

**OPERATIONAL AND FINANCIAL STUDY REPORT
IN THE FRAMEWORK OF THE IMPLEMENTATION OF THE
NATIONAL DETERMINED CONTRIBUTION (NDC) OF CONGO IN THE
LAND USE AND FORESTRY SECTOR**

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Abbreviations and Acronyms

AFD	Agency French development
ADB	African development bank
BM	world Bank
UNFCCC	United Nations Framework Convention on Climate Change
CBD	Convention on Biological Diversity
CDD	Fixed term contract
CDI	Permanent contract
CDN	National determined contribution
CEMA	VSbetween operating agricultural machinery
CIRAD	Center for International Cooperation in Agricultural Research for Development
CNIAF	National Center for Inventory and Development of Forest Resources and fauna
CN REDD	REDD national coordination
CLD	United Nations Convention Against Desertification
CRDPI	Center for Research on Sustainability and Productivity of Industrial Plantations
CTFT	Tropical Forest Technical Center
CPP	Steering committee of the project
CTP	Project technical committee
CVPFNL	Center for valuation of non-timber forest products
DEP	Department of Studies and Planning
ENSAF	National Higher School of Agronomy and Forestry
FAO	Food and Agriculture Organization of the United Nations
FVC	Green Climate Fund
IRA	National Institute of Agronomic Research
IRF	National Institute of Forest Research
APRM	Ministry of Agriculture, Livestock and Fisheries
MEF	Ministry of Forest Economy
MRSIT	Ministry of Scientific Research and Technological Innovation
MTE	Ministry of Tourism and Environment
ProNAR	National Afforestation and Reforestation Program
R&D	Research and development
REDD	Reducing emissions from deforestation and forest degradation
SCPFE	Forest Products Export Control Service
SNR	National Reforestation Service
SWOT	Strengths, Weaknesses, Opportunities, Threats
EU	European Union
PMU	Management unit da project
UMNG	Marien Ngouabi University
UR2PI	Research unitson the productivity of industrial plantations

Thanks

The team that carried out this feasibility study consisted of:

- ✓ Jean-Noël Marien, forestry expert, in charge of the institutional structuring of the project,
- ✓ Jean-Paul Laclau, expert in forest plantations, in charge of capacity building,
- ✓ Christian Moka, national forestry expert, responsible for diagnosing partner institutions,
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Introduction

FAO entrusted CIRAD with the mandate of carrying out three feasibility studies as part of the formulation of the project "Implementation of the Contribution Determined at the National Level (CDN), then named " PREFOREST " of Congo in the sector of land use and forest that the Congo wishes to submit to the Green Climate Fund (GCF)

The overall objective of the project is to reduce GHG emissions while generating economic and environmental benefits for local populations in three priority intervention areas (Sangha-Likouala, Pool-Plateaux, Kouilou- Niari). The specific objectives of the project include:

- Create sustainable sources of wood energy supply near major urban centers (Brazzaville, Pointe-Noire, Dolisie, Nkayi, etc.);
- Contribute to replacing shifting slash-and-burn agriculture with stabilized and sustainable agricultural practices, in particular agroforestry, which generate sustainable income;

The three feasibility studies entrusted to CIRAD are as follows:

- Technical and economic feasibility study, and development of the environmental and social management framework
- Operational and financial feasibility study
- Wood energy study

This report concerns the study of the operational and financial feasibility which consists of:

- analyze the government structures expected to support the implementation of investment projects by identifying their main strengths and weaknesses to accomplish their mission according to the role they will have to play;
- analyze the material and operational needs necessary to support investment projects, according to the technical routes and species selected by the technical and economic feasibility study. This analysis should include:
 - o An estimate of the genetic material needed to support investment projects,
 - o An analysis of current and / or necessary research and development (R&D) initiatives to support the development of adequate and quality genetic material to support investment projects;
 - o An analysis of government technical and operational capacities to supply / maintain nurseries and to support investment projects through technical assistance
- make recommendations in order to meet the needs observed, in particular by strengthening government structures;
- based on the analysis and recommendations made, proposes an operational support structure for investment projects.

Once the investment project support model has been determined by the Government and FAO, the financial feasibility should provide an estimate of the costs of development (including R&D) and operations, including the purchase of plants / seeds, inputs, equipment and technical support from government structures involved in the implementation of the Project.

Part I - Government structures stakeholders

1 The Ministry of Agriculture, Livestock and Fisheries (MAEP)

1.1 Mission

The mission of the Ministry of Agriculture, Livestock and Fisheries is to develop and conduct government policy in the areas of agriculture, livestock and fisheries.

1.2 Organization

Decree No. 2017-338 of August 14, 2017 on the organization of the Ministry of Agriculture, Livestock and Fisheries defines its organization.

Thus, the ministry includes:

- The cabinet;
- The departments attached to the firm;
- The general inspectorate of agriculture, livestock and fishing services;
- The general directorates;
- Organizations under supervision.

From the firm and related departments

He understands:

- A secretariat;
- The studies and planning department;
- The direction of cooperation;
- The Directorate of Documentation and Archives;
- The direction of communication;
- The public procurement management unit.

The bodies under supervision governed by specific texts are:

- The agricultural support fund;
- The halieutic development fund;
- The rural development promotion study company;
- The national center for improved seeds;
- The National Center for Soil Studies;
- The microbiological and climatic analysis laboratory for fishery products.

From the General Directorate of Agriculture

Decree n ° 2017-340 of August 14, 2017 relating to the attribution and organization of the general direction of agriculture.

This decree stipulates in particular that the general direction of agriculture is the technical body which assists the minister in the exercise of his attributions in matters of agriculture.

As such, it is responsible in particular for:

- Design the policy and strategies for agricultural development and monitor their implementation;

- Coordinate and control the activities of central and departmental directorates;
- Develop agricultural regulations and ensure their application;
- Ensure the sustainable management of soils and genetic resources;
- Collect statistical data and contribute to their dissemination;
- Develop the policy for phytosanitary control and the fight against plant pests;
- Ensure the promotion of producer organizations;
- Contribute to the facilitation of access to land;
- Encourages the organization of shows, fairs and shows;
- Monitor the implementation of strategies for enhancing agricultural products;
- Design land use plans;
- Monitor the implementation of agricultural mechanization;
- Contribute to the development of projects and programs to be implemented with bilateral partners;
- Ensure the sustainable management of the environment through the rational use of agricultural inputs and the implementation of policies adapted to climate change;
- Ensure the quality control of agricultural products;
- Manage personnel, finances and materials.

The general management includes:

- The management secretariat;
- IT and statistics service;
- The Directorate of Agricultural Production and Agrometeorology;
- The Directorate of Plant Protection;
- The production support and regulatory department;
- The direction of machinery and agricultural development;
- The management of administrative and financial affairs;
- Departmental directions.

1.3 Workforce

The numbers reported by the Ministry of Agriculture, Livestock and Fisheries are shown in Table 1.

Board 1: Mi workforcenistère of agriculture, breeding and fishing

FRAMES	SEXES		TOTAL
	M	F	
Agriculture (technicians)	603	312	915
Administration (SAF)	164	158	322
Social	16	02	18
Grand Total	783	472	1255

Source: MAEP

1.4 Budget

The 2018 finance law of the Congo's national budget provides for the following allocations to the APRM:

- Staff:	5 789 874 FCFA
- Goods and services:	577 342 950 FCFA
- Transfer:	2,779,541,000 FCFA
- Investment:	16,467,000,000 FCFA

For a total of 19,829,673,824 FCFA.

Information concerning the budgets of previous years could not be obtained from the competent services of the APRM.

1.5 Agriculture Support Fund

An Agricultural Support Fund (FSA) was created in 2005 to allow small and medium-sized farmers to access agricultural loans at subsidized rates. Under the terms of article 4 of law n ° 22-2005 of December 28, 2005 establishing its creation, the FSA should benefit from 10% of public expenditure, to support the agricultural development of the Republic of Congo. Unfortunately, from 2008 to 2017, the FSA only benefited, on average, from an investment budget of FCFA 1.5 billion, which did not allow it to carry out its mission and this experience is considered a failure for various reasons: poor targeting of beneficiaries, low reimbursement rate, etc.

1.6 Experiences and achievements related to the project

In partnership with the IPHD (International Partnership for Human Development), the Ministry of Agriculture has carried out a few projects within the framework of the implementation of the agricultural policy in the fields of mechanization and community farms. Three projects were thus carried out:

1.6.1 Agricultural mechanization project

The objective of the project was:

- Promote farmers' access to agricultural machinery and equipment;
- Reduce the arduousness of agricultural work;
- Increase the cultivated areas and agricultural production;
- Promote the modernization of agriculture.

1.6.2 Community Agricultural Production Farms Project (FCPA)

Promotion of active public-private-population partnership through Community Farms for Agricultural Production (FCPA). Its objectives are:

- Support for village communities, organized in groups, in the modernization of agriculture;
- Mechanized exploitation of community lands for the purpose of increasing production and income;
- The transfer of modern farming techniques;
- Contribution to the fight against poverty.

Four farms, out of seven planned, were created: those of Mouindi and Kindzaba-Ndiba in the department of Bouenza with mainly corn, soybeans, peanuts, cassava and beans. The farms of Nziegue and Koumou, in the Plateaux department, mainly with potatoes, beans, onions and rice.

The project ended in 2017 with mixed results, as support for village communities until the marketing of products was not provided. . A relaunch of the project, still with the support of the IPHD, is underway but will only concern the two farms located in Bouenza and that of Koumou in the Plateaux. The latter will normally be operational when the "FVC" project is implemented and may be a solution for the mechanized preparation of investment projects that will develop in the area.

1.6.3 Agricultural Machinery Operation Center (CEMA) Project

These are centers that have been created for agricultural mechanization, in order to provide mechanized services (plowing, spraying, spreading fertilizer, sowing, harvesting, etc.).

A total of five centers have been created in:

- Otséndé in the Cuvette department;
- Etsouali in the Plateaux department;
- Bouansa in the department of Bouenza;
- Igné in the department of Pool;
- Moulendé in the Niari department.

Two other centers were to be created in Hinda in Kouilou and Ewo in the western basin.

A restructuring of the system is currently underway and only the CEMAs of Bouansa, Etsouali and Moulendé will be maintained and strengthened under the National Agricultural Development Plan 2018-2022.

The projects presented above help provide a supply of agricultural equipment in different regions of the Republic of Congo which can be mobilized in the form of service provision for agro-forestry and forestry plantation works by the FVC project. The 2018 census of agricultural equipment, carried out by the machinery and agricultural development department, identifies a total of 88 tractors, 33 of which are immediately operational and 55 in the garage awaiting repairs. However, the availability of the material and its general condition will still need to be checked in the planting areas planned at the start of the GCF project.

1.7 APRM SWOT Analysis

<p style="text-align: center;"><u>Strengths</u></p> <ul style="list-style-type: none"> - Existence of services to carry out the missions assigned to the ministry - Political will displayed for the promotion of agriculture - Growing food requirements for national food coverage - Establishment of an agricultural support fund - Launch of several projects to promote Congolese agriculture - Insufficient national supply of basic food products 	<p style="text-align: center;"><u>Weaknesses</u></p> <ul style="list-style-type: none"> - Insufficient premises; some services are located in MEF offices - Significant lack of qualified personnel - Lack of official report for some completed projects - Lack of monitoring of funds allocated to agriculture - Lack of continuing training policy for staff - Lack of a permanent operational producer-State platform (MAEP) for exchanges on agricultural issues - Lack of local support structures for agricultural producers - Technical, administrative and financial supervision of producers insufficient in view of the challenges of agricultural development in the Republic of Congo
<p style="text-align: center;"><u>Opportunities</u></p> <ul style="list-style-type: none"> - Potential of cultivable land of about 10 million hectares; - Very low use of available arable land (1 to 2%) - Existence of agronomy and forestry research centers - Possibility of mobilizing international funding - Labor available - Significant improvement in communication channels - Food requirements already estimated - Land favorable to the mechanization of agriculture - Possibility of creating innovative financing mechanisms 	<p style="text-align: center;"><u>Threat</u></p> <ul style="list-style-type: none"> - Lack of organization of sectors - Lack of replacement policy for retired staff - Public criticism of the government's agricultural policy - Insufficient investments in the agricultural sector - Insufficient or inappropriate innovations in agricultural research for the conditions of the Republic of Congo

2 The Ministry of Forest Economy (MEF)

2.1 Mission

The Ministry of Forest Economy is responsible for the development and implementation of government policy in the field of water and forests.

2.2 Organization

Created by decree n ° 2013-219 of May 30, 2013, the Ministry of Forest Economy includes:

- The cabinet;
- The departments attached to the firm;
- General inspection
- General Directorates
- Organizations under supervision

- The firm and related departments:
 - Cooperation Directorate
 - Department of Studies and Planning
 - Information Directorate
 - Forest Fund
 - Management of the Environmental Protection Fund
 - 3 public bodies in the field responsible for implementing forest policy: the National Center for Forest and Fauna Inventories and Development (CNIAF), the National Reforestation Service (SNR) and the Forest Products Export Control Service (SCPFE).

- The General Inspectorate of Forest Economy and Environment Services with 4 central bodies, namely:
 - Divisional Inspection of Administrative and Legal Affairs
 - Divisional Forest Inspection
 - Divisional Inspection of Fauna and Protected Areas
 - Environmental Preservation Inspection.

- The Directorate General of Forest Economy in charge of forest policies with 4 central Directorates namely:
 - Administrative and financial management
 - Forestry Department
 - Forest Resources Development Department
 - Department of Wildlife and Protected Areas
 - Management of the Brazzaville Zoological Park

2.3 Workforce

The forestry administration has 1231 agents (Table 2). A precise description of the age groups of the agents in each structure depending on the ministries was provided in a PFDE report: Capacity building plan and implementation plan (Agreco CESO CI, 2014). This report clearly highlights an imbalance in the age pyramid with a significant aging of engineers without recruiting young people to compensate for retirements. The detailed capacity building proposals provided in this report remain relevant.

Board 2 : Workforce of the forestry economy ministry

Qualifications	Workforce
Managers and Technical Agents	763
Executives and agents of administrative and financial services (SAF)	442
Other executives and agents	26
TOTAL	1231

Source: MEF

2.4 Budget

The 2013 budget of the ministry represents 21 billion CFA francs distributed as follows (Agreco CESO CI, 2014):

- Forestry fund: 9 trillion
- State operating budget allocation: 1 trillion
- State investment budget allocation: 9 trillion
- SCPFE Resources: 2 trillion

The mission was unable to obtain the budgets for recent years from the relevant MEF services.

The 2018 finance law of the Congo's national budget provides for the following allocations to the MEF:

- Staff: 4 043 422 692 FCFA
- Goods and services: 577 342 950 FCFA
- Transfer: 1 052 596 114 FCFA
- Investment: 5 062 000 000 FCFA

That is a total of 10,601,997,973 FCFA.

To this amount must be added the resources of the forestry fund and the forest products export control service (SCPFE) whose budgets were not yet adopted in March 2018, due to the lack of holding sessions of the management committees of these structures. .

2.5 Experience and achievement related to the Project

In 1989, departmental nurseries were set up across the country with the main objective of supplying forest and fruit plants to meet the needs of National Tree Day in each department. These nurseries were subsequently integrated into the SNR.

The forestry administration with the support of the French cooperation agency initiated a forest plantation project in the 1990s with a view to supplying the city of Brazzaville with wood energy and wood for services. Some 400 hectares of eucalyptus plantations have been established north of Brazzaville in the locality of Mati. The entire project was not carried out and the plantations were entrusted to SNR for management.

2.6 SWOT analysis from the Ministry of Forest Economy

<u>Strengths</u>	<u>Weaknesses</u>
<ul style="list-style-type: none">- Existence of all structures dedicated to the management of the forest administration- - suitable premises for central administration- Detailed assessment of capacity building needs and recent implementation plan (Agreco CESO CI, 2014)	<ul style="list-style-type: none">- Attributions to be clarified between the ProNAR and SNR structures- Insufficient staff- Very unbalanced age classes among executives and obvious lack of young engineers- Lack of information and database systems- Difficulty in recovering state budget allocations

3 The National Reforestation Service (SNR)

3.1 Missions

Created by decree N0 89/042 of January 21, 1989, the National Reforestation Service is a public technical and scientific establishment. The SNR is managed in the form of a board and endowed with management autonomy.

The SNR is responsible for monitoring, coordinating and executing the national reforestation policy. To this end, its mandate revolves around the following missions:

- The realization of plantations on behalf of the state and decentralized local communities, by enriching degraded forest areas, improving natural populations of gregarious species and afforestation in the savannah;
- Assistance to forest operators in the implementation of management plans in the "Reforestation" component through pilot afforestation and reforestation units (UPARA);
- Support and technical assistance to private promoters and associations for the establishment of forest and agroforestry plantations and the creation of orchards;
- Protection of watersheds;
- The popularization of silvicultural and agroforestry techniques in the peasant environment;
- The production, conditioning and transfer of seeds and young plants for the needs of the populations;
- Research development;
- The promotion of afforestation and "popular" reforestation through the National Tree Day (JNA)

3.2 Organization

The current SNR organization chart is shown below. However, a restructuring of the SNR, the reflection of which began several years ago, is planned in the near future, which should change its current mode of organization and functioning.

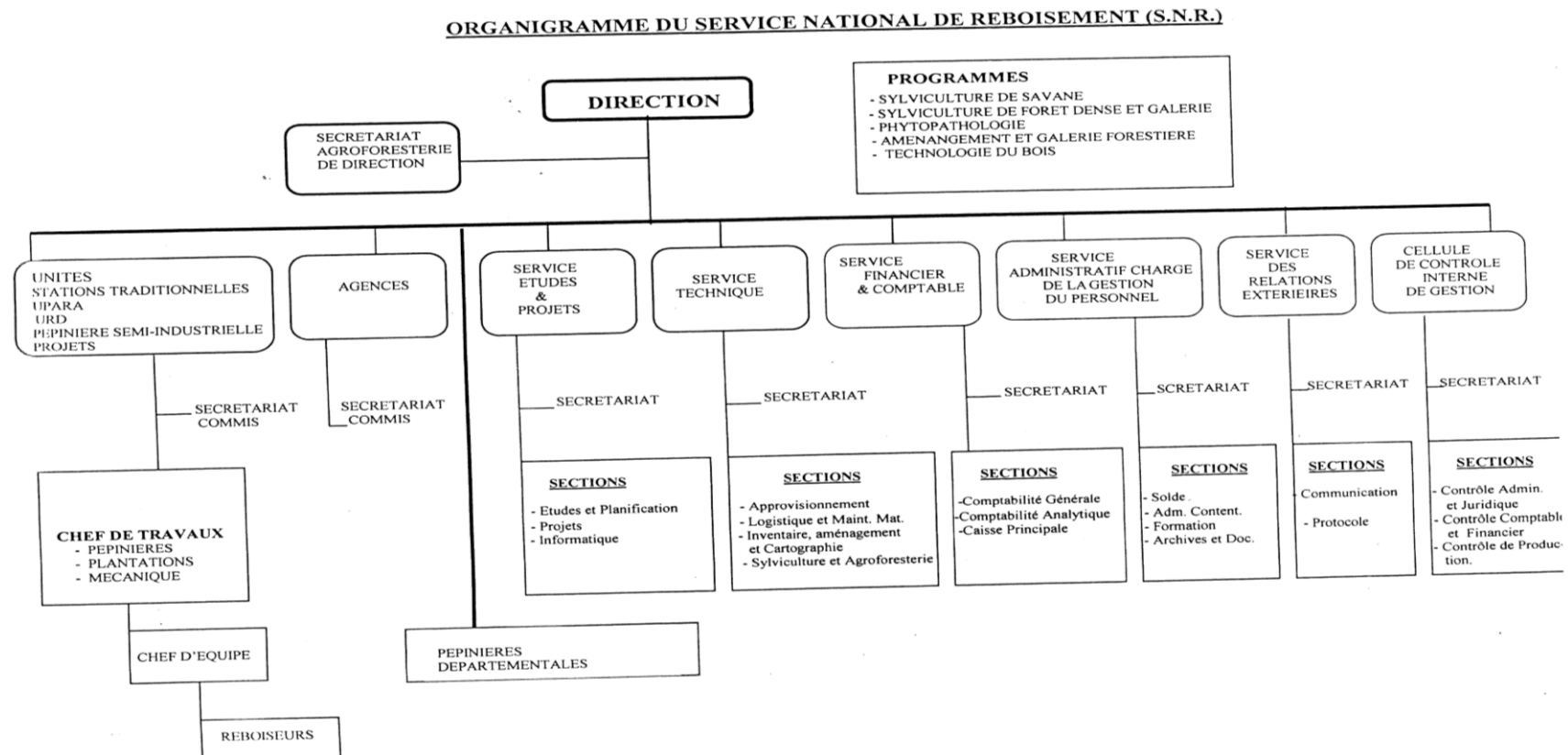


Figure 1: Organizational chart of the National Reforestation Service (SNR)

The forest stations and nurseries as well as the UPARA (pilot units for management, reforestation and agroforestry) are the operational tools from which the SNR carries out its technical programs. The spatial distribution of these units covers the entire territory (Figure 2).

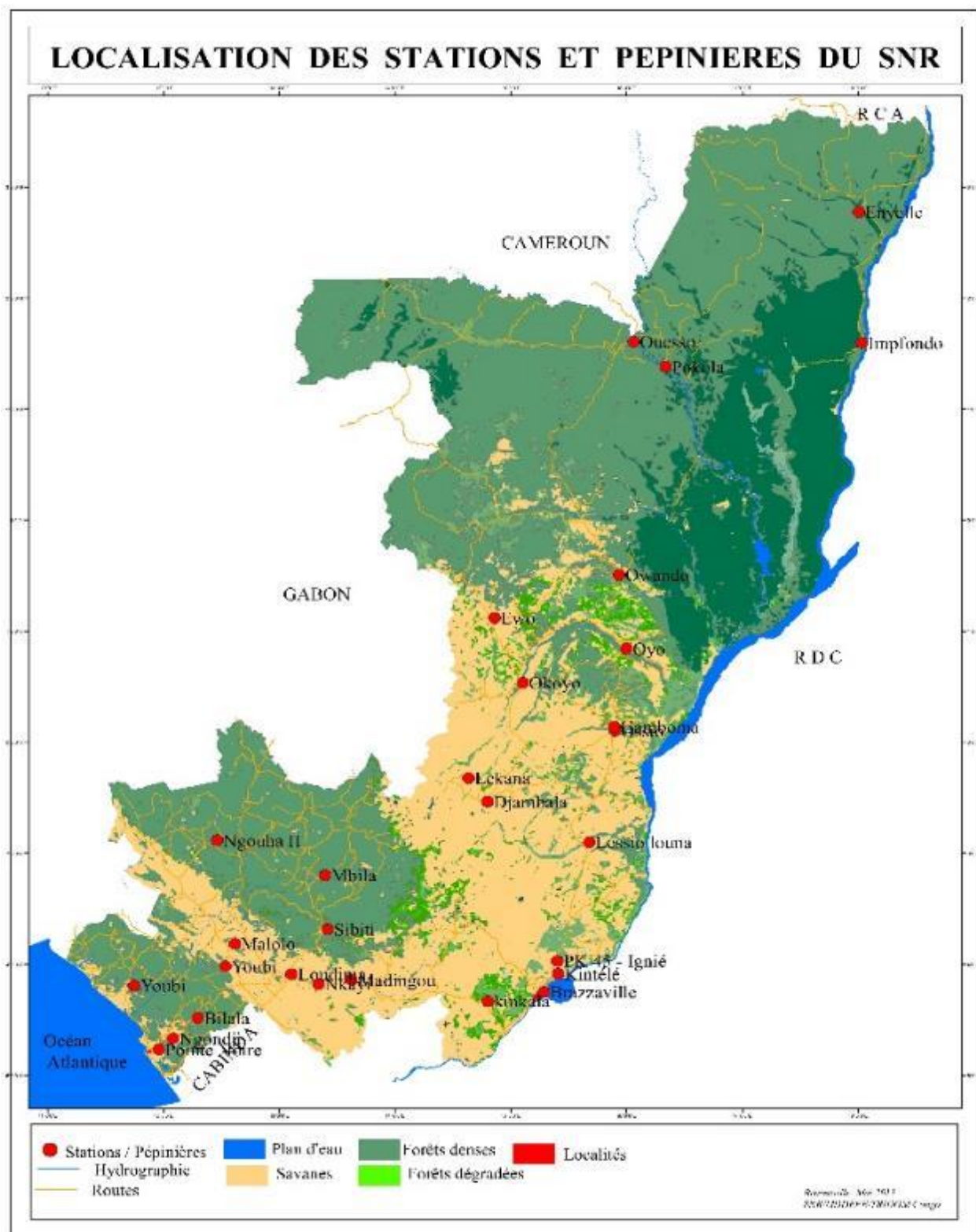


Figure 2: Location of SNR stations and nurseries on the territory of the Republic of Congo.

More precise information concerning the location of the operational units of the SNR and their potential for seedling production is provided in table 29 (§12.2). The current state of these structures clearly shows that strong investments are necessary for their upgrading in order to be able to meet new challenges.

The reorganization of the SNR is necessary. Following the interviews with various actors of the service and the consultation of the fundamental documents of the structure, the current organization presents gaps, which will have to take into account the reorganization in progress:

- A concentration of decision-making power at the management level, which can slow down reactions to emergency situations on the ground;
- The absence of an organic link between the technical service and the production units;
- A certain heaviness in the flow of information: all the data coming from the operational units pass through the management before being transmitted to the services concerned for processing and then returned to the units through the management;
- The lack of an extension structure;
- The lack of a health-safety-environment structure;
- Non-effective cost accounting despite its theoretical existence;
- An atomization of certain services.

3.3 Resources

3.3.1 Human resources

All of the SNR's human resources are shown in Table 3. The number of permanent staff represents less than a third of the staff and the temporary executing staff almost half of the total staff.

Board 3 : Number of SNR agents with permanent or temporary status

Status	Number of agents	Managers (technical + support)	Supervisors (technical + support)	Executing agents (technical + support)
Permanent (CDI + civil servants)	99	35	26	38
Temporary (CDD)	271	60	30	181
TOTAL	370	95	56	219

Source: SNR 2018

Of this total workforce, 58% of the agents are administrative employees, attachés of the administrative services: accountants, administrative secretaries, secretaries of Direction and office automation, clerks, etc ...

