



COMPLETION REPORT OF ITTO PROJECT

**“FIRE-MANAGEMENT AND POST-FIRE RESTORATION
WITH LOCAL COMMUNITY COLLABORATION IN GHANA”**



THE GOVERNMENT OF GHANA

SUBMITTED BY

**The International Union for Conservation of Nature – IUCN [Executive Agency]
& the Forestry Research Institute of Ghana – FORIG [Main Implementing Agency]**

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Project Staff: Project Leader: Martin NGANJE, PhD.
National Project Coordinator: Dominic BLAY, PhD.

FORIG Staff:

Dr. Victor Agyeman / Joseph Cobinnah : Contracting authority
Dr. Dominic Blay (Forest ecologist) – Technical leadership of project
Dr. Owusu Afriyie (Fire ecologist)
Mr. Lawrence Damnyag (Socio-economist)
Mrs. Lucy Ammissah (Fire Expert)
Mr. Francis Dwomoh (Ecologist)

RMSC Staff:

Dr. Oheneba Agyeman (Director of RMSC) – Contracting personality
Mr. Alex Asare (Manager Collaborative Forest Management) – Technical representative
Messrs. Edward Obiyaw/Richard Ninnoni (Manager in charge of Biodiversity Conservation)

IUCN Staff:

Stewart Maginnis (Head of IUCN Forest Conservation Programme)
Jean-Marc Garreau (Programme Coordinator IUCN PACO) – Tech Support
Martin Nganje (IUCN Senior Forestry Officer: Central & West Africa)

Executive Agency information

Bureau Régionale pour l’Afrique Central et de l’Ouest (PACO)
BP 1618
Ouagadougou 01
Burkina Faso
Tel: +226 50 36 49 79
Fax: +226 50 36 49 84
paco@iucn.org

IUCN - The World Conservation Union
Rue Mauverney 28
CH-1196 Gland, Switzerland
Tel: +41 22 999 0001
Fax: +41 22 999 0002
Email: forests@iucn.org

<http://www.iucn.org/forest>

Forestry Research Institute of Ghana (FORIG)
University P.O. Box 63,
Kumasi, Ghana
Tel: +233 51 60122, 60123, 60373
Fax: +233 51 60121
dbl原因@csir-forig.org.gh

Resources Management Support Centre (RMSC)
PO. BOX 1457
Kumasi,. Ghana
Tel: +233 20 812 8844, +233 51 23366
obi原因@rmsc.fcghana

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Disclaimer

Contributions into this report include the results of studies and surveys, as well as project, workshop and monitoring reports written by various project consultants and experts. The report was edited by the Project Team Leader (Dr. Martin NGANJE) representing the International Union for Conservation of Nature (IUCN) in the “Fire Management and Post-Fire Restoration with Local Community Collaboration project in Ghana, i.e. PD 284/04 Rev. 2 (F), and the Project Coordinator (Dr. Dominic BLAY) representing the Forestry Research Institute of Ghana (FORIG) in the above mentioned project. The views and orientations mentioned in the report are those of the editors and do not reflect the views of the promoting institutions i.e. the Government of Ghana, the ITTO, the IUCN or FORIG.

Meanwhile the content of the report is free and may be used by project developers or by other contenders to pursue their various objectives as appropriate.

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Abbreviations

| | |
|---------|---|
| ADRA | Adventist Relief Agency |
| CBFiM | Community-Based Fire Management |
| CBO | Community Based Organisation |
| CFC | Community Forest Committee |
| CREMA | Community Resource Management Area |
| DAs | District Assemblies |
| GDP | Gross Domestic Product |
| DVGs | Disaster Volunteer groups |
| EPA | Environmental Protection Agency |
| FAO | Food and Agricultural Organisation of the United Nations Organisation |
| FC | Forestry Commission |
| FM | Frequency Modulation (Proximity Radio Station) |
| FORIG | Forestry Research Institute of Ghana |
| FRNR | Faculty of Renewable Natural Resources (of KNUST) |
| FSD | Forestry Services Division |
| FVS | Fire volunteer Squads |
| GES | Ghana Education Service |
| GNFS | Ghana National Fire Service |
| GPRTU | Ghana Private Road Transport Union |
| GPS | Ghana Police Service |
| GWS | Ghana Weather Services |
| HIPIC | Highly Indebted Poor Country |
| ITTO | International Tropical Timber Organization |
| IUCN | International Union for Conservation of Nature |
| KNUST | Kwame Nkrumah University of Science and Technology |
| MAs | Municipal Assemblies |
| MLNR | Ministry of Lands and Natural Resources |
| MOFA | Ministry of Food and Agriculture |
| MSD | Meteorological Services Department |
| NADMO | National Disaster Management Organisation |
| NCCE | National Commission on Civic Education |
| NGO | Non-Governmental Organization |
| NTFPs | Non-Timber Forest Products |
| OEF | Okyeaman Education Foundation |
| RCS | Red Cross Society (Ghana) |
| RMSC | Resource Management Support Centre |
| STEWARD | Forest Stewardship Program of the United States Development Agency |
| TAs | Traditional Authorities |
| USAID | United States of America Aid Agency |
| WFMPZ | Wild Fire Management Project in the Transition Zone of Ghana |

Executive Summary

Project context, origin and main problems addressed

With funding from the International Tropical Timber Organization (ITTO) and following a request from the Government of Ghana, the International Union for Conservation of Nature (IUCN) was engaged with partners, notably the Forestry Research Institute of Ghana (FORIG) and the Resource Management Support Centre (RMSC) to oversee implementation of the “Fire management and post fire restoration with local community collaboration project in Ghana. In order to confront the insufficiencies in fire management the project engaged mechanisms and processes to optimize benefits to specific local communities in Ghanaian fire prone areas through the promotion of an adapted approach to fire management that was expected to protect timber, non timber and other resources, culminating in the restoration of fire damaged lands with adapted local tree species. The project also sought to build on the outputs of previous wildfire projects in Ghana by reinforcing their positive impacts and filling gaps that were not sufficiently addressed.

Project objectives and implementation strategy

The project objective was stated as follows: “Efficient community based wildfire management contributes to restoration and sustainable management of timber and other products in Ghanaian fire prone areas”.

The project had five (5) outputs as follows:

1. Relationship between use of resources by rural communities & effective fire management determined;
2. Roles and responsibilities of key stakeholders in fire management in Ghana are determined;
3. Mechanisms for effective community based fire management are developed and implemented;
4. Fire degraded areas are rehabilitated by using valuable species as determined by the local communities;
5. Gaps in existing legislation on community based fire management are identified and disseminated.

The implementation strategy was based on (a) generating knowledge, (b) ensuring empowerment of beneficiary communities and related fire stakeholders and (c) promoting governance processes in wildfire management in the following districts and communities:

Dormaa District: Asunsu No1, Twumkrom, Abonsrakrom
Mpraeso District: Nsuta, Gyaekasa, Measo
Juaso District: Kowerso, Aberewapong, Bebome
Begoro District: Besetuom, Ahomasu, Kumfrefre
Winneba/ Cape Coast District: Mankuadze and Komenda

The Most critical differences between planned and implemented undertakings

The most critical difference was the change from promoting post-fire restoration on one hectare plots with 200 trees each without land and tree tenure clearance in the target communities, to a large nursery containing several thousand tree seedlings planted in a secure tenure landscape i.e. in the Pamu-Berekum Forest Reserve. It should be indicated that this modified approach did not totally preclude the previous approach which was actually started in some communities. The change led to the development of a map of community planted areas, to facilitate the development of a benefit sharing agreement specifically for the trees planted by communities.

Prevailing situation at end of project compared to the beginning of the project

Prior to the project, there was an inadequately documented programme and adapted policy for training local stakeholders and others i.e. scholars, policy makers and professionals in wildfire management. As a result of the project, a Guidelines and Manual document for Community based Fire Management (CBFiM) was developed and endorsed by the Government of Ghana. The document contains a technical section that can be further simplified for training in community wildfire management in the country. Also, there was no show-case of community involvement in post-fire restoration in the country. As a result of the project, there is a clear show-case of community involvement in fire prevention, control and post-fire restoration with local tree species through a community Taungya scheme promoted by the project at the Pamu-Berekum Forest Reserve.

Most relevant outcome of the project implementation

The most relevant outcome of the project implementation was: Outcome n° 3 i.e. “mechanisms for effective community based fire management are developed and implemented”. The outcome led to the development and endorsement by the Government Ghana of a Guidelines and Manual document for Community based Fire Management in Ghana – CBFiM.

Lessons learned and recommendations

The project experienced some delays in implementation as national consultants refused to undertake assignments due to honorarium fees that they considered inadequate. At the same time, it was difficult to use FORIG staff as consultants, as this required that they resign their posts in FORIG during the period of such undertakings. No staff accepted this option as it implied that they would be forfeited from the normal career advancement opportunities. One recommendation is that honorarium fees proposed for national consultants should be reviewed for competitiveness in Ghana or other countries concerned.

In order to secure tenure of trees planted by project beneficiaries as well as demonstrate the Guidelines and Manual proposed by the project for community based fire management in Ghana, it is recommended that a second phase of the project be promoted. The second phase will ensure amongst others that a benefit sharing agreement is obtained with the Forestry Commission for resources invested by communities in post-fire restoration starting with the community Taungya scheme at the Pamu-Berekum Forest Reserve.

1. Project Identification

1.1 Context

Prior to the “Fire management and post-fire restoration with local community collaboration project”, the government of Ghana had improved the environment for participatory wildfire management in the country. However, a lot remained to be done. The Control and Prevention of Bushfires Act of 1990 (P.N.D.C.L. 229) was the foremost among fire related legislations to provide orientation in the management of wildfires in the country. Article 7 of the Act, advocated the creation of fire volunteer squads in every town, area or unit of Ghana. However, the Act did not empower traditional authorities to play a major role in its enforcement. The Ghana Forest and Wildlife Policy of 1994 meanwhile set the stage for forest and wildlife management but did not consider fire as a major problem in forest and wildlife management, thereby relegating wildfire management to a lower position on the national agenda. Also, the Ghana National Fire Service Act (Act 537) of 1997 that established the Ghana National Fire Service, sought amongst others, to raise awareness on wildfires and provide training in the prevention and suppression of dangerous fires. However, the attachment of the National Fire Service to the Ministry of Interior rendered it skewed towards industrial and domestic fire management. Based on lessons from the weaknesses of past

wildfire policies, the government of Ghana adopted the National Wildfire Management Policy of 2006, placed under the coordination of the Ministry of Lands and Natural Resources of Ghana. The policy advocates amongst others, multi-sectorialism and best-practice approaches in wildfire management. Despite this political will, district assemblies did not have sufficient technical capacity to engage the development of fire by-laws as required, even as fire volunteer squads lacked adequate capacity and motivation to engage wildfires.

1.2 Origin and problem

1.1.1 Origin

This project: PD 284/04 Rev. 2 (F) was part of an integrated fire management project that involved ITTO member countries from three regions: Asia Pacific, Africa and Latin America and the Caribbean. This integrated approach to forest fire management was shaped in part by work carried out in the 1980s and 1990s by ITTO – one of the first international organizations to recognize the increasingly serious nature of the fire problem in Tropical Moist Forests. The ITTO mission to Kalimantan in 1989 to help the Indonesian Ministry of Forestry identify methods for post-fire forest rehabilitation, and the 1997 ITTO Guidelines on Fire Management in Tropical Forests were especially influential in this respect.

