities and potential for participation? What potential is there for community involvement in forestry activities?

It would be useful to mention agricultural or forestry programs already underway in the camps or nearby, and any refugee food-for-work opportunities, and to discuss institutions and officials involved in them. How have refugees been organized to date for participation in such activities? How has this worked?

What are official and informal links between the camp and local communities? What economic and social ties connect the camp residents to nearby residents? How are resources shared? What kinds of competition for resources are there? How are decisions made regarding the allocation of land, water or other resources between the two? How does this relate to the Project?

In nearby communities, who are the leaders and what is the administrative structure? What are the current or potential links between nearby leaders and your project staff?

3. Project Beneficiaries. The analysis should define the direct and indirect beneficiaries of project activities. Roughly how many people will benefit and who are they? In what particular ways will members of the local Somali (indigenous) population benefit?

Are there particular constraints, such as alternate demands on time, which might affect the likelihood that people in different sub-groups will participate in project activities? Are there any minimum requirements (e.g. skills) for a person to benefit from the project? Are some groups more likely to have the opportunity to participate than others?

What will be the opportunities for women-headed households, and for women generally, to participate in self-reliance or forestry activities, including food-for-work? What particular steps will be needed and undertaken to ensure opportunities for their participation?

Are any groups (e.g. local Somalis currently using land or water resources) likely to be adversely affected by project activities? If so, discuss any mitigating or compensatory actions planned.

Why is it reasonable to assume that intended beneficiaries and participants will indeed invest their resources (especially time and labor) in project activities? Are project benefits seen as worth the commitment required to obtain them? For example, is land plot size adequate to ensure participation? Are payments sufficient to lead to participation in food-for-work opportunities? Will constraints to women's participation in food-for-work be removed, e.g. will work be scheduled flexibly?

4. Local Participation in Project Development and Implementation. Review your collaboration with relevant officials and proposed beneficiaries or their representatives as the project has been designed. What are the opportunities for continued collaboration as the project is implemented? How will local groups, institutions, community leaders and so forth help guide implementation of the project? (You may want to refer again to selection of participants and criteria for their selection.) What evidence is there that the concept and goals of the project have been understood and accepted by those who will participate? What are the channels for popular participation in decision making regarding access to land and resources and regarding choice and identification of project activities? What evidence is there that the groups and institutions to be involved are capable of undertaking the project?

Are there particular steps which should be taken to enhance participation in and support of project activities by parties involved?

5. How Project Resources Will Lead to Benefits. Describe the planned benefits from the project (e.g. food produced, income generated, energy saved) and how, when and to whom these benefits are intended to flow, directly and indirectly (e.g. who benefits from the food produced or sold? What are the benefits from forestry activities -- food-for-work jobs now? household plantings? fuelwood later on?).
6. Impact. What is the probability that project activities can be expected to continue beyond the life of the project? How will refugees and host population and Somali institutions benefit from project activities over the long term? What is the likelihood that benefits from proposed activities (e.g. new information, skills, forestry practices) might spread or that the projects themselves might serve as models for other projects? Are there ways in which new capacities gained by local institutions will lead to long term benefits?

A Note on Baseline Data Collection and Monitoring

As the project is implemented, the use of social analysis can provide more specific information on social issues addressed during project design, especially those which affect project feasibility. Social data are important for baseline assessments, monitoring and evaluation, so that implementation problems may better be addressed and the project's overall effectiveness and social impact assessed.

Baseline assessment should broaden the understanding that project staff have of the particular project setting, in order to tackle such issues as: methods of participant selection; channels for collaboration and participation; women's access to project opportunities; involvement of host (Somali) population and judicious incorporation of their interests. Baseline information can provide background for the development of appropriate extension programs and training. What project staff should know more about at this point includes aspects of family life, different roles of men and women, current land use by refugees, and an identification of leaders and their input into community affairs.

The length of time to be spent in baseline analysis, its timing relevant to other project activities, and whether or not it will require specialized expertise will vary depending on type of project, the experience of the implementing agency at the project site, the expertise of project staff and the level of existing analytical data of this type. In some cases, quite specialized information will be required, as in the case of a cottage industry program, where the economic viability of productive options (extent of market demand, cost of production) needs to be assessed. Some topics are especially relevant to food-for-work and forestry activities. For food-for-work, the conditions under which labor will be available, and the impact of different wage structures on the community, and ways to involve women in food-for-work opportunities, may be important. In forestry, the design of extension programs, selection of land units, and decisions about allocation of end products are all informed by social analysis.

ANNEX VIII

ECONOMIC ANALYSES DETAILED YEAR BY YEAR TABLES

Content:

- A. Tables supporting economic analysis prepared for the PID.
- B. Tables supporting the economic analyses prepared for the P.P.
- C. Excerpt from a report by K. Openshaw (1982) discussing Kerosene imports as an alternative to fuelwood production.

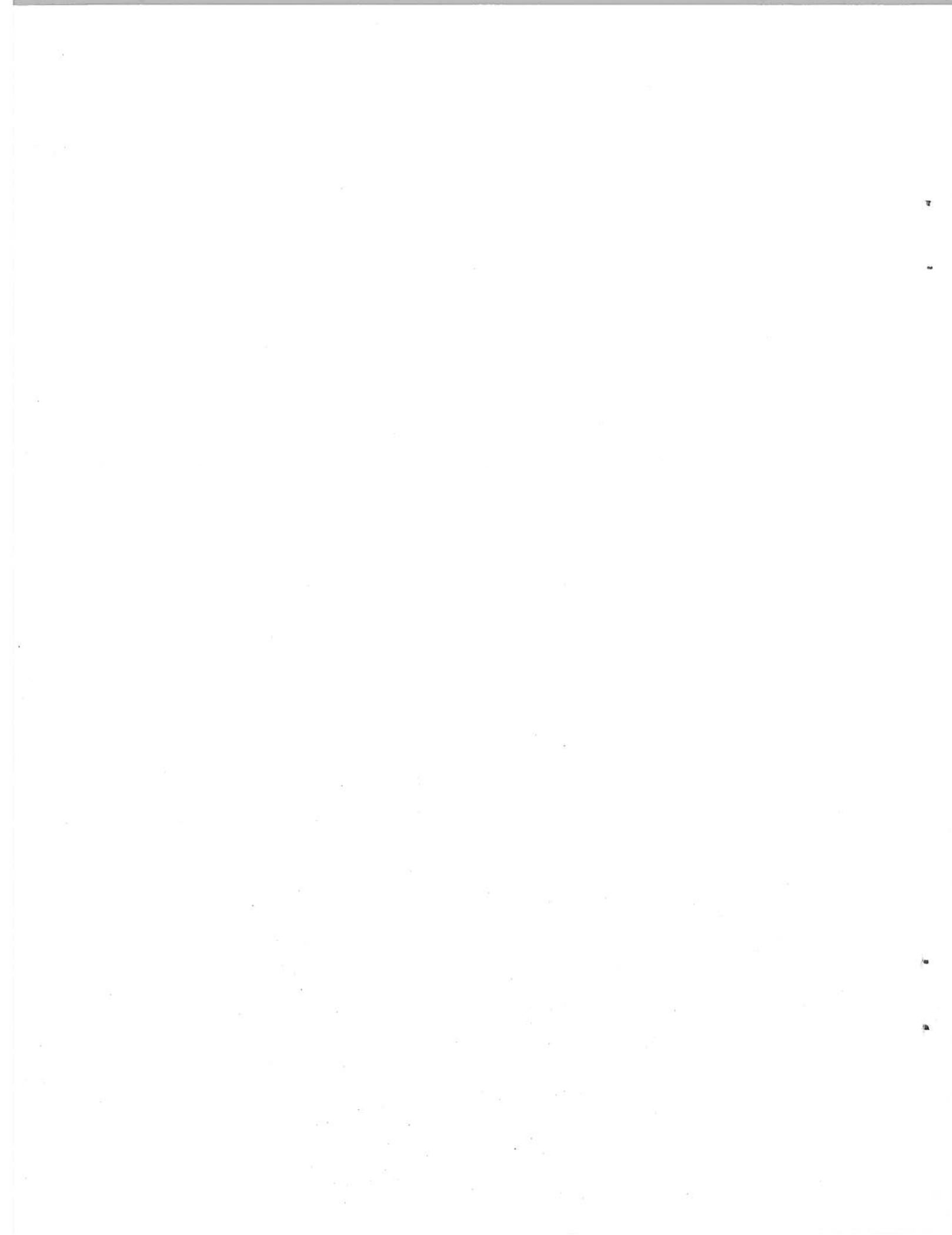


TABLE I
OPTION # 1
ECONOMIC ANALYSIS

Direct Economic Cost	Value of Foregone Output	Total Economic Cost	Total Economic Benefit High Output	Total Economic Benefit Low Output	Net Economic Benefit High Output	Net Economic Benefit Low Output	Total Economic Benefit High Output Low Price	Total Economic Benefit Low Output Low Price	Net Economic Benefit High Output Low Price	Net Economic Benefit Low Output Low Price
922,994	12,500	935,494	--	--	-935,494	-935,494	--	--	-935,494	-935,494
457,492	24,999	482,491	--	--	-482,491	-482,491	--	--	-482,491	-482,491
458,026	37,499	495,525	--	--	-495,525	-495,525	--	--	-495,525	-495,525
262,027	49,998	312,025	1,998,000	1,332,000	1,685,975	1,019,975	899,100	599,400	587,075	287,375
262,027	62,498	324,525	1,998,000	1,332,000	1,673,475	1,007,475	899,100	599,400	574,575	274,875
18,249	62,498	80,747	2,997,000	1,998,000	2,916,253	1,917,253	1,348,650	899,100	1,267,903	818,353
--	62,498	62,498	2,997,000	1,998,000	2,934,502	1,935,502	1,348,650	899,100	1,286,152	836,602
--	62,498	62,498	3,996,000	2,664,000	3,933,502	2,601,502	1,748,200	1,198,800	1,735,702	1,136,302
--	49,998	49,998	1,998,000	1,332,000	1,948,002	1,282,002	899,100	599,400	849,102	549,402
--	37,499	37,499	1,998,000	1,332,000	1,960,501	1,294,501	899,100	599,400	861,601	561,901
--	24,999	24,999	999,000	666,000	974,001	641,001	449,550	299,700	424,551	274,701
--	12,500	12,500	999,000	666,000	986,500	653,500	449,550	299,700	437,050	287,200
					IRR = 58.00%	IRR = 42.80%			IRR = 29.90%	IRR = 18.16%

TABLE II
OPTION # 1 - FINANCIAL ANALYSIS

Year	Direct Financial Cost	Value of Foregone Output	Total Financial Cost	Total Financial Benefit High Output	Total Financial Benefit Low Output	Net Financial Benefit High Output	Net Financial Benefit Low Output	Total Financial Benefit High Output Low Price	Total Financial Benefit Low Output Low Price	Net Financial Benefit High Output Low Price	Net Financial Benefit Low Output Low Price
1	1,118,533	--	1,118,533	--	--	-1,118,533	-1,118,533	--	--	-1,118,533	-1,118,533
2	581,088	--	581,088	--	--	- 581,088	- 581,088	--	--	- 581,088	- 581,088
3	581,088	--	581,088	--	--	- 581,088	- 581,088	--	--	- 581,088	- 581,088
4	392,888	--	392,888	2,988,000	1,992,000	2,595,112	1,599,112	1,344,600	896,400	951,712	503,512
5	392,888	--	392,888	2,988,000	1,992,000	2,595,112	1,599,112	1,344,600	896,400	951,712	503,512
6	27,375	--	27,375	4,482,000	2,988,000	4,454,625	2,960,625	2,016,900	1,344,600	1,989,525	1,317,225
	--	--	--	4,482,000	2,988,000	4,482,000	2,988,000	2,016,900	1,344,600	2,016,900	1,344,600
8	--	--	--	5,976,000	3,984,000	5,976,000	3,984,000	2,689,200	1,792,800	2,689,200	1,792,800
9	--	--	--	2,988,000	1,992,000	2,988,000	1,992,000	1,344,600	896,400	1,344,600	896,400
10	--	--	--	2,988,000	1,992,000	2,988,000	1,992,000	1,344,600	896,400	1,344,600	896,400
11	--	--	--	1,494,000	996,000	1,494,000	996,000	672,300	448,200	672,300	448,200
12	--	--	--	1,494,000	996,000	1,494,000	996,000	672,300	448,200	672,300	448,200

IRR = 67.56%

IRR = 51.29%

IRR = 37.60%

IRR = 25.31%

TABLE III
OPTION #2
ECONOMIC ANALYSIS

Direct Economic Cost	Value of Foregone Output	Total Economic Cost	Total Economic Benefit High Output	Total Economic Benefit Low Output	Net Economic Benefit High Output	Net Economic Benefit Low Output	Total Economic Benefit High Output Low Price	Total Economic Benefit Low Output Low Price	Net Economic Benefit High Output Low Price	Net Economic Benefit Low Output Low Price
1,061,444	28,124	1,089,568	--	--	-1,089,568	-1,089,568	--	--	-1,089,568	-1,089,568
526,116	56,248	582,364	--	--	- 582,364	- 582,364	--	--	- 582,364	- 582,364
526,730	84,372	611,102	--	--	- 611,102	- 611,102	--	--	- 611,102	- 611,102
301,331	112,496	413,827	--	--	- 413,827	- 413,827	--	--	- 413,827	- 413,827
71,331	140,619	441,950	2,247,750	1,498,500	1,805,800	1,056,550	1,011,488	674,325	569,538	232,375
20,985	140,619	161,604	2,247,750	1,498,500	2,036,110	1,336,896	1,011,488	674,325	849,884	512,721
--	140,619	140,619	2,247,750	1,498,500	2,107,131	1,357,881	1,011,488	674,325	870,869	533,706
--	140,619	140,619	2,247,750	1,498,500	2,107,131	1,357,881	1,011,488	674,325	870,869	533,706
--	140,619	140,619	4,045,950	2,697,300	3,905,331	2,556,981	1,820,678	1,213,785	1,680,059	1,073,166
--	140,619	140,619	1,798,200	1,198,800	1,657,581	1,058,181	809,190	539,460	668,571	398,841
--	140,619	140,619	1,798,200	1,198,800	1,657,581	1,058,181	809,190	539,460	668,571	398,841
--	140,619	140,619	1,798,200	1,198,800	1,657,581	1,058,181	809,190	539,460	668,571	398,841
--	140,619	140,619	3,596,400	2,397,600	3,455,781	2,256,981	1,618,380	1,078,920	1,477,761	938,301
--	112,496	112,496	1,798,200	1,198,800	1,685,704	1,086,304	809,190	539,460	696,694	426,964
--	84,372	84,372	1,798,200	1,198,800	1,713,828	1,114,428	809,190	539,460	724,818	455,088
--	56,248	56,248	1,798,200	1,198,800	1,741,952	1,142,552	809,190	539,460	752,942	483,212
--	28,124	28,124	1,798,200	1,198,800	1,770,076	1,170,676	809,190	539,460	781,066	511,336
					IRR = 39.11%	IRR = 28.88%			IRR = 20.07%	IRR = 11.90%

TABLE IV
OPTION #2 - FINANCIAL ANALYSIS

Year	Direct Financial Cost	Value of Foregone Output	Total Financial Cost	Total Financial Benefit High Output	Total Financial Benefit Low Output	Net Financial Benefit High Output	Net Financial Benefit Low Output	Total Financial Benefit High Output Low Price	Total Financial Benefit Low Output Low Price	Net Financial Benefit High Output Low Price	Net Financial Benefit Low Output Low Price
1	1,286,312	--	1,286,312	--	--	-1,286,312	-1,286,312	--	--	-1,286,312	-1,286,312
2	668,251	--	668,251	--	--	- 668,251	- 668,251	--	--	- 668,251	- 668,251
3	669,172	--	669,172	--	--	- 669,172	- 669,172	--	--	- 669,172	- 669,172
4	451,822	--	451,822	--	--	- 451,822	- 451,822	--	--	- 451,822	- 451,822
5	451,822	--	451,822	3,361,500	2,241,000	2,909,678	1,789,178	1,512,675	1,008,450	1,060,853	556,628
6	31,482	--	31,482	3,361,500	2,241,000	3,330,018	2,209,518	1,512,675	1,008,450	1,481,193	976,968
7	--	--	--	3,361,500	2,241,000	3,361,500	2,241,000	1,512,675	1,008,450	1,512,675	1,008,450
8	--	--	--	3,361,500	2,241,000	3,361,500	2,241,000	1,512,675	1,008,450	1,512,675	1,008,450
9	--	--	--	6,050,700	4,033,800	6,050,700	4,033,800	2,722,815	1,815,210	2,722,815	1,815,210
10	--	--	--	2,689,200	1,792,800	2,689,200	1,792,800	1,210,140	806,760	1,210,140	806,760
11	--	--	--	2,689,200	1,792,800	2,689,200	1,792,800	1,210,140	806,760	1,210,140	806,760
12	--	--	--	2,689,200	1,792,800	2,689,200	1,792,800	1,210,140	806,760	1,210,140	806,760
13	--	--	--	5,378,400	3,585,600	5,378,400	3,585,600	2,420,280	1,613,520	2,420,280	1,613,520
14	--	--	--	2,689,200	1,792,800	2,689,200	1,792,800	1,210,140	806,760	1,210,140	806,760
15	--	--	--	2,689,200	1,792,800	2,689,200	1,792,800	1,210,140	806,760	1,210,140	806,760
16	--	--	--	2,689,200	1,792,800	2,689,200	1,792,800	1,210,140	806,760	1,210,140	806,760
17	--	--	--	2,689,200	1,792,800	2,689,200	1,792,800	1,210,140	806,760	1,210,140	806,760

IRR = 47.36%

IRR = 36.70%

IRR = 27.70%

IRR = 19.62%

TABLE V
OPTION # 3
ECONOMIC ANALYSIS

Direct Economic Cost	Value of Foregone Output	Total Economic Cost	Total Economic Benefit High Output	Total Economic Benefit Low Output	Net Economic Benefit High Output	Net Economic Benefit Low Output	Total Economic Benefit High Output Low Price	Total Economic Benefit Low Output Low Price	Net Economic Benefit High Output Low Price	Net Economic Benefit Low Output Low Price
1,153,744	--	1,153,744	--	--	-1,153,744	-1,153,744	--	--	-1,153,744	-1,153,744
571,866	--	571,866	--	--	- 571,866	- 571,866	--	--	- 571,866	- 571,866
572,532	--	572,532	--	--	- 572,532	- 572,532	--	--	- 572,532	- 572,532
327,534	--	327,534	--	--	- 327,534	- 327,534	--	--	- 327,534	- 327,534
27,534	--	327,534	--	--	- 327,534	- 327,534	--	--	- 327,534	- 327,534
22,812	--	22,812	2,797,200	1,748,250	2,774,388	1,725,438	1,258,740	786,713	1,235,928	763,901
:	--	--	2,797,200	1,748,250	2,797,200	1,748,250	1,258,740	786,713	1,258,740	786,713
:	--	--	2,797,200	1,748,250	2,797,200	1,748,250	1,258,740	786,713	1,258,740	786,713
:	--	--	2,797,200	1,748,250	2,797,200	1,748,250	1,258,740	786,713	1,258,740	786,713
:	--	--	4,662,000	2,913,750	4,662,000	2,913,750	2,097,900	1,311,188	2,097,900	1,311,188
:	--	--	1,864,800	1,165,500	1,864,800	1,165,500	839,160	524,475	839,160	524,475
:	--	--	1,864,800	1,165,500	1,864,800	1,165,500	839,160	524,475	839,160	524,475
:	--	--	1,864,800	1,165,500	1,864,800	1,165,500	839,160	524,475	839,160	524,475
:	--	--	3,729,600	2,331,000	3,729,600	2,331,000	1,678,320	1,048,950	1,678,320	1,048,950
:	--	--	1,864,800	1,165,500	1,864,800	1,165,500	839,160	524,475	839,160	524,475
:	--	--	1,864,800	1,165,500	1,864,800	1,165,500	839,160	524,475	839,160	524,475
:	--	--	1,864,800	1,165,500	1,864,800	1,165,500	839,160	524,475	839,160	524,475
:	--	--	1,864,800	1,165,500	1,864,800	1,165,500	839,160	524,475	839,160	524,475

IRR = 37.13%

IRR = 27.80%

IRR = 21.96%

IRR = 14.47%

TABLE VI
OPTION # 3 - FINANCIAL ANALYSIS

Year	Direct Financial Cost	Value of Foregone Output	Total Financial Cost	Total Financial Benefit High Output	Total Financial Benefit Low Output	Net Financial Benefit High Output	Net Financial Benefit Low Output	Total Financial Benefit High Output Low Price	Total Financial Benefit Low Output Low Price	Net Financial Benefit High Output Low Price	Net Financial Benefit Low Output Low Price
1	1,398,167	--	1,398,167	--	--	-1,398,167	-1,398,167	--	--	-1,398,167	-1,398,167
2	726,360	--	726,360	--	--	- 726,360	- 726,360	--	--	- 726,360	- 726,360
3	727,361	--	727,361	--	--	- 727,361	- 727,361	--	--	- 727,361	- 727,361
4	491,111	--	491,111	--	--	- 491,111	- 491,111	--	--	- 491,111	- 491,111
5	491,111	--	491,111	--	--	- 491,111	- 491,111	--	--	- 491,111	- 491,111
6	34,218	--	34,218	4,183,200	2,614,500	4,148,982	2,580,282	1,882,440	1,176,525	1,848,222	1,142,307
	--	--	--	4,183,200	2,614,500	4,183,200	2,614,500	1,882,440	1,176,525	1,882,440	1,176,525
8	--	--	--	4,183,200	2,614,500	4,183,200	2,614,500	1,882,440	1,176,525	1,882,440	1,176,525
9	--	--	--	4,183,200	2,614,500	4,183,200	2,614,500	1,882,440	1,176,525	1,882,440	1,176,525
10	--	--	--	6,972,000	4,357,500	6,972,000	4,357,500	3,137,400	1,960,875	3,137,400	1,960,875
11	--	--	--	2,788,800	1,743,000	2,788,800	1,743,000	1,254,960	784,350	1,254,960	784,350
12	--	--	--	2,788,800	1,743,000	2,788,800	1,743,000	1,254,960	784,350	1,254,960	784,350
13	--	--	--	2,788,800	1,743,000	2,788,800	1,743,000	1,254,960	784,350	1,254,960	784,350
14	--	--	--	5,577,600	3,486,000	5,577,600	3,486,000	2,509,920	1,568,700	2,509,920	1,568,700
15	--	--	--	2,788,800	1,743,000	2,788,800	1,743,000	1,254,960	784,350	1,254,960	784,350
16	--	--	--	2,788,800	1,743,000	2,788,800	1,743,000	1,254,960	784,350	1,254,960	784,350
17	--	--	--	2,788,800	1,743,000	2,788,800	1,743,000	1,254,960	784,350	1,254,960	784,350
18	--	--	--	2,788,800	1,743,000	2,788,800	1,743,000	1,254,960	784,350	1,254,960	784,350

IRR = 40.84% IRR = 30.96%

IRR = 24.77% IRR = 16.25%

TABLE VIII
OPTION # 4 - FINANCIAL ANALYSIS

Year	Direct Financial Cost	Value of Foregone Output	Total Financial Cost	Total Financial Benefit High Output	Total Financial Benefit Low Output	Net Financial Benefit High Output	Net Financial Benefit Low Output	Total Financial Benefit High Output Low Price	Total Financial Benefit Low Output Low Price	Net Financial Benefit High Output Low Price	Net Financial Benefit Low Output Low Price
1	1,510,020	--	1,510,020	--	--	-1,510,020	-1,510,020	--	--	-1,510,020	-1,510,020
2	784,468	--	784,468	--	--	- 784,468	- 784,468	--	--	- 784,468	- 784,468
3	785,549	--	785,549	--	--	- 785,549	- 785,549	--	--	- 785,549	- 785,549
4	530,399	--	530,399	--	--	- 530,399	- 530,399	--	--	- 530,399	- 530,399
5	530,399	--	530,399	--	--	- 530,399	- 530,399	--	--	- 530,399	- 530,399
6	36,957	--	36,957	--	--	- 36,957	- 36,957	--	--	- 36,957	- 36,957
7	--	--	--	3,144,372	2,095,500	3,144,372	2,095,500	1,414,967	942,975	1,414,967	942,975
8	--	--	--	3,144,372	2,095,500	3,144,372	2,095,500	1,414,967	942,975	1,414,967	942,975
9	--	--	--	3,144,372	2,095,500	3,144,372	2,095,500	1,414,967	942,975	1,414,967	942,975
10	--	--	--	3,144,372	2,095,500	3,144,372	2,095,500	1,414,967	942,975	1,414,967	942,975
11	--	--	--	3,144,372	2,095,500	3,144,372	2,095,500	1,414,967	942,975	1,414,967	942,975
12	--	--	--	2,245,980	1,498,068	2,245,980	1,498,068	1,010,691	674,131	1,010,691	674,131
13	--	--	--	2,245,980	1,498,068	2,245,980	1,498,068	1,010,691	674,131	1,010,691	674,131
14	--	--	--	2,245,980	1,498,068	2,245,980	1,498,068	1,010,691	674,131	1,010,691	674,131
15	--	--	--	2,245,980	1,498,068	2,245,980	1,498,068	1,010,691	674,131	1,010,691	674,131
16	--	--	--	2,245,980	1,498,068	2,245,980	1,498,068	1,010,691	674,131	1,010,691	674,131
17	--	--	--	2,245,980	1,498,068	2,245,980	1,498,068	1,010,691	674,131	1,010,691	674,131
18	--	--	--	2,245,980	1,498,068	2,245,980	1,498,068	1,010,691	674,131	1,010,691	674,131
19	--	--	--	2,245,980	1,498,068	2,245,980	1,498,068	1,010,691	674,131	1,010,691	674,131
20	--	--	--	2,245,980	1,498,068	2,245,980	1,498,068	1,010,691	674,131	1,010,691	674,131
21	--	--	--	2,245,980	1,498,068	2,245,980	1,498,068	1,010,691	674,131	1,010,691	674,131

IRR = 27.32% IRR = 21.05%

IRR = 15.58% IRR = 10.51%

A. Tables supporting economic analysis prepared for the PID

B. Tables supporting the economic analyses prepared for the P.P.

OPTION ONE

SIZE	GROWTH FACTORS	SENSITIVITY
NURSERY CAPABLE OF PRODUCING 87,500 SEEDLINGS/YEAR, PLANTING TARGET OF 25 HA. OF INTENSIVE WOODLOT/YEAR OVER THREE YEARS: USING LEUCAENA LEUCOCOPHA AT STOCKING DENSITY OF 2500 TREES/HA. (2mX 2m) ON IRRIGATED SITE.	MEAN ANNUAL INCREMENT (MAI): 31m ³ /HA./YR. COPPICE: 4 YEARS ROTATION: 20 YEARS EST. FODDER/FORAGE PRODUCTION: 8T/HA./YR. TOTAL HA PLANTED: 75HA.	MAI: 30-40m ³ /HA/YR. COPPICE: 3-6 YRS. ROTATION: 15-30 YRS.

YEAR	DIRECT ECONOMIC COSTS		VALUE OF FOREGONE OUTPUT	TOTAL COSTS	TOTAL YIELD (m ³)	BENEFITS		NET
	NURSERY	PLANTATION				FUELWOOD \$107/m ³	FORAGE \$20/T	
1	130,308	169,732	4,175	604,255				-604,255
2	13,178	117,218	8,350	269,142				-269,142
3	18,355	136,003	12,525	321,241				-321,241
4		63,541	12,525	75,866	3,500	374,500	4,000	312,634
5		58,000	12,525	70,525	3,500	374,500	8,000	321,975
6		55,500	12,525	68,025	3,500	374,500	12,000	328,475
7		10,000	12,525	22,525			12,000	- 525
8		55,500	12,525	68,025	3,500	374,500	12,000	328,475
9		55,500	12,525	68,025	3,500	374,500	12,000	328,475
10		55,500	12,525	68,025	3,500	374,500	12,000	328,475
11		10,000	12,525	22,525			12,000	- 525
12		49,000	12,525	61,525	3,000	321,000	12,000	281,475
13		49,000	12,525	61,525	3,000	321,000	12,000	281,475
14		49,000	12,525	61,525	3,000	321,000	12,000	281,475
15		10,000	12,525	22,525			12,000	- 525
16		49,000	12,525	61,525	3,000	321,000	12,000	281,475
17		49,000	12,525	61,525	3,000	321,000	12,000	281,475
18		49,000	12,525	61,525	3,000	321,000	12,000	281,475
19		10,000		10,000			12,000	12,000
20		42,500	12,525	55,025	2,500	267,500	12,000	234,475
21		42,500	8,350	50,850	2,500	267,500	8,000	234,650
22		42,500	4,175	46,675	2,500	267,500	4,000	234,825

IRR = 15.65

OPTION TWO

VIII-B-2

SIZE	GROWTH FACTORS	SENSITIVITY
NURSERY CAPABLE OF PRODUCING 87,500 SEEDLINGS/YEAR: PLANTING TARGET OF 25 HA OF INTENSIVE WOODLOT/YEAR OVER THREE YEARS: USING LEUCAENA LEUCOCEPH ALA AT STOCKING DENSITY OF 2500 TREES/HA (2m X 2m) ON CLASS I OR II SITE (NON-IRRIGATED)	MEAN ANNUAL INCREMENT: 16.4m ³ /HA/YR. COPPICE: 5 YEARS ROTATION: 25 YEARS EST. FODDER/FORAGE PRODUCTION: 6T/HA TOTAL HA PLANTED: 75HA	MAI: 15-20m ³ /HA/YR. COPPICE: 4-6 YEARS ROTATION: 20-30 YRS.

YEAR	DIRECT ECONOMIC COSTS		VALUE OF FOREGONE OUTPUT	TOTAL COSTS	TOTAL YIELD (m ³)	BENEFITS		NET
	NURSERY	PLANTATION				FUELWOOD \$107/m ³	FORAGE \$20/T	
1	130,308	169,732	2,083	603,163				-603,163
2	13,178	117,218	4,166	264,931				-264,931
3	<u>18,355</u>	136,003	6,249	314,965				-314,965
4		18,041	6,249	24,290				-11,290
5		41,750	6,249	47,999	2,250	240,750	3,000	208,751
6		39,250	6,249	45,499	2,250	240,750	6,000	214,251
7		39,250	6,249	45,499	2,250	240,750	9,000	214,251
8		10,000	6,249	16,249			9,000	2,751
9		10,000	6,249	16,249			9,000	2,751
10		39,250	6,249	45,499	2,250	240,750	9,000	214,251
11		39,250	6,249	45,499	2,250	240,750	9,000	214,251
12		39,250	6,249	45,499	2,250	240,750	9,000	214,251
13		10,000	6,249	16,249			9,000	2,751
14		10,000	6,249	16,249			9,000	2,751
15		36,000	6,249	42,249	2,000	214,000	9,000	190,751
16		36,000	6,249	42,249	2,000	214,000	9,000	190,751
17		36,000	6,249	42,249	2,000	214,000	9,000	190,751
18		10,000	6,249	16,249			9,000	2,751
19		10,000	6,249	16,249			9,000	2,751
20		36,000	6,249	42,249	2,000	214,000	9,000	190,751
21		36,000	6,249	42,249	2,000	214,000	9,000	190,751
22		36,000	6,249	42,249	2,000	214,000	9,000	190,751
23		10,000	6,249	16,249			9,000	2,751
24		10,000	6,249	16,249			9,000	2,751
25		32,750	6,249	38,999	1,750	187,250	9,000	167,251
26		32,750	4,166	36,916	1,750	187,250	6,000	166,334
27		32,750	2,083	34,833	1,750	187,250	3,000	165,417

IRR = 7.04

SIZE	GROWTH FACTORS	SENSITIVITY
NURSERY CAPABLE OF PRODUCING 87,500 SEEDLING/YEAR; PLANTING TARGET OF 56.25HA OF SEMI-INTENSIVE WOODLOT/YEAR OVER THREE YEARS USING LEUCAENA LEUCOCEPHALA AT STOCKING DENSITY OF 1111 TREES/HA (3m X 3m) ON CLASS III-IV SITE. (NON-IRRIGATED).	MEAN ANNUAL INCREMENT: 10m ³ /HA/YR. COPPICE: 6 YEARS ROTATION: 30 YEARS EST. FODDER/FORAGE PRODUCTION: 4T/HA/YR TOTAL HA PLANTED: 168HA	MAI: 9-12m ³ /HA/YR. COPPICE: 5-7 YRS. ROTATION: 25-35 YRS.