The breakdown by age group of permanent staff shows that 80% of staff are over 50 years old (Table 4).

Board 4 : Number of permanent SNR staff by age group and sex

	20 - 29		30 - 39		40 - 49		50 - 60		Total	
Frames	F	H	F	H	F	H	F	H	F	H
Techniques	-	-	2	-	2	2	3	14	7	16
Administrative	-	-	-	1	1	1	7	2	8	4
Subtotal 1	-	-	2	1	3	3	10	16	15	20
Masters	F	H	F	H	F	H	F	H	F	H
Technicians	-	-	-	2	-	1	-	3	-	6
Support agents	-	-	-	-	3	1	2	3	5	4
Sub total 2	-	-	-	2	3	2	2	6	5	10
Employees	F	H	F	H	F	H	F	H	F	H
Technicians	-	-	-	1	-	8	-	20	-	29
Support agents	-	-	-	1	1	1	3	11	4	13
Subtotal 3	-	-	-	2	1	9	3	31	4	42
Total	-	-	2	5	7	14	15	53	24	73

F = woman; H = man; Technicians (specialists in the field of action of the structure); Support agents (administrative and other agents). Source SNR 2018

The current staff of the SNR is totally inadequate with the missions assigned to this body. Indeed the number of executives is greater than the number of technicians and there is a clear lack of technical executives in operation. In addition, the permanent staff is aging and it seems essential to hire young people on a massive scale for the sustainability of the structure.

3.3.2 Operational means

A recent inventory of the equipment available at SNR is provided by the last annual report of 12/31/2017 (see appendix 2).

This appendix clearly shows the need to renew a significant proportion of the equipment if the SNR wants to resume significant planting campaigns. The condition of rolling stock (vehicles and tractors) is the most critical with a high proportion of broken down or in poor condition. The same observation was made during the visit of SNR stations in the various departments of the country, often with no vehicle running in working order. Most of this material has already been amortized from an accounting point of view. Taking into account the weakness of the resources allocated for routine maintenance and repairs of these materials over the past few years, they will have to be renewed (or completely revised) in the event of the relaunch of large planting programs by the SNR.

A reorganization of the SNR is underway and could lead to a regrouping of tractors in each department which would be moved according to the demands of each station. This organization could promote the maintenance and repair of equipment; but in the absence of tank carriers on each site, it could also lead to premature wear of tractors when traveling. We do not have precise information concerning this reorganization project.

3.3.3 Annual budgets and achievements

The annual budgets approved by the management committee over the last 3 years (2013 to 2015) are shown in tables 5, 6 and 7. The management committee is the decision-making body of the SNR. The management committee did not assess the budgets for the years 2016 and 2017, which are therefore not known at the date when the data were collected from the SNR.

Board 5 : SNR budget for 2015.

YEAR	WORDINGS	FORECASTS	ACHIEVEMENTS	Deviations	EXECUTION RATE
2015	Operation				
	Staff salary	1,200,000,000	1,191,666,000	- 8,334,000	99%
	RN2 Arborisation Project	15,000,000	1,125,000	-13,875,000	7%
	Operating grant (BA)	800,000,000	0	-800,000,000	0%
	Investment				
	Other grants (National Tree Day)	0	1,320,000	1,320,000	0%
	TOTALS	2,015,000,000	1,194 111,000	-820 889,000	59%

Source: SNR

Board 6 : SNR budget for 2014

YEAR	WORDINGS	FORECASTS	ACHIEVEMENTS	Deviations	RATE EXECUTION
2014	Operation				
	Staff salary	1,100,000,000	1,099,992,874	-7,126	100%
	RN2 Arborisation Project	50,000,000	10,000,000	-40,000,000	20%
	Operating grant (BA)	2,248,670,000	458,727,000	-1 789 943 000	20%
	Investment				
	State investment subsidy (advances granted by the public treasury)	1,000,000,000	164,900,000	-835 100,000	16%
	Investment grant (BA)	900,000,000	260,941,000	-639,059,000	29%
	TOTALS	5,298,670,000	1 994 560 874	-3 304 109 126	38%

Source: SNR

Board 7 : SNR budget for 2013

YEAR	WORDINGS	FORECASTS	ACHIEVEMENTS	Deviations	RATE EXECUTION
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2013	Operation				
	Staff salary	1,000,000,000	915 062 197	-84 937 803	92%
	RN2 Arborisation Project	50,000,000	20,000,000	-30,000,000	40%
	Investment				
	Additional budget investment	1,324,800,000	211,642,000	-1,113,158,000	16%
	TOTALS	2,374,800,000	1 146 704 197	-1 228 095 803	48%

Source: SNR

During the years 2013 to 2015, the planned budget varied between 2.3 and 5.3 billion F CFA, with subsidies planned in 2014 much higher than in other years. Budget execution was weak compared to forecasts, varying from 37% to 59% depending on the year. It was particularly low in 2014, indicating that part of the large grants planned that year could not be used. During these 3 years, the amounts allocated to the operation of the structure and to the investments were very low and out of proportion with the needs for the maintenance of a productive structure (maintenance of the planted plots delayed, firewalls not carried out, state of degraded nurseries, etc...). The overall investments for the 2013-2014-2015 fiscal years were only made less than 15% of the budget forecasts.

While most of the salaries could be paid during the years 2013 to 2015, there is currently an 8-month delay in the payment of salaries of SNR agents. It is clear that these wage delays, coupled with a general degraded state of equipment, technical and administrative installations, do not predispose, without significant investments, to an efficient redeployment of SNR activities.

3.4 Experience and achievements related to the Project

3.4.1 A long-term experience for the realization of plantations

The first plantations were set up by the structures that preceded the National Reforestation Service (SNR), namely the forest service (SF), then the forest management (RF), the national forestry office (ONAF), the Congolese forestry office (OCF) and finally the SNR. The first plantations date from 1937 with the establishment of an arboretum in the town of Mbuku-Nsitu in Mayombe, with a view to defining a silviculture adapted to forest species of dense forest.

Thus, more than 6,000 hectares of Limba (*Terminalia superba*) plantations were established from 1950 to 1961 in the Mayombe massif, strongly depleted of this species which was the main species exploited in the Congo next to Okoumé (*Aucoumea klaieneana*). The service's planting programs have continued since then, both in savannah areas with fast-growing exotic tropical species introduced by Congolese forestry research (*Eucalyptus*, *Pinus*, *Araucaria*, *Acacia*, etc.) and in forest areas. dense and gallery forests with indigenous species (Limba, Okoumé, Sipo, Sapelli,...) for the enrichment of degraded forests by shifting slash-and-burn agriculture and logging.

The objectives of the afforestation programs in the savannah were to supply urban centers with service wood, fuelwood, poles supporting power lines and telephone lines. The enrichments in natural forests and galleries aimed at forest restoration and increasing the supply of valuable timber from these natural formations for the next operating cycle.

Until 2013, some 24,000 hectares of forest plantations were established by the SNR and the organizations that preceded it. The areas planted from 1937 to 2013 show strong inter-annual variability with plantations varying from a few hectares per year up to a maximum of around 1400 ha during 1981 (Figure 3).

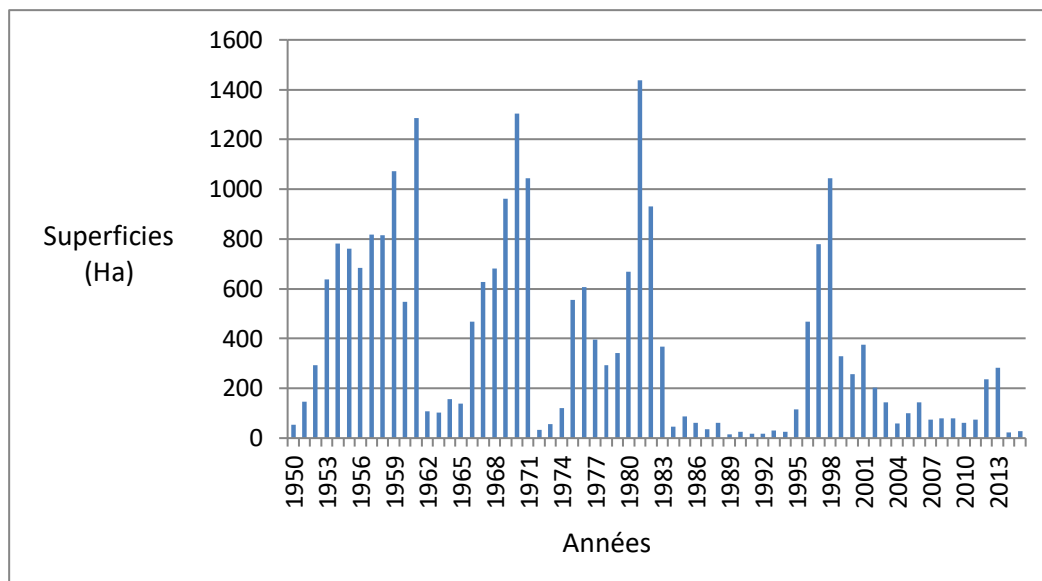


Figure 3: Areas planted by the SNR and the structures that preceded it between 1950 and 2015

The experience acquired since 1937 by the SNR for the establishment and management of forest plantations has made it possible to refine the technical itineraries according to the agro-ecological environments.

In the savannah area, the sequence of operations is as follows:

- 1) The preparation of the ground with the delimitation of the ground to be planted then the manual stumping of the trees, the manual cutting of the shrubs, the burning or the removal from the ground of the residues resulting from the stumping and the cutting of the shrubs, the plowing of the ground with the disc plow or subsoiling with herbicide application, ground staking (spacings according to production objectives 3.5m x 3.5m for fuelwood, service timber, and 4m x 4m or 5m x 5m for power and telephone line support poles), manual hole punching.
- 2) The establishment with the mobilization of the plants (loading-transport-unloading-distribution), then planting, watering (if necessary), fertilization.
- 3) Maintenance of the plantations combining mechanized maintenance in the inter-row, manual maintenance on the line, phytosanitary treatment - if necessary -, training pruning, thinning according to the desired end product, protection against fires ...

In dense forest / galleries, the sequence of operations is:

- 1) Preparation of the land with the demarcation of the land, the opening of the planting lines, the staking (spacing 10m x 10m), the hole.
- 2) The establishment with the mobilization of the plants (loading-transport-unloading / distribution), planting, fertilization.
- 3) Manual maintenance, untying of planted trees, girdling (girdling) of natural trees of lesser value which prevent the development of planted trees, training pruning according to the product sought.

The SNR has acquired over all these years an important know-how which today places this organization among the references in afforestation and reforestation in Central Africa. Unfortunately this know-how is rapidly eroding due to the under-activity of recent years, the retirements of experienced personnel and the lack of recruitment of young technicians and engineers.

3.4.2 Cost of technical operations

In the absence of analytical accounting for the SNR, it has not yet been possible to accurately calculate the costs. However, the SNR estimates the total cost of planting at 1,000,000 CFA francs per hectare in the savannah zone and 1,500,000 F in the forest zone (Cf chapter ProNAR for details of costs)

One of the weaknesses of the establishment is the lack of cost accounting making it possible to accurately estimate the components of the costs of plantations.

3.4.3 Agroforestry programs

Agroforestry programs have been poorly implemented. Some agroforestry association trials are underway at the PK 45 reforestation station. These are mixtures of cassava, maize, peanuts, sweet potatoes, yams and market garden crops (eggplant, chilli, watermelon, etc.) under Eucalyptus plantations, Acacia or Pine. However, precise monitoring of the growth of trees and crops has not been carried out, which does not make it possible to assess the interest of these agroforestry plantations compared to conventional forest plantations. The agroforestry component is not sufficiently highlighted in the activities of the SNR. This type of study could be carried out by the IRF in strong interaction with the SNR.

3.5 SNR SWOT Analysis

<u>Strengths</u>	<u>Weaknesses</u>
<ul style="list-style-type: none">- Legal status and attributions (creation by decree, territorial competences, etc.)- Know-how (accumulated experience)- Geographical deployment (establishment in all the departments of the country)- Infrastructures for seedling production (operational nurseries if rehabilitated)- Existence of genetic material potential	<ul style="list-style-type: none">- Aging technical staff and lack of training / retraining / hiring policy- Inoperative operating mode- Insufficient resources (financial, human, material, etc.)- Dilapidated infrastructure- Protection of heritage (land security, fire protection, massive surveillance, etc.)- Insufficient conduct of agroforestry programs- Lack of substantial applied research- Hygiene-Safety-Environment almost non-existent in a formal way- Control of insufficient costs- Lack of information systems (IS),
<u>Opportunities</u>	<u>Threat</u>
<ul style="list-style-type: none">- Support from public authorities and ProNAR- Notoriety-visibility (plantations carried out, etc.)- New programs for the fight against climate change (REDD + Program, Green Climate Fund, etc.)- Diversification of the Congolese economy- Emergence of the green economy- Existence of private structures	<ul style="list-style-type: none">- Unresolved land issues- Overlap with ProNAR remit (but appears to be in the process of being resolved)- Unsuitable for modern organizational practices (HSE component, information systems, etc.)- Lack of qualified personnel- Loss of leadership in the sector in favor of the private sector

4 The national afforestation and reforestation program (ProNAR)

4.1 Missions

Created by decree No. 2013-221 of May 30, 2013, the National Afforestation and Reforestation Program (ProNAR), implements the government's policy on afforestation, reforestation and agroforestry. Its objectives are to promote the creation of forest plantations in the savannah, as well as forest restoration plantations throughout the national territory.

In the creative texts, the structure is responsible in particular for:

- Promote forest plantations on the national territory;
- Encourage, register and support actors in afforestation and reforestation activities in order to supply the national and international markets with wood and non-wood forest products;
- Promote the creation of economic and industrial sectors likely to enhance forest plantations;
- Promote plantations with high forest carbon sequestration capacity as part of the restoration of degraded forest areas;
- Seek appropriate funding for the execution of the public program and support for small and medium growers;
- Ensure the extension of the national forest cover in order to fight against deforestation, forest degradation and climate change.

The coordination of ProNAR is also responsible for mobilizing and securing the necessary funding for:

- Acquisition of land for reforestation and afforestation, as well as the constitution of state land reserves for forest plantations;
- The establishment and development of nurseries for forest stations and life bases;
- Capacity building of agents;
- Logistic ;
- Forestry research;
- The implementation of projects initiated by small and medium private promoters.

No duration of existence of ProNAR is indicated in the texts at the origin of the program. However, in the collective spirit, documents published by ProNAR and the status of a large part of the agents hired (freelance and service providers), this program is intended to develop reforestation activities in the Republic of Congo by setting up in place of 1,000,000 hectares of plantations in ten years. The duration of this program (permanent or over 10 years after its creation) should be clarified.

Organization and operation

The organization of the structure is not formally defined (a detailed organization chart, for example, has not been obtained). Apart from the coordination and supervision of the sub-entities of the program whose attributions are defined in the creation texts, the attributions of other items are not defined anywhere in the documents made available to us. Coordination is assisted by four cells in the day-to-day operation of the program:

- The technical operations unit;
- The land affairs unit;
- The communication and cooperation unit;
- The administrative, financial and accounting unit.

Each unit is run by a supervisor assisted by employees. A public procurement management unit is responsible for awarding contracts for the purchase of equipment in accordance with the regulatory provisions in force in the country.

4.2 Resources

4.2.1 Human resources

ProNAR staff are made up of 34 staff, including 18 permanent staff (civil servants and permanent contracts) and 16 non-permanent staff (fixed-term contracts and contractors). Half of the staff are technicians and half are support staff (Table 8). The functions of supervisory staff and employees are not precisely defined in the documents consulted.

Board 8 : Breakdown of ProNAR staff by socio-professional category and by age group

Category	20-29		30-39		40-49		50-60		Total	
	F	H	F	H	F	H	F	H	F	H
FRAMES										
- Technicians		1		2		1		2		6
- Support agents	1		1		1	3		3	3	6
	1	1	1	2	1	4		5	3	12
MASTERY										
- Technicians						1				1
- Support agents	1						3		4	
	1					1	3		4	1
EMPLOYEES										
- Technicians				2		2				4
- Support agents				3		5		2		10
				5		7		2		14
TOTAL	2	1		7		12	3	7	7	27

Source: ProNAR, 2018

The main activity of the staff in recent years has been the support, monitoring and evaluation of plantations carried out in the field. Despite numerous attempts which resulted in the signing of 3 agreements with industrialists committing to planting up to 200,000 ha, planting activities have not started. The ProNAR team has invested heavily in recent years in supervising agroforestry plantations by a limited number of households within the framework of the PFDE project (see below).

4.2.2 Operational means

The current rolling stock is shown in table 9. Even if four vehicles are broken down, the availability of rolling stock is much greater than that in other structures such as the SNR or the IRF for example.

Board 9: List of rolling stock of ProNAR

Designation	Qty	Registration	Observation
Mercedes bus	1	874 KS 4	Good condition
Mitsubishi PAJERO	1	885 GK 4	Good condition
Mitsubishi l200	1	746 GK 4	Good condition
Mitsubishi l200	1	884 GK 4	Good condition
Mitsubishi l200	1	747 GK 4	Out of order
Mitsubishi l200	1	882 GK 4	Out of order
Mitsubishi l200	1	810 GK 4	Out of order
Mitsubishi l200	1	883 GK 4	Out of order
Suzuki motocross	8		Good condition
Motorcycle	4		Good condition

Source: ProNAR, 2018

4.4 Annual budgets and achievements

The first and last meeting of the steering committee, the body empowered to certify the ProNAR accounts, took place in January 2016; the accounts examined on this occasion are those for the 2015 financial year (Table 10).

Board 10 : ProNAR expenditure and resources report for the year 2015

Expenses		Resources	
ENTITLED	AMOUNT (FCFA)	ENTITLED	AMOUNT (FCFA)
A) Operation			
Materials and supplies consumed	282 783 106	Grant 2015	52,500,000
Staff costs	133 554 823	2014 balance	376 837 436
Dues and taxes	0		
Financial expenses	587 787		
B) Investment			
Tangible fixed assets	10,052,000		
Deviations	2 359 720		
TOTAL	429 337 436	TOTAL	429 337 436

Source: ProNAR

The high consumption of the budget by materials and supplies in 2015 probably concerns the purchase of inputs and other consumables intended for the establishment of plantations. Investments represented less than 4% of the total budget in 2015 but investments have probably taken place before and since 2016.

4.5 Experience and achievement related to the Project

In addition to the main mission to promote the establishment of forest plantations in the Republic of Congo, ProNAR has also acquired technical experience for the establishment of plantations. The competences of ProNAR concern:

- The silviculture of several forest species;
- Multiplication techniques for different species;
- The establishment of agroforestry plantations by households with the support of the World Bank (PFDE project).

4.5.1 Agroforestry program

The agroforestry programs carried out under the PFDE project cover around one hundred hectares (100 ha) in the form of plantations community and village. The associations concerned: Acacia / manioc; Acacia / food crops and cash crops (cocoa); Acacia / market gardening; Pine / cassava; Fruit trees / cassava; as well as the production of non-timber forest products (NWFP, mainly acacia honey).

These plantations were carried out on 4 sites (Loumo, Bambou-Mingali, Djambala, Oyo). On each site, the village chief identified the interested families with land with interesting agroforestry potential.

Each household provided at least 1 ha (often 25 households per village) and a contract was drawn up for each household (an example is provided in Annex 1).

Several variants of technical itineraries have been adopted: i) simultaneous establishment of tree seedlings, cassava and other food crops; ii) installation of cassava one year after planting acacias; and iii) establishment of crops two, three and four years after tree planting. Observations suggest that yields are higher in an agroforestry system compared to non-associated crops, but without a specific study making it possible to quantify production gains.

4.5.2 Cost of plantations

ProNAR indicates, on the basis of SNR's experience, that the full costs of planting are estimated at around 1,000,000 FCFA per hectare in savannah and 1,500,000 FCFA / hain forest. Seed acquisition costs vary from 6,000 to 20,000 FCFA depending on the type of seed. However, a complete updated document detailing these costs could not be provided to us.

In the PFDE study on the operationalization of ProNAR (Lignafrica and Oréades-Brèche) carried out in 2014, it is indicated that the direct costs of 1 ha of planting carried out in the savannas of the Batéké plateaus amount to 700,000 FCFA / ha. These costs are to be modulated according to the importance of the vegetation to be cleared before the opening of the plantation lines. By taking a coefficient of 1 for grassy savannas with low trees on the plateaus, the study estimates that depending on the condition of the land to be planted, the following correction coefficients should be applied:

- Low grassy savannah without shrub (Pointe Noire): 0.9
- Clay savannah with many shrubs (Niari): 1.2
- Degraded forest (forest area): 1.8

In more detail, ProNAR indicates certain amounts in the agreements that are established with individuals for the establishment of agro-forestry plantations. (Cf Annex 1):

stumping	50,000
grid staking hole punching	45,000
Acacia plants	148,200
Fruit plants	184,500
Food seeds	71 112
Planting	75,000
	573 812 FCFA

To this estimate, we must add the cost of plowing and limestone amendment of 100,000 and 60,000 FCFA / ha respectively (prices recorded by the cost-benefit study) to reach a total comparable to that presented in the study. PFDE 2014.

The costs presented are internal costs to SNR and ProNAR and only relate to the first year of establishment of the plantations. The annual maintenance costs to complete these plantations are not counted at this level.

4.5.3 Census of private nurseries

ProNAR has fostered the development of five private forest nurseries in three Departments (Brazzaville, Pool, Bouenza) with an installed capacity of around 100,000 plants per year each:

- Department of Bouenza: Nursery of the Evangelical Church of Congo (EEC) managed by CTPAD, in Loutété;
- Department of the Pool: Nurseries of CAPSADEL and Mr. DZOUTANI;
- Department of Brazzaville: Nurseries of Kintélé Fleuve (Mr. POUSSA) and Makabandilou (Mr. FOUNGUI)

These artisanal nurseries currently have reduced activity due to the small areas planted. They cover between 500 m² and 2 hectares and produce forest and fruit plants as well as ornamental and market garden productions on request. These nurseries produce seedlings of forest plants but, for fruit trees, plants resulting from vegetative propagation are also produced (grafting, layering, cuttings). Prospects are good for the development of private structures in this area if demand emerges.

State land domains identified / mapped by ProNAR

These areas include the surfaces of the SNR, the Pointe-Noire forest massif and the areas newly acquired by ProNAR and in the process of being secured (Figure 4). The identification of these areas, the verifications of interest for forest plantations (soil properties, topography, etc.) and the implementation of procedures for their land security have required a heavy investment from ProNAR in recent years.

Of the 1,000,000 hectares planned by ProNAR, around 700,000 hectares have already been mapped in the departments of Cuvette, Cuvette-Ouest, Plateaux and Pool. These areas are currently the subject of procedures for their security by obtaining land titles. In the departments of Kouilou, Bouenza, Niari and Lékoumou, land has been identified but has not yet been prospected for lack of financial resources to carry out these missions. In the departments of Sangha and Likouala, no action has yet been taken to prospect for areas to be planted. It is planned that this activity will be completed to allow forest plantations in all the targeted departments.

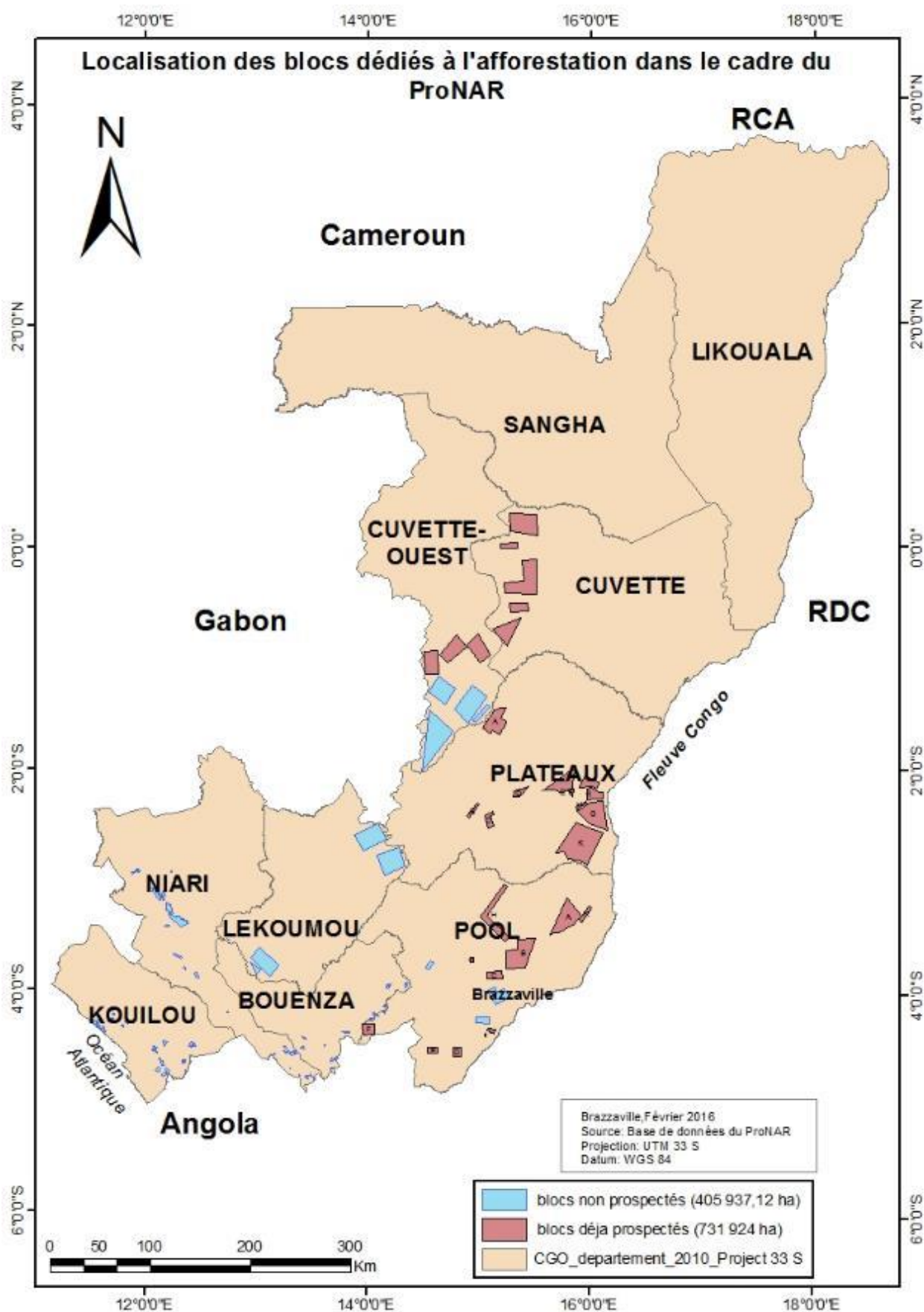


Figure 4 : Map of blocks dedicated to afforestation identified by ProNAR.