The ‘Fire-Fight’ initiative – a pre-project in its own right, was launched in 1998 with the intention of establishing a network of regional-level forest fire projects. The first of these projects, “Fire-Fight South East Asia” (“Advancing policy reform for mitigating the adverse impacts of forest fires in South East Asia”) - implemented by WWF in collaboration with IUCN and the Centre for International Forestry Research (CIFOR) and supported by the European Commission - ended in June 2003. “Fire-Fight” continued to serve as a general model for planned forest fire projects in the three regions. The initiative sought to help practitioners and policy makers in targeted ITTO member countries to identify and secure the policy reforms and practical actions necessary to prevent and control harmful fires, and mitigate their negative impacts on human societies and forest ecosystems.

In this regard, the Fire-Fight pre-project initiatives were effectively carried out in Latin America, West Africa and South-East Asia during the years 2003 and 2004. Their purpose was to develop a series of complete project proposal documents actively supported by ITTO member countries in the above-mentioned three regions. Inputs for the complete project proposal documents were obtained through a series of workshops for representatives of governments and other stakeholders. These workshops aimed at increasing interest in forest fire issues, initiating collaboration and sharing knowledge as well as building common understanding in the three sub-regions. Prior to the workshops, consultancies on past and present fire management activities as well as related gaps in fire management were conducted.

1.1.2 The problem

In Ghana, the land area prone to annual wildfires ranges from 30% in the high forest and transitional zones of the country to over 90% in the country’s drier northern savannah zone. The continued expansion of land conversion and the use of fire for cultural and other management objectives have been blamed for the increasing incidence of wildfire in the country. Information from Ghana’s forestry sector indicates that the annual loss of revenue from marketable timber as a result of wildfires is approximately USD 24 Million. The combined effect of wildfire on the country’s internal revenue is an annual loss of 3% of its Gross Domestic Product (GDP), estimated at USD 210 Million. Even though the negative effects of wildfire affect virtually everyone in the country, the poor are mostly at risk as their livelihood directly depends on land and its resources, even as they reside in the most fragile and fire prone ecosystems of Ghana’s landscape.

Good fire management has been revealed to produce direct benefits to local communities. Wherever people have a direct interest in protecting their natural resources, unplanned wildfires have always been reduced. The ITTO funded “fire management and post-fire restoration with local community collaboration project” sought to increase benefits to local communities from forest products in Ghanaian fire prone areas by promoting mastery of fire management interventions. This was expected to ensure the protection of timber, non timber forest products (NTFPs) and other resources. The project also sought to ensure the restoration of fire degraded lands with adapted local tree species, building on previous fire projects in Ghana thereby filling gaps that were not sufficiently addressed.

2. Project Objectives and Implementation Strategy

2.1 Project rationale and objectives

2.1.1 Rationale

It is estimated that the overall fire load of the planet (the amount of yearly combustion) has increased. This increase is borne more, by developing countries and especially in the tropics where each year, about half of the world’s forest fires occur. The resulting loss and degradation is estimated to be of the same order of magnitude as the loss caused by destructive logging and conversion to agriculture. Fires thus also have the potential to significantly affect the capacity of forests in the tropics to provide goods and services including tropical timber on a sustainable basis. This is having a major impact not only on timber industries but also on rural communities whose livelihoods depend on forests and forest resources.

In Ghana, fire is considered the most important single threat to the integrity of forests. It has severely reduced the productive capacity of many Ghanaian forests through annually burning merchantable timber. It has not only reduced the productive capacity of the forests but has also generated major impacts on the other benefits of forest cover such as water supply and its quality as well as soil fertility and biodiversity.

The main causes of forest fires in Ghana are from uncontrolled fire-setting activities and inefficient management and control of fires. The former are mainly a result of human activities for example in farming, hunting and other rural based income generating activities. The latter are due to the lack of technical capacity, insufficient community involvement as well as ineffective law enforcement. Also, the ignorance and carelessness i.e. dropping of lighted cigarettes during the dry season, as well as cultural beliefs and activities i.e. fire festivals in the northern parts of Ghana, add to the problem. The underlying causes of forest fires in Ghana were identified as including poverty, lack of education and awareness related to the impact of forest fires and the lack of strong legislative incentives to prevent burnings. Communities have been involved in forest fire management through the fire volunteer squads and with various projects on fire prevention including green firebreak establishments around forest reserves. Community involvement in fire management activities in Ghana however had not been sufficiently addressed, despite strong emphasis especially at the policy level to involve local populations in forest fire management activities.

A review of past and present forest fire management strategies and practices in Ghana highlighted the direct and indirect causes of fires in the country, included the following:

- unclear institutional framework
- ineffective legal framework
- insufficient technical capacities to combat fire
- lack of awareness in relation to fires

2.1.2 Objectives

2.1.2.1 Development objective:

Efficient community-based forest fire management contributes to restoration and sustainable management of timber and other products in Ghanaian fire prone areas.

The Development objective emphasizes the key role of local communities i.e. the most vulnerable group within areas of uncontrolled fires, for the success of fire management activities in Ghana. This complies with Ghana's development goals, which indicate that community participation is one of the preconditions for successful environmental and natural resources management implementation.

2.1.2.2 Specific objective:

Uncontrolled forest fires are reduced in the target communities' forests thus increasing their productive capacity.

The specific objective focuses on working with local communities to stop the progress of forest loss due to uncontrolled fires. It recognizes that not all fires are bad but emphasizes the importance of integrated fire management to tackle the problem of uncontrolled forest fire, especially at local level. Despite efforts made so far, effectiveness of community based fire management in Ghana still requires improvement. This project builds on lessons learnt from previous projects and addresses those aspects identified as most problematic.

2.2 Project implementation strategy

Difficulties encountered by Fire / Forest Departments to limit the spread and minimise the damage of wildfires have challenged the assumption that effective fire control requires only firebreaks, early warning and adequate fire-fighting systems. Many organisations have now concluded that if harmful forest fires are to be contained, then the fire-related behaviour of a whole range of stakeholders must be addressed and that attention has to be focused on policy reform and the removal of perverse economic incentives that encourage stakeholders to use fire irresponsibly.

In acknowledgement of the size of the fire problem and the ongoing fire related activities in Ghana, the project (PD 284/04 Rev. 2 (F)) chose to develop its activities on existing structures and to provide assistance on technical aspects identified as the most problematic and currently under-addressed during the different steps of project formulation. In this regards, the strategy developed for the project was based on a KEG (Knowledge-Empowerment-Governance) approach:

2.2.1 Knowledge

The orientation related to this strategy was to increase the level of knowledge by conducting studies on the underlying causes of fires both at the local level (i.e. community practice) and national level (i.e. institutional framework) as well as determining the existing knowledge on suitable restoration methods for fire damaged lands. Knowledge was expected to be created by desk studies on existing literature, by interviewing key decision makers and experts as well as conducting pilot restoration trials. The results of the studies were expected to be synthesized and put into an easily-understood format as well as distributed among all relevant stakeholders in local, national and international forums. Studies were expected to be carried out by national consultants with the support of international experts.

2.2.2 Empowerment

Through this strategy, the project sought to engage training, education and awareness of stakeholders responsible for uncontrolled fire-setting activities and/or involved in fire prevention and management interventions. The component cum strategy included training sessions, workshops as well as awareness creation campaigns at the community level through local radio, bulletins and posters. During the workshops, participants from local to national levels were expected to come together to discuss prevailing problems and latest achievements in relation to fire management issues. During campaigns at the local level, project staffs were expected to act as facilitators while encouraging villagers to choose focal persons responsible for awareness-raising activities and project follow-up. The focal points were expected to receive necessary training and support from the project to fulfil tasks and activities on a sustainable basis.

2.2.3 Governance

The promotion of good governance was expected to be achieved especially at the community level, by raising awareness and establishing by-laws on sustainable schemes for incentives. At the national level, the drawbacks of existing legal and policy frameworks was expected to be determined and suggestions for improvement made. Governance strategy was expected to include desk studies to identify gaps and problems of existing legal frameworks. In relation to the facilitation of by-laws, the project was expected to organize training sessions in communities on different possibilities and ways to create by-laws. Existing sustainable incentive schemes were expected to be introduced to the local communities.

The project strategy as presented was aligned to the “**ITTO guidelines on fire management in tropical forests**”, in particular principle 4, concerning community participation, fire pre-suppression, law enforcement and training.

2.3 Risks

It was assumed that the Government of Ghana will remain responsive to the threat of forest fires in the country and that the corresponding legislative and economic measures would be taken. It was acknowledged that if the economic development in the country failed, there would be a risk of reallocating funds from the environmental domain to other domains and activities, such as more direct poverty alleviation interventions.

An enabling environment for community participation was perceived to be essential for the implementation of the project’s activities. Therefore, complications in government / community relations could have compromised the fulfilment of the project activities. This risk was minimized by working through already existing governmental structures, which already had good working relationships and experience in implementing activities at the community level.

3. Project Performance

3.1 Original outputs and project activities

Output 1 ***Relationship between utilization of resources by rural communities and effective fire management determined***

Activity 1.1: Collect socioeconomic and environmental baseline data in pilot communities.

Sub-activity 1.1.1: Verification & prioritization of project pilot communities

Sub-activity 1.1.2: Literature and activity review of similar activities that have been or are on-going in Ghana

Sub-activity 1.1.3: Preparation and peer review of baseline methodology

Sub-activity 1.1.4: Field test and refinement of methodology

Sub-activity 1.1.5: Collecting baseline data on the field

Sub-activity 1.1.6: Analysis and report writing.

Activity 1.2: Undertake inventory of key natural resources used by the local communities.

