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*African Reforestation*

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Dakar, 8 December, 1981

**END OF PROJECT EVALUATION**

**AFRICARE REFORESTATION IN FIVE RURAL VILLAGES**

685-0243

AID/afr-G-1655

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## Summary

During the 19 months of the project's life, 190 ha of communal forests were established in two Regions.

Unit costs are in the order of \$750/ha including both USAID/AFRICARE and Forest Service disbursements. Free self-help labor contributed another \$150 per ha so that the total direct plantation and first year maintenance costs are below \$800.00 per ha. a most encouraging result for small scale, widely separated reforestation efforts.

Stands generally are in excellent shape; survival is above 90%; and some of the 2 yr. old trees are already over 2 m tall. They could be cut in another two or three years and will yield high quality poles and stakes representing a considerable revenue to the Rural Communities involved.

This project has been very successful. The "management formula" has worked, plantation unit costs are comparatively low and similar activities could be supported with only minor changes (PCVS to assist establishing village nurseries e.g.) in the future.

Basic Project Identification Data

1. Country **Senegal**
2. Project Title: "AFRICARE REFORESTATION PROGRAM", or  
"A PROGRAM FOR REFORESTATION IN FIVE  
RURAL VILLAGES", or  
"FIVE VILLAGES WOODLOTS"
3. Project No: 685-0243  
PIO/T No: 685-0243-3-0005  
Grant No: AID/afr-G-1655  
AFRICARE Project No: 2701
4. Project Dates: Grant Agreement: 29 May, 80  
PACD: 31 Dec. 81
5. Project Funding: AID Grant: \$126,230  
Host Country Cost: est. \$38,000  
Food for Work: est. \$8,000  
Local Participation: est. \$30,000
6. Mode of Implementation:  
AFRICARE-Senegal Forest Service: 25 June, 80
7. Project Design: Senegal Fiche De Projet July 77  
AFRICARE Proposal Jan 79
8. Responsible Mission Officials:  
Mission Director: Dave Shear  
Project Officer: John Balis  
Contract Proj Mgr : Carol Ulinski
9. Previous Evaluations Reviews: None
10. Cost of Present Evaluation:

Contract: Salary	\$576.00
Subsistence	
& Other	342.20
	\$918.20

# Best Available Document

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Although small in size and short in duration, this project has exceeded expectations in several ways: production goals were surpassed by 90%; the Forest Service was able to take advantage of the planting season of 1980 with only a few weeks lead-time after funds became available; presently all areas and stands are looking extremely good, survival in the average is above 90%; some trees are already over 2m high and could yield valuable construction and polewood in another one or two years.

The project also is very impressive from another angle: the Forest Service, together with local administrative agents succeeded in establishing a formula for cooperation with the local population resulting in self-help, non-paid labor inputs well in excess of half of the work that had to be done, on time and against very tight schedules

Rural Community administrators as well as traditional leaders have begun to put their own money into funding maintenance activities beyond the project's cutoff date.

During our visits, people through their spokesman expressed strong and unanimous satisfaction and confidence in the Forest Service field personnel that carried out the activities organizing an impressive amount of local participation. The formula combining self-help, local interests with specifics and limited government inputs (tech assistance, material, equipment and funds) has worked well in this project.

Ultimately, the donors (USAID and AFRICARE) have gotten unusually high returns for their investment as well. Besides, the project solidly establishes a collaborative approach that is replicable in many areas of central Senegal, and now has proven itself especially in the Regions of Kaolack and Thies.

Assisting these kinds of efforts seems well worth repeating, though some specific questions of equitable, ultimate benefit distribution and continuing local willingness to contribute free labor can not be answered until the first harvest has been complete and the benefits materialized.

The income-generating potential of this type of activity may turn out to be far greater than expected: every five years an average of 500 stumps per ha may yield valuable construction wood (poles) at a rate of CFA 1000 per tree. The income of the 190 ha planted during this project's life may, already after the first cutting, be considerably higher than the original investment made by USAID.

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Thus, the project's future development should be closely watched. If all goes well (maintenance being kept up, fires kept ~~out~~, etc.) this effort may produce one of the best forestry projects in the Sahel!

## I END OF PROJECT STATUS AND ACCOMPLISHMENTS

Project start-up activities began ~~already before~~ the AFRICARE Forest Service agreement was signed in June of 1980. Tree planting using stock from government nurseries was started in July. During the first year already 80 ha were planted.

Efforts during the second year were expanded; 110 more ha were added.

A total of 7 sites were covered by the project. Six of them were visited during a field trip in November 81 by representatives of the Forest Service, AFRICARE and myself.

Plantations look very good; overall survival rates are above 90%.

During our site visit we spend considerable time with local administrative agents as well as representatives of the Rural Communities, traditional chiefs and the local people themselves.

