



**New Partnership for
Africa's Development (NEPAD)
Comprehensive Africa Agriculture
Development Programme (CAADP)**



**Food and Agriculture Organization
of the United Nations
Investment Centre Division**

GOVERNMENT OF THE REPUBLIC OF SIERRA LEONE

SUPPORT TO NEPAD–CAADP IMPLEMENTATION

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Volume IV of IV

BANKABLE INVESTMENT PROJECT PROFILE

Market-oriented Forestry and Tree Crop Agroforestry Production Systems

(Proposal for the formulation of the Project)

March 2005

SIERRA LEONE: Support to NEPAD–CAADP Implementation

Volume I: National Medium–Term Investment Programme (NMTIP)

Bankable Investment Project Profiles (BIPPs)

Volume II: Sustainable Land and Water Resources Development

Volume III: Freetown Fisheries Harbour Complex

**Volume IV: Market–oriented Forestry and Tree Crop Agroforestry
Production Systems**

NEPAD–CAADP BANKABLE INVESTMENT PROJECT PROFILE

Country: Sierra Leone

Sector of Activities: Forestry and Tree Crop Agroforestry Development

Proposed Project Name: **Market-oriented Forestry and Tree Crop Agroforestry Production Systems**

Project Location: All seven agricultural regions in Sierra Leone

Duration of Project: tbd

Estimated Cost
(for Project formulation): Foreign Exchange..... US\$104,300
 Local Cost..... US\$2,210
Total..... US\$106,510

Suggested Financing *[of Project formulation work]*

<i>Source</i>	<i>US\$</i>	<i>% of total</i>
<i>Government</i>	2,210	2.1
<i>Financing institution(s)</i>	104,300	97.9
<i>Beneficiaries</i>		
<i>Private sector</i>		
<i>Total</i>	106,510	100.0

SIERRA LEONE:

NEPAD–CAADP Bankable Investment Project Profile [Project Formulation Proposal]

“Market-oriented Forestry and Tree Crop Agroforestry Production Systems”

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Abbreviations

CAADP	Comprehensive Africa Agriculture Development Programme
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FWL	Forestry and Wildlife Division of MAFFS
GDP	Gross Domestic Product
GTZ	<i>Gesellschaft für Technische Zusammenarbeit</i> (German aid agency)
IAR	Institute of Agricultural Research
LWDD	Land and Water Development Division
MAFFS	Ministry of Agriculture, Forestry and Food Security
MERLIN	Medical Emergency Relief International
MTASP	Medium Term Agricultural Strategic Plan 2003–2007
NaCSA	National Commission for Social Action
NAFSL	National Association of Farmers in Sierra Leone
NARCC	National Agricultural Research Coordinating Council
NATC	National Agricultural Training Center
NEPAD	New Partnership for Africa’s Development
NGO	Non-Governmental Organization
NMTIP	National Medium-Term Investment Programme
NUC	Njala University College
PEMSD	Planning Evaluation Monitoring Statistics Division
PMU	Programme Management Unit
PPIS	Plant Protection Insurance Scheme
RLTDC	Rokel Leaf Tobacco Development Company
SLEDIC	Sierra Leone Export Development and Investment Corporation
SLRA	Sierra Leone Roads Authority
UNDP	United Nations Development Programme
USL	University of Sierra Leone
WFP	World Food Programme
WHO	World Health Organization

I. PROGRAMME BACKGROUND

A. Programme Origin

I.1. This programme was identified for preparation by a team of national and international consultants together with representatives of the *Ministry of Agriculture, Forestry and Food Security (MAFFS)* in their effort to prepare a *National Medium-Term Investment Programme (NMTIP)* for the country. It covers the ministry’s national target of establishing 16,000 ha of community forestry reserves and woodlots and the protection of an estimated 400,000 ha of national forest reserves: and the rehabilitation of 135 200 ha of tree crop plantations, the replanting of 16,000 ha of old plantations and establishment of 140 000 ha of new plantations for both the public and private sectors.

I.2. The programme falls within the tenets of government’s sixth strategic priority of sustainable natural resource management set out in the NMTIP for agriculture, 2003–2007. The programme is in close parallel with the first and fifth pillars of the CAADP: sustainable land management and water control, and others (livestock, fisheries, forestry). There is now a strong desire and determination by government to move agriculture from the production of raw materials to at least the manufacture of semi-finished products of selected commodities for which Sierra Leone has comparative advantage.

I.3. The MAFFS is expected to play a major role in the achievement of this goal, as it is the central government agency responsible for promoting the development of agriculture in Sierra Leone. The *National Agricultural Research Coordinating Council (NARCC)*, Departments of the *University of Sierra Leone (USL)*, *National Association of Farmers in Sierra Leone (NAFSL)*, NaCSA and NGOs involved in agriculture have all contributed funds and human resources to the revitalization of the forestry/tree crop sector. Farmers have also gone to great lengths to help themselves. These institutions are often faced with poor infrastructure and a limited financial resource base in the implementation of their activities.

B. General Information

I.4. **Geographic location and population growth.** The Republic of Sierra Leone is located on the West Coast of Africa. It is bounded on the North West and North East by the Republic of Guinea, on the Southeast by the Republic of Liberia and on the West by the Atlantic Ocean. The country is divided into four administrative regions, namely: the Northern, Eastern and Southern Provinces and the Western Area, where the capital, Freetown is located. It is estimated that about 70 percent of the country’s 5.16 million population live in the rural area, with majority of them doing farming as the main occupation and shifting cultivation as the predominant practice.

I.5. **The resource base.** The total land area is estimated at 72 300 km². The land suitable for crop production on a sustainable basis is estimated at 5.36 million hectares; 4.3 million ha of this total is uplands, the soils of which are shallow, highly leached and with low fertility. An estimated 1.06 million ha are fertile lowlands with considerable potential for food crop production. In general, there are five ecological systems suitable for production of a host of crops ranging from cereals to roots and tubers, fruits and vegetables, grain legumes, cocoa, coffee, oil palm and fiber crops.

I.6. About 20 percent of cultivated land is under perennial crops including coffee, cocoa and oil palm with the highest concentration in the Southern and Eastern provinces where climatic and edaphic conditions are most suitable. There are 75,000 ha of coffee, 39,000 ha of cocoa, 18,000 ha of

cultivated oil palm and 2,300 ha of cashew. Others like kola nut, citrus, mango, paw paw and coconut are normally grown in mixed stands.

I.7. **Tree crop production constraints.** The principal tree/cash crops are grown in the Southern and Eastern regions of the country, typically as a smallholder crop. A combination of low yielding planting materials, low plant densities, and poor cultural practices, produces low yields. The requirements of the various tree crops in terms of soils and climate vary and the degree to which these conditions are satisfied determine the areas of concentrated cultivation. Rebel occupation of tree crop growing areas led to the abandonment or total neglect of farms for nearly a decade, to the extent that roads were overgrown with bush and rendered impassable by most vehicles. All tree crop plantations were overgrown by secondary forests. The agricultural research and training institutions were seriously damaged and staff displaced. The extension service especially at village and farm levels was disrupted and many of the extension workers became direct victims of the war. Agro-processing facilities were vandalized or had become dilapidated. Able-bodied young men either joined the fighting forces or migrated to relatively safer urban centers in search of safety or jobs, leaving the farms unattended. This has led to a steady reduction in foreign exchange earnings by the country due to tree crop export in the last decade. Rehabilitation of the 150,000 ha of tree crop plantations and their expansion will contribute to the economic growth of the country, provide employment and reduce poverty in the proposed programme area (rural areas).