Board 11 : Areas prospected by ProNAR for each department of the Republic of Congo

Departments	Areas identified (ha)	Areas surveyed (ha)	Areas / department planned in the ProNAR project note (ha)
Bowl	169,000	169,000	75,000
West basin	281,000	97,474	125,000
Trays	289,100	283,200	250,000
Pool	351,100	182,250	200,000
Bouenza	8000	0	80,000
Niari	31 621	0	100,000
Lékoumou	140,436	0	50,000
Kouilou	27,358	0	50,000
Total	1 101 185	731 924	1,000,000

Source: ProNAR

The land tenure security procedure for state lands is being processed at the level of the Ministry of Land Affairs. ProNAR negotiations with the customary land owners made it possible to acquire 2,100 ha in Bambou Mingali and 6,300 ha in the district of Ngo. Obtaining official land titles for these 8,000 ha is in the final processing phase at the Ministry of Land Affairs.

4.6 SWOT Analysis of ProNAR

<p><u>Strengths</u></p> <ul style="list-style-type: none"> - Creation by decree - Strong political will to develop forest plantations - 3/4 of the planned land reserves already identified and mapped - Rolling stock available - Complementarity with the public structure possessing technical know-how in the creation of forest plantations (SNR) 	<p><u>Weaknesses</u></p> <ul style="list-style-type: none"> - Lack of a preliminary pre-feasibility study of the program - Inconsistency between the responsibilities assigned to the program in the creation texts and the actual implementation of the program - Lack of official support for details on the organization and functioning of the structure - Insufficient budgetary resources given the stated ambition - Difficulties in acquiring and securing land - Lack of information systems (IS): database, etc.
<p><u>Opportunities</u></p> <ul style="list-style-type: none"> - Availability of land with high potential for forest plantations and not yet exploited - National Tree Day Act - International awareness of the need to conserve natural forests and the value of increasing the areas of tropical forest plantations 	<p><u>Threat</u></p> <ul style="list-style-type: none"> - Overlap between the remit of ProNAR and SNR - Impossibility of carrying out new plantations for land issues - Difficulties in mobilizing State financial resources - Difficulties in attracting foreign investment to large areas of plantations for various reasons

<ul style="list-style-type: none"> - Diversification of the Congolese economy with the emergence of a "green" economy - Opportunities for access to "green funds" (GCF, carbon funds, etc.) at the international level - Existence of forestry and agronomic research structures with strong plantation experience 	<ul style="list-style-type: none"> (land uncertainties, cost of exporting products, business climate, etc.). - Risk of 'boycotting' products internationally in the absence of certification. - Lack of active communication / advocacy at the international level for the search for investors / funding
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5 The National Forest Research Institute (IRF)

5.1 Missions

Created by Law No. 23-2012 of September 24, 2012 creating the National Forestry Research Institute, and Decree No. 2016-58 of February 26, 2016 approving the statutes of the National Forestry Research Institute (IRF). The IRF is a public administrative establishment of a scientific nature, endowed with legal personality and financial autonomy. Its missions are:

- to organize, conduct and carry out all fundamental and applied research aimed at promoting sustainable forest development, particularly in the fields of forest management, forestry, agroforestry, forest genetics, technology timber, non-timber forest products, conservation and management of biodiversity, climate change, and the environment;
- to implement scientific programming around the priority axes for the development of the country, based on the real needs of the populations and users;
- carry out scientific expertise in its field of competence;
- to participate in the promotion of the results of its research and its know-how;
- to provide support for training, research and research;
- to contribute to the development of research policy in the fields falling within its competence;
- to publish and disseminate the results of its work and contribute to the development of knowledge and scientific information.

The ambitions set out in the creation texts of the IRF devote to this organization a very wide field of action covering almost all spheres of forestry research. The organization chart of the structure reflects this ambition for the accomplishment of the missions assigned with in particular: 6 departments, 14 research units, 5 research zones covering the main agro-ecological zones of the country, 3 research stations.

5.2 IRF organization

5.2.1 Organizational chart

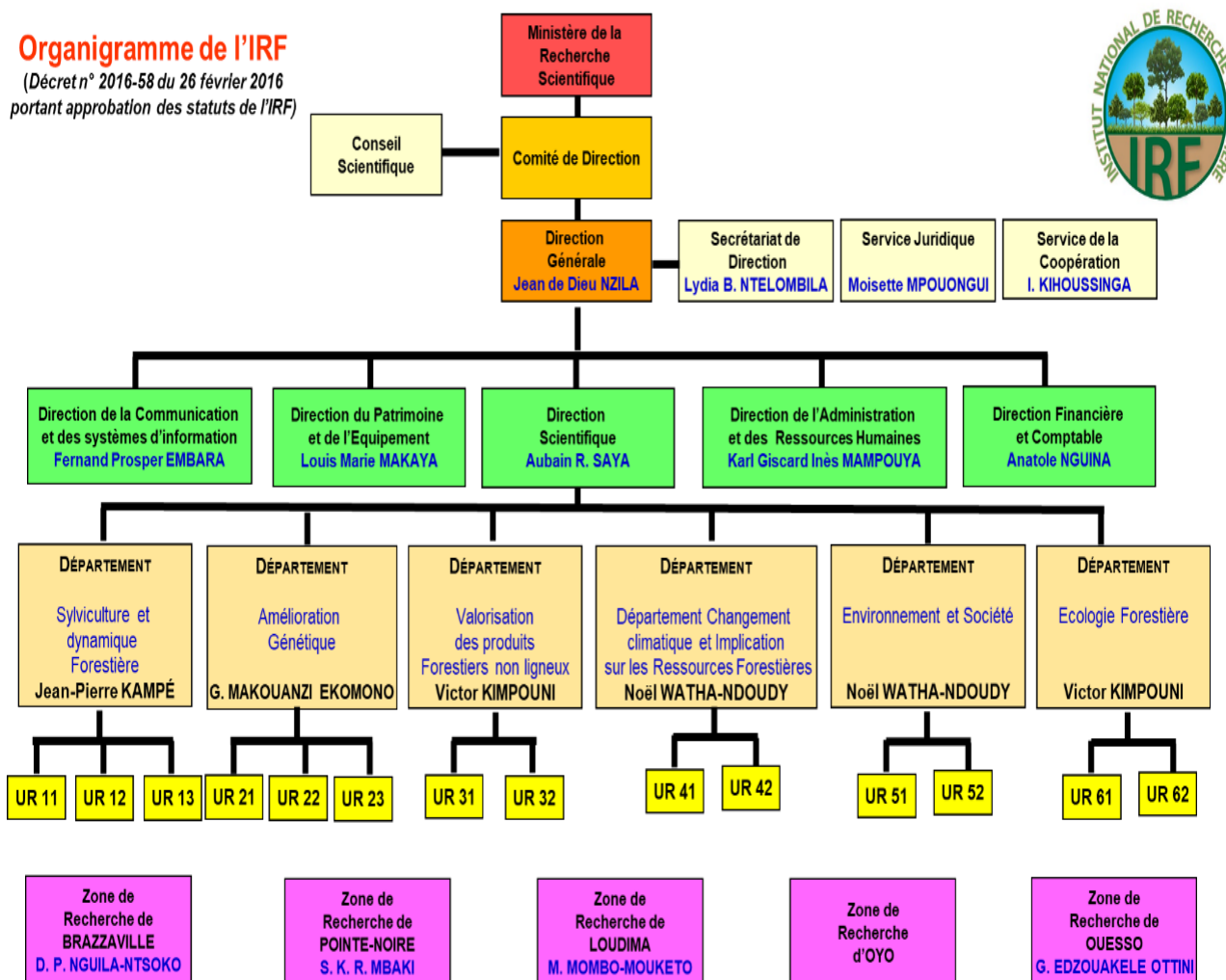


Figure 5 : Organizational chart of the National Forest Research Institute (IRF)

5.2.2 Research programs

The programs in each of the departments are listed below:

Genetic Improvement Department:

- Production of forest seedlings in the nursery;
- Establishment and management of plots for the conservation of genetic resources;
- Selection, mobilization and cloning of natural and exotic forest species by the technique of mother plants above ground.

Forestry and Forest Dynamics Department:

- Management and conservation of soil fertility under savannahs through agroforestry practices;
- Introduction of cocoa trees under acacia plantations in savanna areas.

Department of Climate Change and Forest Resources Involvement:

- Impacts of gold mining activities on forest ecosystems;

- Anthropisation and change of landscapes in the Chaillu massif.

Environment and Society Department:

- Study of the dynamics of rain erosion and analysis of the effectiveness of the control methods used in the cities of Brazzaville and Pointe-Noire.
- Study of the contamination of trace metal elements (TME) of soils and vegetables in market gardening sites in the city of Brazzaville;

Department of valuation of non-timber forest products:

- Promotion of endogenous and empirical knowledge of populations on non-timber forest products.

Forest Ecology Department:

Dynamics of urban and peri-urban forests (urban forestry) in the cities of Brazzaville and Dolisie.

5.3 Resources

5.3.1 Human resources

The workforce comprises 73 permanent agents as well as around 20 trainees:

- Researchers : 11
- Engineers (bac + 3 to bac + 5) : 11
- Technicians : 11
- Administration officers : 28
- Support agents (drivers, guards, housewives) : 8
- Interns : 20

Board 12 : Number of staff by age group and sex

Category	20-29		33-39		40-49		50-60		Total	
FRAMES	F	H	F	H	F	H	F	H	F	H
Technicians	1		5	6		1		6	6	13
Support agents								4		4
MASTERY										
Technicians							1	2	1	2
Support agents	1	1	3	6	2	5	1	2	7	14
EMPLOYEES										
Technicians		1		1		1		1		4
Support agents		1	3	6	1	4	1	2	5	13
TOTAL	2	3	11	19	3	11	3	17	19	50

Staff: 69; F = woman; H = man; Technician: specialists in the structure's field of action; Support agent: administrative and other agents. Source: IRF

In view of the missions assigned to the IRF throughout the country, it emerges clearly that this institution is in a serious situation of understaffing. Researchers, engineers and research technicians represent only half of the total permanent workforce, which is very little for a research institute. While most researchers are over 50, most of the young people recruited have a bac +3 or bac +5 training in forestry or agronomy, often with a master's degree. There are strong needs to supplement this training with theses on priority themes for the IRF, but these projects cannot start due to lack of financial resources (late salaries, operating resources, etc.).

The capacity building needs at the IRF are important, in particular:

- Training of young researchers in forestry, forest botany, silviculture, forest management, biometrics, wood technology and genetic improvement of forest species;
- Establishment of cooperation agreements with research institutions in northern and southern countries.

5.3.2 Operational means

The means available correspond to areas of interest for setting up experiments:

- 4 research areas: Pointe-Noire, Loudima, Brazzaville and Ouessou;
- 1 nursery for the production of forest plants in Brazzaville and 3 small nurseries under development in Pointe-Noire, Loudima and Ouessou;
- 13 ha of agroforestry trial plots in Bambou-Mingali, Ignyé district (70 km north of Brazzaville);
- 1 ha of *Terminalia superba* conservation plot in Bambou-Mingali;
- 1 research station in Youbi (80 km from Pointe-Noire);
- 1 research station in Dimonika;
- 1 research station in Loudima;
- 1 safoutier layering orchard in Ouessou;
- 1 conservation plot of dense forest genetic resources in Ouessou.

On the other hand, the IRF does not have any means of transport or scientific equipment to carry out measurements in the field experiments, which limits the capacities of the IRF to provide responses applied to the needs expressed by the actors involved in the field. afforestation in Congo (SNR, ProNAR, various projects, etc.). The acquisition of measurement equipment in the field (dendrometers, telescopic poles, dendrometric rings, range finder, GPS, automatic weather stations, soil humidity and temperature sensors, carbon and water gas exchange measurement devices, etc ...), is essential for the IRF to be able to fulfill its role as a research institute. Equipment for preparing samples for sending to a soil analysis laboratory,

5.3.4 Annual budgets and achievements

The budget allocated to the IRF is low and mainly devoted to the payment of salaries and bonuses (72%) and to the day-to-day operation of the structure (Table 13).

Board 13 : IRF annual budgets from 2014 to 2017

Years	Credit requested	Authorized credit	Committed credit	Credit disbursed	Gap / credit requested	Gap / committed credit
2014	1,879,600,000	156,000,000	156,000,000	128,279,986	-1 751 320 014	-27 720 014
2015	1,324,600,000	90,000,000	90,000,000	83,250,000	-1 241 350 000	-6,750,000
2016	1,214,500,000	150,000,000	245,000,000	245,000,000	-969,500,000	0
2017	1,214,500,000	330,000,000	310 382 440	197 670 610	-1,054,400,000	-112 711 830

Source: IRF

5.4 Experience and achievements related to the project

Recently created (2014), and having inherited the heritage of two non-performing research centers (CRFO and CRFL), the past experience of the IRF mainly concerns that of research stations as well as the experience acquired at the level of the CRDPI. for forest plantations. The main research results obtained by IRF mainly focus on:

- The initial growth of tree leguminous species in an agroforestry trial on the soils of the Mbé plateau in Bambou Mingali;
- Cassava production under tree (acacias) and herbaceous (pigeon pea and cowpea) legumes on the sandy soils of the Mbé plateau in Odziba and on clay soils in the Niari valley;
- The impacts of gold mining activities on the forest ecosystems of Chaillu, Mayombe and North Congo;
- The typology of soils and flora in the forest islands of Patte d'Oie, the former ORSTOM and Djoumouna in the urban area of Brazzaville;
- The silviculture of *Pterocarpus soyauxii* (Padouk) in the different degraded areas and different topographical situations of the Mayombe forest massif.

Despite the institution's youth, it benefits from the experience acquired over several decades by the organizations in charge of forest research in Congo (CTFT-Congo, CR2PI, CRFL, CRFO, ORSTOM, etc.) which preceded it. The new structure should integrate these results into its heritage through libraries and the establishment of a database.

A research program awaiting funding concerns support for improving soil fertility through agroforestry and fallow land (Funding from the Congolese State Investment Budget in 2018). This program is of great interest to the FVC project as well as the ongoing programs led by the “genetic improvement”, “silviculture and forest dynamics”, “climate change and involvement in forest resources” departments which deserve to be strengthened.

5.6 IRF SWOT Analysis

<p style="text-align: center;"><u>Strengths</u></p> <ul style="list-style-type: none"> - Text of the law establishing the structure - Capitalization of research results from previous structures (CTFT-Congo, ORSTOM, UR2PI, CRFL, CRFO, etc.) - High motivation of executives and agents - Existing infrastructural base (buildings) to rehabilitate and equip 	<p style="text-align: center;"><u>Weaknesses</u></p> <ul style="list-style-type: none"> - Insufficient human resources (skills and availability, etc.), material (research equipment, logistics, etc.) and financial resources - Weakness in setting up experimental protocols (heavy protocols, etc.) - Lack of integration of economic models for delivered products and ongoing experiments - Aging research staff - Lack of advocacy for research - Insufficient partnership - Lack of communication (scientific journals)
<p style="text-align: center;"><u>Opportunities</u></p> <ul style="list-style-type: none"> - Global awareness of the need to preserve natural forests - Fight against climate change - International existence of funds for research on ecological issues - Growing demand for forest products - Strong potential for afforestation in the savannah and enrichment of degraded and exploited forests in Congo - Existence of a pool for the recruitment of research executives and agents (university and institutes, etc.) - Potential for establishing partnerships at international level for research and training activities for executives (CIRAD, etc.) 	<p style="text-align: center;"><u>Threat</u></p> <ul style="list-style-type: none"> - Political will for insufficient research - Inability to provide answers to socio-economic and environmental questions - Lack of interest among young professionals in forestry research in favor of other more prominent sectors of activity - Lack of visibility of research work

7 The Research Center on the Sustainability and Productivity of Industrial Plantations (CRDPI)

A detailed presentation of the CRDPI is no longer of great interest since this structure was officially dissolved during the last meeting of its office on May 30, 2017. However, this structure has had an important role in the production of knowledge adapted to the context of Congo for the genetic improvement and silviculture of fast growing forest plantations. Numerous scientific publications in the best international journals for 20 years have contributed to the influence of Congolese research in forest science. Some results are directly applicable to the context of plantations intended for the production of fuelwood in the FVC-Congo project.

7.1 History CTFT, UR2PI, CRDPI.

Forestry research in the Congo has been carried out since the 1930s by the Tropical Forest Technical Center (CTFT) a French state body in charge of research on tropical forests. An agreement was signed on November 4, 1982 with the Congolese state establishing the CTFT-Congo, an organization governed by Congolese law whose management was entrusted to the CTFT-France. This new body continued the research work carried out by the CTFT with results recognized worldwide, in particular on the technique of cloning Eucalyptus, a species reputed to be resistant to cuttings. The development of this technique has enabled the development of more than 30,000 ha industrial eucalyptus plantations on the coastal savannas of the outskirts of the city of Pointe-Noire by the Congo Afforestation Unit (UAIC). In 1991,

In 1985, the UAIC set up a research and development structure more suited to its industrial needs, in order to work on techniques that had not been taken into account by the CTFT. Faced with the many scientific and economic issues at the international level in the Eucalyptus sector, the Congolese State, UAIC and CIRAD have decided to join forces within an institutional framework by creating an association called UR2PI (Research Unit on Productivity of Industrial Plantations) through a memorandum of understanding signed between the three parties on August 11, 1994.

7.2 Missions

The purpose of UR2PI was to organize, carry out, promote and promote research in the field of fast-growing species (Eucalyptus, Tropical pines, Acacias, etc.)

This organization should make it possible to:

- Maintain and develop high-level forestry research on fast-growing species, with strong international visibility;
- Strongly improve the productivity and quality of UAIC products so that this company can effectively face international competition and develop;
- Respond to requests from projects supported by the government of Congo subject to financial and technical agreements.

Following the difficulties encountered in the financing of the association following the decline and then the cessation of the activities of the main provider of funds, the company "Eucalyptus Fibers du Congo" (ex UAIC), UR2PI, which has meanwhile become CR2PI, was dissolved on May 30, 2017 during the last meeting of the board of this association. The integration of the activities of the CRDPI within the IRF and the transfer of assets are underway.

7.3 Experience and achievements related to the Project

The CRDPI has acquired internationally recognized experience in terms of genetic improvement and silviculture of eucalyptus and to a lesser extent of acacias (mangium and auriculiformis) in the context

of the Congo. This experience has resulted in numerous publications in the best international journals in forestry, biological and soil sciences over the past 20 years. Many of the applied results have been used by forest plantation companies in Congo (UAIC then EFC) as well as by SNR. Very interesting results have recently been published showing a strong potential of mixed plantings between the best clones of Eucalyptus and Acacia mangium on the poor soils of the Congo savannah.

The achievements will not be detailed here. Much of the knowledge about fast-growing forest plantations in Congo comes from research conducted by CRDPI and its predecessor institutes. An important issue now is not to lose these skills as well as the improved plant material that can be accidentally destroyed by the advance of the city of Pointe-Noire in remote areas of the eucalyptus massif.

7.4 CRDPI SWOT Analysis

<p><u>Strengths</u></p> <ul style="list-style-type: none"> - Multiple achievements over the past decades with the selection of efficient genetic material and identification of technical routes adapted to the Congolese context. - Strong international visibility due to intense scientific publication activity. 	<p><u>Weaknesses</u></p> <ul style="list-style-type: none"> - Critical lack of funding that led to the dissolution of the CRDPI on May 30, 2017.
<p><u>Opportunities</u></p> <ul style="list-style-type: none"> - Integration of CRDPI activities into IRF 	<p><u>Threat</u></p> <ul style="list-style-type: none"> - Lack of IRF funding leading to a rapid loss of skills acquired by CRDPI and selected plant material.

8 The National Institute for Agricultural Research (IRA)

The National Agricultural Research Institute (IRA) was created by Law N° 25-2012 of September 24, 2012 and its statutes approved by Decree N° 2016-59 of February 26, 2016. The National Agricultural Research Institute is an establishment administrative public of a scientific and technical nature, endowed with legal personality and financial autonomy.

8.1 Missions

In accordance with the creation texts, the national agricultural research institute has the following missions:

- Organize, conduct and carry out all fundamental and applied research aimed at promoting agricultural development in the fields of plant, animal and fishery production, as well as food and agro-industrial technologies;
- Implement scientific programming around the priority axes for the development of the country, based on the real needs of populations and users;
- Carry out scientific expertise in his field of competence;
- Participate in the promotion of the results of its research and its know-how;
- Provide support for training, research and research;
- Contribute to the development of research policy in its area of expertise;
- Publish and disseminate the results of its work and contribute to the development of knowledge and scientific information.

8.2 Organization

The national agronomic research institute brings together:

- Loudima agronomic research center;
- The research center on genetic improvement of plants;
- The genetic improvement study and research group;
- The veterinary and zootechnical research center;
- The Mossaka Hydrobiological Research Center;
- The Oyo regional agronomic and forestry research center;
- The phytiatry research unit;
- The research unit on animal production systems;
- Any other operational research structure whose object corresponds to one of the missions of the institute listed in article 2 of the law creating the national institute of agronomic research.

8.3 Resources

8.3.1 Human resources

There is a great inequality in the distribution of human resources within the National Institute of Agronomic Research (IRA) which has 136 employees.

Board 14 : Breakdown of IRA staff by grade

GRADE	EFFECTIVE	GRADE	EFFECTIVE
Internal researcher	01	Controller of technical services	01
CAMES Research Master	01	Auxiliary	23
CAMES Lecturer	01	Administrator Planner	06
Research officers	03	Contract administrator	02
Research Associates	20	SAF administrator	02
Contract engineer	02	Certified high school teacher	02
Contract engineer	01	Assistant Planner	09
Agricultural works engineer	02	SAF attaché	02
Statisticians engineer	01	Senior Special Agent	02
Animal husbandry engineer	01	Contract special agent	01
Senior Technical Assistant	12	Principal Administrative Secretary	06
Technical assistant	09	Senior Accountant	02
Rural engineering technical assistant	01	Administration Secretary	08
Technical officer	21	SAF clerk	04
Total 136 agents			

Source: IRA

In the Brazzaville area, the IRA has 77 agents, including 21 researchers in the field of breeding, 26 technicians and 30 administrators. In the Loudima area, the IRA has 21 agents with 6 researchers and only one in animal production. The Pointe-Noire research station has only 6 agents and that of Oyo has 20, including one researcher. The staff present in the research areas is aging with an average age of 52 years. The technician / researcher ratio, which should be at least equal to one, is not respected due to lack of financial resources. Women are under-represented in the four operational research zones: there are 13 in Brazzaville, 2 in Loudima, 5 in Oyo and 3 in Pointe-Noire.

8.3.2 Operational means

The IRA as a national institution does not yet have a seat. Its services are in the premises of structures in the Brazzaville area. Research laboratories are sorely lacking in equipment. In general, the infrastructure is severely degraded. Offices, laboratories and experimental buildings are neither rehabilitated nor maintained. At the annex to Km 17, part of the 13 ha of the IRA domain is uncontrolledly occupied. The lack of vehicles, computers, and other essential equipment to carry out research is important in all the laboratories of the Institute.

8.3.3 Infrastructure and Material Resources

Details of the IRA's infrastructure and main resources are shown in Tables 15, 16, 17 and 18 for the areas of Loudima, Brazzaville, Pointe-Noire and Oyo, respectively.

Board 15 : Situation of the real estate and material heritage of the Loudima research area

Designation	Amount	Observation
Administrative buildings	02	
Technical buildings (laboratories)	03	
Seed storage buildings	02	
Housing buildings <ul style="list-style-type: none"> For executives and researchers For technicians For research assistants 	11 05 22	Can accommodate 18 households
Infirmary	01	Not operational since 2010
Primary school	01	
40 m3 cold room	01	
Drying area 400 m2	01	
Mechanical maintenance garage	01	
Pigsty with a capacity of 300 pigs	01	More than 75% destroyed
Pumping station with water distribution network		Unknown state
Water tower	100m3	
Drilling water distribution device	01	Operation "Water for all"
Loudima fruit station	1000 ha	Sold to Eco Oil Energie for its recovery
Weather station		
Cultivable soil	1,500 ha	Maléla site (Bouenza)
	1,800 ha	Sibiti station (Lekoumou)
Large batch of scientific equipment		Acquired under the sugar sector support program. Not yet used since 2012.
Banana and plantain planting material production facilities	01	Acquired within the framework of the partnership with PADEF
A rice huller installed		FAO donation since 2013
Large batch of agricultural mechanization and post-harvest paddy processing equipment		Acquired within the framework of the NERICA-AfricaRice project. Not yet used since 2015

Source: IRA

Much of the heritage of the IRA is severely damaged. The rehabilitation works of offices, laboratories and technical buildings started since 2014 have made little progress due to insufficient financial

resources allocated. The newly constructed building in the Odziba research station is still waiting to be received and equipped.

Board 16 : Heritage situation in the Brazzaville Research Zone

Designation	Amount	Observations
Brazzaville center:		
Administrative building	01	The buildings are dilapidated and require rehabilitation. They shared with the DGRST and DGIT
Technical building		
<ul style="list-style-type: none"> Pet shops Laboratories 	01 01	
Staff accommodation building	01	Capacity of 24 units
Garage	01	Out of order
PK 17 Madibou research station		
Administrative building	01	The buildings are dilapidated and require rehabilitation
Technical building		
<ul style="list-style-type: none"> Pigsty Chicken coop 	01 01	
Experimental field	13 ha	Less than 5 ha available due to uncontrolled occupation

Source: IRA

The experimental plots and the plots intended for the conservation of phylogenetic resources are not protected in all the research areas (Kindamba, Loudima, Sibiti, Oyo), which exposes them to anarchic occupations by the neighboring populations.

Board 17 : Situation of the heritage in the Pointe-Noire Research Zone

Designation	Amount	Observations
Administrative building	01	Shared with IRSEN, it is made up of two operational offices, a laboratory and two rooms awaiting refurbishment that can serve as offices
Tight	01	To repair

Source: IRA

The in vitro culture laboratories of Loudima and Brazzaville which make it possible to carry out sanitation activities for the local cassava germplasm both at the national level and in the CEMAC sub-region need to be rehabilitated.