In terms of physical accomplishments, the following table shows location and size of planting efforts covered by the inputs of this project for both planting seasons

PLANTED SURFACES (HA)

VILLAGE	1980		1981		
KAOIACK	SAKIAO	20 100	35 100		
	GAMBOL	20 good?	—		
	MBADAKHOUNE	20 90	20 90		
	NDIENE LAGANTE	10 90	15 70		
	N BILL	—	10 50		
	Σ 70	Σ 80			150
THIES	NOTO	10 100	—		
	KELR MATAR	—	10 100		
	TCHAILE	—	20 100		
	Σ 10	Σ 30			40
	Σ 80	Σ 110			Σ 190

90 = Survival Rate

As far as country-context and the specific role this particular project played, the following ~~brief observations are sufficient~~

### 1) Reforestation Methods

The Senegalese Forest Service is well aware that large scale, industrial plantations are quite costly ( \$1000/ha are not unusual, with the Bandia project being welcome exception ). Further, actual, accruing yields are disappointingly low and far below the expectations pegged to small scale and fully controlled research results.

Under these conditions, prospects of achieving a satisfactory reforestation rate relying mainly on large scale, government sponsored tree plantation schemes are becoming less and less attractive to everyone concerned.

Basically, there are only two alternatives:

—Intensify management of natural forests, the main bulk located in the Eastern and Southern parts of the country. Transport costs of wood products being relatively high, even if production of poles, firewood, charcoal, etc. could be rapidly increased in these natural forests, great demands for local and relatively inexpensive wood products in the Western and Central portions of the country would continue.

—Although adequate land in the more populated rural areas of the peanut basin is difficult to find, forestry (and conservation) efforts in high density farm areas could well serve to fill some of these gaps. The question is: how to implement effective forestry programs in intensively farmed areas without having to provide extensive government agency inputs to the many villages and small parcels, dispersed throughout farming areas.

### 2) The Community Approach

If some formula could be found, whereby the Forest Service could establish close cooperation with the local population in creating and managing small, village-size wooded areas, direct as well as indirect costs of carrying out such efforts could be lowered.

On this basis, the Forest Service (and with it, other government organizations,

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notably SODEVA) has in the past tried various models to introduce the concept of "communal forest/conservation activities"

Some of these, especially the introduction of *A. albida* in farm fields (primarily a soil conservation, not a wood production effort) have been started already during colonial times and - over the years - various approaches, public campaigns, etc. have given some encouraging, though generally dispersed, results.

About five years ago, the Forest Service decided to embark on systematically experimenting with various communal forestry formulas in hopes of finding an approach that would allow expansion of forestry/conservation activities in rural farm areas which could rely on self-help, local interest type of efforts.

The agrarian and administrative reform provided a welcome framework for these efforts. The establishment of individual Rural Communities, complete with elected local officers, council members and considerable freedom in financial and budgetary matters, provided the basis for tailoring forestry activities to local cooperation and co-management.

### 3) The Basic Idea for the Project

It was with these considerations in mind that the original project identification sheet was prepared by the Forest Service in 1977.

Although this project (together with similar others) was included in Senegal's presentation to the donor community, in part through CILSS/CIUB channels, the larger donors showed little interest in "little" programs of this kind, not realizing perhaps that they represented pilot efforts which - if and when successful - could lead to bigger and more important inputs much better in tune with the rural population and as it may well turn out cheaper than multi-million government plantation projects.

### 4) Project Development Phase

Around 1978, AFRICARE, looking for small, people oriented forestry activities, picked up the idea (and the identification sheets) from the Forest Service. During detailed discussions with AID, Peace Corps as well as various government agencies (including Forest Research), a project proposal was prepared by AFRICARE in January of 1979 that eventually led to an OPG-type grant which was signed on May 29, 1980. 2

## 5) The Implementation Phase

When the papers were signed, the Forest Service was ready. Planting season was just around the corner.

There was no time to start village nurseries at that point. Instead the Forest Service mobilized a certain reserve stock of trees growing in some of their regional nurseries. General planting schedules were quickly re-oriented with this project in mind; several villages had already been contacted in advance, in case the project would come alive. When it officially did, end of June, 1980 it took, thanks to a well orchestrated self-help village effort supported at critical points by some government equipment (tractors, trucks, etc.), only 6 weeks to plant 70 ha in the Kaolack region and 10 near Thies. At that time, the project's two year goal was already 80% met!

Things continued at the same pace: tree maintenance during the first year's dry period was excellent. Where the local villagers could not keep up with the weeds, the Forest Service (only where necessary to reduce fire risks) moved in with tractors and disks to help out. Later, more land was prepared for this year's season and when the right moment of tree planting came, another well run planting show was carried out in two Regions at the same time. Result? Almost double the target surfaces planted without additional funds!