I.8. **Forest resource management constraints.** Forests are an important natural resource of Sierra Leone and cover 6 305,000 ha (88 percent of the territory), divided into closed high forest (635,000 ha), secondary forest (261,000 ha), forest regrowth or fallow bush (3,744,000 ha), savannah woodlands (1,619,000 ha) and mangroves (286,000 ha). About 4,100 ha of plantations remain out of 8,000 ha planted.

I.9. The national forest estate comprises 398,000 ha or 6 percent of the forest area. It consists of gazetted forest reserves (285,300 ha), proposed reserves (34,000 ha), protected forests on chiefdom lands (11,000 ha) and game reserves (67,000 ha). The forestry sub sector contributes 2–4 percent of GDP, of which one-fourth is accounted for by wood processing activities; fuel wood is the major use of the national forest resources. It is estimated that in the western area alone 625,000m³ of fuel wood and 4,500 tons of charcoal are consumed annually, representing 10 percent of domestic budget of an average family. Strategies to address fuel wood crisis entail increasing supply and reducing demand. Forestry and wildlife division of MAFFS has been pursuing both strategies with the support of UNDP/FAO, WFP, World Bank, EU, GTZ, RLDC and active participation of NGOs like Peace Corps, CARE, Plan International and Conservation Society of Sierra Leone.

I.10. Information (inventory data) about the national forest resource and utilization is inadequate and mostly outdated for proper management practices. The major vegetation left in the country is farm bush due to heavy pressure being exerted by a dense population (61 persons per km²). Majority of these farmers practice bush fallow (or modified old shifting cultivation) system. Therefore, for decades the whole country has suffered from deforestation caused by wildfires as a result of slash and burn land clearing technique, and cattle grazing in the northern part. The decade old civil conflict and the refugee situation caused further deforestation. The rapid encroachment of the forests for agriculture has left the land with very little closed high forest cover of about less than 5 percent when the original was 60 percent. All this had caused massive deforestation that has led to heavy runoff, soil loss and serious degradation of not only farmlands but also the environment as a whole. Environmental degradation is being more serious in the Western Peninsula of Freetown. Population pressure has been highest in this region because it served as safe place during the wartime.

I.11. The *Forestry and Wildlife Division* (FWL) of the MAFFS has identified two natural watersheds in the highlands and four man-made catchments in forests, with a total area of about 300 ha; all are in urgent need of rehabilitation and protection through biological and silvicultural approaches

II. PROGRAMME AREA

II.1. **Location.** The entire Sierra Leone is covered by one kind of forest vegetation or other and from an ecological point of view, it is predominantly a tree crop country. This programme considers two subsectors (Forestry and Tree Crops) of MAFFS and therefore covers all seven agricultural regions.

II.2. **Forestry subsector.** This covers all the seven agricultural regions: Western, Northern, Southern, Eastern, Southwestern, North-central and Northwestern regions. With the exception of the Western Area, all the agricultural regions comprise two districts each (see map in Annex 1). The vegetation almost everywhere in the country is forest regrowth as a result of the bush fallow farming system by the dense population. There is rapid encroachment of forest for farming. Timber extraction and fuel wood and pole collection are common around watersheds and hillsides. The past civil war also caused deforestation, especially around urban centers. Both the Loma Mountains and Tingi hills are important watersheds in the northeastern international border areas where most of the dense network of rivers originate. Important man-made catchment areas are the Guma Valley in the Western Peninsula forest, Goma and Dodo dams in the Gola forest in the east and Bumbuna dam in the Outamba-Kilimi forest in the north. All these catchments are a source of water and/or hydropower for the generation of electricity.

II.3. **Tree crop agroforestry subsector.** This component covers all the agricultural regions in the country (see map in Annex 1). These areas are selected because they possess the most suitable climatic and edaphic requirements for the range of tree crops grown in Sierra Leone and are the highest areas of concentrated cultivation. The over 150,000 ha of tree crop plantations in the programme area severely suffered from neglect and expansion plans for them were abandoned because the areas were occupied by rebel forces. The plantations were not brushed, pruned, fertilized nor treated against pests and diseases. Weeds largely overtook them and in some cases armed groups who also vandalized all processing machinery did harvesting.

II.4. **Population and growth rate.** Results from the 1985 population census showed a total population of 3,5 million people. The population has been growing at a rate of 2.6 percent per annum, and is now about 4.5 million (1995). About 24 percent of the population are children under 10 years, 71 percent are between 10 and 59 and only 5 percent are 60 years and above. Women outnumber men proportionately more in the rural areas. This is more pronounced in agriculture than in other occupations, where 45 percent of the persons currently employed in agriculture and related activities are male and 55 percent female. The number of female-headed households in the rural areas has increased as more men have left for work in the towns and mines. This has reduced the labour force required for management of forest resources and tree crop plantations.

II.5. **Topography, soils and climate.** Sierra Leone has two agro-ecological zones: uplands and lowlands. The uplands (of relatively low soil fertility) are mainly gently sloping areas drained by a web of small valleys. More than half of the country is below 150 m in altitude, and 70 percent is below 300 m. In general the uplands should be planted with the best economic trees suited for the particular elevation. The tops of hills are best suited to timber trees and the deeper, more friable soils to oil palm

(which grows satisfactorily in most parts of the country). In the Northern regions there is considerable potential for cashew, which tolerates some dryness and poor soils; the East and South are most suitable for Robusta coffee and the lower lying areas with good soils are the right locations for cocoa and kola, which require more moisture. The lowlands are more fertile areas where intensive cultivation for annual crops takes place. Only 16 percent of the best available lowland areas are currently under cultivation (100,000 ha of 630,000 ha available). Additional areas of coastal mangroves (25,000 ha cultivated of 200 000 ha available) have good potential for rice cultivation.

II.6. There are seasonal variations in rainfall with intensity as high as 5,000 mm per annum in the coastal areas and some 2,500 mm in the Northern regions. The mean temperature varies from 22° at night to about 33°C during the day. Humidity is very high in the rainy season especially in the South, Southwestern and Eastern regions. The hot dry season (March–April) is characterized by hot, humid conditions with Southwesterly winds from the South Atlantic. In the dry season high soil moisture deficit develops causing severe stress on crops. Also during the dry season, Easterly winds from the Sahara bring clouds of brown dust known as the Harmattan, which affects all the regions in the country from January to February.