YEAR	DIRECT ECONOMIC COSTS		VALUE OF FOREGONE OUTPUT	TOTAL COSTS	TOTAL YIELD (m ³)	BENEFITS		NET
	NURSERY	PLANTATION				FUELWOOD \$107/m ³	FORAGE \$20/T	
1	118,719	208,448	NONE	327,167				-327,167
2	13,158	130,642		143,800				-143,800
3	18,141	145,009		163,150				-163,150
4		27,270		27,270			4,500	- 22,770
5		18,093		18,093			9,000	- 9,093
6		67,650		67,650	4,050	433,350	13,500	379,200
7		67,650		67,650	4,050	433,350	13,500	379,200
8		67,650		67,650	4,050	433,350	13,500	379,200
9		15,000		15,000			13,500	- 1,500
10		15,000		15,000			13,500	- 1,500
11		15,000		15,000			13,500	- 1,500
12		67,650		67,650	4,050	433,350	13,500	379,200
13		67,650		67,650	4,050	433,350	13,500	379,200
14		67,650		67,650	4,050	433,350	13,500	379,200
15		15,000		15,000			13,500	- 1,500
16		15,000		15,000			13,500	- 1,500
17		15,000		15,000			13,500	- 1,500
18		58,914		58,914	3,378	361,446	13,500	316,032
19		58,914		58,914	3,378	361,446	13,500	316,032
20		58,914		58,914	3,378	361,446	13,500	316,032
21		15,000		15,000			13,500	- 1,500
22		15,000		15,000			13,500	- 1,500
23		15,000		15,000			13,500	- 1,500
24		58,914		58,914	3,378	361,446	13,500	316,032
25		58,914		58,914	3,378	361,446	13,500	316,032
26		58,914		58,914	3,378	361,446	13,500	316,032
27		15,000		15,000			13,500	- 1,500
28		15,000		15,000			13,500	- 1,500
29		15,000		15,000			13,500	- 1,500
30		54,468		54,468	3,036	324,852	13,500	283,884
31		54,468		54,468	3,036	324,852	9,000	279,384
32		54,468		54,468	3,036	324,852	4,500	274,884

IRR = 19.65

OPTION FOUR

VIII-B-4

SIZE	GROWTH FACTORS	SENSITIVITY
NURSERY CAPABLE OF PRODUCING 87,500 SEEDLINGS/YEAR; PLANTING TARGET OF 100 HA OF SEMI-INTENSIVE WOODLOT/YEAR OVER THREE YEARS USING LEUCAENA LEUCOCEPHALA AT STOCKING DENSITY OF 625 TREES/HA (4m X 4m) ON CLASS V-VI SITES. (NON-IRRIGATED).	MEAN ANNUAL INCREMENT: 8.6m ³ /HA/YR. COPPICE: 6 YEARS ROTATION: 30 YEARS EST. FODDER/FORAGE PRODUCTION: 3T/HA/YR TOTAL HA PLANTED: 300 HA	MAI: 7 - 10m ³ /HA/YR. COPPICE: 5 - 7 YRS. ROTATION: 25 - 35 YRS.

YEAR	DIRECT ECONOMIC COSTS		VALUE OF FOREGONE OUTPUT	TOTAL COSTS	TOTAL YIELD (m ³)	BENEFITS		NET
	NURSERY	PLANTATION				FUELWOOD \$ 107/m ³	FORAGE \$20/T	
1	118,719	264,000	NONE	382,719				-382,719
2	13,158	139,166		152,324				-152,324
3	18,141	151,866		170,007				-170,007
4		38,500		38,500			6,000	- 32,500
5		23,166		23,166			12,000	- 11,166
6		98,000		98,000	6,000	642,000	18,000	562,000
7		98,000		98,000	6,000	642,000	18,000	562,000
8		98,000		98,000	6,000	642,000	18,000	562,000
9		20,000		20,000			18,000	- 2,000
10		20,000		20,000			18,000	- 2,000
11		20,000		20,000			18,000	- 2,000
12		98,000		98,000	6,000	642,000	18,000	562,000
13		98,000		98,000	6,000	642,000	18,000	562,000
14		98,000		98,000	6,000	642,000	18,000	562,000
15		20,000		20,000			18,000	- 2,000
16		20,000		20,000			18,000	- 2,000
17		20,000		20,000			18,000	- 2,000
18		90,200		90,200	5,400	577,800	18,000	505,600
19		90,200		90,200	5,400	577,800	18,000	505,600
20		90,200		90,200	5,400	577,800	18,000	505,600
21		20,000		20,000			18,000	- 2,000
22		20,000		20,000			18,000	- 2,000
23		20,000		20,000			18,000	- 2,000
24		90,200		90,200	5,400	577,800	18,000	505,600
25		90,200		90,200	5,400	577,800	18,000	505,600
26		90,200		90,200	5,400	577,800	18,000	505,600
27		20,000		20,000			18,000	- 2,000
28		20,000		20,000			18,000	- 2,000
29		20,000		20,000			18,000	- 2,000
30		82,400		82,400	4,800	513,600	18,000	449,200
31		82,400		82,400	4,800	513,600	12,000	443,200
32		82,400		82,400	4,800	513,600	6,000	437,200

IRR = 24.12

OPTION FIVE

SIZE

GROWTH FACTORS

SENSITIVITY

NURSERY CAPABLE OF PRODUCING 87,500 SEEDLINGS/YEAR; PLANTING TARGET OF 56.25 HA OF SEMI-INTENSIVE WOODLOT/YEAR OVER THREE YEARS: USING P. JULIFLORA, D. SISSOO, A. NILOTICA, A. TORTILIS, ETC. AT STOCKING DENSITY OF 1111 TREES/HA (3m X 3m) ON CLASS V - VI SITES (NON-IRRIGATED).

MEAN ANNUAL INCREMENT: 5.4m³/Ha/YR.
 COPPICE: 5 YRS. COPPICE: 4-6 YRS.
 ROTATION: 25 YRS.
 EST. FODDER/FORAGE PRODUCTION: ROTATION: 20-30 YRS.
 2T/HA/YR.
 TOTAL HA PLANTED: 168HA.

Y E A R	DIRECT ECONOMIC COSTS		VALUE OF FOREGONE OUTPUT	TOTAL COSTS	TOTAL YIELD (m ³)	BENEFITS		NET
	NURSERY	PLANTATION				FUELWOOD \$107/m ³	FORAGE \$20/T	
1	118,719	208,448	NONE	227,167				-327,167
2	13,158	130,642		143,800				-143,800
3	18,141	145,009		163,150				-163,150
4		12,270		12,270				-25,020
5		40,024		40,024	1,687	180,509	2,250	144,985
6		36,931		36,931	1,687	180,509	4,500	150,328
7		36,931		36,931	1,687	180,509	6,750	150,328
8		15,000		15,000			6,750	-8,250
9		15,000		15,000			6,750	-8,250
10		36,931		36,931	1,687	180,509	6,750	150,328
11		36,931		36,931	1,687	180,509	6,750	150,328
12		36,931		36,931	1,687	180,509	6,750	150,328
13		15,000		15,000			6,750	-8,250
14		15,000		15,000			6,750	-8,250
15		36,931		36,931	1,687	180,509	6,750	150,328
16		36,931		36,931	1,687	180,509	6,750	150,328
17		36,931		36,931	1,687	180,509	6,750	150,328
18		15,000		15,000			6,750	-8,250
19		15,000		15,000			6,750	-8,250
20		33,278		33,278	1,406	150,442	6,750	123,914
21		33,278		33,278	1,406	150,442	6,750	123,914
22		33,278		33,278	1,406	150,442	6,750	123,914
23		15,000		15,000			6,750	-8,250
24		15,000		15,000			6,750	-8,250
25		29,625		29,625	1,125	120,375	6,750	97,500
26		29,625		29,625	1,125	120,375	4,500	95,250
27		29,625		29,625	1,125	120,375	2,250	93,000

IRR = 10.23

OPTION SIX

SIZE	GROWTH FACTORS	SENSITIVITY
NURSERY CAPABLE OF PRODUCING 27,500 SEEDLING/YEAR; PLANTING TARGET OF 100 HA OF WOODLOT OVER THREE YEARS, USING A. INDICA, AND C. SIAMEA AT STOCKING DENSITY OF 625 TREES/HA (4m X 4m) ON CLASS IV -V SITES (NON-IRRIGATED).	MEAN ANNUAL INCREMENT: 8.5m ³ /HA/YR. COPPICE: 7 YRS. ROTATION: 28 YRS. FODDER/FORAGE PRODUCTION: NONE TOTAL HA PLANTED: 300HA	MAI: 7-10m ³ /HA/YR COPPICE: 5-8 YRS ROTATION: 20-32 YRS

YEAR	DIRECT ECONOMIC COSTS		VALUE OF FOREGONE OUTPUT	TOTAL COSTS	TOTAL YIELD (m ³)	BENEFITS		NET
	NURSERY	PLANTATION				FUELWOOD \$107/m ³	FORAGE \$20/T	
1	118,719	264,000	NONE	382,719			NONE	-382,719
2	13,158	139,166		152,324				-152,324
3	18,141	151,866		170,007				-170,007
4		38,500		38,500				-38,500
5		23,166		23,166				-23,166
6		20,000		20,000				-20,000
7		101,900		101,900	6,300	674,100		572,200
8		101,900		101,900	6,300	674,100		572,200
9		101,900		101,900	6,300	674,100		572,200
10		20,000		20,000				-20,000
11		20,000		20,000				-20,000
12		20,000		20,000				-20,000
13		20,000		20,000				-20,000
14		101,900		101,900	6,300	674,100		572,200
15		101,900		101,900	6,300	674,100		572,000
16		101,900		101,900	6,300	674,100		572,200
17		20,000		20,000				-20,000
18		20,000		20,000				-20,000
19		20,000		20,000				-20,000
20		20,000		20,000				-20,000
21		92,800		92,800	5,600	599,200		506,400
22		92,800		92,800	5,600	599,200		506,400
23		92,800		92,800	5,600	599,200		506,400
24		20,000		20,000				-20,000
25		20,000		20,000				-20,000
26		20,000		20,000				-20,000
27		20,000		20,000				-20,000
28		92,800		92,800	5,600	599,200		506,400
29		92,800		92,800	5,600	599,200		506,400
30		92,800		92,800	5,600	599,200		506,400

IRR = 19.50

OPTION SEVEN

SIZE	GROWTH FACTORS	SENSITIVITY
NURSERY CAPABLE OF PRODUCING 87,500 SEEDLINGS/YEAR; PLANTING TARGET OF 100 HA/YEAR OVER THREE YEARS, USING E. CAMALDULENSIS AT STOCKING DENSITY OF 625 TREES/HA (4m X 4m) ON CLASS III-IV SITES (NON-IRRIGATED.)	MEAN ANNUAL INCREMENT: 8.5m ³ /HA/YR COPPICE: 8 YRS. ROTATION: 32 YRS. FODDER/FORAGE PRODUCTION: 0 TOTAL HA PLANTED: 300 HA	MAI: 7-12m ³ /HA/YR COPPICE: 7-10 YRS ROTATION: 28-40 YRS

YEAR	DIRECT ECONOMIC COSTS		VALUE OF FOREGONE OUTPUT	TOTAL COSTS	TOTAL YIELD (m ³)	BENEFITS		NET
	NURSERY	PLANTATION				FUELWOOD \$107/m ³	FORAGE \$20/T	
1	118,719	264,000	NONE	382,719			NONE	-382,719
2	13,158	139,166		152,324				-152,324
3	18,141	151,866		170,007				-170,007
4		38,500		38,500				-28,500
5		23,166		23,166				-23,166
6		20,000		20,000				-20,000
7		20,000		20,000				-20,000
8		124,000		124,000	8,000	856,000		732,000
9		124,000		124,000	8,000	856,000		732,000
10		124,000		124,000	8,000	856,000		732,000
11		20,000		20,000				-20,000
12		20,000		20,000				-20,000
13		20,000		20,000				-20,000
14		20,000		20,000				-20,000
15		20,000		20,000				-20,000
16		124,000		124,000	8,000	856,000		732,000
17		124,000		124,000	8,000	856,000		732,000
18		124,000		124,000	8,000	856,000		732,000
19		20,000		20,000				-20,000
20		20,000		20,000				-20,000
21		20,000		20,000				-20,000
22		20,000		20,000				-20,000
23		20,000		20,000				-20,000
24		103,200		103,200	6,400	684,800		581,600
25		103,200		103,200	6,400	684,800		581,600
26		103,200		103,200	6,400	684,800		581,600
27		20,000		20,000				-20,000
28		20,000		20,000				-20,000
29		20,000		20,000				-20,000
30		20,000		20,000				-20,000
31		20,000		20,000				-20,000
32		82,400		82,400	4,800	513,600		431,200
33		82,400		82,400	4,800	513,600		431,200
34		82,400		82,400	4,800	513,600		431,200

IRR = 19.55

OPTION EIGHT

SIZE	GROWTH FACTORS	SENSITIVITY
NURSERY CAPABLE OF PRODUCING 87,500 SEEDLINGS/YEAR; PLANTING TARGET OF 56.25 HA OF SEMI-INTENSIVE WOODLOT/YEAR OVER THREE YEARS; USING E. CAM-ALDULENSIS AT STOCKING DENSITY OF 1111 TREES/HA (3m X 3m) ON CLASS I SITE, (NON-IRRIGATED).	MEAN ANNUAL INCREMENT: 13m ³ /HA/YR. COPPICE: 8 YRS. ROTATION: 32 YRS. FODDER/FORAGE PRODUCTION: 0 TOTAL HA PLANTED: 168	MAI: 11-15m ³ /HA/YR. COPPICE: 8-10 YRS. ROTATION: 28-40 YRS.

Y E A R	DIRECT ECONOMIC COSTS		VALUE OF FOREGONE OUTPUT	TOTAL COSTS	TOTAL YIELD (m ³)	BENEFITS		NET
	NURSERY	PLANTATION				FUELWOOD \$107/m ³	FORAGE \$20/T	
1	118,719	208,448	4,686	331,853			NONE	-331,853
2	13,158	130,642	9,372	153,172				-153,172
3	18,141	145,009	14,058	177,208				-177,208
4		27,270	14,058	41,328				-41,328
5		18,093	14,058	32,151				-32,151
6		15,000	14,058	29,058				-29,058
7		15,000	14,058	29,058				-29,058
8		102,750	14,058	116,808	6,750	722,250		605,442
9		102,750	14,058	116,808	6,750	722,250		605,442
10		102,750	14,058	116,808	6,750	722,250		605,442
11		15,000	14,058	29,058				-29,058
12		15,000	14,058	29,058				-29,058
13		15,000	14,058	29,058				-29,058
14		15,000	14,058	29,058				-29,058
15		15,000	14,058	29,058				-29,058
16		102,750	14,058	116,808	6,750	722,250		605,442
17		102,750	14,058	116,808	6,750	722,250		605,442
18		102,750	14,058	116,808	6,750	722,250		605,442
19		15,000	14,058	29,058				-29,058
20		15,000	14,058	29,058				-29,058
21		15,000	14,058	29,058				-29,058
22		15,000	14,085	29,058				-29,058
23		15,000	14,058	29,058				-29,058
24		90,200	14,058	99,258	5,400	577,800		478,542
25		90,200	14,058	99,258	5,400	577,800		478,542
26		90,200	14,058	99,258	5,400	577,800		478,542
27		15,000	14,058	29,058				-29,058
28		15,000	14,058	29,058				-29,058
29		15,000	14,058	29,058				-29,058
30		15,000	14,058	29,058				-29,058
31		15,000	14,058	29,058				-29,058
32		73,500	14,058	87,558	4,500	481,500		398,942
33		73,500	9,372	82,872	4,500	481,500		398,628
34		73,500	4,686	78,186	4,500	481,500		403,314

IRR = 17.39

C. KEROSENE

(Excerpt from a report by K. Openshaw,
July 1982. (pp. 27 - 29, 39 and 43.)

It is on the point of foreign exchange saving that the strongest case can be made for investing in fuelwood plantations. Appendix 1 gives the cost of various forms of energy delivered to the pot. It shows that for Mogadishu LP gas is the cheapest form of energy, but because of spasmodic production from the refinery and lack of gas cylinders, LPG is rarely available which means that charcoal closely followed by wood are in practical terms the cheapest source of energy at selling prices of 1750 So.Shs. per tonne for charcoal and 625 So.Shs. per tonne for fuelwood. The table in Appendix 1 can be reworked assuming the same stove efficiencies but equalising the foreign exchange cost of each fuel. If this is done then the price that could be paid per unit can be determined, this price gives a measure of what the fuel is worth to government - Table 11.

Table 11. The shadow cost of energy from different sources to supply an equal amount of energy (100 MJ) at the pot at a fixed foreign exchange cost of 25.65 So.Shs* assuming current stove efficiencies

Energy form	Stove efficiency	Units required	Foreign exchange price	Assumed FE component	Shadow plot price	Unit shadow price	Actual local price
	%		So.Shs.	%	So.Shs.	So.Shs. per unit	
Wood	18	34.72 kgs	) 25.65	15	171.00	4.93 kg	0.625 kg
Charcoal	27	11.22 kgs		15	171.00	15.24 kg	1.75 kg
Kerosene	45	5.70 l		75	34.20	6.00 l	6.00 l
LP gas	55	4.04 kgs		222 ⁽¹⁾	11.55	2.86 kg	3.03 kg
Electricity	70	39.68 kwh		80	32.06	0.80 kwh	1.20 kwh

kg = kilogram l = litre kwh = kilowatt hour

* The foreign exchange cost of kerosene has been used as a standard.

- (1) It is assumed that the cost of LP gas is subsidized at the moment and that its real price should be about 8.42 shs/kg not 3.03 shs/kg. This figure has been used with a foreign exchange component of 80% and gives a foreign exchange value of 6.74 So.Shs. which is 222% greater than the actual value of 3.03. The value of the LP Gas has been derived by assuming it will give the same pot price as kerosene namely 34.2 Shs. not 12.3 Shs. (Appendix 1)

Because fuelwood and charcoal have very low foreign exchange components in their costs, the shadow prices for these two products is far higher than their market price being nearly 8 times higher for fuelwood and nearly 9 times higher for charcoal. On the other hand the shadow price for both LP gas and electricity is lower than their market price, indicating that these products are being subsidized at present, if the foreign exchange cost of kerosene is taken as a standard for comparison. Government could therefore "afford" to pay 4930 So.Shs. per tonne for fuelwood and 15240 So.Shs. per tonne for charcoal. If these prices were translated back to shadow stumpage price, the government could afford to pay 4500 So.Shs. per m³ for fuelwood and 1300 So.Shs. per m³ for charcoal wood; this compares to the assumed price of 75 So.Shs. per m³. So if foreign exchange saving is a top priority there is an overwhelming case for investing in fuelwood plantations. Also the employment possibilities, especially rural employment are large. A planting programme of 0.6 million hectares, will, when fully operational, employ somewhere in the region of 120,000 people in the establishment, tending and felling phases. In addition, about another 6,000 people will be required for supervision and management.

If it was decided to undertake the proposed planting programme of 0.6 million hectares and to complete it by the year 2000, what would such a programme cost? It is difficult to give a precise answer without an idea of unit costs and the phasing of such a programme, but if the Kenyan costs are assumed, then to plant 0.6 million hectares will cost in the order of 3000 million So.Shs. (1982 prices) over an eighteen year period or 167 million So.Shs. per year or about fifty times more than what is being spent at the present on forestry! It will also mean that about 300 university graduate foresters and 3000 college graduates will be required to run such a programme - another reason for the establishment of a separate forestry department.

By the year 2000 the total demand for energy may be of the order of 150 Peta Joules (10¹⁵J) out of which wood may supply 95 PJ which includes 55 PJ from the proposed planting programme of 0.6 million ha. or 37% of the total. If the programme is not accepted, then it is unlikely that the existing woodlands - because of remoteness - will be able to supply this demand and substitute fuels will be required. In urban areas at least these substitute fuels will be imported commercial fuels principally kerosene and liquid petroleum gas. To substitute 55 PJ of energy from wood for the equivalent amount of energy of kerosene, and allowing for the different end use efficiencies, will require in the region of 800 million litres of kerosene. The imported price of kerosene delivered to Mogadishu is approximately 4.12 So.Shs. per litre, thus to import 800 million litres per year will cost 3320 million So.Shs. of foreign exchange in 1982 prices, which is more than the entire estimated cost of the planting programme (3000 mill So.Shs.). What is more, the consumers will have to pay about double the price for their energy requirements and of course, the above cost of kerosene is all foreign exchange, whereas the foreign exchange component of the forestry planting programme, excluding technical assistance, will be less than 5%. Therefore, although 3000 million So.Shs. may seem a large sum the alternatives either in direct costs, or in terms of soil degeneration are much more expensive.

It is possible to meet the demands of these population concentrations by supplying substitute fuels, but this is more expensive, particularly in terms of foreign exchange, than ensuring that there will be a continuing supply of wood. A plantation programme of the order of 600,000 hectares may have to be established between now and the turn of the century and this could cost in the region of 3000 million So.Shs. However, it will give rise to direct employment of about 126,000 and may save somewhere in the region of 3,300 million So.Shs. per year in foreign exchange by the year 2000, by not having to import the next cheapest fuel - kerosene. The consumer will also save for woodfuels are about half the price of kerosene and if more efficient wood and charcoal burning stoves are introduced, then the price difference will be even greater.

Besides being a traditional fuel, wood can act as a transitional source of energy and assist in the development of Somalia. But not only that, wood can be turned into modern energy forms such as boiler fuel, electricity, producer gas/water gas and even petroleum and therefore it can continue to assist in the development of the country indefinitely for if properly managed it is a renewable resource.

The key to Somalia's development is to ensure a continuing supply of relatively cheap and indigenous energy and woodfuel could be this key. However, forestry is in its infancy and the country needs a great deal of help in order to ensure that there will be sufficient wood in the right place at the right time. A planting programme must therefore be drawn up based on the requirements of each district or population concentration; land must be set aside to grow these trees; the existing woodlands and bushlands must be reserved and managed if they are of economic or ecological importance; sufficient managers and supervisors must be trained and the forest department has to be greatly enlarged and strengthened if such a programme is to be satisfactorily undertaken. The challenge is great but not formidable.

How does the price of wood and charcoal compare to the price of other fuels? If we take into consideration stove efficiency, the approximate price of delivering 100 MJ to the pot is shown in table 1A.

Table 1A. Cost of delivering 100 MJ to the pot for various fuels

Fuel	Energy value	Market price So.Shs.	Assumed stove efficiency	No. of units to deliver 100 MJ to pot	Cost of 100 MJ Shs.
Wood (15% MC)	16 MJ/Kg	0.625/Kg	18 (3)	34.72 Kgs	21.7
Charcoal	33 MJ/Kg	1.75 /Kg	27 (3)	11.22 Kgs	19.6
Kerosene	39 MJ/l	6.00/l (1)	45	5.70 l	34.2
L.P. Gas	45 MJ/Kg	3.03 Kg(2)	55	4.04 Kgs	12.3
Electricity	3.6 MJ/Kwh	1.4 /Kwh	70	39.68 Kwh	55.6

Notes:

- (1) Kerosene price can vary from 6/- to 12/- per litre!
- (2) There is very little storage capacity for LPG and gas bottles. It also appears at this price LP gas is being subsidised.
- (3) Recent tests have shown that the efficiency of a 3 stone fire is about 18% not 10% as previously thought and that for charcoal stoves 27% not 20%.

If the stove efficiency is near to what is stated in column 4, the L.P. gas is the best buy followed by charcoal and fuelwood. Of course the present 3 stone wood 'stove' costs nothing and its efficiency depends a lot on the skill of the cook, but in order to compete with charcoal the price would have to be in the region of 565/- per tonne (435/- m³) at the above stove efficiencies. L.P. gas bottles are difficult to obtain and much gas is flared. It would pay the country to import the bottles so as to utilise this relatively cheap energy source.

What the table shows is that effort must be put into improving the efficiencies of both wood and charcoal stoves so that they approach the 50% mark.

ANNEX IX

ENVIRONMENTAL ASSESSMENT

For

Refugee Forestry Project (649-0122)
Refugee Self-Reliance Project (649-0123)

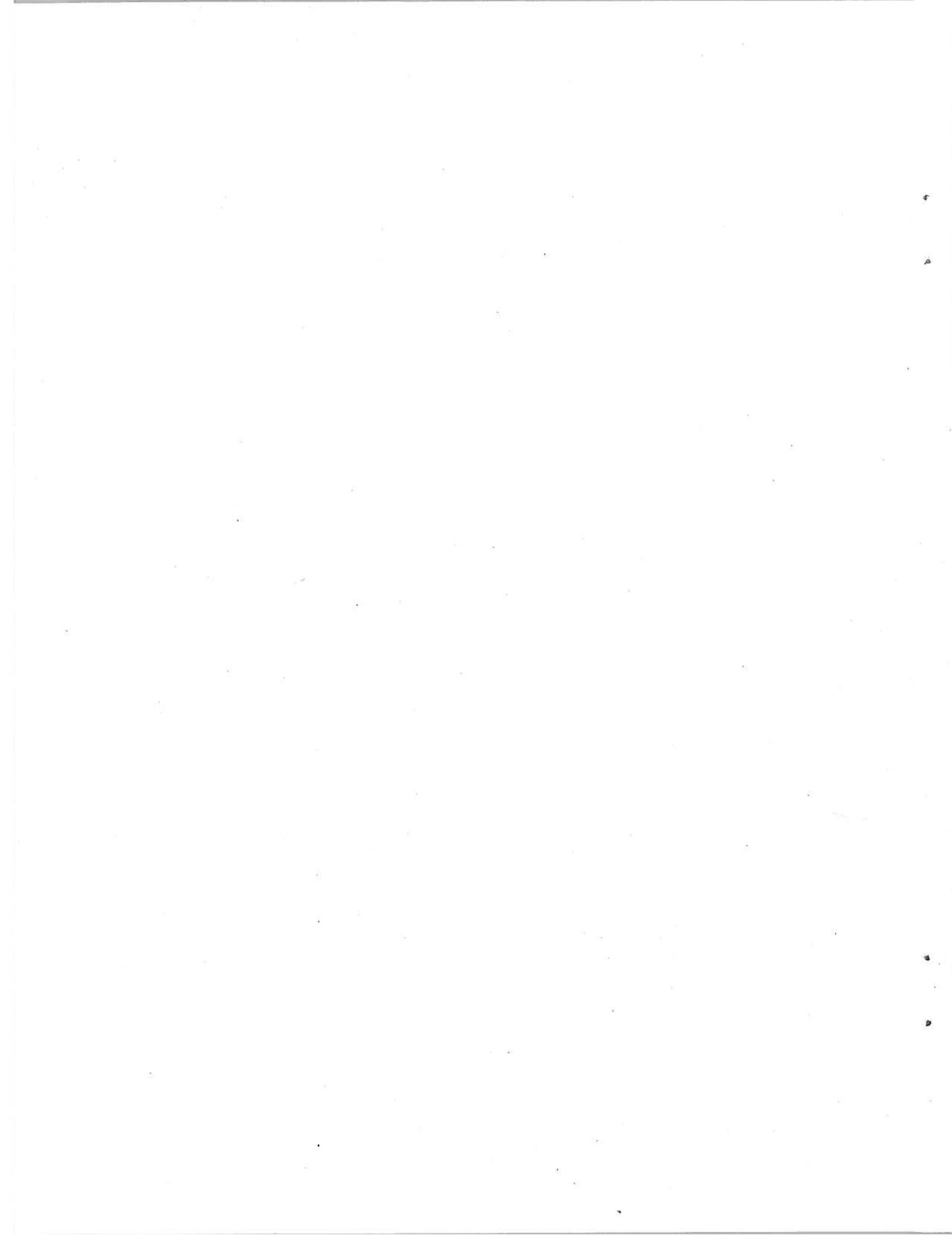
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MOGADISHU



ENVIRONMENTAL ASSESSMENT

(Note: Scope of work for this EA was outlined in Mogadishu 5692)

I. PROPOSED ACTIONS OF THE PROJECTS

Both projects constitute a major U.S. initiative to assist the Government of Somalia to improve the lot of the refugees located in camps along the Juba and Shebelli rivers in central and south-central Somalia. The Refugee Forestry Project (0122) will redress deforestation caused by the presence of the refugees and will provide for tree planting, fuel conservation and work opportunities for the refugees and their neighbors. The Refugee Self-Reliance Project (0123) will improve and encourage self-reliance among the refugees. It will also involve them in agricultural production and will train them in appropriate technology, cottage industry and proper livestock production techniques.

II. PURPOSE OF THIS ENVIRONMENTAL ASSESSMENT

Both projects are composed of several separate sub-projects proposed by private voluntary organizations who will implement the projects in and near existing refugee camps. These areas are located mostly in environmentally sensitive areas that have arid or semi-arid climatic regions. One of the major goals will be to slow down and hopefully reverse the current environmental degradation occurring in and around those refugee camps that are targeted for project activities. This degradation has been caused by overgrazing from newly acquired goat herds, collection of firewood and unplanned land clearing for agriculture and housing. All of this took place on rangeland that was already under stress from grazing and browsing by local animal populations. It is believed that tree planting, the introduction of soil conservation measures (aimed at improving soil organic matter, tilth, and drainage) and agroforestry will help to combat such problems as wind and water erosion, soil compaction and sheet run-off while still maintaining agricultural production. The projects that have been submitted to date however are not free from the risk of inducing further environmental damage. Project components include irrigation development, land clearing, limited use of pesticides, plantation methods for large scale tree planting, introduction of new tree and shrub species, wadi crossings, and improvement of access roads. The EA will outline environmental features which will be incorporated during the projects paper development and which will reduce adverse impacts to a minimum. All of the activities are listed in Table 1 with an indication of possible impacts.

III. ALTERNATIVES INCLUDING THE PROPOSED ACTIONS

The alternatives would be to continue to provide food rations to the refugees, and to allow them to indiscriminately destroy the fragile arid ecosystem of south and south-central Somalia. Both of the above alternatives are obviously unacceptable. There are few, if any, alternatives to the presently proposed actions.

IV. AFFECTED ENVIRONMENTS

The environments affected will be at several different levels : a) the human environment, i.e., the immediate environment in which each refugee finds his/her self; b) the household environment, i.e., the area within the refugee

Table 1. All project activities identified to date

Project Activity	Possible Significant Impacts	
	<u>Negative</u>	<u>Positive</u>
<u>I. Refugee Forestry (649-0122)</u>		
A. Institution Building and Training (to increase GOS/FD Headquarters staff, on-site training, and assessment of fuelwood supply/demand)	None	Yes
B. Identified PVO Sub-Projects		
1) Qorioley Forestry and Land Resource Management, SCF	Yes	Yes
2) Jalalaqsi Forestry, Land Use and Fuelwood Production, Africare	Yes	Yes
3) Gedo Forestry and Land Resource Planning, ICR	Yes	Yes
4) Luuq/Garba Harre Fuelwood Production, CARE	Yes	Yes
C. Conservation of Fuelwood Use, VITA (training, demonstration and extension service)	None	Yes
D. Somalia Land Use Survey and Mapping	None	Yes
<u>II. Refugee Self-Reliance (649-0123)</u>		
A. Support to the NRC (for planning, monitoring and evaluating ongoing projects)	None	Yes
B. Socio-Economic Studies	None	Yes
C. Identified PVO Sub-Projects		
1. Irrigated Farming, Jalalaqsi, Africare	Yes	Yes
2. Irrigated and Rainfed Farming, Qorioley, SCF	Yes	Yes
3. Cottage Industry Program, Africare	None	Yes
4. Dryland and Irrigated Farming, Ali Matan, ICR	Yes	Yes
5. Irrigated Farming, Halba(Gedo)WC	Yes	Yes
6. Language/Cultural Instruction, EIL	None	Yes
7. Road/Bridge Improvement, Luuq, CARE	Yes	Yes

family compound usually demarcated by a low fence of thorn bush; c) the general area in and around the camps out to a radius of 7-20 kms; d) the environment within plantations and irrigated fields where refugees will be working.

As pointed out previously in the PID, all of the activities in the Refugee Forestry Project will have positive impacts. In general this will lead to an improvement in the human, household and area environments. Any negative impacts expected would be associated with local conditions arising during fuelwood plantation start-up and long-term operation and misuse of the waterpoints needed for plantation maintenance.

The Self-Reliance Project also will have many positive effects on the target population, but some negative impacts may be expected from four of the agriculture sub-projects and one road sub-project.

In this EA we will concentrate only on those negative impacts.

V. ENVIRONMENTAL CONSEQUENCES AND THEIR MITIGATION

A. General

Refugee camps are generally placed in areas of marginal or poor land. In arid regions this can have grave consequences for the people settled in such camps. In the present projects, camps were selected that are fortunately located on or near rivers (Fig.1). Within those camps each family is organized into living units (households) which are clearly demarcated by a fence made up of small thorn bush stakes (Fig. 2). In many cases the stake will take root and will start producing leaves during and after the long rains. The typical household plan (Fig.3) consists of several small outbuildings. Although the typical project household includes a latrine (Fig.4), more often than not people simply defecate in any open field. They do prefer depressions such as dry irrigation canals, field drains or wadis. This habit is said to arise because many of these people were nomadic and formerly lived in more open terrain. Water can be obtained from community taps and often is available from a treated supply (Fig.5 and 6). However, people were seen dipping water from open drains, irrigation canals, wadis, pools and the river edge, and occasionally they share their water points with animals. Fuelwood and wood for building is collected by gatherers some distance from the camps often using donkeys for transport, or it can be bought in small quantities from dealers inside the camps.