Board 18 : Situation of the heritage in the Oyo Research Zone

Designation	Amount	Observations
Administrative building	01	Inherited from CRAF-O
Banana and plantain planting material production facilities	01	Acquired within the framework of the partnership with PADEF

Source: IRA

Much of the heritage of the IRA is severely deteriorated. The rehabilitation works of offices, laboratories and technical buildings started since 2014 have not progressed due to insufficient financial resources. The newly constructed building in the Odziba research station is still waiting to be received and equipped. Cultivable areas, experimental plots and those intended for the conservation of phytogenetic resources in all research areas (Kindamba, Loudima, Sibiti, Oyo) are not protected; which consequently exposes them to the anarchic occupations of the neighboring populations.

Among the material resources which are particularly lacking, figure prominently the rolling means. The IRA has three vehicles in poor condition. Those are :

- A TOYOTA HILUX brand double cab 4x4 Pick-Up acquired in 2007 as part of PDARP support for the benefit of CRAL. This vehicle is out of service;
- A TOYOTA HILUX double cabin 4x4 pick-up acquired in 2011 as part of the PRASAC-UE cassava project. It is the only vehicle that works, at very costly expenses borne by the national delegation of PRASAC thanks to the cassava project budget;
- A NISSAN double cab 4x4 Pick-Up acquired in 2013 as part of the FSTP2 project on “The conservation and sustainable use of banana biodiversity (Musa) for food security in West and Central Africa”. This vehicle is currently broken down but could be put back into service.

5.3.5 Other resources

Despite the presence within the Institute of a Communication and Information System Department (DCSI), this department did not have a clearly defined operating budget for 2017. Furthermore, the staff of this department is limited to its Director and secretariat.

In order to allow the IRA to publicize its actions and to go beyond its borders, the DCSI has undertaken the design of a dynamic website serving both as an internet portal and as an online database updated

in time. real for researchers, students and stakeholders in agricultural sectors. This initiative has not yet been implemented due to lack of funds.

8.4 Annual budgets and achievements

Research is funded almost exclusively from the state budget. In 2010, funding from the Directorate General for Scientific and Technological Research (DGRST) amounted to more than 5.584 million FCFA against only 104 million from external funding for 23 research projects.

Since 1999, the expenditure devoted to scientific research has gradually increased to reach respectively 4.195 and 5.584 million FCFA in 2009 and 2010. During these years, exceptional expenses were incurred within the framework of a collaboration with the Vietnamese government. for the creation and construction of a pharmaceutical laboratory, specializing in the manufacture of generic drugs against malaria.

In 2011, the budget of the DGRST returned to the pre-2009 level, ie a little over 2,550 million FCFA. The average budget of the DGRST over the period 1999-2011 was broken down into investments for 48% and transfers to research centers for 49%. The downward trend in this funding has not favored the implementation of research activities since 2012. The IRA brings together 7 research centers whose budgets were independent. Its current budget does not cover the consequent charges. The current budget does not cover the real needs of the IRA.

As in previous years, the financial resources of the IRA consist of (Figure 6):

- Government subsidy;
- External funding from research projects;
- Funding of development support projects by national partners through service delivery agreements.

The amount of the State contribution for the year 2017 is 500,000,000 CFA francs. The financial resources of the IRA from January to September 2017 are shown in Table 19.

Board 19 : Financial resources of the IRA from January to September 2017

No.	Objects of funding	Funding sources	Amount (F CFA)
1	Transfer credit	Government	250,000,000
2	Regional project "Sustainable production of cassava in Central Africa and market integration"	PRASAC / CEMAC	15,472,888
3	Agricultural Research and Development Indicators Program (ASTI)	IFPRI	3,900,000
	Memorandum of Understanding n ° LOA / 02/2017 / IRA-PAPPH: Support for small bean producers in Bouenza	WFP-FAO	6 739 164
4	Convention n ° 002/2016 / PADEF / UNGP / RPM: Production of 30,000 banana and plantain plants	PADEF	28 261 250
5	Convention n ° SC03 / 2016 / PADEF / UNGP / RPM: Production of pre-basic corn and soybean seeds	PADEF	7 837 700
6	Convention n ° SC04 / 2016 / PADEF / UNGP / RPM: Conservation collection of elite cassava clones.	PADEF	3,688,520
Total	6	5	315 899 522

Source: IRA

This situation is similar to that of previous years where, however, the contribution of external partners was relatively greater. This situation is explained by the closure of research projects financed by technical partners (PTF).

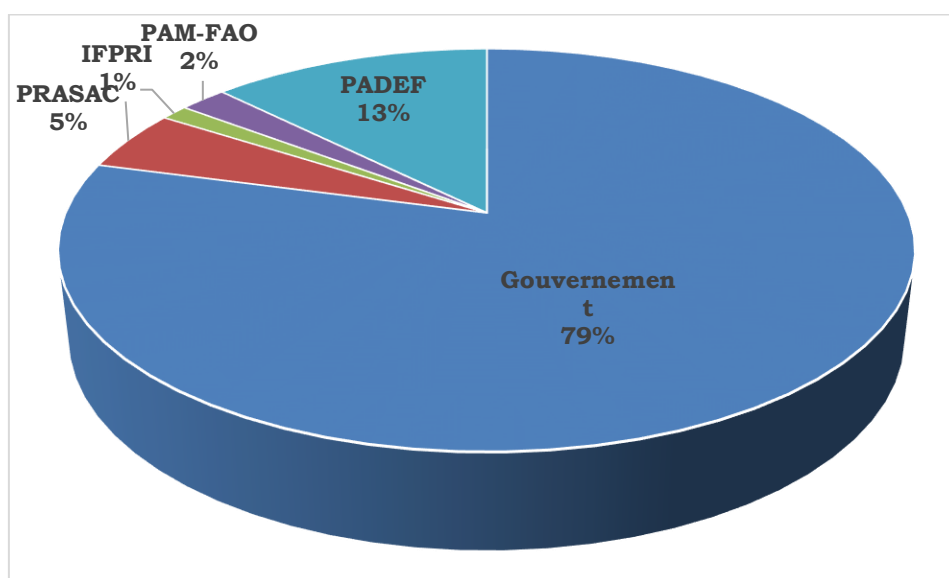


Figure 6 : Contribution of the various sources of funding for the IRA from January to September 2017 (see table 19)

The state is the main provider of funds for the operation of the IRA, contributing 45% to 79% of the budget in recent years (Figure 7).

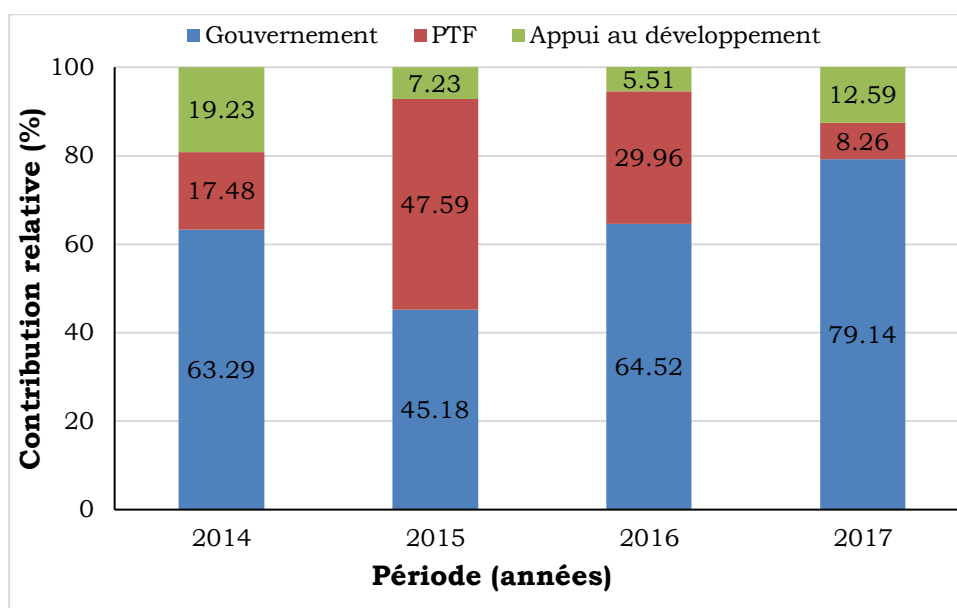


Figure 7 : Evolution of the contribution of the different sources of IRA funding from 2014 to 2017.
Source: IRA

8.5 Experience and achievements related to the Project

The National Institute for Agronomic Research has inherited substantial achievements from the research results of the organizations that preceded it, in particular the Loudima research center whose main work has been focused on food crops, in particular cassava, peanuts and corn.

8.6 SWOT Analysis of IRA

<p><u>Strengths</u></p> <ul style="list-style-type: none"> - Laws establishing the structure - Capitalization of research results from previous structures (CRAL, CERV, etc.) - Motivation of staff despite poor working conditions and pay 	<p><u>Weaknesses</u></p> <ul style="list-style-type: none"> - Insufficient human, material (research equipment, vehicles, etc.) and financial resources - Aging of research staff (researchers and technicians) - Research limited mainly to varietal improvements, without taking into account the other important aspects (cropping systems, socio-economy, etc.) - Lack of activities on the environmental impact of agricultural production - Insufficient popularization of research results - Lack of scientific exchanges at sub-regional and international level
<p><u>Opportunities</u></p> <ul style="list-style-type: none"> - Political declaration of food self-sufficiency which requires innovations in agronomy 	<p><u>Threat</u></p> <ul style="list-style-type: none"> - Political will for insufficient research

<ul style="list-style-type: none"> - The country's staple food production deficit as the population grows - Expectations of agricultural producers on improving yields - Fight against the effects of forest degradation and deforestation by seeking an alternative agriculture to slash-and-burn agriculture - Existence of a recruitment pool for research executives (university, institutes, etc.) 	<ul style="list-style-type: none"> - Research programs unsuited to changing demands from stakeholders and donors - Lack of interest among young executives in agricultural research for the benefit of other more profitable sectors of activity - Lack of a formal platform for exchanges with agricultural producers -
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CRAL: Loudima Agronomic Research Center; CERV: Center for Studies and Research on Plants

9 The valuation center for non-timber forest products (CVPFNL)

Created by decree N0 2013-228 of June 7, 2013, the CVPFNL is a support body for the development of the non-timber forest products sector.

9.1 Missions

The missions of the CVPFNL are to:

- Carry out programs relating to the good management of non-timber forest products;
- Promote and develop cultivation practices based on the valuation of NTFPs;
- Build the capacities of operators, in particular rural populations and indigenous peoples involved in the production and promotion of NTFPs;
- Create and manage the database on NTFPs.

9.2 Organization

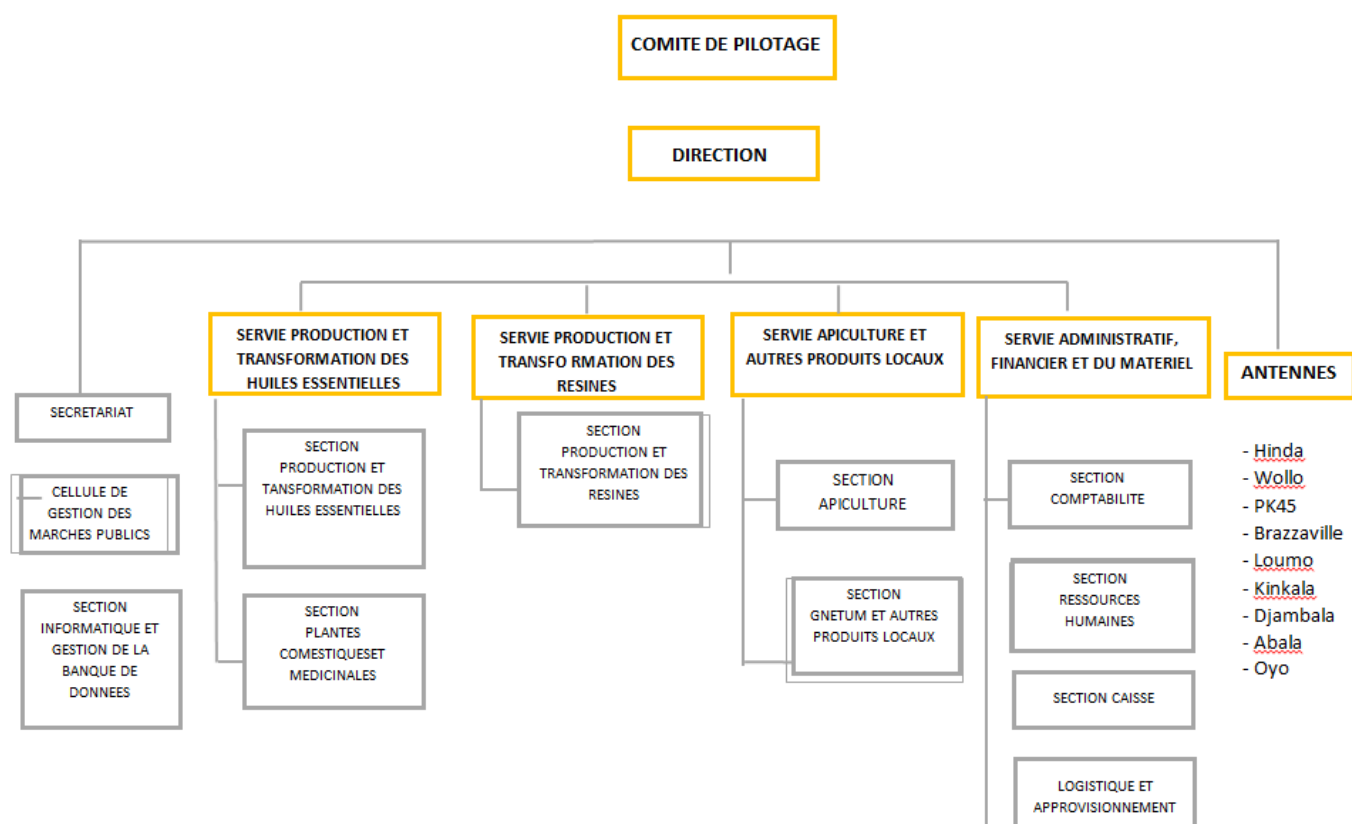


Figure 8 : CVPFNL organization chart

9.3 Resources

9.3.1 Human resources

The Center for the Valorization of Non-Timber Forest Products (CVPFNL) has a staff of eighty-eight agents including 29 women and 59 men (Table 20).

Board 20 : Distribution of CVPFNL staff by branch (locality) and by sex

Antenna	Permanent		Not permanent		Total	% in each antenna
	Man	Women	Man	Women		
Black Point	24	11	6	3	44	50
Brazzaville	3	7	3	1	14	16
Wollo (Kouilou)	1				1	1
Hinda (Kouilou)		1			1	1
Kinkala (Pool)	3	1			4	5
Loumo (Pool)	2		4	1	7	8

PK 45 (Pool)	7	2			9	10
Djambala (Trays)			2		2	2
Abala (Trays)	1		1	2	4	5
Oyo (Cuvette)	1		1		2	2
TOTAL	42	22	17	7	88	100

Source: CVPFNL

The breakdown by socio-professional category shows a high proportion of employees aged 40 to 49 (Table 21).

Board 21: Breakdown of CVPFNL staff by socio-professional qualification and by classage

Category	20-29		30-39		40-49		50-60		Total		Grand total
FRAME	F	H	F	H	F	H	F	H	F	H	
Technicians			2	4		2		1	2	7	9
Support agents					1	1			1	1	2
MASTERY											
Technicians				3		2		1	0	6	6
Support agents		1	3	1	1				4	2	6
EMPLOYEES											
Technicians		6	2	12	12	12	2	4	16	34	50
Support agents	1		2	3	3	3		3	6	9	15
TOTAL	1	7	9	23	17	20	2	9	29	59	88

Source: CVPFNL

9.3.2 Operational means

The operational resources of the CVPFNL are shown in Table 22 and are relatively good compared to other structures potentially involved.

Board 22 : Operational resources of the CVPFNL

Designation	Amount	State	
		Well	Bad
Transportation equipment			
- 4-wheel vehicle	04	02	02
- 2-wheel vehicle	12	12	-
- Agricultural tractors with trolleys	02	02	-
Hardware			
-Desktop computer	08	5	2
-Laptop	08	08	-
-Printer	11	05	-
-Photocopier	03	2	06
- Inverters	03	03	-
Office furniture			
- Wardrobe (wood and metal)	08	08	-
- Simple office table	23	20	03
- Director type office table	02	01	01
- Simple office armchair	30	29	01
- Director type office chair	03	03	-
- Reception chair lounge with 6 seats	01	01	-
Housing equipment			
- Split	01	01	-
- Generator	01	-	01
- Bar fridge	01	-	01
- Hotplate	04	02	02
- Precision balance	01	01	-
- Extension	07	07	-
Other Materials (hoes, rakes, peels, secateurs, machetes, transplanters, decameter, watering cans, wheelbarrows, sprayers ...)			
Resin Material Lot (decanter, Erlenmeyer flasks, central channel knife, debarkers, blade, peak knife, tongs, steam cooler....)			
Essential Oils Equipment Lot (extractors, coolers, decaners, etc.)			
Lot of Beekeeping Equipment (beekeeping outfit, smokers, bee brush, frame lifter, beekeeping gloves ...)			

Source: CVPFNL

9.3.3 Annual budgets and achievements

The resources (Table 23) and expenses (Table 24) of the 2016 budget show that the outputs are slightly higher than forecasts with a total of around 380 million CFA francs.

Board 23 : Resources from the 2016 CVPFNL budget

CHAPTER	ENTITLED	FORECASTS	ACHIEVEMENTS AS OF 12/31/2016	Variations	Rate (%)
75	Ancillary production		875,000	875,000	100
75	Operation	324,000,000	360,000,000	+36,000,000	11.11
75	Forestry fund	9,000,000		-9,000,000	
	PFDE project		22,059,833	22,059,833	100
	TOTAL	333,000,000	382 934 833	49 934 833	114.99

Source: CVPFNL

The operating costs were carried out with the disbursement of the budget received. Regarding the investment, five motorcycles were acquired to monitor the activities of the Beekeeping project.

Board 24 : Operating expenses of the 2016 budget of the CVPFNL

CHAPTER	ENTITLED	Forecasts	ACHIEVEMENTS AU31 / 12/2016	Variations	Rate (%)
	A / OPERATION				
61	Goods and services consumed	62 488 102	97,620,000	35 131 898	156.22
62	Personnel costs	237 931 479	252 268 833	14 337 354	106.3
63	Dues and taxes	27,760,755	27,650,000	-110 755	99.60
64	Financial expenses	272,000	1,405,000	1,133,000	51.65
67	Other charges and losses	4,000,000		-4,000,000	
	TOTAL A	332 452 336	378 943 833	46,491,497	113.99
	B / INVESTMENT				
	Farm lands				
	Tangible asset		4,000,000	4,000,000	100
	TOTAL B		4,000,000	4,000,000	100
	TOTALS (A + B)	332 452 336	382 934 833	50 491 497	115.18

Source: CVPFNL

Regarding the 2017 financial year, six months were not disbursed by the treasury until December 31 (Tables 25 and 26). The credits from the forestry fund have made it possible to partially cope with the

establishment of the legal framework of the CVPFNL. The execution of the 2017 budget was down by about a third compared to that of 2016.

Board 25 : Resources of the 2017 budget of the CVPFNL

CHAPTER	ENTITLED	Forecasts	ACHIEVEMENTS AS OF 12/31/2017	Variations	Rate (%)
75	Ancillary production	875,000	1,385,000	510,000	158.2
75	Operating budget	400,000,000	225,000,000	-175,000,000	56.25
75	Forestry fund	48,000,000	10,000,000	-38,000,000	20.83
	PFDE project	18 640 333	14 078 274	-4 562 059	75.52
	TOTAL	467 515 333	254 630 274	-217,052,059	54.46

Source: CVPFNL

The center has acquired a set of stainless steel equipment, necessary for making essential oil extractors and a 3,000 liter extractor.

Board 26 : Operating expenses of the 2017 budget

CHAPTER	ENTITLED	Forecasts	ACHIEVEMENTS AU31 / 12/2017	Variations	Rate (%)
	A / OPERATION				
61	Goods and services consumed	101 790 333	71 594 560	-30 195 773	70.34
62	Personnel costs	288,295,000	156 312 204	-131 982 796	54.22
63	Dues and taxes	27,050,000	15 788 010	-11,261,990	58.37
64	Financial expenses	1,505,000	1,935,500	430,500	128.6
	TOTAL A	418 640 333	245 630 274	173 010 059	58.67
	B / INVESTMENT				
	Farm lands				
	Tangible asset		9,000,000	9,000,000	100
	TOTAL B				
	TOTALS (A + B)	418 640 333	254 630 274	-164,010,059	60.82

Source: CVPFNL

9.4 Experience and achievements related to the Project

The CVPFNL presents an interesting experience for the valuation of plantations, complementary to the production of wood; These include:

9.4.1 Essential oils

The CVPFNL succeeded the Support Project for the Promotion of NTFPs. This project has opened up avenues for supporting communities in the production of lemongrass for the extraction of essential oils. Pool is one of the departments that benefited from this support and the lemongrass produced by

households was purchased by the Project for the production of essential oils. The sale of lemongrass has helped improve the income of the households concerned, however only the sector based on tree plantations will be described here.

The species concerned is *Eucalyptus citriodora* with projects carried out in the department of Kouilou. The costs of the different operations are shown below.

- Acquisition of plants: 750,000 FCFA
- Land preparation for 1 ha: plowing and spraying: 80,000 FCFA
- Grid and picket: $3,500 \times 8 = 35,000$ FCFA
- Planting, density of plantation: 2222 vines / ha: $10 \times 3500 = 35,000$ FCFA
- Maintenance of the plot: mechanical maintenance on the interlines: 30,000 FCFA
- Biomass harvesting: the leaves are harvested and transported in bags to the distillation unit. : 15,000 FCFA
- Drying: the fresh leaves are spread out in the shade for drying for 4 to 6 days;
- Distillation of biomass for Extraction of essential oils: once the leaves are placed in the still, the distillation is started while ensuring the safety of personnel and equipment. The distillation lasts about 1h30mn.

The cost of setting up is 945,000 FCFA (this cost is indicative, it does not take into account the cutting of milestones and stakes, watering and other operations) and the direct cost of distillation is 20,000 FCFA per liter produced (excluding depreciation of the extractor).

The activities carried out have enabled greater visibility of the center in Pool and Kouilou. To date, the production of essential oils is around 70 liters / year. The number of producers is growing but remains modest across the country (around 25 producers supported by the center). The two departments serve as 'pilot projects' and this experience is to be extended to other departments in the country. The current programs concern support to communities in the production and marketing of essential oils of *Eucalyptus citriodora* in Kouilou and lemongrass in Pool. Studies on the introductions of other essential oil-producing species are underway.

9.4.2 Resins

This information on the pine resin extraction process is provided for information only even if pines are not among the species targeted by the project for reforestation. Experiments have been acquired by the CVPFNL concerning the extraction and distillation of pine resin (obtaining turpentine and rosin).

The extraction (or gemmage) requires: the identification of the trees, the bleeding operations, the harvest of the resin, the distillation (turpentine and the rosin) then the manufacture of the varnish (from the rosin). The species used are *Pinus caribaea*, *Pinus oocarpa* and *Pinus merkusii*. The production costs of a ton of resins are estimated at around 470,000 F for *P. caribaea*, 290,000 FCFA for *P. oocarpa* and 280,000 FCFA for *P. merkusii*. The pine plantations set up by the SNR are present in 4 departments of the country (Kouilou, Bouenza, Pool, and Niari). The CVPFNL only exploits the plantations of Kouilou (Louvuiti) for its activities. Studies are underway concerning the extraction of okoumé resin and the stability of the varnish based on rosin obtained from pine resin.

9.4.3 Honey, gnetum and other plants sectors

Honey sector

- Sensitization of CLPAs (local communities and indigenous populations) on beekeeping;
- Promotion of beekeeping and honey production by beehives;
- Training of 700 heads of households from Local Communities and Indigenous Populations (CLPA) in honey production using beehives. This activity is part of the implementation of the CVPFNL / PFDE agreement on technical support for CLPAs in the implementation of income-generating micro-projects relating to beekeeping. This agreement is still in progress;
- Sketch of an economic model.

The main, unfortunately unsustainable, harvest basins identified are Likouala / Sangha, Pool / Bouenza and Niari Lékoumou. The harvesting technique consists of cutting the tree sheltering the colony and setting it on fire to collect a few liters of honey which are then diluted with water. In view of the role that bees play in the conservation of biodiversity, the CVPFNL proposes to popularize beekeeping to CLPAs

In the departments where the honey flora is scarce, the establishment of plantations is necessary to optimize the yields. More than 50 tonnes of beekeeping honey is being produced by the CLPAs.

Gnetum sector

Gnetum is one of the most consumed NWFPs in Congo. Harvesting methods are not sustainable and consist of cutting the lianas to harvest the leaves. The intervention of the CVPFNL makes it possible to sensitize the CLPAs on sustainable harvesting methods, cuttings, mobilization, education and planting of plants. The first harvest can take place after 6 months.

The current achievements consist in the establishment of 3 plots of Gnetum in Wollo and Hinda in Kouilou and Abala in the Plateaux with forecast yields of nearly 2,500 kg / ha. This yield may increase in the second year.

Marantaceae sector

Marantaceae are NWFPs widely used in the packaging of several foodstuffs such as cassava, gnetum, tomato, okra, etc. After planting the cuttings, the first leaves are harvested after 5 months. These sheets are packaged in packages of 500 g to 750 g containing about twenty sheets.

Mushrooms (oyster mushrooms) sector

In Africa in general and in Congo in particular, natural mushrooms are seasonal whereas a good number of people would like to consume them all year round. Domestication appears to be a credible solution. The mushrooms are harvested about 2 months after incubation.

Rattan, Irvingia fruits and Dioscorea are also NWFPs widely used by local communities and indigenous peoples. The first represents the raw material of basket makers, while the second, also called black pepper, is a condiment and finally the last is a very popular but seasonal food.

