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SENEGAL FUELWOOD PRODUCTION PROJECT
N° 685-0219

END OF PROJECT COMPLETION REPORT

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Date: 6 AOUT 1985

END OF PROJECT COMPLETION REPORT
PROJECT 685-0219

FUELWOOD PRODUCTION

I. PROJECT BACKGROUND

The purpose of the Senegal Fuelwood Production Project was to improve the efficiency of firewood production in the Dakar/Thies axis, generate employment and income, and reduce cutting pressures elsewhere on forest resources. As stated in the project papers, it was designed to assist the Government of Senegal in developing 3,000 hectares of rapid growing forest plantation in the Bandia classified forest near Dakar. In essence, the plantation would help:

- Stabilize charcoal supply and price in urban areas of Thies and Dakar;

- Develop forest expertise in management of fuelwood production projects;

- Develop a fuelwood production model which can be transferred to other regions.

II. SIGNIFICANT PROJECT EVENTS

Events	Dates
A - cooperating country	SENEGAL
B - PID submission	February 5, 1979
C - Project Authorization Date	April 27, 1979
D - Project Agreement Date	May 21, 1979
E - Amendment n° 1	Dec. 27, 1979
F - Amendment n° 2	Dec. 18, 1980
G - Amendment n° 3	Sept. 27, 1982
H - Cooperating Agency	Eaux et Forêts
E - Evaluation	April, 1983
G - End-use Study	January, 1984
H - Project Audit	September, 1984
I - Project PACD and close out	December, 31, 1984

III. PROJECT ASSUMPTIONS

There were three important assumptions which did not hold during the project implementation.

Taken as such the three important assumptions in essence posed some serious and negative constraints against the project. They are:

1. GOS financial problems precluded their making the planned counterpart contribution to project expenses, therefore USAID paid most of the costs, principally those related to plantation costs.

END OF PROJECT COMPLETION REPORT - (PROJECT 685-0219)

2. Expected annual rainfall in the order of 700 millimeters in the project area was much less. Consequently the growth rate was considerably lower than anticipated. As an example, the 1983 cumulative rainfall amount was only 238 millimeters.

3. Plantation output assumptions of 10 m3/ha/yr were not valid. Actual output was only 1.5 m3/yr. This figure was so low that adjustments in project elements aimed at rescuing its viability were not possible.

IV. IMPLEMENTATION

Start-up. Except for the numerous delays in recruitment, procurement, and financial organization which occured in the first year of the project, major input elements were put in place. By the 3rd year the various project elements were effectively working and the established yearly target was reached as well as the timely execution of activities which include seedlings production, land clearing, plantation, weeding, protection, commodities input, training, construction, and reporting.

After the evaluation of the first three years of the project performance and the decision to stop it, implementation began to be seriously impeded because the bilateral flow of financial resources was significantly reduced. The PACD was approaching and all the money was applied. The GOS project Director had to adjust operations downward and rely much more heavily on the GOS financial contributions which were difficult to mobilize. Money was tight due to the fact that project funds became limited. The supply of diesel fuel and machine repairs, as well as the absence of a trained mechanic, seriously hampered project implementation. Another difficult problem faced by management was the overall reduction of personnel to scale down operations.

A new operating mode was set in motion. A maintenance budget was in place so that existing plantation was effectively protected and managed starting in 1984. This was recommended by the evaluation team to support the project until the first cut in 1986.

V. FINANCIAL SUMMARY

Description	Earmarkings	Disbursements
1. Commodities	896,273.75	882,065.18
2. Contracts	620,499.11	617,788.49
3. Participant Training	198,024.76	191,222.76
4. Direct Reimbursement	83,511.44	83,511.44
5. OP. Account/Local	1,502,049.50	1,475,771.53*
6. Joint Projects Costs	69,475.11	69,475.11
7. Other	6,949.34	6,949.34
TOTAL EARMARKINGS.	3,376,783.01	
TOTAL DISBURSEMENTS		3,326,783.85 *
TOTAL PROJECT OBLIGATIONS $	3,434,000 - 57,216.99 De-Obligated	

* Further disbursements of $ 26,277.97 to be made under local account. Other amounts earmarked but not disbursed will be deobligated.

3

END OF PROJECT COMPLETION REPORT - PROJECT 685-0219

VI. PROJECT ACCOMPLISHMENTS

Only the second out of the three major objectives was achieved when the first evaluation took place 3 years after the Project began. The following outputs were also achieved by the PACD date of December 31, 1984.