## DISCUSSION

### A. PROJECT MANAGEMENT, ADMINISTRATION

Office time in Baker with AID and ANWICARE did not suffice to get such of a feel for "how things went." Apparently there were no major problems, otherwise first year activities could not have been cranked up as quickly as they were. Also, during our field visits, neither of the two Forest Service regional officers mentioned any unsurmountable problems.

Provided the Forest Service field personnel are on their toes, assisting in this kind of effort using this kind of management model works well. Total costs of plantation and maintenance (further detailed under "economics") otherwise would have been much higher.

### B. TECHNICAL

Except in two places where "misunderstandings" or inadequate local agents coverage led to lower survival rates and inadequate maintenance, all plantations look real good. Some of the two year old trees already are over 2m tall and look healthy. The stands have been freed of the inevitable grass and could already produce some valuable poles and other forest products after another year or two.

Maintenance, in some places presently is running behind. Tall, dense grass between last year's trees is getting dry and something must be done before it is too late. Detailed plans were discussed during our visit with the local agents, various options discussed and specific activities planned.

In one instance, the local Rural Community Council has already taken it upon themselves to set some of their money aside to hire a watchman for the coming dry season; an obvious indication that they see the value of the investment and are willing to protect it with their money until the benefits accrue.

Though this is not self-help by poor, individual farmers, it is a deliberate and conscientious attempt by rural communities and their leaders that shows:

—they know and appreciate it when something positive comes their way.

—they do not wait around until someone from the government shows up to provide the lead.

—they considered carefully whether or not the investment of their own resources is worth the risk and decided to take it.

### C. LOCAL PARTICIPATION

Not surprisingly, this is the area where the most differences and uncertainties still occur.

First of all, the desire expressed in the grant agreement, to conduct another evaluation at the time the first trees are cut....and the benefits will materialize is as valid as ever.

Our visits revealed some surprises along these lines. The terms of the original grant agreement must be re-analyzed in view of the actual political and social structures that exist today in the field.

First of all, no one (from the local farmers on up to the sous-prefets and back down) sees in these stands of trees neither firewood nor village woodlots. To the people they represent deliberate and potentially successful efforts in income generation with benefits going directly and without much question into the accounts of the Rural Community. What they'll do with it depends on their priorities at the time; the Rural Council has the authority to decide what to do with these revenues. When asked for some examples the following were given:

- deepening a village well
- purchasing medicine for the local dispensary
- equipping a woman sewing center (this one came after I brought up the issue of women still having to go miles for firewood)

On the subject of firewood: Even if poles are harvested and sold for cash, some firewood still will be produced from those portions of the trees that can not be sold as construction, pickets, poles, or lath. Who exactly will get it, nobody has decided yet. Another evaluation at cutting time will perhaps provide the answer.

No one in his right mind would want to see valuable pole and construction wood hacked up in small pieces and shoved into stoves just because that's what the

grant agreement spelled out. Neither this deviation make it a "bad" project, nor one who s approved project purpose does not agree with the kind of benefits actually accruing in the field.

What needs to be clearly understood though, is that the Rural Community is the basic local population management unit set up by law. Several villages make up one Rural Community. In these villages there may be a number of different neighborhoods ("quartiers"). Then finally, we get to individual family levels.

What has happened up to now is that at most sites, several families in a village have, after being duly motivated by government agents and the Community Council, decided to provide, on a free, self-help basis some labor toward the effort.

A notable exception is one site North of Kaolack where followers of important marabou tended the plantation (located on one of his fields).

It is clear that not everybody in a given Rural Community contributed equally to tree planting and maintenance efforts. The question now is: will the same people, or perhaps others, again provide the free inputs required to continue this operation successfully after the first cutting? Do those who participated so far expect more of a benefit than others who didn't before they again volunteer for more work?

A much more indepth inquiry is required to get at these basic issues that are basically of socio-cultural (as well as economic) nature. The planned evaluation at cutting time should include a sociologist already familiar with communal forestry activities in Senegal (also of other government agencies: SODEVA, SODESP, etc.) Since inspite of some good opportunities and tries we did not get anywhere near finding out what women think about this whole thing, it would be much better if the sociologist, in addition to having indepth experience in Sahel community forestry activities, would be a woman. This is a pre-requisite to get to the bottom of the woman-firewood problem and its possible solution.

#### D. LAND TENURE

Areas used for plantations involve basic farmland that is either not very productive, belongs to an individual with particular interests

or is situated in such a way, that the decision makers simply felt it was in a "handy" location. What remains very much to be seen is how - if in any way, the owners of previous use-rights of these surfaces in some way will be compensated for the opportunities foregone.

If nothing of this sort is done, will others be ready to "donate" additional areas ? If the land, at some future time, reverts back to its (farming) owner(s), who will pay for the removal of stumps ?