II.7. ***Institutional support.*** MAFFS is the leading central government agency responsible for overseeing agricultural programmes in Sierra Leone. It is made up of six divisions and the tree crops sub-sector falls under the Crops Division, which is one of the most revered divisions of the ministry. However, the major focus of this Division has been on the production of arable crops including the staple crop rice. MAFFS and its partners allocated so much of their resources and exerted a lot more effort on the production of rice in the bid to satisfy domestic demands that the development of tree crops is almost a forgotten issue. Clonal gardens for tree crops and horticultural stations have been neglected and new varieties of improved tree crops have not been introduced into the country for a long time now. Very little attention is paid to the maintenance and management of even the existing public plantations and this is a disincentive to tree crop farmers who have lost their enthusiasm as a result. Presently, there are several international and local NGOs operating in partnership with MAFFS. The involvement and effective participation of the private sector will give the MAFFS added impetus to further enhance its implementation capacity through technical assistance, consultancies and special contract arrangements as appropriate.

II.8. The head of the FWL is the Director who has a Deputy. The headquarters office is fairly equipped, but all the regional offices need to be refurbished. The main task is forest and wildlife conservation, production and utilization. There are regional forestry officers posted in all regions, although the individuals vary considerably in rank from a Conservator of forests to a non-graduate Senior Forester. The low level of resources available to the Division results in the forest estate being extensively rather than intensively policed; most forests are over-exploited; silvicultural management is abandoned; and productivity is declining. Thus the forestry sub-sector’s contribution to the national economy has greatly diminished. Recurrent and capital budget allocations have been terribly inadequate to maintain a forest service equipped and capable of protecting the national forest estate, and for planning and executing its management and expansion. The problems impairing the Forestry Division’s performance are numerous, ranging from acute shortage of professional and specialized staff to inadequate accommodation at the headquarters and in the field.

II.9. In its restructuring efforts, MAFFS has already started a process of decentralization of services to the regions and districts. The thrust of this process is on the empowerment of front-line staff to respond effectively to grass root needs of farmers and the rural community. To this effect MAFFS has so far designated headquarters, regional, district and front-line technical staff as a quick response mechanism to farmers’ problems. This, however, has not gone far enough since no proper job descriptions and requirements for different positions have been prepared and cleared with the office of

the Establishment Secretary and Public Service Commission. The remuneration and general logistic support are poor and are not an encouragement for the best performance by front-line staff.

III. PROGRAMME RATIONALE

III.1. **Forestry.** Lack of or outdated information makes forest management on sustainable basis very difficult. Massive deforestation, caused by the slash and burn agriculture, improper logging techniques, mining and collection of building pole and fuel wood, is responsible for the loss of soil at a fast rate. It is therefore essential for the plantations and natural forests, including mangroves to be inventoried to enhance sustainable management and utilization. It is necessary to reforest the degraded forest regrowth (abandoned farm bush) area which is the largest woody vegetation (60 percent of the forest cover) to enhance commercial/industrial production, protect the soil for farming and woodlot establishment for the fuel wood which is now extremely scarce particularly in Freetown.

III.2. There is general lack of awareness regarding the need for conservation of soil and water resources. Rehabilitation of the catchments and hill slopes is urgent because the water sources are getting dryer, e.g. low water table has been reported for Guma dam that supplies water to the city of Freetown. Construction of forest roads for all major forests will enhance timber extraction and transportation to mills and markets, since rural infrastructure to support forestry is inadequate. In the forestry sub sector there is lack of organized market, credit facility, adequate wood processing facility and adaptive research programmes; its link with other sectors like crop and livestock production in the MAFFS is weak.

III.3. **Tree crop farming/agroforestry.** Sierra Leone is ecologically a tree crop country and agriculture is the backbone of its economy. Tree crop farming covers about 20 percent of the cultivable land in Sierra Leone, supplies the bulk of agricultural foreign exchange earnings (palm kernel, coffee, cocoa and kola nuts alone contributing 91 percent of agricultural export earnings in 1971) and provides employment for a large percentage of the rural population. Yields from tree crop farms have been low due to a combination of factors, amongst which are; use of low yielding planting materials, low plant densities, planting on soils with marginal characteristics and poor cultural practices. In spite of these constraints, tree crops provided a substantial share of the country's export earnings before the start of the war.

III.4. The rebel incursion in 1991 made an already bad situation worse. It affected the most important tree crop areas in the country and production activities were abandoned because of the mass exodus of populations from plantation areas. As a result, productive plantations were left unattended and were neither maintained nor harvested, and have reverted to bush. These plantations would need rehabilitation so as to bring them into satisfactory production again.

III.5. Some plantations were established over forty years ago and have now passed their economic life. These old and senile plantations would need to be replanted with improved high yielding tree crop varieties.

III.6. Demand for tree crop products change locally and internationally with time. This necessitates the expansion of some plantations and the introduction of new tree crops through the establishment of new plantations.

IV. PROGRAMME OBJECTIVES

IV.1. The programme would have two *primary objectives*:

- to improve sustainable forest resource management and utilization, to conserve soil moisture and fertility for increased agricultural productivity at community level for poverty reduction;
- to develop tree crop plantations and related infrastructure with a view to increasing their capacity and diversifying their outputs so as to improve incomes of rural people and increase foreign exchange earnings.

IV.2. *Secondary objectives* are:

- to rehabilitate and replant existing tree crop plantations, forests and watersheds, as well as related rural infrastructure;
- to establish new plantations and clonal gardens for tree crops
- to promote agroforestry, reforestation and environmental conservation by raising and supplying seedlings to small holder farmers;
- to improve access to processing points and market centers through construction/maintenance of feeder roads and tracks;
- to strengthen the capacity of extension personnel and grass root community organizations, especially for women and youth, through training and extension services.

V. PROGRAMME DESCRIPTION

V.1. The programme has attempted to highlight possible areas of investment in the tree crops and forestry subsectors that would need to be supported if these subsectors are to develop to levels that would alleviate rural poverty and fetch foreign exchange earnings for the country.

A. Possible Areas of Investment

V.2. The following projects have been identified as possible areas of investment for the development of the tree crops and forestry subsectors. This programme would provide the funds needed to enhance the preparation of detailed project proposals in the identified areas of intervention for funding.

- The rehabilitation of neglected tree crop plantations;
- The reforestation of degraded areas;
- The replanting and establishment of new tree crop and forestry plantations;
- Institutional/infrastructural support for the development of the tree crops and forestry subsectors;
- Support to tree crops and forestry related research;
- Forest resource assessment/inventory/mapping.

B. Studies and design

V.3. The programme has a lot of preparatory activities to under take by way of conducting feasibility studies on tree crop resources, forest resource assessment/inventory/mapping and assessing existing infrastructure for rehabilitation or replacement. These activities would require funds provided by the programme to support consultants in carrying out project design feasibility studies that would enhance the preparation of bankable projects. The programme would provide the funds needed to enhance the preparation of detailed proposals of the following bankable projects.

Project One

- Title:** Forest resource assessment/inventory/mapping
- Subsector:** Forestry
- Duration:** To be determined
- Total cost:** To be determined
- Location:** Three Agricultural Regions
- Objective:** To conduct base-line forest resource assessment, prepare management plans and implement a sound programme of resource management.
- Justification:** Lack of and/or outdated inventory data makes forest management on sustainable basis very difficult (See section III.1).

