

## Concepts and Strategies of Reforestation in Ghana

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**Abstract:** Ghana's forest has been vanishing at alarming rates. The current deforestation rate is about 2% or 684 km<sup>2</sup> and if immediate measures are not taken to avert this situation Ghana will be an importer of wood in the next few years to come and the livelihood sources of a number of the rural poor will be dashed. Plantation development has for a long time been identified as one of the important strategies required to meet the demand for wood resources in Ghana, where the rate of forest loss remains high. Ghana therefore needs a strong industrial wood plantation base to meet future demand for wood. Its own population is increasing in number and in expectation of better standard of living. In line with this, numerous reforestation strategies have been initiated most of which employs the modified taungya system. This study examines the forest resources and reforestation approaches in Ghana and the subsequent ramifications and concludes with recommendations for interventions.

Keywords: Ghana, Reforestation strategies, Modified taungya system, Significant achievements, Government initiative

### I Introduction

The overall aim of the 1994 forest and wildlife policy of Ghana is conservation and sustainable development of the nation's forest and wildlife resources for maintenance of environmental quality and perpetual flow of optimum benefits to all segment of society. However; Ghana's forest has been vanishing at alarming rates. Deforestation has claimed an enormous toll through the ages in environmental damage, economic deterioration and human misery. At the turn of the 20<sup>th</sup> century, Ghana had about 82,000 km<sup>2</sup> of forest. By 1950, the area has been reduced to 42,000 km<sup>2</sup>. The contribution of the forest to the national economy as well as the livelihoods of numerous rural communities cannot be over emphasized. Many reforestation projects have been initiated to address the problems of deforestation as well as to alleviate poverty. Some of these initiatives are through the co-operation of many foreign countries and some international organizations. To further address the problem of deforestation and ameliorate the effect on rural communities, the Government has re-introduced the Taungya and modified the system (National forest plantation development programme) to make it more efficient in September 2000. Most of the reforestation projects seem to have adopted modified taungya system (MTS). The overriding aim of this study is to examine the concepts and strategies of reforestation and the future prospects.

### II Location and Administrative units and Population

Ghana covers an area of 238 539km<sup>2</sup> and lies on the south central coast of West Africa. Ghana shares a common border in the east, north and west with the Republics of Togo, Burkina Faso and Cote d'Ivoire respectively. The country lies between latitudes 4 30' to 11 N and longitudes 1 10' E to 3 15' W. The country is divided into ten administrative regions, and the regions are further

subdivided into districts. The population is estimated to be more than 20 million and rising strongly with a rate of 2.6%.

### III Forest resources, administration and ownership

Ghana's high forest zone covers about a third of its land area or 82,000 km<sup>2</sup>, which is approximately 0.5% of the total world area of tropical forests. Ghana's forests are categorized into reserve and unreserved forests. There are 266 gazetted forest reserves, 204 of which occupy 16,000km<sup>2</sup>; and 62 in the savannah zone covering 6,000 km<sup>2</sup>. Only about 16% of the forest reserves are currently in good state with the rest being in various stages of degradation. The forests are further divided into production areas which constitute about 45% and the rest are for protection, conversion and research. Outside the forest reserve (Off-reserve) some 4,000km<sup>2</sup> of forest remain mostly in the form of patches of secondary forests and sacred grooves. Cocoa, annual crop farms, fallow lands, and unimproved pastures occupy the remaining off-reserve land. In total, 730 tree species has been recorded in the closed forest. Ownership of all forested land including the reserves has always rested with traditional land owning groups and authorities, although government is empowered to regulate activities. The Forest services division (FSD) of The Forestry Commission (FC), a government agency manages the forest resources on behalf of the people and nation.

