No.

Ministry of Lands and Natural Resources
The Republic of Ghana

Participatory Forest Resource Management Project in the Transitional Zone

(PAFORM)

Completion Report

Attachment 2:

An Exit Strategy for the PAFORM

January 2009

JAPAN INTERNATIONAL COOPERATION AGENCY

Sanyu Consultants Inc.

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AN EXIT STRATEGY FOR THE

PARTICIPATORY FOREST RESOURCE MANAGEMENT PROJECT IN THE TRANSITIONAL ZONE (PAFORM)

A FOREST SECTOR TECHNICAL COOPERATION INITIATIVE BETWEEN THE GOVERNMENTS OF GHANA & JAPAN

JANUARY 2009

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EXECUTIVE SUMMARY

The Participatory Forest Resources Management (PAFORM) Project was initiated in the year 2004 under a joint technical cooperation agreement between the governments of Ghana and Japan. The purpose of the project is to improve the application of participatory approaches in the management of forest reserve resources in the Sunyani District in the Transition Zone of the Brong Ahafo Region.

The PAFORM project is scheduled to end in March, 2009, and it is therefore considered appropriate to develop a strategic document that would guide a smooth transition process that would lead to the mainstreaming of the project into the FSD, and to ensure the sustainability of the gains achieved under the project.

The terms of reference for the development of the Exit Strategy of the PAFORM project cover the following;

- Develop an appropriate mechanism for the redeployment of human and capital resources of acquired under the project to enhance the sustainability of the projects gains and also to facilitate the expansion of the project into reserves in the remaining part of the Sunyani District and the Transition zone ultimately.
- Identify and assess the effectiveness of structures within FSD that will ensure continuation of project outcomes.
- Catalogue achievements, challenges and lessons learnt during the project implementation period.
- Make recommendations for final performance and financial audit.
- Ensure adequate documentation and publicity of outcomes.

All the above issues have been adequately addressed in this document and key recommendations made include;

a. the implementation of the exit strategy to be led by the FSD Regional Manager for Brong Ahafo towards the mainstreaming of PAFORM.
b. devising an Action Plan for the completion of all outstanding project activities, including those behind schedule. The table below (Table 1) shows the action plan for the activities behind schedule and others activities proposed in the exit strategy.

c. facilitating the timely release of resources for the implementation of the management plans developed under the project for the Tain 1 and Nsemere forest reserves
d. guiding efforts towards internalising and multiplying novel and improved business practices introduced through the project would require the commitment of the leadership of the FSD.

The PAFORM project has made significant contributions towards the quest for sound forest resource management in Ghana through a wide range of interventions, involving considerable utilization of funds and diverse human expertise. It is our belief that the Forest Services Division will ensure that these gains are consolidated, sustained and even multiplied for the realisation of the full potential of the project.

1.0 INTRODUCTION

The Participatory Forest Resources Management (PAFORM) Project was initiated in the year 2004 under a joint technical cooperation agreement between the governments of Ghana and Japan. Under the project, experts from Japan worked with their Ghanaian counterparts from the Forest Services Division (FSD) of the Ghana Forestry Commission.

The purpose of the project is to improve the application of participatory approaches in the management of forest reserve resources in the Sunyani District in the Transition Zone of the Brong Ahafo Region.

The project was to achieve the following outputs outline below;

i. Forestry Services Division (FSD) personnel are trained in necessary skills and knowledge for planning and implementing participatory forest reserve management plan.
ii. MoP is modified to reflect the draft strategic plan.
iii. Partnership between FSD and target communities for participatory forest reserve management is established.
iv. Forest reserve management plans are developed with active participation of local population.
v. Forest reserve management plans are implemented in collaboration with local population.
vi. Recommendations on the basis of lessons learned from the project are submitted to the Government of Ghana (GoG).

The project outlined and implemented various activities that would help achieve the purpose and outputs. This involved the following:

a) Assessment and development of the capacity of the counterpart personnel in participatory forest resources management planning.
b) The planning of forest resources in forest reserves using the approaches that would ultimately evolve into a culture of participation in all forest resources management efforts.
c) Translating the participatory concepts developed into activities such as, Multipurpose Greenbelt and Income generation which enhanced partnership and relationship between Forestry Services Division staff and the forest reserve fringe communities.

The PAFORM project is scheduled to end in March, 2009, and it is therefore considered appropriate to develop a strategic document that would guide a smooth transition process that would lead to the mainstreaming of the project into the FSD, and to ensure the sustainability of the gains achieved under the project.

1.1 Terms of Reference

The terms of reference for the development of the Exit Strategy of the PAFORM project are outlined below;

- Develop an appropriate mechanism for the redeployment of human and capital resources of acquired under the project to enhance the sustainability of the projects gains and also to facilitate the expansion of the project into reserves in the remaining part of the Sunyani District and the Transition zone ultimately.
- Identify and assess the effectiveness of structures within FSD that will ensure continuation of project outcomes.
- Catalogue achievements, challenges and lessons learnt during the project implementation period.
- Make recommendations for final performance and financial audit.
- Ensure adequate documentation and publicity of outcomes.

1.2 Rationale for Exit Strategy

From August 25 to September 10, 2008 a terminal evaluation of the PAFORM project was conducted to ascertain the progress of activities and achievement of project outcomes in relation to the Five Evaluation Criteria of JICA (the five evaluation criteria include relevance, effectiveness, efficiency, impact and sustainability). An important aspect of the evaluation was to identify useful lessons and experiences that may be adopted and integrated into FSD mainstream operations. This necessitated the development of an exit strategy to ensure that the processes that have been developed by the project and demonstrated to be working are mainstreamed into the FSD operational systems

The exit strategy therefore intends to realize the following:

- Identify structures within the FSD that would consolidate and sustain project outcomes
- Document and share the achievements, challenges and lessons learned throughout the project implementation period with all relevant stakeholders

- Redeploy human and capital resources for the expansion of the project benefits to other forest reserves within the transitional zone.
- Explore and recommend potential viable areas for future cooperation
- Make recommendations for final performance and financial audit
- Develop a schedule and budget for the implementation of the exit strategy.

2.0. MAIN COMPONENTS OF THE EXIT STRATEGY

2.1 Identify Structures for Consolidating and Sustaining Project Outcomes

The FC operates a largely decentralised system of corporate governance, with the outstations i.e. District and Regional offices having the space to exercise the discretion to develop their own priority programmes and activities within the confines of the broad organisational goals. Therefore it would be easily feasible for various districts and regional offices to adopt and practise new concepts introduced by the PAFORM project for improved performance.

In keeping with the 1994 Forest and Wildlife Policy, it has also become standard practise in the Forestry Commission to make stakeholder participation, especially forest-fringe communities, a key factor in all matters regarding the management of forest resources. This collaborative management approach has come to stay and it recognises these local communities as important structures in the scheme of things. It is therefore envisaged that the FSD would continue to engage positively with the communities in the target areas even beyond the expiry date of the project. It is noteworthy that this posture of the FC is in consonance with the PAFORM approach of participatory forest resource management.

The establishment of the Projects Unit of the FSD is intended, among other things, to serve as an internal mechanism to ensure that management is constantly abreast with progress on the various projects being implemented under the ambit of the FSD from inception through termination, so that project legacies are preserved and even multiplied for the benefit of the larger organisation.

From the foregoing, it is sufficiently clear that the prevailing institutional arrangements of FSD make it possible to sustain and replicate the outcomes of the PAFORM project.

2.2 Document and Share the Achievements, Challenges and Lessons Learned

2.2.1 Achievements

- Building of capacity of key staff and community members in various skills at different levels e.g. sixty (60) of FSD staff have been trained in the use of GPS, training of forest-fringe communities in the processes of forest reserves planning management.
- The mapping of reserve vegetation using satellite imagery and GPS ground verifications
- Introduction of the PAFORM approach for participatory forest resource management which entails the application of participatory planning methodologies and tools that enhanced community involvement in making decisions affecting the forest reserve and their own lives
- Capacity in income generation activities built to enhance community livelihood opportunities
- Provision of infrastructure and logistics e.g. office accommodation, fleet of vehicles, computers, GIS equipment etc.
- An area of 21.4ha of greenbelt established around Tain 1 and Nsemere forest reserves as at end of 2008.

2.2.2 Challenges

- Lack of dedication on the part of some FSD staff in the facilitation of community involvement in project participation, leading to the dependence on CFs to fill that vacuum.
- Maintaining the capacity of the GIS unit established under the project so as to be able to provide the needed services e.g. preparation of maps on a continuous basis. Some of the technicians have been trained at huge cost to the project but have not yet been officially recruited by the FC.
- Counterpart funding from the government of Ghana was invariably delayed resulting in some key project activities falling behind schedule.
- Cultural differences between the Japanese team and their Ghanaian counterparts culminated in some lack of understanding of issues regarding the implementation of the project therefore stalling progress at the initial stages.

2.2.3 Lessons Learned

- Some staff of the FSD still consider projects as peripheral to the core business of the organisation and therefore treat them as secondary issues. This has to change through re-orientaion and behaviour/attitudinal change programmes to be conducted by the FC. All

staff should be made to understand that projects are very much an integral part of the core functions of the FC and be recognised as such.

- During the implementation of the project it was observed that Range and Plantation Supervisors did not demonstrate adequate capacity in community facilitation as compared to the Community Facilitators. It is therefore important that further training be given to them, while at the same time strengthening cooperation between the extension department of the Ministry of Food and Agriculture and FSD.
- Relentless effort should be made to ensure that counterpart funding from central government is released on time. It would be helpful to open a special account for such funds in the future rather than treating them as part of the FSD office main account.
- The Community Facilitator concept has proved to be essential to trust building and winning community participation and should be pursued seriously.
- The principle of minimized external input/influence has stimulated community ingenuity and resourcefulness in problem-solving e.g. using discarded barrels to start snail rearing; others have been motivated by sale of their Soya bean to initiate large scale planting of the crop during the next growing season.

2.3 Redeploy Human and Capital Resources for the Expansion of the Project Benefits to other Forest Reserves within the Transitional Zone.

2.3.1 Community Facilitators

The distinguishing feature of the PAFORM project is the establishment of the Community Facilitator role. The Community Facilitator was employed by the project to liaise between the community and the project secretariat with the prime goal of improving the awareness of communities on the forest resources and their responsibilities towards its management. To a large extent, they were able to perform up to the expectation of the project.

It is crucial that the vacuum that their absence is going to leave after the expiry of the project is filled by Range and Plantation Supervisors of the FSD and this constitutes a challenge. It is important that the Range Supervisors are made to understand that this role will constitute an integral part of their job schedule for which their performance would be appraised accordingly. This would motivate them to demonstrate commitment to responsibilities to the target communities.

It is recommended that the Community Facilitators be awarded at a special ceremony at the end of the project in recognition of their immense contribution to the progress of the project. Also, FSD should take special note to engage their services in future initiatives whenever the need arises, given their wealth of experience in community facilitation.

2.3.2 FSD Staff at the Project Secretariat

In consultation with the Regional Manager for Brong Ahafo, management of the FSD, particularly the Human Resource Department, should immediately take steps to re-assign staff who have been working on the Project over the period, with a view to ensuring that the skills they have developed are used effectively and efficiently to expand the outcomes of the project.

2.3.3 Non-FSD at the Project Secretariat

Substantial resources have been spent on developing the capacity of a GIS technician who is not a staff of the FSD as yet. He has also received training in community in the field of community facilitation. It is recommended that steps be taken to recruit him formally so that the investment made in his training is not lost but is maintained to benefit the FC.

2.3.4 Japanese Experts

Outstanding issues not yet attended especially in the area of technology transfer and skills development should be expedited and finalised by end of March 2009.

2.3.5 Capital Resources

The management of FSD should agree with JICA on the terms and conditions under which project capital assets in the form equipment, vehicles, furniture etc. would be handed over at the end of the project. In redeploying these assets, special attention should be paid to the sustainability of project outcomes.

The asset register of the project should be updated immediately and shared between FSD and JICA in advance.

2.4 Potentially Viable Project Areas for Future Cooperation

In the years, the Forestry Commission's strategic focus in the area of projects would include the following thematic areas;

- climate change
- Biodiversity management
- Wildfire management
- Watershed management

In addition, spreading GIS capability within the Forestry Commission remains a desirable vision of the institution and any assistance in these areas would be most welcome.

2.5 Final Performance and Financial Audit

As we anticipate the closure of the project in March, it would be useful to conduct a final performance as well as financial audit to assess the overall effectiveness and the efficiency of the project. This is important for learning lessons as well as providing some insights on the potential of the project to deliver the desired impacts.

The scope of such audit would be determined jointly by the JICA team and the Ghanaian counterparts since the cost implications for this exercise are going inform decision-making on what form it would take.

3.0 ACTIONS TO BE TAKEN

1. Implementation of the exit strategy should be led by the FSD Regional Manager for Brong Ahafo towards the mainstreaming of PAFORM. This would entail facilitating the process of adoption of the PAFORM project's outcomes. Working Groups would be tasked to play specific roles relating to the project at various levels as and when necessary.
2. Implementation of the exit strategy should be led by the FSD Regional Manager for Brong Ahafo towards the mainstreaming of PAFORM. This would entail facilitating the process of adoption of the PAFORM project's outcomes. Working Groups would be tasked to play specific roles relating to the project at various levels as and when necessary.
3. Action plan should be drawn for the completion of project activities that are behind schedule. The table below (Table 1) shows the action plan for the activities behind schedule and others activities proposed in the exit strategy.

4. Implementation of the management plans developed under the project for the Tain 1 and Nsemere forest reserves would require substantial funding which should be released on time and this may be provided for under NREG.
5. Internalising and multiplying the novel and improved business practices introduced through the project would require the commitment of the leadership of the FSD.

CONCLUSION

The PAFORM project has made significant contributions towards the quest for sound forest resource management in Ghana through a wide range of interventions, involving considerable utilization of funds and diverse human expertise. This is evidenced by the achievements enumerated above. It behoves the management of the Forest Services Division to ensure that these gains are consolidated, sustained and even multiplied for the realisation of the full potential of the project.

Table 1.1 Summary Table of Exit Strategy: 2.0 Main Components

Issue	Within the Project Period	After the Project Period	
2.0 Main Components			In charge
2.1 Identify structures within the FSD that would consolidate and sustain project outcomes	Prevailing institutional arrangements of FSD makes it possible to sustain and replicate the outcomes of PAFORM.	The exit strategy should be led by the FSD Regional Manger for Brong Ahafo and Working Group (WG) would be tasked to play specific roles. **(3.0 Actions to be Taken)**.	RM in B/A
2.2 Document and share the achievements, challenges and lessons learned throughout the project implementation period with all relevant stakeholders	Documented in the main text and also the Project produced a report **(Appendix).** Lessons documented in the Exit Strategy: • Community Facilitator role has proved to be essential. • The principle of minimized external input / influence has stimulated community ingenuity and resourcefulness in problem-solving (IGA) • All the staff should be made to understand that the projects are very much an integral part of the core functions of the FC. • Further training be given to Range and Plantation Supervisors while strengthening cooperation with extension dep. of MOFA *(→Training was conducted in Jan. 2009)*	Lessons documented in the Exit Strategy: • Funding from the central government should be released on time and special account for project should be opened for future projects.	PM in HQ
2.3 Re-deploy human and capital resources for expansion of the project benefits to other forest reserves within the transitional zone	• Technology transfer of Japanese experts should be expedited and finalized *(→Several workshops and meetings have been and will be held).* • Capital assets would be handed over from JICA to FSD *(→ Necessary procedures will be facilitated by JICA Advisory Team).*	• C/F role is vacuumed by Range Supervisors. For the current C/F, FSD takes note to engage their services in future initiatives whenever the need arises. • Re-assign Project staff with a view to ensuring that the skills they have developed are used effectively. • GIS technician of the Project will be recruited.	PM in HQ PM in HQ PM in HQ
2.4 Explore and recommend potential viable areas for future cooperation	Thematic areas of FC's focus for future cooperation identified. GIS capability enhancement is also focused.	Identified areas of future cooperation be explored.	PM in HQ
2.5 Make recommendations for final performance and financial audit	*(Terminal evaluation was carried out in Sep. 2008 and JCC to be held Feb. 2009will also be the venue)*		
2.6 Develop a schedule and budget for the implementation of the exit strategy	*Action Plan for the core team and implementation plan (version 1) is attached (**Attached tables 3.1, 3.2 and 3.3**).*	Implementation of the Action Plan (**Attached tables 3.1, 3.2 and 3.3**)	RM in B/A and WG

Table 1.2 Summary Table of the Exit Strategy: 3.0 Actions to be Taken

Issue	Within the Project Period	After the Project Period	
3.0 Actions to be Taken			In Charge
3.1 Implementation of the exit strategy should be led by the FSD Regional Manager for Brong Ahafo towards the mainstreaming of PAFORM. Working Groups would be tasked to play specific roles relating to the project at various levels as and when necessary.		Action Plan developed **(Attached table 3.1, 3.2 and 3.3).**	RM in B/A and WG
3.2 Action Plan for completion of project activities that are behind schedule.	Action Plan is attached (**Attached table 2**) *(→Responsible persons have been working out and the work will be complete).*		
3.3 Required fund for the implementation of the management plan should be released on time.		Action Plan developed (**Attached tables 3.1, 3.2 and 3.3**).	
3.4 Commitment of the leadership of FSD.			

Table 2 Action Plan for Outstanding PAFORM Activities

OUTSTANDING ACTIVITIES	ACTION REQUIRED	RESPONSIBLE	TIME FRAME
1. Signing of MoU for Green Belt	Follow up	Projects Manager, FSD	December 20, 2008
2. Support for IGA Groups	i. Report on IGA evaluation ii. Identify sustainable ones iii. Identify groups and individuals who have developed interest in IGA iv. Assess their needs v. Provide the needed support	i. Consultant ii. Consultant iii.Mr. Hata Mr. Hata Mr. Hata	Mid-November 2008 Mid-November 2008 November 30, 2008 November 30, 2008 December 30, 2008
3. Management plan for Tain I completed	i. Complete operational plans ii.Write up Preface to management plan iii.Submission of plan to Executive Director iv.Submission for endorsement of management plan v.Endorsement of management plan	District Manager, Sunyani District Manager, Sunyani Regional Manager, BA Executive Director Chief Executive	November 30, 2008 November 30, 2008 December 30, 2008
4. Management plan for Nsemere Drafted	i. Check survey of planted areas ii. Reserve planning workshops iii. Review of plan iv. Validation workshop v. Submission of plan to Executive Director vi. Endorsement of management plan	District manager Project manager District Manager Project manager Regional manager Chief Executive	November 30, 2008 Mid-December, 2008 Mid-January, 2009 January 31, 2009
5. Packaging the legacies of PAFORM (Documentation)	i. Video production ii. Brochure production	Japanese/Local Team Japanese/Local Team	On-going
6. Joint Coordinating Committee Meeting (JCCM)	Presentation of final reports on the project.	Executive Director	February, 2009

Table 3.1 Action Plan for Mainstreaming PAFORM into FSD

OBJECTIVE	OUTPUTS	2009				2010		REMARKS
		Q1	Q2	Q3	Q4	Q1	Q2	
1. Create Working Groups from the project counterpart personnel to facilitate the mainstreaming of the PAFORM Approach into FSD reserve management operational activities. The implementation is led by RM in B/A.	1. Team composition is determined 2. Scope of team's work determined 3. Structure and function of the mainstreaming programme to facilitate the teams function is agreed upon. 4. Logistical and equipment needed for the performance of the team is redeployed to the team							The team formation is very important in this light. The team composition is very crucial in determining success here. The team need to be significantly independent to ensure effectiveness.
2. Align structures and systems within the Regions and Districts for effective adoption of the PAFORM Approach and other project outcomes by RM in B/A and the Working Groups	1. Target Regions and Districts within the Transition Ecological Zone identified and selected. 2. PAFORM Approach and other project outcomes publicized and shared with the target Regions and Districts within the Transition Ecological Zone. 3. Target Regions and Districts assessed for possible readiness for adoption of project outcomes and capacity development. 4. Reserve planning and management processes and job performer roles and responsibility reviewed. 5. PAFORM Approach and other project outcomes integration into Regional and District reserve management activities lunched. 6. Reserve planning activities using PAFORM Approach are being implemented.							These outputs will be worked through the change approach presented in the text. It is good to follow an approach in any integration of project outcomes to make process management clear and measured objectively.