	Planned	Achieved
A) Hectares	3,000	1850
B) Construction	Headquater + Garage	accomplished
C) Training	5 Foresters	achieved
40 semi-skilled forestry assistants	40	achieved
D) Seedlings Production capacity	700,000	Achieved
E) Research in plantation techniques and soil survey		Achieved
F) 3rd year Evaluation		Completed
G) Audit - (121 D certification)		Completed
H) End-use Study		Completed.

However, the overall goal of establishing 3,000 ha was not achieved. It is too early at this point in time however to make any meaningful statements on the aspects of accrued benefits due to the fact that the plantation has not reached maturity.

VII. PROJECT INPUTS

The major inputs to the project that have been delivered and utilized for Project Implementation in a broad category were:
Technical assistance, local and overseas training, research and soil surveys.

A. Technical Assistance From the start, the project was managed by a technical assistant. During the five years of its life five people have successively been responsible for project implementation of the Senegal Fuelwood Production Project. The GOS officials have complained about the frequent changes of project staff.

B. Training: Four Foresters have received long-term training in the USA. Another trainee was sent to the Ivory Coast for the equivalent of a B.A. level training at the Agricultural Institute of Bouaké. In addition, many forestry agents and workers were trained in the project. A study tour to Mali was also carried out by three foresters from PARFOB to compare results obtained in Bandia to those in Mali.

A workshop in nursery techniques was taught at the PARFOB site in 1981 by CNRF technicians. Each year thereafter CNRF conducted a short refresher course at the nursery in Bandia.

The accountant and the Director of PARFOB have, on various occasions, participated in financial management workshops given jointly by USAID and the GOS.

4

END OF PROJECT COMPLETION REPORT - PROJECT 685-0219

C. Research: An early research for the purpose of establishing the plantation and evaluating the soil capability to support the chosen species was not carried out prior to the beginning of the project. The research component of the project was carried out through an agreement between the National Forestry Center (CNRF) and the GOS. Research has only produced interim results due to the same unfavorable climatic conditions. The objective of research was to reduce planting costs using planting techniques of barbatelles (stumps), chemical weeding, intercropping trials, windbreak trials. CNRF researchers also studied the dynamics of the Soil & Water components in exotic eucalyptus and indigenous natural forest systems. In addition, species trials were initiated at eight sites spread throughout the country.

D. Soil Survey A soil survey with aerial photos and soils series classification were carried out. Maps were produced but the results were not available to implementers until a very late stage of the project life when it was decided to discontinue project activities (1983). The reports on soil classifications taxonomies annexes were rather confusing thus not very useful.

E. Commodities The project has purchased two station wagon vehicles, four pick-ups, one eight-ton truck and four mobylettes. In addition, two D-6 caterpillar tractors with blades and rippers, one D-7 and ten tractors plus many other instruments, tools, drills, generator, transformer, a pump, and spare parts were purchased.

VIII. Construction A building to serve as a storage for heavy equipment and supplies was constructed. Another existing old building was also renovated to serve as an office to the project. A well was also drilled in 1981 in addition to the garage house.

IX. Lessons learned This project has taught both USAID and the GOS that:

- long term forestry research for species, their selection, how they perform locally as well as cultivation techniques are indispensable and need to be attuned. Management of natural forests may be the best alternative for the Sahel regions. A sutained forestry intervention require the enhancing, enriching of existing natural forest as well as planting, protecting conserving and managing the soil and water. Natural forest management can provide an objective assessment of forest productivity and a base for developing a strategy to produce fuelwood with a minimum damage to the environment. In addition, the potential for creating a few micro-climates and micro-environmental stability can be tremendous. This would in turn have an enormous impact on agricultural productivity. Natural forest management indeed may prove to be more cost effective. The natural forests and woodlands constitute above all the greatest reservoirs of biological diversity. In addition to the careful species selections for different regions and ecosystems a number of agroforestry techniques must be applied to maximize the success of forestry interventions in Senegal.

5

- the organization and managerial novelties of this pilot project were seriously underestimated in terms of the amount of learning and institutional capacity required. Also, the project document underestimated the amount of technical assistance that would be needed to obtain, operate, and maintain the project heavy equipment.

The importance of plantation workshop and housing/office facilities cannot be over-stressed. The lack of such inputs in this project prevented good supervision and adequate supplies as well as timely repairs of vehicles. A project of this kind should have two phases: a start-up phase of one year entirely devoted to commodity procurement and organizational arrangement such as staffing offices etc... Then an operational phase.

It has been sufficiently documented that Eucalyptus camaldulensis should not be planted in an area where rainfall is less than 500 mm.

The growth expected of Eucalyptus under low rainfall is much less than it was believed to be. Natural management in the lower rainfall regions is the obvious alternative way to obtain more growth and production in forests in these regions.

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