B. Human Environment

There is no question that many of the refugees in the project camps are aware of the advantages of using latrines, drinking clean water and conserving fuelwood. The voluntary agencies and NRC have made much progress in this direction since the beginning of the camps. But now a concentrated effort must be made by these people to improve their environment. The fact that diarrheal diseases still occur at a high rate has led one camp doctor to suggest that the people must be made more aware of the fact that : a) fly-borne diseases can and must be controlled; b) latrines must be used; c) water treatment and water points are everyone's responsibility. We would recommend that if any new sub-projects are initiated under the Self-Reliance Project, preference should be given to environmental public health. It is especially important to insure

that the people become self-reliant in personal hygiene as well as food and fuel. Also any such sub-projects should be designed using the AID design manual (Reference 2) for rural water supply and sanitation.

C. Household Environment

Some of the largest problems within the household enclosures are dust and lack of shade. Flooding is not much of a problem in the project camps. Any flooding that does occur is usually localized, the effect of flash rainfall collecting on the compacted soils typical of the camps. The problems of dust and shade will hopefully be reduced by the Forestry Project, because even though only one sub-project specifically includes household amenity tree planting, the increased tree nursery capacity will mean that more tree seedlings will generally be available in the area. Many of the households already have started household trees (Fig. 7). Many effective hedgerows or "living fences" have already started. In one camp these local fences have already had an effect on preventing soil movement (Fig. 8 note the difference in soil level between the fence base and the path to the right). Most of the cuttings for these fences are from Commiphora spp, but in Ali Matan we found the fastest most highly-branched growth was associated with a species of Zizyphus. (samples were collected for identification at the East African Herbarium, Nairobi). It may be of value for the PVOs to encourage the propagation of this native plant as a camp fence species in preference to less productive species now in common use, or introduced species which may not be as effective as fencing material. In addition to hedgerows a real contribution can be made to dust control by planting windbreaks in and around the camps. Any such planting would make a large difference in the camp environment.

In regard to wood used for building, many of the early huts obviously followed the plan of a typical nomad hut which is a single hemispherical frame assembled from long, supple poles which are transported from site to site for that purpose (Fig.9). Today these huts have given way to the more complicated woven stick pattern (Fig. 10) typically seen in local towns. The amount of wood collected presently for housing is small in comparison to that used for fuel. Obviously the need for new huts has leveled off. This slightly lowers the pressure on local woodlands, but this is temporary as eventually these houses will have to be replaced. Since each one requires approximately 1m³ of wood it would be better to turn to mud brick construction as a long-term conservation practice. In Ali Matan there are several demonstration houses built with local mud, but right now the cost still exceeds the ordinary means available to camp residents. Hopefully this situation will be changed if the projects are successfully implemented.

D. Camp Environment

The environmental degradation and deforestation of the regions around the camps is the well-known effect of indiscriminate fuelwood gathering. This results in a dramatic denudation of the region immediately adjacent to the camp perimeter (Fig.11). Further out there is an obvious depletion of the larger shrubs and trees (Fig. 12), and further still it is possible to see the woodcutters now at work inside the edge of the normal woodland (Fig. 13). The radius of these zones were measured around one camp (Horseed in the Gedo Region). The minimum distance to travel for wood gathering is now seen to be 4.2 km.(Fig.14). This is the distance from camp center to the edge of the local woodland.

Scavenging for brush and poor quality fuel goes on in the intermediate zone, 1.6-4.2 km. from camp center, but for good quality fuelwood the wood-cutter has to travel well into the present woodland as selective cutting is already taking place here. In other regions the distance to travel is much larger (15-20 km in Jalalaqsi). It is assumed that denuded zones will fall within the sub-marginal land class to be replanted in some of the forestry sub-projects.

Of primary concern here are negative impacts from tree plantations. Impacts may appear in the early start-up phase and are associated with land clearing, high water-use and pesticide application. Other impacts may appear later during the management phase and are related to soil loss and introduced species effects. Many of these impacts have already been taken into consideration by the design manual to be used by PVOs in designing project papers (Reference 1), but we wish to further reinforce their importance and therefore the impacts described here will be included later in the evaluation as "environment indicators". The most important would be :

- 1.) Land Clearance: It is assumed that most of the fuelwood plots will be on deforested sub-marginal land, in denuded zones near the camps, or on land requiring only bush clearance. Therefore no vigorous land clearance will be necessary. This may be a factor in large nurseries where land must be more carefully prepared, but as long as an individual nursery does not exceed one hectare, it is assumed that the effect will be minimal.
- 2.) Water Use: Water availability in the project area is no problem while river levels are high, but when the rivers begin to drop provision must be made for water supply. At those times drinking water for humans and livestock must be the first priority and local ground water is often saline. This impact can be minimized by designing proper reservoir capacity and avoiding high water-use species such as Eucalyptus.
- 3.) Pesticide Application: One of the fastest growing trees being planted in the project area is Sesbania grandiflora which is especially useful in hedgerow; In Qorioley we were shown the devastating results of insect attack (apparently beetle larvae) where Sesbania saplings were completely defoliated. Several applications of Sevin were needed and then only partial control was achieved. We would suggest that in cases like this the project personnel should make an attempt to have the pest identified using the insect collection and resident entomologist at Afgooi. This will help in selecting the most effective pesticide from the list in Table 2 which has been approved for use in USAID-funded projects in Somalia included in References 1 and 4. It is assumed that pesticide use in the projects will be localized and on a small-scale with application by nursery personnel who should be equipped with standard safety equipment and be trained in use and handling of pesticide chemicals. Any large scale or general application is not authorized under this EA and will require a separate Pesticide Evaluation including a risk/benefit analysis as per USAID Regulation 216.
4. Soil Loss: Even after tree saplings have been successfully established soil loss can still be appreciable from plantations. This is especially true in plantations where the litter is removed by wood scavengers and the ground cover is over-grazed and compacted by grazing animals. Controlled foraging, guards and fencing would be the best solutions to protect woodlots from such exploitation. Simple thorn bush fencing should also be encouraged for this purpose.

Table 3. Pesticides approved for use in USAID-funded projects in Somalia

<u>Crop/Insect</u>	<u>Use</u>	<u>Pesticide</u>	<u>Special Restrictions</u>
Grain insects	Stored Food	Actillic	1
		Phostoxin	2
Stem borers/ Nematodes (maize, groundnuts, sorghum, rice)	Soil Treatment	Carbofuran	3
Foliar insects (maize, sorghum, sesame, rice, groundnuts, cowpeas, vegetables)	Foliar	Carbaryl Malathion Chlorpyrifos Dimethoate Diazinon	
Seeds	Seed Treatment	Mixture of Thiram and Lindane	4
Livestock	Spray/Dip	Toxaphene	5

1. For use only in cases where there is resistance to malathion.
2. Use and storage by specially trained personnel.
3. No liquid formulation allowed, avoid dermal contact, use only if alternate pesticide foliar treatment not effective.
4. Must contain red marker, application only with standardized method, with assessment of users in Somalia to be prepared later, may be possible to substitute other insecticides for Lindane.
5. Application restricted to project personnel, not to be dispersed to farmers, all spraying to be done using project-owned equipment.

the

5.) Introduced Species: Many of/tree species to be used in the fuelwood plantations will be selected from species already being used in the country. New tree species imported for the project should consist of those species which are known to be adapted to this climate. Care should be exercised because such introductions are often difficult and time-consuming. Also costly results may occur, as in the case of the exotic Ipomoea carna. A tree/shrub brought into India for use in stabilizing irrigation canal banks- now it is one of the chief causes of canal and drain blockage.

E. Refugee Farm Environment

1.) Guidelines

All of the agricultural activities under the Self-Reliance Project differ from one another and thus will be considered separately below. In all cases the final design will follow the guidelines laid down in Reference 5, which state that each sub-project will be scrutinized for the following :

- a) Rainfall
early records of site.
determination of evapotranspiration for the site.
calculation of moisture availability index.
- b) Water Quality and Salinity
monitoring conductivity during lifetime of project.
maintenance of salt balance at site.
computation of leaching requirement.
percolation and permeability rates for the local soil.
field drainage detailed design.
salt tolerance of crops to be used in project.
- c) Irrigation Efficiency
ability of water source to meet crop needs and leaching requirement.
water loss (seepage, spillage, evaporation) and systems efficiency.
field efficiency.
- d) Soil
anti-erosion measures to be taken.
proposed means of increasing soil tilth.
soil fertility program.
- e) Cropping Pattern
application of water and soil criteria to assess project soil suitability.
- f) Other Guidelines
Other guidelines of use in designing environmentally sound sub-projects are listed below.

2.) The Africare Sub-Project, Jalalagsi

This particular sub-project will deal with several activities relative to the refugee camp Jalalagsi II, i.e.: a) school and community facilities; b) potable water supply; c) vocational training; d) health services; e) dune stabilization; f) pilot poultry project; g) woodlot and windbreak tree planting; h) 20 km of farm roads; and i) 350 ha. irrigated agriculture. Of all these only the last three are felt to have any significant negative impacts. The design and

construction of the farm roads will have minimum impact if they are designed according to the AID design manual for rural projects (Reference 2), and the woodlot and windbreak tree plantings likewise, if designed according to the REDSO forestry design manual (Reference 1).

The irrigated agricultural activity will directly benefit 3,800 refugees and 200 local Somalis. It will be developed on a site 7 km south of Jalalaqsi on the East bank of the Shebelli river (Figs. 1 and 15.) Initially some land will be cleared and prepared for rainfed cropping. Gradually small plots will be brought into irrigation. The degree of environmental impact in this activity will depend greatly on the community planning which will be done prior to resettling some refugees at the farm site. The placement of potable water points, pit latrine installation, drain maintenance and the degree of soil erosion will be important factors and consequently the lay-out of the "Master Plan" for the site should follow the design guidelines laid down in Reference 5 for agricultural self-reliance projects in Somalia. (In addition, References 2 and 3 will be helpful).

One very important point to be made here is that the term "irrigation" as used in this project should be clearly explained in the final design. This is because in many areas in Somalia the term irrigation also refers to a technique for thoroughly wetting a plot using river flood water from an open canal. After soaking for 7 to 14 days the plot is then allowed to drain and is planted in sesame, sorghum or maize, which is allowed to mature using residual soil moisture. This type of "flood" or "deshek" seasonal irrigation results in few of the impacts usually associated with perennial irrigation systems such as used with rice. The Jalalaqsi sub-project pre-feasibility report by Sir M. MacDonald Co. (Oct. 1980) refers to a 12 hour watering day using furrow irrigation, a system quite different from seasonal flood irrigation. Thus in the final design the system to be used should be clearly outlined.

Finally we would point out that the 1980 Pre-Feasibility Report is extensive and a complete study of the irrigation potential for its site. We concur in their general results but feel that several specific questions should be considered in the final project design, i.e. :

- a) Will the gypsic layer at 1.5-2.0m depth cause problems with field drainage ?
- b) How can the settlement of fine calcium carbonate particles be dealt with if it begins to impede drainage ?
- c) How will hippo and baboon damage to the fields be minimized ?
- d) Livestock problems must be resolved in terms of crop trampling, the system to be used for segregation of animals from human water points should be outlined. Will walkways allow access to the river ?
- e) Seepage is to be prevented from the main canal by using polyethylene sheeting. We understand that this material is in demand for local hut construction. How will it be protected from theft ?
- f) The seasonal cycle of irrigation will depend on salinity levels in the river. How will this be monitored ?

- g) Wind erosion seemed to be a big factor in this region, windbreaks should be planted prior to clearing the plots for the initial rainfed farming.
- h) Potable water supply may be a problem here. One local well registered a conductivity of 20,000 micromhos/cm compared to the river (480 micromhos/cm) This is very saline. Perhaps a simple treatment facility for river water should be considered.

3.) Irrigated and Rainfed Farming, Qorioley, SCF

SCF already supervises 271 ha of irrigated farming in Qorioley. This sub-project will open up an additional 250 ha for irrigation (150 families) and 350 ha for rain-fed agriculture (800 families). In addition they will improve and maintain existing facilities, and engage in vocational training and beekeeping and poultry projects. The site to be used is inside a 1000 ha plot near Qorioley which is located in the Lower Shebelli flood plains (Fig. 16). This region was the subject of an intensive study (Genale-Bulo Mazerta Project Master Plan) by Sir M. MacDonald Co., 1978. This Master Plan covered the soils, water resources and engineering of the river control structures (the Shebelli is dammed at several points above the site, Fig. 16). The sites just outside the Master Plan region and SCF intends to have a more specific study done by Sir Mr. MacDonald Co. in order to lay out the final design of their irrigation project.

Regarding impacts in this region, most of the specific questions posed for the Jalalaqsi sub-project on the upper Shebelli also apply in the case of Qorioley. In addition is the question of whether the intensive upstream off-take will allow enough water through to the site. As before, the type (system) of agriculture to be used should be clearly spelled out, and References 2,3 and 5 should be used in laying out the final design. One striking feature of the site is the well developed ground cover during fallow periods indicating that unlike other sites soil erosion will be minimal here. SCF has already started planting windbreaks in the rainfed section.

4.) Irrigated Farming, Halba, WC/and Dryland and Irrigated Farming, Ali Matan, ICR

Both of these sub-projects are located in the Gedo Region on the banks of the Juba river (Fig. 17). World Concern has already been involved in the implementation of smaller irrigation schemes using diesel-pumped river water. (300 families on 1/10 ha plots). The Halba scheme has already been the subject of a study by Sir M. MacDonald Co. (Oct. 1980) which laid out in detail a 400 ha site for irrigation of cereals and vegetables with ridge and furrow system. Drainage would be down the furrows being led to a collector drain at a rate of one liter/sec/ha. The infiltration rate of 3mm/hour gives a 72 hour duration of flooding.

In the sub-project area there are already some old canal beds and provisions have been made for a new main canal. However the final design will depend on this PVO's prior experience with the existing irrigated plots. It may be that the Sir MacDonald Co. lay-out is too elaborate and too expensive for the present WC sub-project.

The ICR sub-project will expand the present 120 ha of irrigated farms by 280 ha and will increase dryland farming to 320 ha. They will also include appropriate technology training, improved animal husbandry, soil conservation, agroforestry and small-scale riverine fisheries.

-10-

Again, as in the other sub-project, the guidelines in Reference 5 should be followed, and the questions posed above should be considered when outlining the final sub-project design.

5.) Pesticide Use in Agricultural Sub-Projects

As in the section on tree planting, it is assumed that pesticide use in the sub-projects will be localized and only on a small-scale basis. The pesticides listed in Table 9 have been approved for use in USAID - funded projects in Somalia under the conditions noted in Reference 4. It is also assumed that the application will be done by personnel trained in the use and handling of pesticides.

6.) Evaluation

A general environmental checklist is provided in Table . This should be completed for each sub-project: a) before approval; ; b) during the mid-project review; and c) at the end of the project activity. In cases where more than one refugee camp is involved, a separate checklist should be prepared for each camp. The checklist should be included in : a) the project design; b) the mid-project evaluation report; and c) the end of project final report.

VI. SUMMARY AND RECOMMENDATIONS

The following recommendations apply specifically to the sub-projects so far identified, as follows:

- a) Appropriate technology: Recom. 1,4 and 10
- b) Forestry: Recom. 1,3,5 and 10
- c) Agriculture: Recom. 1,6,7,8,9 and 10

Any new sub-project activity will be reviewed as soon as identified. The environmental review for such sub-project activity will be cleared by an AID legal officer (preferably from REDSO/EA), concurred to by the Regional (or in his absence Bureau) Environmental Officer and approved by the Mission Director before any irreversible commitment of resources.

1. The Refugee Forestry and Self-Reliance Projects will redress the extensive deforestation and environmental degradation evident in several of the refugee camps in Somalia.
2. Refugee families are still not self-reliant in terms of clean water and sanitation. Considerations should be given to any new sub-project in environmental health.
3. Household trees, hedgerow fencing using fast-growing native thornbush species should be actively encouraged in and around refugee households.
4. Trials should be made with mud brick construction to see if the cost can be further reduced.
5. The final design of fuelwood plantation projects should follow the REDSO forestry manual. In addition the design should address the specific problems of land clearance, water use, pesticide application, soil loss and introduced species.
6. All agricultural sub-project design should follow the general guidelines laid down in the USAID Somalia Agriculture Project Design Manual. In addition, they should address specifically: rainfall and moisture availability index, monitoring conductivity and salt balance, leaching requirement and local crop salt tolerance, irrigation efficiency, anti-erosion, and cropping pattern.

7. Several specific questions were addressed to the Jalalqasi project area. These are illustrative of the kinds of questions which should be addressed in all other agricultural sub-projects.

8. The exact type (system) of irrigation to be used in a sub-project should be carefully spelled out.

9. Localized, small-scale pesticide application should follow the recommendations laid down in Table 2. Any large-scale, or general application is not covered in this EA, and should therefore be described in detail in the sub-project design.

10. An environmental checklist is provided which should be filled in before, during and after sub-project activity. The mid-project evaluation should include an assessment of whether or not the refugee camp has undergone an environmental improvement.

VII. REFERENCES

Reference Number	Title	Source
1.	Guidelines and criteria for establishing seedling supply services and tree planting programs in Somalia.	J. Seyler REDSO 1982
2.	Environmental design considerations for rural development projects.	AID/W 1980
3.	Environmentally sound small-scale agriculture projects: Guidelines for planning.	VITA 1979
4.	Environmental assessment for USAID agricultural projects in Somalia: Pesticides.	C. Collier (AID/W) & J. Gaudet (REDSO)
5.	Some soil and water constraints to be considered in planning agricultural self reliance projects in Somalia.	R. Barbour PP Design Team 1982

Table 3. Environmental checklist.

Camp name: _____ Date: _____

Index: from 0 to 10 with 0 being the worst situation or 0%, and 10 being the best possible situation or 100%.

A. Human Environment

1. Water supply

a. Quantity 0 1 2 3 4 5 6 7 8 9 10

b. Quality 0 1 2 3 4 5 6 7 8 9 10

c. Water points general condition 0 1 2 3 4 5 6 7 8 9 10

2. Sanitation

a. Availability of pit latrines 0 1 2 3 4 5 6 7 8 9 10

b. Garbage & solid waste disposal by burial or burning 0 1 2 3 4 5 6 7 8 9 10

3. Health

a. Diarrheal disease incidence 0 1 2 3 4 5 6 7 8 9 10

b. Incidence of malaria 0 1 2 3 4 5 6 7 8 9 10

c. Incidence of schistosomiasis 0 1 2 3 4 5 6 7 8 9 10

B. Household Environment

1. Hedgerows (fencing)

a. Percentage composition of living thorn bushes (vs. dead) _____ %

b. Range in average height (meters) _____ to _____

2. Household trees

a. Average number per family _____

b. General condition of trees 0 1 2 3 4 5 6 7 8 9 10

c. Percent composition (fruit ; forage ; shade) _____ % _____ % _____ %

3. Windbreaks

a. Degree of dust/sand movement 0 1 2 3 4 5 6 7 8 9 10

b. Total number of windbreaks in/around camp _____

c. Design/orientation re wind 0 1 2 3 4 5 6 7 8 9 10

d. Effectiveness of existing windbreaks 0 1 2 3 4 5 6 7 8 9 10

4. House construction

a. Estim. number of new houses per month _____

b. How long do present wood stick houses last _____ years

c. Total number of mud brick houses in area _____

C. Camp Environment

1. Fuelwood

a. Distance (km) from camp center to a reliable wood supply (native trees) _____ km

b. Availability of wood for housing 0 1 2 3 4 5 6 7 8 9 10

2. Woodlots

(Note: applies only if woodlots are being planted, otherwise disregard)

a. Distance (km) of new or planned woodlot from camp center _____ km

b. Degree of soil loss during woodlot preparation 0 1 2 3 4 5 6 7 8 9 10

c. Degree of competition for water used in woodlots by:

Humans 0 1 2 3 4 5 6 7 8 9 10

Livestock 0 1 2 3 4 5 6 7 8 9 10

Agriculture 0 1 2 3 4 5 6 7 8 9 10

d. Complaints by local people of pesticide misuse _____ yes _____ no

e. General condition of woodlots (absence of ground cover, gully erosion and livestock browsing, are all considered negative factors) 0 1 2 3 4 5 6 7 8 9 10

f. Animals per family (average)

Goats _____

Sheep _____

Cattle _____

Donkeys _____

Camels _____

D. Farm Environment

(Note: until project farms start up, use any existing typical rainfed or irrigated farms)

1. Rainfall on farm site

a. Average annual rainfall _____ (mm)

b. Average evapotranspiration _____ (mm)

c. Moisture availability indices calculated for 1982 _____ yes _____ no

2. Soil

a. Degree of soil loss by wind erosion 0 1 2 3 4 5 6 7 8 9 10

b. Degree of soil loss by sheet or gully erosion during rainy season 0 1 2 3 4 5 6 7 8 9 10

c. Effectiveness of anti-erosion measures 0 1 2 3 4 5 6 7 8 9 10

(_____ no measures evident)

d. Condition of soil (i.e. tilth) 0 1 2 3 4 5 6 7 8 9 10

e. Application of organic matter (manure or crop residue) _____ yes _____ no

f. General soil fertility 0 1 2 3 4 5 6 7 8 9 10

3. Water Quality

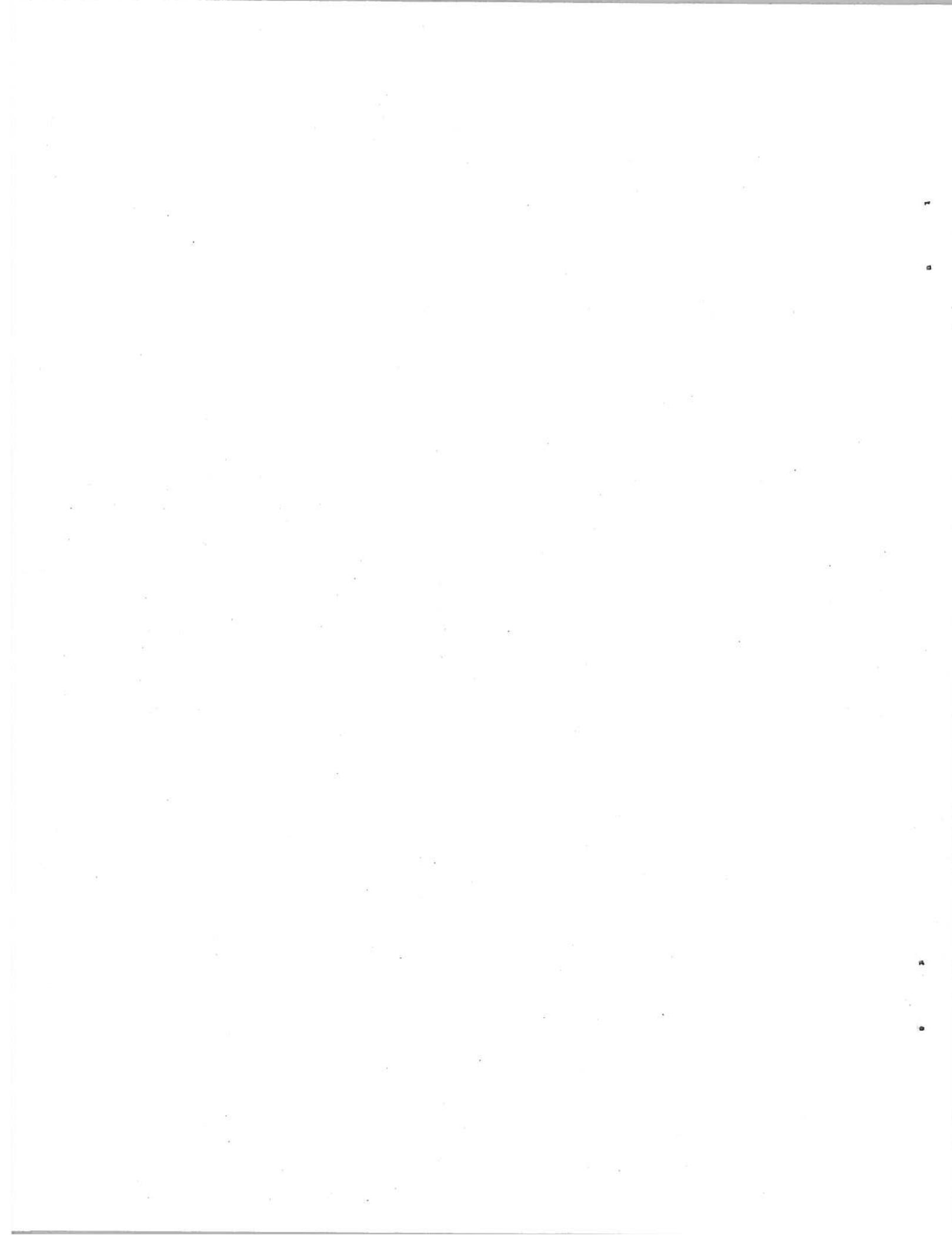
a. Is conductivity of supply water monitored? _____ yes _____ no

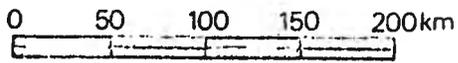
b. Any evidence of soil salinity? _____ yes _____ no

- c. Degree of soil salinity if present 0 1 2 3 4 5 6 7 8 9 10
- d. Average leaching requirement _____ %
4. Drainage
- a. Any stagnant water present in fields? _____ yes _____ no
- b. Does flooding occur during rains? _____ yes _____ no
- c. If yes, does water drain? _____ yes _____ no
5. Irrigation efficiency
- a. Field efficiency _____ %
- b. System efficiency _____ %
- c. Irrigation efficiency _____ %
6. Amenities
- a. Is potable water available at farm site? _____ yes _____ no
- b. Are latrines available near by? _____ yes _____ no
- c. Is fecal matter evident in wadis or canals? _____ yes _____ no
- d. Degree of mosquito incidence during working day. 0 1 2 3 4 5 6 7 8 9 10
- e. Any evidence of snails in canals or standing water? _____ yes _____ no

LIST OF FIGURES

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3. General lay-out of a refugee household.
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15. Irrigation site, Jalalaqsi.
16. Irrigation site, Qorioley.
17. Irrigation sites at Ali Matan and Halba.





 Project Areas

Also CARE
in North

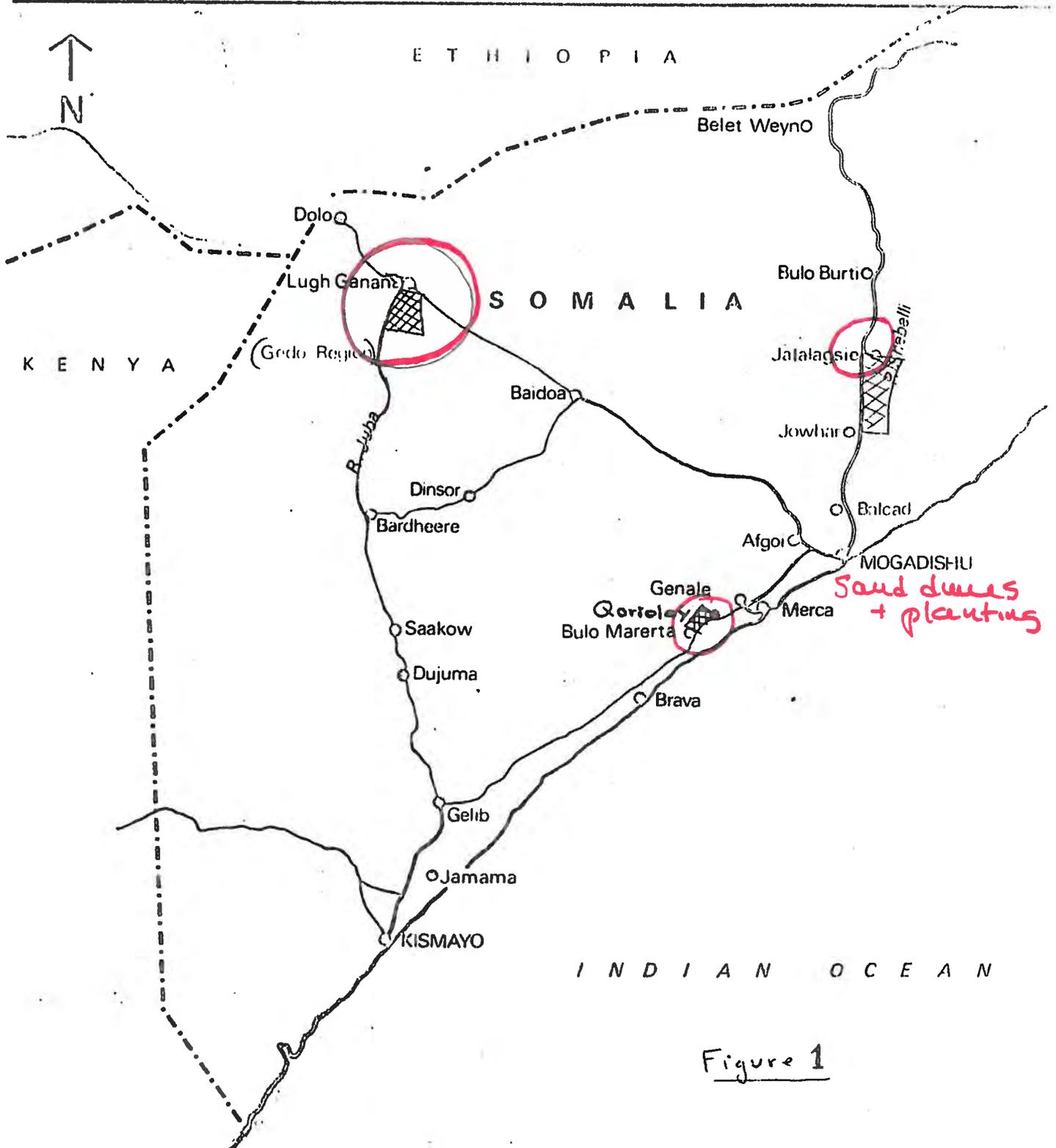
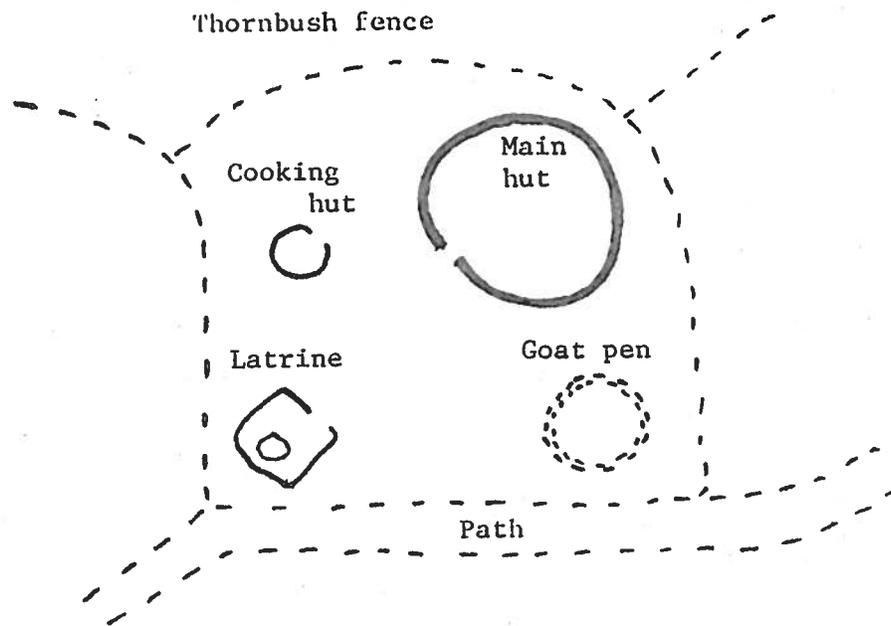


Figure 1



FIGURE 2. General view of typical households in a refugee camp.



Layout of typical refugee household.

FIGURE 3



FIGURE 4. New household latrine pit at Ali Matan Camp.



FIGURE 5. Water treatment facility at Qorioley.