Table 3.2 Action Plan after the Completion of the Project: Implementation Plan for Sunyani Forest District (Time line -Version 1)

(Version 1)

Target	Category	FR	Activity	In Charge	1st Year 2009	2nd Year 2010	3rd year 2011	4th Year 2012	5th Year 2013	6th Year 2014	7th Year 2015	8th Year 2016	9th Year 2017	10th Year 2018
Mainstreaming Activity			Creat Working Group at Region	WG										
			Align Structures & Systems											
Overall Goal	Pilot Communities	Tain I (6 communities)	GB	Sunyani District WG										
			IGA											
		Nsemere (6 communities)	GB											
			IGA											
	Other Communities in Tain I and Nsemere	Tain I	GB	Sunynai District WG										
			IGA											
		Nsemere	GB											
			IGA											
	Other FR in Sunyani Forest District	FR 1	FRMP	Sunyani District WG										
			GB											
			IGA											
		FR 2	FRMP	Sunyani District WG										
			GB											
			IGA											
		FR 3	FRMP	Sunyani District WG										
			GB											
			IGA											
		FR 4	FRMP	Sunyani District WG										
			GB											
			IGA											
Super Goal (B/A Region)	Bechem	2 FR	FRMP	District WG										
			GB / IGA											
	Goaso	3 FR	FRMP	District WG										
			GB / IGA											
	D/ Ahenkro	2 FR	FRMP	District WG										
			GB / IGA											
	Kintampo	1 FR?	FRMP	District WG										
			GB / IGA											

Cycle : GB = 3 years per community
IGA = 3 years per community
Implementation: 2 communities per year per FR
Back data for the estimation is in Appendix. "Participatory Approaches for Forest Reserve Management, PAFORM Approach and toward its Wide-use"

Table 3.3 Action Plan after the Completion of the Project: Implementation Plan for Sunyani Forest District (Cost Estimate -Version 1)

(Version 1) (Uni: GHc)

Target	Category	FR	Activity	In Charge	1st Year 2009	2nd Year 2010	3rd year 2011	4th Year 2012	5th Year 2013	6th Year 2014	7th Year 2015	8th Year 2016	9th Year 2017	10th Year 2018
Mainstreaming Activity			Creat Working Group at Region	WG	**60,000**	**60,000**								
			Align Structures & Systems											
Overall Goal	Pilot Communities	Tain I (6 communities)	GB	Sunyani District WG	10,400	0	0	0	0	0	0	0	0	0
			IGA		6,000	6,000	0	0	0	0	0	0	0	0
		Nsemere (6 communities)	GB		15,600	15,600	0	0	0	0	0	0	0	0
			IGA		6,000	6,000	0	0	0	0	0	0	0	0
	Other Communities in Tain I and Nsemere	Tain I	GB	Sunynai District WG	4,100	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200
			IGA		200	5,000	2,000	2,000	5,000	2,000	2,000	5,000	2,000	2,000
		Nsemere	GB		4,100	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200
			IGA		200	5,000	2,000	2,000	5,000	2,000	2,000	5,000	2,000	2,000
	Other FR in Sunyani Forest District	FR 1	FRMP	Sunyani District WG	0	30,200	0	0	0	0	0	0	0	0
			GB		0	0	13,000	5,200	5,200	13,000	5,200	5,200	13,000	5,200
			IGA		0	0	5,200	2,000	2,000	5,200	2,000	2,000	5,200	2,000
		FR 2	FRMP	Sunyani District WG	0	0	30,200	0	0	0	0	0	0	0
			GB		0	0	0	13,000	5,200	5,200	13,000	5,200	5,200	13,000
			IGA		0	0	0	5,200	2,000	2,000	5,200	2,000	2,000	5,200
		FR 3	FRMP	Sunyani District WG	0	0	0	30,200	0	0	0	0	0	0
			GB		0	0	0	0	13,000	5,200	5,200	13,000	5,200	5,200
			IGA		0	0	0	0	5,200	2,000	2,000	5,200	2,000	2,000
		FR 4	FRMP	Sunyani District WG	0	0	0	0	30,200	0	0	0	0	0
			GB		0	0	0	0	0	13,000	5,200	5,200	13,000	5,200
			IGA		0	0	0	0	0	5,200	2,000	2,000	5,200	2,000
	Monitoring Activities				5,600	5,600	8,400	11,200	14,000	16,800	16,800	16,800	16,800	16,800
	Total Cost for Sunyani Forest District (Exclue Core Team)				**52,200**	**83,800**	**71,200**	**81,200**	**97,200**	**82,000**	**71,000**	**77,000**	**82,000**	**71,000**
Super Goal (B/A Region)	Bechem	2 FR	FRMP	District WG										
			GB / IGA											
	Goaso	3 FR	FRMP	District WG										
			GB / IGA											
	D/ Ahenkro	2 FR	FRMP	District WG										
			GB / IGA											
	Kintampo	1 FR?	FRMP	District WG										
			GB / IGA											

Cycle : GB = 3 years per community
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Japan International Cooperation Agency

The Republic of Ghana
Ministry of Lands and Natural Resources

Participatory Approaches
for
Forest Reserve Management

PAFORM Approach and toward its Wide-use

January 2009

Participatory Forest Resource Management Project
in the Transitional Zone
(PAFORM)

EXECUTIVE SUMMARY

INTRODUCTION

This report is the Appendix of "An Exit Strategy for the Participatory Forest Resource Management Project in the Transitional Zone (PAFORM)". The Exit Strategy has been agreed among the stakeholders of PAFORM as the way-forward for mainstreaming PAFORM Approach into the activities of FSD. This report is to support the Exit Strategy by giving detail descriptions and explanations about the concept of PAFORM Approach, guidelines for application of the approach, and technical recommendations to extend the approach to the forest reserves in the transitional zone.

The Project Purpose of PAFORM is "Participatory approaches for sustainable management of the forest reserves in the Transitional Zone are improved through pilot activities in Sunyani District"(as modified in March 2006). To achieve the purpose, a series of pilot activities had been carried out since April 2006. This report presents participatory approaches for forest reserve management, which was improved with the lessons learned from the implementation of the Project.

The report consists of three parts: 1) Features of Participatory Approach developed by the Project: PAFORM Approach, 2) Guideline to implement the PAFORM Approach and 3) Recommendations for extending the Approach into other forest reserves in the Transitional Zone. It should be noted that the approach developed by the Project is constrained by the activities actually carried out during the Project period. The Project focused on certain fields, but that does not disregard the significance of other forest reserve management activities such as Taungya System.

PARTICIPATORY FOREST RESERVE MANAGEMENT

Concept of Participatory Forest Reserve Management

Forest Reserve (FR) in the transitional zone is a territory with restrictions of its resource use, aiming at "Production" of timbers (mainly teak) and "Protection" of forest resources. Forest Service Division (FSD) takes the role of manager of the FR for the purpose of bringing perpetual flow of benefits to all segments of society, specifically considering the traditional resource owners and fringe communities who reside around FR and utilize the forest for their livelihood. FSD hence collaborates with the local communities for sustainable forest reserve management. FR is not just an enclosed territory of any authority for timber industry, but implies the venue of sharing benefits as well as the rights and duties by the nation towards sustainable resource management.

Sustainable management of FR is linked to participation of the fringe communities in the management and to improving their living standards. Additionally sustainable forest reserve management is positioned as an integral component of a comprehensive regional development under the overall goal of the national development plan. In other words, FR cannot be isolated from the surrounding areas and communities and therefore forest reserve management has to be positioned in the context of the development of the area, where the FR is situated.

When the FR is positioned in the economy of the surrounding areas, i.e. from the regional development point of view, it bears a moment to generate two directions for participatory forest reserve management. The two directions principally indicate mutual actions opposite to each other. One is "from outside to inside the FR (Participation of community)" and the other, "from inside to outside the FR (Participation of administration)". It is not possible to isolate the FR from the surrounding areas and the development of the areas as a whole will eventually enable the realization of the sustainable forest reserve management. Standing on such viewpoint, the above two directions of

participation will be dwelt in the forest reserve management. "Participatory Approaches for Forest Reserve Management" is therefore defined as "a combination of the two directions of participation: **participation of communities** in forest reserve management and **participation of administration (FSD)** in the development activities of the communities".

For "Participation of Community", FSD requests the fringe communities to participate in the forest reserve management activities in exchange for incentives, e.g. permitting the community members to cultivate the land in FR for farming (give and take). As for "Participation of Administration (FSD)", FSD, as its attitude, participates in the development of communities on their own initiative, thereby contributing to the community development. This is to make different relationship between FSD and communities from give-and-take. It is expected from this approach that the amicable relationship between FSD and communities can be established so that the effort of FSD towards forest reserve management could be well appreciated by the communities. Also introducing alternative income sources to the communities would diversify the people's concern to engage in illegal logging or hunting with fire in the forest, so that eventually the FR is indirectly protected in the long run.

PAFORM Approach

PAFORM Approach is defined as "an Embodiment of the Participatory Approaches for Forest Reserve Management that has been defined as a combination of the above two directions of participation". The participatory approaches for forest reserve management are embodied as PAFORM Approach in incorporating with the following elements: 1) introduction of Information Sharing Workshop in the consultation process of formulating Forest Reserve Management Plan (FRMP), 2) implementation of Green Belt (GB) to promote "Participation of Community", 3) implementation of Income Generation Activities (IGA) to promote "Participation of Administration", and 4) Deployment of Community Facilitator (C/F) for close communication between FSD and communities. These elements will have synergy effects if implemented as integrated, but it does not mean that the participatory approach loses its effect even if one lacks, e.g. element 2) and 3) can be implemented independently.

Information Sharing Workshop at the Planning Stage

Forest Reserve Management Plan (FRMP) is formulated referring to the Manual of Procedures (MoP). MoP instructs the consultation process with stakeholders in formulating FRMP. While PAFORM basically followed MoP, the distinguished process PAFROM employed was to hold "Information Sharing Workshop" at community level. Information Sharing Workshop makes it possible to implant the direction of "Participation of Administration (FSD's Participation in Community)" in the FRMP. Information Sharing Workshop is held in order not to collect information that FSD wants but to share issues and priorities among the members of the community. In other words, the workshop is to provide a venue for the community members to discuss from the viewpoint of what is necessary to improve their livelihood not necessarily from how to protect FR. As the result, the workshop participants are to discuss agriculture, income generation, health, education etc. very widely as well as the significance of the forest to them.

FSD can learn about their issues, their interests, causes of their problems, their priorities and their understanding about the area etc. through programming the Information Sharing Workshop in the consultation process of FRMP formulation. Priority issues of the community members are not always linked to the forest reserve management. However, it will alert FSD a lack of consideration if only to request communities to participate in the forest reserve management without thinking about the priority issues of the communities. In other words, the workshop leads FSD to show the attitude of FSD to the community members to deal with the issues, which are even out of the original field of FSD, as much as possible. At the same time, FSD can look at the activities more objectively by

locating them in the life and development of the communities not only thinking about the benefits to FSD itself. Information Sharing Workshop gives an opportunity to install the direction of the participatory approach, namely "participation of administration" in FRMP.

Green Belt (GB) Activity to Promote "Participation of Community"

Green Belt (GB) activity is introduced to the forest reserve management as the approach of "participation of Community". GB activity is an epoch-making for FSD because of acceptance of planting fruit trees inside the FR. In history of forest reserve management in Ghana, tree plantation inside the FR has been carried out only with timber trees. PAFORM makes a greenbelt from the boundary to 40m inside of the FR and invites the residents of fringe communities to plant fruit trees and others. Modified Taungya System (MTS) needs long years for the members to get income: after ten years and 18 years for thinning out, and after twenty-five years for cutting down. They also cannot continue farming after three to five years because trees get thick. Meanwhile, members of "GB Activities" can harvest fruits from intercropping of fruit trees and pineapples etc. in a relatively short-term and also in a constant manner.

Forest Reserve is a timber industry forest to gain profit from sales of timbers. Therefore, unlike Community Forest, freedom of activities by the community in the FR is restricted. For this cause, giving incentives to the community for their participating in the forest reserve management, i.e. give-and-take relationship between FSD and community would have to be considered. The give-and-take relationship with the community is not like the contract between FSD and Private developers, whose relationship is defined as Business Transaction. Under contract, provision and penalties against them are clearly stated and rigorously executed. As for the participation of community in the forest reserve management, the relationship is mutual and based on participation (implying community's own initiative). Based not on the regulation but participation of community, sustainable forest reserve management can be more expected.

To realize the participation of the community in the forest reserve management, it is required to seek for methods to place the forest reserve management into the livelihood of the community, i.e. methods to give direction to the daily lives of the community so as to integrate them into the forest reserve management will be required. Common interest of the community is rather in agriculture than forestry. GB aims at turning the activities of the community in the boundary of the FR into their daily ones by allowing them to grow fruit trees that will be their income source, so that their daily activities in the GB turns to be the ones for protecting the FR (regular patrolling against wildfire, fire-break making by grass clearing, fire prevention etc.).

Income Generation Activities (IGA) to Promote "Participation of Administration"

PAFORM introduced Income Generation Activities (IGA) to the forest reserve management as the approach, "participation of administration (FSD's participation in the community activities). GB activity is considered as a conventional approach where FSD calls and involves good public to the FR. In IGA of PAFORM, however, FSD needs to go out from the FR and to participate in the development of the fringe communities. A paradigm shift of participatory forest management in the FR to an integrated one with both reserves and the communities might be the essential meaning of IGA in PAFORM.

It is not a direct solution of giving an incentive to involve people and to stop illegal activities in the FR, but thinking out and implementing measures where FSD can be useful for improving livelihood of the communities. It will lead to the real participatory forest reserve management where the FR and the fringe communities are integrated. In summary, IGA indirectly contributes to the sustainable forest

reserve management while GB activity is more directly related to the forest reserve management activities.

Deployment of Community Facilitator (C/F)

PAFORM deployed Community Facilitators (C/F) to enable close communication with community and smooth implementation of the project. C/F frequently visits their responsible communities and monitors the activities. C/F also conveys the information of FSD's intentions to the community and brings the information on community back to FSD, so that information and opinions of both parties are shared promptly. C/F has contributed to coordinating with community for reflecting community's opinions to the plan or strategies of the project as well as the activity scheduling. Also the issues arising in the community was swiftly conveyed to FSD in order to smoothly implement the activities. C/F role or function is to maintain the quality of "participation" in the course of executing activities.

APPLICATION OF PAFORM APPROACH: IMPLEMENTATION GUIDELINE

Implementation guidelines have been prepared for the core activities of PAFORM Approach, namely "Consultation process for the FRMP including Information Sharing Workshop", "Implementation of Green Belt (GB)", and "Implementation of Income Generation Activities (IGA)". Sub-concepts of each activity and its process of implementation step by step will be described based on the experiences and lessons from the Project.

Consultation Process for Formulating Forest Reserve Management Plan (FRMP)

The guideline explains each step of consultation for formulating FRMP: 0) Target community selection, 1) Introduction workshop, 2) Socio-economic survey, 3) Information sharing workshop, 4) Consultation workshop, 5) Stakeholder workshop, and 6) Validation workshop. Also the guideline explains the tools used for the workshops. For information sharing workshop, explanations have been given to the workshop tools such as community mapping, rich-poor profile, trend analysis, success story, and problem analysis.

Implementation of Green Belt (GB)

The guideline explains the main rights and duties for both FSD and GB members, who come from a community, as well as the procedures of GB establishment. The guideline explains the procedure to establish GB in the boundary of the forest reserve step by step. The steps are: 1) Setup a farmer's group (GB group), 2) Set up the target areas for the GB, 3) Discuss the group inner rule, 4) Discuss the GB design, 5) Prepare an annual action plan /right and duty of GB group, 6) Exchange MOU (Memorandum of Understanding) between the group and FSD, 7) Plant fruit trees on the GB, and 8) Implement maintenance works for planted fruit trees.

Implementation of Income Generation Activities (IGA)

IGA represents the participatory concept of "participation of FSD in community development". This is rather easy to say, but would be difficult to practice. Therefore, the guideline establishes Guiding Principles to practice the participatory concept. The guiding principles are: 1) Shift the initiative of activities from FSD to community, though FSD may take initiative at the beginning, 2) Minimize the provision of inputs (minimize the control of activities by FSD, i.e. avoid creating the community's dependency on FSD), and 3) Consider public equity of opportunity (try to make an environment that the community members can choose activities). Based on the principles, the guideline explains how to implement IGA designing and activities such as on-farm training, field visit, demonstration, and networking.

RECOMMENDATIONS FOR EXTENSION OF PAFORM APPROACH

Cost Analysis for Extending PAFORM Approach into Other FR

FSD needs to develop an action plan with activity, time, budget and responsible person to achieve the overall goal of the Project. An analysis on appropriate level of inputs to implement the PAFORM Approach in other forest reserve is conducted. This section provides a basic data and settings for the Action Plan formulated in the Exit Strategy. The activities and cost analyzed in this section refers to the implementation in the FR under Sunyani Forest District, which covers the overall goal of PAFORM.

Collaboration with Other Organizations

Considering the capacity of FSD, collaboration with other organizations will be required to well implement the activities. For FSD's continuous commitment to IGA, collaboration with the Ministry of Food and Agriculture (MOFA) will be necessary. To establish an effective collaborative work between FSD and MOFA, it is recommended that FSD should follow the development policy of MOFA. MOFA is mandated to support agriculture development, which is the main income source of the rural communities. To make easier collaboration for both parties FSD should follow the policy of MOFA and that could maintain the line of the national development policy, as well.

According to MOFA, prioritization of activities is mainly made at the regional / district level, so that discussions between MOFA and FSD at regional / district level prior to formulate annual operation plan of both parties is crucial. It is therefore recommended that FSD and MOFA at regional / district level should have a series of meetings to discuss the collaborative work for IGA prior to get annual operation plan approved at the central level of the both ministries. At the central (ministerial) level there should also be coordination between the two parties to allocate the necessary budget for each party's role according to the annual operation plan prepared at regional / district level.

Other potential collaborators for implementing PAFORM Approach would be: 1) local advanced farmers to be resource persons of IGA, 2) private food processing or trading companies as prospective external opportunities for the communities to sell their produces, 3) District Assemblies to allocate resources for infrastructure or other livelihood improvement of the fringe communities, 4) the Ministries of Health and Education to be collaborative to improve living standard of the communities, 5) Ghana National Fire Service (GNFS) for wildfire prevention, and 6) micro-finance scheme or grant programme such as Microfinance And Small Loans Scheme (MASLOC) and Small Grants Programme (SGP) under GEF / UNDP to support the capital investment of the communities in IGA.

Recommendations on Green Belt (GB) Implementation

It may be difficult to arrange areas for many communities and GB groups at one time considering the available FSD staff and budget preparation at least one year prior to the GB planting. Therefore, the GB area allocation should be implemented gradually. At first, it is recommended to select 2-3 communities and to conduct workshop. If the community agreed to join the GB activities, FSD can assist a group formation. The group member is expected to share the work for land preparation, planting holes digging, and planting seedlings within one day work respectively. 30 members for 300m x 400m is one of choice based on the experience in PAFORM.

MOU (Memorandum of Understanding) can be an evidence for the GB area. Therefore, keeping the original MOU is very important. The Document should be kept not only by the both farmer group and FSD but also by the related traditional authority and legal authority such as lawyers. On the ground, boundary pillars constructions on the every survey points (50m interval) are advisable. At the same time, it is suggested that GB group should plant an ornament tree as commemorative.

PAFORM provided technical support to GB groups for planting fruit trees, since farmers were not familiar with the fruit seedlings unlike teak. FSD requested MOFA to conduct technical guidance, but for the future FSD should obtain necessary technical skills and implement technical advice for the GB groups by themselves since occasional and timely advice are expected.

Recommendations on Income Generation Activities (IGA) Implementation

To implement various forest reserve management activities with limited budget, it is recommended to make unit cost of each activity low, i.e. to implement each activity independently, in order to secure the options of activities (portfolio of activities) according to the financial situation of each year. Combining the activities as a set would create a financial constraint to expand and continue the activities. Supposed that GB and IGA were combined and targeted to one group of the community, the same set-up would have to be applied for other groups for extending the activities. If we decide to implement only GB when budget is short, the community members might not accept it or complain about it since the group who were assisted in previous year had also received assistance for IGA. Once we start the activities of GB and IGA as a set of activities, we may have to continue the activities as a set in order not to make disparity among different groups.

The Project initially planned to use demo-farm for one crop season only. Therefore, it is considered that the activity of demo-farm was relatively short. It is evaluated that compared to GB activity, which is considered as a long-term activity, incentives for building good relationship among the members of the demo-farm might have been weak and the leadership among the group was difficult to grow. The primary purpose of the demo-farm is to obtain knowledge from it and getting profit out of the harvest in demo-farm is secondary purpose. This principle might have caused the lack of incentive for farmers to well manage the demo-farm in PAFORM. For drawing incentive of farmers to well manage the demo-farm, it could be a way to plan the operation of demo-farm for long-term and define the purpose of demo-farm not only as the venue to learn but also to get profit.

All the IGA contents introduced in PAFORM can be economically feasible as long as proper management is exercised. However, there are number of risks to threaten the profitability of the activities. As heard from community members, it is indicated that acquiring knowledge and skill would encourage farmers to commit themselves and commitment to the activities could reduce the risks. On the other hand, issue of capital has been stated in the economic analysis of IGA contents. FSD could consider providing the community with subsidy for the capital to start the IGA. However, the amount of subsidy, which can be provided from FSD, is limited, alternative ways to cope with the issue should be taken into consideration. One way to cope with capital issue is to access micro-finance facility. FSD can also work for the community to network with them and outside opportunity and help organize community members to tackle the capital issue.

Because IGA in PAFORM provided only inputs for demonstration purpose, the materials provided to the community was so limited that the community members who share the same interest formed a group voluntarily. The group can be called as Common Interest Group. Community members could effectively organize group when they share interest. IGA in PAFORM started with on-farm trainings, and the approach was to expect that the community members grow their interest and commitment and through the process, committed people would be identified so that when FSD decides to provide subsidy for the capital of IGA, the target will be more clear and transparency for selecting people to receive subsidy will be installed in the community. The point that the economic feasibility is based on the commitment of people will also be the point for external assistance.

Gender Consideration

Workshops and socio-economic survey are very important for data collection. However, there is possibility such studies lose sight of marginalized people, especially, handicapped person, household headed by women and so on, though it is not intentional. There can be cases that women are not allowed to express their opinions officially at meetings or they cannot join in the decision making in some areas. Therefore, in addition to community workshop organization and socio-economic survey, it is important for FSD staff to approach marginalized women individually to identify what kinds of difficulty they are facing. In some cases it is required to visit the same woman repeatedly to open her mind. It is possible to get important information by a pickup trigger through these attempts.

It is important to organize effective trainings for communities to expand PAFORM activities in other areas. It is common that women are busier than men due to domestic workload. Therefore, time, date and venue for training should be taken into consideration women's availability as much as possible. The duration of training also should be examined, since women are not allowed to participate in long term training by their husbands. In case of some sensitive matters such as family planning training, it is desirable to divide training time for male and female, which enable women to be open to ask sensitive and private questions to trainers.

It is not desirable to introduce any IGA contents only for women. With support from male, female activities can be developed further. "Focusing only on women will just keep women marginalize and sustainable programs need involve both men and women", according to World Bank 1999, "Ghana, Gender Analysis and Policy Making for Development". A survey concerning income sharing in each household in the PAFORM target communities revealed that generally men have right to make decision how to consume the income from main farm produce. On the other hand, women can mainly manage income from ingredient of stew/soup such as tomato. It is essential to consider how both men and women can access to benefits equally and the involvement of both male and female is important for community development.

Recommendations on Forest Reserve Management Plan Formulation

This section discusses technical issues on identifying present situation of the FR in relation to MoP modification. It has been found that difficulty to follow MoP has been rooted to the difficulties to identify present situation of the FR such as the exact boundary, classified planted area, etc. PAFORM is to improve participatory approaches for forest reserve management, but the participatory approach cannot be well applied unless the venue of the people's interaction is defined well, namely the clear picture of the FR (where is the boundary, where is the MTS area, and so on). To well identify the venue of the people's interaction, technical promotion such as utilization of GPS and GIS is proposed and comments on MoP in relation to the core issue are made.

INTRODUCTION

This report is the Appendix of "An Exit Strategy for the Participatory Forest Resource Management Project in the Transitional Zone (PAFORM)". The Exit Strategy has been agreed among the stakeholders of PAFORM as the way-forward for mainstreaming PAFORM Approach into the activities of FSD. This report is to support the Exit Strategy by giving detail descriptions and explanations about the concept of PAFORM Approach, guidelines for application of the approach, and technical recommendations to extend the approach to the forest reserves in the transitional zone.

The Project Purpose of PAFORM is "Participatory approaches for sustainable management of the forest reserves in the Transitional Zone are improved through pilot activities in Sunyani District"(as modified in March 2006). To achieve the purpose, a series of pilot activities had been carried out since April 2006. This report presents participatory approaches for forest reserve management, which was improved with the lessons learned from the implementation of the Project.

