

INTERNATIONAL TROPICAL TIMBER ORGANIZATION

ITTO

PROJECT PROPOSAL

TITLE	SUPPORT FOR THE ESTABLISHMENT OF A CUTTINGS PROPAGATION UNIT FOR THE PRODUCTION OF SAMBA AND OTHER LOCAL SPECIES
SERIAL NUMBER	PD 122/01 Rev.1 (F)
COMMITTEE	REFORESTATION AND FOREST MANAGEMENT
SUBMITTED BY	GOVERNMENT OF TOGO
ORIGINAL LANGUAGE	FRENCH

SUMMARY

In order to plan and program all its reforestation actions, Togo intends to establish a cuttings nursery for the propagation of local frequently used species. Samba will be the first species considered, given the needs of the population and due to its economic and ecological interest. Its controlled plant propagation will partially help resolve the difficulties in producing sufficient quantities of viable seeds for plant breeding and the uncertainty of plant production from its seeds.

AGENCE D'EXECUTION

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COOPERATING GOVERNMENTS

DURATION

36 MONTHS

APPROXIMATE STARTING DATE

UPON FUNDING

BUDGET AND PROPOSED SOURCES OF FINANCE

Source	Contribution in US\$	Pourcentage
ITTO	207 516	66%
Gov't of Togo	105 114	34%
TOTAL	312 630	100%

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PART I CONTEXT

1. Origin

With a view to promoting the development of forest plantations as a complement to natural forests and the well-being of the population, a high capacity nursery for the plant production of industrial timber forest species will be established. This proposal for the establishment of a forest species nursery is the result of a serious need for local species, samba in particular, expressed by the population, NGOs and government organizations undertaking high quality timber reforestation projects and programmes throughout the country.

Samba and teak have been the main reforestation species for timber in Togo and have been promoted by industrial reforestation projects, in particular projects PD 30/96 Rev.3 (F): "Project for a 2,500 ha Timber Production Plantation in the Reserved Forest of Haho-Baloe (Plateaux Region – Togo)" and PD 9/99 Rev.2 (F): "Sustainable Management of Missahoe Reserved Forest Resources with the Participation of Local Rural Communities for an Optimal Timber Production in Togo".

The production of plants by sexual propagation is easy for teak but very difficult for samba due to a lack of seed availability. It is therefore necessary to propagate it by cuttings, as is done in Côte d'Ivoire.

Furthermore, the development of Togo's forest resources is limited by the lack of material and financial resources. The proposed project for the establishment of an industrial forestry nursery in Togo will help fill the serious existing gap.

1.2 Sectoral Policies

Togo's National Forest Action Plan places particular emphasis on the optimal utilization and conservation of forest resources, taking into account the present deficit and the country's future requirements (NFAP, 1994). To this end, the aim of the NFAP is to extend the forest heritage through the development of forest plantations. By this strategy, Togo hopes to ensure national self-sufficiency in timber products and to contribute to the development of the international timber market. The objectives of the proposed project are therefore fully in line with the country's national policy on tropical timber production and the promotion of the world timber market.

Furthermore, this project answers a national concern to fight against deforestation and environmental degradation (DGPD, 1990).

In addition to the NFAP policy, other national policies for the fight against poverty and the control of desertification, all of which comply with the objectives of the proposed project, emphasize the control of deforestation and environmental degradation, as well as improving the economy of rural areas.

1.3 Programmes and Operation Activities

The NFAP timber production objective is the establishment of 20 000 ha of plantations in 10 years through the development of forestry nurseries. The Plan also gives priority to the development of reserved forest land with the participation of motivated rural communities, who will gradually become responsible for the sustainable management of their environment. Through this programme, the Government proposes to increase the existing forest canopy from its present 8% to 30%, as recommended by FAO, and to increase timber production through:

- Reforestation of degraded and/or new land;
- The reintroduction of forest in the rural environment through the development of community forestry and agroforestry.

In addition to this programme, the National Environmental Action Programme (NEAP) constitutes a strategic framework for discussion, consultation, planning and action, which makes it possible to identify and prioritize environmental issues in order to develop the planning and management of natural and environmental resources with a view to sustainable development.

This project is perfectly consistent with the NFAP and well integrated into both the "Reforestation" and the "Natural Formation Management" programmes. The following ITTO funded projects and pre-projects initiated, executed or under execution, were developed with the same objectives in mind:

- PD 204/91 Rev.1 (F): "Identification and study of a plantation project for the production of timber in the reserved forest of Haho-Baloe (Plateaux Region) - Togo.
- PPD 7/98 Rev.2(F): "Support to the population of Akposso for the development of a participatory approach to forest management in the Bato area (North Amou).
- PPD 11/96 Rev.2 (F): "Identification and planning of measures for the sustainable management of the Kloto community forests in the reserved forest of Missahoe with the participation of rural communities".
- PPD 14/95 Rev. 3 (F) "Identification and planning of measures for the sustainable management of Togo's teak plantations".
- PD 30/96 Rev.3 (F): "2500 ha plantation project in the reserved forest of Haho-baloe (Plateaux Region-Togo)".
- PD 9/99 Rév.2 (F): "Sustainable and participatory forest resource management in the reserved forest of Missahoe and neighbouring rural communities with a view to an optimal production of industrial timber - Togo".

Projects financed by other donors:

- Project for the Management of Old Teak Plantations funded by GTZ.

PART II THE PROJECT

2.1 Project Objectives

2.1.1 Development Objective

Increase national timber production with a view to promoting international tropical timber trade.

2.1.2 Specific Objective

Ensure the qualitative and quantitative production of samba plants.

2.2 Project Justification

2.2.1 Problem to be addressed

In 1995, with a demand of 48 000 m³ of timber, Togo imported 22 000 m³, a volume amounting to an expenditure of approximately \$US 8 million (ODEF, 1996). This is due to the continued degradation of the national forest canopy. In order to remedy the situation, Togo has opted for the sustainable and participatory management of its natural resources and the development of forest plantations (NFAP, 1994). However, action undertaken during the last few decades have not managed to secure the resource or to render the areas reserved for forest utilization productive. This problem is due to several factors, in particular (see annexed problem chart):

- (a) Insufficient quality forest seeds for plant production;

Despite the existence of a structure responsible for the collection of forest seeds, it lacks the material and financial resources to produce seeds. Furthermore, seed trees of different marked local species throughout the country from which seeds could be harvested are completely lacking. As a result, it is very difficult to obtain quantities of quality seeds.

- (b) Lack of technical plant production know-how

The few existing plant production units of the Forest Administration lack qualified personnel and receive no training or retraining to improve their skills. This problem also applies to the private sector, which is only interested in producing fruit trees for financial return.

- (c) Lack of material and financial resources

These problems are due to:

- The absence of seed-orchards and stockyards

Apart from eucalyptus, there are no seed-orchards of local or exotic species in the country, making the desired seeds difficult to obtain. It should also be noted that the absence of seed-orchards leads to a lack of knowledge of local species and makes the search for them more difficult.

- The difficulty of identifying and conserving "plus trees" in their environment.

It is difficult to identify a plus tree and conserve it in its environment. This is due on the one hand to the difficulty of managing a strong tree of a given species in a large and multi-specific forest and on the other to the fact that, once a tree has been selected and marked, it is automatically cut for commercial purposes by the rural population and can no longer be conserved as a seed-bearer.

- The lack of opening onto technical information networks

Interconnection between the various sub-regional networks should enhance the exchange of technical information for a better development of the forestry sector. Unfortunately, the complete absence of such openings prevents Togo from acquiring technical information from other countries in the sub-region.

- Insufficient training of nursery workers in plant production techniques

The same problems occur in rural forestry, with the following results:

- Poor development of plant production activities;
- Lack of interest in reforestation on the part of local communities.

This situation can be explained by:

- Insufficient rural forestry incentive measures to create interest in reforestation activities on the part of local communities;
- Lack of information and training among the population;
- Difficulty of applying the forest policy.

2.2.2 Intended Situation after Project Completion

Through its National Forest Action Plan (NFAP), Togo proposes to extend the national forest heritage by developing forest plantations that will play an economic, ecological and social role, with the following results:

- Increase in the national industrial timber forest plantation area of 600 ha p.a. (corresponding to 240 000 nursery produced plants);
- Maintenance of a light forest cover on coffee plantations, considering the ecological catastrophes of 1977;
- Improvement in regional ecological conditions and standard of living of local populations.

2.3 Project Strategy

To promote the establishment of community forests and satisfy the demand for forest plants of current and future national forestry projects (e.g. project PD 30/96 Rev.3 (F) in Haho-Baloe for the reforestation of 2 500 ha with teak and to a lesser extent samba; project PD 9/99 Rev.2 (F) in Missahoe for the reforestation of 450 ha with samba mainly and other local species, etc.) are the main objectives behind the formulation of this project proposal to be submitted to ITTO, leading to the idea of establishing a nursery for the propagation of samba by cuttings. However, the strategy used for the establishment of this nursery is based on the SODEFOR reforestation site model in Téné, in the Oumé region of Côte d'Ivoire, where the propagation of samba by cuttings is properly mastered and established.

After analysing the general conditions and problems to be addressed, a two-fold action is proposed for this project:

- (1) To ensure the supply of quality forest seeds; and
- (2) To master plant production techniques.

Furthermore, as a result of consultations with technical services, the management of project PD 30/96 Rev.3 (F) in Haloe-Baloe and project PD 9/99 Rev.2 (F) in Missahoe, NGOs and local communities in the Central and Plateau regions, and the course work carried out in Téné, Ivory Coast, by an ex-student, a set of principles for the implementation of the proposed project has been developed.

Two-fold Action

A number of measures will be taken to ensure the supply of quality seeds, in particular:

- Identify and preserve in their environment mother trees of samba and other species for the production of plants in the context of this project;
- Educate the population to preserve the identified mother trees;
- Establish the seed orchards and stockyard.