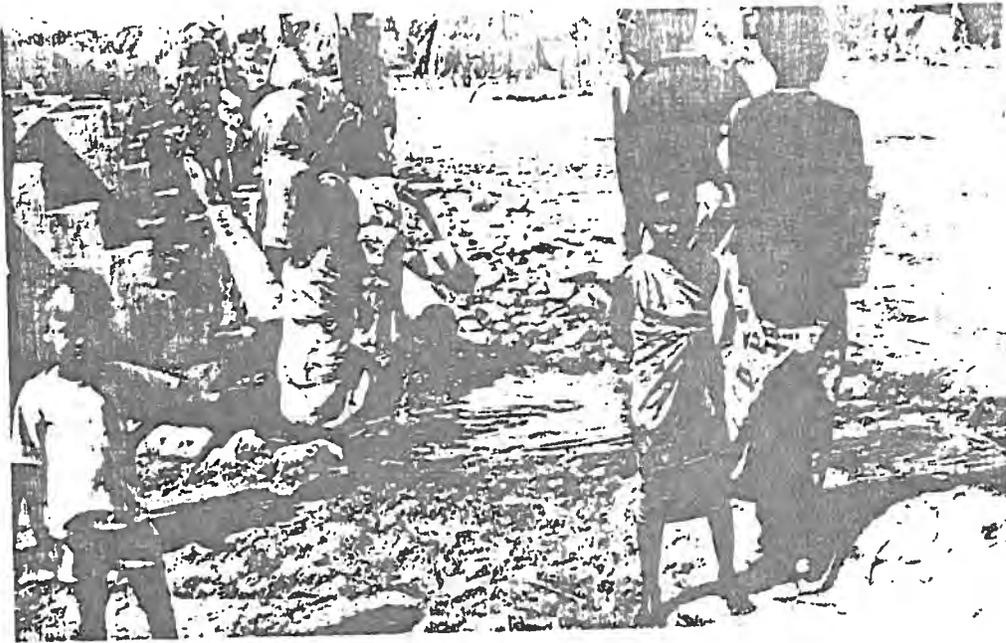


FIGURE 6. Water point at Jalalaqsi.

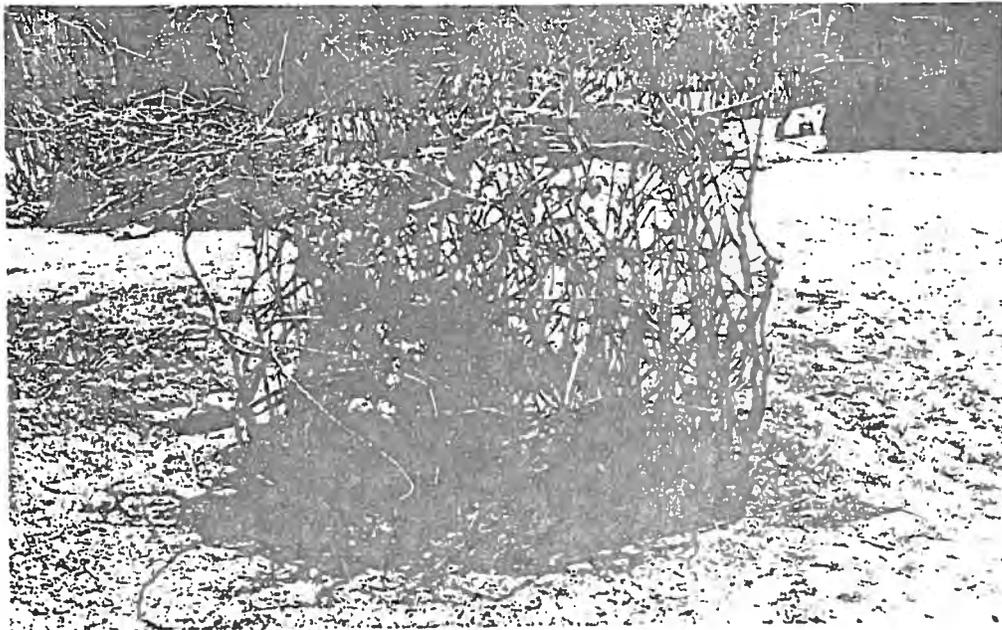


FIGURE 7. Tree sapling inside household compound.



FIGURE 8. Thornbush fence in Ali Matan Camp.



FIGURE 9. Somali nomad with poles for hut.

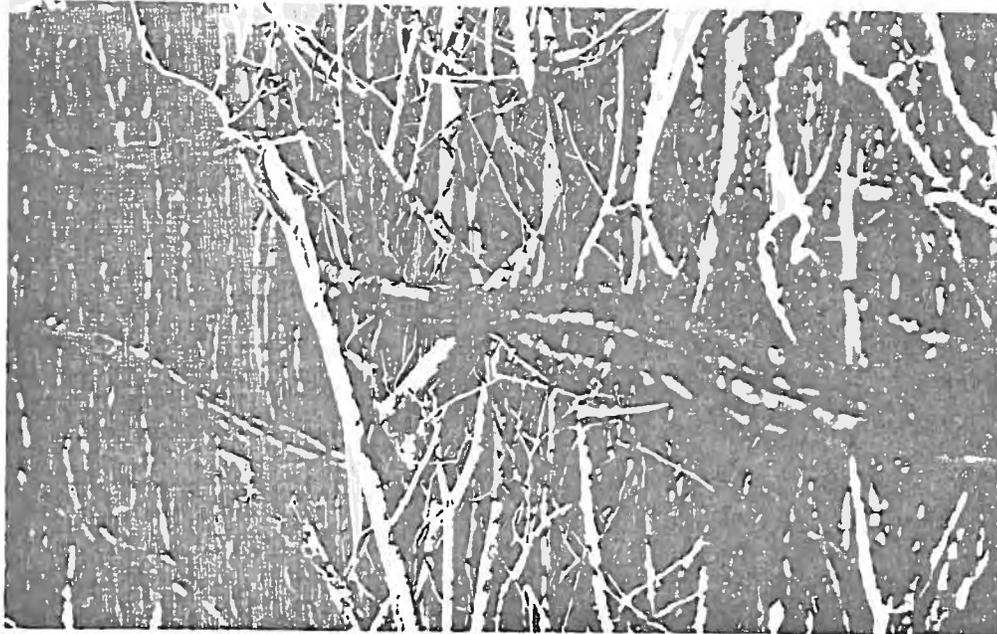


FIGURE 10. Close-up of the woven stick house construction used in Gedo Region.

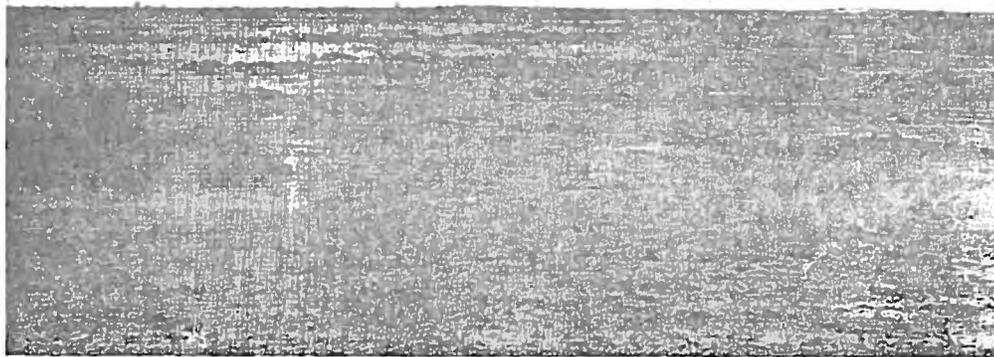


FIGURE 11. Denuded zone at Horseed Camp.

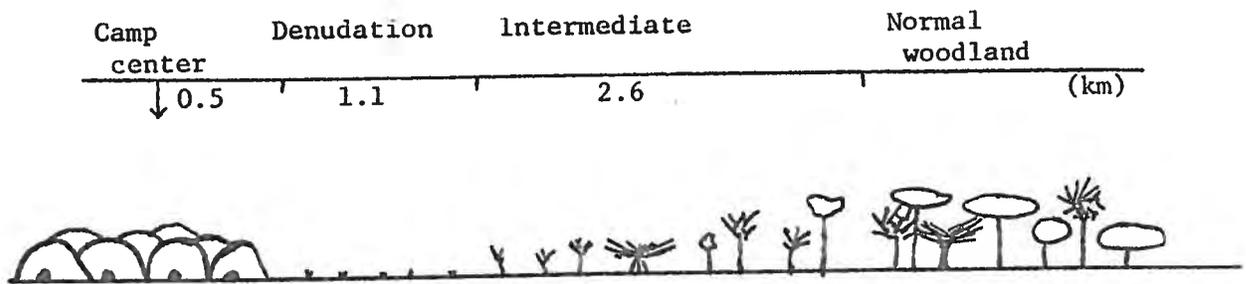


FIGURE 12. Intermediate zone at Horseed Camp.



FIGURE 13. Typical woodland vegetation Gedo Region.

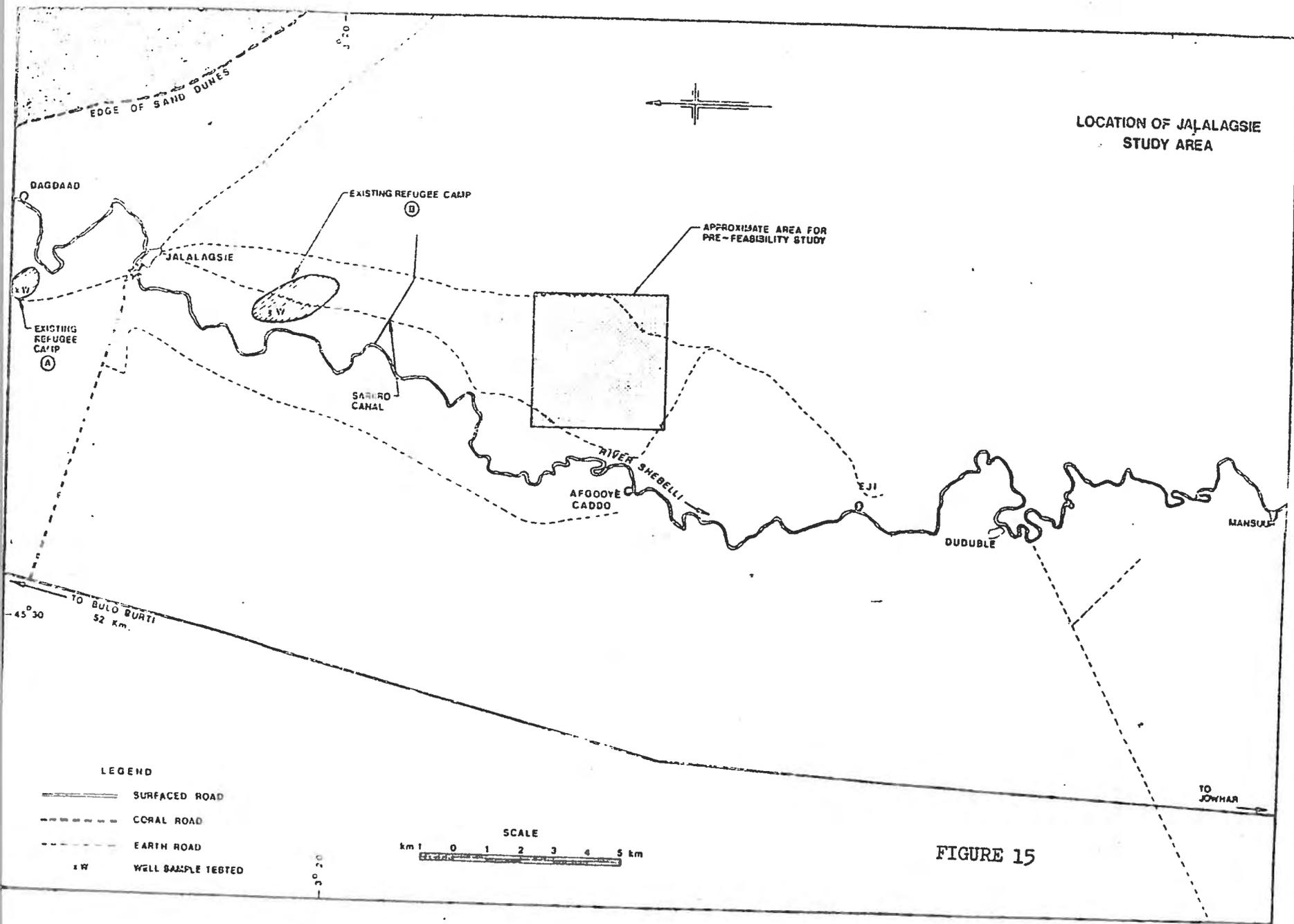
ECOLOGICAL ZONES

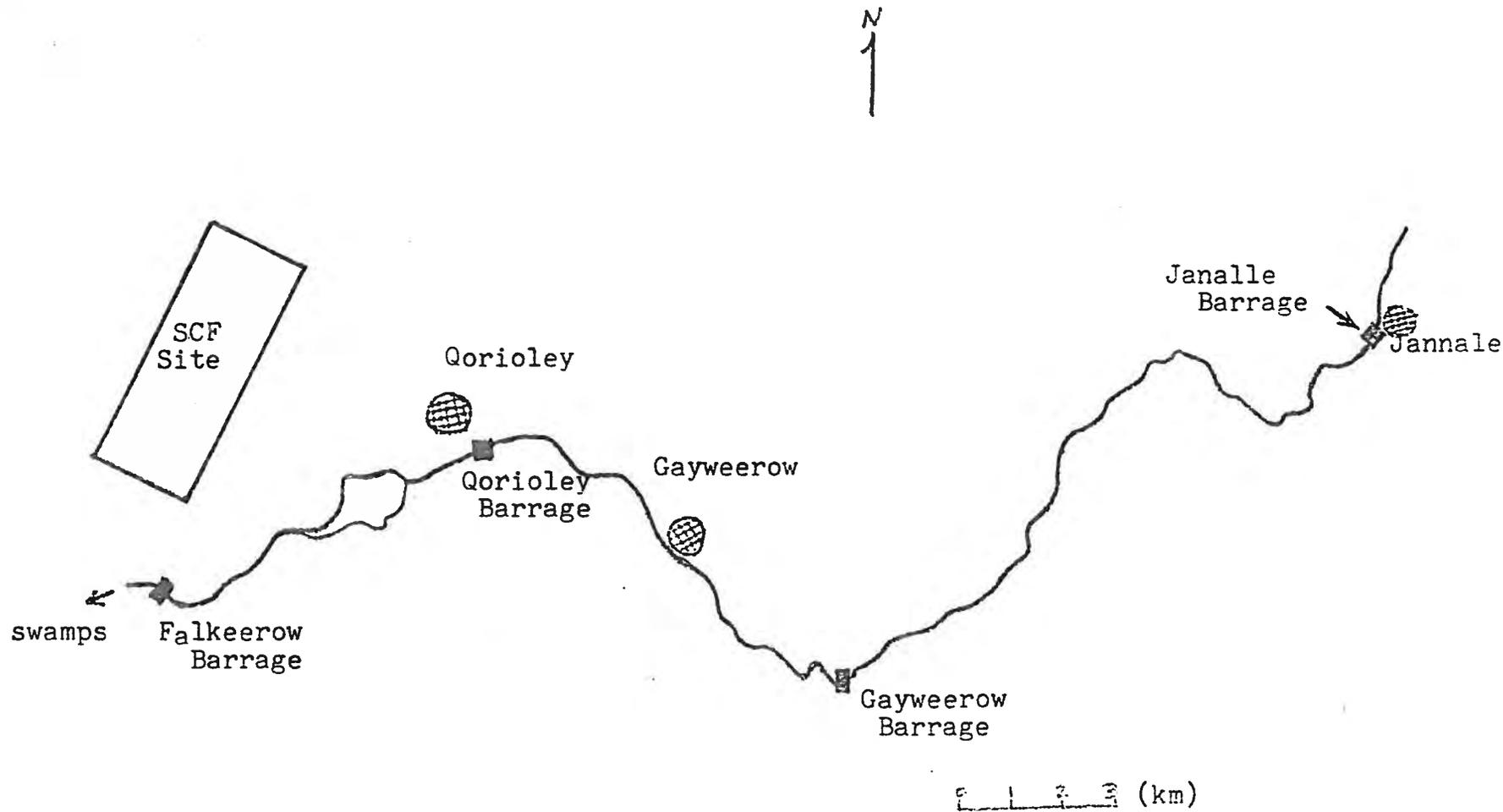


Profile of the vegetation cover going west from Horseed Camp (Gedo).

FIGURE 14







Location of the SCF site in Qorioley.

FIGURE 16

LEGEND

- Surfacd Road
- - - - Earth Road
- . - . Existing Main Canal
- ⊗ Town
- ⊗ Refugee Camp
- Halba Pre-Fecssibility Study Area

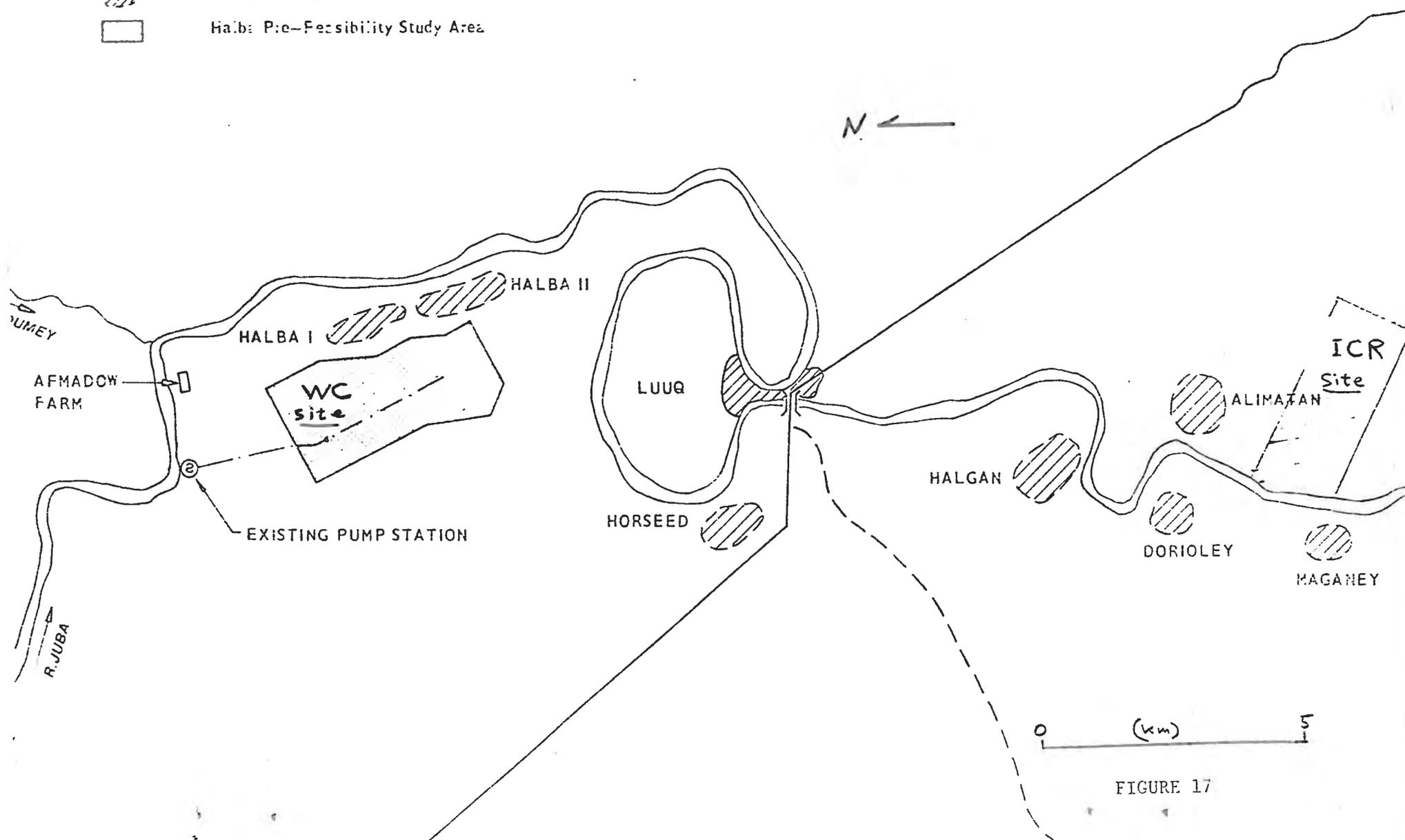


FIGURE 17



NNNNVV ES601081A343
PP BUQMDI
DE RUEHC #5630 2012001
ZNR UUUUU 229
P R 212015Z SEP 82
FM SECSTATE WASHDC
TO BUQMDI/AMEMBASSY MOGADISHU PRIORITY 7339
INFO RUEHRN/AMEMBASSY NAIROBI 8939
BT
UNCLAS STATE 285830

STATE 285830

ACTION: AED

INFO: AMB / DCM
CHRON

AIDAC

E.O. 12356: N/A

TAGS:

SUBJECT: ENVIRONMENTAL ASSESSMENT (EA) FOR SOMALIA REFUGEE
SELF-RELIANCE (649-0123) AND COA FORESTRY (649-0122)

REF: MOGADISHU 6299

1. ACTING BUREAU ENVIRONMENTAL OFFICER HERESY CLEARS
EA A- IS AND COMMENDS MISSION AND PP TEAMS ON
INNOVATIVE APPROACH.

2. IN RESPONSE TO PARA 2 REFTEL. YES MISSION
ENVIRONMENTAL OFFICER MAY APPROVE SUBPROJECTS AS LONG
AS REGIONAL ENVIRONMENTAL OFFICER IS INVOLVED IN PROJECT
EVALUATIONS. BUULTA

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ANNEX X

Commodity Procurement Considerations
for
Activities under the
Refugee Self-Reliance Project (649-0123) and
CDA Forestry Phase I - Refugee Areas Project (649-0122)

1. Introduction

The policy and program guidelines for refugee project activities establish a requirement that goods and services financed under the projects be procured in accordance with a source/origin and nationality order of preference system. Goods and services are to have their source/origin and their supplier's nationality in the following countries, in the order of preference indicated: (1) the United States (Code 000); (2) Somalia, or countries included in AID Geographic Code 941; and (3) countries included in AID Geographic Code 935. A decision to procure from countries other than Somalia, the United States and countries included in Code 941 (i.e. to procure from Code 935) is to be based upon a justification substantively conforming with the source/origin waiver criteria normally used in Foreign Assistance Act-funded projects.

2. Objective

The objective of this Annex is to identify certain categories of procurement to be undertaken during the course of the projects (primarily by private and voluntary non-profit organizations which will be implementing the Self-Reliance and Reforestation and Fuelwood Production Sub-projects) for which justification is known to exist at this time for procurement from Code 935 sources. Based upon your approval of these justifications as part of this Project Paper,* these categories of procurement will be included among the justifications permitting procurement from Code 935. This will permit implementing organizations to effect these procurements without the burden of rejustifying Code 935 procurement each time a procurement is made from these categories. Implementing organizations would still be required to prepare and maintain in their project records a justification document stating that the particular commodity fell within the category listed in Annex XI of the CDA Forestry PP and Annex 15 of the RSR PP or as outlined below.

* The rationale for USAID/DIP authority and basis for application of AID/W guidance for the procurement procedures outlined in this and other PP sections is contained in Mogadishu Cable No. 7353. This cable is attached to this Annex for easy reference.

3. Justification for Code 935 Procurements

The sub-project activities being proposed by the various PVOs * under the Projects in most cases have a component of equipment and materials procurement tied to sub-project implementation.

The equipment to be procured will generally consist of vehicles, farm tractors, agriculture implements, irrigation pumps, general purpose pumps, tools, fencing, training aids, office equipment, etc. related to agriculture and forestry development. The construction materials component will generally consist of cement, timber, hardware, barbed wire, plywood, reinforcing steel, etc.

It will be crucial to the implementation of these activities that equipment, materials and vehicles be on site within a four to six month period after sub-projects start-up in order to catch the rainy season for crop and tree plantings. As none of this equipment, materials and vehicles will be available off-shelf in the host country (Somalia) it will be necessary to procure from source and origin 941 and 935 countries, mainly Kenya, Djibouti, the U.K. and Western Europe, all within the geographical perimeter having reasonable commercial access to Somalia.

With respect to project vehicles, the PVOs have established their present field vehicle fleet using 4WD, diesel engine Japanese vehicles (mainly Toyota). Japanese vehicles for field use have now been accepted as standard equipment by the NRC and in no cases have U.S.-manufactured vehicles been purchased by the U.S. based PVOs for field operations in Somalia.

The acceptance of Japanese vehicles by the PVOs is based upon two factors:

- (a) Vehicle reliability, low cost operation, diesel engine availability, in-country spare part availability, adjacent countries spare part availability and in-country dealer service availability;
- (b) Ready purchase availability from Djibouti, the source of most of the PVOs' vehicle purchases. This source is used as vehicles can be driven from Djibouti to Somalia resulting in procurement delivery times of one or two months.

The requirement that U.S.-manufactured vehicles be purchased under this project is not recommended as each of the six to eight PVOs are requesting only two to three vehicles for their sub-project implementation needs. The difficulties of servicing U.S. vehicles and the limited availability of U.S. vehicles with diesel engines rule out the practical use of U.S.-manufactured vehicles for the proposed sub-project activities.

* The PP and Umbrella ProAg for these projects allow for the possibility of a Somali public or private sector organization acting as a S-R or RFP Sub-Project implementing agency. In such cases, the same considerations and conclusions presented in this Annex would apply to these non-PVO implementing agencies.

The sub-project activities to be implemented under the project, consisting mainly of agriculture and forestry plantings, show implementation of crop and fuelwood plantings to start within the first six months of project start-up. These activities in many cases will be dependent upon the importation of tractors, implements, drilling rigs, pumps and other related items. As the lead time for the ordering, procurement and shipping of U.S.-manufactured items to Somalia is estimated to be 9 to 12 months, procurement of equipment and materials from the U.S. could delay implementation for up to one year and could cause the loss of a full crop year of project activity. With the PVO's prior experience of ordering directly from European suppliers and lead time requirements for U.S. procurement, it is essential that the PVO be able to continue this practice.

Because of the nature of this project, with various PVOs implementing sub-projects and procuring similar equipment, the concept of standardization of some items of equipment was investigated.

At the NRC-sponsored Refugee Agriculture Workshop held in Mogadishu in early 1982 the standardization committee elected that unless extraordinary circumstances prevailed only the following makes of equipment should be purchased by the PVOs for the refugee program:

1. Water Pumps

V.M. (Italy)	Models 104 & 106
Godwin (U.K.)	Models T6/HR2 & T6/HR3
Kirloskar (India)	Model AV2 NW7

2. Tractors

Massey Furgeson (U.K.)	Model 275
Fiat (Italy)	Model 780/DT

3. Vehicles

Toyota (Japan)	diesel engine
Yamaha (Japan)	Motorcycles

No other standard items of equipment were listed.

Based upon the above issues and policy and program guidelines for refugee project activities, the two subject projects will permit source/origin procurement of the above listed commodities, materials and vehicles from Geographic Code 935 (Special Free World).

Project and sub-project agreements will, however, specify that all procurements at variance with normal Foreign Assistance Act dictated restrictions will have to be justified and that such justifications will have to be documented in the implementing agency's project files.

4. Justification for Proprietary Procurement

Based on the information provided above, it has also been determined that justification exists to procure the above described commodities on a proprietary basis in order to conform with agreed standardization programs considered necessary for effective project implementation and to ensure compatibility and adequate servicing with equipment on hand.

Attachment to Annex - Mogadishu 7358

To Washington D.C.

Copied to Nairobi

Khartoum

Kigali

UNCLAS MOGADISHU 7358

AIDAC

AID/W for GC/AFR and Nairobi for REDSO/EA, RLA

E.O. 12356: N/A

SUBJ: Refugee Self-Reliance (649-0123) and CDA Forestry Phase I - Refugee Areas (649-0122) Projects

Refs: (A) STATE/AID Policy Guidelines for African Refugee Activities, (B) STATE 216674

1. In the course of finalization of Project Authorization and Grant Agreement documentation for subject projects several questions have arisen regarding application of guidance previously provided by AID/W on the procurement procedures to be followed for these projects. In some respects the guidance appears (perhaps unintentionally) to unduly limit flexibility in implementing the projects and in other respects the guidance is simply not clear or complete regarding how it is to be applied in specific instances. While recognizing that this guidance was only intended to be general, the Mission wishes to insure prior to authorization that the approaches it intends to follow in the areas indicated below are appropriate as a matter of law and policy. The approaches described are considered necessary to permit timely and effective implementation of these two extremely important projects which need to get underway without delay to meet pressing refugee requirements.

2. Source/origin/nationality requirements. Ref (A) (which Mission still has only in draft form) adopts the order of preference approach to these requirements. Para G, Ref (B), which reported the results of the ECPE for the PID states, however, that quote if non-US procurement is required, justification demonstrating substantive conformity with AID regulatory source/origin criteria must be included in the Project Paper unquote. It is assumed that this requirement would also apply to all subsequent procurements not specifically discussed in the PP. Mission assumes, however, that the requirement for justification was not intended to apply when procurement is to be from the host country or code 941 countries rather than the U.S., as procurement from these countries would ordinarily be authorized under Agency policies if this were an FAA Grant to Somalia. Otherwise written justification will be required in situations in which waivers are not ordinarily required, which was clearly not intended. Accordingly, Mission intends to require justifications only when procurement is to be from countries other than the host country and code 941 (i.e. Code 935).

3. Non-competitive Procurement. Neither Refs (A) or (B) specifically address this although Ref (A) states regarding procurement procedures that quote apply Handbook 11 or AIDPR's as with host country contracts or direct AID contracts unquote. The AIDPR's and Handbook 11 contain not only criteria upon which non-competitive procurement may be justified but also an approval procedure which specifies various approving officials (or non-competitive review boards) depending on the size of the procurement. As in the case of source/origin/nationality exceptions, the Mission intends to apply the substantive requirements (i.e. the criteria) of the Handbook or AIDPR's and to execute a written justification based substantively on these criteria to be placed in the Project files rather than go through the formal procedure with attendant approvals at various levels as specified in HB11 and the AIDPR's.

4. Other Procurement Procedures. These include advertising and solicitation requirements, eligibility requirements, mandatory and recommended contract clauses, and mandatory approval (of IFB's, contracts over \$100,000) requirements as stated in HB11 and the AIDPR's. Again, the Mission intends to fully adhere to these requirements with deviation therefrom only to the extent permitted by law and only based upon written justification substantively meeting the criteria normally used to justify waivers of these requirements as stated in HB11 and the AIDPR's. These justifications would be included in the Projects files. Major deviations from the AIDPR's would be made after consultation with SER/CM.

5. Proprietary Procurement. The bases for approval of proprietary procurement are found in both Chap 3, HB11, and in HB15. The Mission would proceed as in the case of source/origin/nationality waivers with such procurement only permitted based upon a written justification for the Project files based substantially upon the criteria normally used when formal waivers are sought. The formal waiver procedures contained in the Handbook would not be used.

6. As indicated above, Mission believes that the need to be able to move quickly into implementation of these projects due to pressing refugee needs requires more flexibility in procurement procedures than normally required in development projects. As these projects represent part of the effort at a coordinated multi-donor response to the refugee situation, considerations of input timing, the need for compatibility and standardization of equipment among donors and participating agencies, and the need to take advantage of the few contractors having substantial field experience in Somalia, to name just a few factors, indicate a need for a more flexible procurement process than in the usual project. We think that the substantive concerns giving rise to the requirements can be satisfied without the need to tie up the process procedurally. We intend, however, to adhere to the procedures in HB11 and the AIDPR's as closely as possible and to involve as much as possible the RCO and RLA in the review of justifications for deviations from the requirements of these regulations.

7. Mission intends to proceed as indicated above unless otherwise advised.

Petterson.

ANNEX XI

PROCUREMENT OF GOODS AND SERVICES

Procurement of goods and services financed under this Project will be subject to the following rules relating to procurement source/origin and nationality. Additional procurement requirements applicable generally or to specific procurements will be more fully explained in Project Implementation Letters.

Subject to the special rules indicated below for air transport and ocean shipping services, all goods and services shall have their source/origin and their supplier's nationality in the following countries, in the order of preference indicated.

- (1) the United States (AID Geographic Code 000)
- (2) the Somali Democratic Republic and countries included in AID Geographic Code 941
- (3) countries included in AID Geographic Code 935.

Procurements from countries included in Category (3) above (Code 935), but not included in Categories (1) or (2) must be based on a written justification which will be prepared and maintained by the procuring organization as part of its project records. This written justification shall set forth the circumstances surrounding the procurement and be based on one or more of the following reasons:

- (a) the goods and services required are necessary to meet an emergency requirement which can be met in time only with goods and services or by suppliers from a country not included in categories (1) and (2) above;
- (b) the necessary goods and services or suppliers are not available from countries included in categories (1) and (2) above;
- (c) the lowest available delivered price of the required goods and services from countries or from suppliers from countries included in categories (1) and (2) would be fifty percent (50%) or more higher than the delivered price from a country included in Geographic Code 935;
- (d) impelling political considerations precluding consideration of sources in countries included in categories (1) and (2) above;
- (e) such other circumstances as are determined to be critical to the success of project or sub-project objectives.

Ocean shipping services: In addition to the source/origin and nationality requirements stated above, procurements of ocean freight services must meet the requirement that at least fifty percent (50%) of the gross tonnage of all goods financed by A.I.D. which may be transported on ocean vessels will be transported on privately owned United States-flag commercial vessels to the extent such vessels are available at fair and reasonable prices. Further explanation of the full requirements of the cargo preference requirements will be provided as necessary through project implementation letters.