The report consists of three parts: 1) Feature of Participatory Approach developed by the Project: PAFORM Approach, 2) Guideline to implement the PAFORM Approach and 3) Recommendations for extending the Approach into other forest reserves in the Transitional Zone. It should be noted that the approach developed by the Project is constrained by the activities actually carried out during the Project period. The Project focused on certain fields, but that does not disregard the significance of other forest reserve management activities such as Taungya. Table below indicates the basis or constraints of establishing the approach:

Basis of the Activities for Establishing PAFORM Approach

Activities	Analysis on Existing Information	Field Survey	Planning / Designing	Implementation
Forest Mgt Plan				
Implementation				
GB				
IGA				
MTS				
Fire Volunteers				
CFC				

Participatory Forest Reserve Management has been discussed and practiced mainly from the viewpoint of "How can we make the locals participate in the Forest Reserve Management activities?". Taungya system is a symbolic activity for this thought of participation. On the other hand, PAFORM has recognized, through its activities, the approach that the government administration (FSD) participates in the activities of the locals as well as promoting the participation of the locals in the Forest Reserve Management. This two-way participatory approach for the Forest Reserve Management has been recognized when putting the Forest Reserve Management in the context of the surrounding regional development.

When we talk about "Participation", it is so often opt to argue, "How we can make the locals participate", but PAFORM has attempted to discuss and practice "How the stakeholders, especially FSD can participate in the activities of locals". It is expected that FSD's participating (or frankly saying, assisting) in the activities, whose initiative and ownership belong to the locals, will generate the friendly relationships between the administration and locals. Sustainability of the activities will

also be expected since it is the activities of their own. Establishing friendly relationship with the locals and the development of the local communities (regions) will indirectly contribute to sustainable Forest Reserve Management in long run.

Participatory Approaches for Forest Reserve Management is thus defined as a combination of two approaches with different directions; “Participation of Locals in Forest Reserve Management” and Participation of Administration in the Community (Regional) Development”. PAFORM Approach is an embodiment of the above Participatory Approaches with following distinguished practices:

1) Information Sharing Workshop in the process of the consultation for formulating Forest Management Plan (this workshop gives a moment to introduce the participatory approaches with combined directions)

2) Green Belt (GB) Activity to promote the Participation of Locals

3) Income Generation Activities (IGA) to promote the Participation of the Administration

It is also of significance of PAFORM that community facilitators (C/F) are deployed for the smooth implementation of the participatory approaches.

We believe that the practice through PAFORM has led the FSD staff to their capacity development concerning with participation. Although the concept of “Participation of the locals in Forest Reserve Management” has already been familiar with FSD staff, the GB activity would have given the staff the light to more practical issues for this direction. The concept of “Participation of the administration in the activities of locals” was rather difficult for the staff to conceive and practice. In fact, it seems that introducing to this concept has brought the staff an opportunity to think more profoundly about “Participation”.

This report is indeed an output of the series of interactions among the various stakeholders from the communities to the central administration. It is our wish that this report would contribute to clarifying the concept of participatory approaches for forest reserve management and guide FSD to apply the PAFORM Approach for the forest reserves in the transitional zone, and finally the recommendations made herewith will be taken into due consideration.

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Abbreviation

ADM	Assistant District Manager
APM	Assistant Project Manager
AfDB	African Development Bank
CBWG	Community Based Working Group
CFC	Community Forest Committee
C/F	Community Facilitator
CFMP	Community Forest Management Project
C/P	Counterpart
CSO	Customer Service Officer
DM	District Manager
FC	Forestry Commission
FR	Forest Reserve
FRMP	Forest Reserve Management Plan
FSD	Forest Services Division
FV	Fire Volunteers
GB	Greenbelt
GEF	Global Environmental Facility
GIS	Geographical Information System
GNFS	Ghana National Fire Service
GPS	Global Positioning System
IGA	Income Generating Activity
JCC	Joint Coordinating Committee
JICA	Japan International Cooperation Agency
MASLOC	Maicrofinance and Small Loans Scheme
MTS	Modified Taungya System
MOFA	Ministry of Food and Agriculture
MoP	Manual of Procedures
MOU	Memorandum of Understanding
NGOs	Non Governmental Organizations
NTFP	Non Timber Forest Product
OJT	On the Job Training
PAFORM	Participatory Forest Reserve Management
PD	Private Developer
PDM	Project Design Matrix
PM	Project Manager
RM	Regional Manager
RMSC	Natural Resources Management Centre
SGP	Small Grants Programme
UNDP	United Nations Development
WG	Working Group
W/S	Workshop

CHPATER 1 PARTICIPATORY APPROACHES FOR FOREST RESERVE MANAGEMENT

1.1 Participatory Approaches for Forest Reserve Management

Forest Reserve (FR) in the transitional zone is a territory with restrictions of its resource use, aiming at "Production" of timbers (mainly teak) and "Protection" of forest resources. Forest Service Division (FSD) takes the role of manager of the FR for the purpose of bringing perpetual flow of benefits to all segments of society, specifically considering the traditional resource owners and fringe communities who reside around FR and utilize the forest for their livelihood. FSD hence collaborates with the local communities for sustainable forest reserve management. FR is not just an enclosed territory of any authority for timber industry, but implies the venue of sharing benefits as well as the rights and duties by the nation towards sustainable resource management.

The 1994 Forest and Wildlife Policy states the overall aim of forest reserve management to be "for maintenance of environmental quality and perpetual flow of benefits to all segment of society". This aim has been placed as a sector goal under the comprehensive national development aspirations articulated in the Ghana – Vision 2020 (1996 – 2020): to become middle-income country by 2020, to narrow the gap between the standards of living of rural and urban people, to establish a society that provides equal opportunities for all and ensures equitable distribution of the returns from economic activity, etc. Then "participatory management of forest resources" has been adopted as one of the key strategies in order to achieve the aim of the Policy.

Sustainable management of FR is linked to participation of the fringe communities in the management and to improving their living standards. Additionally sustainable forest reserve management is positioned as an integral component of a comprehensive regional development under the overall goal of the national development plan. In other words, FR cannot be isolated from the surrounding areas and communities and therefore forest reserve management has to be positioned in the context of the development of the area, where the FR is situated.

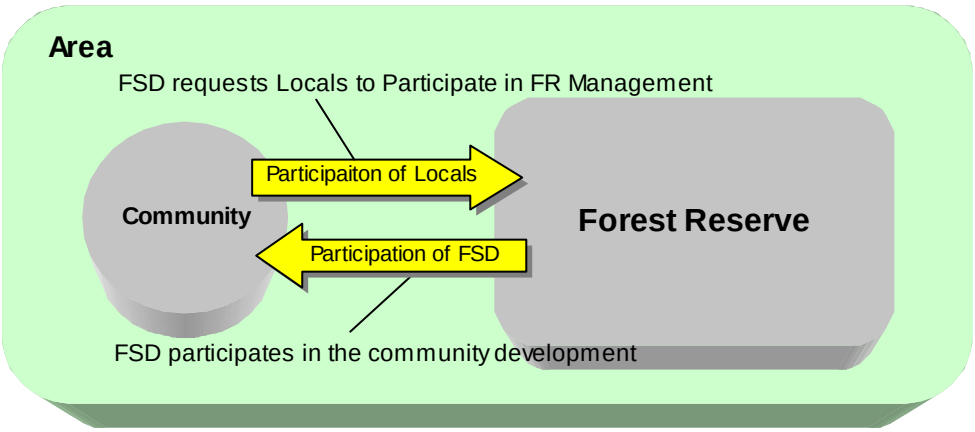
When the FR is positioned in the economy of surrounding areas, i.e. from the regional development point of view, it bears a moment to generate two directions for participatory forest reserve management. The two directions principally indicate mutual actions opposite to each other. One is "from outside to inside the FR" and the other, "from inside to outside the FR".

Two different directions of Participatory Forest Reserve Management

- From outside to inside: FSD requests the communities to participate in the Forest Reserve Management (Participation of Communities)
- From inside to outside: FSD participates in the development activity of the communities around the Forest Reserve (Participation of Administration)

It is not possible to isolate the FR from the surrounding areas and the development of the areas as a whole will eventually enable the realization of the sustainable forest reserve management. Standing on such viewpoint, the above two directions of participation will be dwelt in the forest reserve management. "Participatory Approaches for Forest Reserve Management" is therefore defined as "a combination of the two directions of participation: **participation of communities** in forest reserve

management and **participation of administration (FSD)** in the development activities of the communities".



Two Directions of Participatory Approaches emerged in positioning FR in the Area

For "Participation of Community", FSD requests the fringe communities to participate in the forest reserve management activities in stead of giving them incentives, e.g. permitting the community members to cultivate the land in FR for farming. In other words, this approach is based on making so-called give-and-take relationship between FSD and community. Taungya system is well representing this approach. This give-and-take relationship, however, totally differs from the contract with private developers. This approach, albeit its relation of give-and-take, is firmly based on the people's own initiative, i.e. participation as its proper meaning, and thereby is expected to lead to sustainable resource management (Refer to Box 2).

As for "Participation of Administration (FSD)", FSD, as its attitude, participates in the development of communities on their own initiative, thereby contributing to the community development. This is to make different relationship between FSD and communities from give-and-take one. It is expected from this approach that the amicable relationship between FSD and communities can be established so that the significance of forest reserve management and effort of FSD towards it could be well appreciated by the communities. Also contribution to introducing alternative income sources to the communities would diversify the people's concern to engage in illegal logging or hunting with fire in the forest, so that eventually the FR is indirectly protected in the long run. Assisting income generation activities of the communities would be a typical way of "Participation of Administration". In this approach, FSD would not expect the communities to directly engage in forest protection services but expect indirect effects to forest reserve management.

Box 1: Historical Background of Forest Reserve Management

Forest management in Ghana started in 1909 with the establishment of the Forestry Department (FD). It started on a note of collaboration between traditional leaders (representing local people) and the government (Forestry Department). The communities were endeared to the aspirations of the FD to ensure conservation of forest resources. The authority of successive officers of the then FD became strengthened thus they dropped the practice of consorting with landowners on forestry issues (development of native administration).

However, when the value of the forest shifted from protective functions to timber resources, the situation changed. Administratively there were two types of forest reserve in the 1930s: those constituted under the Ordinance and the others under By-laws. In case of the former FD managed them on behalf of the owners and for the benefit of the nation. The role of the FD for the latter was only to offer technical advice to traditional rulers. Eventually FD took over the control of all those forest reserve being succeeded to the present forest administration.

During the timber boom (1939 – 1957), forestry became more timber rather than people focus. The forest managers began to see their job primarily in terms of protecting the forests from the encroaching demands of local people and of promoting and sustaining the timber industry. Forest reserves were therefore managed mainly for timber production with the interest of the local people relegated to the background. Emergence of unhealthy relationship between forest officers and local people, which has culminated in forest management problems, could be traced to this period.

With this background, the 1994 Forest and Wildlife Policy was enacted aiming at conservation and sustainable development of the nation's forest and wildlife resources for the maintenance of environmental quality and perpetual flow of optimum benefits to all segments of society. As one of the key concepts, participatory management of forest resources was put on emphasis to achieve the aim of the policy.

The aim of the policy was inter-linked with other national policies to form one strategic planning framework, namely the policy targets were framed as a sub-goal of the comprehensive national development aspirations articulated in the Ghana – Vision 2020 (1996 – 2020).

(Summarized from "Manual of Procedures, Forest Resource Management Planning in the HFZ, Section A", and "Planning for Collaborative Forest Management in Forest Reserves, Guidelines")

1.2 PAFORM Approach

PAFORM Approach is defined as "an Embodiment of the concept of Participatory Forest Reserve Management that has been defined as a combination of the above two directions of participation". The participatory approaches for forest reserve management are embodied as PAFORM Approach in incorporating with the following elements. PAFORM Approach is an application to practice the participatory approaches for the forest reserve management. These elements will have synergy effects if implemented as integrated, but it does not mean that the participatory approach loses its effect even if one lacks, e.g. element 2) and 3) can be implemented independently.

PAFORM Approach

1) Planning Stage: Introduction of Information Sharing Workshop in the Consultation Process of Forest Reserve Management Planning to implant the moment of two different approaches (At the same time, community participation in the planning process is enhanced)
2) Implementation Stage: Green Belt (GB) Activity to promote "Participation of Community"
3) Implementation Stage: Income Generation Activities (IGA) to promote "Participation of Administration"
4) Deployment of Community Facilitators (C/F) to enable close communication between FSD and community

1) Information Sharing Workshop at the Planning Stage

Forest Reserve Management Plan (FRMP) is formulated referring to the Manual of Procedures (MoP). MoP instructs the consultation process with stakeholders (especially resource owners) in formulating the FRMP. The basic flow of the consultation process in the MoP is: Early discussions to inform the intention of preparing the plan → Consultation with forest user groups as a part of field reconnaissance → Distribution of the draft management plan to community leaders → Reserve Planning Workshop → Revision of the plan on the basis of suggestions received → Endorsement by representative of land owners and District Assemblies[1]. While PAFORM basically followed the MoP, distinguished process PAFROM employed was to hold "Information Sharing Workshop" at community level and Consultation Workshop of the Draft Plan at community level.

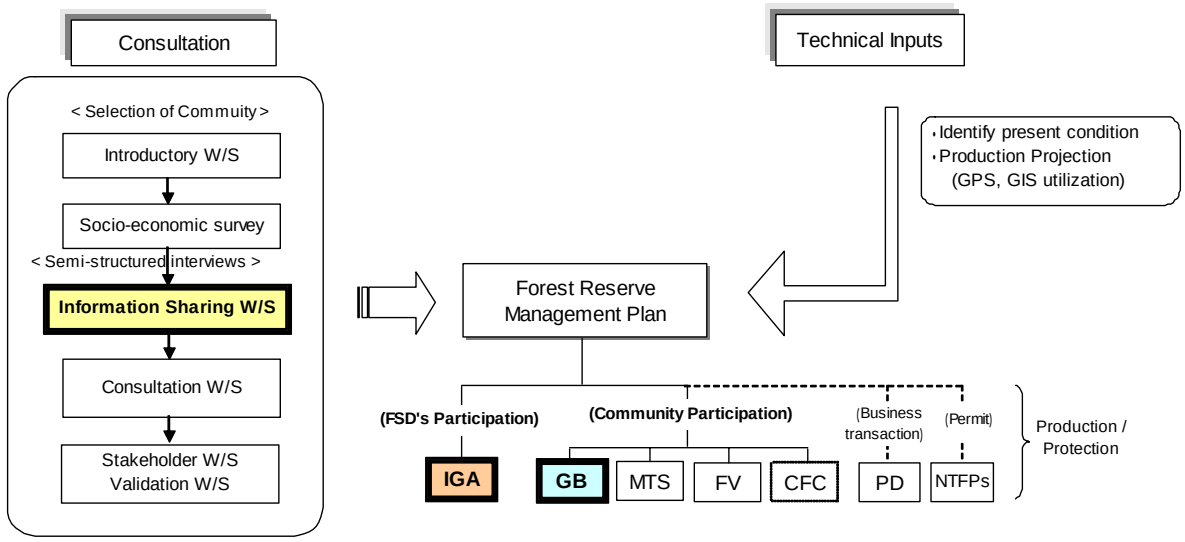
The most distinguished element at the planning stage for PAFORM Approach is to hold the "Information Sharing Workshop", which makes it possible to implant the direction of "Participation of Administration (FSD's Participation in Community)" in the FRMP. Information Sharing Workshop is held in order not to collect information that FSD wants but to share issues and priorities among the members of the community. In other words, the workshop is not intended to ask the community members for discussing the interest of FSD, namely forest reserve management, but to provide a venue for the community members to talk about their own interests regardless of FR management. Information sharing Workshop is a venue that the community members discuss from the viewpoint of what is necessary to improve their livelihood not necessarily from how to protect FR. As the result, the workshop participants are to discuss agriculture, income generation, health, education etc. very widely as well as the significance of the forest to them.

[1] For the approval of the FRMP, it has been regulated with holding a validation workshop during PAFORM project period.

FSD can learn about their issues, their interests, causes of their problems, their priorities and their understanding about the area etc. through programming the Information Sharing Workshop in the consultation process of FRMP formulation. Priority issues the community members in their livelihood are not always linked to the forest reserve management. However, it will alert FSD a lack of consideration if only to request communities to participate in the forest reserve management without thinking about the priority issues of the communities.

In other words, carrying out the Information Sharing Workshop leads FSD to show the attitude of FSD to the community members to deal with the issues, which are out of the original field of FSD, as much as possible even by linking related ministries and NGOs to the community. At the same time, FSD can look at the activities more objectively by locating them in the life and development of the communities not only thinking about the benefits to FSD itself.

Information Sharing Workshop in the consultation process of FRMP formulation gives an opportunity to install the direction of the participatory approach, namely "participation of Administration (FSD's Participation in the Community Activities". At the same time, programming this kind of workshop enhances the participation of community at the planning stage of FRMP.



Formulation of PAFORM Approach

・Information Sharing WS: Implanting "FSD's Participation" into the FRMP (At he same time, promoting "Community Participation" to planning stage)
・Intorducing to GB activity to promote "Community Participation"
・Introducing to IGA to promote "FSD's Participation"
・Deployment of C/F to enable close communication between FSD and community

Elements of PAFORM Approach in Planning and Implementation

2) Green Belt (GB) Activity to Promote "Participation of Community"

Through the consultation process including the Information sharing Workshop, the FRMP will embrace two kinds of activities from the viewpoint of participatory approaches. Green Belt (GB) activity is introduced to the forest reserve management as the approach of "participation of Community". It is a different method from Modified Taungya System (MTS), which also falls in the category of the same approach. GB activity is an epoch-making for FSD because of acceptance of planting fruit trees inside the FR. In history of forest reserve management in Ghana, tree plantation inside the FR has been carried out only with timber trees.

PAFORM makes a greenbelt from the boundary to 40m inside of the FR and invites the residents of fringe communities to plant fruit trees and others. Modified Taungya System (MTS) needs long years for the members to get income: after ten years and 18 years for thinning out, and after twenty-five years for cutting down. They also cannot continue farming after three to five years because trees get thick. Meanwhile, members of "GB Activities" can harvest fruits from intercropping of fruit trees and pineapples etc. in a relatively short-term and also in a constant manner.

If you look at the level of civic participation, it depends on give-and-take between FSD and the residents just like Modified Taungya system. FSD releases some portions of the FR to the residents of the fringe communities in exchange for direct contribution to protect the FR. It is in a sense a contract by negotiation. As mentioned above, this give-and-take relation is still intended to base on the participation of the community with their own initiative.

Box 2: Give-and-Take in Community Participation

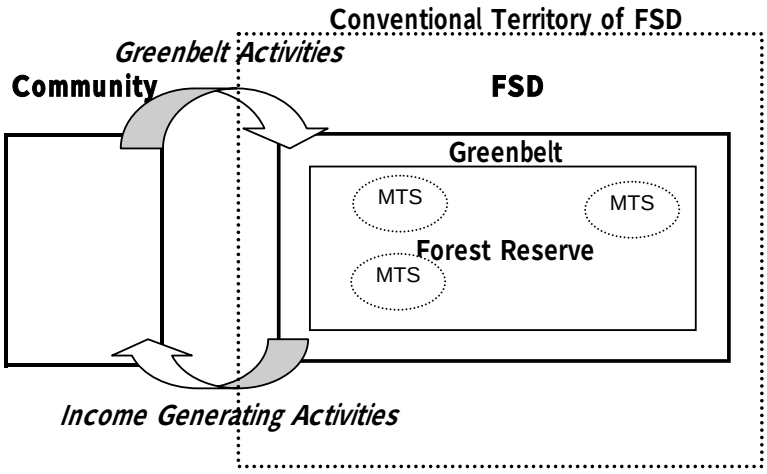
Forest Reserve is a timber industry forest to gain profit from sales of timbers. Therefore, unlike Community Forest, freedom of activities by the community in the FR is restricted. For this cause, giving incentives to the community for their participating in the forest reserve management, i.e. give-and-take relationship between FSD and community would have to be considered.

The give-and-take relationship with the community is not like the contract between FSD and Private developers, whose relationship is defined as Business Transaction. Under contract, provision and penalties against them are clearly stated and rigorously executed. As for the participation of community in the forest reserve management, though Memorandum of Understanding (MOU) is exchanged between FSD and community, the relationship is mutual and based on participation (implying community's own initiative). Based not on the regulation but participation of community, sustainable forest reserve management can be more expected.

To realize the participation of the community in the forest reserve management, it is required to seek for methods to place the forest reserve management into the livelihood of the community, i.e. methods to give direction to the daily lives of the community so as to integrate them into the forest reserve management will be required. Common interest of the community is rather in agriculture than forestry. Taungya system is a method to fill the gap between the interests of the community and of FSD. GB aims at turning the activities of the community in the boundary of the FR into their daily ones by allowing them to grow fruit trees that will be their income source, so that their daily activities in the GB turns to be the ones for protecting the FR (regular patrolling against wildfire, fire-break making by grass clearing, fire prevention etc.).

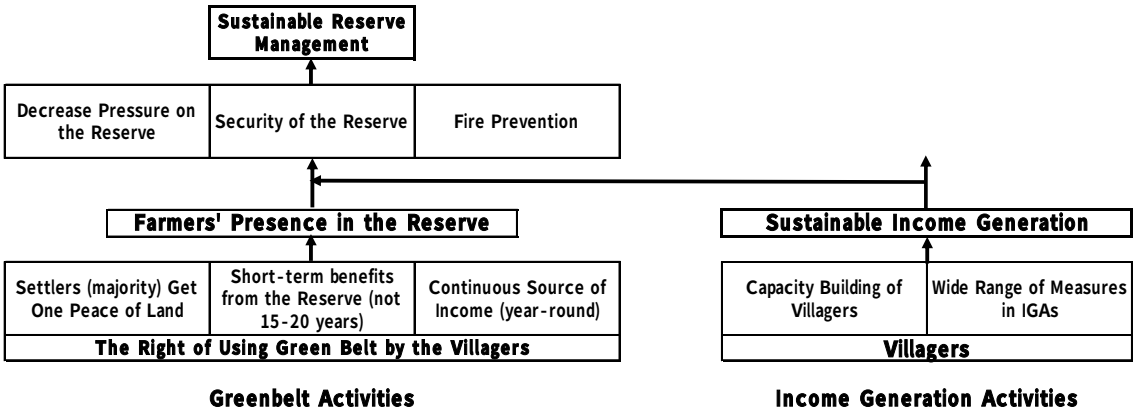
3) Income Generation Activities (IGA) to Promote "Participation of Administration"

PAFORM introduced Income Generation Activities (IGA) to the forest reserve management as the approach, "Participation of Administration (FSD's Participation in the Community Activities). GB Activity of PAFORM is being done in the FR just like Modified Taungya System, therefore it is considered as a conventional approach where FSD calls and involves good public to the FR. In IGA of PAFORM, however, FSD needs to go out from the FR and to participate in the development of the fringe communities. A paradigm shift of participatory forest management in the FR to an integrated one with both reserves and the communities might be the essential meaning of IGA in PAFORM.



