

## **HUMID FOREST ZONE CASE STUDY 2**

### **Rehabilitation of Degraded Forests through the Collaboration of Local Communities in the Dormaa district of the Brong Ahafo region of Ghana<sup>1</sup>**

#### **BACKGROUND**

The project was undertaken in 9 rural communities covering 3 forest districts. These are: Woranteng and Ahenkora in the Begoro forest District, Nsugungua, Deworoworo No. 1, Deworoworo No. 2 and Bininita in the Offinso District and Kofiasua, Twum kurom, Abonsrakurom and Ntabene in the Dormaa District. The population of these communities is about 3000 and the major occupation of the people is farming of both cash and food crops. All these communities are in the moist and dry semi-deciduous forest ecological zones in Ghana. These zones lie between latitudes 4° 30' and 8° N in the southern part of Ghana. The mean annual rainfall range is between 1250-1500 mm. The mean daily temperature ranges from about 25° C in the wet season (March-October) and about 27° C during the dry season (November - February).

The project area is underlain by Precambrian schists, phyllites, greenstones, greywackes, and other metamorphic rocks of Birimian and Tarkwian formations folded along axes running north - east to south-west and by associated granites. In the flat to moderately steep terrain, these rocks are frequently covered by a thick mantle of highly weathered material (Burnham, 1989). The soils are of ochrosol type and this belongs to the family group of the latosols. They are old weathered soils in which rock minerals have largely been altered to kaolin and sesquioxides of iron and aluminium.

Humus content and cation exchange capacity are rather low (Hall and Swaine, 1983). All natural and secondary forests in this zone fall in the category of tropical semi-deciduous forest (UNESCO, 1973). Hall and Swaine (1976) described them as having more or less uneven tree canopy and with heights of between 10 – 40 m. However, some emergent trees reach 60m and woody climbers are always present. Vascular epiphytes are present, but not abundant. Gymnosperms and stem succulents are absent and palms are generally uncommon.

The area is the most productive forest zone of Ghana with a soil structure and content ideal for most of the forest zone crops including cocoa. Cocoa and other crops are very much evidenced all over the moist semi-deciduous forest area where there is a great demand for more farmland. Other crops, apart from cocoa, usually planted by farmers in this zone are plantains, coco yam, maize and to a lesser extent vegetables. These farming activities are largely restricted to subsistence agriculture. Thus repeated clearing, burning and farming coupled with heavy exploitation of timber trees in the area have extensively degraded most of area (see Picture 1 below). Thus, although the yields of food and cash crops were not documented, farmers can now perceive that their current yields are drastically lower than they were some years back. The need to rehabilitate these degraded lands and make them productive again is a real concern for the local populations.

For these reasons the Forestry Research Institute of Ghana and the Institute of Renewable Natural Resources of the Kwame Nkrumah University of Science and Technology undertook the project to rehabilitate the degraded areas, in partnership with the Forestry Services Division and the local communities, with financial support from the International Tropical Timber Organization (ITTO).

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<sup>1</sup> Compiled by Dominic Blay, FORIG



Picture 1: A View of the Degraded Area Before Rehabilitation

## **OBJECTIVES**

The objectives of the project were:

- To determine underlying causes of degradation and the impact of degradation on the lives of the local communities;
- To establish, with the collaboration of local communities, demonstration plantations, which could serve as models in rehabilitating degraded forest lands;
- To determine the costs of establishment, maintenance and protection of plantations by the communities;
- To produce guidelines for use by other local communities.

## **APPROACH**

### **Strategy**

The strategy used was to provide the local communities with the technical expertise and guidance to establish plantations in the degraded areas while at the same time eliciting from them their knowledge on degradation.

Plantation establishment was selected rather than natural regeneration because the degraded areas were characterised by nutrient-deficient soils, reduced primary productivity, and low biological diversity. Natural regeneration in such areas is therefore slow and cannot rapidly rehabilitate the areas within a timeframe compatible with short-term human needs. Artificial regeneration on the other hand is faster and can rehabilitate the degraded areas within a shorter period of time.

### **Awareness Campaigns and Start-up Workshop**

Lack of communication between project planners, implementation agencies and communities ranks high as a major cause of failures in many projects. Policies and plans designed must always be clearly understood by community members and representatives so that they can be responsive to project needs and desires.

Also, to ensure sustainability of rehabilitation efforts community management and community ownership must be the foundation upon which the project should be built. Consequently, the first major activity was the organisation of a start-up workshop organised in collaboration with the respective district assemblies to bring together all the stakeholders in the project within the communities.

The workshop was designed to:

- Introduce the project to the communities;
- Ensure that all actors and stakeholders understood the project concept, the opportunities, limits and modalities, as well as the roles and responsibilities of the various actors;
- Enable the project team to capture preliminary data and information that would be useful for planning detailed field activities in connection with the project;
- Ensure agreement on subsequent activities and secure maximum co-operation from all stakeholders; and
- Determine how participation can be sustained throughout the project cycle.

### **Activities**

The following two major activities were carried out in implementing the project:

#### ***Activity 1***

- Identify the major causes of land degradation and the most appropriate measures to address them, including species to be used for plantation establishment as well as appropriate methods of maintaining rehabilitated areas by local communities.