Sub-activity 1.2.1: Familiarisation with project pilot communities

Sub-activity 1.2.2: Preparation and peer review of baseline methodology

Sub-activity 1.2.3: Field test and refinement of methodology

Sub-activity 1.2.4: Collect baseline data from the field

Sub-activity 1.2.5: Analysis and report writing

Activity 1.3: Study the impacts of fire on key natural resources and the livelihood of rural communities

Sub-activity 1.3.1: Identify indicators of fire on key natural resources

Sub-activity 1.3.2: Procure and exploit background documents i.e., teledetection & others

Sub-activity 1.3.3: Produce list of potential impacts of fire on human livelihood

Sub-activity 1.3.4: Develop questionnaire and strategy for its administration

Sub-activity 1.3.5: Administer questionnaire, collect and process data

Sub-activity 1.3.6: Write report on the study

Activity 1.4: Evaluate effective community fire management strategies on key natural resources

Sub-activity 1.4.1: Undertake a review of what is allowed and disallowed in existing texts

Sub-activity 1.4.2: Undertake review of actual on-going practices in target communities

Sub-activity 1.4.3: Assess what is working from texts / on-going practices & what is not working

Sub-activity 1.4.4: Develop proposals for effective strategies

Output 2 ***Roles and responsibilities of key stakeholders in fire management in Ghana determined***

Activity 2.1: Identify all relevant stakeholders in fire management and determine their respective roles and responsibilities

Sub-activity 2.1.1: Identify and recruit consultant

Sub-activity 2.1.2: Undertake stakeholder analysis (including those from outside) by project area

Sub-activity 2.1.3: In-depth interviews of different stakeholder groups (individuals and focus groups) and verification of responses

Sub-activity 2.1.4: Undertake analysis of roles/ responsibilities of major stakeholder groups with indications of how their behaviour has changed over time

Sub-activity 2.1.5: Prepare report

Activity 2.2: Organize stakeholder workshops

- Sub-activity 2.2.1:** Determine workshop methodology
- Sub-activity 2.2.2:** Prepare agenda and background material
- Sub-activity 2.2.3:** Prepare list of participants
- Sub-activity 2.2.4:** Send out invitations
- Sub-activity 2.2.5:** Organise workshop logistics
- Sub-activity 2.2.6:** Facilitate the workshop
- Sub-activity 2.2.7:** Write workshop report and sending it to the participants

Activity 2.3: Train stakeholders to meet their roles and responsibilities in fire management

- Sub-activity 2.3.1:** Carry out a training needs assessment
- Sub-activity 2.3.2:** Design training programme
- Sub-activity 2.3.3:** Choose participants for the training
- Sub-activity 2.3.4:** Organise training session logistics
- Sub-activity 2.3.5:** Organise the training session
- Sub-activity 2.3.6:** Write training report including an evaluation of the session

Output 3 *Mechanisms for effective community based fire management developed and implemented*

Activity 3.1: Inform rural communities about existing fire policies and laws

- Sub-activity 3.1.1:** Prepare posters and bulletins
- Sub-activity 3.1.2:** Identify appropriate radio stations
- Sub-activity 3.1.3:** Position posters, distributing bulletins and making radio broadcasts
- Sub-activity 3.1.4:** Produce report on fire policy sensitisation activities

Activity 3.2: Develop a manual of procedures for community based fire management

- Sub-activity 3.2.1:** Organize materials
- Sub-activity 3.2.2:** Develop draft manual
- Sub-activity 3.2.3:** Review draft manual
- Sub-activity 3.2.4:** Publicise and distribute manual

Activity 3.3: Facilitate the implementation of community based fire management

- Sub-activity 3.3.1:** Develop community based management system
- Sub-activity 3.3.2:** Discuss management systems with communities
- Sub-activity 3.3.3:** Review of the developed system
- Sub-activity 3.3.4:** Implementation of system by communities

Activity 3.4: Create awareness on radio, local bulletins, and through other means

- Sub-activity 3.4.1:** Investigate production costs of radio announcements / bulletin production --
- Sub-activity 3.4.2:** Develop radio messages / bulletin write-up information
- Sub-activity 3.4.3:** Test impact of messages / draft bulletin, and review
- Sub-activity 3.4.4:** Engage radio stations, develop and publish bulletins

Output 4 *Fire degraded areas rehabilitated by using valuable species as determined by the local communities*

Activity 4.1: Identify appropriate candidate species for rehabilitation by local communities

- Sub-activity 4.1.1:** Ecological survey of species in the project sites
- Sub-activity 4.1.2:** Participatory assessment of merits of candidate species
- Sub-activity 4.1.3:** Literature review of knowledge on regeneration practices for select species (2 phases)
- Sub-activity 4.1.4:** Incentives and infrastructure for making rehabilitation happen (MT + other

incentives)

Sub-activity 4.1.5: Report preparation and review

Activity 4.2: Develop tools and practices from existing, and if necessary, new research into fire ecology.

Sub-activity 4.2.1: Review literature and existing practices

Sub-activity 4.2.2: Plan for new research trials and plots

Sub-activity 4.2.3: Generate information for annual project report

Activity 4.3: Conduct pilot trials with the appropriate species at the local communities.

Sub-activity 4.3.1: Design and layout plots

Sub-activity 4.3.2: Establish planting materials in plots (seedlings, natural regeneration etc)

Sub-activity 4.3.3: Monitor & record survival and growth of planted materials and recruitment of new species + data processing

Sub-activity 4.3.4: Analyse & interpret recorded data & report on the progress and status of field plots and related activities.

Activity 4.4: Disseminate knowledge on the suitable rehabilitation methods of degraded lands

Sub-activity 4.4.1: Collate information / describe the different rehabilitation methods experimented by the project

Sub-activity 4.4.2: Assess the social, ecological, economic and cultural merits of the different restoration methods

Sub-activity 4.4.3: Produce technical / illustrated pamphlets on the 2 most adapted rehabilitation methods

Sub-activity 4.4.4: Distribute technical / illustrated pamphlet to target communities

Sub-activity 4.4.5: Produce and circulate report

Output 5 *Gaps in existing legislation on community based fire management identified and disseminated*

Activity 5.1: Review existing legislative framework for community based fire management, including land-use and property rights

Sub-activity 5.1.1: Identify and contract consultant

Sub-activity 5.1.2: Scope national; district and community laws and bylaws that enable or impede community based fire management.

Sub-activity 5.1.3: Review of best or worse cases at community and district level.

Sub-activity 5.1.4: Review of national level legislation and policies

Sub-activity 5.1.5: Report preparation

Activity 5.2: Validate existing legislative gaps and problems through an expert workshop

Sub-activity 5.2.1: Determine workshop methodology

Sub-activity 5.2.2: Prepare agenda and workshop background material

Sub-activity 5.2.3: Contact and prepare list of participants

Sub-activity 5.2.4: Send out invitations

Sub-activity 5.2.5: Organise workshop logistics

Sub-activity 5.2.6: Facilitate the workshop

Sub-activity 5.2.7: Write-up workshop report and undertake policy briefings

Sub-activity 5.2.8: Brief key policy makers

3.2 Planned versus realised project interventions

3.2.1 Specific objective

Planned

Uncontrolled forest fires are reduced in the target communities' forests, thus increasing their productive capacity

Realised

Uncontrolled forest fires were reduced in the target communities' forests thus increasing their productive capacity

3.2.2 Outputs, activities and sub-activities planned and realised

| Project Element Planned | Project Element Executed % | Completed Date |
|---|----------------------------|--|
| Output 1. | | |
| <i>Relationship between utilization of resources by rural communities and effective fire management determined</i> | 100 | Start: Nov 2005 End: Dec 2007 |
| Activities and Sub-Activities | | |
| Activity 1.1: Collection of socioeconomic and environmental baseline data in pilot communities | 100 | Start: Nov 2005 End: Feb 2007 |
| Sub-activity 1.1.1: Verification & prioritization of project pilot communities | 100 | Start: Nov 2005 End: Nov 2005 |
| Sub-activity 1.1.2: Literature and activity review of similar activities that have been or are on-going in Ghana | 100 | Start: Nov 2005 End: Nov 2005 |
| Sub-activity 1.1.3: Preparation and peer review of baseline methodology | 100 | Start: Nov 2005 End: Nov 2005 |
| Sub-activity 1.1.4: Field test and refinement of methodology | 100 | Start: Nov 2005 End: Nov 2005 |
| Sub-activity 1.1.5: Collecting baseline data on the field | 100 | Start: Feb 2006 End: Feb 2006 |
| Sub-activity 1.1.6: Analysis and report writing. | 100 | Start: Sep 2006 End: Feb 2007 |
| Activity 1.2: Inventory of the key natural resources used by the local communities | 100 | Start: Dec 2005 End: Dec 2006 |
| Sub-activity1.2.1: Familiarisation with project pilot communities | 100 | Start: Dec 2005 End: Dec 2005 |
| Sub-activity1.2.2: Preparation and peer review of baseline methodology | 100 | Start: Jan 2006 End: Jan 2006 |
| Sub-activity1.2.3: Field test and refinement of methodology | 100 | Start: Jan 2006 End: Jan 2006 |
| Sub-activity1.2.4: Collecting baseline data on the field | 100 | Start: Aug 2006 End: Oct 2006 |
| Sub-activity1.2.5: Analysis and report writing | 100 | Start: Sep 2006 End: Dec 2006 |
| Activity 1.3: Study the impacts of fire on key natural resources and the livelihood of rural communities | 100 | Start: Mar 2007 End: Dec 2007 |

| | | |
|---|------------|--|
| Sub-activity 1.3.1: Identify indicators of fire on key natural resources | 100 | Start: Mar 2007 End: Mar 2007 |
| Sub-activity 1.3.2: Procure and exploit background documents i.e. teledetection & others | 100 | Start: Apr 2007 End: Apr 2007 |
| Sub-activity 1.3.3: Produce list of potential impacts of fire on human livelihood | 100 | Start: Apr 2007 End: Apr 2007 |
| Sub-activity 1.3.4: Develop questionnaire and strategy for its administration | 100 | Start: Apr 2007 End: Apr 2007 |
| Sub-activity 1.3.5: Administer questionnaire, collect and process data | 100 | Start: May 2007 End: Jun 2007 |
| Sub-activity 1.3.6: Write report on the study | 100 | Start: Dec 2007 End: Dec 2007 |
| Activity 1.4: Evaluate effective community fire management strategies on key natural resources | 100 | Start: Jun 2007 End: Sep 2007 |
| Sub-activity 1.4.1: Undertake a review of what is allowed and disallowed in existing texts | 100 | Start: Jun 2007 End: Aug 2007 |
| Sub-activity 1.4.2: Undertake review of actual on-going practices in target communities | 100 | Start: Jun 2007 End: Aug 2007 |
| Sub-activity 1.4.3: Assess what is working from texts / on-going practices & what is not working | 100 | Start: Jul 2007 End: Aug 2007 |
| Sub-activity 1.4.4: Develop proposals for effective strategies | 100 | Start: Aug 2007 End: Sep 2007 |

| Project Element Planned | Project Element Executed % | Completed Date |
|--|-----------------------------------|--|
| Output 2. | | |
| <i>Roles and responsibilities of key stakeholders in fire management in Ghana determined</i> | 100 | Start: Mar 2006 End: Feb 2008 |
| Activities and Sub-Activities | | |
| Activity 2.1: Identification of all relevant stakeholders and determination of their roles and responsibilities* | 100 | Start: Mar 2006 End: Feb 2008 |
| Sub-activity 2.1.1: Identify and recruit consultant | 100 | Start : Mar 2006 End : Mar 2006 |
| Sub-activity 2.1.2: Stakeholder analysis (including those from outside) undertaken by project area (x-link to 1.1) | 100 | Start : Dec 2007 End : Dec 2007 |
| Sub-activity 2.1.3: Undertake in-depth interviews of different stakeholder groups (individuals and focus groups) and verification of responses. | 100 | Start : Dec 2007 End : Dec 2007 |
| Sub-activity 2.1.4: Analyse roles & responsibilities of major stakeholders with indications of how their behaviour has changed over time. | 100 | Start : Dec 2007 End : Dec 2007 |