Two Direction of Participation at PAFORM Approach : GB and IGA

It is not a direct solution of giving an incentive to involve people and to stop illegal activities in the FR, but thinking out and implementing measures where FSD can be useful for improving livelihood and developing the communities. It will lead to the real participatory forest reserve management where the FR and the fringe communities are integrated. In summary, IGA indirectly contributes to the sustainable forest reserve management while GB activity is more directly related to the forest reserve management activities. Figure below shows the positioning of GB and IGA.

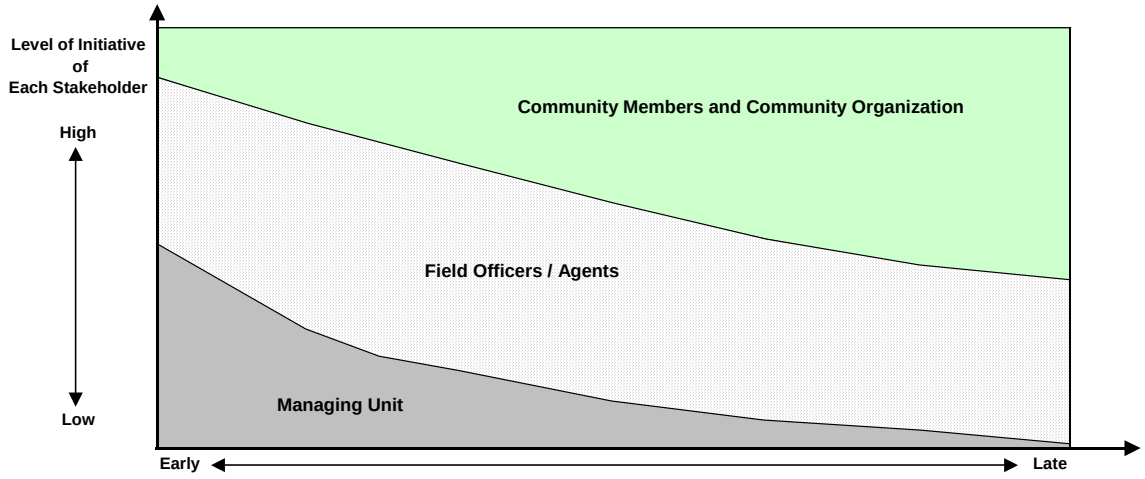


Position of GB and IGA towards Sustainable Forest Reserve Management

Box 3: Practice of Participation of Administration

The meaning of "Participation of Administration" is that the government administration will assist in the activities, of which the community has already had the ownership. However, in practical situations, there are so often the cases that the government administration takes initiative for the activities to the community. In such cases, the initiative must be gradually shifted from the government side to the community side, though at the beginning the management unit of the government takes the role of planning. The initiative of the activities should be shifted from the management unit to the field staff who are closely working with the community, and eventually to the community. Otherwise, the activities should lose sustainability and further development.

The position of the government in assisting community's own activities is totally different from the one in requesting the community to participate in the activity of the government. If the administration chooses a project by their own values, or takes input and resource oriented approach, which leads to dependency, it is impossible for the people to take ownership on their own initiative. Therefore, it is necessary for the administration to participate to the people, not to involve people to the project; to plan and design the project in their shoes; and to try to follow the decision made by the people (discussed in detail in the following chapter).



Stage	Analysis	Strategy	Program / Plan	Project Design	Implementation Participatory M&E	Evaluation
Examples of Major Decision Making		Agriculture, Livestock or health?	Irrigation, Transportation or Marketing?	What, Where, When and How?	Learning and Action	Lessons Learned and Recommendations

Practice of Participation of Administration: Shifting Initiative from Administration to Farmers

4) Deployment of Community Facilitator (C/F) for Close Communication between FSD and Community

PAFORM deployed Community Facilitators (C/F) to enable close communication with community and smooth implementation of the project. C/F frequently visits their responsible communities and monitors the activities. C/F also conveys the information of FSD's intentions to the community and bring the information on community back to FSD, so that information and opinions of both parties are shared promptly and accurately. C/F has contributed to coordinating with community for reflecting community's opinions to the plan or strategies of the project as well as the activity scheduling. Also the issues arising in the community was swiftly conveyed to FSD in order to smoothly implement the

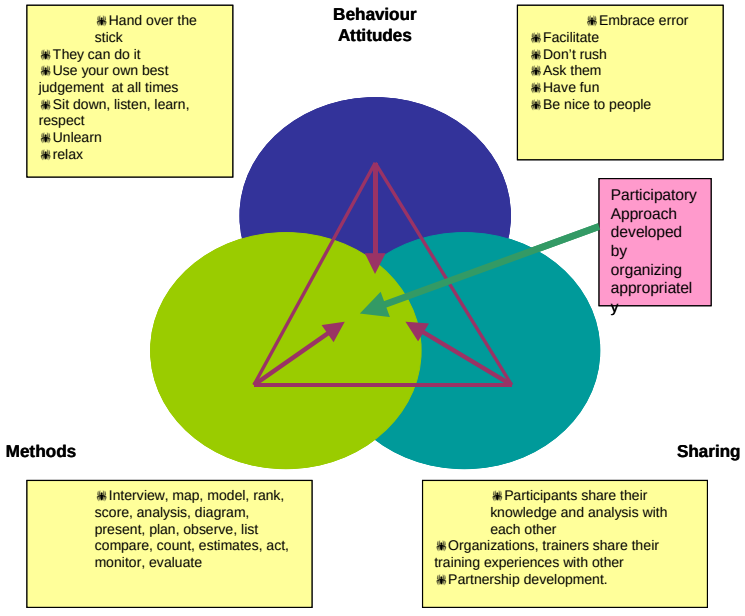
activities. C/F role or function is to maintain the quality of "participation" in the course of executing activities.

Box 4: Quality of Participation

PAFORM Approach showed the venues and programmes for "Participation" (Information Sharing Workshop, GB, and IGA). However, how the stakeholders (FSD and communities) utilize such venues and programmes for interaction, i.e. maintaining quality of participation, should be taken into consideration.

Ideal state of participation would simply be "the establishment of partnership between FSD and community". The stakeholders of PAFROM has had so much discussion over the meaning and definition of participation that were expressed as "the state in which the local populations are in mutual partnership with FC for the management and development of the forest resources with equitable rights and sharing of responsibilities and benefits (M/M of JCCM in February 2006)", and also "the process by which stakeholders influence and share control over priority setting, policy-making, resource allocations, and/or programme implementation", or "Participation should bring about a change and empowerment to the community through sharing and learning from experiences, information and knowledge".

Change of behavior or attitude of FSD staff towards establishing partnership with community has also been discussed as a part of participation issue. To improve the quality of participation, trainings for FSD staff and deployment of C/F were carried out in the project. Following diagram summarizes the important elements to acquire the quality participation through the project implementation process:



Three elements for participation: Behavior / Attitude, Sharing, and Methods

CHAPTER 2 APPLICATION OF PAFORM APPROACH

This chapter presents a guideline to carryout the core activities of PAFORM Approach explained in the previous chapter: “Planning (consultation) process for the FRMP”, “Implementation of Green Belt (GB)”, and “Implementation of Income Generating Activities (IGA)”. Sub-concepts of each activity and its process of implementation step by step will be described.

Actual experiences and lessons from the PAFORM are inserted in the texts to indicate examples of application on the ground as well as the principles of the implementation so that the guideline becomes more realistic.

2.1 Planning Stage: Consultation Process for Formulation of Forest Reserve Management Plan

Contents of Consultation Guideline

- **I Guiding Principles and Strategy**
- **II Outline of Consultation Process**

I. GUIDING PRINCIPLES AND STRATEGY

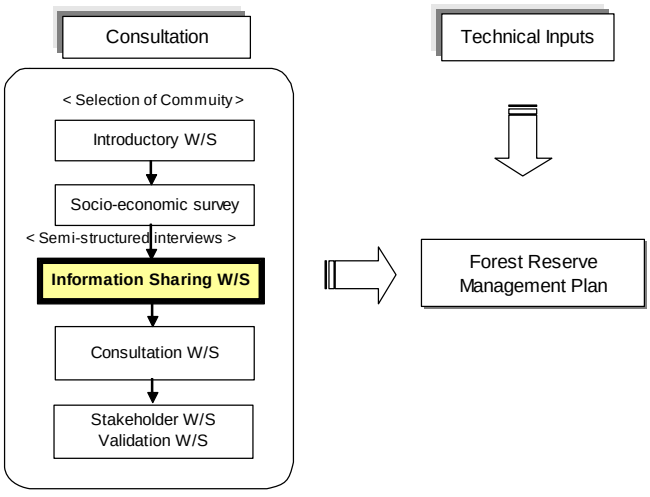
1) Why consultation processes for Forest Reserve Management plan formulation is necessary?

Forest Reserve Management Plan is formulated referring to the Manual of Procedures (MoP). MoP instructs the consultation process with stakeholders (especially resource owners) in formulating the FRMP. The basic flow of the consultation process is: Early discussions to inform the intention of preparing the plan → Consultation with forest user groups as a part of field reconnaissance → Distribution of the draft management plan to community leaders → Reserve Planning W/S → Revision of the plan on the basis of suggestions received → Endorsement by representative of land owners and District Assemblies. While PAFORM basically followed the MoP, distinguished process PAFROM employed was to hold "Information Sharing W/S" at community level and Explanatory W/S of the Draft Plan at community level.

Most distinguished element at the planning stage for PAFORM Model is to hold the "Information Sharing W/S", which makes it possible to implant the direction of "Participation of Administration (FSD's Participation in Community)" in the FRMP. Information Sharing W/S is held in order not to collect information that FSD wants but to share issues and priorities among the members of the community. In other words, the W/S is not intended to ask the community members for discussing the interest of FSD, namely FR management, but to provide a venue for the community members to talk about their own interests regardless of FR management. Information sharing W/S is a venue that the community members discuss from the viewpoint of what is necessary to improve their livelihood not from what is necessary to protect the FR. As the result, the W/S participants are to discuss agriculture, income generation, health, education etc.widely.

FSD can learn about their issues, their interests, causes of their problems, their priorities and their understanding about the area etc. through programming the Information Sharing W/S in the consultation process of FRMP formulation. Priority issues the community members in their livelihood are not always linked to the FR management. However, it will alert FSD a lack of consideration if only to request communities to participate in the FR management without thinking about the priority issues of the communities. In other words, carrying out the Information Sharing W/S leads FSD to show the attitude even to deal with the issues, which are out of the original field of FSD as much as possible by linking related

Two Directions of Inputs for FRMP Formulation



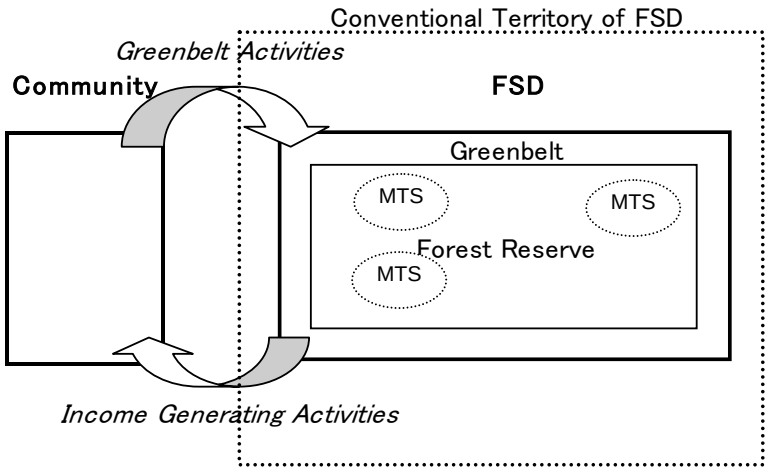
ministries and NGOs. At the same time, FSD can look at the activities more objectively by locating them in the life and development of the communities not only thinking about the benefits to FSD itself.

Information Sharing W/S in the consultation process of FRMP formulation gives an opportunity to install the direction of the participatory approach, namely "participation of Administration (FSD's Participation in the Community Activities". At the same time, programming this kind of W/S enhances the participation of community at the planning stage of FRMP.

Not only information sharing W/S but also various consultation / interaction processes contribute as a one of important inputs for FRMP formulation as shown in the chart in the right.

2) Who will be the target of the consultation process?

As mentioned in PAFORM model, PAFORM introduced Income Generation Activities (IGA) to the FR management as the approach "Participation of Administration (FSD's Participation in the Community Activities) "and Greenbelt Activities as the approach "Participation of Community"



Two Direction of Participation at PAFORM Model：GB and IGA

Consultation process target therefore, mainly involves those two parties. Nevertheless, word "community" does not mean only farmers who are participated in IGA and GB but also many persons concerned and forest management issues is also involve so many parties, Therefore, target of consultation process should be selected carefully.

II. OUTLINE OF CONSULTATION PROCESS

In this chapter, outline of necessary consultation process for FRMP formation are shown by featuring PAFORM experience as reference. Of course, PAFORM experience is just example and it is advisable to modify methodology etc. flexibly according to the target areas' situation.

0) Target community selection

Before starting the consultation process, the target communities are selected.

In PAFORM project, the no. of target community was preset as 12 (6 communities in each FR) and selection of target communities was conducted according to the procedure and criteria shown in the below. Therefore, if FSD shall conduct Project using PAFORM model in another FR or select other communities in both targeted FRs, it is recommended to review procedure and criteria according to situation of the target areas. For example, the definition of the "fringe community" was set within 5 km radius in PAFORM and discussion of the selection of target communities was started from this

point. Nevertheless, this definition may not appropriate in other areas.

<Selection of target communities in PAFOM – Case of Tain I FR>

Firstly, nine communities (Chiraa, Kwatire, Sereso, Twumasikurom, Adantia, Afrasu I, Kobedi, Yawhimakurom and Forkuokrom) out of thirty three had been chosen as fringe communities taking consideration into distance from Tain I FR (within 5km radius).

Next, these nine communities had been narrowed to six communities based on criteria as follows:

1) Communities that have closed relation to Tain I FR,
2) Communities where activities of PAFORM were already being implemented,
3) Communities that have a role of "station" point for the surrounding villages
4) Balanced allocation (decentralization) of target communities against Tain I FR and
5) Ethnic diversity of selected communities

Discussion summary for selection of sic communities are following;

-Some activities of PAFORM have been done in **Kwatire** and **Forkuokrom** by the previous long-term experts' team, these communities shall be model communities
-**Chiraa** is a town with large population and has 4 Taungya groups. However, there are many merchants who are not engaged in farming
-**Sereso** community members go to **Kwatire** to get information or join in W/Ss
-**Twumasikurom** community members depend on Tain II FR instead of Tain I.
-Most of **Yawhimakurom** community members do not practice farming in the FR
-**Kobedi** is selected as a target community since most of the people work in the FR
-**Adantia** is much closed to Kwatire, however, Adantia has different ethnic balance (ratio of immigrant and indigenous) from that in Kwatire. Therefore, Adantia is selected as a target community
-In terms of location balance, one community that is located on north to Tain I FR was selected in addition to Afrasu I. Based on the suggestion of the range supervisor and real condition, Afrasu I is divided into Afrasu I and Afrasu II. The communities each have leader. Both communities were chosen as target communities.

<Selection of target communities in PAFOM – Case of Tain I Nsemere FR>

Eight communities out of all fifty-two communities in Nsemere FR had been chosen as fringe communities taking consideration into distance from Nsemere FR (within 5km radius). The chosen eight fringe communities of the FR are Nyamponase, Amoakrom, Kofitwumkrom, Ahwene, Asuofri, Pepewase, Buoku and Bronoso.

At first, Buoku was excluded since the people tend to use Yaya FR more than Nsemere FR. There is a big conflict between Nyamponase and Pepewase. It is because the people of Nyamponase regard a part of FR as their own land although they do not manage it enough; on the other hand, Pepewase people cultivate crops and plant trees in the same land. It is challenging to tackle this issue, however, efforts to resolve it are judged necessary by the participants of the discussion mentioned above. These two communities were decided to be chosen as target communities.

The next procedure of six communities selection out of seven was done by discussion based on matrix as shown below (Nyamponase and Pepewase also are included in the matrix and main focus was put on the former tree criteria)

The total scores of each community do not show remarkable differences when three criteria were used. As a result of more discussion, Bronoso was excluded since it has small population and is can be combined with Ahwene due to the short distance between them.

Matrix for target communities selection of Nsemere F/R

Criteria / priority / Communities	Strong relation with FR	Low produce of farming	high population	Location from FR	Tribe	Remarks	Total Score from 1-3	Selected
	1	2	3	4	5			
Nyampenase	farming, hunting, no plantation ✔	4	500 ✔	3km	North and Bono dominate	conflict with Pepewsi, demanding	2	○
Kofitwumkrom	farming, Taungya, firewood ✔	3 ✔	250	0km	Bono domonates	-	2	○
Amoahkrom	farming, Taungya, firewood, hunting ✔	4	380	1.5km	Bono domonates	-	1	○
Ahwena	farming, Taungya, hunting ✔	5	650 ✔	2km	Asantes dominates, Bono, Ewe and North	-	2	○
Bronoso	farming, hunting	4	100	1.2km	North dominates, Ewe	-	0	
Asuofri	farming boudary, hunting	2 ✔	450 ✔	1km	Asantes dominates, Ewe and North	-	2	○
Pepewasi	farming, Taungya, firewood, hunting, drinking ✔	4	600 ✔	1.4km	Asantes dominates, Bono	conflict with Nyampenase, good access to market	2	○

1) Introduction W/S

Plantation Supervisor is explaining the
Concept of PAFORM to community members in Kobedi (July 2006)

Introduction W/S was first community entity in PAFORM, socio economic survey is regarded as initial contact with forest fringe communities in MoP, though. Project Introduction W/S was done to create community's awareness of the project and to confirm community members to accept project and collaborate with the Project.

In addition to the project introduction, C/Fs are introduced as a bridge between community and the Project. Traditional Authorities, chiefs, representative of various groups such as Taungya Group, Fire Volunteer etc. were participated from community and both manager and field level FSD staffs were participated in the W/S. PAFORM provided "social provision" which is formal way of greeting when it is first entity to the community and communities' representative conducted some traditional welcome ceremony using it to show their welcome and acceptance of entity.

2) Socio-economic survey

A socio-economic survey is commissioned to generate information on the social, economic, and governance systems and structures prevailing.

The findings of the survey shall serve as inputs to the development of Forest Management Plans whose formulation processes shall involve the community members.

As mentioned in MoP, the main purposes of the Socio economic survey are:

- Understand the socio-economic context of reserve management
- Ensure all communities around the reserve are aware of the planning process and are able to participate fully.
- Explore the potential for local collaboration in management.

Box 1: Semi-Structured interview conducted by PAFORM

PAFORM team had individual interviews in eight communities including six target communities of Tain I, and in six target communities of Nsemere during October – November 2006. The team spent about one hour for each interview and interviewed one or two persons from each community. Since the team also implemented socio-economic surveys and participatory workshops in the target communities, the team decided to have interviews in the following way.

1) The main purpose of the interviews is to find out key issues and questions in the communities and set up hypothesis which we can use to design forest management plans.

2) Since the project team can collect quantitative data through socio-economic survey, emphasis is put on qualitative study rather than quantitative study. It is non-structured interviews.

3) The voices of the leaders are easily expressed in any meetings or workshops. Therefore, the team selectively interviewed marginalized people in principle.

Major challenges to be tackled are depending on the conditions. Main problems were as follows:

- Soil degradation and low productivity
- Fertilizers are expensive for the local people
- Limited pesticide control (little agro-chemical used or unsafe application of agrochemical)
- No dry yard or treatment for crop storage
- Disadvantaged marketing (farmers have to sell the crops at lower purchased price due to the storage issue)
- Bad conditions for transportation of crops due to lack of carts
- Little opportunities to access agricultural trainings
- High cost of transportation
- Weeding is very too tough for women and it is needed to hire labors which is costly

The followings are methodology of socio economic survey which was conducted in selected 6 communities of Nsemere FR

<Socio economic survey in PAFORM: case of Nsemere FR>

The field survey was conducted for 9 days, from the 17th to the 27th of November. The followings are methodology taken;

a) Interviews with Chiefs and Elders：

The discussions centered around the history of the settlement, the leadership structure, tribal composition, access to social services and economic resources, wealth perception, and the relationship of the community to the Nsemere FR.

b) Interviews with Taungya Groups and Community Forest Committees (CFC)：

Discussions targeted officers and members and the topics included the history of the group, membership and management issues, achievements, constraints, and aspirations.

The original plan was to interview some Livelihood Groups, however, none of the community interactions were able to identify any substantive group that function in any of the 6 communities.

c) Focus Group Discussion with Male and Female Community Members（with 10 male and female members of the community were chosen from the cross-section of tribes in the community as well as the marginalized groups）：

Information that had been generated helped in directing analysis and recommendations towards poverty alleviation within the context of both gender equity and participatory forest management.

The discussion started from the physical structure of the community using a community mapping tool in which questions of history, tribal and household distribution, access to socio-economic resources and services were posed.

d) Structured Questionnaire Interviews：

The schedule consisted of questions aimed at establishing trends in demographic make-up, sources of income, farming systems, awareness of the taungya system, perception of and access to the forest reserve, household expenditures and assets. The number of interviews reached 101, a reduced number compared to the planned 140 which was supposed to be proportional distribution (5%) based on population.

3) Information Sharing W/S

As mentioned in above, this information sharing W/S is not mentioned in MoP but is originally introduced by PAFORM.

Female participants are processing their group work with their children back (October, 2007 In Asuofri)

PAFORM Model is defined as "an Embodiment of the Participatory Approaches for Forest Reserve Management that is defined as a combination of the two approaches, "**participation of communities** in FR management and **participation of administration (FSD)** in the development activities of the communities".

This information W/S makes it possible to implant the direction of "Participation of Administration (FSD's Participation in Community)" in the FRMP, namely implementation of IGA.

The direction of participation of communities may not difficult for FSD managing FR, but it may not be easier to understand and implement the direction of participation of administration than direction of participation of

Box2: Definition of Participation

To share a clear definition of participation among PAFORM, we discussed it intensively in the weekly meeting.
The followings are information what the advisory team provided on the level of public involvement (PI) and the stages of a typical decision making process for planning, implementing, monitoring and evaluating development projects. The level of PI was defined originally by an American city planner Sherry Arnstein in 1969. She used eight levels in the paper, but it is common to simplify them into four levels: 1) manipulation / control, 2) informing, 3) consultation, and 4) partnership / participation. The definition depends on the flow of information.

1) Manipulation / control: If an institution does not disclose any information to the people and plan the project, it is manipulation or control of information. The project might involve people later for implementation in the form of such as labor contribution, we cannot call it participation. It does not involve any delegation of decision making to the people.
2) Informing: If an institution explains the objective of the project, how to implement etc., information at least flow from the institution to the people. We can also call it transparency. People still cannot participate in decision making directly, but the project can be accountable.
3) Consultation: At this level, an institution needs to listen to the opinions of the people and modify the plan to meet them. The flow of information is not one-way, but partially two-way.
4) Partnership / participation: To get full participation of people, people need to have the initiative. We cannot call people partners unless they participate in co-decision making. The flow of information between the institution and people must be fully two-way.

communities. Therefore, implanting the concept of participation of administration makes FSD to think about “Participation.