Air transportation services: Transportation by air of property or persons, must be on carriers holding United States certification to the extent service by such carriers is available. Details of this requirement, including an explanation of when U.S. carriers are considered unavailable, will be provided in a project implementation letter.

Motor vehicles: The special requirement for procurement of U.S.-manufactured motor vehicles is not applicable to procurements under the Project. However, all vehicle procurements will be undertaken in accordance with the order of preference procedure described above.

ANNEX XII

Justification for Code 935 and Non-Competitive Procurement
For Land Use Survey Project Component

1. The CDA Forestry Sector Assistance Project: Phase I - Refugee Reforestation includes a sub-project which would permit the completion within a period of eighteen months of a detailed land use survey and mapping for the whole of Somalia. Ground-truthed aerial surveys and detailed maps have already been completed by the proposed Contractor for the Northern, Northwest, Central and Bay regions of Somalia. The National Range Agency has requested financing for completion of the land use mapping, in the remaining Southern region, which is the area in which most of the activities being supported under this and the Refugee Self-Reliance projects are located. It is proposed that the same Contractor who has prepared the other regional surveys and maps be again employed by the Government of Somalia as the implementing agent to insure compatibility on a national scale and to avoid delays in completing the survey. The proposed Contractor is a limited partnership of British nationality.
2. Under the policy and program guidelines for African refugee projects, goods and services to be procured under the project are to be procured in accordance with the following order of source/origin and nationality preference: (1) United States (Code 000); (2) Somalia or countries included in Geographic Code 941 and (3) countries included in Geographic Code 935. Procurements from category (3) above are to be based upon a justification demonstrating substantive conformity with AID regulatory source/origin criteria (State 216674).
3. Handbook 1, Supplement B, paragraph 5D 10a (1)(e) provides that a change in the authorized nationality for suppliers of services may be made based upon circumstances which "are determined to be critical to the achievement of project objectives". As indicated above, it is essential that surveys and maps be compatible with the work already done. As the proposed Contractor already has personnel and aircraft on site, in-country logistical support facilities, and the necessary standing agreements permitting overflight for surveying and mapping, the required work can get underway immediately upon signature of the contract. This, plus the Contractor's extensive previous mapping experience in Somalia, will assure completion of the necessary surveys and mapping (which will require approximately eighteen months) in sufficient time to permit review and utilization of the data required in other project implementation activities. This is extremely important given the lack of reliable information regarding the resources of the area.

4. Contracting by the Government of Somalia with the proposed Contractor will be on a non-competitive basis. Under usual AID procedures non-competitive host country contracting may be approved in situations in which the proposed Contractor has predominant capability, by reason of special experience or facilities, to perform the services required for the Project (see AID Handbook 11, Chap. 1, paragraph 2.4.2.a.3). The proposed Contractor has a long-standing relationship with the Government of Somalia, including standing agreement, confirmed by the Ministry of Defence, on overflight for low level aerial confirmation of LANDSAT imagery. In addition, the Contractor has established local credit arrangements which enable it to assure continuous operations even if payments under its contracts are delayed. Other known U.S. and Code 941 contractors do not have nearly as much in-country experience doing the type of work required, currently on-site staff, aircraft and facilities, and the established working relationships with the Government of Somalia as outlined above. Preliminary cost estimates provided by the Contractor for the required work have been reviewed and are considered to be reasonable.

5. Probable Contractor: Details

Cooperating Country:	Somalia
Authorizing Document:	Project Paper
Project:	CDA Forestry: Refugee Reforestation (649-0122)
Nature of Funding:	Grant (Refugee Program Funds): host country contract
Description of Services:	Land use survey and mapping of the remaining portions of the Southern region of Somalia where the Project's forestry and fuelwood production sub-projects are located
Approximate cost:	\$450,000
Proposed Contractor:	Resource Management & Research, a limited partnership, acting through Dr. R. Murray Watson, of British (Code 935) nationality.

6. Based on the information above, justification is considered to exist for the Government of Somalia to procure the required services on a non-competitive basis from the Code 935 supplier indicated.

ANNEX XIII

Government of Somalia Letters of Endorsement and Related Documents

Attached are the following official letters of endorsement and other GSDR notices relevant to the CDA Refugee Reforestation project:

Letter from Abdullahi Sheikh Mohamed, Acting Director General of Ministry of National Planning, to Mr. Kelly, under date of (undated - circa 9/82)

Letter from Mohamed Omar Giama, Vice-Minister for Ministry of National Planning, to Mr. Kelly, under date of January 25, 1982

Letter from Dr. Abdullahi Ahmed Karani, General Manager, National Range Agency, to Mr. Kelly, under date of January 28, 1982

Memorandum from Hussein Elabeh Fahie, Director General, Ministry of National Planning, initiating the CDA steering group of GSDR officials and donors on forestry, under date of November 3, 1981

Memorandum from Hussein Elabeh Fahie, Director General, Ministry of National Planning, announcing the formation of the Anti-Desertification Unit within the National Range Agency, under date of March 4, 1982

Memorandum from Hussein Elabeh Fahie, Director General, Ministry of National Planning, inviting the CDA steering group members to a meeting on June 16, 1982, at which the U.S. and other donors reported on assistance program developments

Minutes of Cooperation for Development in Africa Meeting (7), 16 June, 1982, Ministry of National Planning.





72/190

Jamhuuriyadda Dimoqraadiga Soomaaliya
WASAARADDA QORSHEYNTA QARANKA
MUQDISHO (Somalia)

«0»

Somali Democratic Republic
Ministry of National Planning
P. O. Box 1742
MOGADISHO (Somalia)
Telex 715 SPC MOGA

جمهورية الصومال الديمقراطية
وزارة التخطيط الوطني
ص. ب. ١٧٤٢
مقديشو - صوماليا
٧١٥ فكس

Ttx/Ref : BLA/81/5270 /S2

Ujeedo/Subject : REFUGEE SELF-RELIANCE (AID No.649-0123)
AID CDA FORESTRY PHASE I - REFUGEE AREAS
(AID No.649-0122) PROJECTS.

Dear Mr. Kelly,

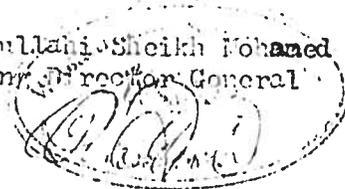
The Government has placed significant emphasis on providing care and maintenance assistance to refugees hosted in Somalia. Of late, new programs oriented towards ameliorating the problems of these unfortunate people have been designed. In this regard, the two projects identified above are consistent with the Government of Somalia's strategy to improve the lot of refugees through increasing their self-reliance capabilities.

As discussed with members of your staff, I understand that these two projects would contain a mix of activities which would require a funding contribution by AID of approximately six million U.S. dollars each.

Please note that the Government is in favour of implementing these projects, subject only to our acceptance of content and provisions as they will appear in the project Agreements. We request that you complete any remaining pre-implementation actions so that activities may begin as soon as possible.

Yours Sincerely,

Abdullahi Sheikh Mohamed
Acting Director General



Mr. James Kelly,
Director USAID,
Mogadishu,
S O M A L I A



25 GEN 1982

Republic of Somalia
Ministry of Forestry
P. O. Box 1712
MOGADISHU (SOMALIA)
TELEX 715 SFC MOGA

Tlx Ref: BLA/S/ / 03 / 82

Uj edio/Subject: - CDA FORESTRY INITIATIVE

Dear Mr. Kelly ,

As you are aware, the Government of Somalia is making an all - out effort to forestall a fuelwood supply crisis which looms on the horizon. The country's fuelwood reserves have deteriorated in recent years to a worrisome degree. Part of the depletion has been caused by the unanticipated influx of massive numbers of refugees who have sought asylum in Somalia in the last few years.

We have noted with great satisfaction the CDA multi-donor effort to assist us in devising and implementing a special strategy for dealing with the developing fuelwood problem. We are pleased that the U.S. is taking an active part in the CDA initiative and hope that your Government will be able to make a special contribution in support of our accelerated program designed to forestall the fuelwood crisis. We are particularly hopeful that the Dewey Refugee Commission will be able to give a high priority to refugee activities aimed at restoring fuelwood and forestry reserves.

Yours Sincerely

(Mohamed Omar Giama)
Vice - Minister

Mr. Jim Kelly
Director
USAID Mission to Somalia
MOGADISHU.

Jamhuuriyadda Dim. Soomaaliya
WAKAALADDA DAAQA QARANKA
(National Range Agency)

P. O. Box 1759 - Tel. 81858/60 81260
Muqdisho Soomaaliya



جمهورية الصومال الديمقراطية
الوكالة الوطنية للمراعى
صندوق البريد رقم ١٧٥٩
مقديشو الصومال

Cable : Somalrange

Ref :- WD 9/1/16/2007/02

1106-117
2/14

هاتف صومالرنج

To: Mr. J. Kelly
Director HRM
Mogadishu

STK
HIC
A

Dear Mr. Kelly:

The Somali Government concurs in the Project Strategy outlined in the draft PID dated Jan. 18, 1982. We look forward to receiving and working with the Project design team in the development of a final Project description. Please advise when the Team will be arriving.

Dr. Abdullahi Ahmed Karani
General Manager National Range Agency

Dear Mr. Kelly:

The Somali Government concurs in the Project Strategy outlined in the draft PID dated Jan. 18, 1982. We look forward to receiving and working with the Project design team in the development of a final Project description. Please advise when the Team will be arriving.

WITH MY BEST REGARDS;

(Copy for legibility)

Dr. Abdullahi Ahmed Karani
General Manager National Range Agency

Ministry of National Planning
Mogdisho

OFFICIAL FILE

Ref: EA/BDA/3/ ⁶³⁴⁰ ~~8388~~ 781

His Excellency The Ambassador	US Embassy	USA	Mogdisho
His Excellency The Ambassador	Embassy of FRG	✓	"
His Excellency The Ambassador	French Embassy	✓	"
His Excellency The Ambassador	British Embassy	✓	"
His Excellency The Ambassador	Italian Embassy		"
Director	USAID Mission		"
Resident Representative	UNDP		"
Resident Representative	UNHCF		"
FAO Representative	C/O Ministry of Agriculture		"
WFP Representative	C/O UNDP		"

NOV 3 - 1981

ACTION COPY

Action taken: _____
 No action necessary: _____

 (Initials) (Date)

Subject: Invitation to a Donors Meeting
on Reforestation and Fuelwood
production programmes

I wish to inform you that a meeting of donors on reforestation and fuelwood production will take place at the Ministry of National Planning on Thursday, 5th. November, 1981.

You are cordially invited to send a representative to this meeting. The meeting will only discuss at this stage our reforestation and fuelwood production programmes and will not commit any participants to undertake any projects in this area now.

Finally please accept your Excellency the assurance of my highest consideration.

Yours Sincerely,

 (Mussien Elabeh Fahie)
 Director General

cc: Director General
 Ministry of Livestock, Forestry & Range
 Mogdisho

: General Manager
 National Range Agency
 Mogdisho

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Ministry Of National Planning

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|--|------------------|-------------------|
| H.E The Ambassador, | USA Embassy, | <u>Mogadishu.</u> |
| H.E The Ambassador, | British Embassy, | " |
| H.E The Ambassador, | Italian Embassy, | " |
| H.E The Ambassador, | French Embassy, | " |
| Director | U S A I D , | " |
| Resident Coordinator, | U N D P, | " |
| UNHCR Representative, | C/O U N D P, | " |
| WFP Representative, | C/O U N D P, | " |
| FAO Representative, | C/O Ministry | " |
| All Voluntry Organisation, | | " |
| CC: Ministry of Livestock, Forestry & Range, | | " |
| CC: National Range Agency, | | " |

Subject: CDA Group - Forestry Development

I wish to inform you that in order to facilitate the activities of the Government/Donor Agencies, CDA Group, an anti desertification unit is being formed within the national Range Agency.

This Unit will initially be composed of Dr. Omar Addow Head of NTA forestry Service, Mr. David Crabtree, FAO Forestry Consultant and Mr. Gary Cohen of UNSAID, and will provide assistance to NRA in the preparation of reports, and other necessary document, organizing of meetings and making preliminary contacts with various donors and other International Agencies involved in the forestry Programme.

Therefore, you are kindly requested to cooperate with them and provide any assistance they might require from you in the performance of their duties,

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CONT	

Yours Sincerely
(Hussein Elabchi Fahio)
Director General.

MINISTRY OF NATIONAL PLANNING G

Moqadishu

Date: June 26, 1982, Washington, D.C.:

URGENT

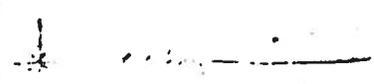
H.E. The Ambassador	Embassy of the Federal Republic of Germany
H.E. The Ambassador	British Embassy
H.E. The Ambassador	Italian Embassy
H.E. The Ambassador	French Embassy
H.E. The Ambassador	Yugoslav Embassy
Director	USAID
Resident Representative	UNDP
Resident Representative	The World Bank
FAO Representative	c/o Ministry of Agriculture
UNHCR Representative	UNHCR Headquarters
WFP Representative	c/o UNDP
Voluntary Organizations	
The Extraordinary Commissioner	National Refugee Commission
Director General	Ministry of Livestock, Forestry and Range
General Manager	National Range Agency

Subject CDA MEETING

I wish to inform you that the next CDA meeting will be held at the Ministry of National Planning on Wednesday, June 16, 1982 at 10:00 a.m. You are invited to send a representative to this meeting, which as agreed in the last meeting will discuss the forestry programme presented to the participants.

We look forward to your participation and valuable contribution to this programme.

Yours Sincerely,


Hussein Elabeh Fahie
Director General
Ministry of National Planning



MINISTRY OF NATIONAL PLANNING

SUBJECT: Minutes of Cooperation for Development in Africa Meeting (7)

DATE OF MEETING: 16 June, 1982

IN ATTENDANCE: Mr. Elabe, Director General, Ministry of National Planning
Mr. Bernard, British Embassy
Mr. Booth, FAO
Ms. Chambliss, Africare
Mr. Cohen, USAID
Mr. Crabtree, FAO
Mr. Dubed, NRC
Ms. Gulick, USAID
Mr. Hayman, World Bank Representative
Mr. Heiner, Inter-Church Response
Mr. Jinadasa, UNHCR
Dr. Karani, General Manager, NRA
Mr. Kokash, WFP
Mr. Manigrassi, Italian Embassy
Mr. Matarugic, Yugoslav Embassy
Mr. Mister, OXFAM
Mr. Muller, German Embassy
Mr. Openshaw, World Bank
Mr. Raj, WFP
Mr. Seyler, USAID
Mr. Shawki, FAO
Mr. Swartzendruber, USAID
Mr. Udo, UNDP/UNSO

Mr. Elabe, Director General of the Ministry of National Planning, opened the meeting by welcoming all members and new participants and reiterated the need for a concentrated attack on the fuelwood problem in Somalia.

Dr. Karani, NRA spelled out the various efforts made by his office since the last meeting to consolidate donor support for the CDA forestry effort.

Mr. Booth, a FAO advisor financed by USAID, drew upon his several years of forestry work in Somalia to comment on past and current forestry activities. He stressed the need for tying together all ongoing forestry work in the country including:

- studies of charcoal kilns (UNIDO)
- surveys of charcoal production areas in the Bay Region (World Bank)
- report on Anti-desertification (NRA, 1980)
- continuation of frankincense and myhrr production
- drawing up of land use maps of the central and northern rangelands
- continuation of sand dune fixation at Merca and Shalambod (UNSO)

Mr. Elabe then requested the participants to give an update on their forestry activity.

Mr. Udo, of UNDP stated that his organization has developed a new fuelwood initiative and requested participants to consider assistance to this project under a multi-donor rubric.

Ms. Frances Gulick, a member of the USAID forestry design team, outlined USAID's forestry project which will provide financing for:

- tree planting efforts in and near refugee areas of the Jalalaqusi, Quorioley, Luuq and Gedo regions
- production of 125,000 trees per year at various sites - as plantations, and/or shelterbelts
- land use survey activities
- improved woodstove construction

Mr. Bernard, the British representative, mentioned that he was awaiting the report of Mr. Henry, an ODA forestry expert who recently spent three weeks in Somalia. Mr. Bernard indicated there were some logistical administrative support problems to be resolved but there was a good possibility of securing the services of four lecturers for the Afgoi Forestry Training School as well as one charcoal expert and one forestry volunteer service officer. Mr. Udo indicated that the UNDP may be able to provide administrative support for the British experts if supplied with the necessary funds.

Mr. Manigrassi, of the Italian Embassy, indicated that the Joint Commission on Aid to Somalia was currently meeting in Rome to consider inter alia assistance to the forestry sector. Further, he is expecting a report by a pulp-paper expert who visited Somalia in February, 1982.

Mr. Muller, German Embassy, stated that German forestry assistance was continuing as a component of the Central Rangelands project.

Mr. Matarugic, representing Yugoslavia as a new CDA participant, expressed his interest in forestry assistance activities and requested minutes of previous meetings and background material on CDA. He pointed out that two Yugoslav forestry experts had visited Somalia last year and their report is expected soon.

Mr. Raij, of WFP stated that his organization wishes to accelerate its activities in forestry assistance, and consequently was working on a new project document. Mr. Raij further stated that WFP is very flexible in its approach to the forestry sector programming and stressed the need for including watershed management components in forestry projects.

Mr. Haymen, World Bank Representative expressed his interest in the forestry sector and stressed the need for a good data base of natural resource information before implementing any large scale forestry project. He indicated that future World Bank assistance would most likely be concentrated on community forestry efforts, fuelwood plantations near Mogadishu and afforestation in northern Somalia.

Mr. Shawki, FAO representative, stressed the importance of updating all information on technical assistance activities, commented on the recent FAO sand dune stabilization course in Rome, and then referred to the need to develop consistent criteria for selecting sites for fuelwood plantations.

Mr. Openshaw, World Bank Energy Assessment Team, provided some valuable insights on forestry requirements in Somalia; to wit:

- to support Somalia's fuelwood needs at least 260,000 hectares should be planted by year 2000
- land should be set aside immediately for plantation use
- stove improvements must be devised on an accelerated basis to reduce fuelwood use
- charcoal powders should be briquetted to conserve use
- more multi-purpose tree species should be planted
- current estimate of wood supply and land use maps for the south is urgently needed

Mr. Seyler, USAID design team referred to an agroforestry workshop to be staged by the International Council on Research in Agroforestry (ICRAF), stressed the importance of developing a methodology for species research trials, and requested comments from participants on the nursery guidelines distributed at the opening of the meeting.

Mr. Crabtree, FAO expert indicated that he had detected much interest on forestry/fuelwood development matters during his extended trips to Somalia. In a survey of 19 communities, 75 percent of the people interviewed expressed a positive reaction to fuelwood plantations. Dr. Karani, NRA, added that community ownership of plantations is a very important ingredient for successful fuelwood schemes.

Mr. Seyler made a suggestion that future CDA meetings be focused on specific themes (e.g. woodstove improvement, agroforestry planning, etc.) to permit more indepth discussion on the constraints to forestry development in Somalia and specific strategies for overcoming these constraints.

Mr. Elabe asked participants to consider this suggestion and indicated their views at the next CDA session. He then thanked participants for attending the interesting session and closed the meeting.

Distribution List in Addition to Attendees

Mr. O. Addow, NRA
Mr. G. Gibril, FAO
Mr. M. Jameleh, NRA
Mr. J. Kelly, USAID
Mr. C. Mareschal, French Embassy
Mr. N. Nordval, Inter-Church Response
Mr. C. Wood, British Embassy



UNCLASSIFIED
Department of State

ANNEX XIV

PAGE 01 OF 02 STATE 216674
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INCLUDED IN ANNEX 11 IN THE RSR PID SHOULD BE MADE AVAILABLE TO VOLAGS TO FACILITATE PROJECT APPROVAL.

ORIGIN OFFICE AF(A-03)
INFO AAAF-02 AFDP-02 AFDR-06 FVA-02 PPCE-01 POPR-01 PPPB-03
GC-01 GCAF-01 GCFL-01 FM-02 FFP-03 AFDA-01 RELO-01
MAST-01 /031 AS LS-4

INFO OCT-00 INR-10 AF-00 EB-00 10-15 RP-10 SR-04
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APPROVED BY AIO/AA/AFR
AID/DAA/AFR: GPATTERSON
AID/AFR/DR: NCOHEN
AID/PPC: RFAHALE
AID/AFR/DR/ARD: HFARNHAM (DRAFT)
AID/PPC: ESIMMONS (DRAFT)
AID/AFR/DP: TCORNELL (DRAFT)
AID/AFR/DR/SDP: JBLUMGART (DRAFT)
AID/AFR/DR/EAP: MBAKER
STATE/PR: CHUGGINS (DRAFT)
AID/AFR/DR/ARO: LABEL
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TAGS:

SUBJECT: SOMALIA - CDA FORESTRY PHASE I -- REFUGEE AREAS
(649-0122)

1. DAA/AFR CHAIRED ECPR OF PID FOR SUBJECT PROJECT ON JULY 14, 1982. PID IS APPROVED AND MISSION MAY COMPLETE DESIGN UNDER PROCEDURES OF RECENTLY AMENDED DELEGATION OF AUTHORITY 140 AND IN CONFORMANCE WITH THE GUIDANCE PROVIDED BELOW.

II. SPECIFIC GUIDANCE

-- A. INSTITUTION BUILDING. THE PP SHOULD ESTABLISH GUIDELINES AND CRITERIA FOR ADMINISTRATIVELY, FINANCIALLY AND SOCIALLY FEASIBLE MARKETING OPERATIONS. THE PP SHOULD INCLUDE A MORE COMPLETE DESCRIPTION OF (1) THE EXISTING FUELWOOD OWNERSHIP, USE, SUPPLY AND MARKETING SYSTEMS, WITH SPECIAL EMPHASIS ON THE ROLE OF PRIVATE ENTREPRENEURS AND LOCAL FUELWOOD MANAGEMENT SYSTEMS, AND (2) EXISTING SOURCES AND LEVELS OF FOREST DEPARTMENT REVENUES TO FINANCE POST PROJECT RECURRENT COSTS. THE PROPOSED FUELWOOD, SOCIAL AND ECONOMIC STUDIES SHOULD BE INITIATED QUICKLY SO SUBPROJECTS MAY MAKE USE OF THE FINDINGS ASAP.

-- B. PROJECT PAPER AND SUBPROJECT ANALYSIS. MISSION IS TO ENSURE THAT THE PVOS EXAMINE ADEQUATELY THE TECHNICAL SOCIAL AND ECONOMIC FEASIBILITY OF THEIR PROPOSED PROJECTS. THIS CAN BE FACILITATED BY (1) INCLUDING IN THE PP THOROUGH SOCIAL AND ECONOMIC ANALYSES ON WHICH THE PVOS CAN DRAW IN DESIGNING THEIR OWN ACTIVITIES. (2) PROVIDING TO VOLAGS THE TECHNICAL, SOCIAL AND ECONOMIC CRITERIA TO BE MET FOR SUBPROJECT APPROVAL BY USAID. SOCIAL ANALYSIS GUIDELINES

-- C. ECONOMIC ANALYSIS. THE PP TEAM SHOULD HAVE AN ECONOMIST TO UNDERTAKE THE ADDITIONAL ECONOMIC ANALYSIS NEEDED AND TO WORK WITH OTHER TEAM MEMBERS TO ENSURE SOUND PROJECT DESIGN. IN ADDITION TO TOPICS IN PARA 11.A, ANALYSIS SHOULD INCLUDE MORE ACCURATE ASSESSMENT OF VALUE OF OUTPUT, RECURRENT COSTS (PARTICULARLY OF NURCERY OPERATION), LABOR COSTS, SENSITIVITY OF ECONOMIC RETURNS TO LOWER YIELD LEVELS AND LONGER CUTTING INTERVALS.

-- D. IEE. THE BUREAU'S ENVIRONMENTAL OFFICER HAS DETERMINED THAT A POSITIVE DETERMINATION IS WARRANTED. PLEASE FORWARD THE ENVIRONMENTAL ASSESSMENT WHEN COMPLETED FOR REVIEW AND APPROVAL.

-- E. FUNDING. THE MISSION MAY AUTHORIZE AND OBLIGATE UP TO THE LEVEL OF DOLS 6 MILLION OVER THE LIFE OF PROJECT, I.E. THREE YEARS, WITH THE UNDERSTANDING THAT SAVINGS IN EXPENDITURES FOR APPROVED SUBPROJECTS MAY BE REPROGRAMMED FOR SIMILAR ACTIVITIES WHICH MEET CRITERIA ESTABLISHED IN THE PROJECT PAPER. IF ADDITIONAL SUBPROJECT PROPOSALS ARE RECEIVED WHICH MEET THE CRITERIA BUT ARE IN EXCESS OF THE AUTHORIZED CEILING, AID/W WILL ENTERTAIN MISSION REQUESTS FOR ADDITIONAL FUNDING FROM THE DOLS 30 MILLION SPECIAL REFUGEE FUND, FOR THE NEW SUBPROJECTS ONLY -- SUBJECT TO THE AVAILABILITY OF FUNDS. IF SPECIAL REFUGEE FUNDS ARE NOT AVAILABLE, FUNDING FROM DA OR OTHER AID ACCOUNTS SHOULD BE CONSIDERED.

-- F. DATA COLLECTION AND EVALUATION. THIS PROJECT REPRESENTS A NEW APPROACH FOR AID. IT IS IMPORTANT THAT AN EVALUATION PLAN BE DEVELOPED DURING PROJECT DESIGN AND ADEQUATE PRE-PROJECT AND BASELINE DATA BE COLLECTED SO THAT AN EFFECTIVE AND USEFUL ASSESSMENT OF LESSONS LEARNED AND PROBLEMS/OPPORTUNITIES IDENTIFIED CAN BE MADE AVAILABLE TO OTHERS IN AID BOTH DURING PROJECT IMPLEMENTATION AND AFTER IT IS COMPLETED. DATA ON BENEFICIARIES AND BENEFITS SHOULD BE SUFFICIENTLY PRECISE TO PERMIT DISAGGREGATION OF BENEFITS TO SUBGROUPS OF REFUGEES (WHERE APPLICABLE), TO CATEGORIES OF HOUSEHOLD (WOMEN-HEADED, MALE-HEADED), AND TO MEN AND WOMEN. THE TERM "REFUGEE FAMILY" OR "HOUSEHOLD" SHOULD BE CLEARLY DEFINED, SUCH AS A HOUSEHOLD WITH BOTH PARENTS OR A SINGLE HEADED (MALE OR FEMALE) HOUSEHOLD, AND SHOULD BE USED CONSISTENTLY IN THE PP AND BY THE PVOS. DATA SHOULD BE DISAGGREGATED BY SEX AND HOUSEHOLD TYPE IN PROJECT ANALYSES, PROJECT BASELINE DATA COLLECTION, MONITORING AND EVALUATION.

-- G. IT HAS BEEN DETERMINED THAT AID SOURCE/ORIGIN AND NATIONALITY LAWS AND RULES APPLICABLE TO PROCUREMENTS OF COMMODITIES AND SERVICES ARE NOT APPLICABLE TO PROCUREMENTS UNDER THIS PROJECT HOWEVER, IF NON-US PROCUREMENT IS REQUIRED, JUSTIFICATION DEMONSTRATING SUBSTANTIVE CONFORMITY WITH AID REGULATORY SOURCE/ORIGIN CRITERIA MUST BE INCLUDED IN THE PROJECT PAPER. NON-CODE 935 PROCUREMENT SHOULD NOT BE AUTHORIZED.

III. ADDITIONAL PROJECT COMMITTEE CONCERNS.

-- A. SUBPROJECT APPROVAL. AS INDICATED IN AID/W'S COMMENTS ON THE REFUGEE SELF-RELIANCE PROJECT PID (649-0122), THE PC RECOMMENDS THAT THE MISSION MORE CAREFULLY DEFINE IN THE PP THE SELECTION AND APPROVAL PROCESS FOR VARIOUS PVO ACTIVITIES. THE SAME PROCEDURES SHOULD BE USED FOR ALL REFUGEE PROJECTS.

-- B. GOVERNMENT POLICY AND INVOLVEMENT MUST BE MONITORED TO ENSURE APPROPRIATE AND EFFECTIVE IMPLEMENTATION

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OF THIS PROJECT. IN PARTICULAR, CARE SHOULD BE TAKEN TO ENSURE THAT PRIVATE SECTOR PARTICIPATION IS ENCOURAGED IN FUELWOOD MARKETING SYSTEMS.

-- C. RELATIONSHIP TO OTHER ASSISTANCE. THE MISSION IS REQUESTED TO DESCRIBE IN GREATER DETAIL IN THE PP THE OTHER ASSISTANCE IT HAS PROVIDED IN THIS SECTOR AND HOW THAT RELATES TO THIS PROJECT. SPECIFICALLY, THE MISSION SHOULD DESCRIBE HOW THE POKS DOLS 750,000 PROVIDED EARLIER THIS FY COMPLEMENTS THIS PROJECT. ADDITIONALLY, AN EXPANDED ANALYSIS OF OTHER ODMOR ACTIVITIES SHOULD HELP THE MISSION DETERMINE WHETHER ALL CRITICAL PROBLEMS ARE BEING ADDRESSED AND, IF NOT, HOW THEY MIGHT BE COVERED.

-- D. FOLLOW-ON PROJECTS. THE MISSION IS REQUESTED TO PROVIDE AID/W WITH AN OUTLINE OF EXPECTED INVOLVEMENT IN FUTURE (I.E., PHASE III) ACTIVITIES AND HOW THESE WILL RELATE TO THE MISSION'S PROGRAM STRATEGY AND ANTICIPATED FUNDING AVAILABILITIES.

-- E. FOOD FOR WORK. THESE TWO PROJECTS AND THEIR COMPONENT SUBPROJECTS INCLUDE NON-FOOD COMMODITY AND MANAGEMENT COSTS FOR A SIGNIFICANT VOLUME OF TREE PLANTING, BRIDGE/ROAD IMPROVEMENT AND OTHER RSR ACTIVITIES, MANUAL LABOR WHICH WILL BE PAID FOR UNDER FOOD FOR WORK. THESE WILL BE SUPPORTED DURING THE FIRST YEAR BY WFP COMMODITIES, FOR PROJECTS WHICH MEET THE TECHNICAL MANAGEMENT, WORK AND PAYMENT NORMS DEVELOPED UNDER THE LOCAL MULTIODMOR FFW STEERING COMMITTEE, NOW FORMALLY CHAIRED BY THE NRC. IT IS UNDERSTOOD THAT USAID INTENDS TO SUBMIT A REQUEST FOR A TITLE II PROGRAM WHICH WILL SUPPLEMENT AND, FOR ACTIVITIES DEVELOPED UNDER THESE TWO PROJECTS, REPLACE WFP COMMODITIES OVER THE REMAINING LIFE OF THE SUBPROJECTS. THE PP SHOULD INCLUDE (1) A DESCRIPTION OF THE FFW STEERING GROUP AND ITS PROJECT NORMS AND APPROVAL PROCESSES; (2) A PRELIMINARY QUANTITATIVE ASSESSMENT OF WORKER DAYS LIKELY TO BE INVOLVED; (3) TYPES OF FOOD COMMODITIES REQUESTED FROM WFP, PL480 AND OTHER DONORS; (4) CONFIRMATION OF AVAILABILITY OF WFP COMMODITIES DURING THE FIRST YEAR OF THE PROJECT; AND (5) BRIEF SUMMARY DESCRIBING WHICH PARTIES WILL BE RESPONSIBLE FOR EACH STEP OF THE FOOD HANDLING/ DELIVERY SYSTEM FOR THE FFW SUBPROJECTS FROM POINT OF ENTRY IN SOMALIA TO DELIVERY AT THE FFW SITES. FFW SUBPROJECTS WHICH INCLUDE PL480 TITLE II COMMODITIES AS PART OF THE RATION PACKAGE SHOULD FOLLOW GUIDELINES OUTLINED IN AID HB 9, CHAPTER 10, DOCUMENTATION REQUIREMENTS (PAGES 10-8 AND 10-9) IN THE PREPARATION OF THEIR PROPOSALS. IT IS ALSO UNDERSTOOD THAT USAID'S FFW TITLE II REQUEST WILL BE SUBMITTED TO WASHINGTON FOR APPROVAL IN CONFORMANCE WITH REGULAR PL480 WASHINGTON CLEARANCE PROCEDURES.

IV. THE MISSION IS REQUESTED TO CABLE A DRAFT CN PRIOR TO AUTHORIZATION.

V. SEPTEL FOLLOWS ON PP DESIGN ASSISTANCE FROM AID/W. SHULTZ

ANNEX XIV (continued)

CDA Forestry Phase I - Refugee Areas PE

The following listing describes how the PD and related actions dealt with the guidance from AID/W contained in the ECPR PID Cable (State 216674).