9.5 SWOT analysis of CVPFNL

<u>Strengths</u>	<u>Weaknesses</u>
- Regulatory texts establishing and organizing the structure	- Insufficient resources (human, material and financial)

<ul style="list-style-type: none"> - Rise in the mastery of domestication techniques - Motivated staff - Product homogeneity 	<ul style="list-style-type: none"> - Insufficient exchange of experiences with other regional institutions - -Absence of market studies - Lack of economic models to deliver to potential players - Insufficient communication
<p style="text-align: center;"><u>Opportunities</u></p> <ul style="list-style-type: none"> - Diversification of the Congolese economy - Emergence of the green economy - Overexploitation / scarcity of NTFPs from natural environments and growing demand - Decrease in supply and increase in prices - Source of income improvement for peasant populations and indigenous peoples - Potential sub-regional markets (DRC, Gabon, Central African Republic, etc.) 	<p style="text-align: center;"><u>Threat</u></p> <ul style="list-style-type: none"> - Lack of structured channels - Rejection of domestication products by the population for lack of adequate communication - Lack of visibility - Conquest of the Congolese market with products from the sub-region.

10 Summary of the main findings (SWOT analysis)

Many trends are common to the different structures involved in forest and agroforestry plantations in Congo and can be synthesized by the SWOT matrix below.

<p style="text-align: center;"><u>Strengths</u></p> <ul style="list-style-type: none"> - Regulatory texts establishing and organizing each of the structures concerned - Political will displayed for the development of forestry and agricultural plantations - Existence of operational know-how capital and quality research products 	<p style="text-align: center;"><u>Weaknesses</u></p> <ul style="list-style-type: none"> - Lack of human resources (with very unbalanced age pyramids and very few field technicians) - Irrational use of scarce qualified personnel resources - Lack of staff hiring and training policy / strategy - Difficult working conditions with delayed wages - Insufficient budget allocations - Obsolete and insufficient operational equipment - Under-use of NTCI in the management of structures - Lack of information systems (IS) - Lack of / insufficient communication
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<u>Opportunities</u>	<u>Threat</u>
<ul style="list-style-type: none"> - Opportunities to raise funds internationally - Diversification of the Congolese economy - Emergence of a green economy - Funding available for the fight against climate change / forest degradation and deforestation - Fight against poverty through the development of income-generating activities - Existence of a potential market for the consumption of products from the program - Availability of land not yet developed for program implementation - Labor availability - Possibilities of capacity building through sub-regional and international cooperation - Road network allowing products to be transported to cities - Presence of private actors with agricultural machinery in rural areas who can be called upon for silvicultural work 	<ul style="list-style-type: none"> - Loss of technical competence in the absence of renewal of operational staff in the structures and the implementation of consequent programs - Securing land, a necessary condition for investments - Resistance to changes compared to current practices - Conflict of competence between the various stakeholders in the implementation of the programs - Lack of significant investment allowing structures to be upgraded - Lack of deforestation control which makes the “plantation” sector unattractive compared to wood acquired free of charge in natural forests.

Part 2 - Material and operational requirements

11 Reminder of the project's ambitions

The project, as initially presented in the concept note submitted to the GCF, aims to launch targeted calls for projects to develop, within a community framework 3,000 to 5,000 agroforestry plots, in a private framework of 3,000 ha to 5,000 ha of forest and agroforestry plantations and within the framework of larger projects 10,000 to 15,000 ha of forest plantations to meet fuelwood and service needs. It is also envisaged 3,000 to 5,000 hectares of climate-smart and sustainable agricultural and pastoral systems and 1,000 ha of timber plantation.

The technical feasibility specified by department the potential actions that could be effectively supported by the project (Table 27).

Board 27: Summary of project activities to be carried out by department

Kouilou				
	Itinéraires techniques	Surface	Produits	Opérateur
ex massif EFC	Gestion en taillis de plantation d'eucalyptus existantes	5 000 ha	Bois-énergie	Partenaire privé
Hinda, bassin Louémé, axe RN 1	Plans simples de gestion (PSG) avec Régénération Naturelle Assistée (RNA)	Indéterminée	Restauration	PRONAR SNR
Niari et Bouenza				
	Itinéraires techniques	Surface	Produits	Opérateur
Dolisie, axe RN 1	Agroforesterie acacias-manioc	2 500 ha	Maïs Manioc Bois-énergie	Communautés et Privés
Massif loudima	Gestion en taillis des plantations d'eucalyptus du massif de Loudima	2 000 ha	Bois-énergie	Partenaire privé
Pool				
	Itinéraires techniques	Surface	Produits	Opérateur
District ignié et Ngabé, PRONAR bloc B	Plantations forestières mixtes acacias/eucalyptus	2 500 ha	Bois-énergie	Partenaire privé
Axe Ngoma Tié-Tié -Kinkala	Agroforesterie acacias-manioc	4 500 ha	Maïs Manioc Bois-énergie	Communautés et Privés
Plateaux				
	Itinéraires techniques	Surface	Produits	Opérateur
PRONAR blocs G, H, J, K, E	Plantations forestières mixtes acacias/eucalyptus	2 500 ha	Bois-énergie	Privés PRONAR/SNR
Cuvette				
	Itinéraires techniques	Surface	Produits	Opérateur
Autour des villes de Boya, Mvoula et Ngoko-Eloundji	Production de cacao en systèmes agroforestiers	1 000 ha	Cacao Banane plantain Maïs Bois	Communautés et Privés

The capacity building of public structures, necessary to achieve these objectives, is indicated below. We considered that the project would be managed autonomously but could rely for certain actions on the national structures involved in forest and agroforestry plantations.

12 Material needs

12.1 Plant material

12.1.1 Calculation for needs estimation

The calculation bases for estimating plant material requirements are described below. Estimates are made on an annual basis, taking into account a project duration of 7 years, assuming that one seventh of the programmed planting areas were established each year.

A production of 10% additional plants has been planned to ensure replenishment.

The planting densities for each system are those indicated in the technical feasibility:

Agro-forestry acacias-cassava

- Acacia density: 1,111 plants / ha
- Cassava density: 10,000 cuttings / ha

Mixed acacias / eucalyptus forest plantations

We made the estimate from option 1

- Acacia density: 500 plants / ha
- Eucalyptus density: 500 plants / ha

Coppice management of existing eucalyptus plantations

We considered that 25% of the Pointe-Noire and Loudima massifs should be replanted.

- Density: 816 plants / ha

Cocoa production in agroforestry systems

- Density of cocoa tree: 1,100 plants / ha
- Density of fruit trees: 50 plants / ha
- Forest tree density: 12 plants / ha
- Plantain density: 800 cuttings / ha

The plant material requirements are summarized in the following table. Details of the calculations are provided in appendix 3.

Board 28: Estimation of annual plant material requirements for the implementation of projects

PROGRAMME PAR DEPARTEMENT				
Kouilou				
	Itinéraire technique	Surface	Plants Forestiers/an	Plants fruitiers/an
ex massif EFC	Gestion en taillis de plantations d'eucalyptus existantes	5 000 ha	Eucalyptus 150 000	
Hinda, bassin Louémé, axe RN 1	Plans simples de gestion (PSG) avec Régénération Naturelle Assistée (RNA)	Indéterminée	Plants forestiers p.m.	p.m.
Niari et Bouenza				
	Itinéraire technique	Surface	Plants Forestiers/an	Bouture manioc/an
Dolisie, axe RN 1	Agroforesterie acacias-manioc	2 500 ha	Acacia 440 000	3 570 000
Massif loudima	Gestion en taillis des plantations d'eucalyptus du massif de Loudima	2 000 ha	Eucalyptus 60 000	
Pool				
	Itinéraire technique	Surface	Plants Forestiers/an	Bouture manioc/an
District ignié et Ngabé, PRoNAR bloc B	Plantations forestières mixtes acacias/eucalyptus	2 500 ha	Acacia 210 000 Eucalyptus 210 000	
Axe Ngoma Tié-Tié -Kinkala	Agroforesterie acacias-manioc	4 500 ha	Acacia 785 000	6 430 000
Plateaux				
	Itinéraire technique	Surface	Plants Forestiers/an	
PRONAR blocs G, H, J, K, E	Plantations forestières mixtes acacias/eucalyptus	2 500 ha	Acacia 210 000 Eucalyptus 210 000	
Cuvette				
	Itinéraires techniques	Surface	Plants	Rejets plantain
Autour des villes de Boya, Mvoula et Ngoko-Eloundji	Production de cacao en systèmes agroforestiers	1 000 ha	Cacao 181 000 Fruitiers et forestiers 8 500 et 2 000	132 000

It will therefore be necessary to produce 2,275,000 forest plants annually, divided into 1,945,000 acacia plants and 630,000 Eucalyptus plants. There will also be an annual need for 10,000,000 cassava cuttings to supply acacia-cassava agroforestry plantation projects and around 180,000 cocoa plants and 130,000 plantain cuttings for extensions of the cocoa agroforestry system in the bowl.

12.2 Nursery

Most of the nurseries that can supply investment projects in the targeted departments belong to the SNR. Their inventory can be found below.

Board 29 : Location of SNR operational units and seedling production potential.

Department	Locality	Unit	Agro-ecological intervention zone	Plant production capacity	Current state	Plant species produced
KOUILOU	Youbi	Forest Station	Savannah, Dense forest, gallery forest	200,000 plants / year	Dilapidated	forest, savannah, ornamental, fruit and NTFPs
	Ngondji	Semi-industrial nursery	Savannah, forest gallery	3,000,000 / year (originally)	Dilapidated	Forest, savannah, ornamental and fruit trees
	Mayombe	Forest Station	Dense forest	100,000 / year	Way	forest, ornamental, fruit and NTFPs
NIARI	Dolisie	Agency	Savannah, forest gallery	200,000 / year	Way	forest, savanna, ornamental, fruit trees and NTFPs
	Malolo	Forest Station	Savannah, forest gallery	100,000 / year	Way	dense forest, savannah and ornamental
	Ngouha 2	Forest Station	Dense forest, gallery forest	50,000 / year	Dilapidated	Dense forest, fruit trees and NTFPs
BOUENZA	Loudima	Forest Station	Savannah, forest gallery	100,000 / year	Dilapidated	savannah, fruit and ornamental
	Madingou	Nursery	Savannah	100,000 / year	Dilapidated	savannah, fruit and ornamental
	Kayes	Nursery	Savannah	20,000 / year	Dilapidated	savannah, fruit and ornamental
LEKOU MOU	Mbila	Forest Station	Dense forest	60,000 / year	Dilapidated	Forest, fruit and ornamental
BRAZZAVILLE	Brazzaville	Nursery	Savannah	100,000 / year	Way	Savannah, forests, fruit and ornamental
POOL	PK-45	Forest Station	Savannah, forest gallery		Dilapidated	
	Kintele	Semi-industrial nursery	Savannah, forest gallery	3,000,000 / year (originally)	Dilapidated	Savannah, forest, fruit, ornamentals and NTFPs

	Kinkala	Forest Station	Savannah, forest gallery	100,000 / year	Way	savannah, forest, fruit, ornamental
	Mbouambé-Lefini	Nursery	Savannah, forest gallery	100,000 / year	Way	savannah, forest, fruit, ornamental
TRAYS	Ossio	Nursery	Savannah, forest gallery	60,000 / year	Dilapidated	savannah, forest, fruit, ornamental
	Djambala	Nursery	Savannah, forest gallery	50,000 / year	Dilapidated	savannah, gallery forest, fruit, ornamental
WEST BOWL	Ewo	Forest Station	Savannah, forest gallery	50,000 / year	Dilapidated	savannah, forest, fruit, ornamental
	Okoyo	Nursery	Savannah, forest gallery	10,000 / year	Dilapidated	savannah, forest, fruit, ornamental
BOWL	Oyo	Forest Station	Savannah, forest gallery	100,000 / year	Way	savannah, forest, fruit, ornamental and NTFPs
SANGHA	Pokola	UPARA	Dense forest	50,000 / year	Dilapidated	forest, fruit trees, ornamental
LIKOUALA	Enyellé	Forest Station	Dense forest	20,000 / year	Dilapidated	forest, fruit trees, ornamental
	Enyellé	UPARA	Dense forest	10,000 / year	Dilapidated	forest, fruit trees, ornamental
	Impfondo	Nursery	Dense forest	10,000 / year	Dilapidated	forest, fruit trees, ornamental

Source: Mission summary based on SNR documents

The nurseries marked in “bold” in this table will be the subject of rehabilitation to supply investment projects in four of the departments targeted by the project (Kouilou, Niari, Bouenza and Pool).

In the Plateaux, in Ombima, a modern semi-industrial public nursery (MEF / ProNAR) of large capacity (more than 1 million plants / year) has just been inaugurated and will be able to supply the department.

In La Cuvette, the project will use the nurseries that MAEP plans to set up in the region as part of the National Agricultural Development Plan.

13 Research and development initiatives to be implemented

13.1 IRF / CRDPI

Genetics of acacias used in agroforestry systems : the genetic basis of acacias used in agroforestry plantations is very poorly understood and probably very narrow. But the needs in the country are immense and the ecological conditions very varied. It will be necessary to procure new provenances and test them in the main potential areas for planting. In the meantime, very quickly, it will be possible to enhance the existing Pointe-Noire trial installed by the CRDPI as part of the Makala project. For this,

it will be necessary to collect seeds from the most beautiful trees (superior phenotypes) and put them in comparative plantation (separate progenies). The parents whose descendants will be the best performing will be identified and gradually grafted in order to set up a second generation seed orchard.

Monitoring of soil fertility in agroforestry systems and use of inputs: The studies carried out by CIRAD within the framework of the Makala project have shown the economic and social interest of SAF in acacias. They have also shown that they can indirectly reduce the ecological impact of AsB on natural forests. SAFs are often considered a panacea in soil fertility management. However, recent CIRAD studies show that, despite all their advantages (increase in C, N, CEC, etc.), problems of acidification, aluminum toxicity and deficiency in certain elements require careful management of residues. of cultivation and carbonization as well as moderate inputs of inexpensive and available mineral fertilizers. If we want to continue promoting these systems, it will be necessary to test i) the use of different fertilizers, in particular fertilizers of the calcium phosphate type, ii) spreading the ash and charcoal fines produced by carbonization on the plots. An economic assessment of all these innovations should be carried out with potential users.

Development of industrial Acacia Agroforestry Systems: A demand for the development of agroforestry systems intended for investors in “agro-business” is emerging. This would require adapting the methods developed, by testing mechanized techniques from seedling production to planting.

RNA: Assisted Natural Regeneration (ANR) trials have been installed and measured by CIRAD on the Batéké plateau in the DRC. The results are very encouraging but deserve to be confirmed and enriched in the sites that will be identified in the Republic of Congo. In particular, it is necessary to monitor the growth of trees conserved until the fallow cutting age, then to estimate the increase in wood and charcoal production allowed by the ANR. These economic data will be essential to consolidate the dynamics of peasant adoption over time. It will also be necessary to follow the evolution of biodiversity, soil fertility and carbon fixation of this system as an alternative to traditional BSA.

Trial of plantations of local mixed timber species: The objective is to provide the scientific, technical and economic bases necessary for the establishment of multispecies plantations of local forest species dedicated to the production of timber.

13.2 IRA

Genetic improvement of cassava: implement conservation strategies, in situ and ex situ, and pursue varietal improvement programs, adapted to the specific needs of the different production regions. Carry out the varietal evaluation of the clones introduced in terms of appropriation and yield.

Study program related to the impact of climate change including the following three projects identified by the IRA: 1) Adaptation of agricultural plants to climate change: dates of planting and harvesting of cassava varieties in the various agro-ecological zones of Congo, 2) Impact of climatic factors on the productivity of the main food crops grown in Congo, 3) Support for the promotion and development of climate-smart agriculture in Congo.

Socio-economic studies program in conjunction with agricultural research programs. This is an important component which allows the research carried out to be closer to the expectations and needs of the actors involved in the various sectors concerned.

Part 3 - Strengthening partner institutions

14 Human resources and training needs

The analysis of each structure above revealed significant human resource needs to resume substantial planting programs. All the national structures involved in reforestation have an unbalanced age pyramid and strong recruitment needs for young technicians and engineers. Only the human resource needs necessary to strengthen the institutions in their attributions directly related to the implementation of the project will be taken into account.

14.1 MEF

The MEF in its capacity as promoter of the project has an essential role to play. It welcomes the project management team (PMU) which will be in permanent contact with the Department of Studies and Planning (DEP) in particular for everything concerning the calls for projects that will be launched.

The capacity building plan proposed in the AGRECO study in 2014 indicates for the DEP a need to recruit around ten engineers in the coming years, several of which are particularly important for the project, namely specialists in study analysis and projects and contracting.

The project will support capacity building through training of personnel who will intervene in the coordination of the project.

14.2 ProNAR

ProNAR enabled the acquisition of land for reforestation and afforestation and the establishment of state land reserves for forest plantations.

To intervene effectively in the project, ProNAR will have to integrate into its skills the specificities linked to the targets targeted by the project. These new skills complement the points identified above and include in particular:

- the definition and validation of technical itineraries,
- the appropriate monetary and non-monetary (costs and benefits) economic estimation tools,
- a significant strengthening of the adapted financial engineering component to offer financial tools adapted to the different types of afforestation.

The project will support the training necessary for this capacity building.

14.3 SNR

The SNR's missions of particular interest to the project are:

- Harvesting seeds and producing seedlings of forest and fruit species,
- The implementation of plantations on behalf of the state and decentralized local communities, by restoring degraded forest areas
- The popularization of silvicultural and agroforestry techniques in rural areas

To accomplish these missions, it will be necessary to redeploy some experienced SNR technicians to stations located in the target departments of the project. The SNR will also have to recruit around twenty forestry technicians (engineers and technical agents) who will be assigned to these operational units.

Specialized training that will be supported by the project is expected in the following areas:

- Nursery techniques (cuttings, layering, seedling education, etc.),
- Planting techniques,
- Extension technique,
- Tractor driving,
- ...

14.4 IRF / CRDPI

The research departments which are of primary interest to the project and which will need to be strengthened are the “silviculture and forest dynamics” and “genetic improvement” department.

The recruitment by the IRF of young people with bac + 3 or bac + 5 and doctoral students is to be expected. They should be trained in botany, forest ecology, silviculture and genetic improvement and will participate in the forest research programs identified in the previous part.

The project will finance applied research projects, selected through a call for tenders, on topics of interest for the improvement of the technical routes that will be implemented.

14.5 IRA

The programs of particular interest to the project are

- Plant production and the fight against crop pests (cassava, bananas, peanuts, cocoa),
- Conservation and management of soil fertility in particular by defining efficient agro-forestry systems,
- Biodiversity and the effects of climate change.

As for the IRF, the recruitment by the IRA and the training of young graduates is necessary to carry out these research programs. Here too, applied research projects relevant to the project will be funded through a call for tenders.

14.6 Marien Ngouabi University / ENSAF

The Faculty of Sciences and Techniques of the Marien Ngouabi University and the National School of Agronomy and Forestry train doctoral and master students who could usefully intervene in the project either with research institutes or at SNR level. and to a lesser extent, ProNAR. The project will support the end-of-study internships of ten of these students per year in the fields of interest to the project. Some of these students will be involved in applied research projects that will be implemented by the IRF and the IRA.

15 Material requirements

15.1 Plant material

Research structures (IRF mainly for trees) play an important role in conserving selected plant material for several decades in Congo. There is a risk of loss of this very powerful material for eucalyptus trees due to the difficulties encountered by the CRDPI. The establishment of multi-site conservatory plots with the best clones is an urgent matter so as not to lose the considerable investment made to produce clones adapted to the context of the Congo.

15.2 Nurseries and adjoining infrastructure

The SNR network of nurseries is an essential asset for the establishment of future plantations. The investment needs to rehabilitate the infrastructure (and in particular the irrigation of the plants) are important. The following nurseries and their and adjoining infrastructures will be the subject of

rehabilitation / modernization (see table 28): Ngondji (Kouilou), Dolisie (Niari), Loudima (Bouenza), Kintélé (Pool) and Enyelle (Likouala). The choice of these nurseries is motivated by their potential production capacity of the plants needed for the projects and their location generally near the planting areas. These nurseries are currently not very active and lack maintenance.

The necessary experienced SNR technicians can be redeployed in these nurseries and refresher training will be provided to them.

As a reminder, it is the modern nursery of Ombima which will be privileged to produce plants for the plateau department. The nursery has just been inaugurated on the occasion of Arbor Day, November 6, 2018.

However, the proposed device is not exclusive of the development of private nurseries which will eventually be able to supply the project leaders who so wish, when the project has reached its cruising speed and the demand for plants is clearly identified.

It is preferable for eucalyptus trees to be limited to clones selected by CRDPI propagated by cuttings in one or two Ombima type nurseries. For acacias as well as local forest and fruit species, other nurseries could be rehabilitated near afforestation areas identified by the project.

For the production of cocoa plants, the project will be closer to the nurseries that the MAEP plans to create as part of the implementation of the National Agricultural Development Plan and which will also serve for the project to support the recovery program of the cocoa sector, financed by AFD.

15.3 Agricultural material

We have noted a good availability of agricultural equipment (tractors, plows, etc.) at the level of CEMAs and private operators, in various regions of interest for forest plantations. This equipment is likely to be hired for one-off activities, which considerably reduces costs compared to the installation by the project of a structure dedicated to the maintenance of large agricultural equipment in each afforestation region. Two options are therefore possible for the project: either rent agricultural equipment from the SNR (see appendix 2) provided that the Congolese state has repaired this equipment, or rent it from the CEMA (see § 1.6.3) or d 'private operators. An update of the assessment of the available agricultural equipment and its condition should be carried out at the start of the project to define the structures to be solicited according to the plantation areas. Project support in the form of a loan may be granted to national structures as necessary for the purchase of agricultural equipment or its rehabilitation.

15.4 Other supplies

The acquisition of inputs, small tools, equipment and materials does not pose a problem in Congo. They will be procured according to the procedures provided for this type of contract.

PART 4 - Operational organization of the project

16 Project coordination mechanism

16.1 General governance framework

The project concept note proposes the general architecture of the coordination mechanism below:

... At the national level, the Project will be supervised and administered by two committees which will ensure management and technical coordination:

"The Project Steering Committee (PPC)- will be the highest decision-making body for the whole project. It will provide oversight and guidance, ensuring that appropriate links and coordination are maintained with the relevant programs of all other relevant United Nations agencies, as well as with international environmental conventions and in particular with the UNFCCC, CBD and CCD. The CPP will be jointly chaired by the government, FAO and AFD and will be composed of representatives of the various executing entities, strategic development partners (World Bank, African Development Bank, EU, UNDP, etc.), the FVC focal point and the GCF Regional Advisor for Africa, the Head of the Project Management Unit (Project Director / Project Manager), as well as representatives of civil society. The PPC will meet at least twice a year to oversee the activities and take the consequent decisions.

The Project Technical Committee (PTC) - will provide support to the Project Management Unit to ensure the technical soundness of the Project while providing technical advice during its implementation. He will report to the CPP on the effective monitoring of procedures, as well as the supply of essential products and deliverables of the project. It will be co-chaired by the government, FAO and AFD and will be composed of representatives of the implementing entities. If necessary, representatives of development partners, NGOs, research institutions and civil society will be invited to strengthen the technical soundness and coordination of the Project. The PTC will meet quarterly. "

The "concept note" also provides that

"The implementation of the entire Project and the supervision of the implementation of daily activities will be ensured by the Project Management Unit (PMU) -. The role of the PMU will be to ensure that the work on the five components is carried out as integrated as possible. The PMU will be integrated into the government architecture and composed of a mixed team of representatives from relevant ministries. It will benefit from technical assistance from FAO and AFD and will report to the CTP and the CPP. The PMU will be headed by a Project Manager who will have an overview of the Project. Each component of the Project will be overseen by a Component Manager (CM) who will report to the Project Director / Project Manager. The PMU will meet every week or more regularly if necessary for the monitoring of Project activities. "

The project governance bodies are therefore logically structured as follows:

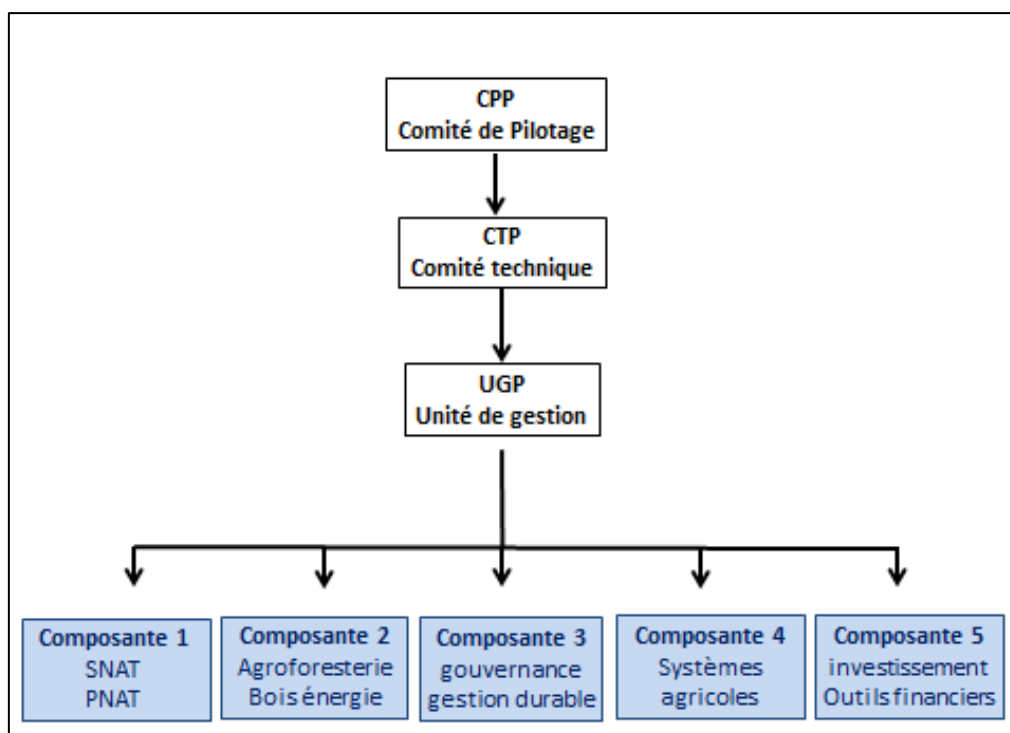


Figure 9: General coordination of the project

16.2 Institutional frame

Many ministries or public institutions are directly or indirectly involved in the implementation of the project. The concept note provides a provisional list, reproduced below:

- Ministry of Forest Economy
- Ministry of Tourism and the Environment
- Ministry of Agriculture, Livestock and Fisheries
- Ministry of Planning, Territorial Equipment and Major Works
- Ministry of Land Affairs and Public Domain
- Ministry of Planning, Statistics and Regional Integration
- Ministry of Scientific Research and Technological Innovation
- Ministry of Finance and Budget
- Ministry of Small and Medium Enterprises, Handicrafts and the Informal Sector

The MTE is the legal anchor point and the focal point of the project vis-à-vis the GCF. He ensures that the entire project conforms to the criteria and the mode of operation of the GCF. He intervenes at the level of the CPP.