The following measures will ensure mastery of plant production techniques:

- Training programme for community instructors who will in turn train local communities in the techniques of propagation by cuttings for the production of samba and other forest plants;
- Population information programme on the objectives of commercial forest harvesting in rural areas;
- Incentive programme for the production of forest plants and reforestation in the rural environment;
- Technical information network opening programme.

2.4 Target Beneficiaries

The project target beneficiaries are the following:

The rural population

It will benefit directly from the project as a result of:

- Training on modern forest plant production techniques;
- The establishment of private reforestation areas and nurseries managed by rural communities, providing them with new financial resources;
- An increase in agricultural income through the reconstitution of a light forest cover over coffee plantations, given the ecological catastrophes of 1977, applying the Taungya method which enables them to grow food crops under a new forest cover and perennial crops under forest plantations.

The region affected by the project

It will benefit from an improvement in ecological conditions and a part of its economic consequences.

The Forest Administration

It will acquire the necessary means to reforest reserved estates and uncultivated areas and sufficient tools for the execution of future new projects.

2.5 Technical and Scientific Aspects

The implementation of the sustainable production of forest plants will not pose any major technical problems. The Forest Administration will find management personnel with the required level of technical skills.

However, the organization of activities will obviously pose a certain number of problems such as the lack of training of community nursery workers in new plant production techniques; lack of respect for the conservation of mother trees identified by rural communities, etc. A number of measures will be taken by the project in order to deal with this situation:

- Before the start of technical work, the project team will concentrate on the following organizational aspects:
 - Population awareness process on the identification and conservation of mother trees, that can be used to obtain seeds and other forest data;
 - Training of two project managers in the requirements of the new work approach through a course at an experienced institution and a study tour in the countries of the sub-region to visit current experiments.
- Training of community nursery workers in new forest plant production techniques.

To further improve the quality of plants for cuttings, the project plans to acquire seeds from Togo and other countries in the sub-region. During the first year of the project, stockyards will be established and techniques acquired.

During the following years, the project will be in a position to produce 200 000 samba plants and 50 000 plants of other forest species. Established on a site of more than 10 ha in Tové, on the edge of a permanent river, the nursery will comprise a stockyard, a cutting area equipped with a motor-driven pump near the river. Propagation by cuttings will be made using an anti-fungal solution (Benlate at 5% of Benomyl) and a hormonal solution (AIB

at 1% in powder form). The work will be carried out by a team of five, including a supervisor, producing an average of 2 000 cuttings.

Plants will be placed in containers. The compost subsoil will be fertilized with 25 g of fertilizer (NPK) every 45 days, completed by a foliar fertilizer. The containers will be placed on 1.5 m x 10 m planks (150 containers per plank), i.e. 10 containers per m². The planks will be divided by alleys 0.5 m wide in order to facilitate maintenance work. Containers established in the first year will not be renewed before project completion.

Two 1 ha stockyards will be established and cut alternately from one year to the next. Each stockyard will have 5 000 trees/ha ready for cutting in alternate years, with 40 cuttings per stool per annum or 200 000 cuttings per plot (in 2 felling sequences per production year).

This work requires the following equipment:

- Installation of frame and plastic trellis cover, allowing through 60% of light;
- Installation of containers for cuttings: containers of 1.5 m width x 10 m length x 0.9 m depth, covered with polythene film to achieve containment. The containers are separated by alleys of 0.5 m width;
- Collection, storage and potting of compost;
- Establishment stockyards in open soil;
- Other work.

The cuttings nursery will be equipped with a tool storage shed and a building to serve as an office for nursery managers. The Tové nursery will be directed by a professional forester, assisted by a works supervisor. They will both be responsible for the following activities:

- Collection of cuttings, monitoring of planted cuttings or rooted plants (training), benching of rooted plants and cutting back of propagation yards.
- Propagation of plants of other species.

At scientific level, the project includes a forestry research component, in particular the phonological study of samba seed conservation and the conservation of seeds of other useful local species. In this context, the project will collaborate with a scientific institution.

Establishing and managing the stockyard

The stockyard to be established will be composed of plants grown from "+" tree stock cuttings identified and selected in togolese forests as well as clones from plus trees selected in Côte d'Ivoire.

The mother trees "+" trees will be identified, selected and marked in reserved forests and other forests in Togo according to energy, form, quality and other criteria. Cuttings will be collected from those trees and, after rooting and growing in nurseries, will be established in the stockyard and in an arboretum for ex-situ conservation of each selected "+" tree.

It is possible to obtain cuttings from more than 100 clones of samba "+" trees selected in Côte d'Ivoire, which will do well in Togo (KADIO, 1995). The study "Stock Selection and Plant Propagation Method" carried out by Dr KADIO (CIRAD Forêt, Côte d'Ivoire) within the framework of the research project PD 204/91 Rev.1 (F) addressed the problem and recommended this formula for the planting of samba in the context of the ongoing project PD 30/96 Rev.3 (F) in Togo.

The following procedure will be adopted for preserving the genetic diversity of these mother trees ("+" trees marked in Togo and clones of selected "+" trees obtained in Côte d'Ivoire: a stockyard will be established for the production of cuttings. As far as possible, it could be composed and managed as follows:

- Same proportion of "+" clones over the whole stockyard area;
- To facilitate their location during harvesting operations, plants will need to be placed in a simple arrangement on the ground (in plots or lines).
- The selected "+" tree stockyard will need to be managed in such a way as to allow multiclinal varieties to be obtained. The different cycles of cutting back, reject collection, propagation by cuttings and severing

operations will need to be carried out so as to preserve all multiclonal variety clones. Furthermore, the balance between different clones should be maintained.

As a result of clone tests to be introduced, future research will determine which clones produce the best results.

At the same time as the stockyard, an arboretum containing different clones will be established in the estate of the Tové Agricultural Training Institute (in Kpalimé), with the nursery next to it. In the arboretum, it will be possible to conserve ex-situ the mother trees from which plants produced by cuttings constitute genetically identical copies (ramets) of the tree from which they originate. Efforts will therefore be made to conserve in situ those mother trees selected and marked for protection, and mainly awareness.

Furthermore, as mentioned above, the study tour and training course for project management staff in institutions in that are specialized in this area in Côte d'Ivoire or elsewhere at the start of the project, will help clarify the problem and take appropriate action.

Other local species to be produced in the nursery

The other local species selected for the production of plants for the nursery to be established and for community nurseries are the following:

- Fraké: *Terminalia superba*
- Framiré: *Terminalia ivorensis*
- Mahogany: *Khaya grandifolia*

Plant production from other species could also be envisaged if there is a demand for sufficient and justified quantities.

Similarly, the quantity of plants to be produced may vary according to demand resulting from campaigns.

A summary of botanical, ecological and silvicultural data on these species is annexed to this document.

2.6 Economic Aspects

Samba is a high value species greatly prized on the local and international market. This partly explains why it is currently an endangered species in natural forests due to over-logging.

This project, the aim of which is to redevelop and extend reforestation areas of samba and other species that planters find difficult to reproduce, intends to subsidize the production of plants. However, it will have revenue opportunities by selling to planters at a low, affordable price, the rooted cuttings for nursery growing. Funds from this source of revenue will finance the maintenance of installations and the continuation of project activities after the initial funding, should the funding of a second project phase no longer be possible.

As an indication, a total production of 600 000 plants at a sale price of 20 F CFA per rooted cutting will yield a revenue of 12,000,000 FCFA on project completion. It should be noted that the sales price applies to rooted cuttings that will be grown in nurseries and that the nursery growing costs are not included.

It should also be noted that, as the project title suggests, this is a support project for the establishment of a long-term plant production unit (more than 20 years). Investments costs cannot solely be borne by the planned production of 600,000 plants over the three years of this phase of the project. It would also be hazardous to estimate plant production in the long term in order to better evaluate the real plant production cost per unit with the investments required and profits generated.

As a result of the participatory approach being developed by the project design team, to be used by the project execution team with the local communities of the Samba region in Togo coupled with the training of planters of the region concerned in vegetative propagation techniques, plant production will reach its cruising speed during the third year and will be sustained for several years after that time. The most important financial aspects after those three years will mainly relate to the maintenance of the unit's installations. The relatively low cost of such maintenance could be assumed at national level by the Forestry Administration or be integrated into other

forestry projects in the area, or, failing that, be taken on by the planters themselves via their own organization, with advisory assistance from the project technical team.

2.7 Environmental Aspects

The negative impacts on the environment are very limited. The nursery will occupy a relatively limited space, with no noticeable impact on the environment.

The 600 000 plants produced during the 3 years of the project will not be reforested into an industrial monoculture, but distributed in the whole samba geographical area in Togo, with projects under execution, NGOs, local communities, private planters, etc. This measure is intended to correct the imbalance caused to the ecosystem by the over-logging of samba in its natural area.

2.8 Social Aspects

In the socio-economic and cultural surveys carried out in the context of the feasibility studies of the Haho-Baloe and Missahoe projects situated in the samba natural geographic area, local populations strongly expressed their need for plants of that particular species. This shows the interest that local communities will have in the project during its execution. They will participate in the project by supplying local labour, learning to train cuttings in community nurseries under the supervision of the technical team, etc.

2.9 Risks

There are no major risks to the success of this project, as the project itself results from the needs perceived by stakeholders in forest development and the protection of the local environment. This in itself guarantees the success of the project. The only possible risk could arise from the unavailability of quality plant material, in good time and quantity. However, this minor risk can be overcome by importing cuttings from other countries of the sub-region, for example.

The problem of securing the genetic diversity of the stock from which samba cuttings are produced could also arise, but would be minimized by the measures taken mentioned in section 2.5.

3. OUTPUTS

Output 1

Project activities are planned and executed.

Output 2

A total of 600 000 forest plants are produced: 500 000 samba plants and 100 000 plants of other species.