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|---|------------|--|
| Sub-activity 2.1.5: Prepare report | 100 | Start : Feb 2008 End : Feb 2008 |
| Activity 2.2: Organization of yearly stakeholder workshops, 1st workshop | 100 | Start: Mar 2006 End: Aug 2007 |
| Sub-activity 2.2.1: Determining workshop methodology | 100 | Start : Mar 2006 End : Mar 2006 |
| Sub-activity 2.2.2: Preparing agenda and background material | 100 | Start : Aug 2007 End : Aug 2007 |
| Sub-activity 2.2.3: Preparing a list of participants | 100 | Start : Aug 2007 End : Aug 2007 |
| Sub-activity 2.2.4: Sending out invitations | 100 | Start : Aug 2007 End : Aug 2007 |
| Sub-activity 2.2.5: Organising workshop logistics | 100 | Start : Aug 2007 End : Aug 2007 |
| Sub-activity 2.2.6: Facilitating the workshop | 100 | Start : Aug 2007 End : Aug 2007 |
| Sub-activity 2.2.7: Writing workshop report and sending it to the participants | 100 | Start : Aug 2007 End : Aug 2007 |
| Activity 2.3: Training of stakeholders to meet their roles and responsibilities in fire management | 100 | Start: Aug 2006 End: Oct 2006 |
| Sub activity 2.3.1: Carrying out a training needs assessment | 100 | Start : Aug 2006 End : Aug 2006 |
| Sub activity 2.3.2: Designing training programme | 100 | Start : Sep 2006 End : Sep 2006 |
| Sub activity 2.3.3: Choosing participants for the training | 100 | Start : Sep 2006 End : Sep 2006 |
| Sub activity 2.3.4: Organising training session logistics | 100 | Start : Sep 2006 End : Sep 2006 |
| Sub activity 2.3.5: Organising the training session | 100 | Start : Sep 2006 End : Sep 2006 |
| Sub activity 2.3.6: Writing training report including an evaluation of the session | 100 | Start : Oct 2006 End : Oct 2006 |

| Project Element Planned | Project Element Executed % | Completed Date |
|--|-----------------------------------|--|
| Output 3. <i>Mechanisms for effective community based fire management developed and implemented</i> | 100 | Start: Jun 2007 End: Dec 2010 |
| Activities and Sub-Activities | | |
| Activity 3.1: Inform rural communities about existing fire policies and laws | 100 | Start: Oct 2007 End: Jun 2009 |
| Sub-activity 3.1.1: Prepare posters and bulletins | 100 | Start : Oct 2007 End : Feb 2009 |
| Sub-activity 3.1.2: Identify appropriate radio stations | 100 | Start : Oct 2007 End : Oct 2007 |
| Sub-activity 3.1.3: Position posters, distributing bulletins and making radio | 100 | Start : Dec 2007 End : Mar 2008 |

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|---|------------|--|
| broadcasts | | |
| Sub-activity 3.1.4: Produce report on fire policy sensitisation activities | 100 | Start : Jun 2009 End : Jun 2009 |
| Activity 3.2: Develop a manual of procedures for community based fire management | 100 | Start: Nov 2008 End: Oct 2010 |
| Sub-activity 3.2.1: Organize materials | 100 | Start : Nov 2008 End : Dec 2008 |
| Sub-activity 3.2.2: Develop draft manual | 100 | Start : Dec 2008 End : Dec 2008 |
| Sub-activity 3.2.3: Review draft manual | 100 | Start : Dec 2008 End : Dec 2008 |
| Sub-activity 3.2.4: Publicise and distribute manual | 100 | Start : Aug 2010 End : Oct 2010 |
| Activity 3.3: Facilitate the implementation of community based fire management | 100 | Start: Jun 2007 End: Dec 2010 |
| Sub-activity 3.3.1: Develop community based management system | 100 | Start: Jun 2007 End: Jun 2008 |
| Sub-activity 3.3.2: Discuss management systems with communities | 100 | Start: Jun 2007 End: Jun 2009 |
| Sub-activity 3.3.3: Review of the developed system | 100 | Start: Jan 2010 End: Aug 2010 |
| Sub-activity 3.3.4: Implementation of system by communities | 100 | Start: Nov 2007 End: Dec 2010 |
| Activity 3.4: Create awareness on radio, local bulletins, and through other means | 100 | Start: Aug 2007 End: Dec 2007 |
| Sub-activity 3.4.1: Investigate production costs of radio announcements / bulletin production -- | 100 | Start: Aug 2007 End: Aug 2007 |
| Sub-activity 3.4.2: Develop radio messages / bulletin write-up information | 100 | Start: Sep 2007 End: Sep 2007 |
| Sub-activity 3.4.3: Test impact of messages / draft bulletin, and review | 100 | Start: Oct 2007 End: Oct 2007 |
| Sub-activity 3.4.4: Engage radio stations, develop and publish bulletins | 100 | Start: Nov 2007 End: Dec 2007 |

| Project Element Planned | Project Element Executed % | Completed Date |
|--|-----------------------------------|--|
| Output 4. <i>Fire degraded areas rehabilitated by using valuable species as determined by the local communities</i> | 100 | Start: Sep 2006 End: Dec 2010 |
| Activities and Sub-Activities | | |
| Activity 4.1: Identification of (candidate) appropriate species for rehabilitation by local communities | 100 | Start: Sep 2006 End: Dec 2010 |
| Sub-activity 4.1.1: Ecological survey of species in the project sites | 100 | Start: Aug 2007 End: Aug 2007 |
| Sub-activity 4.1.2: Participatory assessment of merits of candidate species | 100 | Start: Sep 2007 End: Sep 2007 |
| Sub-activity 4.1.3: Literature review of knowledge on regeneration practices | 100 | Start: Sep 2006 End: Sep 2007 |

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|---|------------|--|
| for these species (2 phases) | | |
| Sub-activity 4.1.4: Incentives and infrastructure for making rehab happen (MT + other incentives) | 100 | Start: Sep 2006 End: Jul 2010 |
| Sub-activity 4.1.5: Report preparation and review | 100 | Start: Aug 2010 End: Dec 2010 |
| Activity 4.2: Development of tools and practices from existing, and if necessary, new research into fire ecology | 100 | Start: Jul 2007 End: Jul 2007 |
| Sub-activity 4.2.1: Literature and existing practice review | 100 | Start: Jul 2007 End: Jul 2007 |
| Sub-activity 4.2.2: Plans for new research trials and plots | 100 | Start: Jul 2007 End: Jul 2007 |
| Sub-activity 4.2.3: Information for annual project report | 100 | Start: Jul 2007 End: Jul 2007 |
| Activity 4.3: Conduct pilot trials with the appropriate species at the local communities. | 100 | Start: Mar 2008 End: Nov 2010 |
| Sub-activity 4.3.1: Design and layout plots | 100 | Start: Mar 2008 End: Apr 2009 |
| Sub-activity 4.3.2: Establish planting materials in plots (seedlings, natural regeneration etc) | 100 | Start: Mar 2008 End: Apr 2009 |
| Sub-activity 4.3.3: Monitor & record survival and growth of planted materials and recruitment of new species + data processing | 100 | Start: Nov 2010 End: Aug 2010 |
| Sub-activity 4.3.4: Analyse & interpret recorded data & report on the progress and status of field plots and related activities. | 100 | Start: Jun 2010 End: Nov 2010 |
| Activity 4.4: Disseminate knowledge on the suitable rehabilitation methods of degraded lands | 100 | Start: May 2009 End: Nov 2009 |
| Sub-activity 4.4.1: Collate information / describe the different rehabilitation methods experimented by the project | 100 | Start: May 2009 End: Jul 2009 |
| Sub-activity 4.4.2: Assess the social, ecological, economic and cultural merits of the different restoration methods | 100 | Start: Aug 2009 End: Sep 2009 |
| Sub-activity 4.4.3: Produce technical / illustrated pamphlets on the 2 most adapted rehabilitation methods | 100 | Start: Oct 2009 End: Oct 2009 |
| Sub-activity 4.4.4: Distribute technical / illustrated pamphlet to target communities | 100 | Start: Nov 2009 End: Nov 2009 |
| Sub-activity 4.4.5: Produce and circulate report | 100 | Start: Nov 2009 End: Nov 2009 |

| Project Element Planned | Project Element Executed % | Completed Date |
|---|-----------------------------------|--|
| Output 5. | | |
| <i>Gaps in existing legislation on community based fire management identified and disseminated</i> | 95 | Start: Sep 2006 End: Oct 2010 |
| | | |

| Activities and Sub-Activities | | |
|--|------------|--|
| Activity 5.1: Review of legislation on community based fire management, including land-use | 100 | Start: Sep 2006 End: Sep 2010 |
| Sub-activity 5.1.1: Identify and contract consultant | 100 | Start: Sep 2006 End: June 2010 |
| Sub-activity 5.1.2: Scoping national; district, community laws & bylaws enabling or impeding community fire management. | 100 | Start: April 2007 End: Jan 2010 |
| Sub-activity 5.1.3: Selection and detailed review of best or worse cases at community and district level. | 100 | Start: Jan 2010 End: Jun 2010 |
| Sub-activity 5.1.4: Review of national level legislation and policies | 100 | Start: Dec 2009 End: Aug 2010 |
| Sub-activity 5.1.5: Report preparation | 100 | Start: Sep 2010 End: Sep 2010 |
| Activity 5.2: Validation of legislative gaps during a workshop | 90 | Start: Sep 2010 End: Dec 2010 |
| Sub-activity 5.2.1: Determining workshop methodology | 100 | Start: Sep 2010 End: Sep 2010 |
| Sub-activity 5.2.2: Preparing agenda and background material. | 100 | Start: Sep 2010 End: Sep 2010 |
| Sub-activity 5.2.3: Preparing a list of participants | 100 | Start: Sep 2010 End: Sep 2010 |
| Sub-activity 5.2.4: Sending out invitations | 100 | Start: Sep 2010 End: Sep 2010 |
| Sub-activity 5.2.5: Organising workshop logistics | 100 | Start: Sep 2010 End: Sep 2010 |
| Sub-activity 5.2.6: Facilitating the workshop | 100 | Start: Oct 2010 End: Oct 2010 |
| Sub-activity 5.2.7: Writing workshop report and policy briefings | 80 | Start: Oct 2010 End: Dec 2010 |
| Sub-activity 5.2.8: Brief key policy makers | 80 | Start: Oct 2010 End: Dec 2010 |

3.3 Analysis of applied input

All funds for the on-site project implementation i.e. 491,242 USD were received from ITTO from which a total of 321,401 USD was transferred to FORIG and the RMSC. The project spent slightly above the earmarked budget i.e. it incurred a slight deficit of (256,76 USD). The project contingency funds totalling 26,246 USD was received in January 2011. The contingency funds were used to organise the end of project workshop which, due to organisational issues took place in April 2011. The workshop sensitised on the use of key project outputs such as the officially endorsed Guidelines and Manual for Community based Fire Management (CBFIM) in Ghana. The Government of Ghana respected and provided its contribution of 74,700 USD to the project. On the other hand, as a result of direct financial support, IUCN surpassed its initially approved contribution to the project, raising it from 82,054 USD to 122,791 USD by the end of the project.

4. Project Outcome, Target Beneficiaries Involvement

4.1 Extent of achievement of the project specific objective

The project's specific objective sought to reduce uncontrolled forest fires in the forests of target communities thereby increasing the productive capacity of such forests. The indicator of this specific objective was that "50% of local community members partake in fire management activities". The means of verification included through: (a) field visits (b) workshop reports (c) MoUs (d) training workshop reports (e) community based fire management activities and (f) list of participants and people involved with various activities.