<u>Item #</u>	<u>Subject</u>	<u>Where/how dealt with</u>
I	Complete design under Delegation 140.	Executive Summary - F. Authorization is prepared in final, Annex XVI.
II-F	Prepare adequate evaluation plan.	Section V
II-G	Document any non-US procurement in Project Paper.	Section VI - D. Annexes X, XI, XII.
III-A	Define selection and approval process for sub-projects.	Annex XV See also Section II A, B, D for criteria and guidelines
III-B	Monitor government policy and involvement.	Section IV, Figure 2. Section V, Annex IV
III-B	Ensure private sector participation is encouraged in fuelwood marketing systems.	Section II - C, D.
III-C	Describe other US assistance, specifically how \$250,000 PD&S funds complement this project.	Annex I
III-C	Describe other donor activities.	Annex I
III-D	Outline possible Phase II activities.	Annex I
II-A	Establish guidelines for marketing operations.	Section II-D.4 and Annex V.
	Include a more complete description of existing fuelwood supply/marketing systems, with attention to role of local management.	Annex V
	Describe existing sources and levels of forest department revenues to finance post project recurring costs.	Annex V
II-B	Provide PVDs with guidance on technical, social and economic feasibilities.	Section II A, B, D and Annex VI and VII

<u>Item #</u>	<u>Subject</u>	<u>Where/how dealt with</u>
	Provide guidance on technical, social and economic criteria to be met for sub-project approval.	Section II A, B, C. Annex VII
III-C	Additional economic analyses, particularly re value of output, recurring costs, lower yields, longer cutting intervals.	Section II-D Annex VIII
III-D	Prepare environmental assessment.	Annex IX
III-E	Food-for-Work.	Section II-C2 and 3 Section III-K Annex VI
IV.	Congressional Notification.	Prepared in Washington, Submitted Sept. 9, '62

ANNEX XV

USAID PROCEDURES FOR APPROVAL
OF PVO SUB-PROJECTS

1. Purpose

To establish USAID/Somalia criteria and procedures for approval of project proposals submitted by organizations for funding under the Refugee Self-Reliance and Forestry projects.

2. Background

The opening of the UNICR Branch Office in Mogadishu in 1979, marked the beginning of international recognition of the refugee emergency in Somalia. This act also marked the beginning of large scale relief efforts which attracted GSDR, UNFP, donor and PVO participation. Following two and one half years of crisis management, gradual stabilization of refugee health and camp conditions allowed the GSDR and donors to begin planning for the near and long term.

The results of the longer term planning are the Refugee Self-Reliance and Forestry projects. Each project has a focus on refugee self-help utilizing experienced PVOs to implement sub-projects for and with refugees (and host population where appropriate). Financing for the Refugee Self-Reliance and Forestry projects is made available through the Foreign Assistance and Related Appropriations Act, 1982. To be eligible for participation, PVOs must have a proven record of experience (preferably in Africa) with refugees or village level people, be formally registered with AID/Washington, and have, or be able to obtain an operation agreement with the GSDR.

3. USAID Sub-Project Review Committee

(A) The USAID Sub-Project Review Committee is established to:

- (1) review sub-project proposals formally submitted by eligible PVOs and Somali organizations and
- (2) to recommend approval or disapproval to the USAID Director who makes the final decision on sub-project proposals.

(B) The basic Review Committee, which will examine each formally submitted proposal is composed of the Assistant Director (AD), Refugee Affairs Officer (RAO), and Environmental Officer (EO), and a representative from the USAID Project (PROJ), Agriculture (AGR), and Controller's (CON) Offices. The Refugee Self-Reliance or Forestry Project Manager will prepare all documents, schedule, convoke and attend all Review Committee meetings.

(C) The Project Manager is responsible for assuring that all appropriate USAID staff competence is brought to bear in considering proposals. Consequently, other USAID officers and TDY personnel will be requested to participate when appropriate in the judgement of the Project Manager.

(D) Preparation of sub-project proposals are the responsibility of the PVOs or Somali organizations and their counterpart organizations. Proposals submitted for USAID consideration, whether to be implemented through the medium of a grant, cooperative agreement or contract, will be reviewed in accordance with the guidelines offered in Appendix 5A (Procedures for PVOs on Grants) of AID Handbook 3 (Project Assistance). Project proposals should generally follow the form and substance of Attachment B to the Appendix. Organizations submitting proposals will do so under cover letter to the USAID Director.

4. USAID Review Procedure

The time from receipt of a sub-project proposal to formal or informal USAID response to the submitting organization should not exceed two weeks. Exceptions to this two week processing limit will occur only in those circumstances where USAID must await the arrival and participation of outside (REDSO) expert personnel, significant interaction/coordination is required with GSDR or other agencies, or upon presentation of other exceptional circumstances, and then only with the approval of the USAID Director.

The following procedure will be followed when a proposal is formally received by the USAID/Director:

Step 1 (Action Time 2 days):

The Project Manager, in consultation with USAID/AD, will designate individuals to serve on the Review Committee. He will distribute copies of the proposal to all members. The distribution memo will contain information on the Review Committee meeting date, time and place and a copy of the SAC Form (see below).

Step 2 (Action Time 5 days):

Review Committee members will return the completed SAC Form to the Project Manager not later than five days after receiving it and the proposal.

Step 3 (Action Time 2 days):

The Project Manager will consolidate the data on the SAC Form and prepare and distribute an issues paper prior to the Review Committee meeting.

Step 4 (Action Time 2 days):

The Review Committee meeting will be held and one or the other of the following will be prepared for the USAID Director's action:

Step 4a - In the case of the Review Committee requesting that the submitting organization supply USAID with additional definition or proposal clarifications, a listing of these items will be prepared and informal contact made with the organization to obtain the information.

Step 4b - In the case of the Review Committee recommending approval or rejection of the proposal, an action memorandum containing the recommendation will be prepared by the Project Manager and presented to the USAID Director. The memorandum will contain a draft of a letter to be formally sent to the submitting organization.

Step 5 (Action Time 2 days):

The submitting organization will be informed of the results of USAID's review. In the case of step 4a having been chosen, feedback will take the form of informal contact, and in the case of step 4b having been followed, by formal letter from the USAID Director.

Total process time: 13 days.

(Note 1: If step 4a has been followed, it will be necessary for USAID to await the submission of the requested definitions and/or clarifications. When they are received, the Project Manager, in consultation with the submitting organization, will determine how they are to be incorporated into the formally submitted proposal. The Project Manager will then seek Review Committee members' acceptance of the proposal and follow step 4b, should Review Committee members agree on approval.)

(Note 2: The Project Manager will ensure that there has been informal coordination with GSDR counterparts and other donor agencies. All formal communications will be copied to these organizations.)

5. Sub-Project Selection and Approval Criteria

Selection and approval criteria will be used as guidelines for Review Committee members when they are completing the Selection and Review Criteria (SAC) form (attached below). Proposals submitted for funding consideration should not be in conflict with the criteria. Pertinent references supplying data, background or furthering guidance to submitting organizations from the AID Project Papers (PPs) and their annexes along with level of effort (detail) expected are indicated after each of the criteria.

Criteria A: Project should contribute to improvements in agriculture, forestry, improved natural resource management, rural works infrastructure or human resource development in a manner consistent with USAID and GSDR program strategy and project objectives.

References: AID PP statement of objectives, GSDR 5 Year Plan, USAID Country Development Strategy Statement (CDSS).

Level of Effort: The proposal should have a clear and concise statement of goals and objectives.

Criteria B: Project should contribute to the establishment and/or improvement of the capacity of government to provide development services particularly in agriculture, range management, forestry or skills training.

References: AID PP Administrative Analysis and annexes on GSDR counterpart agencies; Planning Unit of NRC -- RSR Annex 3, "Detailed Administrative Analysis of the NRC" -- RSR Annex 24, "Coordination with Other Donor Assistance" -- Forestry Annex I, and "Institutional Support to the NRA" -- Forestry Annex II.

Level of Effort: The proposal should state how it will assist the GSDR to establish or improve its development service capacity in terms of new systems, new technology and/or new data and how this will be accomplished. Specific detail should include the number of GSDR counterparts trained, systems in operation, etc.

Criteria C: Project should consider GSDR capacity to replicate, expand, utilize new technologies, and cover recurring costs.

References: Same as Criteria B plus PP economic analysis.

Level of Effort: The proposal must address each of these considerations if they are pertinent to the activities to be funded. In the case of new technologies, statements should include the "how" and "where" of process production and dissemination capacity. For recurring costs, if GSDR capacity to cover these costs is questionable, a quantitative projection of sources and uses of funds should be outlined and/or reference should be made to the specific location in the AID PP where this analysis may already have been performed. (For recurring costs, also see Forestry annex V - "Fuelwood Supply and Marketing in Somalia".)

Criteria D: Project should be environmentally sound per guidelines given in the Environmental Assessment (EA) and include a completed EA checklist, if required.

References: AID Environmental Assessment (EA) -- RSR Annex 5 or Forestry Annex IX.

Level of Effort: A statement on environmental impact should be included. Reference to the EA should be made if this will help clarify the project's effect on its environment.

Criteria E: Project should be consistent with PP Social Analysis guidelines and criteria, and include identification of:

1. procedures and criteria for selection of participants and beneficiaries
2. project benefits and who receives them
3. baseline data content and collection procedures and system for updating data to enable disaggregation of benefits to sub-groups of refugees, categories of households and to men and women (where applicable)
4. local social structure and participation of refugees and their neighbors in project design and implementation.

References: PP Social Analysis and two annexes, "Social Analysis -- Amplified" and "Guidelines for Social Analysis .

Level of Effort: The proposal must show that the submitting organization has considered the social issues. If a system, such as for participant selection, is to be developed only after some experience is gained in early implementation efforts, then this should be noted. Plans or established systems for baseline and update data should be as specific as possible. Data or survey forms may be appended to the proposal.

Criteria F: Project should be economically justifiable and should indicate the basis for a determination of economic feasibility.

References: PP Economic Analysis and Forestry Economic Analysis Annex VIII.

Level of Effort: Cost/Benefit or Cost Effectiveness analysis are desirable, but not required for all projects. At the minimum each proposal should contain an economic, as opposed to social, justification which may compare the proposed activities to alternative development programs, to doing nothing or refers to a specific model presented in the AID PP Economic Analysis.

Criteria G: Project should be technically sound, consistent with the PP technical guidelines, and identify the basis for choice of the technology to be employed.

References: PP Technical Analysis Sections plus the following annexes:
 "Technical Criteria" -- RSR Annex 16, "Agricultural Weather Risks"
 - RSR Annex 17, "Other Donor Activities in Refugee Agriculture"
 - RSR Annex 22, "Technical Linkages to 5 Year Plan" -- RSR Annex 23,
 "Nitrogen Fixation in Leguminous Trees in Somalia" -- Forestry Annex XXI.

Level of Effort: The proposal can make reference to pertinent statements and criteria given in the PP and its annexes when these technological considerations have been addressed in the AID documents. The proposal must indicate that the submitting organization fully understands and/or has made adequate provision for technical factors (e.g. soil types, evapotranspiration, tree species suitability, etc.).

Criteria H: Project should contain an acceptable monitoring and evaluation plan consistent with PP guidelines which allows for analysis of project impact.

References: PP Evaluation Arrangements section.

Level of Effort: The proposal should indicate the intervals, content and purpose(s) of periodic reports and any special reports and evaluations. It should also state who is to prepare and receive the reports.

Criteria I: Project should contain a realistic and detailed implementation plan which outlines roles and responsibilities of all concerned agencies and local individuals or groups both during and after the PACD*

References: PP Implementation Plan.

Level of Effort: The plan presented in the proposal should show when all significant actions will occur (dates of arrivals of technicians, beginning and ending of phases, training course dates, etc.). In addition, the plan should contain enough detail to enable a monitoring of progress against schedule. A chart, such as that given in the PP, and/or other form may be utilized.

Criteria J: Project budget should be complete, use minimum cost standards, and be consistent with Handbook 3, chapter 6A guidelines.

References: Handbook 3, chapter 6A and Forestry Annex XX - "Species Trial Coordination and Nursery and Outplanting Cost Accounting".

Level of Effort: AID, submitting organization, other donor and GSDR inputs should be listed. The basis for all line items not clearly defined by the line item narrative should be presented as a footnote (e.g. the computation of the value of Food-for-Work inputs or number of person days of technical assistance times daily rate) or as an annex to the proposal (e.g. illustrative equipment list).

* PACD: Project Assistance Completion Date - the date by which it is estimated that all AID financed project assistance will be complete. normally, this will mean all services performed, all goods furnished.

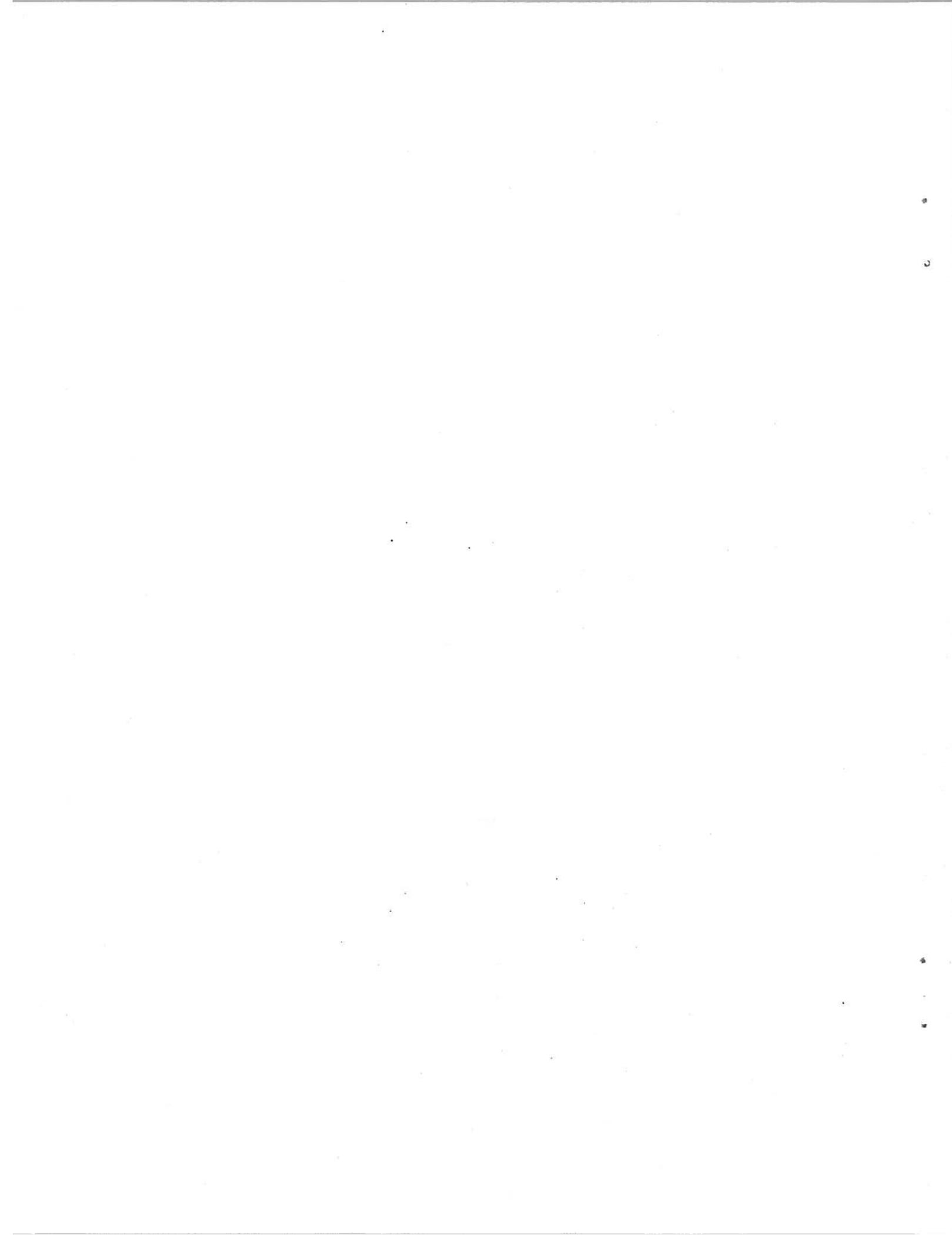
Criteria K: Project should be administratively feasible, describing PVO experiences and capacities to implement the activities described.

References: PP Administrative Analysis and RSR Annex 4 -- "PVO Agencies in Somalia".

Level of Effort: A section of the proposal should describe the submitting organization's capacity to undertake the project. Especially important are its in-country experiences and specific experiences with pilot or previous efforts of a similar nature.

6. Post Approval Action

When a sub-project proposal has been approved by AID and the GSDR implementing agency, the Project Manager will collaborate with the GSDR counterpart and submitting agency in the development of a tri-partite implementation agreement.



SELECTION AND APPROVAL CRITERIA (SAC) FORM

(for Sub-Project submissions under USAID
Refugee Self-Reliance & CDA Forestry Projects)

Submitting Organization: _____

Rater's Name/Office: _____

Date Submitted: _____

Date Form prepared: _____

Proposal Title: _____

Submitted for Funding under: CDA Forestry
(649-0122)

Refugee Self Reliance
(649-0123)

CRITERIA	RATER	RATER'S COMMENTS
A. Project should contribute to improvements in agriculture, forestry, improved natural resource management, rural works infrastructure or human resource development in a manner consistent with USAID program strategy and project objectives.		
B. Project should contribute to the establishment and/or improvement of the capacity of government to provide development services particularly in agriculture, range management, forestry or skills training.		
C. Project should consider GSDR capacity to replicate, expand, utilize new technologies, and cover recurring costs.		

CRITERIA	RATER	RATER'S COMMENTS
<p>D. Project should be environmentally sound per guidelines given in the Environmental Assessment (EA) and include a completed EA checklist, if required.</p>		
<p>E. Project should be consistent with PP Social Analysis guidelines and criteria, and include identification of:</p> <ol style="list-style-type: none"> 1. procedures and criteria for selection of participants and beneficiaries; 2. project benefits and who receives them; 3. baseline data content and collection procedures and system for updating data to enable disaggregation of benefits to sub-groups of refugees, categories of households and to men and women (where applicable); 4. local social structure and participation of refugees and their neighbors in project design and implementation. 		
<p>F. Project should be economically justifiable and should indicate the basis for a determination of economic feasibility.</p>		
<p>G. Project should be technically sound, consistent with the PP technical guidelines, and identify the basis for choice of the technology to be employed.</p>		

CRITERIA	RATER	RATER'S COMMENTS
H. Project should contain an acceptable monitoring and evaluation plan, consistent with IF guidelines, which allows for analysis of project impact.		
I. Project should contain a realistic and detailed implementation plan which outlines roles and responsibilities of all concerned agencies and local individuals or groups both during and after the PACT.		
J. Project budget should be complete, use minimum cost standards, and be consistent with Handbook 3, chapter 1A guidelines.		
K. Project should be administratively feasible, describing PVO experiences and capacities to implement the activities described.		
L. Overall Criteria	All	
M. Overall Recommendation	All	Approve <input checked="" type="checkbox"/> Disapprove <input type="checkbox"/> Request Clarifications/Modifications <input type="checkbox"/>



ANNEX XVI

ACTION MEMORANDUM FOR THE USAID/SOMALIA DIRECTOR

THRU : Mr. James M. Shea, CDO

FROM : M. Peter Liefert, PROJ

SUBJECT: CDA Forestry Phase I - Refugee Areas (649-0122)

I. Problem: Your approval is required to execute a grant of \$6,000,000 from funds pursuant to the Foreign Assistance and Related Programs Appropriations Act, 1982 and the Migration and Refugee Assistance Act of 1962 as amended, for the CDA Forestry Phase I - Refugee Areas Project.

II. Discussion:

A. Project Description: This project constitutes the first stage of a major U.S. initiative within the framework of a new multi-donor cooperative effort. The primary goal of this collective effort is to assist the Government of Somalia (GSDR) to undertake a large program of forestry and fuelwood planting as part of its overall social and economic development efforts. The project will focus on deforested and devastated areas in and around refugee camps, providing tree planting, fuel conservation and work opportunities to both refugees and their neighboring populations.

Reforestation and Fuelwood Production (RFP) sub-project activities, representing the major portion of project funding, will be implemented primarily by U.S. based Private and Voluntary Organizations (PVOs), most of which are presently operating on-going refugee assistance programs in Somalia.

This project is closely linked to the proposed USAID Refugee Self-Reliance Project (649-0123). The self-reliance project may encompass various refugee activities, including agriculture, infrastructure development, and skills training activities in many of the same areas and implemented by the same or similar PVOs.

To provide an integrated, rational approach to forestry and natural resources management, the project contains the following components:

1. Institution Building

The Forestry Department of the National Range Agency (NRA) does not possess the skills or manpower needed to combat Somalia's desertification problem and satisfy fuelwood consumption demands. This project will fund up to two of several forestry headquarters positions believed essential to support GSDR and this project's proposed field operations as well as related forestry programs being supported by other donors. This strengthening of the NRA will be complemented by U.S. and third country participant training, assistance to the Afgoi Forestry School and by on-site training of NRA forestry assistants seconded to this project's tree seedling supply and larger tree planting programs. Altogether, approximately 25 NRA nursery and plantation managers, and 5 district rangers will be trained in-country.

2. Reforestation and Fuelwood Production (RFP Sub-Projects)

The project will provide a wide variety of tree planting activities, together with forestry awareness educational programs and necessary technical on-site training, seedling and water supply services in regions where refugee camps are concentrated. Activities under this project will complement, but not duplicate similar efforts by other donors. These tree planting activities include (numbers approximate):

- Large scale fuelwood plantations (600 hectares)
- Agro-forestry (300 hectares)
- Specialized tree planting (windbreaks, shelterbelts, soil conservation)
- Amenity planting (shade, fruit, ornamental planting)
- Research and Seed Production.

3. Conservation of Fuelwood Use

The project will finance a two year extension of a successful pilot project which has tested the feasibility of interesting women refugees in constructing and using improved wood burning stoves. Funds for this component will be used to train refugee and local Somali masons and housewives in the construction, use and maintenance of the stoves; to establish a wood stove demonstration center in Mogadishu and to more widely promote the use of the improved stoves which are developed. Fuelwood savings of as much as 50 percent have been claimed by refugee women using the stoves.

4. Completion of Somalia's Land Use Survey and Mapping

Funds expended for this component of the project will enable production of ground proofed aerial surveys and detailed natural resource maps for Somalia's southern rangelands. This work has been completed for all other regions in the country. These survey and mapping activities will provide an essential input to improving long-range forestry and fuelwood production planning capacity in Somalia.

5. Fuelwood Supply/Demand and Marketing Systems in Somalia

This study will provide in-depth data on fuelwood supply/demand and patterns of use in Somalia, using household and other sampling survey techniques, and will include a current description of charcoal and fuelwood production and marketing systems. The study will be developed in consultation with the NRA and reviewed by both the NRA and NRC officials involved in forestry.

6. Project Monitoring and Management

USAID/Somalia Refugee Project Assistants (RPAs) will be responsible for programming and monitoring both the Refugee Self-Reliance and the CDA Forestry - Phase I Projects. Monitoring the performance of the forestry project will include efforts in program design, management, evaluation of impact and identification of problems. USAID will conclude personal service contracts with the RPAs who will then be assigned activities in each field area of program concentration.

B. Illustrative Financial Summary (US \$1000s)

AID:

Component 1:	
Institution Building Assistance for the NRA	450
Component 2:	
RFP Sub-Projects	3,688
Component 3:	
Fuelwood Conservation/Testing	632
Component 4:	
Natural Resources/Land Use Survey	500
Component 5:	
Fuelwood Supply/Demand/Marketing Study	400
Component 6:	
Project Monitoring and Management	300
	<hr/>
TOTAL AID	6,000
<u>GSDR:</u>	1,908 ^{1/}
<u>PVOs:</u>	747
	<hr/>
PROJECT TOTAL	8,655

^{1/} The GSDR contribution includes estimated contributions from Food-for-Work of the equivalent of \$978,000 and PL-480 local currency proceeds equivalent to \$900,000.

C. Social-Economic, Technical and Environmental Issues

1. Social Soundness: The project has been judged to be socially sound. It is designed to have a positive impact on the refugee community by halting and hopefully reversing severe environmental degradation in and around the camps. Local communities will also benefit from tree plantings. Women, who have primary responsibility for provision of domestic fuel, will have a vested interest in fuelwood planting and production. Benefits for all refugees and local participants will include amenity planting, general environmental improvement, and Food-for-Work opportunities. It should be realized that the quantitative impact of this Project on national or regional fuelwood supply is limited. However, each sub-project will test potentially replicable models for plantation management, including both community management of fuelwood (among the Somali population) and private fuelwood production and marketing.

2. Economic Feasibility: Project analysis has shown proposed activities to be economically justified. Given the current and growing scarcity of fuelwood and its rising price in towns and urban centers throughout Somalia, adequate investment and management will provide economic returns to RFP sub-project activities in a reasonably short period of time. Internal rates of return for fuelwood plantations have been calculated as favorable ^{1/} even under less than perfect human and technical conditions. Non-fuelwood components, such as soil and water conservation, wind erosion protection, agro-forestry and wood-stove use will provide substantial, economic benefits. Agro-forestry systems have reportedly increased crop yields through improved moisture retention and protection from the sun by as much as 15 percent over previous returns. Nitrogen-fixing trees will be planted which will improve crop yields. These trees can also provide cash benefits to farmers from the sale of leaves for fodder and fertilizer.

3. Technical Feasibility: The project is considered technically feasible. This conclusion is based on the assumption that the recommended administrative, technical and social guidelines presented in the PP are adhered to in the course of project implementation. The technical criteria against which sub-projects will be approved are the following:

- a permanent source of water dedicated to tree planting
- an assured and appropriate source of seeds and seedlings
- correct selection of trees to match environmental conditions of the site
- adequate manual labor assured in advance
- adequate technical knowledge, management and supervision applied continuously at each project site.

^{1/} Internal rates of return (IRR) were positive for eight PP models which incorporated a variety of assumptions. Six of the eight models showed acceptable IRRs of between 15 and 25 percent.

4. Environmental Analysis: Pursuant to the guidance in the PID approval cable, an Environmental Assessment was performed for this project after the Initial Environmental Examination. This was done to further investigate any potential problems which may result from forestry plantings in extreme arid conditions. If the guidelines presented in the Environmental Assessment on land clearing, soil erosion and water use are followed, the chances of implementation problems will be minimized.

5. Fuelwood Marketing: Fuelwood marketing and demand analysis is considered an important aspect of this project. For this reason a special annex was added to the Project Paper (PP). This annex was accepted as providing sufficient guidance to implementing agencies by the PP Executive Review Committee.

D. Implementation

The Project Paper proposes to use a mixture of host country and direct AID contracting procedures as appropriate for contracting U.S. and other technical assistance. The Project Agreement implementing organization and primary GSDR agency responsible for institution building, study and RFP Sub-Project aspects of the project will be the National Range Agency (NRA). Primarily, U.S. based PVOs will be responsible for implementing forestry sub-projects, although the Project Agreement will also allow for implementation by Somali private or public sector agencies. The GSDR Ministry of Planning will be signatory to the Project Agreement.

E. Funding

Funding for the Project is authorized by the Foreign Assistance and Related Programs Act, 1982 and the Migration and Refugee Assistance Act of 1962, as amended. Because the authorization for this funding does not come from the Foreign Assistance Act the provisions of that Act relating to the use of funds (such as procurement source and origin requirements) do not apply to this Project as a matter of law, and accordingly, the Project Agreement will reflect greater flexibility regarding certain procurement requirements than is normally permitted in an AID project. The provisions of certain other federal statutes and the limitations contained in the FY 82 Appropriations Act do apply to this Project and are indicated in the Statutory Checklist in Annex XXII of the PP.

F. Committee Action and Congressional Apprisement

The Africa Bureau Executive Committee Review (ECPR) chaired by the Deputy Assistant Administrator for Africa met on July 14, 1982 to review the PID. The ECPR recommended that the project proceed to the development of a PP and Mission authorization under Delegation of Authority 140, which states that project approval and authorization may be delegated to the Mission.

This project was not included in the annual Congressional Presentation for FY 1982, thus an Advice to Congress of \$6,000,000 in FY 82 was forwarded on September 7, 1982. The fifteen day waiting period expired on September 22, 1982. As funding for this activity was made available unlimited by fiscal year by the U.S. Congress, through the override of the President's veto of the Supplemental Appropriations Act of FY 1982, an additional notification to Congress is not now required.

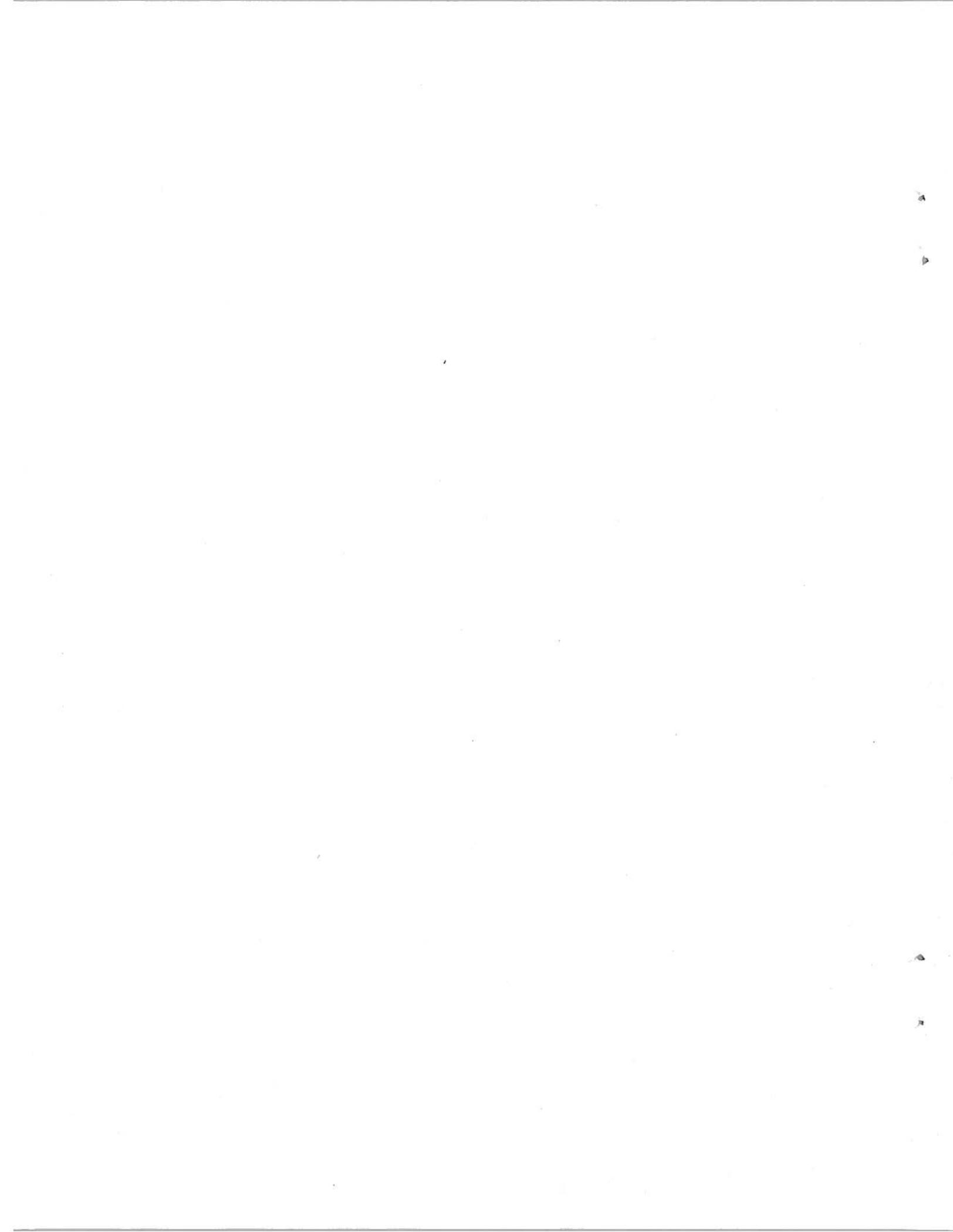
III. Recommendation: That you sign the attached PAF II, thereby authorizing the proposed project.