4. ACTIVITIES

Output 1: Project activities are planned and executed.

Activity 1: Draft a detailed work plan

Activity 2: Recruit project personnel

Activity 3: Acquire working equipment

Activity 4: Train personnel and population

Output 2: A total of 600 000 forest plants are produced: 500 000 samba plants and 100 000 plants of other species.

Activity 1: Search for mother trees

Activity 2: Acquire planting stock;

Activity 3: Establish samba stockyard;

Activity 4: Propagate samba by cuttings in confinement;

Activity 5: Sow seeds of other forest species;

Activity 6: Grow plants in nursery;

Activity 7: Distribute plants to reforestation workers.

Activities and Inputs

Activities	Inputs	Year 1	Year 2	Year 3	TOTAL
Activity 1.1: Draft a detailed work plan	- 1 Project Coordinator	- 0.2 m			- 0.2 m
	- 1 Head of Project	- 12 m	- 12 m	- 12 m	- 36 M
Activity 1.2: Recruit project personnel	- 1 Project Coordinator (assisting cuttings)	- 11.8 m	- 12 m	- 12 m	- 36 M
	- 1 Works Supervisor (samba cuttings, breeding of other species and monitoring of community nursery)	- 12 m	- 12 m	- 12 m	- 36 M
	- 1 Secretary/Accountant	- 12 m	- 12 m	- 12 m	- 36 M
	- 1 Storeman/Guard	- 12 m	- 12 m	- 12 m	- 36 M
	- 1 Driver/Errand boy	- 12 m	- 12 m	- 12 m	- 36 M
Activity 1.3: Acquire working equipment	- 1 4x4 vehicle	- 1			
	- Fuel		- 5%	- 10%	- 15%
	- Maintenance				
	- Motorcycle for Works Supervisor	- 1			
	- Fuel				
	- Maintenance				
	- Construction of store and offices, electricity, telephone, water		- 5%	- 10%	- 15%
	- Furniture (accommodation)				
	- Computer Equipment				
	- Photocopier	- 1			- 1
	- Office Supplies	- 1			- 1
- Motorized pump & accessories (pipes, sistern const., etc.)	- 1			- 1	
- Trellis cover					
- Posts					
- Light nursery equipment					
Activity 1.4: Train personnel and population	- Training of nursery workers in new techniques	- 10 d			- 10 d
	- Accomodation Costs				
	- Travel Costs				
	- Office Supplies				
	- Training Material				
Activity 2.1: Search for mother trees	- Duty Travel Abroad	- 1 m			- 1 m
	- Duty Travel in Togo	- 120 d	- 120 d	- 120 d	- 360 d
Activity 2.2: Acquire planting stock	- Cuttings of samba and other species	100 000 c	200 000 c 50 000 pl	200 000 c 50 000 pl	500 000 c 100 000 pl
Activity 2.3: Establish samba stockyard	- Labour	- 200 md	- 100 md	- 100 md	- 400 md
Activity 2.4: Propagate samba by cuttings in confinement	- Labour	- 4 000 md	- 8 000 md	- 8 000 md	- 20 000 md
	- Fertilizer				
	- Antifungal Product; Hormones				
	- Cuttings containers (8 to 10 m ³)				
Activity 2.5: Sow seeds of other forest species	- Labour		- 1 000 md	- 1 000 md	- 2 000 md
Activity 2.6: Grow plants in nursery	- Labour		- 2 000 md	- 2 000 md	- 4 000 md
Activity 2.7: Distribute plants to reforestation workers	- Labour	- 100 md	- 200 md	- 200 md	- 500 md

5. LOGICAL FRAMEWORK WORKSHEETS

PROJECT ELEMENTS	INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Development Objective</p> <p>Increase national timber production with a view to promoting international tropical timber trade</p>	<ul style="list-style-type: none"> - Noticeable reduction in industrial timber imports - Gradual placing of industrial timber on international market 	Forestry and marketing statistics	Strong and sustained political will
<p>Specific Objective</p> <p>Ensure the qualitative and quantitative production of samba plants</p>	<ul style="list-style-type: none"> - Annual quantity of high quality plants produced and distributed 	Activity Report Audit Report	Active participation of population
<p>Output 1</p> <p>Project activities are planned and executed</p>	<ul style="list-style-type: none"> - Work Plan drafted - Project team operational - Necessary means available 	Activity Report	
Activity 1.1: Draft a detailed work plan	<ul style="list-style-type: none"> - Prepared work plan adopted 	Work Plan Adoption Report	
Activity 1.2: Recruit project personnel	<ul style="list-style-type: none"> - Recruited personnel is operational 	Memoranda Recruitment and appointment documents	
Activity 1.3: Acquire working equipment	<ul style="list-style-type: none"> - Equipment acquired and list available 	Order form, receipt and delivery note Control and verification of quantity and condition	
Activity 1.4: Train personnel and population	<ul style="list-style-type: none"> - Number of persons trained - Training sessions organized 	Training Course Reports	
<p>Output 2</p> <p>A total of 600 000 forest plants are produced: 500 000 samba plants and 100 000 plants of other species</p>	Annual quantities of forest plants effectively produced	Project Reports	Effective collaboration between the Agronomic Research coffee cuttings farm and the project
Activity 2.1: Search for mother trees	<ul style="list-style-type: none"> - Number of mother trees identified, retained and positioned on map by local community 	Report Mother tree positioning maps	
Activity 2.2: Acquire planting stock	<ul style="list-style-type: none"> - Planting stock acquired 	Order forms Receipts Payed invoices Field visit	
Activity 2.3: Establish samba stockyard	<ul style="list-style-type: none"> - Stockyard established - Number of mother trees 	Stockyard visit Activity Report	

	established		
Activity 2.4: Propagate samba by cuttings in confinement	<ul style="list-style-type: none"> - All containers operational - Propagation by cuttings success rate - Annual production 	Field visit Activity Report	
Activity 2.5: Sow seeds of other forest species	<ul style="list-style-type: none"> - Quantity of seeds sown and farmed per annum 	Field visit Activity Report Seed delivery note	
Activity 2.6: Grow plants in nursery	<ul style="list-style-type: none"> - Number of plants bedded out and grown in nursery 	Activity Report	
Activity 2.7: Distribute plants to reforestation workers	<ul style="list-style-type: none"> - Number of plants distributed 	List of planters with number of plants received and their respective location	

6. WORK PLAN

OUTPUTS/ACTIVITIES	Responsible Party	SCHEDULE (in quarters)											
		YEAR 1				YEAR 2				YEAR 3			
		1	2	3	4	1	2	3	4	1	2	3	4
Output 1 Project activities are planned and executed													
Activities													
Activity 1.1: Draft a detailed work plan	NC												
Activity 1.2: Recruit project personnel	NC/HP												
Activity 1.3: Acquire working equipment	NC												
Activity 1.4: Train personnel and population	NC												
Output 2 A total of 600 000 forest plants are produced: 500 000 samba plants and 100 000 plants of other species													
Activities													
Activity 2.1: Search for mother trees	NC												
Activity 2.2: Acquire planting stock	NC												
Activity 2.3: Establish samba stockyard	NC/WS												
Activity 2.4: Propagate samba by cuttings in confinement	NC/WS												
Activity 2.5: Sow seeds of other forest species	NC/WS												
Activity 2.6: Grow plants in nursery	NC/WS												
Activity 2.7: Distribute plants to reforestation workers	NC/WS												

7. BUDGET (In \$US)

7.1 Overall Project Budget by Activity

OUTPUTS / ACTIVITIES Non-Activity Based Expenses	10 Project Personnel	20 Sub- Contracts	30 Duty Travel	40 Capital Items	50 Consum- ables	60 Miscel- laneous	Quarter Year	GRAND TOTAL
Output 1 Project activities are planned and executed								
Activity 1.1: Draft a detailed work plan	4 860 (I+E)							10 800
Activity 1.2: Recruit project personnel	86 220 (I+E)							84 240
Activity 1.3: Acquire working equipment								
Activity 1.4: Train personnel and population	8 750 (I+E)							12 360
Sub-total 1	99 830 (I+E)						Qr1, Qr2, Qr3 Yr1	107 400
Output 2 A total of 600 000 forest plants are produced: 500 000 samba plants and 100 000 plants of other species								
Activity 2.1: Search for mother trees								
Activity 2.2: Acquire planting stock		0 (I)						0
Activity 2.3: Establish samba stockyard		10 800 (I)						10 800
Activity 2.4: Propagate samba by cuttings in confinement		800 (I)						800
Activity 2.5: Sow seeds of other forest species		333 (I)						333
Activity 2.6: Grow plants in nursery		7 667 (I)						7 667
Activity 2.7: Distribute plants to reforestation workers		1 000 (I)						1 000
Sub-total 2		20 600 (I)	2 000 (I)	3 000 (I)			Yr1, Yr2, Yr3	25 600
NON-ACTIVITY BASED EXPENSES								
(1) Fuel and Utilities					64 700 (I)	33 100 (I)		97 800
(2) Office Supplies					2 000 (I)			97 800
(3) Audit						0 (I)		2 000
Sub-total (ITTO)	36 830	20 600	2 000	3 000	66 700	33 100		0
Sub-total (Executing Agency)	63 000							162 230
GRAND TOTAL	99 830	20 600	2 000	3 000	66 700	33 100		63 000
								225 230