Information sharing W/S is a venue that the community members discuss from the viewpoint of what is necessary to improve their livelihood not from what is necessary to protect the FR. As the result, the W/S participants are to discuss agriculture, income generation, health, education etc. widely.

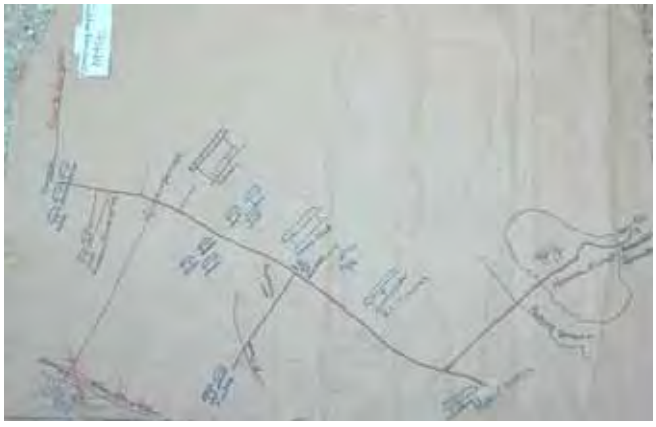
FSD can learn about their issues, their interests, causes of their problems, their priorities and their understanding about the area and FSD can look at the activities more objectively by locating them in the life and development of the communities not only thinking about the benefits to FSD itself.

Main objectives of the community W/S was as below. W/S was stated at 9:00 and closed around 14:00 for each community.

(1) Explanation of current laws and policies regarding forest reserve management.
(2) Situation analysis of the community; trend-analysis of key issues, (resource) mapping, rich-poor profile and success stories (best practices) in the community.
(3) Problem analysis of the community using “Life of the villagers is not easy” as the core problem, and prioritization of the major issues.

The followings are outline of tools used in W/S and samples of the result;

Community Mapping: The idea behind the community mapping is to know some features in the community and how significant they are to the community. Participants were grouped into two; male and female.
＜Case of Nyamponase(Nsemere FR) Left：male group, right: female group＞



Rich-Poor Profile**:** The tool is used to know the wealth status in the community and also some characteristics that are used to describe them.

＜Case of Nyamponase(Nsemere FR) ＞

Items	Male			Female		
	Rich	Poor	Very Poor	Rich	Poor	Very Poor
Building	A House with aluminum roofing.	They do not own.	They do not own.	A house with aluminum roofing.	They do not own	They do not own.
Farm land	Seven acres of teak plantation and three acres of maize and cassava farm.	Two acres of maize, cassava and vegetable farm.	They do not own.	Four acres of mixed crops of maize, cassava and vegetables farm.	One acre of cassava and vegetable farm.	They do not own.
Equipment	A truck or two cars and a motorbike.					
Family size	Two wives and five children.	One wife with six children.	They do not own.	One husband and four children.	One fiancée with four children.	They do not own.
Health	Acquired NHIS and can afford to purchase medicine or drugs.	Cannot afford medical bills.	Prefer self-medication due to lack of funds.	Able to afford medical bills.	Cannot afford medical bills.	Rely on self-medication.
Education	Can afford tertiary levels for children.	Cannot afford Junior secondary school (JSS) for children.	Children are drop outs.	Can afford senior secondary school (SSS) for children.	Can afford only primary school for children.	Children are drop-outs and farm assistants.

＜Case of Kwatire (Tain I FR)＞

・Male group

Very Rich	- Owners of cocoa farm, house and cars, consist of 5%.
Rich or Average	- Those who have goat and sheep and then fowls in addition to the single house/room, consist of 45%.
Poor	-Those who have only maize and cassava farms on their disposal consist of 50%.

・Female group

Very Rich	- Owners of five (5) cars, ten (10) acres of cocoa farm and three (3) houses, consist of 20%.
Rich or Average	- Those who access to three (3) acres of cocoa farm, one (1) house and food for consumption, consist of 30%.
Poor	-Those who have no house, no cocoa farm, no car, no good health care, no good food and no children, consist of 50%.

Trend Analysis: This tool is used to find out the positive or negative change that has occurred in the community. Participants were categorized into two grouped. They used symbols and sketches for their presentation.

＜Case of Adantia(Tain I)＞

The Sunyani forest area was a vast farmland occupied by cocoa trees as of year 1960. Some portion of the cocoa farm was cleared in order to pave way for the commencement of the Tain I forest reserve in the year 1962. The forest started graving on a very grand style until 1983 when a wild fire from nowhere entered the forest reserve and then burnt it down beyond imagination. As a result of the inevitable fire, food stuff and other non timber forest produce which includes; snails and other things were also burnt. Life at the community then became unbearable.

Further, in 1986, there was no relevant thing to be found in the forest. Since then, there have been a whole lot of efforts and strategies to bring the forest back to its previous nature but all in vain.

Success Story: The main aim is to know what the community has achieved overtime and also what has kept the community existing and how this achievement have bound the people together as a community. Participants were then grouped into two that is male and female.

Problem solving approach including problem analysis has several disadvantages: 1) searching for what they don't have, not what they have, which very often results in a wish list, 2) limiting our vision within existing situation, and 3) concentrating more on lack of inputs rather than organizational and human related issues. To overcome those disadvantages, PAFORM included success story into information sharing W/S

＜Case of Kobedi (Tain I)＞

Kobedi community was originally established or settled by Bonos. But at the moment we have different tribes mostly settler farmers from northern part of the country. Despite these tribes with different cultural background, we have been able to come together as one family and there is peace and unity between and among the members of the community.

Secondly, the understanding and long standing peace building that have existed among us have enable our men and women in the community to establish strong fire volunteer squad to deal with all fire related issues in the community.

Thirdly, there is unity of purpose in our community. This has made us to come together and constructed primary and Junior secondary school. Blocks for our children who were earlier attending school under trees.

Also, because of our long standing farming activities which have been given recognition District-wide, we have hosted the municipal farmers day. This clearly indicates that our people do not play with their farming activities which provide a percentage of food stuff that is consumed in the municipality and the country as a whole.

Again, we have been able to mobilize ourselves and contributed towards the construction of the rural electrification project. This situation has reduced the incidence of our youth moving to the cities. This has also helped us to use all gadgets and electrical appliances that our counterparts living in the cities are using. Moreover, our people care for each other in times situations. That is through good neighboring and friendliness our people always come to the aid of a brother or sister in times of birth and death.

＜Case of Kwatire(Tain I)＞

Community members have been able to team-up for the toilet facility at the community level to come to pass. At first, members were defecating just by heart simply because there wasn't any convenient place purposely meant for that. According the group, presently, there are a good number of toilet facilities at the community which account for the decent environment of Kwatire.
Other infrastructure such as, schools and clinics as some of the things we have done collaboratively with the District Assembly and other stakeholders. The new school; project have now ease the pressure that were mounted on the few. This vibrant more taken by the community members supported by the other stakeholders had now increased community. There are still other projects such as; schools and clinics that are still on-going. Some of the problems that came out as a result of no schools and clinics in the community. Children were walking long distances before accessing education and health care from places such as odumansi.

Group work by female group. Female group told that they contribute to community development as providing food when construction of the school, road, borehole etc. Further, it shows that when wild fire occurred, women carry the water on their head and male enter the forestry with cutlass and both of them are playing important role for forest management.

Furthermore, we have taken initiative to make projects such as; wells and bore-holes at the community level come to reality. These projects were supported by other non-governmental Agencies such as the World Vision. These reliable sources of good drinking water have now put an end to people contracting water borne diseases at the community.

With regards to the reserve, it has contributed to our livelihood in areas such as, food stuff and non timber forest product. As a result, we do not hesitate to come in their large numbers to overpower outbreak of fire and other illegal activities. Plantain, yam, cocoyam, snails, mushroom, yam stakekers palm nuts, maize and a lot of others as some of the things we can get from the reserve.

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Thirdly, there is unity of purpose in our community. This has made us to come together and constructed primary and Junior secondary school. Blocks for our children who were earlier attending school under trees.
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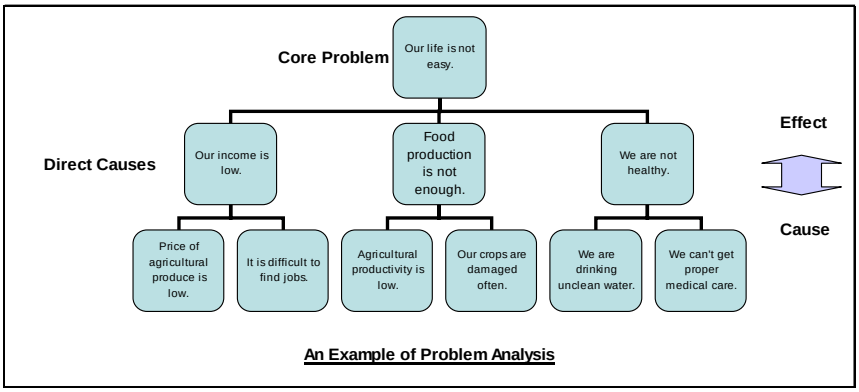
Problem analysis:

The Problem Analysis is a classical tool adopted by ZOPP of GTZ and Project Cycle Management (PCM) of JICA. It was originally a tool for factory production lines to find out the areas where they can improve. Problem Analysis is a tool to find causes and prioritize them.



An Example of Problem Analysis

Problem analysis and it has several advantages; (1) we can see the structure of existing problems easily through cause and effect relations, (2) We can avoid simple wish lists where solutions are all input-from-outside-oriented, (3) we can see the alternative solutions for a same issue so that we can prioritize them, (4) we can compare the problem analyses of different communities and synthesize them into one which cover all the issues as the least common multiple, if we choose a common core problem which can cover all the possible issues.

Problem analysis, however, has some major shortcomings as mentioned in success story; (1) We can only analyze "problems" so that we can find immediate solutions for improvement but not a long term direction, (2) It is not always appropriate to think about development from problems, threats and

poverty. Corresponding to (1), some solutions which have not come from community level W/Ss will be added from our policies and strategies as long as they match the problems identified at the community W/Ss. To mitigate (2), success stories were used to think about positive and desirable future as mentioned above.

Core problem in information sharing W/S was set as “life is not easy in ** community” not what directly related with FR management as mentioned above.

After putting the core problem in the center, then immediate causes of core problem are placed below the core problem and these are called “direct causes” Then, causative problems below the direct causes are placed lower part of the tree.

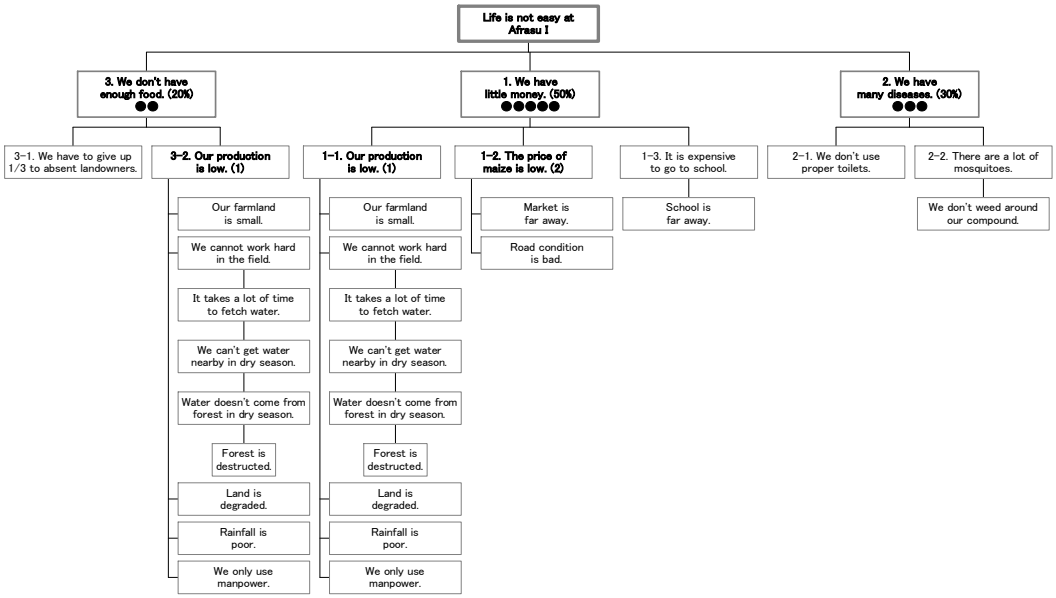
Similarly, problems resulting directly from the core problem are placed above the core problem and they are called “direct effect”.

Typically, a problem has several causes and effects. If two or more cards are identified as the direct causes or effect of a problem, and such cards have no relation to each other, place them in parallel. Further, even if problem appears to have only one cause and effect, we have to look for other causes and effects that may have been overlooked in analysis process.

There are several rules or notes to write problem cards during development of problem tree using cause-effect relations which are:

- Indicate existing problems only, not theoretical, imaginary or assumed problems (**Good:** Many rice farmers don’t do line transplanting. **Bad:** Farmers are lazy.).
- Write one problem on one card (**Good:** Our income is low. **Bad:** Our income is low because there are few jobs.).
- Describe the problen in a sentence (**Good:** We are drinking unclean water. **Bad:** Water issue.).
- Try to avoid writing absense of solutions (**Good:** We cannot get proper medical care. **Bad:** There is no hospital). Hospital is one of the solutions, but there could be other solutions such as mobile clinic, community pharmacy and community health workers.
- Do not include both the cause and effect of a problem in one card. (**Bad:** Technical skills are inadequate and vehicles are in poor repair. **Good:** 1) Vehicles are in poor repair, 2) Technical skills are inadequate).
- Note that higher position in the problem tree does not mean that the problem is more important than lower ones.

< Case of Afrasu I (Tain I)>



4) Consultation W/S

Next, consultation W/Ss for explanation of outline strategic Plan is organized.

In PAFORM, trend of FR, current situation and zoning etc. were covered with active participation of community peoples.(concerning the forest law and regulation and rights of community members, explanation was completed in the information sharing W/S, so excluded from this W/S)

<Consultation W/S in PAFORM: Case of Nsemere FR>

W/S began with resource map-making by the people to attract their interest in FR. C/F organized some grouping for the work by dividing the participants into old male, old female, young male and young female. At the first step, each group were requested to illustrate the range of tree species, any equipment in FR, natural resources such as rivers in the FR in the brown paper.

Community members are exercising trend analysis of FR in every five years

In next step, the groups were requested to answer to following questions;

1. What type of forest are you seeing?
2. What type of benefits are you gaining from the forest?
3. How are the community people relating to the reserve?
4. What steps do we need to take to achieve the future?

In the third step, the participants were requested to show the trend of FR in every 5 years (e.g. tree density of FR, relationship between the FR and the community, relationship between the FSD and the community, water resources and so on. The people placed stones in each line in the prepared table format by the PAFORM team. It means that the more stones were places, the deeper/more relationship/quantity people have. Here, one of result (aged men's group in Nyamponase community) is shown the next table.

<Trend Analysis of FR: Nyamponase>

CRITERIA	EVENT YEAR										
	-1957	1958 - 1963	1964 - 1968	1969 - 1973	1974 - 1978	1979 - 1983	1984 - 1988	1989 - 1993	1994 - 1998	1999 - 2003	2004 - 2008
Types of trees	5	4	4	3	3	2	2	2	2	1	1
Tree density	6	6	5	4	3	3	2	2	1	1	1
River flow volume	4	4	4	3	3	3	3	2	1	1	1
Rivers flowing	4	4	4	3	3	3	2	2	1	1	1
Existence of farms	0	2	3	4	3	2	5	6	7	8	9
Access to forest	0	1	2	3	3	3	4	5	6	7	8
NTFP	8	7	6	6	5	4	2	2	1	1	1
Relationship with FSD	0	0	1	2	2	3	4	5	5	7	8
Logging	0	0	1	3	4	4	4	5	6	7	7
Illegal logging	0	0	0	0	1	3	4	5	8	8	2
Fire	0	0	1	1	1	5	4	5	4	6	1
Community attitude towards forest	0	0	0	1	1	2	2	5	5	5	3
Level of trust between community and FSD officers	0	0	0	0	0	2	3	4	5	6	7
Thickness of forest	8	8	7	6	6	4	3	2	2	2	2

5) Stakeholder W/S

After incorporated all the feedbacks from above mentioned into, stakeholder W/S is held. In PAFORM, representative of community members, Traditional Council, Municipal Assembly, The Ghana National Fire Service, FORIG, Stool Land, MOFA etc. were invite. In the stakeholder W/S, Sunyani District manager made presentation on 1. FRMP formulation process and prescription, 2. GB, 3. IGA, 4. Stakeholders Rules and Responsibilities under FRMP implmentation and Area Plantation Manager made presentaion on Management Plan Prescription for Plantations. The followings are summar of the comments from participants and these comments were reflected to the FRMP presented in Validation W/S.

＜Summary of Commnents at Stakeholder W/S：Nsemere FR＞

1) GB extension to off-reserve area:Community members recommended FSD to extend support for farmers who are engaged in farming off reserve boundary.

2) Utilization of resources in FR as tourism promotion tool: Rock-outcropped area in Nsemere FR was idenfitied as prominet tourist center of Nsemere FR.

3) Bush fire conflict settlement: There were severe discussions on where fire comes from (whether it comes within the fringe communities or from outside). In response to it, the representative of Traditional Council promised the participants to confirm the situation as soon as possible by himself and left his contact address for the participants whenever they find fire issue.

6) Validation W/S

As a final of consultation process of FRMP formulation, validation W/S to get consensus among the stakeholders is held. PAFORM invited participants for stakeholder W/S and representative from MLFM , FSD & JICA HQ were also invited for finalization of FRMP. Dean of Faculty of Forest Resource Technology closed the W/S with the remark "FRMP which I've seen was formulated by top down, but FRMP formulated in PAFORM involved so many consultation process. We really expect FSD to extent this PAFORM model to other areas"

＜Summary of Commnents at Stakeholder W/S：Nsemere FR＞

1) Further promotion of illegal activity eradication

Community raised issue that those who are arrested for illegal activities in the FR are not sent to the court. They should be taken into court for judgment. FSD explained according to the experiences, it takes longer process to take them court. There is a case of illegal farming which had been taken to court long time ago, but it has not still been concluded. We should invite police and judges to this kind of conference to ask for cooperation. FSD also asked the cooperation of community to deal with criminals such as to be the witness of illegal activities and capture the people who are engaged in illegal activities because it takes time for FSD to get to the site.

2) Further utilization of fire volunteer squad

Community asked FSD to necessary materials with enough quantity to fight against wildfire. FSD answered that since the government budget is limited, FSD alone cannot support all of them and therefore collaborative work with other institutions (district assembly, NGO etc.) is important. Only having wellington does not mean that we can prevent fire. Community should be consulted by the institutions such as Ghana National Fire Service on how to prevent fire.

3) Tourism development

Cooperation to develop tourism or proposals to acquire fund should be made. Apart from the spot in Nsemere FR, there are also many tourist spots around the FR. The tourism sites should be developed together and any place that can be considered as tourism, community can bring the idea.

4) GB or MTS Agreement

The previous government has tried to sing the agreement of MTS but due to issue of chieftaincy, it was not materialized. Chief representative of the traditional council should be required to sing on the MTS contract agreement. Stakeholder Collaboration

RMSC officer urged participatory process and the benefits we get as well as our rights and responsibilities. If we can understand the benefit from acquiring our rights and responsibilities, we all should see that everyone has to take their responsibilities.

5) Stakeholder Collaboration

RMSC officer urged participatory process and the benefits we get as well as our rights and responsibilities. If we can understand the benefit from acquiring our rights and responsibilities, we all should see that everyone has to take their responsibilities.

Project Manager summarized that "we are talking about participation. PAFORM developed foundation of participation. We have to continue it. We have got a setting objective, management of forest, which cannot be achieved today. It should be continuous and it is everybody's business. The more commit ourselves, the more participatory realized. Whatever you have ideas in the communities, it should not stay in the community, but must come out. FSD field officers, therefore, have the role to facilitate the communities. We have started the foundation, but we have to go up to roofing level."

2.2 Implementation: Livelihood Green Belt (GB)

Contents of GB Guideline

The PAFORM proposed GB for strengthening the community participation in FR management.

I. Definition of the GB

GB is allocated land for community to plant fruits tree in purpose of FR protection. The GB is to be allocated 40 m from inside of the FR pillar line.

II. Purposes of GB

(i) To secure future timber harvests for FSD as green fire belt.

(ii) To make the fringe community people utilize the FR to improve their livelihood and to protect production area against bush fire, illegal logging and encroachment/ poaching

III. Main rights and duties for FSD & GB group

GB group is established in each community. The FSD and GB group shall understand and agree the responsibilities each other. The right and duties of FSD and GB group were recognized and mentioned on the Memorandum of Understanding (MOU) for the GB management. The principles are written on FRMP of Tain I as follows.

GB group members:

- Have to clean the selected site, cutting pegs and tending.
- Have to assist the survey and demarcation of this zone.
- Have to prevent and control bush fires in the GB.
- Have the rightful ownership of the GB and to harvest the fruit trees.
- Have to develop and abide by the guidelines.
- The landowner has the right to know which communities are involved in the GB establishment.

FSD:

- Has to survey and demarcate the GB zone for the communities.
- Has to select interested and committed communities for the GB.
- Has to ensure the guidelines relating to GB establishment are adhered to.
- Has to prevent and control bush fire in the GB.

- Has the right to ensure the enforcement of the Forest Laws and Regulations
- Has to provide seedlings for the GB zone in collaboration with the communities.

IV. Procedures for the GB Establishment

The procedure to establish GB by a GB group was discussed among all concerned. As a result, the procedure was decided as shown below step by step. These are not strictly fixed, therefore, it shall be modified and applied in flexibly according to the actual situation on the ground.

Step 1: Setup a farmer's group (GB group)
Step 2: Set up the target areas for the GB
Step 3: Discuss the group inner rule
Step 4: Discuss the GB design
Step 5: Prepare an annual action plan /right and duty of GB group
Step 6: Exchange MOU between the group and FSD/DFO
Step 7: Plant fruit trees on the GB
Step 8: Implement maintenance works for planted fruit trees

Step 1: Set up the GB groups

Establishing GB group is difficult and delicate first step. Project proposed 300 m (1.2 ha) belt area and roughly 30 members as the first runner considering suitable group management.

In the group discussion at the community, Community Facilitator (C/F) played a key role to give advice to the community members. Group member shall keep balance in terms of tribe, religion, origin, economic status, and gender as learned during facilitation training in the Project.