Description:

- Reconnaissance survey of the forest estate in the three regions;
- Under take aerial photography of project area with photo interpretation and preparation of base maps;
- Pre-inventory ecological survey of forest estate for selection of enumeration sites and the design of methodology;
- Train inventory staff and carry out field exercises for 5 percent inventory;
- Collate data and prepare reports, management plans and thematic maps for resource management.

Project Two

- Title:** Reforestation of 1 000 ha of degraded areas around catchment areas
- Subsector:** Forestry
- Duration:** To be determined
- Total cost:** To be determined
- Location:** To be determined
- Objective:** To reforest 1,000 ha of highly degraded forests as well as to promote sound environmental protection for the watersheds.
- Justification:** There is general lack of awareness regarding the need for conservation of soil and water resources. (See section III.1).

Description:

- Consultations with NGOs and community groups involved in awareness raising of environmental issues;
- Identification of target groups, e.g. youth and women;
- Disseminate packages on forest fires through extension workers and NGOs;
- Training members of the target group on forest fires;
- Identification of sites and establishment of nurseries;
- Planting out of tree seedlings around the catchment forest;
- Plantation management.

Project Three

Title: Replanting of old and low-yielding cocoa and oilpalm plantations in Sierra Leone

Justification: Sierra is typically a tree crop country and has 39,000 ha cocoa and 18,000 ha of cultivated oilpalm plantations with the highest concentrations found in the Southern and Eastern Provinces where climatic and edaphic conditions are most suitable. Many of these plantations were established over 40 years ago using low-yielding varieties. These old and senile plantations have passed their economic life and would need to be replanted with improved high-yielding tree crop varieties in order to increase their productivity

Objective: The main objective of the project is to replant and increase the productivity of 10 000 ha of cocoa and 6,000 ha of oilpalm plantations in the cocoa and oilpalm growing areas in the country using improved high-yielding varieties in order to increase the incomes of smallholder farmers. The project would train farmers in silvicultural and agroforestry practices.

Outputs:

- 16 000 ha of old cocoa and oilpalm plantations replanted;
- The incomes of cocoa and oilpalm smallholder farmers increased;
- Cocoa and oilpalm farmers trained in silvicultural and agroforestry practices.

Project Implementation Strategy:

- Project duration: To be determined
- Management and supervision: A project management team comprising representatives from the Crops Division of MAFFS, FAO and Local District Councils would manage and supervise the project (details to be provided at time of project proposal preparation).
- Project area and target groups: The project would cover the entire cocoa and oilpalm growing areas in the Southern and Eastern Provinces and would target smallholder farmers with old and/or low-yielding plantations.

Work Plan. (Details to be provided at time of project preparation) The project would undertake the following of activities:

- Identification of target groups & planting areas;
- Procurement of materials (tools, seeds, fertilizers);
- Farmer training;
- Nursery establishment and management;
- Nursery management and planting site preparation;
- Distribution of seedlings and planting out;
- Management of replanted plantations.

Project Budget: (To be supplied at time of project proposal preparation)

C. Programme Implementation Strategy

V.4. The implementation strategies described in the programme would be adopted by projects prepared in the different areas of intervention. The implementation strategies would cover both production and post-harvest activities.

(i) Production Activities

V.5. **Public activities.** These activities would be fully funded by the proposed projects in this programme.

- Central nurseries: Limited MAFFS managed central nurseries would be established in clonal gardens and in each district.
- Training and institutional strengthening: Training institutions in and out of the country would provide training for extension personnel and subject matter specialists including women. These trainees would provide technical backstopping assistance to post-programme implementation activities to ensure the continuation of all activities put in place by the programme. Farmer training would largely be strengthened through functional literacy and numeracy campaigns for the illiterate farmers, farmer field schools, inter-regional farmer exchange visits and farmer contacts with research and educational institutions, following specified schedules to be determined by the projects. The projects would promote collaborative extension training with NGOs and local communities.

The programme would strengthen the capacity of MAFFS and other institutions for effective technology transfer (production and protection) and input delivery in community based plantations.

- Publicity: The projects would promote reforestation by providing moral, financial and institutional support to the *National Tree Planting Drive* of MAFFS and World Environmental Day to ensure activities cover the whole country.

Farmers would be properly sensitized and encouraged to organize themselves into groups or associations at the level of the community through seminars, workshops and the electronic media.

V.6. **Communal activities** The projects in partnership with the government and the communities would fund these activities. The communities would provide 10–20 percent of the costs and the Central Government 80 percent as grants.

- **Chiefdom/village nurseries:** Local Government managed nurseries would be established in each chiefdom and farmer managed ones at village level for crops or forest trees that are suited for the areas. Germinators would be set up at strategic locations to serve especially oil palm smallholder farmers.
- **Fuel wood plantations:** The programme would promote the planting of 20 000 ha of multi-purpose and nitrogen fixing/fodder trees that coppice well in communal woodlots or community forestry plantations, farmlands, along road sides and in dwelling areas.

V.7. **Private small farmer activities.** The programme in partnership with the government and the farmers would fund these activities. The farmers would provide 10–20 percent of the costs and the Central Government 80 percent as grants.

V.8. **Tree crop plantation rehabilitation & new plantings.** The programme is not expected to play a direct role in the rehabilitation and development of tree crop plantations but would provide the necessary financial, material, technical and scientific support needed by both the public and private sectors to make tree crop farming a viable and competitive commercial engagement in Sierra Leone.

V.9. This component comprises three major nationwide activities: (i) rehabilitation of productive but neglected plantations; (ii) replanting of low yielding, old and senile plantations; and (iii) establishment of new plantations.

V.10. The programme would bring into production an estimated total of 320,000 ha of tree crop plantations through the rehabilitation of 143,200 ha, replanting of 16,000 ha and establishment of 153,000 ha of new plantations so as to meet the government’s tree crop development targets of 291,200 ha. However, small the farmers would only rehabilitate their own farms and undertake about 40 percent of new planting activities.

V.11. The major rehabilitation activities to be undertaken by smallholder farmers through programme support would include: (a) under-brushing of plantations using organized/communal labour; (b) shade management and removal of diseased trees in plantations; (c) gap-filling to correct plant densities; and (d) control of pests and diseases.

V.12. The replanting and new establishment activities would be undertaken by small farmers, the government and/or private companies and would include: (a) identification and multiplication of suitable planting materials including shade trees; (b) partial/total clearing of planting areas; and (c) planting and plantation management. Where moves are already underway by government and/or large-scale private investors to rehabilitate and/or expand tree crops plantations, the programme would support these moves by making planting materials and technical assistance available.