Attainment of the project specific objective as recorded by the preceding verifiers is described below:

Field visits

Pertaining to field visits as a means for the verification of attainment of the project's specific objective: (a) all the five (5) Steering Committee Meetings (PSCs) hosted by the project, starting from November 2005, involved field visits in the target project communities during which cross-sections of fire stakeholders were encountered in organised meetings and in the field, (b) the IUCN Project Team Leader undertook ten (10) supervisory field visits with the FORIG Project Coordinator for a multiplicity of objectives during which various sections of fire stakeholders were contacted, (c) the project's international and national consultants also undertook at total of eighteen (18) field visits to implement their various assignments during which large sections of fire stakeholders were encountered in the project's target communities.

Workshop reports

The project produced approximately twenty (20) different kinds of workshop reports ranging from (a) fires stakeholder workshop reports, (b) workshop reports following studies by consultants and experts involving local fire communities, (c) project steering committee meeting reports, (d) fires peer review and experts' workshop reports, and (e) reports produced during supervisory meetings with communities by the IUCN project team leader and the FORIG project coordinator. The various workshops contain information on the participation of local communities and other stakeholders in wildfire management.

MoUs

The project achieved the signature of Letter N° G190.V.15/230 of 8th May 2009 issued by the Executive Director of the Forestry Commission of Ghana authorising the survey, mapping, and instauration of a tree Taungya system by communities on 350 hectares of the Pamu-Berekum Forest Reserve. The accord has since led to the mapping of areas engaged in post-fire restoration using local species by four hundreds and ten (410) community members of the Assensu n° 1, Abonsrakrom and Twumkrom beneficiary project communities.

Training workshop reports

Wildfire management training was undertaken during stakeholder workshops. The project organised three of such training workshops which brought together a variety of wildfire actors. For example, the project stakeholder workshop held at the Begoro District between 8th and 11th August 2007 brought together 94 participants.

Community-based fire management activities and list of participants at events

In addition to activities already mentioned, other interventions that brought project beneficiaries together included occasions for the distribution of support materials such as protective clothing, planting materials such as tree seedlings, field supervision such as during field pegging, holing and planting. For example, post

fire restoration with local and adapted tree species in the Pamu-Berekum Forest Reserve revealed a participation of 193 male Taungya farmers against 217 female Taungya farmers.

4.2 Pre-project versus post / end of project situation.

4.2.1 Tangible outputs of the project

The project produced approximately 50 reports and other tangible outputs. The main products, i.e. reports and tangible outputs are presented under the different project Outputs, below:

Output 1: Relationship between utilization of resources by rural communities and effective fire management determined

- Report by Damnyag, L. (2007) on Socioeconomic and Environmental Baseline data for Community-based Fire Management in Ghana.
- Report by Hawthorne, W. D., Owusu-Afriyie, K., Gyakari, N. (2007) on Data-Base of Fire Restoration Species.
- Report by Hawthorne, W. D., Owusu-Afriyie, K., Gyakari, N. (2007) on Survey of Key Resources in the project areas.

Output 2: Roles and responsibilities of key stakeholders in fire management determined

- Report by Ameyaw, J. & Amissah, L. (2007) on the Roles and Responsibility of Stakeholders in Fire Management in Begoro, Winneba and Dorma'a Districts of Ghana.
- Report by Amissah, L. (2008) on Training of Fire Volunteers held in Abonsrakrom, Twumkrom and Asunso n° 1.

Output 3: Mechanisms for effective community based fire management developed and implemented

- Project Report on Stakeholder Workshop held at Dorma'a in 2007.
- Project Report on Stakeholder Workshop held at Begoro in 2007.
- Illustrated bulletins on wildfire management distributed to communities.
- Panel-boards on fire management produced in 2007 and 2008 and placed in project areas.
- Guidelines and Manual for Community-based Fire Management (CBFiM) produced.

Output 4: Fire degraded areas rehabilitated by using valuable species as determined by the local communities

- Report by Hawthorne, W. D., Owusu-Afriyie, K., Gyakari, N. (2008) on Species Restoration and Trials recommended in the project areas.
- Authorization n° G190.V.15/230 of 08.05.09, obtained from F/Commission for Taungya Scheme.
- A map of 350 ha of Taungya sites for post-fire restoration in Pamu-Berekum produced in 2009.
- Protective clothing + boots + cutlasses provided to 193 men and 217 female project beneficiaries.
- Eighty thousands (80,000) tree seedlings provided by the project and planted by 410 project beneficiaries.
- 20,500 plantain suckers supplied by the project and planted by project beneficiaries.

Output 5: Gaps in existing legislation on community based fire management identified and disseminated

- Report by Marfo, E. (2010?) on the Review of Existing Legislation on Community Based Fire Management.

4.2.2 Sectorial policies and programmes

Prior to the Project

1. The Control and Prevention of Bushfires Act of 1990 (P.N.D.C.L. 229) was the foremost legislation to promote participation in the management of wildfires in Ghana. While Article 7 of the Act advocates creation of fire volunteer squads, the Act however did not empower traditional authorities to play a major role in the enforcement of its specifications.
2. Ineffective legal framework for the development of adapted wildfire plans, (as captured in the project document) and inappropriately coordinated action for authorisation of implementation.
3. Insufficiency of mechanisms and guidance in the use of fire including advice and support in post-fire restoration (as captured in the project document).
4. Inadequately documented programme for training local stakeholders and others i.e. scholars in wildfire management.

Impact of the Project

Action 1 of Strategy 2.2.1.2 of the Fire Guidelines and Manual document produced by this project : PD 284/04 Rev. (F) and endorsed by the Government of Ghana, proposes Traditional Authorities and District Assemblies to develop and approve local bye-laws for wildfire management in the country.

Strategy 2.5.1.1 of the Fire Guidelines and Manual document produced by PD 284/04 Rev. (F) and endorsed by the Government of Ghana, advocates the periodic review and amendment of laws and regulations on wildfire to meet changing situations. Moreover the project led and applied several wildfire plans even as its stakeholder's workshops proposed that fire bye-laws should be gazetted within 90 days after their submission, and District Assemblies mandated to follow-up the execution of this provision.

The project proposed the banning of open burning from 15th December to 15th April, with meteorological services (MSD) assuming the responsibility to advise as appropriate.

The project supported project beneficiaries with equipment, tree seedlings, plantain suckers, which were all planted, thereby making post-fire forest restoration a reality.

The Fire Guidelines and Manual document produced by PD 284/04 Rev. (F) and endorsed by the Government of Ghana, proposed an illustrated section for training in wildfire prevention, pre-suppression, and suppression.

4.2.3 The physical environment

| Prior to the project | Impact of the project |
|--|--|
| 1. Fire degraded lands around communities (not Forest Reserves) were not receiving adequate attention and consequently not restored. | The project supported reforestation through the establishment of fire-belts and mixed planting using approximately 25,000 seedlings of fire resilient tree species around community and individual farm-holds |
| 2. Fire degraded lands in Forest Reserves around target project communities were receiving very little attention and consequently not adequately restored. | The project supported the mapping, clearing, pegging, holing and reforestation through a Taungya Scheme of 87.2 hectares of land over 350 hectares of mapped and prepared Forest Reserve land under progressive reforestation. |

4.3 Participation of local beneficiaries in the project implementation and use of project results

The participation of beneficiaries in the implementation of project activities and use of the results was captured through different interventions, as follows:

4.3.1 Project studies and surveys

Approximately 1,500 participants from 14 communities participated in the different project studies and surveys. They were involved in the development of recommendations of socioeconomic and natural resource use studies led by project experts and consultants. They are currently applying the results and recommendations of such studies and surveys. An example among others include the use of economically viable and socially acceptable fire resistant species recommended by the natural resource use studies and currently engaged in the ongoing Taungya post-fire restoration scheme of the Pamu-Berekum Forest Reserve.

4.3.2 Participation in wildfire sensitization and awareness through radio broadcasts, bulletins, and panel boards.

All project communities and neighboring localities of about 475,000 inhabitants were sensitized on wildfire management through radio programs, distributed fire awareness bulletins among themselves, and participated in the choice of location and positioning of wildfire sensitization panels. The project's socioeconomic survey in 2006 revealed that 65.1% of residents reacted promptly to wildfire incidences. However, in the four years after 2006 i.e. by 2010, there were no fire incidences requiring intervention, which is an indication that the project had been successful in influencing the mentality of communities against the unwise initiation and use of fires.

4.3.3 Training in wildfire management

Community representatives, including Traditional Authorities of all the 14 project communities, fire volunteer squads, representatives of District Assemblies, the Forestry Services Division of the Forestry Commission of Ghana, NADMO, NCCE, MoFA, the National Fire Service, the National Police Service and representatives of local social groups made up of approximately 250 participants, took part in two large wildfire training sessions organized by the project, each running for 4 days in 2007 in the Begoro and Dorma'a districts. The trainings also included the review of wildfire byelaws during which most of the

guidelines in the adopted “Guidelines and Manual for Community-based Wildfire Management in Ghana” were proposed. The document was endorsed in January 2011 by the Minister of Lands and Natural Resources of Ghana, and has since been published. It is however awaiting pictorial and illustrative simplification to make it self-explanatory for effective application by communities.

4.3.4 Wildfire planning and monitoring workshops including project Steering Committee Meetings

The socioeconomic study undertaken by the project revealed that there were no fire management plans in the project target communities prior to the project. Community representatives and fire stakeholders participated in the development of exemplary “annual fire plans” led by the project. The plans assigned time-based roles and responsibilities of different stakeholders for different fire management interventions. During such planning, fire stakeholders developed knowledge on the basic fire incidence command system and related networks which is currently applied in fire prevention and control.

Key community representatives including fire volunteer squads, Traditional Authorities, District Assemblies, NFS and the FSD participated in the 5 Project Steering Committee Meetings (PSC). As an example; recommendation 7.4 of the Project Steering Committee of 4th December 2009 proposed that “.....all stakeholdersshould be involved in land identification, demarcation and allocation for rehabilitation activities to be implemented by communities, supported by the project”. Such large scale participation was experienced and was a reality through examples such as the community Taungya scheme as recommended by the PSC.

4.3.5 Post-fire restoration interventions

Green fire belts and post-fire restoration interventions were undertaken by project beneficiaries on their own farm holdings for at least one year before engagement in the Pamu-Berekum Forest Reserve Taungya Scheme. The ongoing community interventions in the Forest Reserve include 110 beneficiaries from the Assensu n° 1 community, 160 from the Abonsrakrom community, and 140 from the Twumkrom community. It is expected that more members from the same and other communities will participate in the scheme.

4.4 Project sustainability

The project has achieved significant success at the national and regional levels. This is manifested by its demonstrated capacity to attract new researchers and promoters such as the STEWARD Initiative of the USAID. The project outcomes and outputs are now linked to the Global Partnership on Forest Landscape Restoration (GPFLR) currently providing international visibility to the project impacts and effects. More specifically, the project fulfilled the responsibility of sustainability as follows:

4.4.1 Institutional sustainability

Institutional sustainability was pursued through (a) the engagement of community wildfire focal points belonging to already existing and organized local structures, (b) the involvement of existing governmental and non-governmental fire stakeholders and their networks / decongested government units, in all project interventions, and (c) the preparation and adoption of regulatory guidelines by government, in the form of the “Guidelines and Manual on Community-based wildfire Management” in Ghana - CBFiM. These processes and instruments have constituted an assurance that the project outputs and outcomes will continue to be useful to wildfire stakeholders.