(I) – ITTO Contribution

(E) – Executing Agency or Host Government Contribution

7.2 Yearly Project Budget by Source of Finance: ITTO

Annual Disbursements		TOTAL	YEAR 1	YEAR 2	YEAR 3
Budget Components					
10	Project Personnel				
	11. National Experts				
	Head of Project	6 300	2 100	2 100	2 100
	National Project Coordinator	9 900	3 300	3 300	3 300
	Works Supervisor	4 320	1 440	1 440	1 440
	13. Other Labour				
	Secretary – Accountant - Administrator	3 600	1 200	1 200	1 200
	Storeman – Guard	1 800	600	600	600
	Driver – Errand boy	1 800	600	600	600
	14. Fellowships and Training				
	Training of 25 nursery workers for 10 days				
	Travel costs	500	500		
	Meals and Accomodation	5 250	5 250		
	Training costs, teaching material and office equipment	3 000	3 000		
20	Sub-Contracts				
	21. Acquisition of planting stock	10 800	4 000	3 400	3 400
	22. Establishment of stockyard	800	400	200	200
	23. Propagation by cuttings in confinement	2 000	400	800	800
	24. Seeds, growing of plants, distribution	7 000	200	3 400	3 400
	25. Chemical products and miscellaneous	1 000	1 000		
30	Duty Travel				
	31. Daily allowances	9 900	3 300	3 300	3 300
	32. International travel (2 mm for NC and WS)	9 600	9 600		
	33. Transport costs	2 000	2 000		
40	Capital Items				
	41. Premises				
	Store and Offices (refurbishment)	3 600	1 200	1 200	1 200
	Cuttings propagation containers (10)	2 000	2 000		
	43. Vehicles				
	4 x 4 Vehicle (liaison)	29 000	29 000		
	Motorcycle for Works Supervisor	3 500	3 500		
	44. Capital Equipment				
	Computer Equipment	6 000	6 000		
	Photocopier	3 500	3 500		
	Motorized Pump & Accessories	3 500	3 500		
	Trellis Cover	3 000	3 000		
	Light Nursery Equipment	1 000	1 000		
50	Consumables				
	52. Spare Parts	2 000	500	500	1 000
	53. Fuel and Lubricants	12 500	4 167	4 167	4 167
	54. Office Supplies	3 000	3 000	1 000	1 000
	55. Maintenance Costs				
	4x4 Vehicle	5 000	1 000	2 000	2 000
	Motorcycle	1 000	200	400	400
	PC and Photocopier	100	20	40	40
	Motorized Pump	500	100	200	200
	56. Communications (Tel., Fax, Courier Express, Email, etc.)	4 000	1 333	1 333	1 333
	57. Reports and Publications	1 000	400	200	400
60	Miscellaneous				
	61. Sundry	1 000	400	200	400
	62. Audit	3 000			3 000
	63. Contingencies	4 000	1 333	1 333	1 333
	64. Insurance	3 000	1 000	1 000	1 000
	Sub-total 1	174 770	105 043	33 913	37 813
80	ITTO Monitoring, Evaluation & Administration				

	81. Monitoring and Review Costs	15 000	
	82. Evaluation Costs	6 000	
	Sub-total 2	195 770	
	83. Programme Support Costs (5.5% of Sub-total 2)	11 746	
	TOTAL ITTO	207 516	

7.3 Yearly Project Budget by Source of Finance: Executing Agency / Host Government

Annual Disbursements		TOTAL	YEAR 1	YEAR 2	YEAR 3
Budget Components					
10	Project Personnel				
	11. National Experts				
	Head of Project	18 000	6 000	6 000	6 000
	National Project Coordinator	18 000	6 000	6 000	6 000
	Works Supervisor	10 800	3 600	3 600	3 600
	13. Other Labour				
	Secretary-Accountant-Administrator	9 000	3 000	3 000	3 000
	Storeman-Guard	3 600	1 200	1 200	1 200
	Driver-Errand Boy	3 600	1 200	1 200	1 200
	14. Fellowships and Training				
	Training of 25 nursery workers for 10 days				
	Instructor	360	360		
70	Executing Agency Management Costs (15% of Overall Project Budget by Activity)	41 754	13 918	13 918	13 918
	TOTAL EXECUTING AGENCY / HOST GOVERNMENT	105 114	35 278	34 918	34 918

7.4 Consolidated Yearly Budget

Annual Disbursements		TOTAL	YEAR 1	YEAR 2	YEAR 3
Budget Components					
10	Project Personnel				
	11. National Experts				
	Head of Project	24 300	8 100	8 100	8 400
	National Project Coordinator	27 900	9 300	9 300	9 600
	Works Supervisor	15 120	5 040	5 040	5 400
	13. Other Labour				
	Secretary – Accountant - Administrator	12 600	4 200	4 200	4 440
	Storeman – Guard	5 400	1 800	1 800	1 920
	Driver – Errand boy	5 400	1 800	1 800	1 920
	14. Fellowships and Training				
	Training of 25 nursery workers for 10 days				
	Travel costs	500	500		
	Meals and Accomodation	5 250	5 250		
	Training costs, teaching material and office equipment	3 000	3 000		
	Instructor	360	360		
	19. Component Total	99 830	39 350	30 240	31 680
20	Sub-Contracts				
	21. Acquisition of planting stock	10 800	4 000	3 400	8 000
	22. Establishment of stockyard	800	400	200	200
	23. Propagation by cuttings in confinement	2 000	400	800	800
	24. Seeds, growing of plants, distribution	7 000	200	3 400	6 400
	25. Chemical products and miscellaneous	1 000	1 000		
	29. Component Total	21 600	6 000	7 800	15 400
30	Duty Travel				

	31. Daily allowances	9 900	3 300	3 300	4 200
	32. International travel (2 mm for NC and WS)	9 600	9 600		
	33. Transport costs	2 000	2 000		
	39. Component Total	21 500	14 900	3 300	4 200
40	Capital Items				
	41. Premises				
	Store and Offices (refurbishment)	3 600	1 200	1 200	1 200
	Cuttings propagation containers	2 000	2 000		
	43. Vehicles				
	4 x 4 Vehicle (liaison)	29 000	29 000		
	Motorcycle for Works Supervisor	3 500	3 500		
	44. Capital Equipment				
	Computer Equipment	6 000	6 000		
	Photocopier	3 500	3 500		
	Motorized Pump & Accessories	3 500	3 500		
	Trellis Cover	3 000	3 000		
	Light Nursery Equipment	1 000	1 000		
	49. Component Total	55 100	52 700	1 200	1 200
50	Consumables				
	52. Spare Parts				
	53. Fuel and Lubricants	2 000	500	500	1 000
	54. Office Supplies	12 500	4 167	4 167	1 667
	55. Maintenance Costs	3 000	3 000	1 000	1 000
	4x4 Vehicle				
	Motorcycle	5 000	1 000	2 000	2 000
	PC and Photocopier	1 000	200	400	400
	Motorized Pump	100	20	40	40
	56. Communications (Tel., Fax, Courier Express, Email, etc.)	500	100	200	200
	57. Reports and Publications	4 000	1 333	1 333	1 667
	59. Component Total	1 000	400	200	400
60	Miscellaneous				
	61. Sundry	1 000	400	200	400
	62. Audit	3 000			3 000
	63. Contingencies	4 000	1 333	1 333	1 667
	64. Insurance	3 000	1 000	1 000	1 333
	69. Component Total	11 000	2 733	2 533	6 400
70	Executing Agency Management Costs	41 754	13 918	13 918	13 918
	79. Component Total	41 754	13 918	13 918	13 918
	SUB-TOTAL	279 884	140 321	68 831	81 171
80	ITTO Monitoring, Evaluation & Administration				
	81. Monitoring and Review Costs	15 000			
	82. Evaluation Costs	6 000			
	83. Programme Support Costs	11 746			
	89. Component Total	32 746			
90	Refund of Pre-project Costs	0			
100	GRAND TOTAL	312 630			

PART III OPERATIONAL ARRANGEMENTS

3.1 Management Structure

The Department for the Control and Protection of Flora Utilization (DPCEF) of the Ministry of the Environment and Forest Resources (MERF) is the project Executing Agency and its Director is the Head of Project.

Project activities will be implemented by a Management Unit under the supervision of the Director of the DPCEF. The Management Unit will be managed by a coordinator assisted by a Forestry Technician. The Unit headquarters will be based in Kpalimé.

To monitor the project, a project Steering Committee will be formed and will meet once a year on the initiative of the Head of Project. It will be composed of:

- A representative of the Ministry of the Environment and Forest Resources
- The Director of the DPCEF
- The Head of the Management Unit
- A representative of ITTO
- A representative of the sponsor
- A representative of the Ministry of Planning and
- A representative of the Ministry of Economy and Finance

3.2 Monitoring, Reporting and Evaluation

(a) Monitoring

The project monitoring will be carried out by the Executing Agency, ITTO and the Steering Committee, which will meet once a year.

(b) Reporting

A detailed work plan will be drafted during the first three months following the project starting date. The first activity report will be submitted to ITTO 12 months at the latest after the start of the project. The following reports will be prepared and sent to ITTO every 6 months and at the latest 2 months before each session of the Council.

The Final Report of the project will be submitted to ITTO within the three months following project completion.

Project progress reports will be prepared and made available to members of the Steering Committee not later than one (1) month before the meetings and monitoring missions that will take place once a year.

(c) Evaluation

An evaluation mission is planned to take place 4 months before project completion, that is 32 months after the project starting date. The composition of the evaluation mission will be determined by the Steering Committee in agreement with ITTO.

3.3 Future Operation and Maintenance

The Department for the Control and Protection of Flora Utilization (DPCEF) is a permanent body of the Togolese Forest Administration. It is responsible for reforestation, the forest management and the protection of forest estates. Future operation and management will be carried out by the DPCEF services and in particular by its agency in Kpalimé where the nursery will be based. Yearly operational budgets allocated by the State and the revenue obtained from the sale of produced plants will enable the Unit to sustain plant production activities.

PART IV TROPICAL TIMBER FRAMEWORK

4.1 Compliance with ITTA 1994 Objectives

This project proposal complies with the following ITTA 1994 Objectives (UNCTD, 1994).

(c) To contribute to the process of sustainable development.