### IV Benefits from the forest

Rural households benefit from the forest in many ways such as: food, energy, shelter, cash income, raw materials for household industries etc. The food needs are in the form of fruits, seeds, nuts and protein from bushmeat (wild animals). For example, the bushmeat sector employs about 380,00 hunters at the local community level who produce between 220,000 to 380,000 tons of bushmeat valued between US\$210 million and US\$350

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million for domestic consumption annually. In addition, the value of animal and plant products from the forests used in traditional medicine and cultural practices are estimated at US\$13 million (3). The Forest also supplies energy which accounts for more than 75% of all energy sources consumed in the country. The exploitation of valuable timber species from the forest also contributes about US\$2 million in direct stumpage fees to landowning communities' p.a. In addition, timber exports earn the country about US\$170 million p.a, which accounts for about 18% of exports and 5-6% of total gross domestic products (GDP). Currently, export of timber products is the fourth largest foreign exchange earner after minerals, cocoa and tourism. The timber industry employs about 70,000 people in the formal sector while several thousands of self-employed artisans for the local housing industry. Many families also derive a major proportion of their cash income from the sale of non-timber forest products collected from the forest reserves, fallow and farm lands (4).

#### V Rate and causes of deforestation

At the turn of the 20<sup>th</sup> century, Ghana had about 82,000 km<sup>2</sup> of forest. By 1950, the area has been reduced to 42,000 km<sup>2</sup>. Between 1981 and 1985 the deforestation rate (Off-reserve) was estimated at 220 km<sup>2</sup>. By 1998, the rate was up to 684 km<sup>2</sup> per annum. Meanwhile reforestation trails at 5% of the deforestation rate. According to the FAO, between the year 2000 and 2005 Ghana has lost an average of 1,154 km<sup>2</sup> of forest per year. Human activities have always made changes in our forests, but the increase in these changes in recent years has come as an important issue to humankind. Bush fires, logging, fuelwood gathering, mining, infrastructure developments, and cattle grazing are considered as the direct causes of the loss of forest's basic nature. This is worsened by the high population growth, rural poverty etc.

#### VI History of plantation development

Records indicate that the first plantations of *Tectona grandis* were established by the Germans between 1885 and 1899 at Trans-Volta Togoland, now Volta Region (V.R) of Ghana. There is also evidence along the Lome-Kpalime trunk road in the Republic of Togo, that the population of the German Togoland (now V.R) practiced community forestry before the 20<sup>th</sup> century.

Plantation development in the British Gold Coast portion of Ghana, on the other hand started with the introduction of the Taungya System (TS) in the early 1920's. With the increasing interests of private companies in the export of Teak and the desire of the Government to reduce the dependence of the forestry sector on naturally occurring timber, the Government launched a massive plantation programme using the TS in 1970. The TS was introduced with two objectives: to establish plantations of

fast-growth useful timber species, and second, to meet the peasant farmers' demands for arable land, using reserves where land was genuinely needed. Under this taungya system arrangements, the Ghanaian farmers had no rights to benefits accruing from the planted trees (10) and no decision-making role in any aspect of the of the forest management (4). Other problems included lack of supervision by the Forestry Department (now the Forest services Division of the Forestry Commission), inadequate financing mechanisms and the abuse of power by public officials, especially in farm allocation (1). The system was finally suspended in 1984. At the time of the suspension of the TS, 75,000ha of plantations had been established mainly with the support of local communities. However, due possibly to scarcity of arable land, benefits from the TS among others; in spite of the problems, forest fringe communities have requested its re-introduction, albeit with changes. This has led to the birth of the modified taungya system (MTS).

#### VII The Modified Taungya System (MTS)

Two forest inventory programme conducted between the periods 1985-1989 and 2001-2002 indicated there has been a rapid loss of forest resources from both reserved and off-reserved areas. In order to address the problem of deforestation and ameliorate the effect on rural communities, the Government has re-introduced the Taungya and modified the system to make it more efficient in September 2001. The key change in MTS is that farmers will now be fully involved in the establishment and maintenance of the plantations. Again, under the MTS farmers will essentially be owners of the products with the FC, landowners and forest fringe communities as shareholders. However, under the previous TS, the FC was the owner with landowners as the only beneficiaries. Farmers benefited from their food crops but did not receive any benefits from the tree crops. Refer to Table 1 below. Under the forest plantation development project, five exotic tree species (*Tectona grandis*, *Cedrella odorata*, *Eucalyptus spp.*, *Gmelina arborea*, and *Pine spp.*) and five native species (*Triplochiton scleroxylon*, *Terminalia superba*, *Terminalia ivorensis*, *Ceiba pentadra*, *Nauclea diderrichii*) (8) have been selected for large-scale planting.