4.4.2 Economic / financial sustainability

The post-fire restoration interventions by project beneficiaries involved the planting of perennial economic species such as plantains in addition to tree species. Interventions also included the planting of annual crops i.e. maize, within the framework of the Taungya scheme in the Pamu-Berekum Forest Reserve. The products of these species i.e. plantains and maize, have an existing local market in the communities as well as in the large markets at the headquarters of the concerned District Assemblies. Moreover, the project also supported beneficiaries through the provision of equipment i.e. cutlasses, and materials i.e. protective clothing and Wellington boots, expected to facilitate and serve in farming operations thereby reducing unnecessary costs that could arise from injuries or medications as a result of injuries.

4.4.3 Resource / ecological sustainability

During the project implementation, there were no consequential wildfires, leading to positive increases and higher yields of timber and non timber forest products in areas where the project was operational. Another consequence was that project equally contributed towards increased productivity of biodiversity. Moreover, the community Taungya scheme initiated by the project included the planting of wildlife friendly species such as Figs that attract avifauna including bats, snails, earthworms currently contributing towards increased biological diversity and consequently, enhanced resource sustainability.

4.4.4 Social sustainability

The project improved and multiplied social encounters between fire volunteer squads and other stakeholders. On several occasions networks were initiated or stimulated between wildfire volunteer squads and unusual actors such as lecturers at the Sunyani forestry school and university professors in the presence of the more habitual actors i.e. the FSD, the NFS and the District Assemblies. These networks improved the motivation of fire volunteer squads thereby contributing towards the social sustainability of the project. Moreover the preceding processes helped to build the confidence of fire squads who are now likely to provide practical training to other national and trans-border communities.

5. Assessment and Analysis

5.1 Project rationale and identification process

The project identification process involved a series of workshops with stakeholders during which ongoing fire related initiatives in Ghana and the gaps were assessed. The workshops revealed that there were weaknesses and to be tackled, namely:

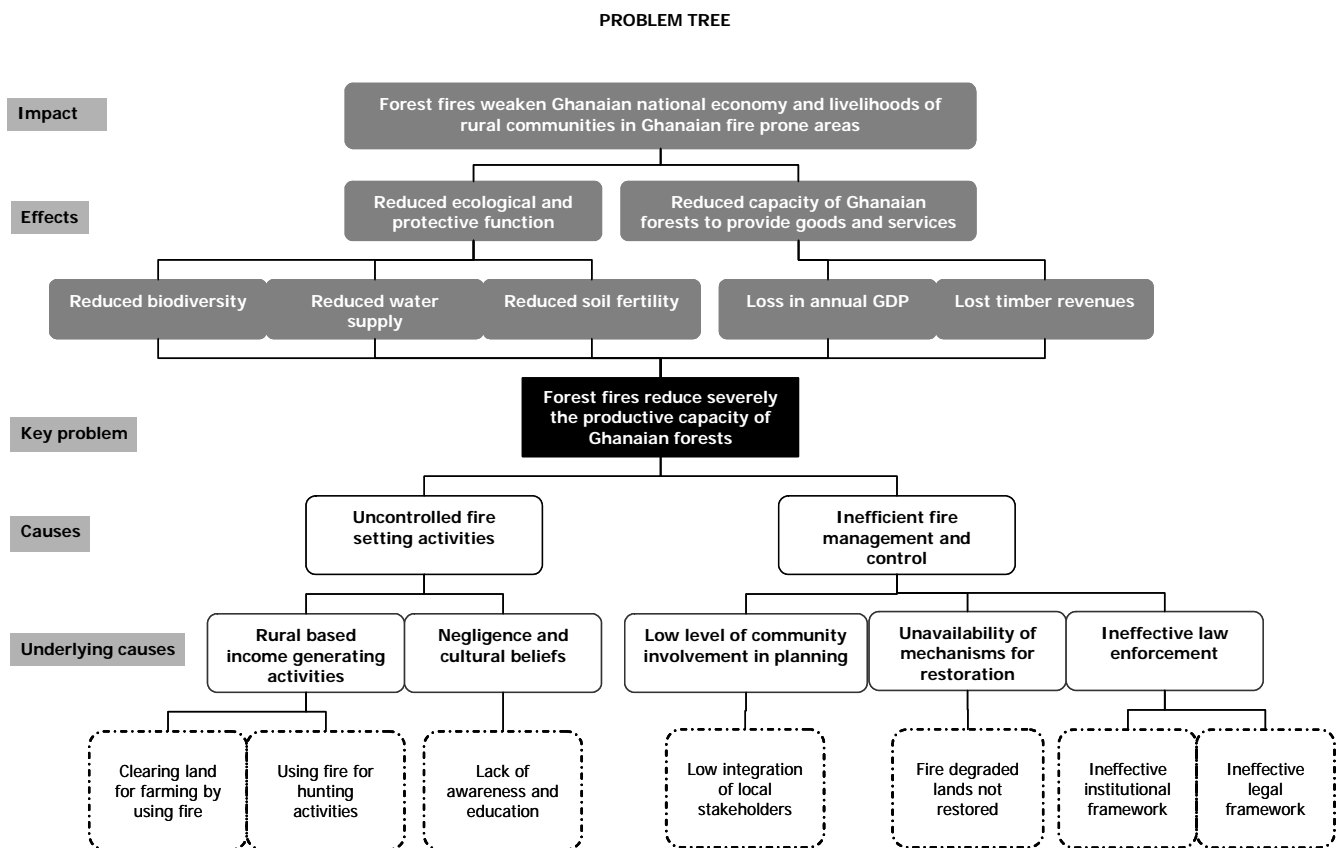
- unclear institutional framework
- ineffective legal framework
- insufficient technical capacities to combat fire
- lack of awareness in relation to fires

The identification process was adequate as it involved key stakeholders i.e. local community representatives, traditional authorities and representatives of District Assemblies and the National Fire Service through workshops and seminars. One of the first activities of the project involved stakeholder workshops during which all stakeholder groups were identified and their roles and responsibilities in fire management were determined. These workshops captured and corrected weaknesses during the initial project formulation which had missed some stakeholder groups such as the National Police Service (NPS), the National Commission on Civic Education (NCCE) responsible for awareness-raising and sensitisation,

the Meteorological Services Department (MSD), the National Disaster Management Organisation (NADMO) and others.

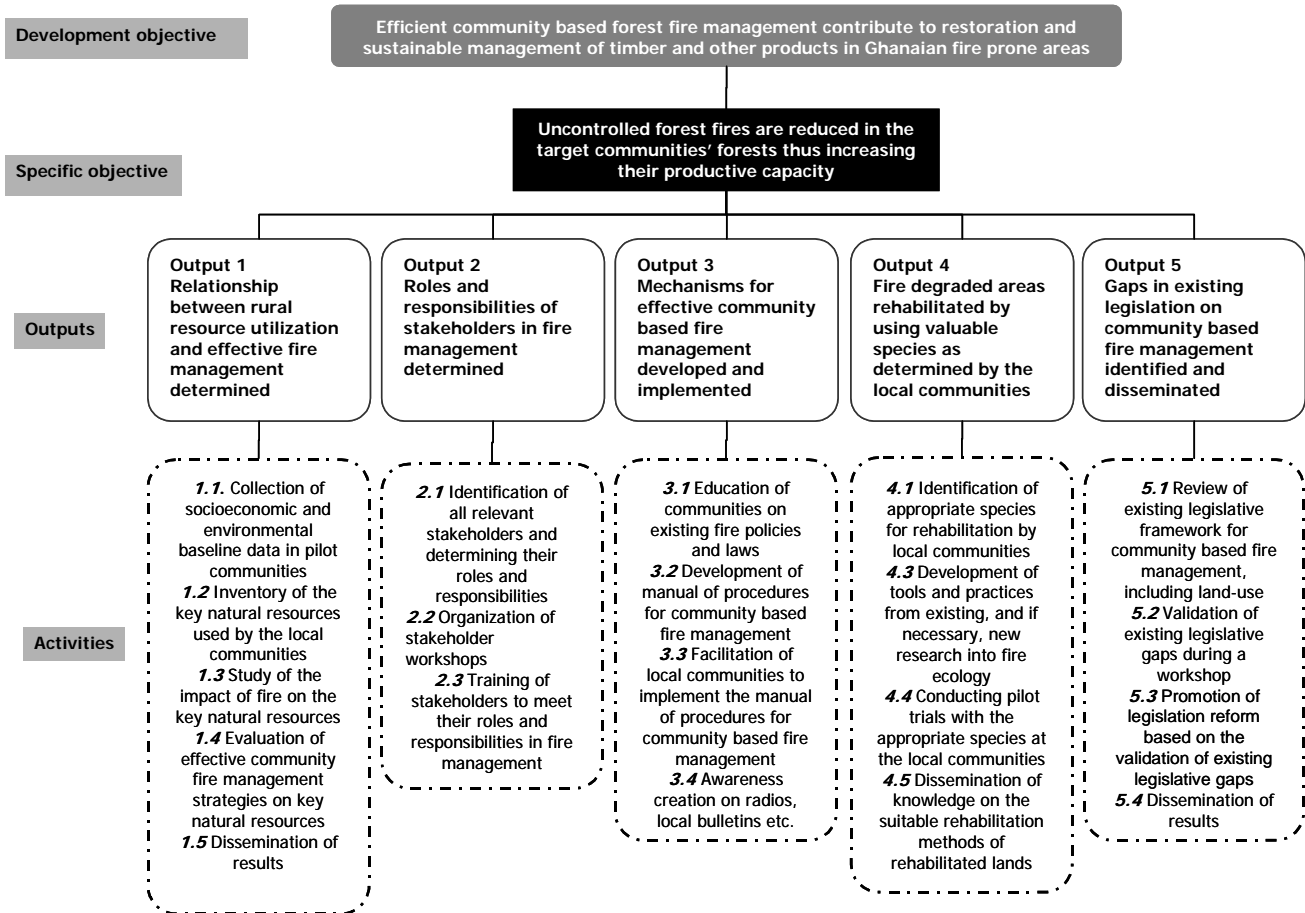
5.2 Problems, objectives and implementation strategy

During project formulation workshops, facilitators used tools such as the problem and objective trees to clarify and stratify problems and their linkages to causes and underlying causes of wildfires. The problems were adequately identified and pursued. The problem tree used during project conception is presented below:



Facilitators of the project conception workshops transformed the problem tree into an objective tree to capture the most pertinent challenges. These were eventually presented as activities, outputs and specific objective. The objective tree generated during the project conception workshops is presented below.

OBJECTIVES TREE



The implementation strategy for post fire restoration interventions captured under Output 4 of the project i.e. “Fire degraded areas rehabilitated by using valuable species as determined by the local communities”, was slightly modified. The initial strategy proposed the development of small nurseries to be planted with 200 tree seedlings for post fire restoration in each of the 14 target project communities. While the approach was initiated, it was soon evident that the sustainability of such a process would be minimal. The project consequently adopted a large-scale nursery which produced tens of thousands of tree seedlings which were eventually planted through a community Taungya scheme in the Pamu-Berekum Forest Reserve.