Attachments: A - PAF II
B - Environmental Assessment
C - Project Paper

Clearances:

ADO, GNeptune	<u>G Neptune</u>
MGT, BChessin	<u>B Chessin</u>
RAO, FPavich	<u>F Pavich</u>
A/CONT CCombs	<u>C Combs</u>
PROG RDaugherty	<u>R Daugherty</u>
AD RCarlson	<u>R Carlson</u>
AID/W RFanale	<u>R Fanale</u>
REDSO/EA JSeyler	<u>JS for SE</u>

AGR GCohen:gfm:11/18/82 G Cohen



PROJECT AUTHORIZATION AND REQUEST FOR ALLOTMENT OF FUNDS

Name of Country : Somali Democratic Republic (GSDR)

Name of Project : CDA Forestry Phase I - Refugee Areas

Project Number : 649-0122

1. Pursuant to the Foreign Assistance and Related Programs Appropriations Act, 1982 and the Migration and Refugee Assistance Act of 1962, as amended, I hereby authorize the CDA Forestry Phase I - Refugee Areas Project (649-0122) for the Somali Democratic Republic, involving obligations of not to exceed Six Million United States dollars (U.S.\$6,000,000) in grant funds over a three (3) year period from date of authorization, subject to availability of funds in accordance with the A.I.D. OYB/allowance process, to help in financing foreign exchange and local currency costs for the project.
2. The project consists of a number of activities designed to enable the Government of Somalia (GSDR) to undertake a larger volume of forestry and fuelwood planting programs as part of its overall social and economic development efforts and to support specific reforestation and fuelwood production efforts in and near refugee camps. Component activities include technical assistance and training for the National Range Agency (NRA), reforestation and fuelwood production sub-projects to be undertaken primarily by U.S. based private and voluntary organizations (PVO's) in refugee camps and surrounding areas, demonstration and promotion of improved fuelwood conservation technologies, a national resources/land use survey, a fuelwood supply/demand assessment, and project monitoring and management assistance activities. AID financing will include the costs of technical assistance, consultant services, commodities, infrastructure construction, training, personnel, and operating costs.
3. The Project Agreement, which may be negotiated and executed by the officer(s) to whom such authority is delegated in accordance with AID regulations and delegations of authority shall be subject to the following essential terms and covenants and major conditions, together with such other terms and conditions as AID may deem appropriate.
 - a. Source and Origin of Goods and Services
 - (1) Subject to the provisions of paragraphs (2) and (3) below and except as A.I.D. may otherwise agree in writing, goods and services financed by A.I.D. under the project, shall have their source and origin in the following countries, in the order of preference indicated:

- a) the United States (A.I.D. Geographic Code 000);
- b) the Cooperating Country or Countries included in A.I.D. Geographic Code 941; and
- c) countries included in A.I.D. Geographic Code 935.

Procurement of goods and services having their source and origin in other than the Cooperating Country, the United States, and other countries included in A.I.D. Geographic Code 941 will be based on a justification demonstrating substantive conformity with A.I.D. regulatory source/origin criteria.

- (2) Transportation by air, financed under the Grant, of property or persons, will be on carriers holding United States certification to the extent service by such carriers is available.
- (3) Ocean transportation of goods financed by A.I.D. under the Project will be on privately owned United States - flag commercial vessels as required by Section 901(b)(1) of the Merchant Marine Act of 1936, as amended.

b. Condition Precedent to Disbursement

Prior to the first disbursement under the Grant, or to the issuance by AID of documentation pursuant to which disbursements will be made, the Grantee will, except as the Parties may otherwise agree in writing, furnish to AID in form and substance satisfactory to AID a statement of the name of the person(s) holding or acting in the office of the Grantee and of any additional representatives, together with a specimen signature of each person specified in such statements.

c. Covenants

The Project Agreement shall contain covenants providing in substance as follows:

- (1) The Parties agree to establish an evaluation program as part of the project. Except as the Parties may otherwise agree in writing, the program will include, during the implementation of the Project and at one or more points thereafter:
 - a) Evaluation of progress towards attainment of the objective of the project;
 - b) Identification and evaluation of problem areas of constraints which may inhibit such attainment;
 - c) Assessment of how such information may be used to help overcome such problems; and
 - d) Evaluation, to the degree feasible, of the overall development impact of the Project.

- (2) The Cooperating Country agrees to name and assign qualified counterparts for the AID sponsored technician in the Anti-Desertification Unit by December 1982.
- (3) The GSDR agencies collaborating with non-Grantee organizations in RFP Sub-Project implementation agree to:
 - a) Name and nominate candidates for training in each of the relevant sub-projects in a timely and efficient manner by:
 - requiring current and future students at the Afgoi Forestry School to participate in a six week training session at one or more of the sub-projects as developed and sponsored by the PVOs.
 - integrating these training sessions into the Afgoi Forestry School's curriculum.
 - naming and nominating at least 15 nursery managers and/or forest guards per year to attend a 2-3 week in-service training sessions(s).
 - b) To assure that at least 6 candidates thus trained the first year and at least 12 candidates per year trained during years two and three will be assigned to the sub-projects in jobs equivalent in responsibility for which they have been trained, and maintained in such or similar jobs for a period of at least three years.
 - c) To assure that capable trained staff or counterparts to Project-financed technicians will be nominated and assigned to the sub-projects no later than December of 1983.
 - d) To assure that sufficient revenues are earmarked in the 1985-1988 NRA-Forestry Department budget to cover recurring costs of plantations established during the Project period.
 - e) To establish procedures which ensure that revenues from sub-project activities in excess of cost are used for expansion and/or maintenance of Project forestry activities and facilities.
- (4) The Grantee agrees to provide adequate and suitable land for use as implementation sites for approved RFP Sub-Projects.

Date: Nov 23, 1982

Jim Kelly
Director/USAID/Somalia

Signing Authority:

- 1. Cable STATE 178049
Africa Bureau Delegation
of Authority, Revised.
- 2. Cable STATE 216673
ECPR PID Approval.

Clearances:

- USAID/PROJ: J. Shea (draft)
- USAID/MGT: B. Chessin B
- USAID/PROG: R. Daugherty R
- USAID/CONT: C. Brooks C
- USAID/RA: F. Pavich F
- USAID/AD: R. Carlson R



ANNEX XVII

Illustration

ADDITIONAL DETAILS ON SUB-PROJECT BUDGETS AS SUBMITTED
DURING PID DESIGN (INITIAL BUDGETS)*

I.	Institution Building	
	Natural Resources/Land Use Mapping and Survey	\$ 500,000
	Fuelwood Supply/Demand Assessment (details are provided in PID)	400,000
II.	Reforestation and Fuelwood Production Sub-Projects	
	Qorioley Forestry and Land Resource Management (SCF)	667,000
	Jalalaqsi Forestry, Land Use and Fuelwood Production (AFRICARE)	1,120,000
	Gedo Forestry and Land Resource Planning (ICR)	1,104,000
	Fuelwood Production: Luuq/Garba Harre (CARE)	390,000
III.	Fuelwood Conservation	
	Wood-conserving stoves and other fuel savings training and extension service	750,000

* Note that there are errors in summation in some tables. These were caused by poor quality of copies (illegibility) from which data in this annex was taken and are assumed not to be present on originals. The degree of effort required to locate original documents and correct these errors has been determined to be unjustified for the illustrative use for which the data herein has been presented.

Summary Budget

Project Purposes	Estimated US Project Costs 3 Years (US\$)	Estimated FWW Costs 3 Years (US\$)*
<u>I. Institution Building</u>		
Support of the NRA (ADU) and Forest Department, AID to finance one of 3 propo- sed operations advisors consultants	450,000	---
Natural Resources/Land Use Survey and Mapping	500,000	---
Fuelwood supply/demand assessment	400,000	---
Sub-total:	\$ 1,350,000	
<u>II. Reforestation and Fuelwood Production (Sub-projects)</u>		
Qorioley Forestry and Land Resource Management	667,000	350,000
Jalalagsi Forestry, Land Use and Fuelwood Production	1,120,000	350,000
Gedo Forestry and Land Resource Planning Fuelwood Production: Luuq/Garba Harre	1,174,000	350,000
	300,000	350,000
Sub-total:	3,720,000	500,000
<u>III. Fuelwood Consercation</u>		
Wood-conserving stoves and other fuel savings: training and extension service	750,000	---
Sub-total:	750,000	
<u>IV. Progress Reports</u>		
3 AID field monitors	330,000	---
	330,000	
Contingencies & Inflation (15%)	900,000	
TOTAL ESTIMATED BUDGET, Parts I-IV:	\$ 7,119,000	\$ 1,550,000

* NOTE: These are rough estimates, based on the volume and type of tree plantations proposed in the volags project identification documents. Calculated on the basis of rations worth \$1.00 per day, these represent work opportunities to almost a million worker days.

I. Institution BuildingNatural Resources/Land Use Mapping and Survey (Watson)

COSTS:

In the Northern Rangelands survey the costs quoted in January 1980 were:

- Two seasonal livestock/resource aerial censuses at \$ 1.04 per km²
- Range vegetation mapping and monitoring sites at \$ 0.46 per km²

Inflation since 1980 in the costs of services and materials used in these sorts of surveys has been not less than 16% annually, which requires an adjustment of prices of 45% to provide a September 1982 quotation.

Thus the September 1982 rates will be:

- Two seasonal censuses \$ 1.51 per km²
- Range vegetation mapping and monitoring sites \$ 0.67 per km².

However, improvements in the monitoring site methodology, particularly the introduction of fixed point ground photography, have increased the cost of this method to \$ 0.75 per km².

And so for the 316,000 km² of the Southern rangelands the improved resource inventory, vegetation mapping and monitoring site establishment would cost:

- Two seasonal censuses	\$ 477,160
- Vegetation mapping and monitoring sites	\$ 237,000
	714,160

If the tsetse mapping and land use study proposed in the paper "Resource surveys in Somalia" work undertaken so far and that proposed for 1982/3 is carried out simultaneously, there will be a saving of \$215,620. Thus the Resource Inventory of the Southern Rangelands would then cost only \$498,540.

Note: Budgets for the Fuelwood Supply and Demand, including Marketing, study are included in the appendices to the Forestry PID.

II. Reforestation: Qoriolei (Gave the Children) - SCFBudgetA. US AID

	<u>Year</u>			<u>Total</u>
	<u>1983</u>	<u>1984</u>	<u>1985</u>	
I. Technical Staff, Expat.	116,000	75,000	50,000	291,000
II. Personnel Costs, Management Unit				
- crew chiefs, extension aides	7,200	7,200	7,200	21,600
- guards, fuelwood plantation	12,800	25,600	25,600	24,000
- guards, range	29,200	29,200	29,200	37,500
III. Capital Costs, Management Unit				
- materials for outplanting on management unit	33,000	-	-	33,000
- fencing, range	31,000	-	-	31,000
- one 4WD truck	10,000	-	-	10,000
IV. Fuel, oil, parts for truck	4,500	4,500	4,500	13,500
V. Training and Extension Materials, Library	10,000	2,500	2,500	15,000
Subtotal:	303,700	144,000	119,000	566,700
Inflation, 10% per year, compounded yearly	30,370	30,240	39,390	100,000
Cost overhead, 10%	33,407	17,424	15,839	66,670
Yearly Totals	367,477	191,664	174,229	733,370
<u>Total 3 - year Cost</u>	USD 733,370			

B. UNHCR

	<u>Year</u>		
	<u>1</u>	<u>2</u>	<u>3</u>
I. Operating Costs, Nursery A	67,200	67,200	67,200
II. Operating Costs, Nursery B	24,500	24,700	25,000
III. Construction Costs, Nursery B	155,000	--	--
	<u>247,700</u>	<u>91,900</u>	<u>92,200</u>
<u>Sub-Total:</u>	247,700	91,900	92,200
Inflation, 10%/year compounded yearly	<u>24,770</u>	<u>19,310</u>	<u>130,531</u>
Yearly total:	272,470	111,210	122,731
<u>3 year total</u> -- USD 506,642			

C. Food-for-Work

	<u>Year</u>		
	<u>1</u>	<u>2</u>	<u>3</u>
I. On the Management Unit (1,000 ha.)			
- Clearing, planting, watering, maintenances of 25 ha/yr of agro-forestry	6,840	6,840	6,840
- Above for replacing 50% seedling mortality 5 or 25 ha. of agro-forestry/yr	1,710	1,710	1,710
- Planting, watering, maintenance of 1/3 of total fuelwood planting/yr	67,000	67,000	67,000
- Above for replacing 50% loss on fuelwood sites	16,975	16,975	16,975
- Fencing for grazing reserve	6,725	-	-
II. Outplanting from Nursery A			
- Planting, watering, maintenance of 100,000 seedlings/year	47,000	47,000	47,000
- Above for replacing 50% loss	11,700	11,700	11,700
	<u>152,945</u>	<u>152,125</u>	<u>152,125</u>
Inflation, 10%/year	15,985	31,940	50,350
Yearly totals	<u>174,730</u>	<u>154,065</u>	<u>202,475</u>
<u>3 year total = USD 561,270</u>			

Notes: Costing based on USD 2/man-day, as per estimate of Mr. John Wood, Director, WFP - Somalia. (5/82)

JALALAQSI AFFORESTATION PROJECTAFRICARE

	Person Year	PHASE \$\$ (000)	
		I	II
I. PERSONNEL (Person			
A. U.S. Hire			
Forester/Manager	3		90
Nursery Manager/Horticulturalist	3		81
Nursery Specialists	2.5	57	
Fringe Benefits		12	35
Consultants			23
Recruitment		2	4
Travel, Relocation, Housing		18	56
Sub-Total U.S. Hire:		99	289
B. Host Country Hire			
Forester/Counterpart	3		10
Nursery Manager/Counterpart	3		17
Nursery Specialist/Counterpart	3	7	
Secretary/Office Manager	3	2	5
Nursery Attendants	11		24
Extension Agents	26	12	26
Labor - Seedlings (8760PD)*			
Labor - Water, Maintenance (2480PD)*			
Drivers	9	5	9
Mechanics/Drivers	6	7	8
Guards	32	5	50
Fringe Benefits		11	45
Sub-Total H.C. Hire:		49	194
SUB-TOTAL PERSONNEL		138	483

* Food-for-Work.

EQUIPMENT

Borehole			GS
Pump/Generating Unit			GS
Storage Tanks	6	8	
Distribution Material	4	6	
Parts/Maintenance	2	5	
Portable Well Drillers	6	6	
4WD Crew Cab Pick-ups	16	48	
4WD Blazer		14	
Tools	6	18	
Trailers	2	4	
Motorcycles	6	10	
Donkey+Cart+Barrel	6	12	
Shredder		6	
Office Equipment	2	5	
	<u>56</u>	<u>142</u>	
SUB-TOTAL EQUIPMENT			
III. CONSTRUCTION			
Office/Storage/Garage/Shed		25	
IV. COMMODITIES			
Insecticide/Chemicals	2	12	
Fertilizer	2	7	
Improved Stock	1	10	
	<u>5</u>	<u>29</u>	
SUB-TOTAL COMMODITIES			
V. OPERATING COSTS			
Fuel - Pumps	3	35	
Fuel - Vehicles	6	25	
Repair/Service	6	20	
Barbed Wire	10	10	
Potting Sacks	3	9	
Miscellaneous	3	8	
Freight (20% II)	12	30	
	<u>43</u>	<u>137</u>	
SUB-TOTAL OPERATING COSTS			

VI. ADMINISTRATION

Office Supplies	2	4
Photocopies	3	6
Training, Training Aids	3	7
Insurance	1	4
Communications		4
	<hr/>	<hr/>
SUB-TOTAL ADMINISTRATION	9	25

VII. EXISTING FACILITIES

Nurseries (Jalalaqsi)
 Pump Station
 Land

VIII. INDIRECT COSTS

A. Personnel, operating, administrative costs (21.45%)	40	133
B. Equipment, Construction, Commodities Costs (10.7%)	7	21
	<hr/>	<hr/>
SUB-TOTAL INDIRECT COSTS	47	159

II. Reforestation: Gedo region, Interchurch Response (ICR)

I. ESTIMATED COSTS

1. <u>Cash Inputs</u> <u>Personnel</u>	<u>No</u>	<u>Cost over</u> <u>three years</u>
Project Forester International	1	90,000
Field Forester International	1	90,000
Range Manager International	1	90,000
<u>Supplemental Money for</u> <u>Somalia NRA Personnel</u>		
Assistant Project Officer	1	12,000
Assistant Forest Officer	1	9,000
Assistant Range Officer	1	9,000
Nursery Foreman at 4,000/yr	4	43,000
Woodlot Foreman at 4,000/yr.	4	40,000
Shelterbelt Foreman at 3,000/yr.	2	13,000

ESTIMATED ESTABLISHMENT COMPONENTS AND COST OVER THREE YEARS

1. Establishment costs of three mini-nurseries for water systems, materials, personnel, guards, shipping (excluding Food-for-Work - FFW), each nursery \$10,768 X 3	\$ 32,304
2. Establishment costs for large tree nursery of 37,500 seedling capacity excluding FFW, but includes materials - water, transport, shipping	\$ 164,030
3. Estimated costs for outplanting 100 hectares of fuelwood lots excluding FFW 116,723 per 50 hectares X 2	\$ 233,456
4. Estimated costs for outplanting 200 hectares of shelterbelts excluding FFW	\$ 250,160
5. Total cost to USAID	\$1,104,000
6. GSDR contribution - three forestry and Range personnel, vehicle	\$ 30,000
7. Volag contribution in ICR Forestry Budget	\$ 154,044

8. Volag Current administrative costs

New York Office	\$ 84,000
Nairobi Office	\$ 13,592
Mogadishu Support Office	\$ 182,105
Ali Matan Camp expenses for administration of development program, food, material aid support	\$ 124,120

FOOD FOR WORK INPUTS

Man/days

Nursery

Site Preparation

40 men X 10 days X 4 nurseries 1,600

Earth Collection and Bagging

40 men X 30 days X 4 nurseries 4,800

Planting Seeds40 men X 10 days X 4 nurseries 1,600

8,000

Fuelwood Lots

Site Preparation

40 men X 10 days X 4 1,600

Digging Holes62,500 holes ÷ 20 holes per worker per day
X 4 woodlots of 25 hectares 12,500Planting Trees in Holes62,500 trees ÷ 25 trees per worker per day
X 4 woodlots of 25 hectares 10,000Watering Trees62,500 trees ÷ 500 trees per worker per day
X 25 workers watering 12,500

36,600

Shelterbelts

Digging Holes

250,000 trees ÷ 20 holes per worker per day 12,500

Planting Trees in Holes

250,000 trees ÷ 25 trees per worker 10,000

Watering Trees250,000 trees ÷ 500 trees per worker X 50 workers 25,000

47,500

Total Food-for-Work Man/days: 92,000

Total Sugar Required: One Kilo sugar per man/day 92,000

II. Gedo Region, CARE. Fuelwood Production

ESTIMATED COSTS

1. Cash Inputs

Personnel:

Field Coordinator	International	.5	75,000
Project Coordinator	International	.5	75,000
Forester	International	1.0	150,000
Secretary/Bookkeeper	National	2.0	24,000
Woodlot Supervisor	National	2.0	24,000
Nursery Foremen	National	2.0	18,000
Plantation Foremen	National	2.0	18,000

Materials:

Nursery materials	11,000
Plantation materials	14,000
Shipping at 40% of materials	10,000

Transportation:

3 Pick-ups X 15,000	45,000
Fuel oil, lubricants	
3 4WD X 320 worker days X 75 km/day → 10km/litre X \$.40 X 3 years	3,700
Parts maintenance	
7% of cost of equipment X 3 years	10,000
Water carts	
40 carts X \$400	16,000

Water:

Bore Holes	
2 holes X \$60,000	120,000
Water pumping 7 storage	100,000
SUB-TOTAL OF DIRECT COSTS:	<u>727,700</u>

Administration Costs:

7.5% of Direct Costs	54,578
TOTAL COST TO USAID	<u><u>\$782,278</u></u>

2. Food-for-Work inputs

<u>Site Preparation</u>	
50 men X 30 days X 2 woodlots	3,000
<u>Earth Collection and Bagging</u>	
50 men X 30 days X 2 woodlots	3,000
<u>Digging Holes</u>	
125,000 holes + 15 holes per worker per day X 2 woodlots	16,000
<u>Planting trees in Holes</u>	
125,000 trees + 100 trees per worker per day X 2 woodlots	3,000
<u>Watering Trees</u>	
65,000 seedlings + 500 seedlings per worker/day X 40 watering X 5 plantings X 2 woodlots	52,000
<u>Watchmen</u>	
20 men X 365 days X 2 woodlots	14,600
<u>Permanent Labor</u>	
8 men X 320 day X 2 woodlots	5,500
TOTAL WORKER DAYS:	<u>97,900</u>
TOTAL SUGAR REQUIRED:	
1 kilo sugar per worker/day	<u>97,900</u>

III. Woodfuel Conservation: VITABUDGET

1.	1.	<u>Personnel</u>	<u>2 year total dollars</u>
		Woodstove technician and Socio-economic Advisor @ \$30,000/year each (including housing, benefits, orientation at VITA, IAT'L travel and 8% inflation)	332,800
		VITA Desk Officer (1) ½ time @ 22,000	11,000
		Benefits for VITA Desk Officer @ 20%	3,080
		Counterpart refugee stove/technician/advisor (6) @ 3,200/year	38,400
		Watchmen (6) @ 900/year	10,300
		Driver @ 3,200/year	<u>6,400</u>
		Total staff costs:	402,480

2.	<u>Vehicles</u>	
	Pick-up truck (diesel) 4WD (1) @ 20,000	20,000
	Used small car (Gas) (1) @ 10,000	10,000
	Fuel: truck @ 1,600/year	3,200
	car @ 2,000/year	4,000
	Maintenance @ 7% capital cost	
	truck @ 1,400/year	2,800
	car @ 700/year	1,400
	Total Vehicle costs:	<u>41,400</u>
3.	<u>Stove testing and demonstration center</u>	
	(1) @ 5,000 site rental, benches etc. and 1,000/year operation costs	12,000
4.	<u>Tools and Equipment</u>	
	Raw materials, shop testing and stove building equipment Average 7,500/year	15,000
	Total Center, tools and Equipment Costs:	<u>27,000</u>
5.	<u>Short term consultant</u>	
	2 man-months @ 3,200	6,400
	per diem 60 days @ 70/day	4,200
	round-trip airfare Dayton, Ohio - Mogadishu	
	2 trips @ 1,800	3,600
	Total consultant costs:	<u>14,200</u>
6.	<u>Woodstove/Appropriate Technology Documentation</u>	2,500
7.	<u>Communications</u>	
	Phone, telex, mail @ 2,000/year (including woodstove newsletter)	4,000
	Sub-total I	491,580
	10% contingency	49,158
	Sub-total II	540,738
	30% VITA overhead	162,221
	VITA project total	702,959
	Small Grants Fund @ 15,000/year	30,000
	GRAND TOTAL	<u><u>732,959</u></u>

ANNEX I

Overview of Project Components

The project will finance a range of activities designed to strengthen GSDR forestry sector planning, management and research capabilities, directly re-address deforestation caused by the presence of refugees, and provide tree planting, fuel conservation and work opportunities accessible to both refugees and the indigeneous Somali population.

Specifically, the Project will consist of six components, namely:

1. Institution Building Sub-Project. As part of a multi-donor effort, the GSDR National Range Agency (NRA) will be strengthened by the addition of a program coordinator in the Anti-Desertification Unit, and one community forestry and one forestry plantations operations officer in the Forestry Department, together with counterparts. This project will finance up to two of these positions, plus training of regional or district foresters, plantation and nursery managers and extension agents and assistance to the Afgoi Forestry School. Third country and U.S. participant training may also be financed. These Project inputs will be AID's contribution to strengthening the institutional capability of the NRA at headquarters and in the field, so that it can coordinate and manage the larger volume of forestry and fuelwood planting programs which will be initiated under this project and related assistance from AID and other donors.
2. Reforestation and Fuelwood Production Sub-Projects - ("RFP Sub-Projects"). The project will provide a wide variety of tree planting activities, together with forestry awareness educational programs, and necessary technical on-site training, seedling and water services in regions where refugee camps are concentrated through:
 - a. the establishment of sub-regional seedling nurseries and satellite mini-nurseries within or near refugee camps
 - b. the establishment of fuelwood plantations adjacent to refugee camps.
 - c. the establishment of windbreak, amenity and other plantings within or near refugee camps.
3. Fuelwood Conservation Sub-Projects. The social feasibility of introducing improved wood stoves, mud brick construction methods, and some fuelwood saving techniques will be tested. Demonstration and promotion of improved stoves together with training of the local population in the construction, use and maintenance of the stoves and other wood-saving technologies will be financed by the Project.

4. Natural Resources/Land Use Survey Sub-Project. The Project will provide for the completion of a national natural resources and land use survey and mapping service which will provide a data base for forestry and fuelwood production, as well as for other long-term development planning and projects.
5. Fuelwood Supply/Demand Assessment Sub-Project. This Sub-Project will generate improved baseline data on which firmer longer range GSDR development planning can proceed. An assessment of woodfuel supply and demand systems and markets, including household surveys on conservation and use will be produced.
6. Project Monitoring and Management Sub-Project. An increased capacity of the Parties to the Grant to monitor, evaluate and manage the activities funded by the Grant, as well as companion activities funded by the AID Refugee Self Reliance Project (640-0123), will be provided through the execution of contracts for persons to be posted to areas of Project activities. The estimated cost of the contractors who will assist in RFP Sub-Project Implementation and provide the Parties with data on camp conditions and related Food-for-Work activities, will be shared between the two companion projects.

Project Inputs

As outlined in the following budget (Attachment 1 to Annex I), A.I.D.'s contribution to the Project shall consist of financing of one or two expatriate NRA Forestry Officers and training for the NRA and RFP Sub-Project staff, expatriate contract consultants and local support staff and facilities for various studies: technical assistance, equipment (including vehicles), physical infrastructure, non-food commodities, training, operational costs personnel salaries and other direct and overhead costs of RFP Sub-Project activities; and, the cost of project monitoring and management technicians. The total financing to be provided by A.I.D. for the project will be \$6,000,000.

Locally purchased POL, new local staff salaries and other locally purchased commodities will be financed by the Grantee through the NRA using proceeds from the sale of A.I.D. Title II commodities under the 1981 Title II Agreement or other sources. Payment of workers and staff will also be made by the NRA from its yearly operating budget, and together with the contribution to the Project will be approximately So.Shs. 13,950,000 (\$930,000 at So.Shs. 15 = U.S. \$1).

In most cases, PVDs receiving RFP Sub-Project assistance will contribute financing for technical assistance, staff salaries, commodities and/or other direct or indirect costs.

Other donor agencies such as the UNHCR may finance various land preparation, construction, equipment and other direct costs of one or more RFP Sub-Project and labor services are expected to be provided to the project through the Food-for-Work program. Food-for-Work resources to be made available by separate agreement are expected to be the dollar equivalent of approximately U.S. \$970,000.

Approvals of Project Component Activities

The expatriate Forestry Officers for the National Range Agency will be selected and approved by the Ministry of Planning, NRA and A.I.D. Study content determination and contractor selection will be undertaken jointly by the NRA and AID. The identification and selection of expatriate project monitoring and management consultants will be the responsibility of A.I.D.

Sub-Projects through U.S. based PVOs will be submitted to the NRA and A.I.D. for consideration and joint approval. If approved by both A.I.D. and the NRA, and endorsed by the CDA Steering Group under the Ministry of Planning, a sub-agreement under the Grant will be entered into with the NRA, PVO and AID as signatories. This sub-agreement may take the form of a grant, cooperative agreement or contract and will provide for direct payments of grant funds by A.I.D. to the PVO based upon prescribed payment documentation. Provision is made in this component of the Project for the possibility of funding RFP Sub-Projects designed and implemented by either public or private sector Somali institutions in a manner similar to that to be used to fund PVO sub-projects. In this regard, such Somali institution sub-projects will also need to meet the criteria for RFP Sub-Project selection shown below.

RFP Sub-Project Selection and Approval

Reforestation and Fuelwood Production Sub-Projects will be selected and approved for funding by joint agreement of the NRA and AID. Selection will be based on the degree to which the sub-project furthers the objectives of the Project as well as the quality of the implementing agency's proposal, its staffing plan, implementation schedule and other factors as further identified below. If funding allocated under the Project for RFP Sub-Projects is less than the total funding required for the RFP Sub-Projects proposed, acceptable proposals will be treated on a 'first come, first served' basis.

To be eligible for participation, a proposal's sponsor must be a U.S. based Private and Voluntary Organization (PVO) or a private or public sector Somali organization. In the case of a U.S. PVO, to be eligible, the PVO must have a proven record of experience (preferably in Africa) with refugees or village level people, be formally registered with AID, and have or be able to obtain an operation agreement with the GSOR. Eligibility for participation for Somali organizations will be determined on a case by case basis by A.I.D. and the Grantee.

Proposals submitted for funding consideration will be prepared and reviewed in accordance with the procedures and guidelines offered in Appendix 4B of A.I.D. Handbook 3 regardless of whether funding is to be made available through a Project sub-grant, cooperative agreement or contract.

Listed below are the criteria for RFP Sub-Project selection and approval which will be used as a guide in selecting, evaluating, making recommendations and approving proposals. In all cases, the RFP Sub-Project should:

1. contribute to improvements in agriculture, forestry, public health, improved natural resource management, rural works infrastructure or human resource development.
2. contribute to the establishment and improvement of the capacity of governmental and non-governmental institutions to provide development services particularly in agriculture, range management, forestry, public health, rural public works or vocational training.
3. leave behind lasting benefits for refugee and host populations and support national development priorities, i.e., forestry, agriculture and range management, encouragement of small holdings, economic advancement and self-sufficiency.
4. provide a means for refugees and host populations to contribute and participate in the planning and decision making process related to projects in which they will be involved.
5. encourage and support income earning activities within refugee and host population communities.
6. provide information to facilitate refugee and host population participation in planning, decision making, and execution of project activities and to evaluate the impact of these activities on project beneficiaries and the natural social structure. and
7. be administratively, technically and economically feasible and environmentally sound.

The above criteria may be further prescribed and clarified by A.I.D. in one or more Project Implementation Letter(s).

Implementation Roles and Responsibilities

The following outlines the major implementation responsibilities for agencies participating in the Project:

1. The Ministry of Planning is a signatory to the Project Agreement. Additionally it will forward to USAID the NRA's approval of the candidate(s) for the position(s) of Officer(s) of the NRA Anti-Desertification Unit, and will receive copies of all reports pertaining to the Project.
2. USAID/Somalia is a signatory to the Project Agreement, and authorizes Grant Funds for the Project.

USAID's implementation responsibilities will include:

- a) Institutional Building Assistance to the NRA: to assist the NRA in identifying qualified officers for the NRA Anti-Desertification Unit; signing a Personal Services or PASA Contract with the candidate(s) selected by the NRA and USAID and/or approving host country contract(s) for the candidate(s) selected; monitoring and evaluating the progress of NRA Institution Building Activities; and approving and arranging third country or U.S. participant training.

- b) RFP Sub-Projects and Fuelwood Conservation Tasting: review and approval of sub-project proposals; co-signing with the NRA and individual implementing agencies tri-partite Sub-Project agreements; disbursing funds which represent USAID's contribution to Sub-Projects; and monitoring and evaluating Sub-Project implementation.
- c) Project Monitoring and Management: monitoring and management responsibilities will be carried out by USAID staff supported by contractor personnel.
- d) Other Project Components: identification of contractors and approval of contracts for an assessment of fuelwood supply/demand and a natural resources/land use survey.

Further details regarding USAID's responsibilities in the Project and Sub-Projects will be spelled out in the Sub-Project agreements and in Project and Sub-Project implementation letters.

- 3. The National Range Agency (NRA) as GSDR agency responsible for forestry programs, will be the government's designated implementing agency for the Project. The NRA's implementation responsibilities will include obtaining approvals, technical inputs, support and cooperation of other GSDR participating agencies, and with regard to:
 - a) Institution Building Assistance to the NRA: providing all local personnel and in-kind resources for the NRA Anti-Desertification Unit, including its expatriate officers, contracting with expatriate officer(s) selected jointly by the NRA and AID, and nominating candidates for third country and U.S. participant training.
 - b) RFP Sub-Projects and Fuelwood Conservation Sub-Project: reviewing and approving proposals; co-signing with USAID and implementing agencies tri-partite agreements; assisting implementing agencies in identifying qualified personnel and arranging for all GSDR material inputs into the Sub-Projects; monitoring and evaluating implementation; and coordinating with and reporting as needed to other cooperating GSDR offices.
 - c) Other Project Components: reviewing and approving contractor proposals and contracting for the conduct of a natural resources/land use survey, and an assessment of fuelwood supply/demand.

The NRA will also be responsible for disbursing all GSDR local currency contributions to the Project. Mechanisms for this and other NRA implementation responsibilities will be spelled out in the Sub-Project agreements and in Project and Sub-Project implementation letters.

4. US-based PVOs and/or Somali Institutions: will have implementation responsibilities in RFP Sub-Project and Fuelwood Conservation Sub-Project activities, to include submitting proposals to the NRA and USAID; co-signing tri-partite agreements; personnel management; project management; financial and other reporting; and conducting self-evaluations.

PVOs and Somali institutions who will be implementing agencies will make the financial and in-kind contributions provided for in their sub-project agreements as required throughout the sub-project. These and other implementation responsibilities will be spelled out in detail in each Sub-Project agreement and in Sub-Project Implementation letters.

5. Contractors: two contractors jointly selected by USAID and the NRA, will complete, according to terms to be described in their contracts, a natural resources/land use survey and an assessment of fuelwood supply/demand.