#### VIII Plantation strategies Ghana

Fig—1 below shows the categories of reforestation strategies in Ghana. The 3 major ones are ① Government initiated ② Donor –funded and ③ private plantation projects. The Government plantation projects include the National forest plantation development programme (i.e. MTS) and the highly indebted poor countries (HIPC) plantation projects. The MTS was launched in 2000 and it is funded from the Government

consolidated fund whereas the HIPC initiated by the Ghana government in 2001 is funded from the HIPC relief. Both projects aim at restoration of forest cover as well as to create jobs for the rural and depressed urban communities. Whereas the HIPC plantation projects employ hired labour the MTS operates on the modified benefit sharing framework. Where, the farmers involved in the project are to receive 40% share of the timber produce after the 25 year rotation period.

Through the co-operation of many foreign countries and some international organizations, numerous reforestation projects have been established in the rural communities aimed at poverty alleviation. The donor-funded projects include the community forest management programme (CFMP). As the name implies, it is a community based project being funded by the African Development Bank (AFDB). Others are PAFORM and GTZ. Through GTZ, Germany is implementing a project of comprehensive development of rural areas focusing on participatory forestry. It was launched in 1999. Again, since 2004, a 5-year technical co-operation project entitled "participatory forest resources management project in the Transitional zone of Ghana" has been implemented in the forest reserves. It is funded by JICA and focuses on the participation of the local residents. Apart from the Government initiated programmes and the Donor-funded projects, private identifiable/ organized bodies have either undertaken reforestation or afforestation projects. For example, the Ghana Timber Association has acquired 1,000ha of degraded forest in the Bounfuom Forest Reserve where the Association has re-planted 200 ha. Other companies with private plantation projects include Samatex, Suhuma, Ayum etc. Many individuals have also established small-scale plantation projects. In order to overcome the financial constraints faces by the private sector, the Government has set up a National Forest Plantations Development Fund (NFPDF) in 2002 and thousands of private tree growers have benefited from this fund through planting materials, financial assistance, and other extension and advisory services. In all these programmes, the FSD provides technical support. Except the HIPC and CPD, all the reforestation projects seem to have adopted the MTS.

#### **IX Study Area, Results and Discussions**

The study was conducted in the Offinso district of Ashanti Region. The district covers an area of 4700km<sup>2</sup> and falls within the dry-semi deciduous forest type and the fire zone sub-type. The plantation project started in 2002 in this district. There are nine forest reserves in the district covering a total area of 702.4km<sup>2</sup>. The study was concentrated in one forest reserve (Afram headwaters reserve [AHR]) and some communities around it.

Visits were made to some of the MTS project sites within the AHR to have first hand information on the activities and also conduct some field survey. In addition some interactions were made with plantation supervisors and assistance as well community heads and farmers. Some of the project sites visited include Beme community project site, Kofi Ase, Nyankaman, and Asempanaeye. For the MTS sites visited, the species mostly planted were *Tectona grandis* and *Cedrella odorata* and the spacing adopted was 3×3. The ages of the species range from 0-3 years with heights 0.5m-4m and diameter 1cm-12cm. Forestry officials quoted an 80-85% survival rate for the trees planted. If a tree dies the government will provide a new one for beating up. Significant achievements under the project include ① Restoration of forest cover: The total area planted in the AHR alone is approx. 4,063ha whereas the area planted in the whole district is approximately 12,000ha. ② Employment creation: Both fulltime and part-time jobs have been created. All the communities around the AHR are involved in the project. About 4,200 part-time and 100 full-time jobs have been created from the project in the AHR. ③ Securing water catchment areas e.g. Afram, Offin, and Birim rivers ④ Food production in the various project areas, thus providing food security for the rural communities and the nation on the whole. ⑤ Creation of new and equitable benefit sharing frame framework.