5.3 Critical differences

There were few critical differences between the planned and actually implemented project activities. The slight modification in the implementation strategy mentioned in section 5.2 above was undertaken without significant changes in resource requirements. There was however financial resource transfers from some budget lines to others necessitating budget revisions.

The budget line dwelling on “National Consultants” was consistently under-spent even as the budget line dwelling on “Raw Materials” for community support was always overspent and lacked funds. It should be indicated that the initial approved budget for National Consultants was 44,000 USD. By the end of the project this budget line had been reduced to 10,500 USD following the transfer of 33,500 USD to the Raw

Materials budget line in support of direct community interventions related to the provision of protective clothing, Wellington boots and cutlasses and post-fire restoration support.

5.4 Timing and project inputs

The project witnessed considerable modifications in the timing of operations which led to the expansion of the initial time allotted to the project by an additional 24 months. The expansion was mostly due to (a) the time required to fulfil administrative processes such as to obtain an authorisation from the Forestry Commission in Accra to produce a map of sites for the community Taungya scheme in the Pamu-Berekum Forest Reserve, and (b) the time required to wait for the right season for the development of the tree nursery, the time required to wait for the seedlings in the nursery to attain the correct age and height, and the time required to await the correct season for planting in the field. The projects expansion in time did not have any effect on project inputs. The project personnel, equipment and materials were all sufficiently adequate for the project implementation as planned.

5.5 External influences

All the assumptions captured in the project logical framework were achieved. The most pertinent risk was the possibility of wildfire decimating the reforested lands of the community Taungya scheme, but this never occurred.

5.6 Participation of project beneficiaries

The project witnessed a remarkably higher number of participants and beneficiaries. This higher participation resulted from the expansion of the different types of wildfire stakeholders. Also, the planned post fire restoration activity (pegging, holing and planting) per community of 200 seedlings was perceived as the work of 5 man-days on one hectare of land. The implemented Taungya scheme meanwhile, witnessed the participation of 410 individuals. This expansion was made possible by the collaboration and contribution of IUCN.

5.7 Project sustainability

The sustainability elements captured in the project document while perceived to be inadequate were all achieved. More specifically, the project document captured sustainability in two sentences, namely: (a) "For the sake of sustainability, it will be ensured that the village focal points will be members of existing and organized local structures" and (b) "The project contributes to the sustainability of Ghanaian forests by reducing the number of uncontrolled fires thus contributing positively to their productivity and biodiversity".

The analysis undertaken in section 4.4 further above captures a fuller perception of sustainability pursued and achieved by the project.

5.8 Appropriateness of roles of institutions involved

The role of IUCN as executive agency of the project was appropriately identified and well implemented. The role of FORIG as first implementing agency was equally well identified and implemented. However, the role of RMSC as second implementing agency was poorly identified and poorly implemented. The second

implementing agency was chosen in the first place because the RMSC was implementing the large wildfire project i.e. the WFMPZ at the time. It was perceived that the involvement of the RMSC will contribute to reduce duplication of efforts and reinforce collaboration i.e. sharing of data and useful knowledge with FORIG and the ITTO project as a whole. The RMSC tended instead to adopt a competitive position with FORIG as it might have perceived that FORIG was trespassing its research limits and engaging local communities in real livelihood initiatives, a role that the RMSC considered theirs. RMSC experts however participated faithfully in project activities whenever they were requested to do so with clear mandates.

6. Lessons Learned

6.1 Lessons from project identification, design and implementation

The involvement of stakeholders right from the conception phase of the project followed by the immediate identification of their roles and responsibilities in fire management was very crucial for the success of the project. The regular and rigorous Project Steering Committee Meetings (PSCs) provided an opportunity to correct unforeseen problems and legalise new orientations. For example the authorisations to transfer funds from one budget line to another, needed to be sanctioned during such monitoring meetings and the modified budgets approved through the yearly programmes of work. The project design with the rigorous monitoring missions and PSCs proved to be crucial for the success of the project as the field contacts with local community partners enhanced their motivation thereby contributing towards the social sustainability of the project. On the contrary, the roles in project implementation given to FORIG and the RMSC seemed not to have taken into account the official mandates of these organisations, an aspect which could have derailed several interventions of the project. More specifically, FORIG is a research organisation with interest in experimentation, demonstrations and trials, while the RMSC is a rural policy development and implementation organisation and consequently interested in engaging the direct implementation of wildfire interventions with communities along with related policy implementation. RMSC is responsible for leading the development and implementation of Community Resource Management Area (CREMA) schemes in Ghana, which includes this project's post-fire restoration Taungya scheme. There is need to clearly understand the official mandates of partnering organisations in relationship to the proposed project outputs before contracting.

Pertaining to matters and lessons learned related to the project sustainability, it should be mentioned that after producing a map of sites authorised for community involvement in post-fire restoration at the Pamu-Berekum Forest Reserve, the project initiated discussions for a "benefit sharing agreement". The benefit sharing agreement expected to be signed by the Traditional Authorities of the target communities and the Forestry Commission, was not achieved at project completion. The awaited agreement is a legal document that spells the roles, responsibilities, rights and benefits of communities to the trees that they planted in the government forest reserve. One reason why this agreement was not accomplished in time was because the process was not foreseen and planned during the project conception. This is also part of a land tenure and tree tenure issue that lies within the competence of the RMSC. This agreement should be supported for resolution by a second phase of the project; otherwise the efforts of communities (tree ownership) will not be adequately rewarded.

6.2 Lessons from other operational matters

The project encountered early problems in the transmission of funds delayed on two occasions because of non-compliance by the Executive Agency with annual audits using external auditors. While the Executing Agency justified the non-compliance as due to its own globalised audit system for its projects, this was

unsatisfactory for the funding agency. While the annual audits were eventually undertaken with regularity by the Executive Agency, the initial non-compliance for approximately two years was responsible for some delay in the execution of the project activities. The lesson here is that there should be agreement on all aspects contained in the project contract (i.e. the contract should be discussed with main project implementers) during the commencement of the project.

During the project execution, the Director of FORIG who was also a keen staff of the project conception proceeded on retirement. While the impact of this event was minimal on the project execution, the event was not foreseen and it was unclear whether the new Director of FORIG or the former Director was entitled to the project benefits. Such events should be discerned during the project conception and development, and acceptable provisions and orientations made in the project document, since the way in which such unforeseen aspects are handled, may or may not have motivated the new Director with consequences on the political importance or impact of the project. Clauses in the project document should spell out what would happen if the Project Team Leader, the Project Coordinator, or Contracting Authority were to leave the project or called to other responsibilities away from the project.

Pertaining to technical lessons:

- The project revealed that inadequate practices in wildfire management were significantly related to inappropriate human behaviour. This was found to be second only to insufficient capacity by stakeholders to effectively plan, and engage control measures in wildfire management. As a result, it was proposed that any training in the prevention and management of wildfires should not only target fire volunteer squads but should equally engage representatives of the different social classes of communities, and be as broad and inclusive as possible. It is only through such an inclusive approach that inadequate cultural and social practices that promote wild-fires will effectively be checked.
- The project also revealed that while the Ghana National Fire Service and the Forestry Services Division of the Forestry Commission were at the apex of importance and influence of fire management in Ghana, different stakeholders were important for different aspects of fire management i.e. education, law enforcement, community mobilization etc. Neither district level organizational stakeholders nor local level stakeholders could ensure effective fire management in isolation, hence the need for collaboration and institutional / stakeholder networking in fire management. Also, the effectiveness of stakeholders in executing their roles and responsibilities in fire management seemed to vary from one district to another depending on a variety of factors including past experience, capacity and motivation.

7. Conclusion and Recommendations

7.1 Project cycle

7.1.1 Identification

- The officially allocated mandates of the RMSC and FORIG (as government agencies) were not adequately discerned during the project identification. It is important to verify and ascertain the official mandates of implementing organisations to avoid frustrations and confusion of roles given to partnering agencies;

7.1.2 Design

- The designed littering of eleven 1 hectare post-fire restoration plots each to contain 200 trees in every project community would have had little or no contribution towards project sustainability. This was remedied as a large nursery eventually supported the planting of thousands of native tree species through an officially recognised scheme on officially recognised and titled land.

7.1.3 Implementation

- Delays were registered in project implementation as national consultants refused to engage assignments due to honorarium fees that they considered to be inadequate. At the same time, it was difficult to use FORIG staff as consultants, as this meant that they had to resign their posts in FORIG during the period of such undertakings. One recommendation is that honorarium fees proposed for national consultants may need to be reviewed to make them competitive in the country or countries concerned.

7.1.4 Organisation

- The implementation of project interventions was organised around simple activity matrices and arrows that indicated percentages of activity implementation. While such an organisation was useful as it provided information on the levels of implementation, it was difficult to acknowledge activities that had an obligation to be implemented before or after others. There may be the need to organise the implementation of activities around tools such as the adapted Likert Line/scale.

7.1.5 Management

- The management of national consultants by one organisation i.e. FORIG, and the management of international consultants by another organisation, i.e. IUCN, proved to be a wise decision. FORIG had qualified researchers i.e. PhD holders, who found it difficult to accept the differences in honorariums between international and national consultants, making it difficult for FORIG to accept international consultants. The fact that the IUCN/FORIG arrangement for the management of international versus national consultants was possible constituted a technology transfer benefit for the project, as one of the MSc. staff (Fire Ecologist) at FORIG who worked with the international consultant on fire ecology benefited from the process including the data collected, to obtain his PhD degree in Fire Ecology.
- IUCN also made use of its financial management process which requires that the project executor submits returns for used funds before the transfer of the following tranche of funds. This proved to be very effective as all receipts were analysed for conformity thereby making the work of the external auditor much simpler. Such a process and system is worthwhile emulating.

7.2 Potential for replication, scaling-up or continuation

Because post-fire forest restoration is a time consuming venture, which depends on factors such as seasons, climate and the weather, project PD 284/04 Rev. 2 (F) developed a number of mechanisms which were not fully completed. For example, in order to promote the most adapted options, the project proposed that the planting of tree seedlings should not be limited to the Taungya Scheme in the Forest Reserve, i.e. some seedlings should be allocated to local plantings in individual farms in order to monitor the performance of two approaches (Forest Reserve versus private plantings) to find out which among the two will be the more fruitful in the future. For this to be effective, out-planting from the Pamu-Berekum

nursery to private farms (not started at the end of the project) will require some scientific and technical supervision.

Also, the project started a process to legalise benefit sharing between the main stakeholders of the Taungya Scheme in the Pamu-Berekum Forest Reserve. This was not completed due to the length of time required for administrative authorities to complete such as process. A follow-up phase of the project is necessary to complete the benefit sharing agreement without which communities will not have a legal justification to benefit from carbon and other wood / ligneous products of the Pamu-Berekum Taungya Scheme.

Moreover, the end of project workshop cum forum also acknowledged as the community fire guidelines and manual promotion workshop, held in April 2011 in Kumasi, recommended amongst others, that:

(a) Communities should be supported to take ownership of responsibilities in wildfire management through behavioral change approaches;

(b) Training in the use of the community fire guidelines and manual document endorsed by the government of Ghana should be organized for different stakeholders in the different regions of the country;

(c) The community fire guidelines and manual tool should be simplified into a more pictorial format to make it self-explanatory, including its translation into local languages for easy exploitation by communities;

(d) The fire guideline and manual tool should be demonstrably implemented in the country. Feedback from such demonstrations would inform fire policy in the country.