- Design and administer questionnaires and establish focus group discussions to elicit responses of the local communities on
  - underlying causes of deforestation and degradation of forests near the communities,
  - impact of degradation on the forests as well as on the livelihoods of the members of the community,
  - appropriate measures to be taken that would address the causes,
  - indigenous species to be used for the rehabilitation of degraded areas by local communities,
  - appropriate methods to be used to establish, protect and maintain plantations established in the degraded areas.

### *Activity 2*

- Establish demonstration plantations in degraded forest areas with the active collaboration of local communities.
- Train local communities in:
  - Production of planting materials (seedlings and vegetative propagation materials) of the species they would use to rehabilitate the degraded areas,
  - Site preparation for block planting, enrichment planting and taungya,
  - Planting methods,
  - Methods for assessment of survival and monitoring of growth and
  - Methods for maintaining and protecting the planted areas.

They were then provided with logistics and technical advice to:

- (i) propagate materials of the species that will be used to rehabilitate the degraded areas,
- (ii) prepare the sites for block planting, enrichment planting and taungya,
- (iii) plant the prepared site with the propagated materials,
- (iv) assess the planted materials for survival and monitor growth,
- (v) protect the plantations from man, fire, animals, diseases and pests.

## RESULTS

Several perceptions of communities on the underlying causes of degradation and its impact on local communities were determined. Some of these included poverty, inequitable sharing of benefits from the timber royalties, non-involvement of local communities in forest resources policy formulation, as well as failure of the Forestry Commission to educate the local communities on current forest policies and legislation.

Furthermore, the local communities were particularly aware of loss of non-timber forest products (NTFP), especially "bushmeat", soil fertility loss leading to decreased crop yields, leading in turn to reduced income, reduced flow and sometimes complete drying up of streams and rivers. They also highlighted an increase in annual bush fires as result of increased growth of *Chromolaena odorata* and *imperata* grasses, which have more fuel load.

Forest nurseries were established in all the local communities to produce seedlings for the plantation establishment and for sale to other agencies (Picture 2).

Local communities have established about 100 ha of plantations interplanted with food crops. The plantation species were: *Khaya ivorensis*, *Terminalia ivorensis*, *Terminalia superba*, *Entandrophragma utile*, *Khaya senegalensis* as well as the exotic species *Cedrela odorata*. The food crops included plantain, yam, coco yam, cassava and vegetables (Picture 3)



Picture 2 - A Local Community Nursery, which Produces Seedlings for Plantation Establishment and for Sale.



Picture 3: A 2-year Old Plantation of *Terminalia Superba* Inter-cropped with Plantain that Has Been Established by a Local Community.

The local communities also indicated that their annual incomes have increased as a result of the sale of food crops from the plantations but that is yet to be confirmed by subsequent impact assessment studies.

## **REASONS FOR SUCCESS/FAILURE AND LESSONS LEARNT**

### **Success**

The project succeeded mainly because:

- The project objectives were consistent with the needs and constraints of the local communities. Furthermore, these objectives, the project implementation processes and the expected benefits were clearly explained and understood by local communities.
- The local communities had a genuine interest in using their lands to produce both food crops and NTFPs. The project just provided a learning point into that dual need.
- The local communities benefited from the project, in terms of food, NTFPs and income generation.
- Appropriate incentives were provided to the local people within the project in the form of equipment (boots and cutlasses), which were needed to obtain their effective participation in the implementation activities.

## Shortcomings

Despite its significant success, the project registered a number of shortcomings which if addressed could have led to greater success. These include:

- The issue of who becomes responsible for the maintenance of the plantations after the farmer has left the areas where they are now operating to a new area. Likewise how the project can be sustained after ITTO funding has ceased has not yet been resolved.
- Lack of technical guidance when the communities need it as result of dependence on the services of part-time staff of the Forest Services Division to supervise community activities and provide technical advice. This demoralizes communities and retards efforts.
- Lack of documentation on the actual area planted by individual members of the communities and what their benefits from this will be.
- Lack of information on the optimum planting distances for trees and food crops to ensure maximum yield of food crops and optimum growth of trees.
- Lack of information on the socio-economic conditions of the participating communities and the impact the project is having on them.

## Lessons Learnt

- Project start-up workshops are useful to ensure success of projects involving many partners, including local communities. Such workshops provide opportunities to discuss and clarify issues, which may compromise effective participation and commitment from all the actors, especially local people;
- The issues and arrangements to be discussed, clarified and agreed upon must include roles and responsibilities of each actor or partner, the concerns and needs of the local people who are the immediate beneficiaries, as well as benefit-sharing arrangements. Meeting some of these needs at the start of the project can stimulate effective participation from some actors (i.e., boots and cutlasses for the local people in this case study).
- Personnel supervising projects and providing technical advice should be full time so that they will be available when farmers and other local community members need them.
- Pre-project baseline data on local communities (socio-economic conditions) are important to fully assess project impacts later.

## RECOMMENDATIONS

### Management

Maintenance of project areas rehabilitated and how the project is to be sustained after donor funding ceases should be clearly be resolved at the beginning of the project.

A project should always have full time technical personnel who will always provide technical guidance at all times.

## **Research**

Research should be initiated to determine:

- Appropriate planting distance for the taungya system to enhance productivity of both food and tree crop;
- How the taungya system could better contribute to poverty alleviation. Ex-post project impacts assessment studies could be a starting point in investigating this.