In case of small communities, C/F guided the community members to form group in open manner (any person who has interest can join as a candidate for the initial (30) and to keep balance between various groups as mentioned above). Basically, the discussion for narrowing down was handled by the community themselves. Nevertheless, in case of large communities, 30 members were too small and it was very difficult to keep balances for narrowing down the numbers. Member selection process was implemented obtaining assistances and advices from traditional authorities in the community, and finally reached mutual understanding to nominate 30 community members as the first runner for the GB activity trial.

The formation of initial GB group membership shall be carried as following processes

a. C/F shall assist community meeting to formulate a group as GB group

b. The group member is expected not too large for maintaining group unity (approximately 30 persons).

c. The group will act as leading group for the first year, and GB area will be expanded in next year, group member will also be increased in next year after reviewing the results of the first year's activity.

Introduce the GB activity to community authority

FSD

Set up GB group

Inputs by
FSD:
GB members:

Conduct community meeting how to call participants for GB
If too many applicants, discuss how to narrow down to around 30 participants for the first year (1.2 ha).

Discuss annual action plan

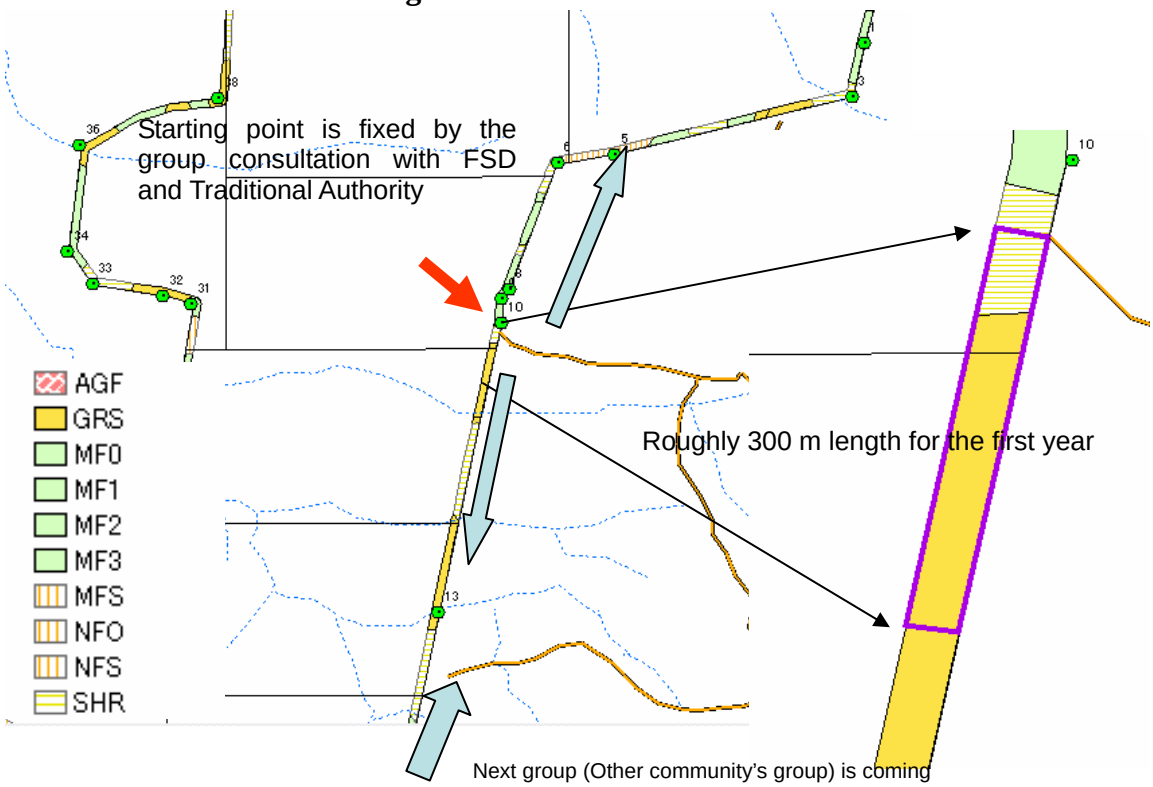
Agree MOU

Discuss inner rule for participation
Sharing principle for work and benefits

Write down their rule for collaborative work assisted by C/F

Step 2: Set up the **Target Areas** for the Green Belt

GB land allocation image



Land survey for set up the GB area was conducted by FSD staff who had learned GPS operation. The starting point was nominated by the GB group. The land demarcation was done using measure tape and GPS. The GPS reading points were transferred to GIS base map and exported paper map as below. This map is attached following MOU to ensure the land assigned to the GB group for the future.

The processes of land survey are as follows:

a. FSD shall go to the boundary with GB group leader and decide a starting point for GB. The starting point is expected to be the place easily recognizable point (Mined pillar, beside the foot pass, beside a big tree, etc).

b. FSD shall conduct land survey to mark GB area boundary and put boundary pegs surrounding the allocated GB area.

c. FSD shall set a notice board to declare the GB area assigned to the GB group (name of community) under the XXX (Name of the Forest Reserve) .

d. The GB group members shall assist the land survey for FSD.

e. The FSD shall give a written map to GB group to secure the GB land allocated to the GB group for GB construction.

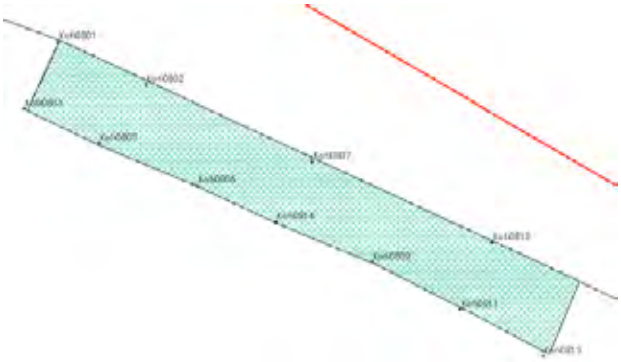
f. Following area shall be excluded from GB area to avoid conflicts.

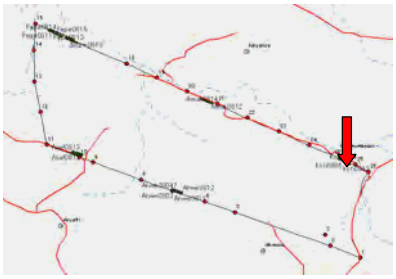
- Existing teak plantation (more than 50 % covered by the trees canopy)
- Existing farm lands (after the negotiation with the farmer)
- Existing authorized land use such as gravel making)
- Other areas in conflicts with land user.
- Allocated area for private planting company (FSD shall arrange the reallocation from the company to the group)

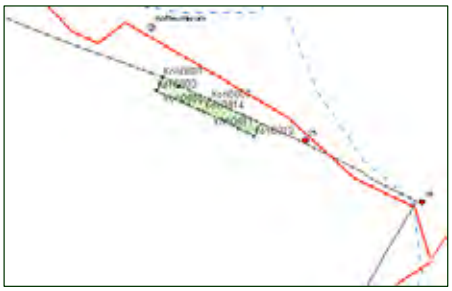
Example of Location Map

Every corner of the survey point shall be listed up (GPS reading, Longitude and Latitude)

Location Map on Green Belt activity for 2008 Kofitumkrom (300m X 40m)

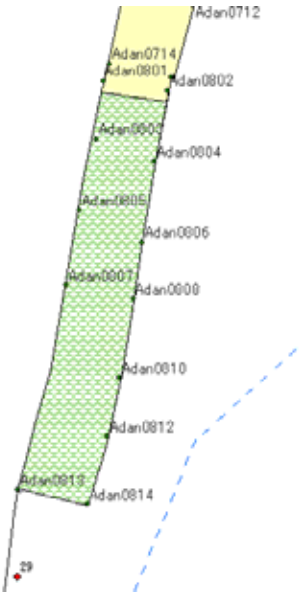


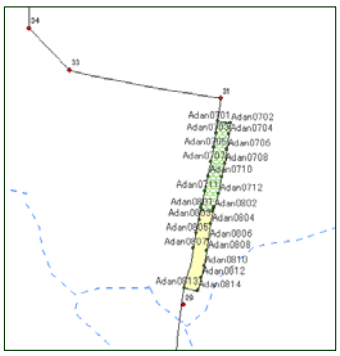


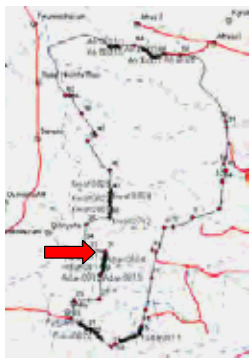


Green Belt Survey Records (GPS reading)													
KOFITUMK	Latitude		Longitude		Latitude N				Longitude				
Point No	Decimal D		Decimal D		D	M	S		D	M	S		
Kofi0801	N	7.530360	W	2.177190	N	7	31	49.30	W	2	10	37.88	
Kofi0802	N	7.530160	W	2.176780	N	7	31	48.58	W	2	10	36.41	
Kofi0803	N	7.530050	W	2.177350	N	7	31	48.18	W	2	10	38.46	
Kofi0805	N	7.529890	W	2.177000	N	7	31	47.60	W	2	10	37.20	
Kofi0806	N	7.529690	W	2.176540	N	7	31	46.88	W	2	10	35.54	
Kofi0807	N	7.529800	W	2.176000	N	7	31	47.28	W	2	10	33.60	
Kofi0809	N	7.529330	W	2.175720	N	7	31	45.59	W	2	10	32.59	
Kofi0810	N	7.529420	W	2.175160	N	7	31	45.91	W	2	10	30.58	
Kofi0811	N	7.529110	W	2.175310	N	7	31	44.80	W	2	10	31.12	
Kofi0813	N	7.528890	W	2.174920	N	7	31	44.00	W	2	10	29.71	
Kofi0814	N	7.529520	W	2.176170	N	7	31	46.27	W	2	10	34.21	

Location Map on Green Belt activity for 2008 Adantia (300m X 40m)







Adan0801	N	7.399583	W	2.248917	N	7	23	58.50	W	2	14	56.10
Adan0802	N	7.399472	W	2.248611	N	7	23	58.10	W	2	14	55.00
Adan0803	N	7.399167	W	2.249056	N	7	23	57.00	W	2	14	56.60
Adan0804	N	7.399028	W	2.248694	N	7	23	56.50	W	2	14	55.30
Adan0805	N	7.398722	W	2.249167	N	7	23	55.40	W	2	14	57.00
Adan0806	N	7.398528	W	2.248833	N	7	23	54.70	W	2	14	55.80
Adan0807	N	7.398250	W	2.249250	N	7	23	53.70	W	2	14	57.30
Adan0808	N	7.398167	W	2.248917	N	7	23	53.40	W	2	14	56.10
Adan0810	N	7.397694	W	2.249056	N	7	23	51.70	W	2	14	56.60
Adan0812	N	7.397306	W	2.249028	N	7	23	50.30	W	2	14	56.50
Adan0813	N	7.396972	W	2.249556	N	7	23	49.10	W	2	14	58.40
Adan0814	N	7.396889	W	2.249194	N	7	23	48.80	W	2	14	57.10

The location map shall consist of following factors

a. Location of GB area (mentioned the nearest pillar no.)
b. GB shape and survey points shown on large scale
c. Latitude and longitude of each surveyed points by GPS

Boundary of the GB shall be maintained using big tree, rock or mined pillars. The records of GPS reading points are important if the pillars or trees are removed for FSD to identify the boundary again. Therefore, map above shall be attached to MOU and kept for long time to avoid any conflict.

GB group members joined land survey and assisted clearing the survey line

Step 3: Discuss the group **inner rule** for collaboration

Inner rule is the base to keep collaboration and unity. The GB is expected to be maintained for long time, which leads to continuous benefit/fruit to the GB group. The concept of the process for formulating the inner rule is shown in the below.

Discuss and draft inner rule:

a. Right and Duty
b. Work and benefit sharing
c. Record keeping that who attended the collaboration works
d. Cases dismissal from membership and addition for new member into
e. Other matters

The agreed inner rule shall be attached to MOU.

Samples for Inner rules

Sample (1)

INNER RULES AND BENEFIT SHARING
OF GREENBELT ESTABLISHMENT
(Name of community)

ARTICLE I: name of group
The name of the group shall be called (Name of the group) community greenbelt establishment.

ARTICLE II: membership
Membership of the group shall consist of male and female individual who are living in and around (name of area) and are interested in the protection and sustainable management of (name of forest reserve) forest reserve.

ARTICLE III: objective
a. The main objective of the group is to foster a partnership with FSD for sustainable management of the forest reserve
b. To foster a good relationship between and among group members who are undertaking the project and other neighbors.
c. To help reduce poverty of group members by soliciting assistance from benevolent organizations and to liaise with development agencies such as district assemblies, NGOs to seek assistance for our members.
d. To assist each other in some occasions e.g. funeral, farming work, marriage etc.

ARTICLE IV: executive members
The executive members shall be composed of chairman, secretary, treasurer, porter. These members shall see the effective organization management.

ARTICLE V: tenure of office of executive members
Elections shall be conducted every four years to elect new members who shall steer affairs of the group. Old executive members can seek his/her successor if members wish.

ARTICLE VI:
Sundays have been set aside as a working days for the group. The group would meet on every Sunday to inspect and work in the GB area.

ARTICLE VII: admission of new members

Community member who wishes to be a member of the group would have to apply and if it is agreed by two-thirds of group members then 10GHc would be paid by the new participant to the group.

ARTICLE VIII: benefit sharing

Benefits shall be shared equally among members irrespective of sex, color, tribe, age etc.

ARTICLE IX: penalty for members who do not attend work

Any member who shall intentionally refuses to attend group work will be liable to pay 3GHc. This shall exclude those who shall travel out of the community and those who might genuinely have excuse such as illness, bereavement.

ARTICLE X: expulsion of members

Any member who intentionally refuses to attend work for four conservation times without permission and refuses to pay the penalty that is due him/her shall be expelled from the GB group and all his/her entitlements shall be forfeited.

Name of Executive Members

Chairman
Vice-Chairman
Secretary
Treasurer
Porter

Sample (2)

INNER RULE FOR (community name)

Every member in the group can speak without fears and the group members also must come together in all activities

Benefit Sharing

The group members share everything that comes out from the work equally.

Records Keeping and Monitoring

The secretary must write whatever happens in the group details.

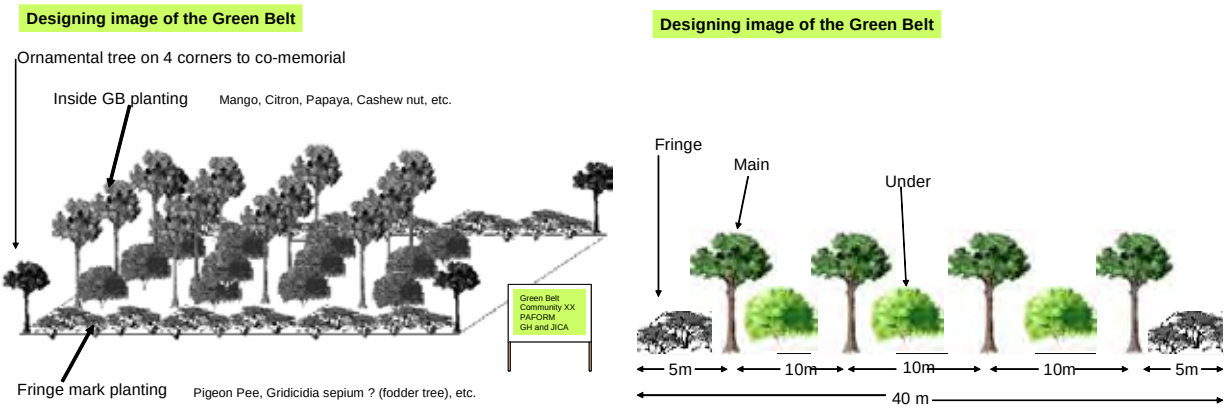
Dismissal from Membership

If member fails to attend the work, he/she will pay a fine of 2.5 GHc
If member fails to attend work for four days and did not pay the fine, she/he will be dismissed.
If member steal anything from the work side and he/she also will be dismissed.
When anybody is caught fighting in the work side, he/she also will be dismissed

Name of Executive Members

1. Chairman, 2. Vice Chairman, 3. Secretary, 4. Organizer, 5. Treasurer

Step 4: Discuss the Green Belt **Design**



a. GB group shall decide species for GB establishment.

b. Corner tree as the permanent land mark showing “This is GB belongs to the GB group” should be planted.

c. Surplus sub species for efficient land use.

d. Any other ideas for efficient land use.

In PAFORM, Mango tree at 10m x 10m space, in case of Citrus at 6m x 6m were introduced. Mix planting of Mango and Citrus was advised. Further, fast growing leguminous species such as pigeon pea, *Gridicidia sepium* for boundary identification and nitrogen fixing species was also advised to be planted on both sides of the GB.

In case of PAFORM, the GB group chose their preferable tree species. Kobedi and Forkuokrom selected Mango and rest of the pilot communities selected Citrus. All GB group planted pineapples between fruit trees to get short-term benefit and efficient use of the land.

Step 5: Prepare annual action plan /right and duty for the Group

It is needed to discuss the detail actions to be implemented for GB establishment and recognize responsibility by GB group.

The GB group is expected to hold meetings for formulating the action plan for strengthening collaborative works. The real activities for fruit tree planting are land preparation (remove grass), pegging, digging planting holes, bringing seedlings into the site, planting the seedlings, brushing after planting, and other matters for maintenance.

The sample of this action plan are shown next.

Sample of the working plan (Kobedi GB Group Action Plan)

Major Activity	Schedule	Target / Indicator	Responsible Person(s)	Who need to participate	Material / Tools (provided by whom)	Remarks / Issues
Demarcation	15 May 2007	1.2 ha of land demarcated	Odikro	Half of the members of the group	Cutlasses and tape by community	
Selection of leaders	27 June 2007	Chairman / vice, secretary / vice, treasurer and PM	Odikro	Majority of the members of the group	Book and pen by community	
Cutting of pegs	3 July 2007	200 pegs	Executives	Any members of the group according to the inner rules	Cutlasses by community	
Pegging	10 July 2007	1.2 ha of land pegged	Executives / technical men	Any members of the group according to the inner rules	Cutlasses by community	
Planting of seedlings	10 July 2007	1.2 ha of land planted	Executives	At least 10 members of the group	Measuring tape and tape by PAFORM, cutlasses and Wellington boots by community	
Drafting of inner rules	10 July 2007	Inner rules drafted	Odikro	At least 20 members of the group present	Book and pen by community	
Tending	Twice in every month depending on growth	1.2 ha weeded	Executives	At least 10 members of the group	Cutlasses and Wellington boots by community	
Beating up	24 July 2007	Any number need replaced	Executives	At least 10 members of the group	Cutlasses and Wellington boots by community	
Construction of fire ride	30 October 2007	1.2 ha of land weeded ground	Executives	At least 10 members of the group	Cutlasses and Wellington boots by community	
Constant inspection till maturing	Once every week	1.2 ha to be inspected	Project Manager (PM)	At least 10 members of the group	Cutlasses by community	

Following is a sample for general action planning:

Sample of Action Plan for WG 2

Name of community ( )	Responsibility			Implementing schedule											Remarks
Action	CF	WG PAFORM	CBWG	5	6	7	8	9	10	11	12	1	2	3	
CBWG establish															
Community meeting															
Selection of Leader															
Record of Participants															
Action Plan making															
Observation of boundary area with CBWG															
Selection of Starting point															
Land demarcation															
Mining corner post (Wood pegs)															
Marking boundary posts															
Fruit tree planting plan															
Planting design making with CBWG															
Calculation for needed seedlings															
Purchasing plan for seedlings															
Working agreement															
Draft MOU between DFO and CBWG															
Setting Notice boards															
Land preparation															
Cleaning boundary line															
Grass removing															
Digging planting holes															
Plant seedlings															
Fertilizer															
Watering															
Tending the planted seedlings															
Weeding															
Farm crops cultivation															
allocate land use for participated farmer															
crop cultivation plan by each allocated farmer															

Step 6: Exchange MOU between the group and DFO

MOU is the base for sustainable use of the GB. It will assure GB group's right for long time, and at the same time it is evidence that the GB group will achieve their duty for maintaining the GB and protection of the FR. The draft of MOU was discussed among PAFORM taking into account the results of the GB group meetings.

Formulation processes are follows:

a. DFO shall prepare draft MOU for discussion.

b. Get the approval from authorities concerned such as traditional council.

c. Signers of MOU are:

Leader of GB group on GB
Manager of DFO
Witness
Community representative
Community forestry committee representative

d. Attachments are:

(a) Location map

(b) Name list of the participants (Member of GB group)

(c) Inner rule for collaboration works and sharing and etc.

(d) Other matters that parties requested

Sample of the MOU (Exclusively attachments)

MEMORANDUM OF UNDERSTANDING
On
Multipurpose GB Establishment and It's Maintenance
on
Tain I Forest Reserve
Between
Sunyani District Forest Office Forest Services Division and Fringe Community
Under the FSD/JICA Technical Cooperation Project PAFORM

FSD/JICA technical Cooperation Project "Participatory Forest Resource Management Project in the Transitional Zone of Ghana" (herein referred to as "PAFORM") conducted a series of community meetings towards the formulation of Tain1 Forest Reserve Management Plan. During these meeting, FSD, and community members reached mutual agreement to collaborate in Forest Reserve (FR) protection, bush fir prevention, and both agreed GB establishment which will be managed and maintained by the community members.

Under this agreement; Sunyani District Forest Office, Forest Service Division herein referred to as "FSD Sunyani" and Fringe Community Working Group for GB__(Name of Community)__ herein referred to as "GB group" shall have the following responsibilities and right under the GB establishment and maintenance.:

1.0 RESPONSIBILITIES OF THE FSD Sunyani

1.1 FSD Sunyani shall provide a parcel of land covering 1.2ha of the FR for year 2007.

1.2 FSD Sunyani shall be responsible for demarcation of the site.

1.3 FSD Sunyani shall provide seedlings of the community's choice with respect to Grafted Mango and Citrus at no cost to the GB group.

1.4 FSD Sunyani collaborate with MOFA shall provide technical advice for the planting of the seedlings.

2.0 RESPONSIBILITY OF THE GB group

2.1 The choice of site shall be done by the Community.

2.2 The choice of tree species shall be done by the Community.

2.3 Clearing of the site shall be done by the Community.

2.4 The peg preparation and pegging shall be done by the Community.

2.5 The planting of the species shall be the responsibility of the Community.

2.6 Seedlings management shall be done by the Community.

2.7 GB protection and prevention natural forest from bush fire and illegal activities shall be the responsibility of the community.

3. OWNERSHIP OF THE FRUIT TREES

The ownership of the fruit trees shall be vested in the community members who participated actively and are registered members of the program with the project having no share or monies that shall be accrued from the sale of the fruits.