If these areas, ultimately, are turned back into agricultural production, would species other than eucalyptus provide more of a soil improvement effect ?

These questions, though apparently of no immediate concern to either the local people involved, or the Forest Service, must be closely scrutinized. Correct handling of these issues will determine how well the basic idea of these tree plantations will really "catch on", how far the people themselves will go to make this a successful, self-spreading "movement".

## SPECIFICS

### A. Nursery Failures

It is less a matter of nursery "failures" than of administrative and development expediency that trees from regional government nurseries were used instead of, as planned, developing at each site individual, village nurseries. In some area this would be virtually impossible without first improving water supplies. Water even for household use is extremely scarce at some of the sites and nothing short of a deep-well borehole would provide sufficient water for the nursery. Not that the local people would be against that.

At the sites where water is available, the Forest Service's field agents are simply too thinly spread to provide the additional day-to-day inputs that are required especially during the first few years. Perhaps PCVs could help out in the future (especially seasoned, two year Vols). In view of the shortage of qualified personnel and means to get around, etc, the Forest Service simply and rightfully, in my opinion, adopted to supply trees out of their regular nurseries, though transport costs must have been high, since considerable distances are involved to haul trees to some of the project sites (especially in the Kaolack Region).

### B. Maintenance and use of Plantation

Tree Maintenance always will be a problem. Voluntary help can be counted on to do specific, short-term fieldwork: "let's get everybody out so we can get it done in a few days." But the drudgery of a watchmen's job, even if different families take turns, is something else. In some areas, they may be able to do it by self-help, in others people simply will be so reluctant that it is not worth belabering the issue.

Even handing out rations will only go so far. During years of crop failure or famine, perhaps, food hand-outs are more eagerly accepted and, if no other choice exists, people may go for it. Whether this is the kind of bootstrap enthusiasm that we are looking for, however, is another question. I think it is better that we face the reality that there simply is some type of work that is almost impossible to get done thru voluntary, non-recompensated, community-minded, self-reliant, for-the-future-of-the common-good-type donations.

### C. Management and Harvest Plans

The Forest Service retains the responsibility to "manage" these plantations. They will determine when to cut what, how, etc. They also have the responsibility to maintain the integrity of the stand, supervise the coppicing process, etc.

However, it appears that the Rural Community will be able to decide rather independently what to do with the wood. Most likely they will try to sell it to get as much cash out of it as they can. Then the money will go into the Communal Funds; disposition therefore is, as mentioned above, in the hands of the Community Council. They can spend it (in the interest of the community) as they see fit and in so doing are responsible to the members of the Rural Community, the people themselves.

Just to what detail these steps will be adhered to, nobody can tell at this time. The important and interesting thing is to visit the area (the Council, the villages and the people) when the first exploitation-liquidation-money allocation experiences have taken place.

### D. Village Participation and Commitment and Interest

The system, at present, works. During its short project-life, consistently good and continued results were achieved in soliciting self-help free labor. This project would not be where it is today had there not been a considerable and deliberate interest in commitment by the local people. The fact that not everybody participated equally, is partly a matter of geographic realities. Not all villages can send people to one site to do one or more days work, either paid or unpaid. The main chores, this time, were done by those living near-by. How this pattern continues or what changes will take place, before as well as after the first harvest, remains uncertain and should be studied as things develop.

### E. Distribution of Benefits and Division of Labor

This point from different angles, has been touched upon in various sections already. Not much else can be said other than it would be extremely interesting to follow up on these project efforts to see how things will evolve.

## F. Economics

Approximately \$99,000 were spent by AFRICARE on this project in the field to cover direct costs. With this help, the forest service established 190 ha of communal forests.

Additional inputs consisted primarily of free labor. It is extremely difficult to estimate how much time was spent on the different activities. A first hand, educated guess involving experience and "feeling" of the Forest Service indicate that on the average about 50 manday per ha were involved.

In addition, the Forest Service provided some tractors and implements. Operation and fuel costs were covered by the project. Allowance for depreciation, maintenance and repair should be added. In addition the government provided trees and transported them to the sites.

Also, in some cases, food rations were distributed, but only on limited scale.

One should also add to that certain expenditures made by some Community Councils.

Thus, it is difficult to estimate accurately what the efforts actually have cost. The important question: How much does reforesting one hectare using this kind of a community cooperation cost the government?

CPG-Funds \$99,000; 99,000/190ha =	\$520/ha
Self-help labor (free): ca \$150.00/ha	
Forest Service (used trees)	200/ha
Food for Work/Community	50/ha
	<hr/>
Approx. cash-costs	\$770/ha

The net result is very encouraging. At this rate the government can reforest small, dispersed parcels in high density farm areas for less than larger donors pay to establish industrial plantations!