FAO is an accredited entity by the GCF. It receives funding and implements them with AFD through the PMU, hosted at the MEF. FAO co-chairs the CPP and CTP. It delegates the implementation of the “donations” component to the MEF.

AFD, also accredited by the GCF, is responsible for the implementation of the “loans” component of the project.

The MEF is the project leader. He has an essential role in the smooth running of the project. It hosts the project management team (PMU) that it can locate at PRONAR level. The role and tasks of the various departments and directorates of the MEF will be analyzed below.

The other ministries participate, each as far as it is concerned, in the execution and monitoring of the various components of the project. Within the framework of calls for projects, memoranda of understanding are concluded with the ministries concerned.

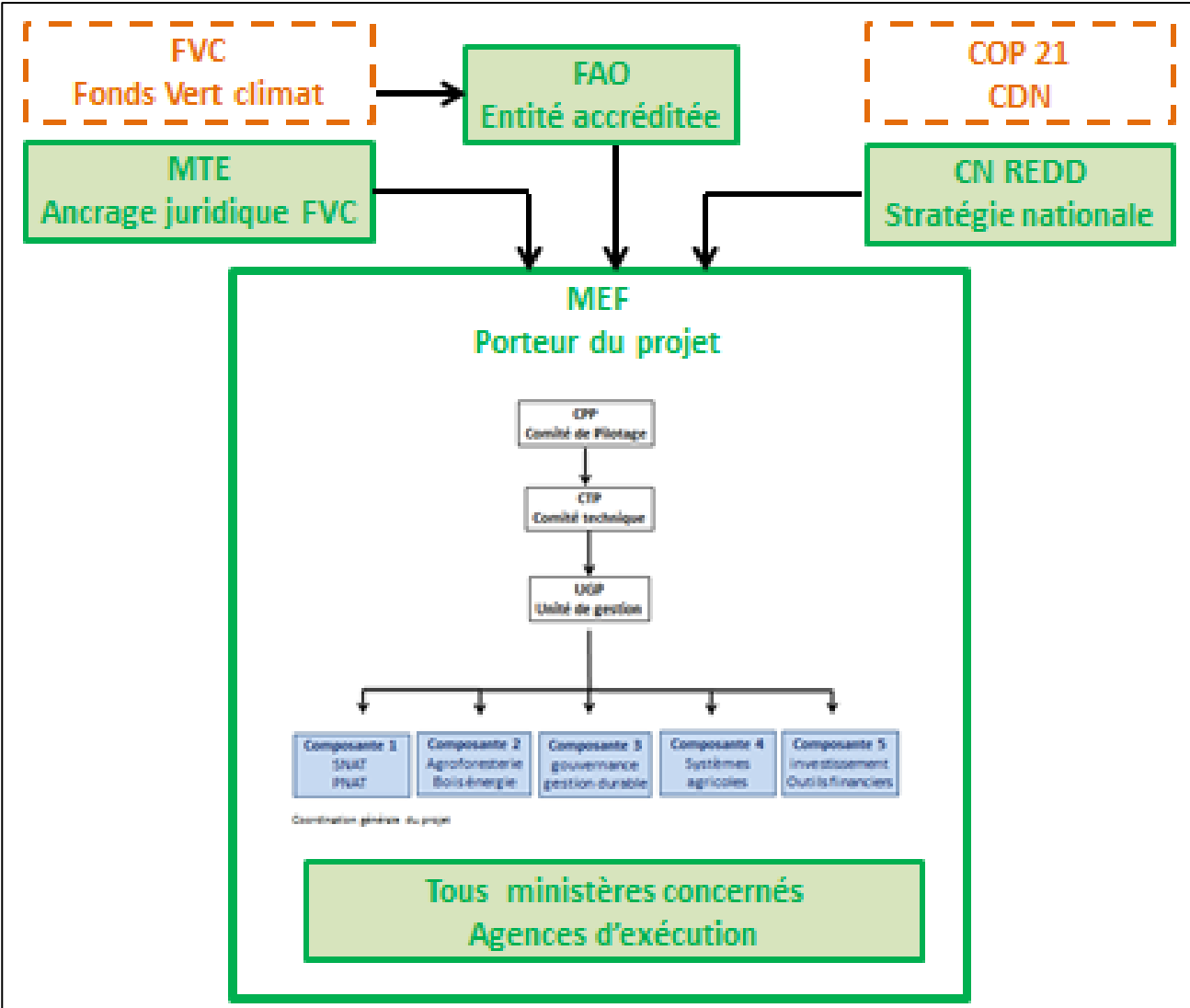


Figure 10 : institutional environment of the project

16.3 The place of donors

The project calls for co-financing to support its own actions. Below is the list of donors concerned with their pledged contributions (in millions of US dollars)

Board 30 : breakdown of GCF funding and announced co-funding

Millions US \$	FVC donations	FVC ready	BM PIF / CAFI	AFD	ADB / PIF	ADB	EU	Total
Component 1 SNAT PNAT	6		20					26
Component 2 Agroforestry BE	28	8		3.4	8	7		54.4
Component 3 GD governance	5	1					2.1	8.1
Component 4 Agricultural systems	7	1	16	5.4				29.4
Component 5 Invested. Financial tool	5	7						12
Monitoring and evaluation	5							5
Support 10%	6	2						8
Total	62	19	36	8.8	8	7	2.1	142.9

This project aggregates, for each component, several donors or distinct projects. This rather original fact requires to grant a very strong importance to the coordination, the coherence and the complementarity of the various actions and projects undertaken by these donors.

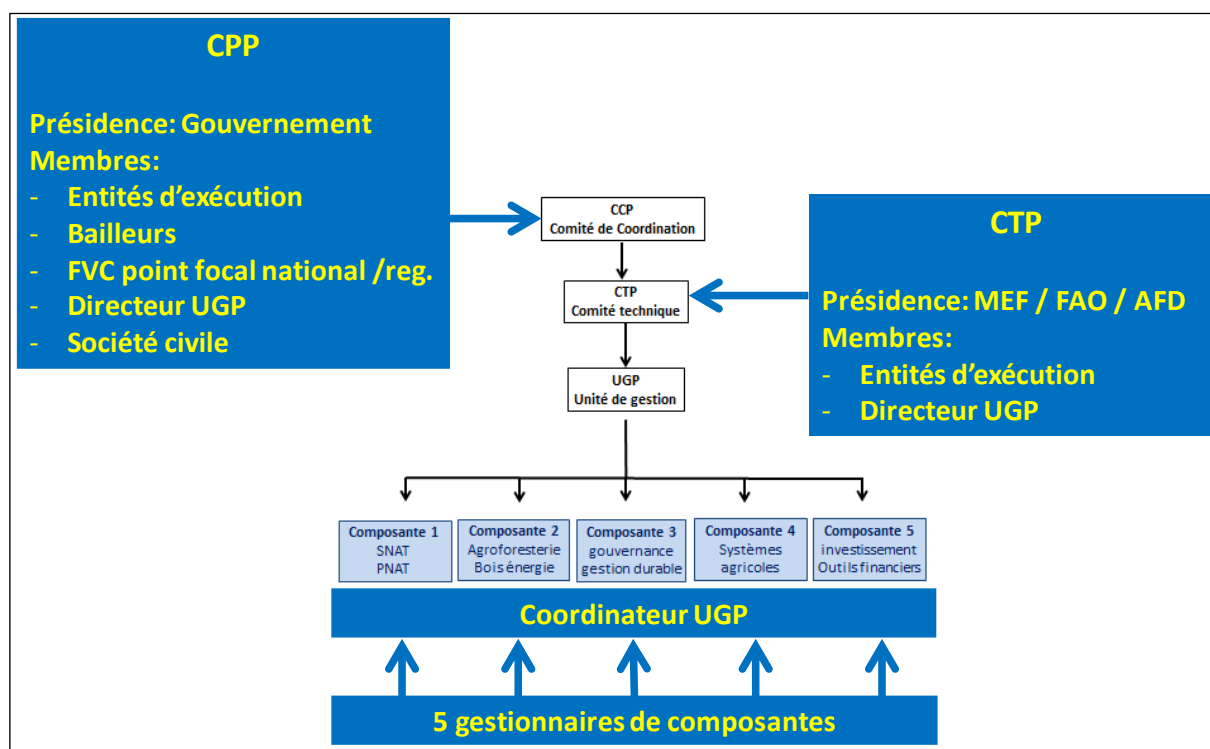


Figure 11: project coordination and animation bodies

16.4 The place and role of the PMU

The smooth running of each component depends on good coordination between the co-donors. This is the role of the PMU director and the component managers.

16.4.1 General Organization

The management team brings together the director of the PMU and the managers of the 5 components. This team is set up at the level of the MEF by the accredited entity (FAO), the only one authorized to manage the FVC contribution. The positioning at the level of the MEF can also be explained by the role of coordination with the co-financing that the managers of the PMU must ensure. The MEF may choose to locate the team at PRONAR level.

16.4.2 Scope of intervention of the PMU

This team is responsible in particular for the following functions:

- Provide the interface between FAO and the national institutions involved in the project
- Write reports, summaries and all documents relating to GCF requirements
- Ensure reporting to CPP and CTP
- Participate in the steering bodies of all co-financing projects and propose to the CTP and CPP, if necessary, changes in order to optimize the allocation of funds from each donor and the effectiveness of the actions undertaken.
- Develop and monitor calls for projects related to the establishment of the GCF budget (donations)
- Directly manage projects with FCF funds (donation component)

16.4.3 Allocation and management of funds

This meta-project brings together, around several components, various funding (loans, grants) from several donors with different requirements and operating methods (see Table 30). In this context, it is easier for each donor to keep control and ensure the technical and financial monitoring of the projects that it implements.

17 Operating model

This component concerns the definition of the responsibilities, roles and tasks of the various national institutions within the framework of the GCF. The proposed operating model is shown schematically in the following figure:

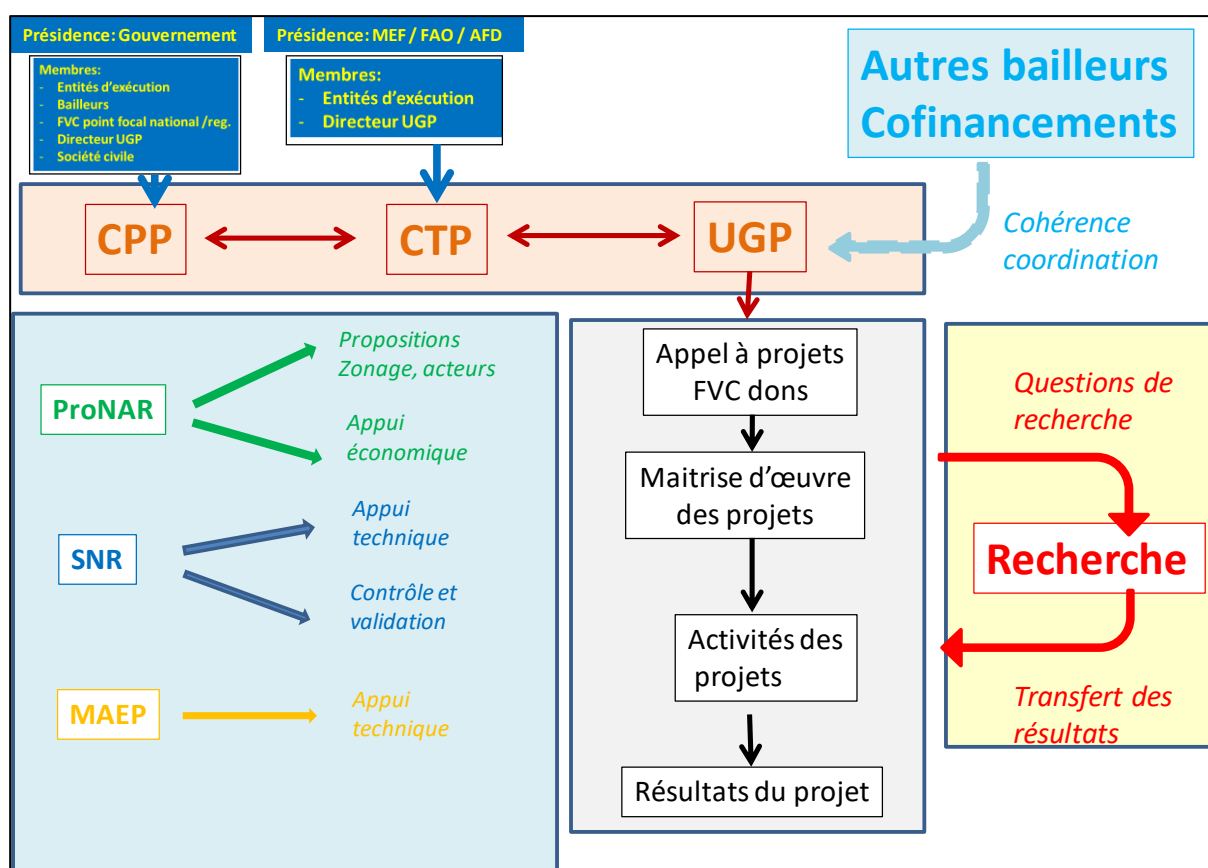


Figure 12 : Diagram of the operating model of the project

17.1 Ministry of Forest Economy (MEF)

As already mentioned above, the MEF is the project leader and therefore has an essential role to play in the coordination bodies. It hosts the project management team (PMU) which can be installed at the level of ProNAR. The PMU will be in permanent contact with the Department of Studies and Planning (DEP) in particular for everything concerning the calls for projects that will be launched. Following the usual procedure, the preparation of calls for projects will be done in consultation with the national institutions concerned by the call. They will also be represented in the tender analysis committee.

17.2 National Afforestation and Reforestation Program (ProNAR)

ProNAR has identified several reforestation areas, mainly located in savanna areas for which it secures access to land and provides the information desired by investors to guide them in their decisions. As

part of the calls for planting projects from these development centers, ProNAR provides that these secure areas can be made available to project leaders, with land ownership remaining with the State.

Since its creation, ProNAR has mainly focused on “classic” forest plantations. Its mandate also specifies that it must integrate activities to combat deforestation, but this last point has remained marginal until now. The following table compares the project's areas of intervention compared to those of ProNAR.

Board 31 : Areas of intervention of ProNAR compared to those foreseen in the Project

Types of afforestation	Project	ProNAR
State or community plantations and reforestation		X
High productivity industrial plantations		X
Village forest plantations	X	
Agroforestry plantations for cash crops (cocoa, etc.)	X	
Mixed agroforestry plantations wood energy - agricultural production	X	
Rehabilitation of forest areas degraded by slash-and-burn agriculture	X	X
Plantations in dense forest with local species	X	

With the support of the project in specific training, ProNAR will be able to intervene effectively in relation to the PMU, upstream of the activities themselves, both at the level of the promotion of the activities and in the support of the actors themselves.

17.3 National Reforestation Service (SNR)

The current missions of the SNR, presented in the first part, are multiple and now disconnected from the real intervention capacity of the SNR. The result is a complex administrative structure and staff unsuited to the new tasks that could be assigned to it.

The Project offers the opportunity to refocus the SNR, after restructuring, on the following activities:

- Production of plants for investment projects,
- Plantation under management of local species in degraded forest areas within the framework of the RNA,
- Technical support and advice to reforestation stakeholders,
- Control of achievements and compliance with specifications.

To accomplish these actions, for some “sovereign” the project will support the SNR so that it acquires the technical means adapted to these missions and will support the capacity building of the personnel who will be called upon to intervene in support of the project.

17.4 Ministry of Scientific Research and Technological Innovation (MRSIT)

17.4.1 Research

The three research institutions identified in the concept note are the Forest Research Institute (IRF), the Research Center on the Sustainability of Industrial Plantations (CRDPI) now managed by the IRF and the Agronomic Research Institute (IRA) .

These institutes with an often rich and scientifically remarkable history have suffered for several years globally from major deficiencies, not only in terms of resources (human and financial, but also in terms of renewal of skills and capacity for innovation. A quick assessment shows nevertheless, the existence of around ten research programs common to the IRF and the IRA in the field of the environment. These programs do not translate in practice into research actions and projects, except occasionally.

The project (including the announced co-financing) is a unique opportunity to give these institutes the role and place that should be theirs, through a common and concerted approach to the three institutions, an approach that could be supported by international technical assistance (CIRAD, ..). In this case, the principle is that research provides innovative and reliable solutions to the questions asked by development actors. This analysis therefore clearly positions the strategies of research institutions in a finalized partnership research approach. This approach could be structured as follows:

- Identification of questions asked by development projects (GCF financing and co-financing) for each of the 5 project components,
- Translation of questions asked by development into research questions and then into finalized research projects,
- Common synthesis of achievements,
- Actual research actions,
- Transfer of results to development projects (technical notes, seminars, etc.),
- Scientific promotion of the results (articles, conferences, etc.),

Certain major themes emerge easily from reading the content of the project components. Nevertheless, it is preferable that these themes are defined, prioritized and appropriate in concert between research and development.

17.5 Ministry of Higher Education

Two higher education institutions are involved in the project. These are the University Marien Ngouabi (UMNG) and the National School of Agronomic and Forest Sciences (ENSAF). These institutes are confronted with several contradictory dynamics of which we can quote for example:

Concerning the students:

- A significant national increase in the number of students
- A lower average level of students than before, reflecting the average level of primary and secondary education

Regarding teachers

- A decrease in the number of professors and assistants and a lack of recruitment,
- An unbalanced age pyramid and unattractive functions for teacher-researchers.

Regarding the programs

- Strong heterogeneities and gaps in several subjects posing problems of level and compatibility with international courses.
- An extreme weakness of teaching resources, in particular for field activities.

The renewal of executives and the improvement of the level of new generations of recruits is an absolute imperative for the Congo. With this in mind, the two institutions will provide master's and doctoral students who will be supported by the project on priority themes for the development of programmed activities.

17.6 - Ministry of Tourism and Environment (MTE)

FVC Focal Point

The FVC focal point is based at the MTE. This is the consequence of the reorganization of the ministries, the environment having moved from MEF to MTE.

The FVC focal point is a member of the Project Steering Committee (PPC). It ensures the conformity of the acts of the FVC Congo vis-à-vis the requirements of the FVC.

The Directorates General for Sustainable Development (DGDD) and Environment (DGE) are also involved in the implementation of the project.

17.7 Other ministries

The other ministries are involved in calls for projects, either as promoters (research projects) or as project partners, in compliance with the procedures and operating methods of the GCF and the donors involved in co-financing.

18 Possible support models

This project is innovative and its results sustainable. Too many counter-examples punctuate the history of development support projects. This is particularly the case with subsidies, which do not allow lasting ownership of the actions undertaken. This results in a strong dependence of the beneficiaries on subsidies with a disinterest from the end of the implementation period and a gradual disappearance of the results achieved.

It is therefore essential to change the paradigm and move from a logic of assistantship (100% subsidies) to a logic of co-construction (contractual support). This vision could be a strong marker of this project and help change the mindset towards an entrepreneurial dynamic.

Several support models exist and are potentially usable within the framework of this project:

- Technical assistance and institutional support for the governance and coordination bodies of the project (CPPP / CTP / UGP) as well as for project leaders
- Loans / Access to credit and subsidies for project leaders and national partner institutions;
- Training / capacity building for all stakeholders.

The following table shows the possible support methods by component of the project.

Board 32 : Possible support models by components of the overall project

Components		Technical support	Support instit.	Loans Access to credit	Subsidies	Training renf. abilities
No.	Entitled					
1	SNAT / PNAT	X	X			
2	Agroforestry / BE	X	X	X	X	X
3	Governance Sustainable management	X	X			X
4	Agricultural intensification	X		X	X	
5	Investments Financial tools			X		

18.1 Support to national partner institutions

The table below recapitulates the various supports that could be provided by the project to national institutions and specifies the type of funding. The details of this support are given in part 3 of this report.

Board 33 : Type of funding by activities of partner institutions

Institution	Need	Type of funding
MEF	Operation of the PMU (including technical assistance) and meetings of coordination bodies	Grant
	Agent training (DEP)	Grant
APRM	Agricultural machinery and equipment (CEMA)	Ready
	Plant material	Grant
ProNAR	Vehicles for prospecting and registration procedure for identified plantation land	Ready
	Training	Grant
SNR	Rehabilitation of selected nurseries	Ready
	Supply of forest and fruit plants	Purchase by the project or private operators
	Plantations under management (timber plantation and RNA)	Ready
	Agricultural vehicles and machinery	Ready
	Operation of the supervision of local communities and small private operators within the framework of the project	Grant
	Training	Grant
IRF and IRA	Funding of research / development projects of interest for the project (equipment and operation) in particular conservation of varietal releases	Grant
	Diploma and continuing training in partnership with international research centers	Grant
UMNG	Diploma and continuing training in partnership with international research centers	Grant

18.2 Support for project leaders

The cost-benefit studies highlight the need to subsidize certain expenses to make the sub-projects sufficiently attractive. The table below summarizes by technical route and by activity the type of financial support that the project can provide to operators.

Board 34 : Type of financing by type of investment project

System type	Operations / Requirements	Type of funding
Community agro-forestry system Cocoa agroforestry system (1 -5 ha per family)	Land acquisition	None (Provided by community or family)
	Preparation of the ground	Stumping: operator Labor: Subsidies
	Supply of plant material (forest plants, cocoa, cassava, seeds)	Grant
	Planting	Micro credit
	Firewalls	Grant
	Interview	Micro credit
	Small equipment	Micro credit
	Inputs	Grant
	Training	Grant
Small agro-forestry systems and private plantations (50-100 ha per project)	Land acquisition	Donation (agreement with MEF / ProNAR)
	Preparation of the ground	Ready
	Supply of plant material (forest plants, cocoa, cassava, seeds)	Grant
	Planting	Ready
	Firewalls	Grant
	Interview	Ready
	Small equipment	Ready
	Inputs	Grant
	Training	Grant

As part of the development of acacia-cassava or cocoa agroforestry plantations by small producers or communities, the project is expected to subsidize installation costs (supply of seedlings, plowing, firebreaks), with stumping remaining at charge of operators.

For private individuals, the cost of building an improved oven is to be included in the case of acacia-cassava plantations. It is expected that the project will subsidize the installation cost of the improved oven and subsidize part of the plantation installation costs (supply of seedlings up to 60%, plowing, firebreak).

Community or private operators take care of the planting and upkeep of the plots and benefit from the support of the project to obtain, if necessary, loans to make bridging the gap while awaiting harvest income.

Private operators benefit from the same conditions in the context of the development of mixed acacia-eucalyptus plantations. The project is expected to subsidize the costs of installation (supply of seedlings, plowing, firebreaks), stumping, planting and maintenance of the plots remaining at their expense. Here, it is also necessary to include the cost of construction of an improved furnace supported by the project.

Concerning the system for converting existing eucalyptus plantations (Pointe-Noire and Loudima) into coppice, if this option is validated by the Ministry, the operator will sign an agreement with the MEF for the concession of planted land. For the development of part of the Pointe-Noire massif, the cost-benefit study highlights the need for significant support to be provided to the operator in order to minimize the investment cost linked to the installation of the industrial oven. It is expected that the terms of support to the operator will be identified by the complementary mission led by the Horus Development finance firm on the "Financing" component of the feasibility studies of the FVC-Congo project.

The operator will be responsible for all the operations to be carried out and may be financed by a subsidized loan granted by the project.

In general, with the support of the project, all or part of the expenses remaining chargeable to the operators could be, if necessary, financed by loans in various forms.

18.3 Calls for projects

The support offered to implement the investment projects will be mainly in the form of a call for projects.

Two types of call for projects will be launched, depending on whether the call is addressed to private individuals likely to be able to set up large-area forest or agroforestry plantations or to local groups or individuals who can only develop smaller areas.

The following general eligibility criteria will apply for all tenders:

- have a bank account in the name of the tenderer (company, group or individual) with a financial institution registered with the Central African Banking Commission;
- produce acceptable proof of land ownership, in the event that the bidder owns the land on which he wishes to develop his project.

At the level of local and individual groups, it will also be necessary to:

- have two years' experience as a group (even informally).
- have accounting records (even if only the most recent year is available);
- have common assets.

In the case of private companies with an industrial vocation, the criteria applied by ProNAR for the establishment of partnership agreements will apply.

19 Monitoring and evaluation

19.1 Monitoring

This will involve setting up an inclusive process of supporting beneficiaries and participatory monitoring and evaluation that will ensure the proper implementation of the project, its social and technical ownership, its long-term sustainability and its replication. It will be essential to anticipate the establishment of effective monitoring that can go beyond the project funding period over at least the duration of one plantation rotation to ensure the effectiveness of the project on the long term.

In fact, support will also have to go through the establishment of support structures and accessible and effective financial mechanisms to ensure the long-term support and replication of initiatives. This can be materialized by setting up long-lasting support structures that will facilitate not only cooperation on value chains, access to information and training, but also the development of business plans and access. funding.

The project monitoring system will be coordinated by the PMU, based in Brazzaville, which will coordinate the entire system (revision of indicators, target start-up values at mid-term and at the end of the project; formulation of survey questionnaires, report format, schedule, etc.).

The project monitoring indicators (output and result indicators indicated in the future logical framework) will be continuously informed by the project team. They will be updated at least at each deadline of the steering committee or at each report (every six or twelve months).

As mentioned, the project will be monitored by the Steering Committee (SC) on a biannual basis. For this, the PC will have the semi-annual progress report of the project. This report will present the activities of the project over the past semester and the related expenses, also making a critical analysis of these activities and will present the results finally achieved, compared to those expected. This report will be prepared by the project coordinator who will also make a presentation of the activities planned for the following semester as well as the related budgets.

Once a year, this report will include an assessment of the progress made since the start of the project and, over the years, a follow-up of the achievements and results.

19.2 Evaluation

The project will be subject to external mid-term and final evaluations. These will be entrusted by the project to a design office selected through a call for tenders. The mid-term evaluation can be used to reorient the project.