4 . Inner rules for GB group members

GB group members shall discuss inner rules for ensuring group membership and collaborative work, cost and benefit sharing, and duties of the members. FSD shall endorse the inner rule as attachment-1

5. Location of the GB

Location of GB is shown on the map as attachement-2

6 Membership of the GB group

GB group members are shown on attachment-3

Attachments

(a) Location map
(b) Name list of the participants (Member of GB group)
(c) Inner rule for collaboration works, benefit sharing and etc.
(d) Any other matters

Step 7: Plant fruit trees on GB

GB group:

- Assist for land survey including boundary setting.
- Land preparation (Cutting grass, digging hole for seedlings).
- Plant trees.
- Weeding, fertilizing, etc for maintenance.
- Other works such as record keeping.

FSD:

- Conduct land survey for boundary setting, and setup the boundary pegs.
- Prepare map for defining the GB land assigned to GB group.
- Provide seedlings.
- Set up notice boards.
- Technical training (s), if necessary.

Planting hole digging in Asuofri GB

Step 8: Maintenance of planted fruit trees

Maintenance works fully belong to GB group members

The necessary activities are:

(1) Weeding: at least 2 times per year at the beginning of rainy seasons (Late June and early October) until the planted fruit trees exceeded by 2 meters in height(averaged grass height, Generally at least 2 years after planted).

(2) Grass clearance on the GB boundary for fire prevention (December to January).

(3) Patrolling the FR boundary to maintain the boundary pillars.

(4) Report the growing conditions of the planted fruit trees to FSD staff (range / plantation supervisor) occasionally.

2.3 Implementation: Income Generation Activities (IGA)

Contents of IGA Guideline

- **I Guiding Principles and Strategy**
- **II Design & Implementation Process**

I. GUIDING PRINCIPLES AND STRATEGY

1) Why IGA for Forest Reserve Management? – Approach of "Participation of Administration"

Let us start asking ourselves: why IGA for the forest reserve management? Common understanding could be:

> "Target community can get alternative income sources so that they would be diverted from illegal logging of the trees",
>
> "Target community can get alternative income sources by the time the teak trees in the FR are matured to sell", and
>
> "FSD can cultivate closer relationship with the community through the IGA facilitated by FSD".

As mentioned in the PAFORM Approach, these understandings have been conceptualized as the participatory approach of "Participation of Administration". FSD, as its attitude, participates in the development of the community on their own initiative, thereby contributing to the community development. "Participation of Administration (FSD)" in the activities of the community is the direction to design and implement IGA.

This approach would bring about amicable relationship between FSD and community so that the significance of forest reserve management and effort of FSD towards it could be well appreciated by the community. Also contribution to improving the living standards of the community would divert the people to engage in illegal logging, so that eventually the FR is indirectly protected in the long run.

2) Who will be the target of the IGA?

The target of IGA should be the whole community since the objectives are to develop good relationship between FSD and community and to divert the people from engaging illegal or destructive activities in the FR. There could also be a strategy to target some particular groups in a community as an entry point to reach the whole community step by step, but the basis of the target is the whole community.

Box 1: IGA Targeting

In PAFORM the working group discussed whether the Greenbelt (GB) group could be an entry point for IGA. GB activity is planned to implement every year as the regular work of FSD, so that every year new community members get the portion of the land for fruit tree planting. Therefore, it is assumed that GB activity would eventually cover the whole fringe communities around the forest reserves in the future. IGA could target each and every GB group when they are formed so that IGA could also cover the whole community in the end (a remark is that if the place of IGA is limited to GB area, the component would be restrained with the ones more directly contributing to forest management e.g. fruit tree planting)

On the other hand, if GB members became the target of IGA, the FSD would have to prepare inputs of both GB and IGA for the same community members. This means that cost to implement GB, if IGA is combined, becomes higher than implementing GB alone. The heavier burden might even restrain the extension of GB activity. The working group, hence, reached consensus that the project would not take GB group as the entry point for IGA and IGA should be implemented independently.

3) Guiding Principles of IGA Designing & Implementation

IGA in PAFORM Approach is defined as: "Participation of Administration", i.e. "FSD will participate in community's livelihood". IGA is a mean for community to increase their income. FSD is to support such activities for the community to realize their aim and as a result expects the indirect impacts to the forest reserve management. The approach is defined but it may be difficult to practice it. To practice the approach, following guiding principles are introduced.

Guiding Principles to Practice "Participation of Administration"

a) Shift the initiative of activities from FSD to community, though FSD may take initiative at the beginning.

b) Minimize the provision of inputs (minimize the control of activities by FSD, i.e. avoid creating the dependency on FSD)

c) Consider public equity of opportunity (try to make an environment that the community members can choose activities instead that FSD chooses the community members to be benefited.

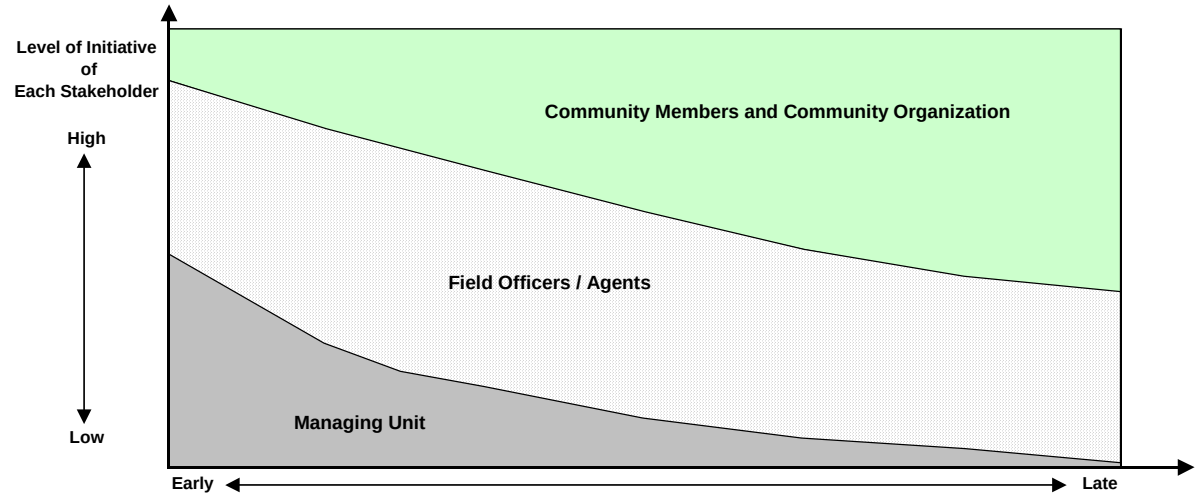
a) Shift the initiative of activities from FSD to Community

Basically IGA are the activities of community members either by groups or individuals. Government administration is to deliver services to assist their activities, i.e. the issue is how the government administration can participate in the initiative of the people. From the above viewpoint, the IGA of PAFROM Approach tries not to take much initiative like group formation facilitation, and use the limited resources as effectively as possible to support the community's activities in their initiative.

The meaning of "Participation of Administration" is that the government administration will assist in the activities, of which the community has already had the ownership. However, in practical situations, there are so often the cases that the government administration takes initiative for the

activities with the community at the beginning stage. In such cases, the initiative must be gradually shifted from the government side to the community side. The initiative of the activities should be shifted from the management unit to the field staff who are closely working with the community, and eventually to the community. Otherwise, the activities should lose sustainability.

The position of the government in assisting community's own activities is totally different from the one in requesting the community to participate in the activity of the government. If the administration chooses a project by their own values, or takes input and resource oriented approach, which leads to dependency, it is impossible for the people to take ownership on their own initiative. Therefore, it is necessary for the administration to participate to the people, not to involve people to the project; to plan and design the project in their shoes; and to try to follow the decision made by the people.



Stage	Analysis	Strategy	Program / Plan	Project Design	Implementation Participatory M&E	Evaluation
Examples of Major Decision Making		Agriculture, Livestock or health?	Irrigation, Transportation or Marketing?	What, Where, When and How?	Learning and Action	Lessons Learned and Recommendations

Shifting Initiative from Managing Unit to Field Officers and Community Members

b) Try to minimize input provision

The bigger the inputs from FSD are, the more difficult the FSD surrenders its control in the activities. To avoid this situation and maintain the initiative of community, minimization of inputs from FSD would be an alternative, e.g. only providing technical trainings, or networking resources and community.

However, in case of introducing something new to the community, it is assumed that the effectiveness of the extension by only technical training might be low. To cope with the issue, establishment of demonstration farms can be an approach to display the new items to the community. Further assistance, e.g. to provide trial inputs with little amount, would be considered subject to due attention to the risk of raising community's dependency on FSD.

IGA vary from improvement of existing activities which the community has their own capital (e.g. maize farming, small ruminant etc.) to introduction of relatively new ones for the community, which require some investment. Following are the categorization of IGA according to the degree of inputs.

(A) Activities for which farmers already have their capital, knowledge and skill (maize crop, small ruminant, poultry, etc.): inputs are basically on-farm trainings to improve the skill of farmers

(B) Activities that are relatively new to farmers and the required inputs are small enough for farmers to invest by themselves (soybean crop, groundnut crop, tigernut crop, etc.): in addition to on-farm trainings, establishment of demonstration farm and provision of little inputs like seeds to farmers as trial will be carried out.

(C) Activities that are relatively new to farmers and require relatively high capital (beekeeping, snail, mushroom, etc.): confirm the interest of farmers through on-farm training and assist in input provision. These are more difficult contents to establish as business of the community compared to A and B.

c) Consider Public Equity of Opportunity

When opportunity is equally given to the community members, they could use their own judgment whether they pursue further the opportunity. Third guiding principle is hence to make an environment that the community members can choose activities instead that the project chooses the community members to be benefited.

Activity like providing technical training at the village could be well in line with this guiding principle. As for provision of inputs, maintaining public equity will become more difficult. Among the inputs to be considered for provision by FSD, seeds can have an advantage to maintain public equity of opportunity. Seeds can be divided into many pieces according to the number of the community members and also the capacity that the project can provide. If a community consists of 50 members and available seeds are 1kg, they can be divided into 20g for each member.

As for the inputs relatively expensive cannot follow the case of seeds, e.g. a beehive cannot be divided into pieces, and the project would not be able to afford to provide 50 beehives to the community. To extend the benefit of the input provision for whole community in such case, a system that the community will benefit from the output of the investment could be considered, since it would not be avoidable that the input falls in a small number of custodians. For example, if the project assisted the provision of honey extractor, the custodian of the extractor would give services to the community to extract their harvest. If the relationship like custodian – processor and community – raw material provider was established, the input provision could cover the wider population in the community.

Box 2: Sharing Provision

Other example of sharing input is that the custodian takes care of improved buck or poultry, and the community members can bring their animals to mate with the buck or bring ordinary egg and exchange it to the egg of improved species. In Forkuokrom, 4 improved bucks out of 5, which the project provided in Phase 1 has been still alive and serving the community for mating, although the buck has actually belonged to the custodian as his property.

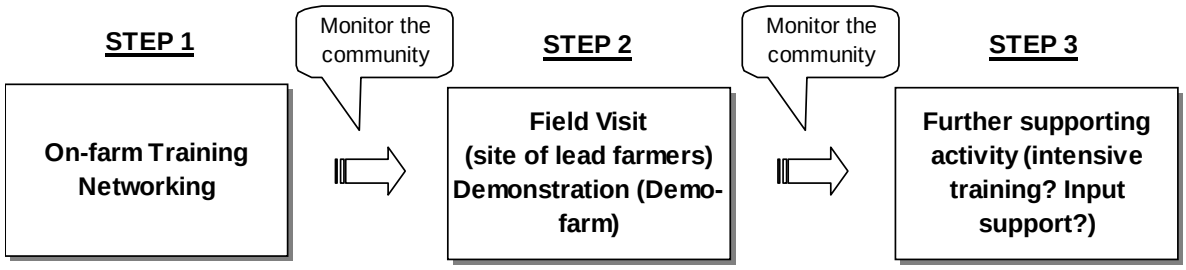
Seeds can be equally distributed to each community member according to the available amount.
It is easy for farmers to re-invest and also easy to maintain public equity (opportunity for all).

Snail pen cannot be divided into pieces, but project cannot provide hundreds of snail pens for individuals. Project needs to find committed people. Community side may form a group according to common interest.

4) Strategy to go along with the approach, "Participation of Administration"

Based on the above guiding principles, IGA in PAFORM takes Step-by-Step strategy (start with small inputs, provide opportunity for all). IGA in PAFORM takes an approach to consider the input provision step-by-step to maintain public equity of opportunity, namely to start with little inputs (opportunity for all) and see the impact of the community, then consider further inputs (through this process, transparency and democracy of input provision could be ensured)[1].

IGA in PAFORM sets the basic framework as On-farm training as the onset activity and move onto field visit and or demonstration, then decide further input provision according to the situation of the community. Networking between community and external opportunities is also implemented. On-farm training is a short-hour explanation of essence of the IGA contents in the village, so that anyone in the community can easily come and learn there. Further inputs will be considered regarding public equity, and shift of initiative from project to community.



Basic Strategy of IGA in PAFORM: Step-by-step Implementation

[1] This approach is referred to PRODEFI Model. This model is an extension model developed by JICA Technical Cooperation Project in Senegal, "Projet Communautaire de Developpement Forestier Integre".

Box-3: Each Category in PAFORM Project:

Category A: Improving Existing IGA (Community already has capital, knowledge and skill)

Maize production is the major income source of the community and its improvement (especially soil fertility management) seems the most interest of the farmers according to the needs assessment. For farming, the farmers in the community have already had capital, knowledge and skill. Therefore, farming technology improvement would only require technical assistance. This field was easy for the project to participate in the activity of the community. Basic intervention was establishment of demonstration farms and on-farm trainings.

Category B: Relatively New Component (Capital is little enough so that farmers can invest within their capacity and the knowledge and skill are simple)

In case of introducing the community to new activities, it may require initial capital to start the activity. Whether the amount of required input is within the capacity of a farmer to invest by his or her own or not is a criterion to consider the approaches of extension to adopt. If the additional capital is little, the project could cover wider range of the population. There is also an approach to provide inputs only for demonstration farms and conduct on-farm trainings, since other farmers can easily invest themselves if the additional capital is little. In this case, the disparity between the owner of the demonstration farm and other farmers should be taken into consideration.

Provision of inputs only for trial basis could also be considered and in this case public equity for the input provision has to be taken into account. The trial input has to be little enough for farmers, so that they can make own decision for re-investment.

Example of this category was crop soybean promotion in PAFORM. MOFA has been recommending soybean crop in Brong Afaho Region. Soybean is also useful for soil fertility management so that inter cropping soybean with maize can meet the needs of farmers in the community who are very much concerned with land degradation. Soybean seeds are cheaper than herbicide, which farmers usually use. Also the merit of seeds is that farmer can decide the amount of investment according to their capacity, so that most of the farmers can try. For FSD side also, seeds can be divided into ay numbers according to the size of the community. This is a merit of seeds as input.

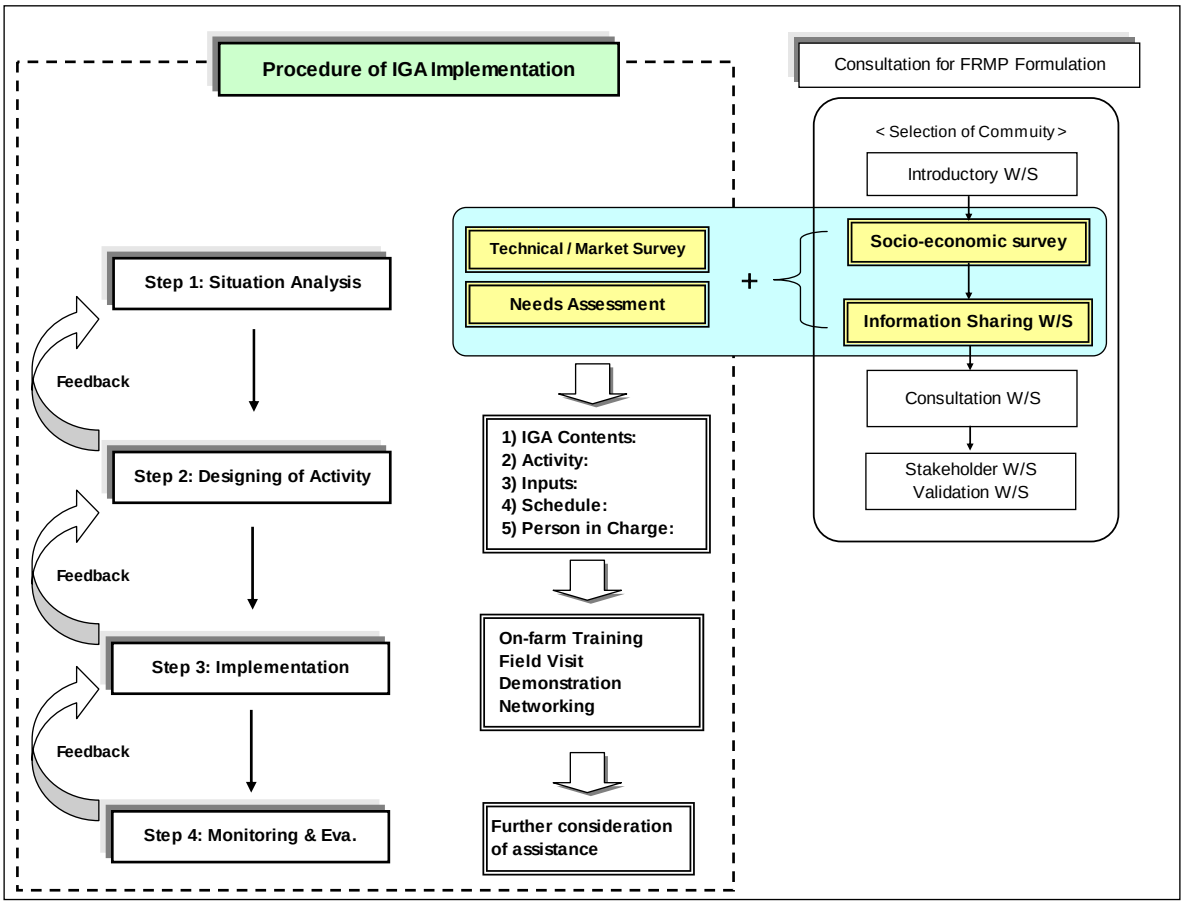
Category C: Relatively New Component (Capital is large (farmers cannot easily invest) and/or the knowledge and skill are complicated)

It will be a difficult challenge to introducing new activities, which require considerable capital so that farmers cannot easily follow by themselves. If the project decided to provide the capital (inputs e.g. equipment), it would bring the occasion to form a group or the provision of the inputs would fall into a small number of community custodians. For example, provision of equipment like honey extractor, or improved buck would be this category.

The inputs to be provided from external agency in this case most likely to give benefit to the custodians or to the small number of the population in the community only because the degree of investment would not allow other people to follow the same activity. In case of requiring large-scale investment, such risk should be considered. A way is to start with small inputs, namely on-farm training and progress step-by-step. Then if there are people who are really interested and committed in the activity, we could consider the provision of inputs. Through step-by-step action according to the situation of the community, transparency of the process is expected to be high among the community members and therefore, provision of inputs to the small number of people would be justified and the risk of jealousy from other community members would be less. PAFORM provided the communities with materials for soap making, snail rearing, and beekeeping for demonstration and then later provided additional inputs to the groups formed by the communities.

II. Design & Implementation Process

Designing and Implementing IGA will be conducted with four steps: 1) situation analysis, 2) designing, 3) implementation, and 4) monitoring & evaluation (M&E). All the steps will get feedback from each forward step. If we find any problems through the M&E, we can firstly modify the way of implementation. If the issues are still there, we can get back to the designing stage to reconsider the validity of the IGA design, and if the issues still arise, we could re-examine our situation analysis. Process is not one way but needs all the time feedback from the actual exercise. Figure below shows the process of IGA. We can utilize the analyses conducted through the consultation process of FRMP formulation, namely Socio-economic Survey and Information Sharing Workshop.



Process of IGA Implementation

Step 1: Situation Analysis

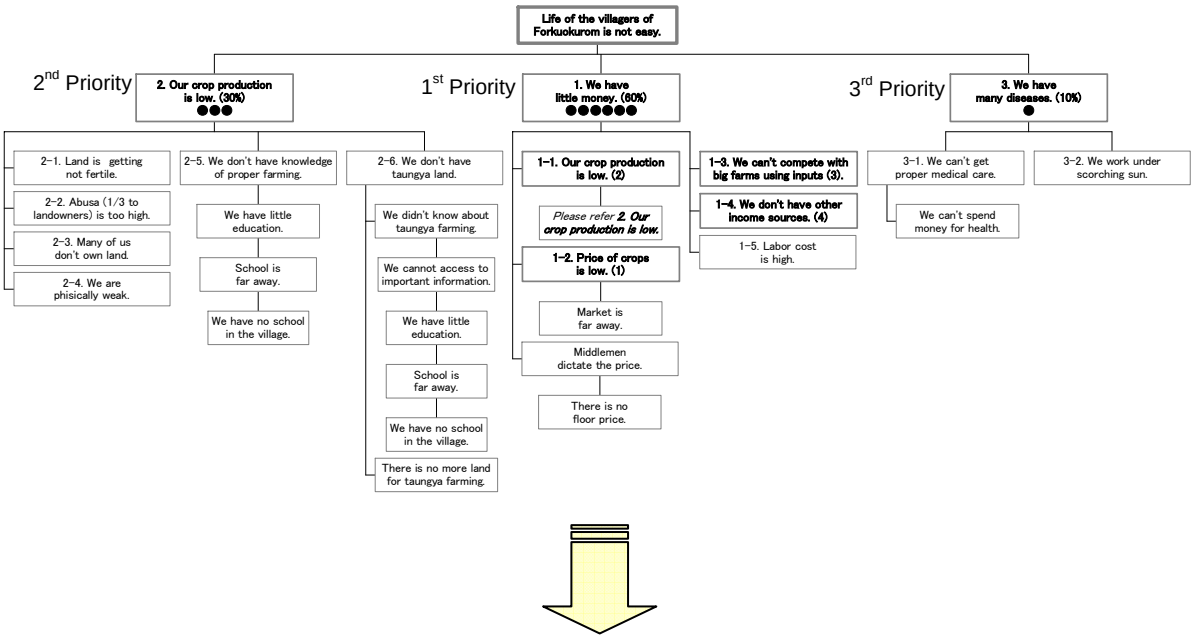
1) Socio-economic Survey

Socio-economic survey to be carried out during the consultation process of FRMP can be utilized for the situation analysis of IGA. Additional explanation on the socio-economic survey is found at Section 2.1. From this survey, basic data about the target community will be obtained such as population, number of households, ethnic groups, major livelihood, land tenure, basic infrastructure, water & sanitation status, education & health status etc. We can picture the feature of the community from this survey.