The aim of the proposed project is to establish a sustainable forest nursery for the production of plants for reforestation. Afforestation operations will help recreate the vital environmental conditions for sustainable agricultural production. As a result, new forests will provide a significant source of income to local communities, who will be able to harvest timber products for their own consumption and for marketing purposes (industrial timber, fuelwood, game, etc.), and to grow certain cash crops such as coffee, cocoa, oil palm, etc.

(j) To encourage members to support and develop industrial tropical timber reforestation and forest management activities as well as rehabilitation of degraded forest land, with due regard for the interests of local communities dependent on forest resources.

This project aims to encourage the young rural population in its community reforestation activities by providing it with a sufficient quantity of improved forest plants for the production of quality timber.

The project will also contribute to increasing the national forest canopy and ensuring a sustainable production of tropical timber.

(l) To encourage members to develop national policies aimed at sustainable utilization and conservation of timber producing forests and their genetic resources and at maintaining the ecological balance in the regions concerned, in the context of tropical timber trade.

The establishment of a nursery will contribute to restoring forest areas with a view to preserving biodiversity and fighting against desertification.

The supply of forest plants to local communities for the enrichment of degraded forests will need to be carried out on a consensual basis in order to achieve a more sustainable conservation of the resource.

4.2 Compliance with ITTO Action Plan

This reforestation and forest management project complies with certain criteria of the ITTA 1994 Agreement, namely:

- **Relevance to ITTA 1994 Objectives**

This project complies with three (3) objectives of the Agreement, namely c, j and l.

- **Environmental and social effects**

Once the nursery is established, it will be possible to regenerate the forest canopy, with positive effects on the local and regional climate. It will also create employment through its considerable labour requirement and introduce new income-generating activities in the area.

- **Cost-effectiveness**

If the project is completed, this proposal leaves no doubt as to its cost-effectiveness. It complies with the ITTO Action Plan, the primary objective of which is to the extension of the forest canopy and its sustainable management with a view to promoting the expansion and diversification of timber trade and industries (ITTO, 1990a).

The planting and enrichment activities in high-value species carried out in the context of this new project will fulfil these requirements. Moreover, its production will supply the international market with high-value industrial timber such as samba, mahogany, fraké and others.

ANNEXES

PROFILE OF THE EXECUTING AGENCY

Expertise of the Executing Agency

The Department for the Protection and Control of Flora Utilization (DPCEF) is responsible to the Ministry of the Environment and Forest Protection. It is the body responsible for the formulation, coordination and application of forest policy on the protection of flora and the control of the utilization of natural forest stands. To this end, it is responsible for the following:

- (i) Fight against desertification; (ii) organization of useful fires and fight against wildfire; (iii) preservation of flora and control of its utilization; (iv) issuing of logging permits for natural forest species; (v) protection of forest stands, management of green spaces and creation of public parks and gardens; (vi) identification and protection of endangered species.

Organization. At central level, it comprises:

- A Division for the Regulation, Policing and Control of the Utilization of Natural Forest Stands;
- A Green Spaces and Botanical Gardens Division;
- An Administration and Accountancy Division.

At regional level, the coordination of its activities is carried out by Regional Departments for the Environment and Forest Protection, of which there are five. These Regional Departments include the Environmental Offices, which regroup the forestry posts (see organizational chart)

The Department houses the Operational Focal Points of the Global Environment Facility (GEF) and the United Nations Convention on the Fight against Desertification (CAD). As the GEF Operational Focal Point, it is responsible for facilitating cooperation in the implementation of conventions of the Rio generation and supporting various state organizations, NGOs and private organizations in the preparation of project briefs, taking into account FEM eligibility criteria. It is a member of the Evaluation Committee of the Communication Project on Climatic Changes currently under execution.

During the last three years, it has participated as leader in the preparation of the following projects:

Development of the National Fight Against Desertification Action Programme currently under execution through its NEAP coordination unit, financed by the Convention Secretariat and UNSO, for which it directed a number of consultation workshops by categories of agents and participated in the assessment of the studies carried out; the COM STABEX 91-94 Rehabilitation of Protected Areas Project financed by the European Union, the first phase of which, "Study" is being implemented by the Department of Fauna and Hunting and the DPCEF. It is a member of the unit that carried out impact studies on the Adralla Hydroelectric Dam construction project in 1999.

It has submitted to ITTO pre-projects PPD 16/98 (F) approved but not funded and PPD 11/96 Rev.2 (F) "Identification and Planning of Measures for the Sustainable Management of the Kloto Community Forests in the Missahoe Reserved Forest with the Participation of Rural Communities" financed and executed and whose results gave rise to project PD 9/99 Rev.2 (F) "Sustainable and Participatory Management of the Forest Resources of the Missahoe Reserved Forest and Surrounding Rural Communities with a view to an Optimal Timber Production" financed and under execution.

Furthermore, it prepares and submits each year to the Government for approval a budget that takes into account its personnel and its programme of activities for the following year. It has a Planning Unit, which also serves as a research department.

Executing Agency Infrastructure

The DPCEF has no laboratories or operational experimental facilities. However, for the retraining or training of its staff, it uses the training facilities of centres built by the Government for that purpose. Teaching materials are provided by the Department and the other services of its supervising Ministry. For long training courses, the specialized higher education establishments of the African sub-region are often used. It is responsible for the

management of the country's reserved forests, which it either places under its own forest management or concedes to other organizations for management as a Government body and in virtue of its statutory powers. It has actively contributed to the establishment of 12 000 hectares of State and private forests until 1967 when it gradually reduced its involvement after the creation of two new services, which unfortunately do not cover the whole country and which it is obliged to support. It manages more than 100 000 ha of reserved forests suited for tropical silviculture. For its activities, it has the following equipment under its management: two (2) 4x4 covered vehicles, four (4) 4x2 covered vehicles, two (2) liaison cars, all in good condition, eleven (11) Traille Yamaha 125 motorcycles in very good condition (4 new), seven (7) Suzuki 100, bicycles, thirty-eight (38) offices totalling approximately 2,300 square metres of buildings, control posts on the movement of forest products made of temporary construction materials, 22 quarters for personnel totalling approximately 1,500 square meters of buildings, all distributed over the whole of the national territory.

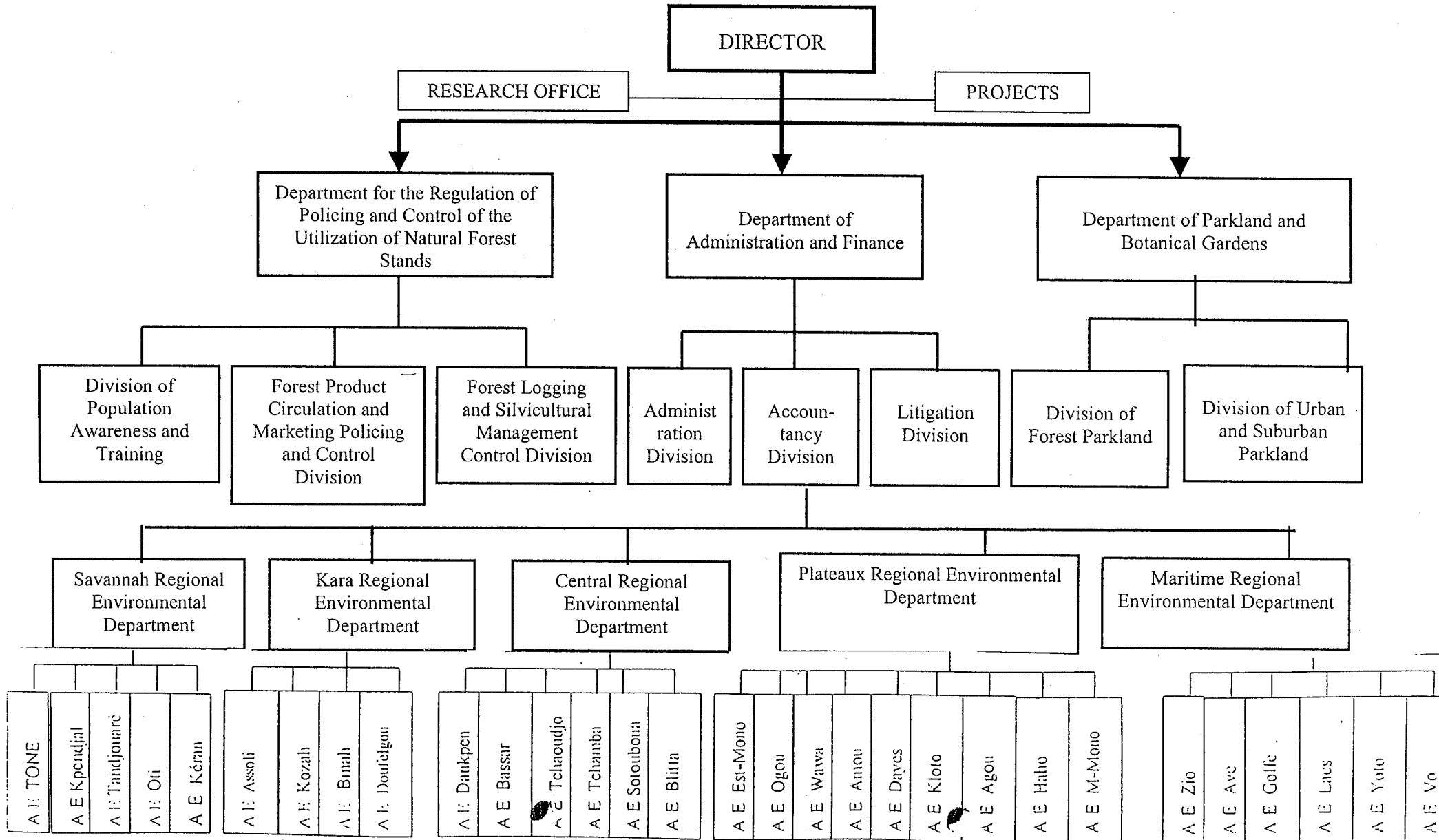
Budget (in US dollars)