V.13. The programme plantation development exercise would target smallholder farmers mainly and would be agroforestry-biased to increase and diversify plantation outputs. Emphasis would be laid on the promotion of agrosylvicultural, sylvopastoral and agrosylvopastoral techniques and the use of

fertilizer and other economic trees like kola nut, “bitter kola”, mango and citrus as shade trees in revived and new plantations. Fast-growing and coppicing nitrogen fixing fuel wood trees would also be sparsely planted in oil palm plantations to supply fertilizer and provide fuel wood needed for palm oil extraction. This would save the oil rich kernels currently used as fuel for palm oil extraction in smallholder plantations. The oil palm plantations would be under planted with nutritious fodder grasses and fast-growing cover crops to protect the soil and provide grazing materials for both large and small ruminants. The roaming animals would help to distribute nutrients in the plantations through their urine and droppings.

V.14. *Production of planting materials.* The programme would identify and select suitable planting materials (seeds, cuttings, suckers, seedlings, seedlets) and assist in the establishment of nurseries countrywide. Efforts would be made to establish limited MAFFS managed centralized nurseries in clonal gardens. Local government managed nurseries would be established in each chiefdom and farmer managed ones at village level for crops and forest trees that are suited for the areas. Germinators would be set up at strategic locations to serve especially oil palm smallholder farmers. Planting materials and other inputs would be distributed to farmers through a Loan and Credit Scheme supervised by NAFSL but run by a Rural Development Bank to ensure sustainability of planting material supplies.

V.15. *Establishment of plantations.* Farmers would be encouraged to establish their plantations on suitable upland rice fields, after the first or second year. They would likewise be encouraged through extension education to use inland valley swamps, bolilands, mangrove swamps and other similar ecologies for rice production in order to mitigate environmental degradation caused by bush fallow farming.

V.16. Mono cropped fruit tree plantations would be under-planted with ginger and pineapple to diversify their outputs.

V.17. Cashew plantations in the north would be interplanted with mango, citrus and fast-growing nitrogen fixing trees as part of a reforestation programme for those parts of the north where there has been large scale environmental degradation resulting from shifting cultivation, grazing and bush fires.

V.18. Measures would be put in place to ensure proper management of plantations to sustain their productivity.

V.19. The programme would encourage small-scale farmers to register with a *Plant Protection Insurance Scheme* (PPIS) and make regular contributions to the scheme so that they can be covered for the control of pests and diseases in plantations when the need arises. The NAFSL would run the scheme in collaboration with the *Plant Protection and Phytosanitary Unit* of MAFFS. The programme would support the scheme to ensure a nation wide coverage by providing agro-chemicals, machinery and equipment, and the relevant training for their safe use.

V.20. *Private large-scale activities.* The private sector would fund these activities using loans obtained from the central government. The Central Government would help to secure the land, guarantee credit and allow access to benefits in Investment Code.

- *Tree crops and forest plantations:* The large-scale farmers would rehabilitate the public plantations and undertake the establishment of 60 percent of new plantations. Large-scale farmers or private companies would fund the mechanized establishment of an estimated 500,000 ha of industrial forest plantations to produce round wood. They will also establish 5,000 ha of plantations of high-fiber content non-timber plants like bamboo,

rattan and banana/plantain to provide raw materials (and fruits) for the pulp and craft industries.

- *Wildlife conservation*: The private sector in partnership with the Central Government would fund and promote sustainable wildlife management practices and upgrade all related infrastructure in the protected areas.

(ii) *Post Harvest Activities*

V.21. The private sector, small farmers and communities would undertake post harvest activities. The programme would provide post harvest facilities for small farmers and communities on a hire purchase basis with a down payment of 20 percent. Large-scale factories would be funded by the private sector using funds obtained as loans. The Central Government would provide loan guarantees and access to Investment Code benefits.

V.22. *Communal activities and private small operators*. The programme would lay great emphasis on agro-processing facilities for private smallholder farmers and communities to reduce drudgery on especially women, post harvest losses, improve produce quality and add market value so as to increase total output. The programme would, therefore, support the rehabilitation of all viable agro-processing equipment and infrastructure and provide additional facilities to meet expected production incremental targets. In particular, focus will be on drying floors, stores, and market centers built by MAFFS, IADPs and NGOs at strategic locations country wide with a view to their rehabilitation, expansion and construction of additional facilities where the need arises. The programme would procure simple labour-saving and other processing machinery for opening cocoa pods and separating beans from husks, washing cocoa beans, coffee hullers, fermenting bins; construct improved stores and drying floors with sliding roofs and provide proper packaging and transporting facilities to reduce product contamination. Mini palm oil mills and hand press assemblies are currently being installed and distributed to communities and smallholder farmers in oil palm growing areas in some parts of the country, the programme would support the fast-tracking of this process to ensure a wider coverage.

V.23. Programme provided farmer managed vehicles (power tillers, tractors, trucks) would be supported by the programme to facilitate timely transportation of produce to processing points and market centers. Mechanisms would be set up through programme support to PEMSD to ensure quality control, and collection and dissemination of timely market information for farmers and the public in general.

V.24. NAFSL would identify produce-buying cooperatives to buy produce from farmers at mutually negotiated prices for onward sales to national and international markets. Government would reserve the right through SLEDIC to intervene in the marketing of produce locally and internationally where government feels farmers stand to lose for one reason or the other. The programme would strengthen SLEDIC to enable it promote export and attract foreign direct investment into the country.

V.25. Private small operators and communities would embark on woodlot harvesting through manual felling and coppicing. Community operated trucks would be used to transport forest products from rural to urban centers and markets. Drying floors would be constructed for air seasoning of wood products. The communities would operate small-scale sawmills and machinery.

V.26. Programme purchased trucks would be organized and run by community organizations for the transportation of firewood, charcoal, poles and other forest products from the rural to urban centers and markets. Forest products would be marketed locally and/or internationally by these community

organizations on behalf of their members in accordance with governments laid down rules and regulations for the marketing of forest products.

V.27. **Large scale factories.** The programme would encourage the government to facilitate the setting up of large-scale tree crop processing factories by private companies to add market value to tree crop produce so as to prevent wastage during peak seasons and income loss by farmers due to fall in world market prices: The programme would support SLEDIC to enable government raise awareness in private companies about the opportunities for investment in processing factories and to ensure that appropriate incentives are instituted to enhance their establishment and smooth operation. Interested investor companies would under take their own feasibility studies to determine the specific locations for the factories. The following processing factories are proposed for establishment:

- Coconut processing plant (for oil, biscuits, cakes, animal feed and bottling of coconut water) in Bonthe District to service coconut producing areas (Moyamba, Bonthe, Kambia, Port Loko, Western area and Pujehun)
- Jam making and fruit/juice canning factory in Bombali District to service fruit and pineapple producing areas to prevent peak season wastage (the *Horticultural Research and Development Station* at NATC/Njala would support this factory in collaboration with the *Institute of Home Sciences* at NUC)
- Cashew (nut, fruit and oil) processing factory in Kambia District
- Coffee and cocoa processing factory in Kenema District to process coffee and cocoa to secondary product level to prevent income loss by farmers due to fall in world market prices.