Other ramifications include: The MTS confer strong 'ownership right' including stronger property rights and tenurial empowerment to the farmers, especially migrants and disadvantage groups. Even though these rights are guaranteed under the Timber Resources Management Amendment Act, 2002 (Act 617), section 4, subsection 3, the farmers were supposed to sign a benefit sharing agreement and keep copies of it for future reference. Yet, till date, no written contracts have taken place between the farmers and the government saying that 40% of the timber harvest would actually come to the farmers. According to Forestry officials the delay has been due to land litigations between some stools. Some of the farmers are losing trust in the project and this seems to be affecting the projects' participation level.

In spite of the fact that the factors that led to the suspension of TS were considered before its modification and re-introduction, some of these critical issues seem to be resurfacing. Observations revealed that some community projects were a total failure since too much attention was paid to the food crops rather than the tree seedlings. The maximum period for crop cultivation under the MTS is 3 years and even in some cases between 1-2 years all depending on the time canopy closure. This does not ensure full

utilization of the land. Calculations by Hofstad (1978) showed that agriculture under taungya was more profitable than forestry alone. Cultivating crops for the first 5-8 years before abandoning the land to pure forestry gives the best value of the land. In view of this the planting space must be adjusted to ensure full utilization of the land. According to Kiriinya (1994), one of the causes of the fall of Kenya taungya system was the practice where new forest plots were allocated to farmers each year even if the tree planting of the previous year had not been very successful. This practice was also observed on the field and in order not to allow such practice to be a cause of the suspension of the MTS, plantation managers must vigorously assess the success of all previous tree planting before allocating new ones.

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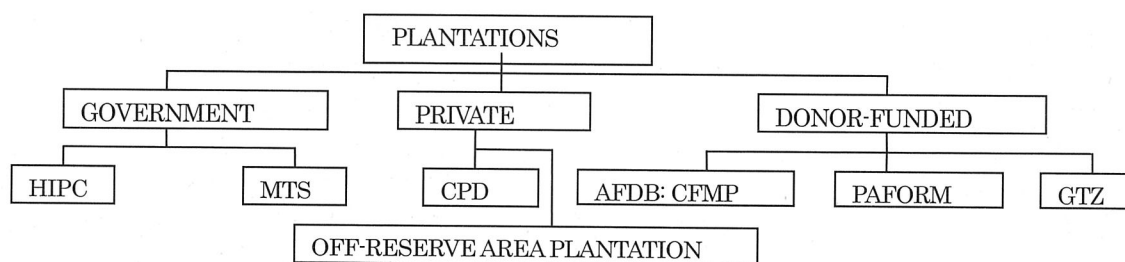
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**Table-1 Comparison of benefit sharing frameworks under the old TS and MTS (% share of benefits)**

Stakeholder	Old taungya system	Modified taungya System
<b>Public agencies</b>		
Forestry Commission	60	40
District Assembly	20	0
Administrator of tribal lands	4	0
<b>Subtotal</b>	<b>84</b>	<b>40</b>
<b>Local community groups</b>		
Tribal landowners	9	8
Traditional authority	7	7
Forest-adjacent community	0	5
Farmers	0	40
<b>Subtotal</b>	<b>16</b>	<b>60</b>
<b>Total</b>	<b>100</b>	<b>100</b>

Source: (2)



**Fig— 1. Reforestation Strategies in Ghana**

MEANING OF ABBREVIATIONS CFMP –

Community Forest Management Prog.; MTS- Modified Taungya System; CPD- Commercial Plantation Development;  
 HIPC- Highly Indebted Poor Countries; AFDB- African Development Bank; GTZ - German Development Cooperation