Budget Components	Year 1998	Year 1999	Year 2000
Personnel	447 364	440 326	437 516
Sub-contracts	18 000	15 000	22 000
Travel	6 000	6 000	8 000
Missions	13 800	13 800	13 800
Capital Items	25 000	40 000	40 000
Consumables	45 000	42 000	50 000
TOTALS	555 164	557 126	571 316

Personnel

Components	Number
(f)	
(g) University Diplomas, Baccalauréat + 5 or 6 yrs	7
(h) BTS, Assistants, Supervisors	66
(i) Administrative Personnel	32
(j) Personnel in Associated Fields	101

ORGANIZATION CHART OF THE DEPARTMENT FOR THE CONTROL AND PROTECTION OF FLORA UTILIZATION (DPCEF)



ANNEX B. CV of Personnel

CURRICULUM VITAE

Surname FOLLY
First Names Yao Djiwonu
Date of Birth 00/00/1958
Nationality Togolese
Address B.P. 355 Tel. Office 228 214604 Home 228 264509

Qualifications: 1980: Diploma of the National School of Agriculture of Tové, Forestry option, awarded by the Ministry of Rural Development, TOGO
1990-1992: Senior Forestry Technician Diploma awarded by the Ministry of Agriculture of Côte d'Ivoire

Courses: 1992: Samba Propagation by Cuttings in Téné, Côte d'Ivoire (June to November)
1995: Capacity Enhancement in Participatory Management of Renewable Natural Resources (2 weeks UNPD/UNSO)
1995: First Training Seminar on ITTO Project Manuals (1-5 May 1992 PD 73/89)
1996: Training Seminar on Project Formulation of the Global Environment Facility, Bamako in Mali (1 week)
1998: Seminar on the Participatory Management of Protected Areas (1 week PACIPE/European Union)

Professional Experience

Posts: 1995 to date: Director of the Department for the Control and Protection of Flora Utilization (DPCEF)
1992-1995: Head of Division at the DPCEF
1987-1990: Environment Regional Director
1981: Head of Forestry District respectively in three economic regions of the country

Other Experience: 1980: Course at the Department of Forests and Game
Head of Pre-Project PPD 11/96 Rev.2 (F) and Project PD 9/99 Rev.2(F)
1997 to date: Operation Focal Point for the activities of the Global Environment Facility
1996 to date: Focal Point of the United Nations Convention to Combat Desertification (CCD)
1997-1999: Member of the Micro-project Evaluation Committee funded by the European Union within the framework of PACIPE-BNC, Togo
1997 to date: Participation in several national planning programmes; design of several forest resource management projects; chairing of several training workshops
1995 to date: Representation of Togo at the CCD Intergovernmental Negotiation Committee and at conferences of Parties to the CCD
1995 to date: Representation of Togo at several international forums, meetings and seminars.

CURRICULUM VITAE

Surname	APLA
First Names	Yao Mawouéna
Date of Birth	26 February 1959
Place of Birth	KODJO (Zio-Tsévié Prefecture)
Nationality	Togolese

Education and Qualifications

1982-1985	National Agricultural Training Institute (INFA of Tové-Kpalimé), Forestry and Game option) Assistant Forester Diploma
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Professional Experience

1985-1990	Office for the Development and Utilization of Forests (ODEF) Head of Forest Engineering Section
1990-2000	Department for the Control and Protection of Flora Utilization (DPCEF) – Parkland and Botanical Gardens Division – Head of Forest Parkland Section

Duties:
Topographical surveys; report and calculation of the area of clearing plots and of the whole cleared estate in Nangheto dam area - ATAKPAME
Design and monitoring of construction work of ODEF product sales depots (Lomé, Aného, Vogan, Tabligbo, Tsévié, Kpalimé).
Monitoring of reprofiling of roads in ODEF reforestation site - Lilicopé
Study – Design and monitoring of construction of ODEF regional buildings (Notsè – Namon – Kéran).
Drafting of provisional and final specifications of construction and management works
Nursery work (search for seeds, seedlings and growing of plants); sites: Cacaveli, Kpogan and Bayémé
Monitoring of establishment and maintenance of Lomé public gardens
Topographical surveys, mapping and boundary marking of plantation area for the production of industrial timber (2,500 ha) in the reserved forest of Haloé-Baloé.
Drafting of works report
Topographical survey and mapping of nursery area in the reserved forest of Bayémé.

CURRICULUM VITAE

Surname	TENGUE
First Names	Kokou Tévé
Date and Place of Birth	1957 in Bolou (Zio Prefecture, Togo)
Nationality	Togolese
Field of Study	Agriculture and Forestry

University Education and Qualifications

1979-1982	Ecole Supérieure d'Agronomie, University of Benin, Lomé, Togo Agronomic Execution Engineer Diploma, Jufe 1982 Ecole Nationale Supérieure Agronomique (ENSA), Dachang University Centre, Cameroon Diploma in Forestry and Game, July 1986
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RELEVANT WORK DURING THE LAST THREE YEARS

Professional Experience

April 1998 – February 2000	Head of Research Department in charge of planning, project development and evaluation, applied forestry research at ODEF, Lomé, Togo
March 2000 to date	Research Fellow at the DPCEF (Department for the Control and Protection of Flora Utilization)

Responsibilities and achievements

1999	Sub-contractor for the execution of forestry research of pre-project PPD 7/98 Rev.2 (F) "Support to the Akposso Population for the Development of a Participatory Approach to Forest Management in the Bato area (North-Amou)
1998	Sub-contractor for the study "Management of the Reserved Forest of Missahoé" within the framework of ITTO pre-project PPD 11/96Rev.2 (F): "Identification and planning of measures for the sustainable management of the Kloto community forests in the reserved forest of Missahoe with the participation of rural communities".
1997	Counterpart to STA (Senior Technical Advisor) for the execution of pre-project PPD 14/95 Rev.3 (F) "Identification and Planning of Measures for Sustainable Management of Togo's Teak Plantations"
2000	Preparation of the study draft: Development of a National Strategy and Master Plan in Forestry Research and Development with a View to Improving Timber Production in Togo.
1999	Monitoring of CRDI experimental plots "Measurement and calculation of the results of the teak progeny test and cumelia provenanced tests established in Blitta".
1999	Participation in the 12 th Training Seminar on the Manuals for the Formulation of ITTO Projects (10-18 February 1999), Lomé, Togo.
2000	Consultant for the implementation of the "Study of the Physical and Human Environment and the Environmental Problems of the Humid Areas of South-East Togo".

CURRICULUM VITAE

Surname SAMAH
First Names Komlan
Date and Place of Birth 1963 in KARA
Nationality Togolese
Address B.P. 30327 Fax: (228_25-20-14
E-mail: skomlan@yahoo.fr LOME-TOGO

PROFESSION

Professional Forester, Option: Forest Management
Graduate of the Ecole Nationale Forestière d'Ingénieurs (ENFI) of Salé, Morocco (1993). Research Fellow at the Department for the Control and Protection of Flora Utilization (DPCEF)

FIELDS OF COMPETENCE

- Design, planning and management of development projects and programmes
- Management and participatory management of private, community and State forests
- Agroforestry (training and supervision of rural communities)
- Promotion of rural initiatives at DRP (Diagnostif Rural Participatif)
- Research & Development

PROFESSIONAL RESPONSIBILITIES

1995 Assistant to the Director of the National Forest Seed Centre (CNSF) Identification of sites for arboreta to be established in the country and their experimental installations; phonological studies of certain forest species for the creation of seed plots – DPF/MEPF – TOGO.

1997 In charge of programmes and projects for the management and restoration of natural forest stands, the management of the ITTO file, activities relating to parkland, the implementation of conventions on biodiversity and combating desertification and the fulfilment of energy requirements.

1998 Counterpart to the Senior Technical Advisor (STA) in the execution of ITTO pre-project PPD 11/96 Rev.2 (F): "Identification and planning of measures for the sustainable management of the Kloto community forests in the reserved forest of Missahoe with the participation of rural communities".

1997-2000 General Coordinator for the Association "Réveil de la jeunesse rurale", an NGO based in Lomé.
Vice-President of the Union of NGOs in Togo (UONGTO), a federation of NGOs with its headquarters in Lomé.

1999-2000 Responsible for drafting the main document for the RPTES-Togo Programme "Review of Policies, Strategies and Programmes in the Traditional Energy Sector in Togo"

1999-2000 Identification and design of development projects to be submitted to ITTO and other sponsors.

1999-2000 Assistance to the National Environmental Action Plan Unit (PNAE) in the drafting of the National Environment Management Programme document (PNGE)

CURRICULUM VITAE

Surname PAROUBADI
First Names Aklesso
Date and Place of Birth 26 September 1962 in Togo
Nationality Togolese
Address B.P. 355
Tel: 21 46 04; 21 28 97
Lomé - TOGO

PROFESSION

Agronomic Engineer (Agricultural Economics Option)
Research Fellow at the Department for the Control and Protection of
Flora Utilization (DPCEF)

MAIN QUALIFICATIONS

Diploma in Agronomic Engineering (Agricultural Economics Option) of
the Ecole Supérieure d'Agronomie (ESA) of Benin University, Lomé,
Togo (1987)
Post-graduate specialization diploma in the Agronomy of Hot Regions,
Centre for International Cooperation in Agronomic Research for
Development (CIRAD) / National Centre for the Agronomic Study of Hot
Regions (CNEARC), Montpellier, France (1989).

PROFESSIONAL EXPERIENCE

May to February 2000: Director of research, monitoring/evaluation and information technology
at the Department of Research and Planning of ODEF; Lomé - Togo
March 2000 to date: Research Fellow at the Department for the Control and Protection of
Flora Utilization (DPCEF).

