

Community-based Fire Management Approaches
Strategies and implementation in Ghana

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•WILDFIRE MANAGEMENT PROJECT
Highlights

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Introduction

Natural fires, are essential to maintain ecosystem dynamics, biodiversity and productivity in some ecosystems. Fire is also an indispensable and widely used tool to meet land management goals and maintain the functioning of ecological processes. However, every year, wildfires destroy millions of hectares of forests, woodlands and other vegetation, causing the loss of many human and animal lives and immense economic damage, both in terms of resources destroyed and the costs of suppression.

The forest sector of the economy is widely recognized as having the most significant potential to impact Ghana's economic growth and development in the foreseeable future.

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However, this potential is seriously threatened due to a dramatic increase in the number and severity of wildfires experienced in the country. Fire is perhaps the most serious single threat to the integrity and sustainable development of forests in Ghana. In recent years, Ghana has lost an ever-increasing percentage of its Gross Domestic Product (GDP) to the indiscriminate ravages of fires. In 2010 alone, losses to forest fire amounted to more than \$97 million – Equal to 20% of the country's entire GDP. The annual loss of revenue from merchantable timber to fire is currently estimated at \$24 million. These figures could be as much as double what is recorded since approximately half of the wildfires in Ghana go unreported.

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Wildfires are also the direct cause of irreversible environmental damage in Ghana. In certain areas of the country, the process of desertification has been hastened due to fires which have permanently destroyed delicate but vital organic soil material. At present, most fire-affected areas show progressive degradation. A number of Forest Reserves which were formerly tall, dense tropical forests, rich in biodiversity have become grasslands. The loss of forest cover in the country has seriously affected local communities by its effects on local hydrology and the loss of a wide range of non-timber forest products.

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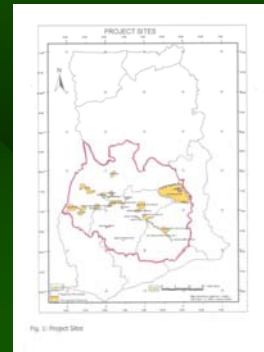
The impact of fire on the physical environment initiates a cycle of degradation, which locks the indigenous population in a spiral of decreasing crop yields and dwindling resources, and greatly exacerbates the already existent problems of poverty, poor health and disease.

As part of efforts to reverse this alarming environmental situation, a comprehensive Wildfire Management Project was embarked upon by the Forestry Commission of Ghana to help control/prevent the destructive effects of fire on the environment and its rippling socioeconomic implications.

Overview of the Wildfire Management Project in Ghana

The Project which was commenced in 2002 had as its Goal, to rehabilitate Fire Degraded Forests in the Transition Zone (Eastern, Volta, Brong Ahafo and Ashanti Regions) of Ghana and to recover the economic, social and environmental benefits following the rehabilitation of forests in these areas. In this context, the project was aimed at promoting a programme of forest rehabilitation through fire prevention and control thus ensuring the generation of economic and environmental benefits to include an increase in water supply and quality with increasing tree cover and biomass. Some measure of improvement is also expected through the successful establishment of timber tree plantations and the protection of biologically important forest areas from fire damage.

Fig 1: Map of Ghana with delineated Project Areas



Components under the WFMP

Components identified for the project are as follows:

1. Implementation of Public awareness, knowledge and warning systems for fire risks & hazards
2. Development, understanding and improvement of the role of fire in farming systems
3. Establishment of Incentives for reduction of fire incidence
4. Establishment of Firebreaks and fuel treatments
5. Implementation of effective fire detection and communication systems
6. Increasing the capacity for interagency support and active fire suppression in forest fringe communities

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- The project was designed to move beyond the past preoccupation of natural resource management personnel with the preservation of forest reserves and the exclusion of people from such resources. Attention was directed to enhancing rural people's income-generating activities and food security mechanisms that are resource-dependent as an important benefit of proper management of natural resources.

Achievements of the Wildfire Management Project in Ghana

- Weather network and warning systems
 - Identified and validated 19 weather posts and stations
 - Public awareness implemented;
 - Communication systems developed
 - Prevention education carried out in a number of communities
 - Establishment of 34 Wildfire Clubs in second cycle institutions across the country

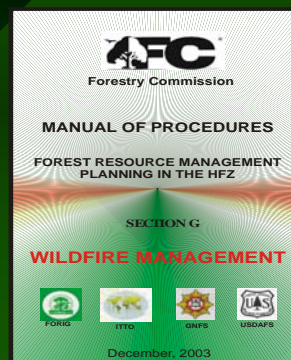
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- A National Wildfire Management Policy was developed with government approval and disseminated throughout the implementing areas within the country.
- Training manuals were also developed for fire volunteer training and a total of 9,982 FVS trained.
- A Wildfire Management Manual (MOP G) has been developed and serves as a training manual for resource managers in Ghana.
- A total of 616km of green firebreaks was established in 28 forest reserves.

A cross section of green firebreaks established along a forest reserve as fire pre-suppression mechanism



Fig 2: Manual of Procedures developed by the project to guide resource managers in wildfire training



Problems faced by the implementation of the Wildfire Management Project

Despite some modest achievements since the introduction of the project, about seventy (70%) percent of Ghanaians live in rural areas with very low-income level (less than \$1 a day). This compels the rural folks to engage in activities that impact negatively on effective wildfire and forest management.