V.28. The government and private companies would promote the use of sound economic and ecological logging systems like mechanical clear felling with planting for industrial forests. Private large companies would purchase logging tools and equipment, skyline, tractors with shears and trucks and make appropriate arrangements for the marketing of their products. The programme would support SLEDIC to conduct market surveys on various forest products to promote their development for the local and export markets.

V.29. The programme would fund and rehabilitate or reactivate existing wood processing plants like the public sawmills in the country including Panguma, Kenema and Kasewe. The companies themselves can undertake rehabilitation of private wood industries like the Sierra Leone Match Company. The government owned saw mills would be integrated with plywood mill, pulp mill or charcoal plants to add market values, diversify their outputs and optimize the utilization of extracted timber for the export market. The government and the private sector will fund the setting up of these large-scale factories.

VI. INDICATIVE COSTS

VI.1. The table below shows the indicative costs of preparatory activities that would lead to the preparation of bankable projects in the proposed areas of intervention. These costs also cover the initial resources needed for pre-inventory ecological survey of the forest estate for selection of enumeration sites and the design of methodology as well as the preparation of six bankable project proposals.

Summary of indicative component costs for the preparatory activities for project formulation					
Components	Local	Foreign	Total cost (US\$)	% Foreign exchange	% Total base cost
Consultants	1,850	18,500	20,350	90.9	19.1
Duty travel	–	21,200	21,200	100.0	19.9
Casual labour	360*	3,600	3,960	90.9	3.7
Project formulation	–	36,000	36,000	100.0	33.8
General operating expenses	–	10,000	10,000	100.0	9.4
Support costs	–	15,000	15,000	100.0	14.1
Total base cost	2,210	104,300	106,510	97.9	100.0

VII. PROPOSED SOURCES OF FUNDING

VII.1. Timely support in diverse forms is crucial to the development of the agricultural sector. The main support has always come from the government and the donor community. Farmers have also gone to great lengths to help themselves. But due to the poor state of the economy and world trends, diminishing government role in providing adequate support to the sector is envisaged and the donor community is, therefore, expected to play a major role in the development of the sector.

VII.2. Below are the major donors and development partners that are active in the agricultural sector:

- The African Development Bank (ADB);
- The International Fund for Agricultural Development (IFAD);
- The European Union (EU);
- The Food and Agriculture Organization of the United Nations (FAO);
- The Government of the Federal Republic of Germany (FRG);
- The Islamic Development Bank (IDB);
- The United States Agency for International Development (USAID);
- The World Bank.

VII.3. The above financing institutions have demonstrated interest in the development of the agricultural sector in general and have committed allocations towards this goal. In many cases, the focus of agricultural development has not specifically been on tree crops and forestry.

VIII. PROGRAMME BENEFITS

VIII.1. The benefits of the programme would accrue to three main beneficiaries:

- **The farmers:** Whose farmlands would be conserved and protected from further erosion; tree crop plantations rehabilitated, re-established, extended and protected from pests and diseases; and whose storage, processing, transporting and marketing of their produce would be enhanced. This should increase plantation productivity and improve on the income earning capacity of the farmers. They would also benefit from a greater and more accessible supply of forest products and the improved social and economic infrastructure of the area.

- **The government:** Whose job-providing capacity would be enhanced, tax collection domain increased, and whose rural infrastructure would be developed. This should increase governments’ savings, revenue collection base and foreign exchange earnings.
- **The communities:** Immediate benefits would also accrue to those members of the community who gain employment directly from the plantation/forest development programmes, with cash, food-for-work rations or medical aid. Communities would also have access to readily available, more reliable, comfortable and cheaper transport facilities plying the improved rural roads. This should expand the income generating activities undertaken in the programme communities

IX. PROGRAMME IMPLEMENTATION ARRANGEMENTS

IX.1. The *Ministry of Agriculture, Forestry and Food Security* (MAFFS) would carry the responsibility of executing this programme, as it is the central government agency responsible for promoting the development of the agricultural sector in Sierra Leone. MAFFS would have the overall responsibility of supervising and coordinating the programme. However, arrangements for implementation of specific projects would be determined at the time of detailed project preparation.

IX.2. The programme would require some basic preparatory work to formulate a schedule of implementation. This preparatory work would mainly involve feasibility studies that would help in the design of specific projects proposed in the programme. These studies would be undertaken by both national and international consultants and would be fully funded by the programme.

X. TECHNICAL ASSISTANCE REQUIREMENTS

X.1. The programme would require both short term and long-term TA inputs.

- The **short-term TA inputs** would be in the fields of: (a) industrial economics (b) agro-processing engineering (c) tree crop agronomy (d) agroforestry (e) construction of rural roads and transportation (f) specialist in forest mensuration and inventory (g) specialist in wildfire management (or other forest protection measures) and (h) specialist in logging engineering.
- The **long-term TA inputs** would include: (a) a specialist in mechanized post-harvest processing of various tree crop products (b) a specialist in the marketing of processed agricultural products which may need a different market from the agricultural produce traditionally exported as raw materials for factories abroad (c) specialist in forest resource management or community/social forestry (d) a silviculturist (e) specialist in watershed management (f) a specialist in wildlife management.

X.2. The above TA inputs are required because a good number of MAFFS personnel are trained in extension for the production of arable crops and livestock and the establishment and management of forest plantations. The TA inputs proposed are specialist areas and MAFFS may not have adequately trained specialists in such areas. These would, therefore, need to be drawn from the national and international pools to complement the implementation of the proposed programme.

XI. ISSUES AND PROPOSED ACTIONS

XI.1. There are several areas that would need to be examined in detail as part of further processing of this programme.

XI.2. **Agroforestry introduction:** Farmers are used to interplanting trees with tree and/or arable crops with the main focus being the crop and little or no attention given to the tree component as an important member of the mix. The extension workers also receive a crop-biased training making them more suitable to render mainly crop-tailored extension services. As a result, farmers rarely feed crop residues to livestock and their manure is not systematically used to restore or improve soil fertility. And also many farmers do not practice mixed farming to enhance contribution to household food security. The means of determining the type of agroforestry technology for each area or agricultural production system must be carefully considered so as to reflect the overall benefits that farmers would derive from trees, crops and/or livestock combinations on their farms. Giving extension workers a broader training base to understand and interpret agroforestry technologies to farmers must become an integral part of the implementation process. The choice of trees/crops and livestock species to integrate with crop production systems in the different regions must be done in consultation with farmers to ensure that they perceive it as an important means of increasing and diversifying their farms’ outputs. The multi-output nature of such farms would guard farmers against frustration in case of a fall in the world market price of the tree crop commodities. This insurance would enhance farmer adoptability of the proposed market oriented agroforestry systems.

XI.3. **Roads and other rural infrastructure.** Many rural roads are unpaved and constructed a long time ago using labour-intensive construction methods. Chiefs supplied this labour in a more or less coercive manner and the resulting roads were of poor quality with makeshift bridges of logs of palm and other trees. Most of them are passable for only six months in the year and are increasingly becoming difficult and expensive to maintain. Youth groups with food-for-work support from NGOs have been making efforts at helping to maintain some of these roads but impacts have been short lived and efforts often disappear with the immediate end of the food-for-work support.