Submitted by: Dr. Martin NGANJE, IUCN Project Leader, in collaboration with,
Dr. Dominic BLAY, FORIG Project Coordinator

Annex 1: Project Financial Statement up to 15th October 2011

| Components | Original | Last Project YPO | Expenditure To-Date (USD) | | | Available Funds E = A-D |
|---|----------------|------------------|---------------------------|-------------------|-------------------|----------------------------|
| | | Modified | Accrued | Expended | Total | |
| | | Accepted | (B) | (C) | (D) | |
| | | (A) | | | (B+C) | |
| 10. Project Personnel | | | | | | |
| 11. National Experts | | | | | | |
| 11.1 Proj Dir. FORIG | | | | | | |
| 11.2 Proj Dir. RMSC | | | | | | |
| 11.3 Proj Coordinator | | | | | | |
| 11.4 Fire Ecolist Expert | | | | | | |
| 11.5 Socio-economist | | | | | | |
| 11.6 Fire Expert | | | | | | |
| 11.7 Ecology Expert | | | | | | |
| 11.8 Biodiversity Expert | | | | | | |
| 11.9 Coll Forest Expert | | | | | | |
| 12. National Consult | | | | | | |
| 12.1 Consultant: Legal | 15 250 | 5 250 | | 5 250 | 5 250 | 0 |
| 12.2 Consultant Training | 15 250 | 5 250 | | 5 250 | 5 250 | 0 |
| 15. International Experts (IUCN Staff) | | | | | | |
| 15.1 FCP (Head + MDO) | 25 000 | 25 000 | | 25 000,00 | 25 000,00 | 0 |
| 15.2 BRAO (Forest Foc) | 50 000 | 50 000 | | 50 000,00 | 50 000,00 | 0 |
| 16. Int. Consultants | | | | | | |
| 16.1 Forest Ecology | 30 000 | 30 000 | | 30 000 | 30 000 | 0 |
| 16.2 Fire Management | 10 000 | 10 000 | | 10 000 | 10 000 | 0 |
| 16.3 Forest Restoration | 10 000 | 10 000 | | 10 000 | 10 000 | 0 |
| | | | | | | |
| 19. Component Totals | 155 500 | 135 500 | 0 | 135 500,00 | 135 500,00 | |
| 20. Tripartite Sub-contracts | | | | | | |
| 21. FORIG | 71 500 | 71 500 | | 71 475,23 | 71 475,23 | 24,77 |
| | | | | | | |
| 29. Component Totals | 71 500 | 71 500 | | 71 475,23 | 71 475,23 | 24,77 |
| 30. Duty Travel | | | | | | |
| 31. DSA | 45 078 | 50 078 | | 50 078,00 | 50 078,00 | 0,00 |
| 32. Intern'l & Reg'l Travel | 15 200 | 17 700 | | 17 700,00 | 17 700,00 | 0,00 |
| 33. Transport costs | 19 200 | 24 200 | | 24 200,00 | 24 200,00 | 0,00 |
| | | | | | | |
| 39. Component Total | 79 478 | 91 978 | | 91 978,00 | 91 978,00 | 0,00 |

| | | | | | | |
|--------------------------------|----------------|----------------|----------|-------------------|-------------------|----------------|
| 40. Capital items | | | | | | |
| 43. Vehicle | 22 976 | 22 976 | | 22 976 | 22 976 | 0 |
| 44. Capital Equipment | 7 000 | 7 000 | | 7 000,00 | 7 000,00 | 0 |
| 44.1 Computer & Assess | | | | | | |
| 44.2 Photocopier | | | | | | |
| 44.3 Projector LCD LP240 | | | | | | |
| 44.4 Digital Camera | | | | | | |
| 44.5 Current Stabilizer | | | | | | |
| 49. Component Total | 29 976 | 29 976 | 0 | 29 976,00 | 29 976,00 | 0 |
| 50. Consumable Items | | | | | | |
| 51. Raw materials | 49 524 | 54 524 | | 54 524,00 | 54 524,00 | 0,00 |
| 52. Spares | | | | | | |
| 53. Fuel & Utilities | 22 000 | 22 000 | | 22 000,00 | 22 000,00 | 0,00 |
| 54. Office supplies | 12 000 | 12 000 | | 12 000,00 | 12 000,00 | 0,00 |
| 55. Publications and Education | 22 000 | 22 000 | | 22 000,00 | 22 000,00 | 0,00 |
| 59. Component Total | 105 524 | 110 524 | 0 | 110 524,00 | 110 524,00 | 0,00 |
| 60. Miscellaneous | | | | | | |
| 61. Sundry | 20 000 | 22 500 | | 22 500,00 | 22 500,00 | 0 |
| 62. Audit Costs | | | | | | |
| 63. Steering Committees | 3 000 | 3 000 | | 3 421,93 | 3 421,93 | -421,93 |
| 64. Contingencies | 26 264 | 26 264 | | 26 123,60 | 26 123,60 | 140,40 |
| 69. Component Total | 49 264 | 51 764 | 0 | 52 045,53 | 52 045,53 | -281,53 |
| Sub-Total | 491 242 | 491 242 | 0 | 491 498,76 | 491 498,76 | -256,76 |

Annex 2: Project Cash Flow Statement up to 15th October 2011

| Project No. PD 284/04 Rev.2 (F) | | Period ending on 15 Oct 2011 | | | | | |
|---|----------------------------------|------------------------------|--------------|------------------------|------|-------------|-------------|
| Project Title: Fire-Management and Post-Fire Restoration with Local Community Collaboration in Ghana | | | | | | | |
| | | | | | 1,30 | | |
| Component | | | Amount | | | | |
| | Reference | Date | in US\$ | Local Currency EURO | | | |
| A. Funds received from ITTO: | | | | | | | |
| 1. | First instalment | 15th November 2005 | \$150 000,00 | 126 048,52 € | | | |
| 2. | Second Instalment | 23rd March 2006 | \$100 000,00 | 68 225,72 € | | | |
| 3. | Third instalment | 5th December 2006 | \$50 000,00 | 35 717,42 € | | | |
| 4. | Fouth Instalment | 30th March 2009 | \$100 000,00 | 79 165,82 € | | | |
| 5. | Fifth Instalment | 7th December 2009 | \$64 978,00 | 43 730,39 € | | | |
| 6. | Contingency | 13th January 2011 | \$26 264,00 | 20 172,58 € | | | |
| Total Funds Received (A): | | | \$491 242,00 | 373 060,45 € | | | |
| B. Expenditures by Executing Agency: | | | | | | | |
| 10. | Project Personnel | | | | | | |
| 11. | National Experts (FORIG & RMSC) | | | | | | |
| | 11.1 Project Director FORIG | | | | | | |
| | 11.2 Project Director RMSC | | | | | | |
| | 11.3 Project Coordinator | | | | | | |
| | 11.4 Fire-Ecologist Expert | | | | | | |
| | 11.5 Socio-economist Expert | | | | | | |
| | 11.6 Fire Expert | | | | | | |
| | 11.7 Ecologist Expert | | | | | | |
| | 11.8 Biodiversity Expert | | | | | | |
| | 11.9 Collaborative Forest Expert | | | | | | |
| 12. | National Consultants | | | | | | |
| | 12.1 Consultant: legal | | | | | \$5 250,00 | 4 024,84 € |
| | 12.2 Consultant training | | | | | \$5 250,00 | 4 024,84 € |
| 15. | International Experts (IUCN) | | | | | | |
| | 15.1 FCP (Head + MDO) | | | | | \$25 000,00 | 19 318,00 € |
| | 15.2 BRAO (Forest Foc) | | | | | \$50 000,00 | 38 709,07 € |
| 16. | International Consultants | | | | | | |
| | 16.1 Forest Ecology | | | | | \$30 000,00 | 22 999,08 € |
| | 16.2 Fire Management | | | | | \$10 000,00 | 7 692,31 € |
| | 16.3 Forest Restoration | | | | | \$10 000,00 | 7 692,31 € |
| 19. | Component Total: | | \$135 500,00 | 104 460,44 € | | | |

| | | | | | | |
|-----|-----------------------------------|-----------------------------------|--|--|--------------|--------------|
| 20. | Sub-contracts | | | | | |
| | 21. | FORIG | | | \$71 475,23 | 54 795,48 € |
| | | | | | \$0,00 | 0,00 € |
| | 29. | Component Total | | | \$71 475,23 | 54 795,48 € |
| 30. | Duty Travel | | | | | |
| | 31. | DSA | | | \$50 078,00 | 38 391,60 € |
| | 32. | International and Regional Travel | | | \$17 700,00 | 13 569,46 € |
| | 33. | Transport Costs | | | \$24 200,00 | 18 552,59 € |
| | 39. | Component Total: | | | \$91 978,00 | 70 513,65 € |
| 40. | Capital Items | | | | | |
| | 43. | Vehicles | | | \$22 976,00 | 17 614,23 € |
| | 44. | Capital Equipment | | | | |
| | | 44.1 Computers & Accessories | | | \$7 000,00 | 5 366,45 € |
| | | 44.2 Photocopier(CANON IR1600) | | | | |
| | | 44.3 Projector(LCD LP240) | | | | |
| | | 44.4 Digital Camera(SONY) | | | | |
| | | 44.5 Current Stabilizer (UPS) | | | | |
| | 49. | Component Total: | | | \$29 976,00 | 22 980,68 € |
| 50. | Consumable Items | | | | | |
| | 51. | Raw materials | | | \$54 524,00 | 41 800,06 € |
| | 53. | Fuel and Utilities | | | \$22 000,00 | 16 865,99 € |
| | 54. | Office Supplies | | | \$12 000,00 | 9 199,63 € |
| | 55. | Publication and education | | | \$22 000,00 | 16 865,99 € |
| | 59. | Component Total: | | | \$110 524,00 | 84 731,68 € |
| 60. | Miscellaneous | | | | | |
| | 61. | Sundry | | | \$22 500,00 | 17 249,31 € |
| | 63. | Steering Committee | | | \$3 421,93 | 2 623,37 € |
| | 64. | Contingencies | | | \$26 123,60 | 20 064,73 € |
| | 69. | Component Total: | | | \$52 045,53 | 39 937,41 € |
| | Total Expenditures To-date (B): | | | | \$491 498,76 | 377 419,34 € |
| | Remaining Balance of Funds (A-B): | | | | (\$256,76) | -196,84 € |

Annex 3: Tangible Project Outputs (Reports)

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- Nganje, M. (2006a). Project Supervision Mission – Fire Management and Post-Fire Restoration with Local Community Collaboration in Ghana: Mission Report (7 to 16 August 2006)
- Nganje, M. (2006b). Project Supervision Mission – Fire Management and Post-Fire Restoration with Local Community Collaboration in Ghana: Mission Report (12 to 17 December 2006)
- Nganje, M. (2007). Project Monitoring Mission – Fire Management and Post-Fire Restoration with Local Community Collaboration in Ghana: Mission Report (5 to 15 October 2007).
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