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Traditional practices like shifting cultivation, bush burning for hunting, farming and festive purposes, tree cutting for traditional medicines and the production of charcoal and alcoholic beverages are causing serious problems such as gradual desertification.

The poverty levels in such rural communities are so high that people engage in the above activities not as a matter of interest but for survival.

Generally, poverty affects the development and maintenance of adequate infrastructure and manpower to support wildfire prevention & control activities based on appropriate technologies and systems.

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Lack of adequate funds significantly inhibits the promotion of alternative resource management systems such as agro-forestry, enrichment planting, enhanced natural regeneration and reforestation. Additionally, sustainable rural enterprises such as snail farming, apiculture, ecotourism, domestication of wildlife, mushroom farming and herb gardens all require initial capital input. However, these rural folks have little or no capital to enable them venture in such businesses. Hence, rural dwellers continue to engage in activities that impact negatively on the effective wildfire management and sustainable forest development in Ghana.

Lessons learned for replication in future wildfire management programs

❖ Wildfire Management for Poverty alleviation

The socioeconomic needs of rural dwellers and forest fringe communities must be taken into account during the design and implementation of wildfire programs. Capacity building programs basically geared towards improving the livelihoods of the beneficiary communities must be vigorously pursued as an integral component of wildfire management programs. Hence, forests should be sustainably managed to produce goods and services that are beneficial to poor people, reduce their vulnerability to environmental and economic changes and enhance income and employment opportunities for rural folks.

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In the past couple of years, many regions with large concentrations of extremely poor people have made little progress in reducing their poverty.

Fortunately for Ghana, wild fire management is particularly used for poverty alleviation in forest fringe communities and has received considerable support from the international community notably among them are ITTO and US Forest Service. Contribution of ITTO towards the reduction of poverty in rural communities in Ghana through the implementation of some of its funded projects (especially those on fire management) is quite remarkable.

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The major participants of the various projects are members of local communities. Predominantly, these people are farmers, hunters, charcoal producers and palm-wine tappers who basically depend on fire for their economic activities. Thus, fires impact on their livelihoods, ecosystems and landscapes.

The various projects contained pleasant strategies aimed at improving the livelihoods of beneficiary communities through grassroots participation in the areas of wildfire management and sustainable forest development.

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Most of these people participate in these projects basically for economic reasons. The impact evaluation result on the economic parameter indicates the desire of rural folks to get out of their poverty and have improved socioeconomic lives. Expectedly, most of them requested for extended duration of the projects and the introduction of similar community targeted projects. Incentive packages such as working gears (cutlasses, torch lights, protective boots, whistles etc) are supplied to the Fire Volunteer Squads (FVS) occasionally to aid them in fire fighting which become useful to them on their farms.

Some members of the FVS are sometimes given some subsistence allowances during training programmes. All these motivate the FVS to do their work. To most local communities, a source of motivation in fighting wildfires is influenced by the fact that by preserving and protecting the forest from wildfires, they would also be indirectly protecting their farmlands. Majority of community members know that wildfires can spread to adjoining farmlands and destroy their food crops and cash crops (e.g. cocoa). Therefore, the act of preventing and suppressing wildfires is considered by the community as a security for their short and long term investments in food and cash crops respectively.

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A fascinating project, "Women and tropical forest development" left footprints in the beneficiary communities within the Worobong Forest Reserve (Eastern Region, Ghana). It contained important outputs that promoted constructive dialogue and participation with local people, with special emphasis on women empowerment. Livelihood enhancing programs were strategically rolled out to add to the economic gains of the beneficiaries.

The project planted 660 ha of timber species and the bulk of plantation (mostly *Cedrela*, *Cassia*, *Ceiba* and *Terminalia*) have had outstanding results. A well-trained fire brigade and the new local behavior with regard to fire have prevented most fire incidences. This project made enormous strides among others in; women involvement and empowerment, fire prevention and income generation to beneficiaries from the sale of the food crops intercropped with the planted timber species. Interactions with some of the beneficiaries revealed that the project was a major source of income for them and they wished that the project continued for years. Income obtained, as indicated by some of the women were used for the payment of their children's school fees, hospitals bills and as seed capital for other business ventures.

'Taungya' system of forest management which enhances poverty alleviation



Interagency Support and Collaboration

Wildfire Management must be done with the involvement of all stakeholders in the forest. This would ensure good information exchange and sharing which would enhance effective management of forest resources for the benefit of all.



International cooperation

Cooperation is needed at the international level to exchange experiences through bilateral and multilateral agreements on cooperation in fire management and mutual assistance during wildland fire emergencies.



Conclusion

Through the above achievements, the Goal and purpose of the Project have somehow been realized and this has significantly reflected in the environmental, socioeconomic well-being of the rural folks within the catchment areas of the project in Ghana.

Good fire management will result in higher yield per unit area of forests. It will also lead to reduced costs in activities aimed at enhancing natural regeneration of the forest stand thereby providing positive economic returns in relation to cost and further enhance the socioeconomic welfare of the rural dwellers.

Thus, it is hoped that other countries in the Pan-Asian region will emulate the success story of Ghana and develop comprehensive state-of-the-art community-based fire management programs to check the global wildfire menace.

Let's all join hands to make our world a better place to live!

Thanks for your attention!