DUTIES

Calculation of product costs, drafting of commercial product price lists,
revenue assessment, development of operational plans and budget
estimates, comparison of estimates/real budgets, collection and
processing of forestry statistics, socio-economic studies, analysis of
economic and financial profitability, monitoring and evaluation of forest
development projects, computer applications.

RESPONSIBILITIES IN PROJECTS AND COURSES

1999 Counterpart to Senior Technical Adviser in the execution of pre-project
PPD 7/98 Rev.2 (F) of the International Tropical Timber Organization
(ITTO): Support to the Akposso Population for the Development of a
Participatory Approach to Forest Management in the Bato Area (North-
Amou) – Togo.
National Correspondent at ITTO Focal Point for forestry statistics in
Togo.
Initiator and formulator of ITTO pre-project PPD 21/99 Rev.1 (M):
Development of a Strategy for Improving the National Forestry
Statistics and Timber Market Intelligence Processing System in Togo.
1998 Independent Consultant working with the National Consultant
responsible for the socio-economic and cultural study in the reserved
forest of Missahoe carried out in the context of ITTO pre-project PPD
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Planning and Economics in Togo within the framework of the
implementation of the National Environmental Action Plan process.
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TRAINING SEMINARS

1999

12th Training Seminar on ITTO Manual for Project Formulation (10-18 February 1999), Lomé, Togo.

Lomé, 19 June 2001

ANNEXE C:

BOTANICAL, ECOLOGICAL AND SILVICULTURAL CHARACTERISTICS OF THE SELECTED SPECIES

1) FRAMIRE: *Terminalia Ivorensis* - Combretaceae

1. Natural growing area

From Guinea to Cameroon, in semi-deciduous moist closed forest.

In Togo, Framiré grows successfully in plantations on the Daye Plateau. It is also found in the Wawa Prefecture in the Litimé, in the south-east of the country.

It is essentially a semi-deciduous moist closed forest species, between isohyets 1200 and 1600 mm.

2. Behaviour

Framiré needs full light. Its fructification is abundant. The winged seeds have a wide dispersion; fruit appears in november-december and february-march. It is a social species, which is found in clusters.

3. Planting

As the use of plants in sachets is considered preferable for planting, seeds should be sown directly into nursery pots (3 to 4 seeds per pot). In order to lift the dormance, probably tegumentary in origin, seeds should be soaked in cold water for two days before sowing. Recommended spacing for planting, which begins with the first rainfall (May-June), is 3.75m x 3.75 m.

4. The problem of blight

This problem is caused by intra-specific competition. Plants affected with blight are the dominated ones... Blight is caused by an inhibitory action on the roots of neighbouring trees. Framiré does not survive in a monospecific stand as it totally inhibits the mineralization of nitrogen in the litter, provoking a considerable accumulation of calcium in the bark: this species is self-intoxicating when occupying the ground on its own.

Blight can be avoided by planting Framiré with another species (e.g. Fraké) and/or thinning in time.

5. Conduct of thinning operations

Planting under poisoned forest:

Age (years)	Number of plants		Average diameter (cm)
	Before (stems/ha)	After (stems/ha)	
4	300- 350 (1)	200	11 cm
8 - 10	200	100 (2)	

(1) There are 400 on planting and there are 50 to 100 wind breakages

(2) To be sure to find 60-70 at the end of the rotation.

Machine planting:

Age (years)	Nombre de plants		Average diameter (cm)
	Before (stems/ha)	After (stems/ha)	
4	441- 676- 711(1)	250	14- 17

8 - 10	250	150 (2)	25
	150	80- 90 (3)	

- (1) 5m x 5m; 4m x 4m; 3.75m x 3.75m
- (2) 300 for 676 at the start
350 for 711 at the start
- (3) To be left with 60-70 stems at the end of the rotation with $G = 20m^2$ (and 20 fill-in trees)

7. Growth of Framiré

A rotation of 40 years is sufficient, even 30 years in good conditions.

In Côte d'Ivoire, recent inventories have yielded production forecasts of $250m^3$ of timber at 30 years with 70 trees/ha. For paper production, one can expect $250m^3$ at 15 years with a density of 400-600 stems/ha.

8. Research

In Côte d'Ivoire, research work has shown that species of local origin (Côte d'Ivoire) are more valuable in Côte d'Ivoire than those originating from Cameroon and Ghana. It has also shown that Framiré responds well to propagation by cuttings.

9. Framiré utilization

Its heart has a good resistance to insects and fungi, but the sapwood is vulnerable and should be treated. In Côte d'Ivoire, Framiré is used solely for the production of sawnwood. Elsewhere, it is also used for peeling. After treatment, the timber is used in internal and external joinery.

2) **FRAKE: *Terminalia superba* – Combretaceae**

The commercial name for Fraké elsewhere is the Limba

1. Natural growing area

This species grows in semi-deciduous moist closed forest, but it is also found scattered on the edge of evergreen forest; it is in fact a ubiquitous species and the young trees can be found almost everywhere. Longitudinally, it occurs from Sierra Leone to Angola. The most beautiful stands are to be found at medium altitude and in mountain valleys.

3. Characteristics

It is a social, full light species with a high density per hectare.

Fraké does not like sandy soils. Fructification takes place in November-December. It is annual and abundant, but seed collection is difficult.

4. Phytosanitary conditions

Plant health is satisfactory in plantations in Togo and in the SODEFOR sites in Côte d'Ivoire. Attacks by defoliating insects have been noted but are not considered serious. Possible bites from platypes cause black stains on the timber.

5. Results of selection work in Côte d'Ivoire

Propagation of Fraké by cuttings is successful in permanent fog conditions. It can be grafted by chip grafting or better by budding. This should be carried out from September to January and the graft should remain in vegetative rest, that is defoliated.

Provenance tests have indicated that the Grégbeu provenance is the most successful.

6. Conduct of thinning operations

As with Framiré.

7. Growth of Fraké

At 15 years, planting under poisoned forest yields:

- 150 to 170 m³/ha for a planting density of 150 to 200 trees/ha, with an average circumference of 100 cm.
- 100 to 120 m³/ha for an initial density of 100 trees/ha; the average circumference is 113 cm.

With mechanized planting, production reaches 50 m³/ha at 4 years. Growth reaches 30 m³/ha between 3 and 4 years.

8. Fraké utilization

Fraké produces sawnwood only in Togo and Côte d'Ivoire. In the Congo, it is used in internal joinery, furniture and construction framework. Its timber is ideal for the production of glued laminates.

3) **SAMBA:** *Triplochiton scleroxylon* – Sterculiaceae

1. Natural growing area

Samba grows naturally in semi-deciduous moist closed forests from Sierra Leone to the Central African Republic. In Togo, Samba or Wawa is found in the Maritime Region and in Ecofloristic Zone IV in the south-west of the country.

2. Behavioural characteristics

Samba is a pioneer, full light, social species. It likes sandy soils of granite and sandstone origin. It has a better growth in sites with an annual rainfall of 1200 to 1400 mm and with two dry seasons (a 3-4 month dry season from December to March and a 1 month dry season in August).

Fructification is very irregular and stretches from December to March, with few fruits reaching maturity. Moreover, these are attacked by weevils.

3. How can the sowing problem be resolved?

Mainly by cuttings, but also by grafting (chip grafting or budding).

4. Samba parasites

More than 90% of seeds are attacked by parasites. Attacks on leaves by psylla slow down growth. The trunk is sometimes attacked by burrowing caterpillars.

5. Sylvicultural treatment

Large diameter individuals grow independently from thinning operations. Their dominant position ensures a good growth despite the presence of neighbouring trees.

Medium diameter trees are on the other hand very sensitive to thinning and thinning operations should be carried out for these trees.

Competition occurs from a 20 cm diameter onwards and, with an initial density of 200 to 400 plants/ha, one or two thinning operations need to be carried out so that only 100 to 150 stems/ha remain.

Thinning of young trees starts at 4 years and 7 years (second thinning operation).

6. Growth of Samba

At 35 year, in old plantations in Côte d'Ivoire, it is possible to obtain a total height of 30 m and a diameter of 44 cm (average annual increase: 1.2 cm above the buttresses).
As regards volume, an average increase of 9-14 m³/year has been noted.

7. Samba utilization

As a light and tensile timber, Samba is used for the production of furniture frames, packaging and plywood. It is also used for the production of sawnwood and peeling.

4) **Large leaf MAHOGANY – *Khaya grandifolia* – Meliaceae**

1. African Mahogany denomination

Three (3) African species are, for commercial purposes, grouped under this denomination:

- *Khaya ivorensis* (Bassam Mahogany)
- *Khaya anthoteca* (White Mahogany)
- *Khaya grandifolia* (Large Leaf Mahogany)

N.B. The 4th *Khaya* species, *Khaya senegalensis* (Caillécdrat), is excluded.
Asiatic mahoganies belong to the *Toona* genus.

2. Natural growing area of the large leaf Mahogany

From Guinea to Central Africa, in Sudan, Uganda, etc., in semi-deciduous closed forest and on the northern edge of the evergreen closed forest.

In Togo, it is found in semi-deciduous forest islets, gallery forests and pre-forest areas.

3. Behavioural characteristics

Mahogany withstands full light but is attacked by Borers. It lives in isolation, with one tree in the most favourable sites. Fructification takes place on an annual basis, but is irregular. It occurs from February to April and a second fructification sometimes occurs between July and September.

4. Parasites

Two Borer species attack young trees: *Hypsipyla* and *Gyroptena*. There is no interspecific resistance; the Caillécdrat is equally sensitive. Similarly, there is no intraspecific resistance: all provenances of a same species are equally sensitive.

The most sensitive individuals are the faster growing trees, trees with young shoots and trees that grow in the open. It should be noted that the three conditions are closely interconnected.