Accounts audits

Annually, an audit of the accounts will be carried out by an approved external auditor on the basis of standard terms of reference proposed by FAO and AFD. In addition, the project must establish a half-yearly activity report (technical and financial) to be submitted to the Steering Committee and to FAO, as well as a project completion report.

The half-year report will detail the objectives of the half-year concerned, the activities carried out and those that could not be, the expenses incurred and will present the program planned for the following half-year for approval by the PC.

PART 5 - Financial feasibility

The budget presented below concerns the development costs of investment projects estimated on the basis of the mission's proposals in terms of the technical routes adopted and the proposed extension areas. It provides an estimate of the costs of development over 7 years (including R&D) and operations, including the purchase of plants / seeds, inputs, equipment and technical support from government structures involved in the implementation. of the Project as requested in the terms of reference of this operational feasibility and integrates the cost elements of the wood-energy component of the project, on the basis of the proposals made in the corresponding feasibility. This budget therefore mainly concerns components 2 and 4 of the overall project,

This provisional budget is a first draft which may evolve, as soon as the model of support for investment projects has been determined by the Government and FAO following the mission's proposals.

20 Estimated project costs

Board 35: Summary of estimated project costs over 7 years

	Budget Programme de Mise en œuvre de la contribution déterminée nationale (CDN) du Congo dans le secteur de l'utilisation des terres et de la foresterie	80 255 830	44 497 576	897 162	32 580 460
	Objet	Total	Subvention	Prêt	Opérateur
I	TOTAL RESSOURCES HUMAINES	6 994 000	6 994 000	0	0
	personnel opérationnel	4 116 000	4 116 000	0	0
	personnel d'appui	1 142 400	1 142 400	0	0
	perdiems et primes	831 600	831 600	0	0
	Expert court terme	904 000	904 000	0	0
II	TOTAL TRANSPORT AERIEN	104 200	104 200	0	0
III	TOTAL EQUIPEMENTS	513 000	513 000	0	0
IV	TOTAL FONCTIONNEMENT DE PROJET	1 360 800	1 360 800	0	0
V	TOTAL INVESTISSEMENTS HABILITANTS	9 571 000	9 571 000	0	0
	A1 Appui à la gouvernance (plateforme de concertation interministérielle)	68 000	68 000		
	A2 Plateforme de concertation multisectorielle et multiacteurs pour chaque	116 000	116 000		
	B Elaboration de Schéma Directeur d'Approvisionnement en Bois-énergie	9 387 000	9 387 000	0	0
VI	TOTAL Investissements Sectoriels	52 858 856	20 278 397	0	32 580 460
	A1 Plantations agroforestière à Acacia auriculiformis (petits producteurs)	15 573 000	7 276 000	0	8 297 000
	A2 Plantations agroforestière à Acacia auriculiformis (privés)	4 270 107	1 538 907	0	2 731 200
	B Plantations mixtes Acacia X Eucalyptus (privés)	10 360 988	4 670 375	0	5 690 613
	C1 Gestion en taillis massif Eucalyptus de Pointe-Noire (privés)	13 960 028	1 899 515	0	12 060 514
	C2 Gestion en taillis du massif d'Eucalyptus de Loudima (privés)	2 965 133	0	0	2 965 133
	D Plantation agroforestière à Cacao	3 924 000	3 088 000	0	836 000
	E Amélioration des techniques de carbonisation	375 600	375 600	0	0
	F Diffusion de foyers améliorés	1 230 000	1 230 000	0	0
	G Etude de potentiel et d'impact du déploiement du GPL	200 000	200 000	0	0
VII	TOTAL Investissements Structurants	2 526 592	1 688 123	838 470	0
	A Ministère de l'économie forestière	240 490	240 490	0	0
	B ProNAR	243 918	152 449	91 469	0
	C Service National de Reboisement	823 225	228 674	594 551	0
	D IRF / CRDPI	358 255	358 255	0	0
	E IRA	358 255	358 255	0	0
	F UMNG / ENSAF	350 000	350 000		
	G Ministère de l'agriculture et de l'élevage	152 449	0	152 449	0
VIII	TOTAL Investissements Sociaux	492 000	492 000	0	0
	A Mise en œuvre de Plan Simple de Gestion à vocation de production de	492 000	492 000	0	0
	TOTAL GENERAL	74 420 448	41 001 520	838 470	32 580 460
IX	Supervision et suivi évaluation	585 000	585 000		
	TOTAL COUTS DIRECTS	75 005 448	41 586 520	838 470	32 580 460
	GMS (7%)	5 250 381	2 911 056	58 693	0
	TOTAL GENRAL PROGRAMME	80 255 830	44 497 576	897 162	32 580 460

The total estimated amount of the project is around 80 million euros, of which 62 million relate to investment projects, 15 million for technical assistance, operation and management of the project and just over 2.5 million. euros for strengthening national stakeholder structures.

Investment projects benefit from a subsidy for an average of 48%, the remainder being the responsibility of the operators who may resort to loans for part of their financing according to their own financing capacity.

APPENDICES

Annex 1. ProNAR / Communities model contract on support for the establishment of agroforestry plantations

Annex 2. SNR equipment inventory at 12/31/2017.

Annex 3. Need for plants by department and technical route

Annex 4. ProNAR Partnership Building Process

Annex 5. Detailed budget

Annex 6. Cost details by technical route

Annex 1

ProNAR / Communities model contract on support for the establishment of agroforestry plantations

MINISTRY OF FOREST ECONOMY

- - - - -

FIRM - - - - -

- - - - -

NATIONAL AFFORESTATION PROGRAM
AND REFORESTATION (PRONAR)

- - - - -

NATIONAL COORDINATION

- - - - -

REPUBLIC OF CONGO

Union Work Progress

CONTRACT N ° CN-PRONAR / 2017

CONSULTANCY SERVICES CONTRACT

SMALL CONTRACTS for the establishment of One (01) hectare of agroforestry plantations in the village of Mbanza Nkolo, District of Loumo, Department of Pool.

July 2017

THIS CONTRACT ("the Contract") is concluded on July 15, 2017, by and between the National Afforestation and Reforestation Program ("the Client") having its main establishment in Brazzaville, in Rue Motaba N ° 1564 (behind the CEG March 8), Plateau des 15ans, and Jean-Baptiste LOCKO ("the Consultant") having his main establishment in the village of Mbanza Nkolo, District of Loumo, Department of Pool.

WHEREAS the Client wishes the Consultant to provide the services referred to below, and

WHEREAS the Consultant agrees to provide said services,

FOR THESE REASONS, THE PARTIES TO THIS AGREEMENT have agreed as follows: 4

- 1. Services**
- (i) The Consultant provides the services specified in Annex A "Terms of Reference and Scope of Services" which forms an integral part of this Contract ("the Services").
 - (ii) The Consultant provides the personnel listed in Annex B "Consultant Personnel" for the provision of the Services.
 - (iii) The Consultant submits reports to the Client in the form and within the timeframe specified in Annex C "Consultant's Reporting Obligations".

- 2. Calendar** The Consultant provides the Services during the period beginning July 17, 2017 and ending October 31, 2017, or during any other period which the parties may subsequently agree in writing.

- 3. Payment** AT. Ceiling amount

For the Services provided in accordance with Annex A, the Client pays the Consultant an amount capped at Five Hundred and Four Twenty Ten Eight Thousand Eight Hundred and Twelve (598,812) CFA Francs, it being understood that this ceiling amount includes all costs and benefits of the Consultant.

B. Payment Schedule

The payment schedule is as follows ¹:

- Fifty Thousand (50,000) CFA Francs for stump removal and collection when the Client receives the report on the completion of the task from the extension worker countersigned by the household.
- Four Hundred and Seventy Eight Thousand Eight Hundred Twelve (478 812) CFA Francs distributed as follows:

¹ To be modified according to the Consultant's obligations, which are described in Annex C.

- Forty Five (45,000) CFA Francs for the grid / picketing / holeing
- One Hundred and Forty Eight Thousand Two Hundred (148,200) CFA Francs endowment in acacia plants
- One Hundred and Four Twenty Four Thousand Five Hundred (184,500) CFA Francs endowment in fruit plants
- Seventy-one Thousand Hundred Twelve (71,112) CFA Francs endowment in food seeds
- ○ Seventy-Five Thousand (75,000) CFA Francs for planting;

when the Client receives the report drawn up by the extension agent on the basis of the forms previously completed by the households.

- Twenty Five Thousand (25,000) CFA Francs relating to the first manual maintenance when the Customer receives the final report and considers it acceptable.

vs. Payment Terms

Payments are made in CFA Francs within 30 days of the date on which the Consultant has presented project implementation sheets in duplicate, deemed acceptable by the local extension agent.

4. Project administration AT. Coordinator

The Client appoints Mr. Lambert IMBALO as coordinator, the Coordinator is responsible for coordinating the activities under the Contract, accepting and approving reports and other products on behalf of the Client.

B. Reports

The reports listed in Annex C “Consultant's Reporting Obligations” are presented during the assignment.

5. Standards Performance

The Consultant undertakes to provide the Services in accordance with the most demanding professional and ethical standards. He quickly replaces all employees assigned to the execution of this Contract who do not give satisfaction to the Customer.

6. Duty to Reserve

During the term of this Contract and six months following its expiration, the Consultant shall not disclose any proprietary or confidential information concerning the Services, this Contract, the affairs or the activities of the

Client without having obtained the prior written authorization of the Client.
this.

7. Ownership of Documents and ProductsContract become and remain the property of the Client. The Consultant may retain a copy of such documents.

8. Insurance The Consultant takes all appropriate measures to insure.

9. Commitments ofAT. The Consultant's commitments
both parties

The household undertakes to:

- provide the project with an implantation site for the implementation of the activities selected under this contract as well as their leaders / members;
- guarantee the property rights of the site;
- apply the technical lines proposed by PRONAR for forestry;
- use the plants for the purposes for which they were acquired;
- involve household members in all phases of the project;
- identify household members to benefit from training on topics related to the establishment of nurseries, agroforestry planting techniques and marketing

B. The Client's commitments

PRONAR undertakes to:

- support the establishment of one hectare of agro-forestry plantations;
- provide the household with fruit plants for the home orchard;
- take charge of operations of plowing and spraying of one hectare of land to be planted;
- support the organization of household training on themes related to agro-forestry plantations and marketing techniques;
- provide the household with an extension agent for: (i) technical assistance to communities in setting up plantations and; - (ii) -technical assistance / advice in the event of a problem in agro-forestry plantations.

10. Transfer The Consultant does not assign or subcontract this Contract or any part thereof without the prior written approval of the Client.

10. Applicable law The Contract is subject to the law of the Republic of Congo.
and language of the
contract

12. Dispute resolution Any dispute related to this Contract that the parties cannot settle amicably will be submitted to arbitration / conciliation in accordance with the law of the Republic of the Congo.

TO THE CUSTOMER

FOR THE CONSULTANT

Signed by Lambert IMBALO
Coordinator

Signed by Jean-Baptiste LOCKO
Head of household

APPENDICES

Annex A: Terms of Reference and Scope of Services

In Congo, peasants use the land mainly for food crops. The possible associations used seldom include trees. Consequently, the Local Communities and Indigenous Populations (CLPA) have little knowledge of agroforestry techniques and develop very little forest or agro-forestry plantations.

Moreover, these people are struggling for survival to the point where they are not able to save enough or take risks to engage in a new type of economic activity, apart from slash and burn agriculture.

Also, to offer communities an alternative to shifting slash-and-burn agriculture, technical itineraries such as *Acacia auriculiformis* / short-cycle food crops / fruit trees associations will make it possible to settle agriculture, reforest degraded forest areas, " afforestation of the savannah areas and to provide beneficiaries with intermediate income before the trees mature.

The short cycle / food crops to be associated with trees will vary according to the localities and the cultural practices of the populations. The range of speculations foreseen is as follows: cassava, chili, eggplant, tomato, peanut, sweet potato, yam, amaranth, cucumber and potato. The trees recommended are *Acacia auriculiformis* and the various fruit species to be put in place such as citrus, mango, avocado and safoutier. These associations will allow the farmers to have income quickly thanks to the associated crops and will oblige them to keep the plot weed-free.

It is within this framework that the National Coordination of the National Afforestation and Reforestation Program (CN-PRONAR) has benefited from funding from the Forest and Economic Diversification Project (PFDE) aimed at the implementation of the project. supervision of CLPAs in the establishment of income-generating activities relating to environmental services ".

Goals

Provide the household with intermediate income through the establishment of an environmental micro-project that generates income, under the supervision and technical monitoring of PRONAR.

Activities

- 1) Site delimitation and land clearing no later than July 20, 2017.

The beneficiary chooses and delimits the site on which the activities will be carried out under the supervision of the extension worker and proceeds to clearing;

- 2) Stump removal and collection of stumps;

This is the preparation of the mechanized operation of plowing and spraying by the beneficiary by July 30, 2017 at the latest;

- 3) Plowing and spraying operations

These operations will require an external service, which PRONAR will have to provide from 05 August 2017.

- 4) -Operation of squaring, picketing and hole punching

These operations will be carried out under the supervision of the extension agent no later than October 15, 2017.

- 5) Endowment with acacia plants, fruit plants and food seeds

This is the provision of plants for the development of the prepared hectare and the orchard of the house no later than October 20, 2017.

- 6) Planting operation will be carried out under the supervision of the extension agent no later than October 25, 2017
- 7) in situ training of households on the installation and management of agroforestry plantations

Field preparation operations will be carried out concurrently with training

8) First manual interviews

The maintenance of the plantations as soon as the seedlings are set up in the field, is essential for the definitive success of a reforestation.

Expected results

- One hectare of agroforestry plantations associating fruit trees with food crops is set up.
- The monitoring of all activities to be carried out in the field is effective;

Head of household profile

- Adult person aged 51, married and father of 06 children;
- Belongs to a family with plots of land;
- Resides in the selected locality and actively participates in the life of the community on various occasions (meeting, marriage, mourning, etc.);
- Is physically fit to perform manual work and;
- Justify assets to work with him in the plantation.

Annex B: Consultant staff

Active household members: 08

Annex C: Consultant's Reporting Obligation

The project implemented within the framework of this contract will be monitored by the extension worker who, on the basis of the forms previously filled in by the head of household, will draw up a report to be sent to CN-PRONAR. In addition, a final support implementation report will be prepared by the household with the support of the extension agent.

Clearly, three reports must be sent to the Client:

- preparation report (site and people working for stump removal and collection countersigned by the household and the extension agent) - summary report of household files prepared by the extension worker - final activity report.

Annex 2

Inventory of the National Reforestation Service equipment as of 12/31/2017.

UNITS	DESIGNATION	TYPE	REGISTRATION	YEAR OF ACQUISITION	STATUS AT 12/31/2017
DIRECTION	ROLLING STOCK				
	TOYOTA FORTUNER	YX 596	634HB6	2013	GOOD CONDITION
	TOYOTA LAND CRUISER3	LB73	231HN6	2015	GOOD CONDITION
	TOYOTA HILUX	FR22	411HH6	2013	GOOD ENOUGH
	SUZUKI GRAND VITARA	LLN80CL	650GGGQ4	2007	GOOD ENOUGH
	PEUGEOT PARTNER	NP44	620JTQ6	2015	GOOD CONDITION
	Mercedes benz	1617	909CMQ6	2003	GOOD ENOUGH
	MITSUBISHI DC	L200	511HTQ4	2011	OUT OF ORDER
	MF375 TRACTOR		K7822	2015	GOOD CONDITION
	FIXED EQUIPMENT				
	GE OLYMPIA	GEP30		2009	GOOD ENOUGH
	GE OLYMPIA	GEP50		2011	GOOD ENOUGH
	GE GUN DONG				
	SUPPRESSOR			2017	GOOD CONDITION DIR.SNR
	SUPPRESSOR				GOOD CONDITION.
NGONDJI	ROLLING STOCK				
	MITSUBISHI DC	L200	608HTQ4	2011	ACCIDENT
	MITSUBISHI DC	L200	628HTQ4	2011	BAD CONDITION
	TOYOTA LC	HZJ 79		2003	OUT OF ORDER
	NEW H TRACTOR	TS 100		2010	OUT OF ORDER
	EXTRA MF TRACTOR	440	BWY 425007	2012	OUT OF ORDER

	MOTORCYCLE CROSS	RTM 150	617FAQ6	2009	OUT OF ORDER
	FIXED EQUIPMENT				
	GE	GEP21	LP460	2000	GOOD ENOUGH
	GE	6500E			BAD CONDITION
	MOTORCYCLE PUMPF33P105			2001	
	MOTORCYCLE PUMP			2014	GOOD ENOUGH
	STIL SAW	70			BAD CONDITION
	STIL SAW	70			BAD CONDITION
YOUBI	ROLLING STOCK				
	TOYOTA LC	HZJ 79	568ECQ6	2009	BAD CONDITION
	MOTO TF	125	869JRQ4	2012	BAD CONDITION
	FIXED EQUIPMENT				
	MOTORCYCLE PUMP	TIGER			GOOD ENOUGH
	GE	6500E		2015	GOOD ENOUGH
MAYOMBE	ROLLING STOCK				
	TOYOTA LC	BJ 73	017GXQ6	2012	GOOD ENOUGH
	SUZUKI MOTORCYCLE	TF 125	872JRQ4	2012	OUT OF ORDER
	FIXED EQUIPMENT				
	COMPRESSOR				GOOD ENOUGH
	GE	6500E		2014	GOOD ENOUGH
DOLISIA	ROLLING STOCK				
	MITSUBISHI	L200	412HTQ4	2011	GOOD ENOUGH
	MF TRACTOR	440	BWY23011	2012	GOOD ENOUGH
	CHARUE				GOOD ENOUGH
MALOLO	ROLLING STOCK				
	MITSUBISHI	L200	221DCQ6	2005	BAD CONDITION
	MF TRACTOR	440	BWY23012	2012	OUT OF ORDER
	COVERCAP			2012	GOOD ENOUGH

	FIXED EQUIPMENT				
	GE	KIPOR			BAD CONDITION
	GE	6500E			GOOD ENOUGH
NGOUHA II	ROLLING STOCK				
	TOYOTA LC	HZJ 79	270HL	2013	GOOD CONDITION
	MOTORCYCLE KTM	125		2009	BAD CONDITION
	MOTORCYCLE MTR	150	447FV6	2011	BAD CONDITION
	FIXED EQUIPMENT				
	GE	6500E		2015	GOOD ENOUGH
	STIL SAW	70		2012	OUT OF ORDER
	MOTORCYCLE PUMP				GOOD ENOUGH
LOUDIMA	ROLLING STOCK				
	MITSUBISHI	L200	626HTQ4	2011	BAD CONDITION
	TOYOTA HILUX		968JK6 IT	2015	WELL
	MF TRACTOR	440		2012	OUT OF ORDER
	FIXED EQUIPMENT				
	GE	6500E		2015	GOOD ENOUGH
	MOTOR PUMP				
MBILA	ROLLING STOCK				
	TOYOTA LC	HZJ 79	080HVQ6	2014	GOOD ENOUGH
	SUZUKI MOTORCYCLE	TF 125	864JRQ4	2012	GOOD CONDITION
	MOTORCYCLE MTR	150	446FVQ4	2009	BAD CONDITION
	FIXED EQUIPMENT				
	GE	6500E		2014	GOOD ENOUGH
	STIL SAW	70		2012	GOOD ENOUGH
MADINGOU	SUZUKI MOTORCYCLE	TF 125	866JRQ4	2012	OUT OF ORDER

KAYES	SUZUKI MOTORCYCLE	TF 125	862JRQ4	2012	BAD CONDITION
KINKALA	MITSUBISHI DC	L200	LC629HTQ4	2011	BAD CONDITION
PEP BZV	TOYOTA HILUX DC	FR22	790KA4	2014	GOOD ENOUGH
	MOTO CROSS S	TF 125	863JRQ4	2012	OUT OF ORDER
	MOTO CROSS S	TF 125	871JRQ4	2012	OUT OF ORDER
KINTELE	ROLLING STOCK				
	MITSUBISHI DC	L200	627HTQ4	2011	GOOD ENOUGH
	FIXED EQUIPMENT				
	MOTORCYCLE PUMP	DGUT2		2002	BAD CONDITION
	MOTORCYCLE PUMP			2011	GOOD ENOUGH
OSSIO	MITSUBISHI DC	L200	516HTQ4	2011	OUT OF ORDER
	MITSUBISHI DC	L200	292DCQ6	2003	BAD CONDITION
PEP DJAMBALA	MOTO CROSS SUZUKI	TF 125	865JRQ4	2012	BAD CONDITION
KM45	ROLLING STOCK				
	TOYOTA HILUX SC		IT 130GJ4	2009	OUT OF ORDER
	TOYOTA HILUX DC	FR22	969JK6 IT	2015	GOOD ENOUGH
	MITSUBISHI DC	L200	514HTQ4	2011	BAD CONDITION
	MOTO CROSS S	TF 125	861JRQ4	2012	OUT OF ORDER
	MOTO CROSS S	TF 125	868JRQ4	2012	GOOD CONDITION
	MF TRACTOR	440	BWY 22002	2011	GOOD CONDITION
	MF TRACTOR	440	BWY 25028	2011	BAD CONDITION
	MF TRACTOR	440	BWY 23027	2011	BAD CONDITION
	MF TRACTOR	440	BWY 25037	2011	GOOD CONDITION
	MF TRACTOR	440	BWY 25038	2011	BAD CONDITION
	FIXED EQUIPMENT				
	MOTORCYCLE PUMP				NO INFO

	GE				NO INFO
OYO	TOYOTA LC	H 2579	081HUQ6	2014	GOOD ENOUGH
	MOTO CROSS S	TF 125	867JRQ6	2012	OUT OF ORDER
	MF TRACTOR	440	BWY 23015	2011	GOOD ENOUGH
EWO	MITSUBISHI DC	L200	500HTQ4	2011	BAD CONDITION
	MF TRACTOR	440	BWY 23026	2011	BAD CONDITION
POKOLA	TOYOTA LC	BJ 74	016GX6	2012	GOOD ENOUGH
ENYELLE	MITSUBISHI DC	L200	625HTQ4	2011	GOOD ENOUGH
	OUTBOARD	40CV		2003	GOOD ENOUGH
	MOTO CROSS S	TF 125	870JRQ4	2012	BAD CONDITION

GE = GENERATOR GROUP

Annex 3

Plant requirements by department and by technical route

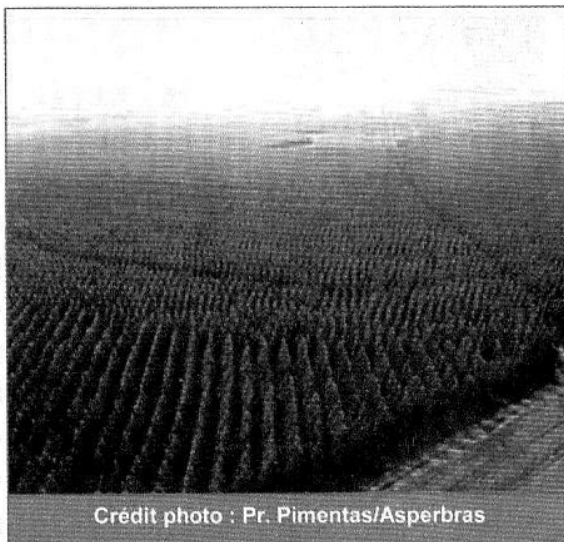
Kouilou		Bouenza	
Gestion de taillis d'Eucalyptus		Gestion de taillis d'Eucalyptus	
Années	7	Années	7
Surface totale (ha)	5 000	Surface totale (ha)	2 000
Surface totale à renouveler (ha)	1 250	Surface totale à renouveler (ha)	500
Surface à renouveler/an (ha)	179	Surface à renouveler/an (ha)	71
Besoin plants/ha	816	Besoin plants/ha	816
Besoins annuels plants	145 714	Besoins annuels plants	58 286
Besoins annuels plants (arrondi)	150 000	Besoins annuels plants (arrondi)	60 000
Niari		Pool	
Agroforesterie Acacia-Manioc		Agroforesterie Acacia-Manioc	
Années	7	Années	7
Surface (ha)	2 500	Surface (ha)	4 500
Surface annuelle (ha)	357	Surface annuelle (ha)	643
Plants/ha (acacia)	1 111	Plants/ha (acacia)	1 111
regarni 10%	111	regarni 10%	111
Besoin plants/ha	1 222	Besoin plants/ha	1 222
Besoins annuels plants	436 464	Besoins annuels plants	785 636
Besoins annuels plants (arrondi)	440 000	Besoins annuels plants (arrondi)	785 000
Plateaux		Plantations forestières acacias/eucalyptus	
		Années	7
Plantations forestières acacias/eucalyptus		Surface (ha)	2 500
Années	7	Surface annuelle (ha)	357
Surface (ha)	2 500	Plants/ha (eucalyptus)	500
Surface annuelle (ha)	357	regarni 15%	75
Plants/ha (eucalyptus)	500	Besoin plants/ha	575
regarni 15%	75	Besoins annuels plants	205 357
Besoin plants/ha	575	Besoins annuels plants (arrondi)	210 000
Besoins annuels plants	205 357	Plants/ha (acacia)	500
Besoins annuels plants (arrondi)	210 000	regarni 15%	75
Plants/ha (acacia)	500	Besoin plants/ha	575
regarni 15%	75	Besoins annuels plants	205 357
Besoin plants/ha	575	Besoins annuels plants (arrondi)	210 000
Besoins annuels plants	205 357		
Besoins annuels plants (arrondi)	210 000		

Cuvette	
Cacao en système agroforestier	
Années	7
Surface (ha)	1 000
Surface annuelle (ha)	143
Plants/ha (cacao)	1 100
regarni 15%	165
Besoin plants/ha	1 265
Besoins annuels plants	180 714
Besoins annuels plants (arrondi)	181 000
Plants/ha (fruitier)	50
regarni 15%	8
Besoin plants/ha	58
Besoins annuels plants	8 214
Besoins annuels plants (arrondi)	8 500
Plants/ha (forestier)	12
regarni 15%	2
Besoin plants/ha	14
Besoins annuels plants	1 971
Besoins annuels plants (arrondi)	2 000
Boutures/ha (plantain)	800
regarni 15%	120
Besoin boutures/ha	920
Besoins annuels boutures	131 429
Besoins annuels boutures (arrondi)	132 000

Annex 4: Process for establishing a partnership with ProNAR

DEFINITION

Les promoteurs privés industriels sont des partenaires capables de gérer plus de 1000 hectares de plantations, une pépinière industrielle ou semi industrielle d'une capacité de production de plus de 500 000 plants et/ou possédant une unité de transformation des produits forestiers issus des plantations



Crédit photo : Pr. Pimentas/Asperbras

Ces types de partenaires apporteront des capitaux et des financements pour la mise en place et la réalisation des projets de plantations industrielles à grande échelle dans le pays.