ANNEX XIX

September 9, 1982

Brig. Gen. Ahmed Suleiman Abdalla
Minister of Planning
Ministry of Planning
Mogadishu

Subject: U.S. FY 1981 Public Law 480 (PL-480)
Title II Agreement -- Implementation
Letter No. 1

Dear Mr. Minister:

Item 6.B(2) of the subject PL-480 Agreement states that local currency proceeds from the sale of Title II commodities shall be used for certain logistic costs and project activities as agreed upon by USAID and the GSDR. USAID herein proposes that up to So.Sh. 27,000,000 of these proceeds be used to support implementation of the AID assisted Refugee Self-Reliance (649-0123) and CDA Forestry (649-0122) Projects.

In accordance with the transfer authorization, these PL-480 derived funds would be placed in a special fund in the Central Bank and would be considered the GSDR counterpart contribution to these projects, amounting to an estimated 15% of total combined project costs. The funds would be used to cover the following categories of local currency expenses in the approximate percentages shown:

- a. 75% - Salaries & Infrastructure Labor
- b. 15% - POL
- c. 10% - Commodities & office support

In order to meet the implementation schedules for both projects, as tentatively described in the Project Implementation Documents (PIDs) for the projects, these counterpart funds should be available for disbursement on a timely basis, according to the following schedule: 20% of funds available for disbursement by November 1, 1982; an additional 15% available for disbursement by February 1, 1983; an additional 30% by August 1, 1983; and the remaining 35% of funds available for disbursement by February 1, 1984.

Please indicate your agreement to the above by signing in the designated space below and returning the signed original copy to USAID at your earliest convenience.

Yours sincerely,

/s/
Roger D. Carlson
Acting Director
USAID/Somalia

cc: Hussein Ellabe Fahiye
Director General
Ministry of Planning

Agreement: /s/
Disagreement: _____
Date: 14/9/82

ANNEX XX

SPECIES TRIAL COORDINATION
AND
NURSERY AND OUTPLANTING COST ACCOUNTING

Two very important but indirect benefits which will be derived from the CDA Forestry Phase I: Refugee Areas Project are:

1. a wealth of species specific information, particularly with regard to site requirements, survival rates, yields, etc.; and
2. more accurate estimates of the true costs of nursery and plantation establishment and maintenance in Somalia.

However, in order for future forestry project planners in Somalia (and elsewhere) to be able to make the best uses of this information, it has to be systematically recorded and reported. To this end, "suggested" formats for species trial coordination and cost accounting systems for both nursery and outplanting activities have been distributed to potential sub-project implementation agencies for their comments and suggestions.

These comments will then be incorporated into a penultimate draft which will be given to the other donors and the NRA for additional comments. The importance of standardized species trials and cost accounting systems will also be included as a topic for discussion in the next CDA Donors meeting. A formal presentation of the proposed formats will take place at this time.

Additionally, PVOs who have not included formal species trials as part of their sub-projects have been encouraged to set aside a small area (1/4 hectare minimum) within a woodlot for such purposes. Species, growth and site information could then be measured according to the agreed upon format and resulting data included as part of an overall species trial coordination effort.

SPECIES TRIALS COORDINATION SUGGESTED STANDARDIZED FORMAT

SPECIES AND PLANTING INFORMATION

Species:

Spacing:

Total Area Planted: (in case of trial plot in woodlot - total woodlot size)

Trial Plot Size: (minimum 1/4 hectare)

No. Trees/Trial Plot:

Planting Technique: (stripling, stump, potted, direct seeding)

Site Preparation: (method, extent, etc.)

Pit Size:

Water Harvesting System: (Describe, if used)

Watering: (Describe how much, how often and for how long)

Maintenance: (Describe frequency and type)

Restocking: (Describe frequency and time frame, particularly if plot is located in woodlot)

Protection: (Describe type of protection used)

Insects/Termites/Pests/Weeds/Competition (Comments)

Innocation: (In case of N-fixing species, indicate if innoculum was used and how it was applied).

THE SITE

Site Class:

Soil Type:

Soil Structure/Composition:

% Slope:

	% Organic Matter (measured every six months)	Salinity	PH
0	:		
0 + 6 mo	:		
0 + 12 mo	:		
0 + 18 mo	:		
0 + 24 mo	:		
0 + 30 mo	:		
0 + 36 mo	:		

% Soil Moisture Content: (measured monthly over life of project)

Past Rainfall: (Mean annual precipitation by month for past five years if records are available)

Rainfall: (Mean annual Precipitation by month over life of project - rainfall data should be kept on each species sheet)

Water Table Height: (GU, DER and dry season estimates if applicable)

TREE GROWTH AND SURVIVAL

% Survival

0 + 1 mo
0 + 2 mo
0 + 4 mo
0 + 8 mo
0 + 12 mo
0 + 18 mo
0 + 24 mo
0 + 30 mo
0 + 36 mo

COMMENTS : (e.g. insects, prolonged drought, late planting, species adaptability, etc)

GROWTH	HEIGHT	DIAMETER (measured at 10cm from root collar)	CROWN DIAMETER
0	: (size of seedling)		
0 + 6 mo:			
0 + 12 mo:			
0 + 18 mo:			
0 + 24 mo:			
0 + 30 mo:			
0 + 36 mo:			

ESTIMATED YIELD - (In order to get an accurate estimate, trees will have to be felled and actual volume measured either by displacement - using a "calibrated" ferro cement tank, 55 gallon drum, etc. - or measured by hand. Any "cooking size" branches should be used in volume calculations.)

Plot Size: (minimum 1/8 hectare)

No. Trees cut:

Age when cut: (after 1, 2 or 3 years depending on species)

Volume/Plot:

Method of Volume Calculation: (displacement or measured)

Estimated Mean Annual Increment/HA:

Forage/Fodder: (In case of forage species, estimate yield/ha in tons of air dried matter.)

Nodules: In case of nitrogen fixing species, indicate presence and frequency of nodules.

SUGGESTED FORMAT FOR NURSERY COST ACCOUNTING

Item 2)	TIME FRAME 1)				0+1 yr		0+2 yrs		0+3 yrs		Subtotal	Total for Life of Project
	0-3 yrs	0-2 yrs	0-1 yr	Subtotal	Estimated	Actual	Estimated	Actual	Estimated	Actual		
COSTS 3)												
A. CAPITAL COSTS												
1) Water system development												
Irrigation system												
Borehole												
Pump												
Water storage tank												
Water survey												
Materials (pipe, hose, cement, rebar, etc.)												
2) Other Commodities												
Vehicles & Spare parts												
Nursery Supplies/ Materials, Tools												
3) Shipping												
(Subtotal)												
B. OPERATING COSTS												
1) Personnel												
Expat (Salaries & Benefits)												
Local superviosry												
Permanent labor (including guards and drivers)												
(No. Man days/Cost)												
Seasonal labor												
(No. Man days/Cost)												
2) Maintenance												
Water system												
Vehicles												
3) POL												
Water system												
Vehicles												
4) Office/Infrastructure												
(Subtotal)												
C. TRAINING COSTS (Subtotal)												
Total Costs												
D. NURSERY PRODUCTION												
No. Seedlings produced												
average cost/seedling												

FOOT NOTES

1) Time Frame

In order to have a more accurate estimate of project costs over a longer period of time, those Volags with on-going projects should estimate expenditures and outputs (seedlings produced, hectares planted) per year prior to receiving USAID, (or other donor) funding. For cost accounting purposes, year 0 should be considered as the year the sub-project agreement was signed (or additional funding secured).

2) Item

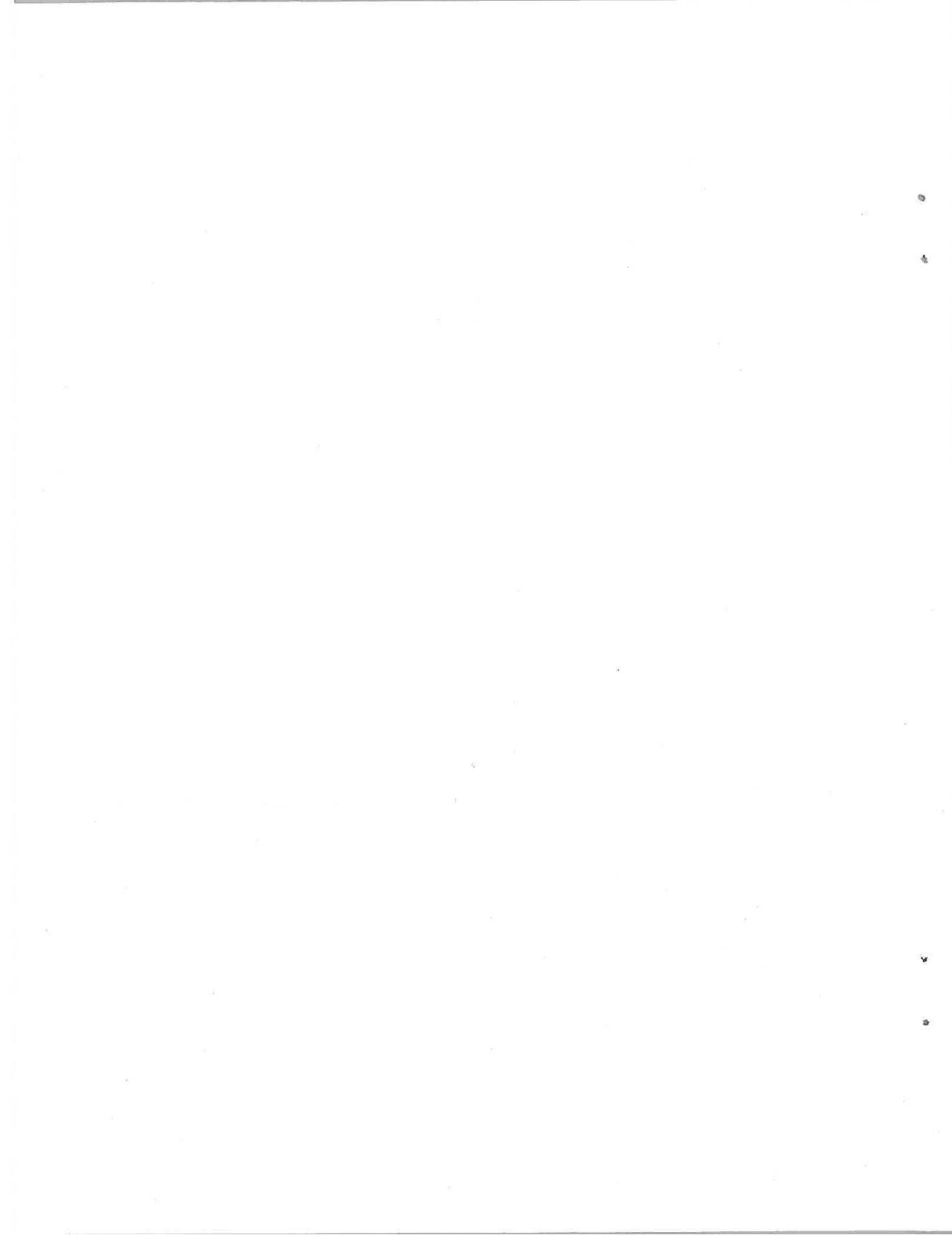
Some items may be used for both nursery production and outplanting purposes (vehicles, pumps, tools, etc.). In these cases, costs should be differentiated by the percentage of time required by activity and allocated accordingly. For example, if a vehicle is used 60% of the time for outplanting purposes, 20% for nursery production and 20% for training, cost of the vehicle, spares, maintenance and POL should be distributed proportionately by activity and line item.

Additionally, where existing water or irrigation systems permit tapping for outplanting purposes, a pro-rated estimate of the percentage of construction and maintenance costs should be included in the appropriate line item(s).

3) For cost accounting purposes, it is not necessary to differentiate between USAID, Volag, WFP or Host Country contributions. However, all direct and indirect project costs need to be included.

4) Labor

Ideally, labor costs should be differentiated by activity and by stocking rate. Accurate estimates should be made of the number of man days/ha required by activity for a given stocking density and site class.



ANNEX XXI

NITROGEN FIXATION IN LEGUMINOUS TREES IN SOMALIA

One of the major advantages of leguminous trees here in Somalia is their ability to survive very low levels of available soil nitrogen through the process of symbiotic nitrogen fixation with bacteria of the *Rhizobium* species. In most cases, as with the indigenous species of *Acacia*, there are enough ambient bacteria in the soil to inoculate the roots of these trees spontaneously, thus starting the process. In the case of recently introduced trees or other legumes, there may not be enough or any of the correct species of *Rhizobium* in the soil for this to take place. In addition the two leguminous trees that are considered for introduction in CDA forestry program, *Leucaena leucocephala* and *Sesbinia grandiflora*, apparently differ widely in their readiness to nodulate. Material developed by the National Academy of Sciences (1) indicates that inoculum for *Sesbinia* is widespread throughout the tropics. It has been shown to nodulate readily in areas where it has just been introduced. "Suitable strains of *Rhizobium* appear to be already widespread in tropical soils," the article concludes. *Leucaena*, on the other hand, seems to be more specific. NAS literature on *Leucaena* states that the trees will nodulate only if the correct strains of *Rhizobium* are present. Such strains, the literature states, are generally absent from Africa where the trees have not been widely cultivated previously. (2) Inoculation should be done then through the importation of the correct strains of bacteria from abroad or by taking soil from around already established trees that have nodulated and incorporating it into planting soil for new plantations.

The situation here in Somalia is not clear. The informal plantings of *Leucaena* at the research station at Afgoi had not nodulated when last checked several years ago when the seedlings were a little more than one year old. At the Save the Children plantation in Qorioley neither *Sesbinia* nor *Leucaena* have nodulated even though the later plots were inoculated with imported *Rhizobium*. Again this is based on sampling very young seedlings and not mature trees. Paradoxically these two species have been doing very well at a number of locations that the team have visited where they have been introduced. The *Leucaena* at Afgoi is thriving, well over ten meters in height in only three years. More importantly all have a very dark green leaf color, the sign of an ample supply of available nitrogen. Somalia's soils are notoriously low in this vital nutrient suggesting that nodulation is indeed taking place, perhaps at a later stage of growth.* No further tests have been done at Afgoi now that the trees are older

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- (1) National Academy of Sciences Tropical Legumes: Resources for the Future 1979 Wash. D.C.
 - (2) National Academy of Sciences *Leucaena*, Promising Forage and Tree Crop for the Tropics. 1977 Washington D.C.

* NAS literature states that un-nodulated trees are usually pale in color.

(they are not the subject of any research and were rather haphazardly introduced). At Qorioley those in charge of the trees are reluctant to dig up roots and lessen their survival chances.

Given this information, the team speculates that these species are probably nodulating, but at a later stage of the tree's growth. There are several reasons why this is may be so.

First Rhizobium are sensitive to high soil temperatures and will not nodulate if temperatures in the soil approach air temperatures that are common in this region (95-100+). *Leucaena* would be especially sensitive to this in that nodulation takes place on secondary roots near the surface while the plant draws water from a large usually unnodulated tap root that goes deep. In the young trees these secondary roots may be in areas that are too hot, and thus nodulation will take place only when secondary roots are developed at lower, cooler soil depths.

Secondly, one of the major nemises of Somalia's agriculture, saline irrigation water, may be to blame. Rhizobium are very sensitive to salt concentrations, much more so than the trees themselves. Early irrigations with saline water may stimulate plant growth, but preclude nodulation. When the trees are established and these waterings are stopped, natural rainfall will leach out these salts, allowing nodulation to begin.

Other factors that would discourage nodulation might be poor soil aeration and standing water in the root zone.

Some steps might be taken to mitigate these problems:

-- Inoculate leguminous trees with appropriate fresh Rhizobium, that should be hand carried into the country to assure that they are still viable and not exposed to high temperatures. One might also take soil from around health looking trees to mix with nursery or transplanting soil.

-- Mulch with dry materials to keep soil temperatures around the trees low. This should not be done if termites are a problem in the area, it will encourage them to attack the trees.

-- Test all irrigation water for salinity used for nursery and establishment waterings. This should be part of any agroforestry program.

ANNEX XXII

STATUTORY CHECKLISTS

5C(1) - COUNTRY CHECKLIST

Listed below are statutory criteria applicable generally to FAA funds, and criteria applicable to individual fund sources: Development Assistance and Economic Support Fund.

A. GENERAL CRITERIA FOR COUNTRY ELIGIBILITY

1. FAA Sec. 461. Was it been determined that the government of the recipient country has failed to take adequate steps to prevent narcotic drugs and other controlled substances (as defined by the Comprehensive Drug Abuse Prevention and Control Act of 1970) produced or processed, in whole or in part, in such country, or transported through such country, from being sold illegally within the jurisdiction of such country to U.S. Government personnel or their dependents, or from entering the U.S. unlawfully? N/A

2. FAA Sec. 620 (c). If assistance is to a government, is the government liable as debtor or unconditional guarantor on any debt to a U.S. citizen for goods or services furnished or ordered where (a) such citizen has exhausted available legal remedies and (b) the debt is not denied or contested by such government? N/A

3. FAA Sec. 620(e) (1). If assistance is to a government, has it (including government agencies or subdivisions) taken any action which has the effect of nationalizing, expropriating, or otherwise seizing ownership or control of property of U.S. citizens or entities beneficially owned by them without taking steps to discharge its obligations toward such citizens or entities? N/A

4. FAA Sec. 532(c), 620(a), 620(f), 620D
FY 1982 Appropriation Act Secs. 512
and 513. Is recipient country a
Communist country? Will assistance
be provided to Angola, Cambodia, Cuba,
Laos, Vietnam, Syria, Libya, Iraq or
South Yemen? Will assistance be pro-
vided to Afghanistan or Mozambique
without a waiver? Somalia is not included
among the list of countries
to which assistance is
prohibited.
5. ISDCA of 1981 Secs. 724, 727 and 730.
For specific restrictions on assis-
tance to Nicaragua, see Sec. 724 of the
ISDCA of 1981. For specific restric-
tions on assistance to El Salvador,
see Secs. 727 and 730 of the ISDCA of
1981. N/A
6. FAA Sec. 620(j). Has the country
permitted, or failed to take adequate
measures to prevent, the damage or
destruction by mob action of U.S.
property? N/A
7. FAA Sec. 620(l). Has the country failed
to enter into an agreement with OPIC? N/A
8. FAA Sec. 620(o): Fishermen's Protective
Act of 1967, as amended, Sec. 5. (a)
Has the country seized, or imposed any
penalty or sanction against, any U.S.
fishing activities in international
waters? No
- (b) If so, has any deduction required
by the Fishermen's Protective Act been
made? N/A
9. FAA Sec. 620(q): FY 1982 Appropriation
Act, Sec. 517. (a) Has the government
of the recipient country been in default
for more than six months on interest or
principal of any AID loan to the country? N/A
- (b) Has the country been in default for
more than one year on interest or prin-
cipal on any U.S. loan under a program
for which the appropriation bill
appropriates funds? No

10. FAA Sec. 623(s). If contemplated assistance is development loan or from Economic Support Fund, has the Administrator taken into account the amount of foreign exchange or other resources which the country has spent on military equipment? (Reference may be made to the annual Taking into Consideration memo: Yes, taken into account by the Administrator at time of approval of Agency OYB. This approval by the Administrator of the Operational Year Budget can be the basis for an affirmative answer during the fiscal year unless significant changes in circumstances occur.) N/A
11. FAA Sec. 620(t). Has the country severed diplomatic relations with the United States? If so, have they been resumed and have new bilateral assistance agreements been negotiated and entered into since such resumption? N/A
12. FAA Sec. 620(u). What is the payment status of the country's U.N. obligations? If the country is in arrears, were such arrearages taken into account by the AID Administrator in determining the current AID Operational Year Budget? (Reference may be made to the Taking into Consideration memo.) N/A
13. FAA Sec. 620A, FY 1982 Appropriation Act Sec. 520. Has the country aided or abetted, by granting sanctuary from prosecution to, any individual or group which has committed an act of international terrorism? Has the country aided or abetted, by granting sanctuary from prosecution to, any individual or group which has committed a war crime? No

14. FAA Sec. 660. Does the country object, on the basis of race, religion, national origin or sex, to the presence of any officer or employee of the U.S. who is present in such country to carry out economic development programs under the FAA? N/A
15. FAA Sec. 669, 670. Has the country, after August 3, 1977, delivered or received nuclear enrichment or reprocessing equipment, materials, or technology, without specified arrangements or safeguards? Has it transferred a nuclear explosive device to a non-nuclear weapon state, or if such a state, either received or detonated a nuclear explosive device, after August 3, 1977? (FAA Sec. 620E permits a special waiver of Sec. 669 for Pakistan.) N/A
16. ISDCA of 1981 Sec. 720. Was the country represented at the Meeting of Ministers of Foreign Affairs and Heads of Delegations of the Non-Aligned Countries to the 35th General Session of the General Assembly of the U.N. of Sept. 25 and 26, 1981, and failed to disassociate itself from the communique issued? If so, has the President taken it into account? (Reference may be made to the Taking into Consideration memo.) U/A
17. ISDCA of 1981 Sec. 721. See special requirements for assistance to Haiti. N/A
- B. FUNDING SOURCE CRITERIA FOR COUNTRY ELIGIBILITY
1. Development Assistance Country Criteria. N/A
- a. FAA Sec. 116. Has the Department of State determined that this government has engaged in a consistent pattern of gross violations of internationally recognized human rights? If so, can it be demonstrated that contemplated assistance will directly benefit the needy?

2. Economic Support Fund Country Criteria.

a. FAA Sec. 502B. Has it been determined that the country has engaged in a consistent pattern of gross violations of internationally recognized human rights? If so, has the country made such significant improvements in its human rights record that furnishing such assistance is in the national interest?

N/A

b. ISDCA of 1981, Sec. 725(b). If ESF is to be furnished to Argentina, has the President certified that (1) the Govt. of Argentina has made significant progress in human rights; and (2) that the provision of such assistance is in the national interests of the U.S.?

N/A

c. ISDCA of 1981, Sec. 726(b). If ESF assistance is to be furnished to Chile, has the President certified that (1) the Govt. of Chile has made significant progress in human rights; (2) it is in the national interest of the U.S.; and (3) the Govt. of Chile is not aiding international terrorism and has taken steps to bring to justice those indicated in connection with the murder of Orlando Letelier?

N/A

5C(2) PROJECT CHECKLIST

Listed below are statutory criteria applicable to projects. This section is divided into two parts. Part A. includes criteria applicable to all projects. Part B. applies to projects funded from specific sources only: B.1. applies to all projects funded with Development Assistance Funds, B.2. applies to projects funded with Development Assistance loans, and B.3. applies to projects funded from ESF.

CROSS REFERENCES: IS COUNTRY CHECKLIST UP TO DATE? HAS STANDARD ITEM CHECKLIST BEEN REVIEWED FOR THIS PROJECT?

A. GENERAL CRITERIA FOR PROJECT1. FY 1982 Appropriation Act Sec. 523; FAA Sec. 634A; Sec. 653(b).

(a) Describe how authorizing and appropriations committees of Senate and House have been or will be notified concerning the project;

Congressional Notification was submitted on September 7, 1982 and the 15 day waiting period has expired without objection from Congress.

(b) is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than \$1 million over that amount)?

Yes

2. FAA Sec. 611(a) (1). Prior to obligation in excess of \$100,000, will there be (a) engineering, financial or other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?

N/A

3. FAA Sec. 611(a) (2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance? N/A
4. FAA Sec. 611(b) ; FY 1982 Appropriation Act Sec. 501. If for water or water-related land resource construction, has project met the standards and criteria as set forth in the Principles and Standards for Planning Water and Related Land Resources, dated October 25, 1973? (See AID Handbook 3 for new guidelines.) Yes. The substance of the standards and criteria are considered to be met by the analyses included in the project paper and which will be required in sub-project proposals.
5. FAA Sec. 611(e). If project is capital assistance (e.g., construction), and all U.S. assistance for it will exceed \$1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability effectively to maintain and utilize the project? N/A
6. FAA Sec. 209. Is project susceptible to execution as part of regional or multi-lateral project? If so, why is project not so executed? Information and conclusion whether assistance will encourage regional development programs. N/A
7. FAA Sec. 601(a). Information and conclusions whether project will encourage efforts of the country to (a) increase the flow of international trade (b) foster private initiative and competition and (c) encourage development and use of cooperatives, and credit unions, and savings and loan associations (d) discourage monopolistic practices, (e) improve technical efficiency of industry, agriculture and commerce and (f) strengthen free labor unions. N/A

8. FAA Sec. 601(b). Information and conclusions on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise). N/A
9. FAA Sec. 612(b), 636(h) FY 1982 Appropriation Act Sec. 507. Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized in lieu of dollars. The host country will be contributing a substantial share of project costs in local currencies. No U.S.-owned local currencies are available.
10. FAA Sec. 612(d). Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release? N/A
11. FAA Sec. 601(a). Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise? N/A
12. FY 1982 Appropriation Act Sec. 521. If assistance is for the production of any commodity for export, is the commodity likely to be in surplus on world markets at the time the resulting productive capacity becomes operative, and is such assistance likely to cause substantial injury to U.S. producers of the same, similar or competing commodity? The assistance is not for for the production of any commodity for export.
13. FAA 118(c) and (d). Does the project comply with the environmental procedures set forth in AID Regulation 16? Does the project or program take into consideration the problem of the destruction of the tropical forests? Yes

14. FAA 121(d). If a Sahel project, has a determination been made that the host government has an adequate system for accounting for and controlling receipt and expenditure of project funds (dollars or local currency generated therefrom)? N/A

B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria.

- a. FAA Sec. 102(b), 111, 113, 281(a). N/A
Extent to which activity will (a) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production and the use of appropriate technology, spreading investment out from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using the appropriate U.S. institutions; (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and otherwise encourage democratic private and local governmental institutions; (c) support the self-help efforts of developing countries; (d) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (e) utilize and encourage regional cooperation by developing countries?
- b. FAA Sec. 103, 103A, 104, 105, 106. N/A
Does the project fit the criteria for the type of funds (functional account) being used?

c. FAA Sec. 107. Is emphasis on use of appropriate technology) relatively smaller, cost-saving, labor-using technologies that are generally most appropriate for the small farms, small businesses, and small incomes of the poor)? N/A

d. FAA Sec. 110(a). Will the recipient country provide at least 25% of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or is the latter cost-sharing requirement being waived for a "relatively least developed" country)? W/

e. FAA Sec. 110(b). Will grant capital assistance be disbursed for project over more than 3 years? If so, has justification satisfactory to Congress been made, and efforts for other financing, or is the recipient country "relatively least developed"? (M.O. 1232.1 defined a capital project as "the construction, expansion, equipping or alteration of a physical facility or facilities financed by AID dollar assistance of not less than \$100,000, including related advisory, managerial and training services, and not undertaken as part of a project of a predominantly technical assistance character." N/A

f. FAA Sec. 122(b). Does the activity give reasonable promise of contributing to the development of economic resources, or to the increase of productive capacities and self-sustaining economic growth? W/A

g. FAA Sec. 281(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civil education and training in skills required for effective participation in governmental processes essential to self-government. N/A

2. Development Assistance Project Criteria (Loans Only).

a. FAA Sec. 122(b). Information and conclusion on capacity of the country to repay the loan, at a reasonable rate of interest. N/A

b. FAA Sec. 620(d). If assistance is for any productive enterprise which will compete with U.S. enterprises, is there an agreement by the recipient country to prevent export to the U.S. of more than 20% of the enterprise's annual production during the life of the loan? N/A

c. ISDCA of 1981, Sec. 724(c) and (d). If for Nicaragua, does the loan agreement require that the funds be used to the maximum extent possible for the private sector? Does the project provide for monitoring under FAA Sec. 624(g)? N/A

3. Economic Support Fund Project Criteria.

a. FAA Sec. 531(a). Will this assistance promote economic or political stability? To the extent possible, does it reflect the policy directions of FAA Section 102? N/A

b. FAA Sec. 531(c). Will assistance under this chapter be used for military, or paramilitary activities? N/A

c. FAA Sec. 534. Will ESF funds be used to finance the construction of the operation or maintenance of, or the supplying of fuel for, a nuclear facility? If so, has the President certified that such use of funds is indispensable to non-proliferation objectives? N/A

d. FAA Sec. 609. If commodities are to be granted so that sale proceeds will accrue to the recipient country, have Special Account (counterpart) arrangements been made? N/A

5C(3) - STANDARD ITEM CHECKLIST

Listed below are the statutory items which normally will be covered routinely in those provisions of an assistance agreement dealing with its implementation, or covered in the agreement by imposing limits on certain uses of funds.

These items are arranged under the general headings of (A) Procurement, (B) Construction, and (C) Other Restrictions.

A. Procurement

1. FAA Sec. 602. Are there arrangements to permit U.S. small business to participate equitably in the furnishing of commodities and services financed? N/A
2. FAA Sec. 604(a). Will all procurement be from the U.S. except as otherwise determined by the President or under delegation from him? N/A
3. FAA Sec. 604(d). If the cooperating country discriminates against marine insurance companies authorized to do business in the U.S., will commodities be insured in the United States against marine risk with such a company? N/A
4. FAA Sec. 604(e); ISDCA of 1930 Sec. 705(a). If offshore procurement of agricultural commodity or product is to be financed, is there provision against such procurement when the domestic price of such commodity is less than parity? (Exceptions where commodity financed could not reasonably be procured in U.S.) N/A
5. FAA Sec. 604(g). Will construction or engineering services be procured from firms of countries otherwise eligible under Code 941, but which have attained a competitive capability in international markets in one of these areas? N/A

6. FAA Sec. 603. Is the Shipping excluded from compliance with requirement in section 901(b) of the Merchant Marine Act of 1936, as amended, that at least 50 per centum of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed shall be transported on privately owned U.S. flag commercial vessels to the extent that such vessels are available at fair and reasonable rates? No
7. FAA Sec. 621. If technical assistance is financed, will such assistance be furnished by private enterprise on a contract basis to the fullest extent practicable? If the facilities of other Federal agencies will be utilized, are they particularly suitable, not competitive with private enterprise, and made available without undue interference with domestic programs? N/A
3. International Air Transport. Fair Competitive Practices Act, 1974. If air transportation of persons or property is financed on grant basis, will U.S. carriers be used to the extent such service is available? Yes
9. FY 1982 Appropriation Act Sec. 504. If the U.S. Government is a party to a contract for procurement, does the contract contain a provision authorizing termination of such contract for the convenience of the United States? Direct AID contracts will include this provision.

B. Construction

1. FAA Sec. 601(d). If capital (e.g., construction) project, will U.S. engineering and professional services to be used? N/A
2. FAA Sec. 611(c). If contracts for construction are to be financed, will they be let on a competitive basis to maximum extent practicable? N/A
3. FAA Sec. 620(k). If for construction of productive enterprise, will aggregate value of assistance to be furnished by the U.S. not exceed \$100 million (except for productive enterprises in Egypt that were described in the CP)? N/A

C. Other Restrictions

1. FAA Sec. 122(b). If development loan, is interest rate at least 2% per annum during grace period and at least 3% per annum thereafter? N/A
2. FAA Sec. 301(d). If fund is established solely by U.S. contributions and administered by an international organization, does Comptroller General have audit rights? N/A
3. FAA Sec. 620(h). Do arrangements exist to insure that United States foreign aid is not used in a manner which, contrary to the best interests of the United States, promotes or assists the foreign aid projects or activities of the Communist-bloc countries? N/A
4. Will arrangements preclude use of financing:
 - a. FAA Sec. 104(f): FY 1982 Appropriation Act Sec. 525: (1) To pay for performance of abortions as a method of family planning or to motivate or coerce persons to practice abortions; (2) to pay for performance of involuntary sterilization as method Yes.

of family planning, or to coerce or provide financial incentive to any person to undergo sterilization; (3) to pay for any biomedical research which relates, in whole or part, to methods or the performance of abortions or involuntary sterilizations as a means of family planning; (4) to lobby for abortion?

- b. FAA Sec. 620(g). To compensate owners for expropriated nationalized property? N/A
- c. FAA Sec. 660. To provide training or advice or provide any financial support for police, prisons, or other law enforcement forces, except for narcotics programs? N/A
- d. FAA Sec. 662. For CIA activities? N/A
- e. FAA Sec. 636(i). For purchase, sale, long-term lease, exchange or guaranty of the sale of motor vehicles manufactured outside U.S., unless a waiver is obtained? N/A
- f. FY 1982 Appropriation Act, Sec. 503. To pay pensions, annuities, retirement pay, or adjusted service compensation for military personnel? Yes.
- g. FY 1982 Appropriation Act, Sec. 505. To pay U.N. assessments, arrearages or dues? Yes.
- h. FY 1982 Appropriation Act, Sec. 506. To carry out provisions of FAA section 209(d) (Transfer of FAA funds to multi-lateral organizations for lending)? Yes.
- i. FY 1982 Appropriation Act, Sec. 510. To finance the export of nuclear equipment, fuel, or technology or to train foreign nationals in nuclear fields? Yes.

- j. FY 1982 Appropriation Act, Sec. 511. No.
Will assistance be provided for the purpose
of aiding the efforts of the government
of such country to repress the legitimate
rights of the population of such country
to the Universal Declaration of Human Rights?
- k. FY 1982 Appropriation Act, Sec. 515. Yes.
To be used for publicity or propaganda
purposes within U.S. not authorized by
Congress?

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