XI.4. The *Sierra Leone Roads Authority* (SLRA) has identified roads contractors who have been constructing high standard and relatively more durable roads in urban centers under contract with SLRA. These contracts could be extended to the rural areas under the programme to ensure that road construction/maintenance is not used simply as a means of acquiring food-for-work rations but rather to obtain the desired value from an important infrastructure investment. SLRA recommended construction methods should be employed using locally appointed regional committee members to ensure that the contractors follow the recommendations.

XI.5. Similarly, care should be taken to give the construction of drying floors and stores to reputable contractors who can build durable and meaningful structures, rather than fake companies /contractors interested in more profit by constructing low quality and substandard properties. Low standard infrastructure will not favor the farmers and will not be in the interest of forestry/tree crop farming and national development.

XI.6. **Participation.** Participation is clearly a crucial issue to successful implementation. The means of ensuring the full and willing participation of local communities especially in the acquisition of communal land for the establishment of new large scale public plantation estates must be elaborated to community members to ensure that they clearly understand their level of involvement in the establishment, management and distribution of dividends derived from these estates. For the local communities to develop confidence in the programme, their earliest involvement in the planning process is crucial to see themselves as stakeholders and not as by-standers. Agreements with

traditional chiefs alone must not be taken for granted as an end to acquiring large areas of communal land. The stiff resistance SLPMB encountered in the establishment of their plantations is a bright pointer in that direction. Large public plantation estates have not been established for a long time, since the programme would cover the establishment of these plantations, the programme would use examples of successful consultative planning at the grass roots levels as models for the involvement of all stakeholders in the implementation and monitoring of the proposed projects of the programme. The adoption of participatory approaches in negotiations for land acquisition is sure to soften the stance of communities in the process of negotiating for land. Wherever possible, local NGOs with experience in environmental management/tree crop development (e.g. World Vision) could be contracted to assist in the implementation of certain programme activities. The programme would encourage field staff to show flexibility in designing and implementing programme interventions at village level so as to reflect the interests and socio economic conditions of the communities concerned.

XI.7. **Wildlife.** Biodiversity and wildlife conservation have been existing in Sierra Leone, but not treated with the seriousness they deserve. It is anticipated that expertise in this field is lacking for the full implementation strategy. Measures need to be put in place for proper planning and implementation by the programme.

XI.8. **Institutional:**

- Planting material supply: The decade long war severely affected research institutions in the country. These institutions are not adequately equipped for the rapid development and distribution of elite planting materials to all farmers. Improved planting materials would continue to be imported until these institutions are able to supply planting materials in adequate amounts.
- Links with other NGO support: Rehabilitation and other activities have been associated with food –for–work in rural areas that have acute seasonal food deficits. NGOs (e.g. MERLIN) have also been helping out with medical packages to care for minor injuries during such activities in remote areas without health centers. It is clear that food and medicines for work have a role to play in executing the programme’s activities. The links with food–for–work and medical aid donors (WFP and WHO) would need to be clarified and explored.

XI.9. **Environmental.** Road construction and plantation establishment by clear felling methods are proposed programme activities. Their timing must be such that they cause little damage to the environment and programme planners must take this into consideration.

XI.10. **Financial.** The enactment/implementation of the programme would require resources for forest inventory and project preparation activities. The successful implementation of these activities would require the programme to provide funds to support consultants to carry out preliminary studies that would enhance the preparation of specific projects proposed in the programme

XI.11. There is also a need to assess the cost effectiveness of the proposed programme as a whole. This is particularly important for the establishment/development of both large–scale and several small–scale tree crop plantations whose products have unreliable prices in the world market. Any tree crops development projects prepared for implementation should, therefore, have a component designed to financially protect farmers against such fluctuations in the world market prices of their commodities.

XI.12. Many of the conservation activities (e.g. tree planting for fuel wood) may not yield immediate and obvious benefits, especially those involving labour intensive inputs. Consequently, a method has to be designed to encourage farmers to undertake conservation works which are in the national and their individual long term interests; e.g. the supply of free seeds and hand tools, food ration or cash incentives. In other cases, combined actions of the conservation objective and immediate profitability are needed. For instance, such actions include the use of fruit and forage trees for conservation, grasses and legumes to provide ground cover and feed for animals. Food rations and cash incentives can attract youth groups to under take labour intensive conservation works (like watershed protection) that are in the national interest but which do not yield immediate benefits. Projects developed in this regard should, therefore, establish clearly defined links with food donors like WFP and have a specified budget line for cash incentive for youth groups.

XII. POSSIBLE RISKS

XII.1. There are four main risks that can be identified at this stage:

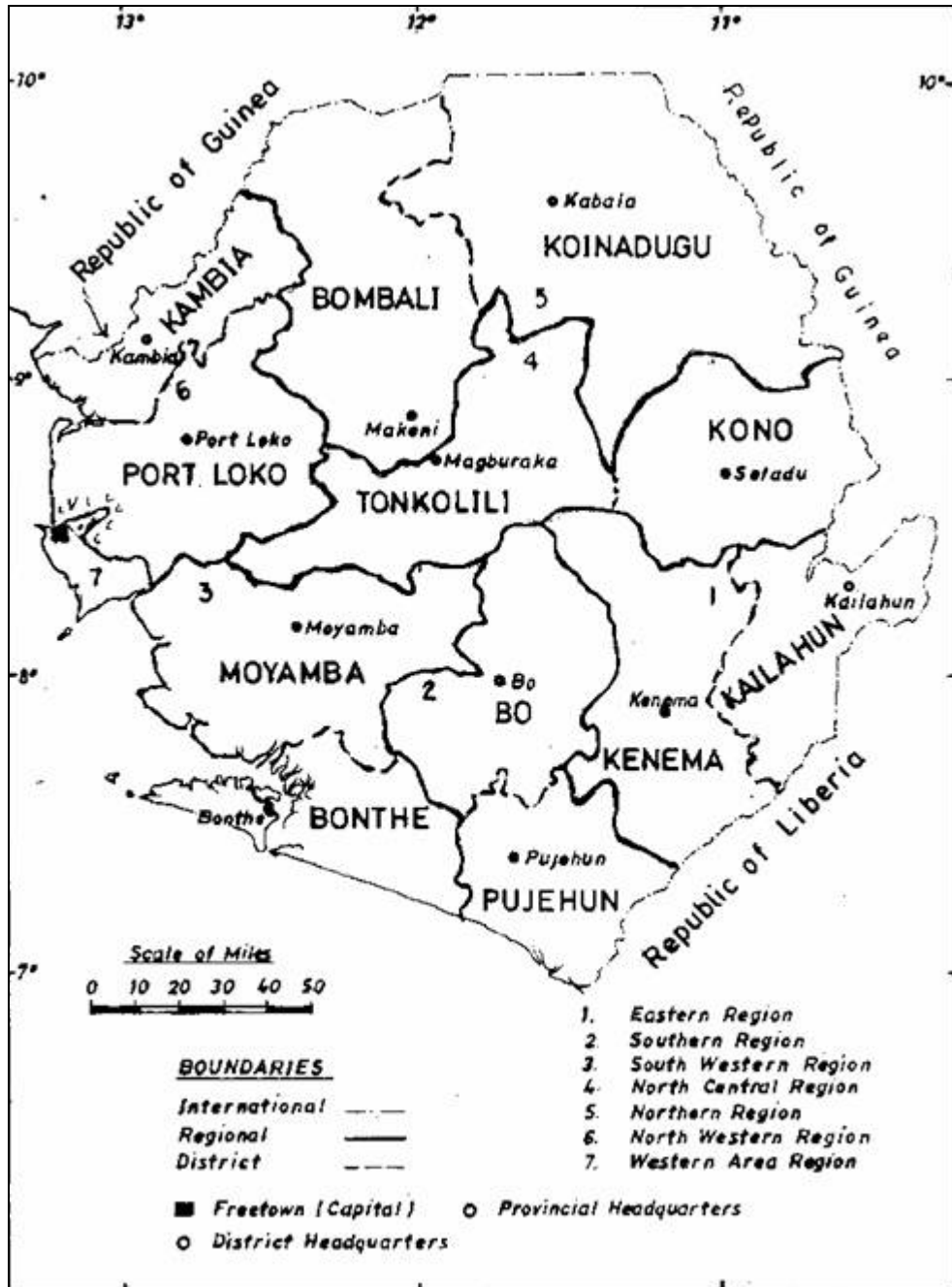
- ***Farmer interest in conservation:*** Many farmers prefer upland rice farming /mixed cropping on small scale in this country. They have little interest in environmental conservation and tree crop farming too had been limited by a number of factors including small financial rewards offered by the middlemen who sell the produce. For the numerous illiterate farmers, crop failure is largely attributable to ancestral/spiritual norms, but not infertile soils. To reduce this risk, farmers must be highly sensitized about conservation of farmlands to replenish soil fertility, the formation of cooperatives for credit facility and their total involvement in the programme right from the planning stage.
- ***Implementation delay:*** Previous agricultural programmes experienced considerable delays in implementation. Some of the delays have met unstable political and economic situation at the time, while others might have been bureaucratic. A more autonomous and decentralized decision-making and management structure as proposed by the programme would reduce such risks.
- ***Indiscriminate plantation establishment:*** The most suitable areas for tree crop plantation establishment (especially for cocoa and coffee) have been planted. However, with the strong positive drive from the government to develop the agricultural sector, the easily accessible aid packages would lure farmers into establishing plantations on unsuitable and marginal soils with the continued use of readily available inferior planting materials. This risk would continue to render these plantations under productive and unable to reduce poverty in the rural areas. This could be countered if measures are put in place to ensure that new plantations can only be established after obtaining clearance from MAFFS or the Programme.
- ***Markets:*** Export markets for Sierra Leonean agricultural products have been restricted to few countries in Europe. The prospect for diversifying the client base for Sierra Leonean products is not well known and would need to be explored. The main government institution responsible for export promotion is *Sierra Leone Export Development and Investment Corporation* (SLEDIC). This institution has had limited success due mainly to lack of funding to enable it function effectively. The small client base means less competition for agricultural export products and consequently, they receive low and unstable international market prices. There are three main ways to solve this problem; (i) to adequately fund SLEDIC to enhance its capacity to broaden the client base of the

country’s exports, (ii) to create a local market by establishing local agro-processing facilities for the processing of raw materials from tree crops into secondary or intermediate products for national and international markets and (iii) to establish partnership with foreign companies abroad that have similar or related business interests.

ANNEXES:

- Annex 1: Map Showing Programme Area**
- Annex 2: Programme and Government Tree Crop Development Targets**
- Annex 3: Detailed Indicative Costs for the Formulation of Bankable Projects in the Tree Crops and Forestry Subsectors**

Annex 1: Map showing Programme Area



Annex 2: Programme and Government Tree Crop Development Targets (*000ha)

Tree crop	Rehabilitation		Replanting		New planting		Total		Agricultural regions
	Progr.	Govt.	Progr.	Govt.	Progr.	Govt.	Progr.	Govt.	
Coffee	75.0	75.0	–		5.0	5.0	80.0	80.0	1, 2, 3&4
Cocoa	30.0	30.0	10.0	10.0	5.0	5.0	45.0	45.0	1,2,3&4
Oil palm	13.7	13.7	6.0	6.0	120.0	120.0	139.7	139.7	1,2,3,4,5,6&7
Citrus	1.5	1.5	–	–	2.0	0.5	3.5	2.0	1,2,3,4,5,6&7
Kola nut	4.0	4.0	–	–	1.0	0.5	5.0	4.5	1,2,3,4,5,6&7
Mango	2.0	–	–	–	2.0	1.0	4.0	1.0	1,2,3,4,5,6&7
Cashew	5.0	5.0	–	–	2.0	2.0	7.0	7.0	3&5
Coconut	4.0	–	–	–	6.0	–	10.0	–	2,3,6&7
Banana/Plantain	3.0	3.0	–	–	2.0	2.0	5.0	5.0	1,2,3,4,5,6&7
Rubber	2.0	2.0	–	–	–	–	2.0	2.0	2
Sugar cane	1.0	1.0	–	–	4.0	4.0	5.0	5.0	4
Paw paw	1.0	–	–	–	2.0	–	3.0	–	1,2,3,4,5,6&7
Bitter kola	–	–	–	–	2.0	–	2.0	–	1,2,4,5&7
Programme Total	142.2		16.0		153.0		311.2		
Govt. Total*		135.2		16.0		140.0		291.2	

Source: Medium Term Agricultural Strategic Plan 2003–2007 (MTASP, Vol. 1), Nov. 2002.

Annex 3: Detailed Indicative Costs for the Formulation of Bankable Projects in the Tree Crops and Forestry Subsectors

	Amount (US\$)
I. Forestry subsector – Pre-inventory studies (one month)	
Personnel	12,100
(i) International consultant (1)	6,000
(ii) National Consultant (1)	2,500
(iii) Casual labour (6 persons) US\$20/day	3,600
Duty travel	12,650
(i) International travel	5,000
(ii) Local travel (DSA) US\$150/day	4,500
(iii) National consultant (per diem) US\$60/day	1,800
(iv) Driver (per diem) US\$45/day	1,350
Sub-total	24,750
II. Tree crops subsector – Pre-design studies (one month)	
Personnel	10,000
National consultants (4)	
- Socio-economist	2,500
- Tree crop agronomist	2,500
- Post-harvest processing engineer	2,500
- Roads engineer	2,500
Duty travel	8,550
(i) National consultants (US\$60/day)	7,200
(ii) Driver (US\$45/day)	1,350
Sub-total	18,550
III. Project formulation (6 Bankable projects)	
(i) Tree crops projects (three) US\$6,000 per project	18,000
(ii) Forestry projects (three) US\$6,000 per project	18,000
Sub-total	36,000
IV. General operating expenses	10,000
V. Support cost	15,000
GRAND TOTAL	104,300