IMPLANTATION INDUSTRIELLE DANS LE REBOISEMENT ET L'AFFORESTATION

Le processus d'établissement d'un partenariat avec le P_{RO}NAR se déroule en plusieurs étapes :

Première étape : intention de partenariat

Le processus d'installation d'un promoteur industriel de plantations forestières commence par l'adresse d'une lettre d'intention à Monsieur le Ministre de l'Economie Forestière et du Développement Durable, ou via la Coordination du P_{RO}NAR.

Cette lettre d'intention doit préciser :

- * la nature des activités à mener ;
- * les superficies des plantations à réaliser;
- * l'industrie à créer.

Deuxième étape : dossier de partenariat

Dés réception de la lettre d'intention, le ministère notifiera par courrier au futur partenaire industriel dans un délai de 15 jours, l'approbation ou non du projet.

Dans le cas d'une approbation, le partenaire industriel devra fournir un dossier complet comprenant les pièces ci-après :

- * une indication sur papier libre de l'adresse physique complète (domiciliation, B.P, N° de téléphone, email) congolaise du siège social de l'entreprise de droit congolais existante ou en création;
- * les statuts de la société, la liste des actionnaires et des administrateurs ;
- * le montant du capital social et sa répartition par actionnaire ;
- * l'origine des capitaux qui financent l'investissement avec les références précises ;

Troisième étape : traitement des dossiers de partenariat

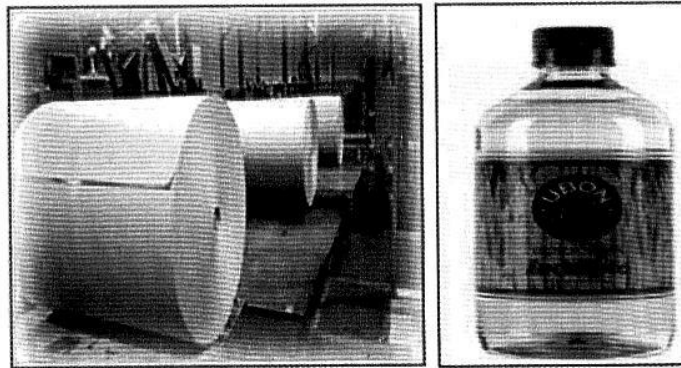
Le Ministre de l'Economie Forestière et du Développement Durable, par note de service et sur proposition de la Coordination du P_{RO}NAR, désignera les membres de la commission devant procéder à l'examen du ou des dossiers des soumissionnaires.

Quatrième étape : signature de la convention

Après approbation du dossier par les membres de la commission, le postulant signera dans un délai d'un mois la convention et le bail emphytéotique de 99 ans avec le Gouvernement de la République du Congo.

Cinquième étape : étude d'impact environnemental

Après signature de la convention et du bail emphytéotique, le partenaire sera obligé de mener une étude d'impact socio-environnementale.



Crédit photo : Pr. Pimentas/Asperbras

Annex 5: Detailed budget

	Budget Implementation Program of the Congo's National Determined Contribution (CDN) in the land use and forestry sector				79 881 330	44 123 076	897 162	32 580 460
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		Object	unit	unit price	number or areas	Total	Grant	Ready	Operator
I		Human ressources							
		operational staff							
	1	expatriate project manager based in Brazzaville	month	12,000	84	1,008,000	1,008,000		
	2	deputy project manager based in Brazzaville	month	4000	84	336,000	336,000		
	3	international technical assistant specializing in woodfuel	month	12,000	84	1,008,000	1,008,000		
	4	technical expert geographer, specialist in Geographic Information Systems	month	1,500	84	126,000	126,000		
	5	a technical expert specializing in participation, facilitation and animation	month	1,500	84	126,000	126,000		
	6	Brazzaville antenna manager	month	2,000	84	168,000	168,000		
	7	Pointe-Noire antenna manager	month	2,000	84	168,000	168,000		
	8	sub-director Dolisie and Owando (2)	month	1,500	168	252,000	252,000		
	9	support facilitator for the structuring of the environment (1 per department = 6)	month	500	504	252,000	252,000		
	10	forest engineer (1 per branch = 4)	month	1000	336	336,000	336,000		
	11	territorial agro-forestry (1 per branch = 4)	month	1000	336	336,000	336,000		
		subtotal				4,116,000	4,116,000	0	0
		support staff							
	1	logistician Brazzaville and Pointe Noire	month	1000	168	168,000	168000		
	2	accountant logistician under antenna	month	600	168	100 800	100800		
	3	Accountant Brazzaville	month	1,500	168	252,000	252000		
	4	Accountant Pointe Noire	month	2,500	84	210,000	210,000		
	5	secretary (2)	month	600	168	100 800	100800		

	6	car mechanic drivers (1 per branch = 2 + project management = 1)	month	500	252	126,000	126000		
	7	base cleaning staff (1 per branch = 4)	month	100	336	33,600	33600		
	8	Brazzaville + Pointe-Noire goalkeepers (6)	month	200	504	100 800	100800		
	9	sub antenna guards (6)	month	100	504	50,400	50400		
		subtotal				1,142,400	1,142,400	0	0
		per diems and bonuses							
	1	perdiem of management staff 15 days	day	30	25,200	756,000	756000		
	2	perdiem of drivers and pilots (15 days per month)	day	20	3,780	75,600	75600		
		subtotal				831,600	831600	0	0
		Short term expert							
	1	Carbonization specialist (ECT)	day	800	200	160,000	160,000		
	2	Specialist in bioenergy sectors in Africa	day	800	120	96,000	96000		
	3	Regional planning specialist	day	800	160	128,000	128000		
	4	Specialist in territorial consultation	day	800	160	128,000	128000		
	5	Cocoa agroforestry specialist	day	800	110	88,000	88000		
	6	Acacia agroforestry specialist	day	800	110	88,000	88000		
	7	Forestry specialist in conducting inventories	day	800	60	48,000	48000		
	8	Specialist in the processing of satellite images	day	800	60	48,000	48,000		
	9	Specialist in conducting surveys on wood energy sectors	day	800	150	120,000	120,000		
		subtotal				904,000	904,000	0	0
		TOTAL HUMAN RESOURCES				6,994,000	6,994,000	0	0
II		air Transport							
	1	international	A / R	1,800	54	97,200	97,200		
	2	national	A / R	500	14	7,000	7,000		
		TOTAL AIR TRANSPORT				104,200	104,200	0	0
III		equipment							
	1	purchase of 3 bush cars (coordination + 2 antennas)	unit	40,000	3	120,000	120,000		
	2	purchase of off-road motorcycles (all basic staff more responsible under the air)	unit	4000	16	64,000	64000		
	3	Desktop computers	unit	2,000	30	60,000	60,000		
	4	printers	unit	500	10	5,000	5000		
	5	Photocopiers	unit	2,000	2	4000	4000		

	6	Office furniture kit	flat rate	15,000	4	60,000	60,000		
	7	Supplies	flat rate	200,000	0	200,000	200000		
		TOTAL EQUIPMENT				513,000	513000	0	0
IV		project operation							
	1	Brazzaville base rent	month	1,500	84	126,000	126000		
	2	Pointe-Noire base rent	month	1,500	84	126,000	126000		
	3	Dolisie base rent	month	500	84	42,000	42000		
	4	Owando base rent	month	500	84	42,000	42000		
	5	running cars	month	1000	252	252,000	252000		
	7	motorcycle operation	month	200	1,344	268,800	268800		
	10	telephone communication	month	800	420	336,000	336000		
	11	internet (Brazzaville and Pointe-Noire)	month	1000	168	168,000	168000		
		TOTAL PROJECT OPERATION				1,360,800	1,360,800	0	0
V		Enabling Investments							
	A1	Support for governance (interministerial consultation platform)							
	1	Initial diagnosis on existing platforms (national consultation contract)	by approximate basin	10,000	2	20,000	20,000		
	2	Operation of a multisectoral and multi-stakeholder consultation platform (4 meetings per quarter)	by approximate basin	48,000	1	48,000	48,000		
	A2	Multisectoral and multi-stakeholder consultation platform for each appropriate basin							
	1	Initial diagnosis on existing platforms (national consultation contract)	by approximate basin	10,000	2	20,000	20,000		
	2	Operation of a multisectoral and multi-stakeholder consultation platform (4 meetings per quarter)	by approximate basin	48,000	2	96,000	96,000		
		subtotal				184,000	184,000	0	0
	B	Development of the Woodfuel Supply Master Plan							
	1	Evaluate the supply of wood through forest inventories (Brazzaville supply basin)	by supply basins	7,370,000	1	7,370,000	7,370,000		

1a	Evaluate the wood supply through forest inventories (Pointe Noire water basin)	by supply basins	1,817,000	1	1,817,000	1,817,000		
2	Evaluate domestic energy consumption, their modes of use and evolution	by approximate basin	70,000	2	140,000	140,000		
3	Diagnosis of the environmental social contexts of production and consumption	by approximate basin	20,000	2	40,000	40,000		
4	Plan the use of wood energy in the supply basin (platform)	by approximate basin	above					
5	Validate the Supply Master Plans	by approximate basin	10,000	2	20,000	20,000		
	subtotal				9,387,000	9,387,000	0	0
	TOTAL ENABLING INVESTMENTS				9,571,000	9,571,000	0	0
VI	Sector Investments							
A1	Agroforestry plantations with Acacia auriculiiformis (small producers)							
1	Purchase plants	per ha	882	5,500	4,851,000	4,851,000		
2	Preparation of the ground	per ha	229	5,500	1,259,500	760,000		499,500
3	Input transport	per ha	30	5,500	165,000	165,000		
4	Acacia and Vivrier plantation	per ha	141	5,500	775,500			775,500
5	Plantation maintenance	per ha	849	5,500	4,669,500	1470000		3,199,500
6	Marketing	per ha	695	5,500	3 822 500			3 822 500
7	Investment improved furnaces (bricks)	by oven	1,044	0	0			0
8	General information meetings at the department's chief town	meeting / workshop	2,000	8	16,000	16,000		
9	Sensitization of producers	flat rate			14,000	14,000		
	subtotal				15,573,000	7,276,000	0	8,297,000
A2	Agroforestry plantations with Acacia auriculiiformis (private)							
1	Purchase of plants	per ha	882	1,500	1,323,000	793800		529,200

2	Preparation of the ground	per ha	229	1,500	343,500	228000		115,500
4	Input transport	per ha	30	1,500	45,000	45,000		
5	Acacia and Vivrier plantation	per ha	141	1,500	211,500	0		211,500
6	Plantation maintenance	per ha	849	1,500	1,273,500	441000		832,500
7	Marketing	per ha	695	1,500	1,042,500	0		1,042,500
8	Investment improved furnaces (bricks)	by oven	1,044	25	26 107	26 107		0
9	General information meetings at the department's chief town	meeting / workshop	0	0	0	0		0
10	Sensitization of producers	flat rate			5,000	5,000		0
	subtotal				4,270,107	1,538,907	0	2,731,200
B	Mixed plantations Acacia X Eucalyptus (private)							
1	Purchase of plants	per ha	762	5,000	3,811,225	2286735		1,524,490
2	Preparation of the ground	per ha	229	5,000	1,145,000	760,000		385,000
3	Input transport	per ha	81	1000	81,000	81,000		
4	Acacia and Eucalyptus plantation	per ha	76	5,000	381 123	0		381 123
5	Plantation maintenance	per ha	849	5,000	4,245,000	1470000		2,775,000
6	Marketing	per ha	125	5,000	625,000	0		625,000
7	Investment improved furnaces (bricks)	by oven	1,044	60	62 640	62 640		0
8	General information meetings at the department's chief town	meeting / workshop	0	0	0	0		0
9	Sensitization of producers	flat rate			10,000	10,000		0
	subtotal				10 360 988	4,670,375	0	5 690 613
C1	Management in massive Eucalyptus coppice in Pointe-Noire (private)							
1	CML industrial oven	by oven	1,899,515	1	1,899,515	1899515		
2	Investment improved furnaces (bricks)	by oven	1,044	20	20 886			20886
3	Massif management	massive	12 039 628	5,000	12 039 628			12039628
	subtotal				13 960 028	1,899,515	0	12 060 514
C2	Coppiced management of the Eucalyptus de Loudima massif (private)							
1	Massif management	massive	2 965 133	2,000	2 965 133			2965133
	subtotal				2 965 133	0	0	2 965 133
D	Cocoa agroforestry plantation							
1	Purchase of plants	per ha	2 294	1000	2,294,000	2,294,000		

	2	Input transport	per ha	80	1000	80,000	80,000		
	3	Preparation of the ground	per ha	345	1000	345,000	269,000		76000
	4	Planting	per ha	221	1000	221,000			221,000
	5	Plantation maintenance	per ha	789	1000	789,000	427000		362,000
	6	Marketing	per ha	177	1000	177,000			177,000
	7	General information meetings at the department's chief town	meeting / workshop	2,000	4	8,000	8,000		
	8	Sensitization of producers	flat rate			10,000	10,000		
		subtotal				3,924,000	3,088,000	0	836,000
E		Improvement of carbonization techniques							
	1	Training of charcoal referees to improve traditional practices	training	5,000	20	100,000	100,000		
	2	Support in the construction of improved brick kilns	training	5,000	9	45,000	45,000		
	3	Monitoring and performance testing of disseminated techniques	flat rate			25,000	25,000		
	2	Carbonization specialist (ECT)	days	800	232	185,600	185,600		
	8	Sensitization of producers	flat rate			20,000	20,000		
		subtotal				375,600	375,600	0	0
E		Diffusion of improved stoves							
	1	Consulting contracts with NGOs	flat rate	600,000		600,000	600000		
	2	Training of artisans producing improved stoves	flat rate	500,000		500,000	500,000		
	3	Performance test of improved stoves	flat rate	30,000		30,000	30,000		
	4	Communication and awareness program	flat rate	100,000		100,000	100,000		
		subtotal				1,230,000	1,230,000	0	0
F		Study of the potential and impact of the deployment of LPG							
	1	Consulting contract with an international consulting firm	flat rate	200,000		200,000	200000		
		subtotal				200,000	200,000	0	0
		TOTAL Sector Investments				52 858 856	20 278 397	0	32 580 460
VII		Structuring Investments (Strengthening of partner institutions)							
AT		Ministry of Forest Economy							
	1	Operation of the Project Management Unit	flat rate	210,000		210,000	210,000		
	2	DEP training	flat rate	30,490		30,490	30,490		0

		subtotal				240,490	240,490	0	0
	B	ProNAR							
	1	4x4 vehicle	flat rate	91,469		91,469		91,469	0
	2	Training	flat rate	152,449		152,449	152,449		0
		subtotal				243 918	152,449	91,469	0
	VS	National Reforestation Service							
		Specialized nursery and plantation training	flat rate	152,449		152,449	152,449		
		Operator supervision training	flat rate	76,225		76,225	76,225		
		Nursery rehabilitation	flat rate		304,898	304,898		304,898	
		4x4 vehicle	flat rate		137 204	137 204		137 204	
		Restoration of agricultural equipment	flat rate		152,449	152,449		152,449	
		subtotal				823 225	228,674	594,551	0
	D	IRF / CRDPI							
		Support for research / development project	flat rate	304,898		304,898	304,898		
		Diploma courses	flat rate	53,357		53,357	53,357		
		subtotal				358 255	358 255	0	0
	E	IRA							
		Support for research / development project	flat rate	304,898		304,898	304,898		
		Diploma courses	flat rate	53,357		53,357	53,357		
		subtotal				358 255	358 255	0	0
	F	UMNG / ENSAF							
		Funding of end-of-study internships	flat rate	350,000		350,000	350,000		
		subtotal				350,000	350,000		
	G	Ministry of Agriculture and Livestock							
		Restoration of agricultural equipment	flat rate	152,449		152,449		152,449	
		subtotal				152,449	0	152,449	0
		TOTAL Structuring Investments				2,526,592	1,688,123	838,470	0
VIII		Social Investments							
	AT	Implementation of a Simple Management Plan for the production of wood energy							
	1	Consultancy contracts with local NGOs	by community	1000	40	40,000	40,000		

	2	Training of local NGOs	by approximate basin	10,000	2	20,000	20,000		
	3	Field surveys in target areas	by community	2,000	40	80,000	80,000		
	4	Meeting for the co-development of the PSGs	per meeting	100	960	96,000	96,000		
	5	clean up of PSG	by community	200	40	8,000	8,000		
	6	record PSG	by community	100	40	4000	4000		
	7	means of transport of local FTAs	by NGO	60,000	2	120,000	120,000		
	8	operation of local FTAs	per month and per NGO	1000	96	96,000	96,000		
	9	production of educational tools for animation and participation	flat rate	20,000		20,000	20,000		
	10	RNA implementation	by community	200	40	8,000	8,000		
		subtotal				492,000	492,000	0	0
		TOTAL Social Investments				492,000	492,000	0	0
		GENERAL TOTAL				74 420 448	41 001 520	838,470	32 580 460
IX		Supervision and monitoring evaluation							
	1	Monitoring and communication	per year	25,000	7	175,000	175,000		
	2	Evaluation	by evaluation	30,000	2	60,000	60,000		
	3	Audits	per year	50,000	7	350,000	350,000		
		TOTAL SUPERVISION				585,000	585,000	0	0
		TOTAL DIRECT COSTS				75 005 448	41 586 520	838,470	32 580 460
		GMS (7%)				5 250 381	2 911 056	58,693	0
		OVERALL PROGRAM TOTAL				80 255 830	44 497 576	897 162	32 580 460

Annex 6: Details of costs by technical route

A. Acacia-cassava agroforestry system

Système agro-forestier Acacia-Manioc																		
			Années	Matériel végétal	Four amélioré	Dessouchage (ha)	Labour (ha)	Plantation Acacia (ha)	Plantation Manioc et Maïs (ha)	Pare Feu (ha)	Sarclage (ha)	Eclaircie et regarnissage des acacias	Récolte maïs	Récolte Manioc	Transport	Exploitation Acacia	Autres M.O. ou coût	Total
			1	619 500	-	50 000	100 000	52 500	40 000	50 000	225 000	10 500	20 000		70 625			1 238 125
			2	619 500	-	50 000	100 000	52 500	40 000	100 000	375 000	10 500	20 000	130 000	218 500			1 716 000
			3	562 500	-	50 000	100 000	52 500	40 000	150 000	375 000	10 500	20 000	130 000	218 500			1 709 000
			4	562 500	-	50 000	100 000	52 500	40 000	200 000	375 000	10 500	20 000	130 000	218 500			1 759 000
			5	562 500	-	50 000	100 000	52 500	40 000	250 000	375 000	10 500	20 000	130 000	218 500			1 809 000
			6	562 500	-	50 000	100 000	52 500	40 000	300 000	375 000	10 500	20 000	130 000	218 500			1 859 000
			7	562 500	-	50 000	100 000	52 500	40 000	300 000	375 000	10 500	20 000	130 000	380 219	445 000	219 747	2 685 466
				4 051 500	-	350 000	700 000	367 500	280 000	1 350 000	2 475 000	73 500	140 000	780 000	1 543 344	445 000	219 747	12 775 591
Coûts pour 7 ha																		
	Total (FCFA)	Total (€)																
Subvention Projet	6 101 500	9 302		4 051 500			700 000			1 350 000								
Prise en charge Porteur	6 674 091	10 175				350 000		367 500	280 000		2 475 000	73 500	140 000	780 000	1 543 344	445 000	219 747	
Coût pour 2500 ha (communautaire)																		
	Total (FCFA)	Total (€)																
Subvention Projet	2 179 107 143	3 322 027		1 446 964 286	0	0	250 000 000	0	0	482 142 857	0	0	0	0	0	0	0	
Prise en charge Porteurs	2 383 603 839	3 633 781		0	0	125 000 000	0	131 250 000	100 000 000	0	883 928 571	26 250 000	50 000 000	278 571 429	551 194 196	158 928 571	78 481 071	
Coût pour 1500 ha (petit privé)																		
	Total (FCFA)	Total (€)																
Subvention Projet	973 892 857	1 484 690		520 907 143	13 700 000	0	150 000 000	0	0	289 285 714	0	0	0	0	0	0	0	
Prise en charge Porteur	1 777 433 732	2 709 680		347 271 429	0	75 000 000	0	78 750 000	60 000 000	0	530 357 143	15 750 000	30 000 000	167 142 857	330 716 518	95 357 143	47 088 643	

NB: The costs related to the operation planned in the 8th year in the cost-benefit study have been provisioned in year 7

B. Mixed acacia-Eucalyptus plantation

Plantation mixte Acacia-Eucalyptus														
			Années	Matériel végétal	Dessouchage (ha)	Labour (ha)	Plantation (ha)	Pare Feu (ha)	Sarclage (ha)	Eclaircie et regarnissage des plants	Transport	Exploitation	Autres M.O. ou coût	Total
			1	500 000	50 000	100 000	50 000	50 000	225 000	10 500	20 000			1 005 500
			2	500 000	50 000	100 000	50 000	100 000	375 000	10 500	20 000			1 205 500
			3	500 000	50 000	100 000	50 000	150 000	375 000	10 500	20 000			1 255 500
			4	500 000	50 000	100 000	50 000	200 000	375 000	10 500	20 000			1 305 500
			5	500 000	50 000	100 000	50 000	250 000	375 000	10 500	250 000			1 585 500
			6	500 000	50 000	100 000	50 000	300 000	375 000	10 500	20 000			1 405 500
			7	500 000	50 000	100 000	50 000	300 000	375 000	10 500	20 000	400 000	176 140	1 981 640
				3 500 000	350 000	700 000	350 000	1 350 000	2 475 000	73 500	370 000	400 000	176 140	9 744 640
Coûts pour 7 ha				762	76	152	76	294	539	16	81	87	38	
	Total (FCFA)	Total (€)												
Subvention Projet	5 550 000	8 461		3 500 000		700 000		1 350 000						
Prise en charge Porteur	4 194 640	6 395			350 000		350 000		2 475 000	73500	370 000	400 000	176 140	
Coût pour 2500 ha														
	Total (FCFA)	Total (€)												
Subvention Projet	1 982 142 857	3 021 757		1 250 000 000	0	250 000 000	0	482 142 857	0	0	0	0	0	
Prise en charge Porteurs	1 498 085 714	2 283 817		0	125 000 000	0	125 000 000	0	883 928 571	26 250 000	132 142 857	142 857 143	62 907 143	

NB: The costs related to the operation planned in the 8th year in the cost-benefit study have been provisioned in year 7

C. Management of existing Eucalyptus plantations in coppice

Gestion de plantations d'Eucalyptus en taillis			
Pointe-Noire (5 000 ha)		Charbon et perches	
Année	Coûts (FCFA)	Subvention	Charge opérateur
0	1 246 000 000	1 246 000 000	
1	824 090 625		824 090 625
2	984 090 625		984 090 625
3	1 059 090 625		1 059 090 625
4	1 251 090 625		1 251 090 625
5	1 315 090 625		1 315 090 625
6	1 168 012 500		1 168 012 500
7	1 296 012 500		1 296 012 500
Total (CFA)	9 143 478 125	1 246 000 000	7 897 478 125
Total (€)	13 939 143	1 899 515	12 039 628
Loudima (2 000 ha)		Bois de feu pour briques	
Année	Coûts (FCFA)	Subvention	Charge opérateur
1	162 500 000		162 500 000
2	242 500 000		242 500 000
3	280 000 000		280 000 000
4	300 000 000		300 000 000
5	320 000 000		320 000 000
6	320 000 000		320 000 000
7	320 000 000		320 000 000
Total (CFA)	1 945 000 000	0	1 945 000 000
Total (€)	2 965 133	0	2 965 133

D. Cocoa agroforestry system

Système agro-forestier Cacao																
			Années	Matériel végétal	Amendement	Dessouchage (ha)	Labour (ha)	Plantation complète (ha)	Pare Feu (ha)	Sarclage (ha)	Eclaircie et regarnissage	Récolte plantain	Récolte Arachide	Récolte Cacao	Transport	Total
			1	1 505 000	76 000	50 000	100 000	145 000	50 000	75 000	10 500	-	20 000	-	52 500	2 084 000
			2	1 505 000	76 000	50 000	100 000	145 000	100 000	150 000	10 500	40 000	-	-	52 500	2 229 000
			3	1 505 000	76 000	50 000	100 000	145 000	150 000	225 000	10 500	160 000	-	40 000	52 500	2 514 000
			4	1 505 000	76 000	50 000	100 000	145 000	200 000	300 000	10 500	160 000	-	40 000	52 500	2 639 000
			5	1 505 000	76 000	50 000	100 000	145 000	250 000	375 000	10 500	-	-	40 000	52 500	2 604 000
			6	-	-	-	-	-	300 000	-	10 500	-	-	40 000	-	350 500
			7	-	-	-	-	-	350 000	-	-	-	-	40 000	-	390 000
				7 525 000	380 000	250 000	500 000	725 000	1 400 000	1 125 000	63 000	360 000	20 000	200 000	262 500	12 810 500
				1 505 000	76 000	50 000	100 000	145 000	280 000	225 000	12 600	72 000	4 000	40 000	52 500	2 562 100
Coûts pour 5 ha				2 294	116	76	152	221	427	343	19	110	6	61	80	3 906
	Total (FCFA)	Total (€)														
Subvention Projet	10 067 500	15 348		7 525 000	380 000		500 000		1 400 000						262 500	
Prise en charge Porteurs	2 743 000	4 182				250 000		725 000		1 125 000	63 000	360 000	20 000	200 000		
t pour 1000 ha (communautaire)																
	Total (FCFA)	Total (€)														
Subvention Projet	2 013 500 000	3 069 561		1 505 000 000	76 000 000	0	100 000 000	0	280 000 000	0	0	0	0	0	52 500 000	
Prise en charge Porteurs	548 600 000	836 335		0	0	50 000 000	0	145 000 000	0	225 000 000	12 600 000	72 000 000	4 000 000	40 000 000	0	