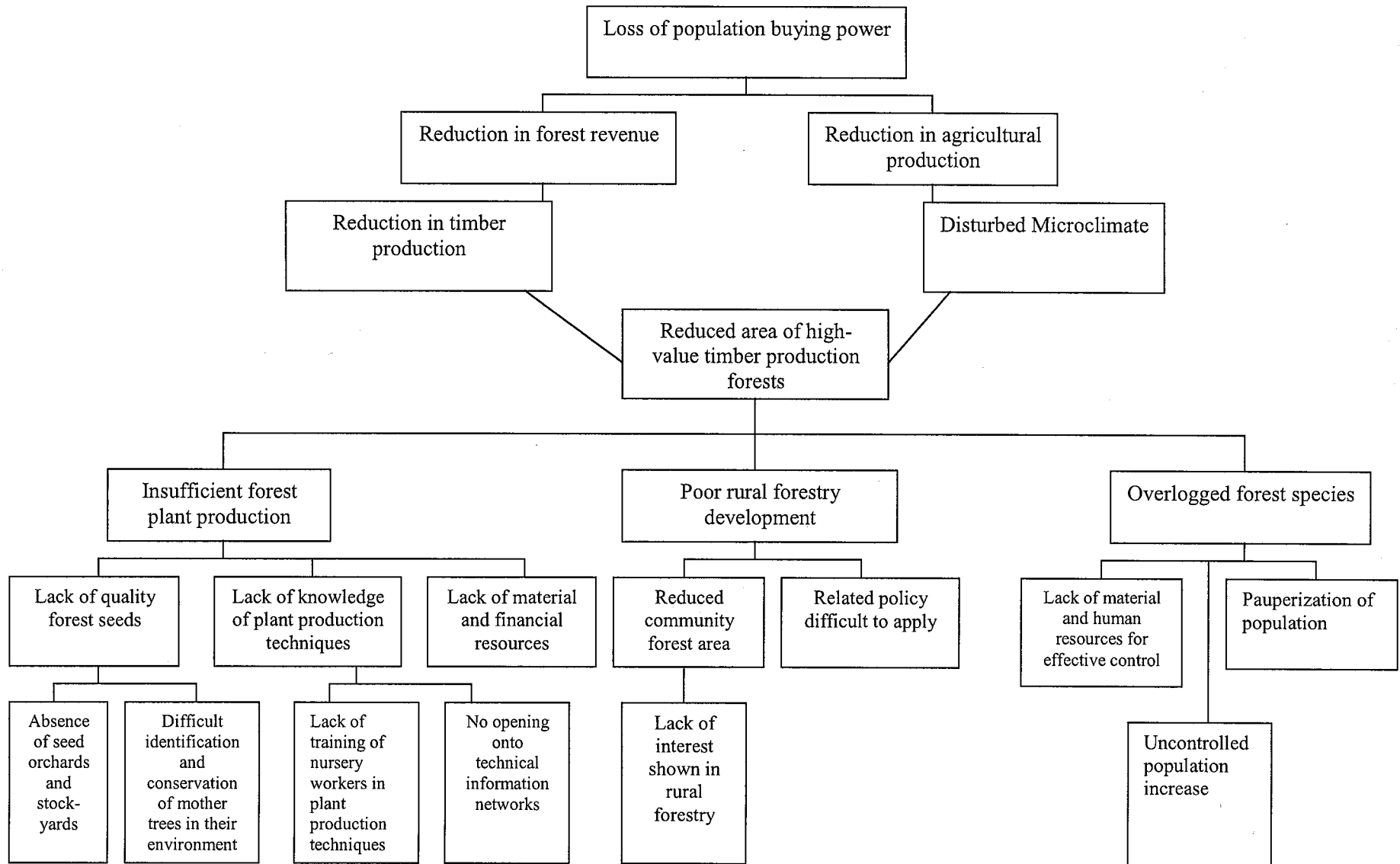
5. Growth

On average: - 0-6 years: 0.2 to 2 m per annum in height.
- 0 –15 years: 2 cm per annum in diameter.

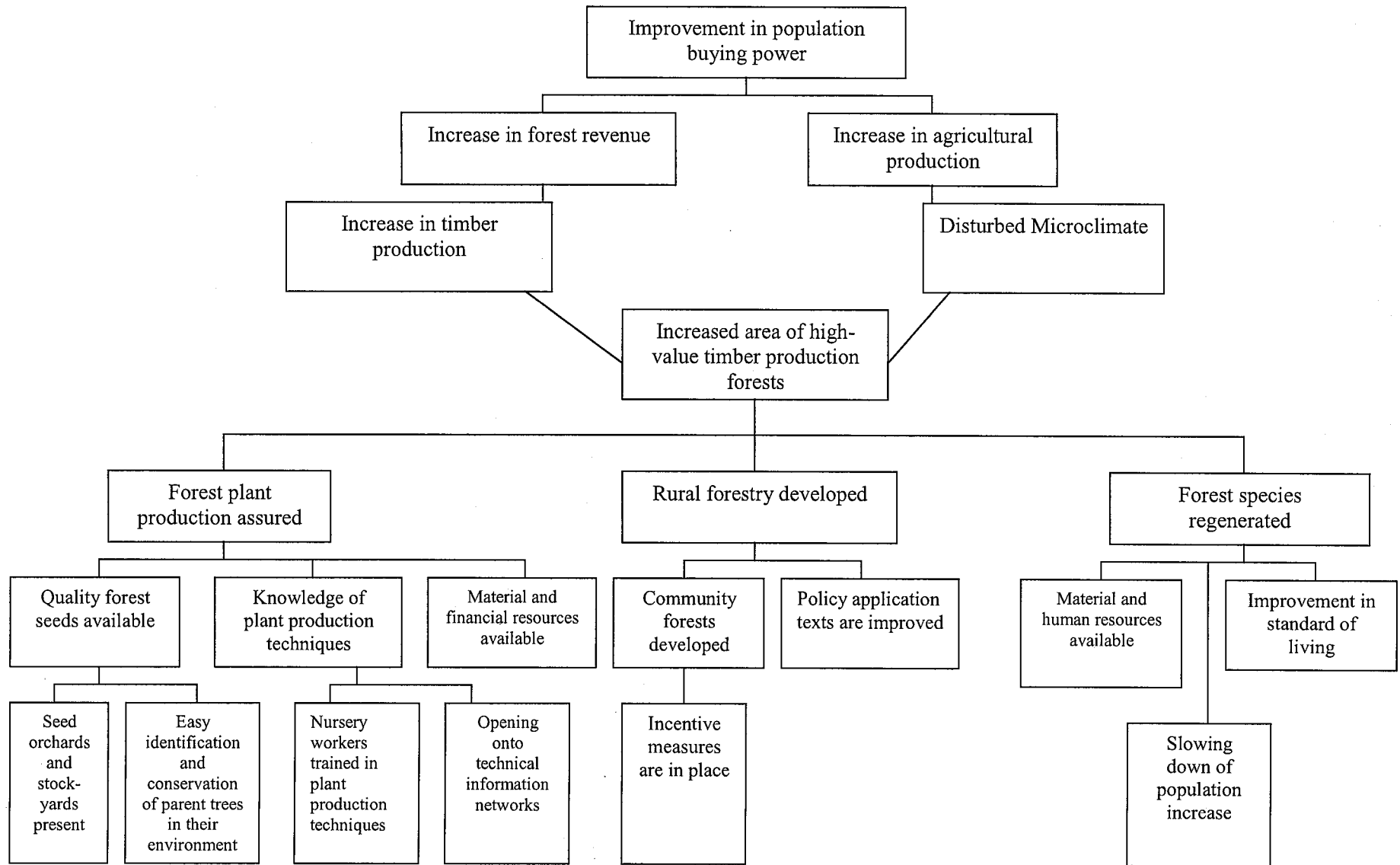
7. Utilization

Mahogany is one of the first timbers ever to be exported to Europe (1880). It is a beautiful wood, with sufficient durability and easy to work. It is used for naval constructions, cabinet-making and joinery (internal and external). It can also successfully be peeled and sliced.

ANNEXE D: PROBLEM TREE



ANNEXE E: Objectives Tree



Summary of amendments made in accordance to the recommendations of the 22nd Expert Panel

Cover page: Serial Number: PD 122/01 Rev.1 (F)

Budget in US\$:

Togo Contribution	ITTO Contribution	Total
105 114	207 516	312 530
34%	66%	100%

Page 1: The Contents table has changed with additions resulting from the amendments made.

Pages 6 and 7: In section 2.5 "Scientific and Technical Aspects:
Clarifications are made on how to ensure the conservation of the genetic diversity of mother trees to be used for the production of samba cuttings.

Pages 9 and 10: The list of other local species whose plants will be produced in nurseries is also given.

In section 2.6, economic aspects have been revised in accordance with item 3 of the recommendations.

Pages 16 to 19: The budget has been revised in accordance with recommendations 4 and 5. Thus the Overall Yearly Project Budget by Source - ITTO changes from US\$ 227 078 to US\$ 207 516, with a reduction of US\$ 19 562 or 8.6%. In turn, this reduction affects tables 7.1: Overall Budget by Activity and 7.4: Consolidated Yearly Budget. Certain specific revisions have been made in table 7.2: Overall Yearly Project Budget by Source – ITTO: (i) in budget component 40, the item "Cuttings propagation containers" (10) , which had been omitted in the last budget, has been added; (ii) the vehicle cost has been reduced, but only slightly, taking into account past experience in the purchase of vehicles for previous ITTO projects still under way in the country; (iii) an error which had occurred in budget component 50 in the previous budget has been rectified, with a resulting increase in the total estimated cost of fuel and lubricants for the truck, the motorcycle and motor-driven pump.

Page 31 Annex C: A summary of botanical, ecological and silvicultural data for 4 local selected species is presented.

Page 35 With the insertion of Annex C, the numbering of the Problem Tree becomes D instead of C.

Page 36 Similarly, the numbering of the Objectives Tree becomes E instead of D.