Basic data to be obtained from Socio-economic survey	• Population (number of households) • Ethnic groups (migrants / endogenous) • Major livelihood (income sources, major crops) • Basic infrastructure (water, sanitation, road, school etc.) • Education status • Health status, and • Others (internal conflicts etc.)

2) Information Sharing Workshop

Information sharing workshop (ISWS) is the venue to see the issues of the community regardless the forest reserve management. We can utilize the information of the ISWS to know the community needs in priority. Following shows the sample of analyzing problem tree developed during the ISWS at the consultation process for FRMP formulation. Detail explanation on ISWS will be found at Section 2.1



Community	IGA related issues from Problem Analysis	Measures
Forkuokrom	Crop production is low (Land is degraded, No knowledge of proper farming)	Land management & farming skill improvement
	Price of crops is low (Market is far, Middlemen dictate price)	Marketing (bring traders into their area, cooperative marketing)
	We can't compete with big farmers	Association (cooperative procurement, production, and marketing)
	We don't have other income sources	New products promotion

Analysis of Problem Tree Built at the Information Sharing Workshop

3) Community Needs Assessment

For designing of IGA, we may need to collect more detail information about the livelihood and issues of the community. Especially, ISWS does not cover only income but also health, education, infrastructure etc. From the income generation point of view, we could further investigate the

community. Here we call it “Community Needs Assessment”.

How are we going to conduct community needs assessment? The option would be whether to hold a community meeting or conduct individual interviews. A fear is a risk to raise the expectation of the community for free inputs from FSD if FSD spoke about IGA implementation at the community gathering.

To avoid such risk, individual interviews can be conducted with a semi-structured way, i.e. FSD field staff prepares only a few key points to discuss with the person in the community and from the discussion with the individual of the community we will foresee the possible intervention. If we employed the way of community gathering (workshop), the voice of majority would be more easily heard. On the other hand, individual interviews would enable to hear the voice of minority in the community, as well. Holding the workshop is not always the participatory method. The workshop should be considered as a part of participation process. Following tables show the sample of key questions in the semi-structured interview and the results.

Sample of key questions for Semi-structured Interview

	Issue	Who to ask
1	Evaluation of Other Activities in the Community	• Those who participated in the activities (how was it? What did you learn? What are you doing now? etc.) • Those who did not participate (Did you hear about the activity? Didn’t you want to participate? Did you learn something from the ones who participated? etc.)
2	Existing IG activities / ventures (if they got external support in any form) and Any IGA, which they have in their mind	• Any existing IGA groups • Any individuals in the community, who are known for IGA • Minority / poor (and women if they are considered marginalized) • Other people who know the persons with successful IGA
3	How can they improve farming (maize, vegetables, and other crops) in off-reserve area? < Example: We can ask about the Trend of Yield (if the yield is decreasing, farmers can indicate what are the problems) >	Minority / poor (and women if they are considered marginalized)

IGA Needs Assessment Presentation (result of individual interviews) (July 9, 2007)

Afras I

Issues heard from interviews	Measures
No existing women group No external training took place	
Aspiration of women: Soap making to see in / out of community	Soap making
Land degradation (a farmer used to be 30 bags 10 years ago, but now 4 bags from the same land)	Land management Farming technology improvement Early maturity variety of maize Weed control
Small success of a farmer (goat / sheep rearing) He wishes expansion of goat rearing He also experienced infection of animal diseases	Training for animal rearing Training for animal disease control

Afras II

Issues heard from interviews	Measures
Pig (a woman), goat/ sheep/ poultry (a man) small success but never received training They are interested in improving their animal rearing by housing / wild range & supplemental feed, millet for pigs Their goats and hens were killed by diseases	Livestock rearing improvement (housing, etc.) Animal disease control
Farmers (youth and their father): they are subsistent farmers with maize and cassava + labor They see low soil fertility, small farms, and little rainfall	Farming skill
Group discussion: low yield of maize, old farming technology, cannot expand farmland.	

Kwatire

Issues heard from interviews	Measures
Those who joined grasscutter rearing in previous PAFORM activity 6 out of 13 trained received grasscutter breeds and they are still keeping grasscutter (they do not share benefit with others)	
Small ruminant group by previous PAFORM (community animal health workers) They are still continuing their activity but due to improper financial management, they cannot buy enough vaccine	
Farmers say: Low yield of maize due to low soil fertility, middlemen take advantage for marketing	
There is a farmer who is successful with poultry	Introduce new products Land management Marketing improvement
Farmers wish new products, land management, marketing	

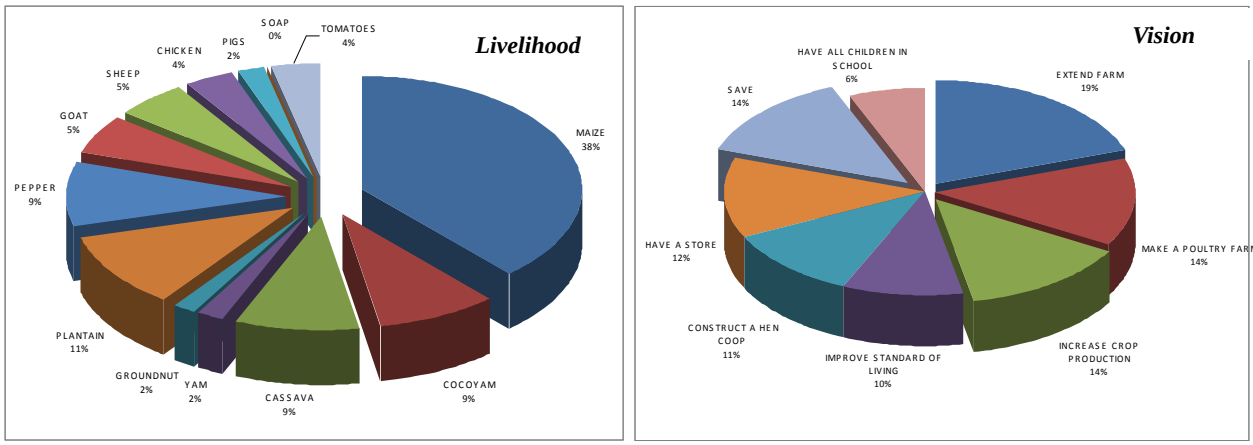
Adantia

Issues heard from interviews	Measures
Existing group: a women group producing mushroom	
Successful people: A man rearing grasscutter (vice chairman of Suryani (BIA?) grasscutter association) A man rearing poultry	
Women (a few number) wishes soap making, pigs, honey, snail	Introduce new products
Farmers want to improve marketing, farming skill, land management, new products	Farming technology Land management

Forkuokrom and Kobedi

Issues heard from interviews	Measures
Farmers say: Maize production is low due to land degradation interested in animal rearing and poultry	Farming technology Land management Animal rearing
(from Problem tree of Information Sharing Workshop) Land management, farming skill, association, new products promotion, processing, storage are raised	Poultry Introduce new products

In PAFORM C/F in charge of Nsemere FR conducted needs assessment on IGA in their responsible communities referring to the process and experience of IGA designing in Tain 1 FR. Upon the needs assessment, C/F designed the semi-structured interview contents, which consist of Livelihood category, Livelihood activities, Sustaining factors, Vision, Planning, and Forms of mobilizing resources. Following figures show the result of ”Livelihood activities” and ”Vision” among those key inquiries.



Sample of Needs Assessment Analysis (Asuofri Community)

4) Technical / Market / Income Analyses

IGA designing should also include technical, market and income analyses. It is recommendable to learn from other agencies. MOFA can provide technical aspects on agriculture. Similar projects to have been implemented around the area will give useful lessons. FSD field staff can also investigate the domestic markets and other large-scale food factories and traders if they have demand of certain crops. As for income analysis, expected income to the cost for each content should be analyzed.

MOFA has been engaged in agriculture development, which is directly connected to IGA in the rural area. For FSD to keep the commitment to IGA with limited resources, collaboration with MOFA will have to be requisite. Following the policy of MOFA will enable FSD to collaborate with MOFA effectively. Therefore, it is important to check MOFA's policy: which crops or agro-products are emphasized in the promotion of MOFA in the target area.

Technical Analysis:
MOFA owns a series of technical manuals on various crops and livestock husbandry. FSD staff should inquire MOFA on these manuals and also get technical advice from MOFA staff. There is also a manual prepared by a Japanese expert attached to FSD from 2001 to 2003 on Agro-forestry such as "Agroforestry in Ghana (2002)", consists of mushroom production, beekeeping etc.

Market Analysis:
Firstly we should go to local markets and investigate what are sold there. We can firstly grasp the demand of the customers. Then we can examine the quality or type of the products sold at the market, so that we could target the products with better quality or variety. For example, we could find a lot of soap sold by local women at the local market, but the most of the soap is low quality round shape type. We could then think about promoting better quality soap making. Also tigernut is a popular nuts for locals but majority of the variety is black type. It is said that white type variety is more tasty and more expensive. Hence we could promote white type tigernut, which can be sold at higher price than black one.

Secondly, we could collect information from MOFA, or other sources such as even news papers whether there are companies or traders who are buying some raw materials which farmers could produce. In PAFORM case, we found a company buying soybean for oil extracting. Collecting information on market opportunities around the community is important.

MOFA district offices are also collecting retail market price of major crops on monthly basis. Data

on price trend will give a motivation for marketing produce in the lean period, which imply post-harvest improvement promotion (storing improvement or processing improvement).

Income Analysis:

When we identify potential products or crops to promote, we should conduct a cost-benefit analysis. On the community based activities, since farmers are mostly to use own labor, it would be difficult to estimate the family labor value. Therefore, it is suggested to estimate the benefit at income basis (if you consider family labor value or any other value of self-supply inputs, you are to estimate the profit of the business). We can inquire MOFA and advanced farmers for basic information on the analysis. Basis for income estimate is:

Net Income = Gross Income (Unit farm-gate price x Yield) – (consumable inputs + depreciation of fixed capital)

Following table shows an example of income analysis on beekeeping. From an advanced farmer, we collected the data. Yield is estimated at 8 liters per beehive per year. Average unit farm-gate price (price at which farmer sells their product) is 4GHc/liter. Supposed to prepare two beehives, the gross income is estimated at 64GHc/year (16 liters x 4GHc). Consumable input is bee wax. Beehives, bee-suits, and smoker are considered as fixed capital. Duration of beehives, bee-suits and smoker are assumed as 10 years, 5 years and 10 years respectively. Then the depreciation cost of each item (cost per year) is calculated dividing the capital cost by duration. As the table shows, total cost is estimated at 40GHc. Hence the net income is calculated at 24GHc. Of course we should promote economically feasible products.

Income Analysis Table (e.g. Beekeeping)

Item	Unit	Amount	U/Price	Price	Remark
Gross Income (Main)	liter/hive	16	4.0	64	
GI (By-rpdocut)					
Total	GHc			64	
Cost (depreciation)					
Beehive (10 years)	1/10	2	7	14	70GHc/hive
Beesuit (5 years)	1/5	2	10	20	50GHc/set
Smoker (10 years)	1/10	1	2	2	20GHc/set
Bee wax		2	2	4	
Total				40	
Net Income				24	38%

In case you like to analyze how long it would take to recover the initial capital (fixed capital), we can apply flow analysis. We can put the cost required for each year and compare to the gross income in each year. Also cumulative income is calculated by year. Fixed capital is to be replaced when the duration expires. In case of beehive, at 11th year, beehive and smoker would have to be renewed. Following table shows the sample of flow analysis. The analysis indicates that it would take four years to recover the initial capital from the sales of honey.

Flow Analysis Table (e.g. Beekeeping)

Beekeeping (In Case of 2 Beehives)

Year	Cost				Benefit	B - C	
	Beehive / smoker	Beesuit	Bee wax	Total		per year	Cumulative
1	160	100	4	264	64	-200	-200
2			4	4	64	60	-140
3			4	4	64	60	-80
4			4	4	64	60	-20
5			4	4	64	60	40
6		100	4	104	64	-40	0
7			4	4	64	60	60
8			4	4	64	60	120
9			4	4	64	60	180
10			4	4	64	60	240
11	160	100	4	264	64	-200	40
12			4	4	64	60	100
13			4	4	64	60	160
14			4	4	64	60	220
15			4	4	64	60	280
16		100	4	104	64	-40	240
17			4	4	64	60	300
18			4	4	64	60	360
19			4	4	64	60	420
20			4	4	64	60	480
Total	320	400	80	800	1,280	480	2,800

Box 4: IGA contents selection

Grasscutter promotion:

The interest in grasscutter rearing was found in three communities. The working group of the project reviewed the past experiences of other projects on grasscutter rearing again. The WG reviewed why GTZ had withdrawn from grasscutter rearing in this region albeit they used to promote it. One of the reasons that GTZ withdrew from grasscutter rearing was the cost. Since the people who hunt grasscutters from forests can sell the grasscutters cheaper than those who rear them. Understanding such situations, WG agreed not to get into grasscutter rearing promotion in this IGA.

Soybean marketing:

The project learned from German program Market-oriented Agriculture Programme (MOAP) about a food processing company near the Project area, which has big demand on soybean. The project visited the office of the company and found that they could buy soybean as much as we supply. Soybean was also one of the crops that MOFA is promoting. To utilize this external market opportunity, the project decided to promote soybean crop to the community. One of the major issues in the community was soil fertility. Intercropping of maize and soybean can contribute to maintaining soil fertility since legume can fix nitrogen in the air. Also soybean promotion is in line with the policy of MOFA, so that collaboration of the two agencies made a synergy effect, as well.

Step 2: Designing of Activity

Designing work would consist of following points:

Designing Points:

1) **Identification and prioritization of IGA contents**
2) **Setting targets with activities (on-farm training, field visit, networking, demonstration)**
3) **Input (Cost) estimate**
4) **Assignment of personnel in charge**
5) **Scheduling**

1) Identification and Prioritization of IGA Contents

Firstly we identify the contents of IGA and secondly prioritize them based on the situation analysis of the target community. Table below shows a sample of identified contents with priority.

Example of IGA Contents and their Priority

	Pepewase	Asuofri	Ahwene	Kofi' krom	Amoakrom	Nyamponase
Maize	1	1	2	2	5	2
Soybean	3	2	5	3	2	2
Tigernut	-	-	-	5	3	2
Groundnut	5	8	-	6	7	9
Small ruminant /. Poultry	8	7	7	7	8	8
Soap making	2	4	3	1	1	1
Snail	7	5	6	8	7	7
Beekeeping	6	3	1	-	6	5
Mushroom	4	6	4	4	4	5

1st: IGA Contents

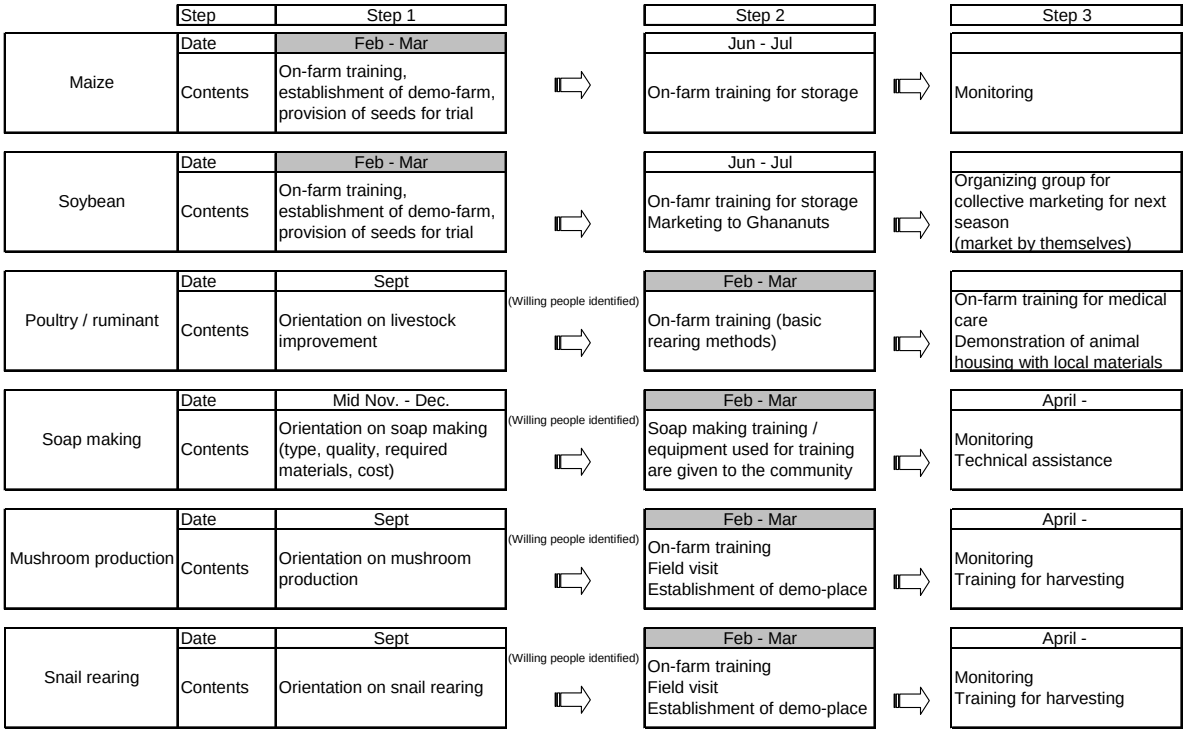
2nd: Priority by Community

2) Setting Targets

The strategy of IGA in PAFORM is to minimize the external inputs to the activities and consider the input provision step-by-step according to the initiative of the community members. However, without assuming the extent of project intervention, it would make it difficult for the project to prioritize the activities. Ideally flexible setting of the project intervention according to the situation, i.e. process-oriented approach would not to decide the extent of input provision at the beginning, but it is sometimes found unrealistic as long as activity starts with preconditioned limit. Therefore, it is better to decide to what extent FSD can do, i.e. to make sure the limit of budget, prior to design the activity. Table and figure below show the sample of target setting by content.

Target of Project Activity for IGA by Content

Topic	Project Activity	
	1st Target	2nd Target
Maize	Crop husbandry, Demo-farm (Introduce line planting and hybrid variety)	Maize storing improvement (already carried out in 4 communities)
Soybean	Crop husbandry, Demo-farm (Introduce new crop)	Seed multiplication, Marketing produce to Food processing company.
Small ruminant / Poultry	Animal husbandry and animal health	Introducing buck in Afras II
Soap making	Soap making technique, provision of training materials	Monitoring and further technical training if necessary
Snail	Animal husbandry, Snail pen construction for demonstration	Monitoring and further technical training if necessary
Beekeeping	Beekeeping method, beehive setting for demonstration	Monitoring and further technical training if necessary



Target Setting: Step-by-step

3) Input (Cost) Estimate

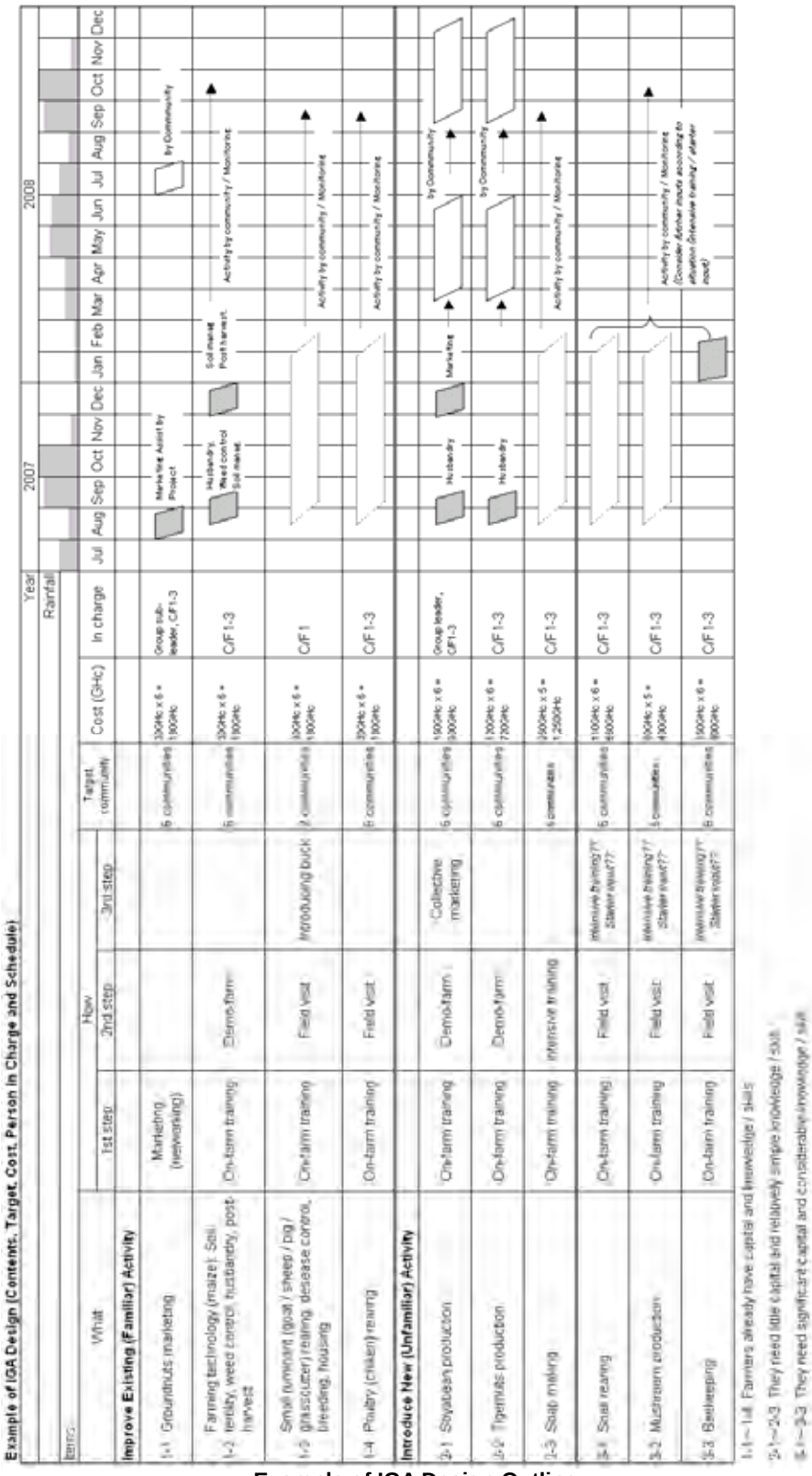
According to the IGA contents identified, number of target community, size of the community, and the available resources (budgets), cost for the activity will be estimated. Target of IGA will also be identified based on the available resources of the project, cost estimation and the finalization of IGA contents and target setting will go together and finally these aspects are harmonized and settled.

4) Assignment of Personnel in Charge

Person in charge should also be assigned upon the commencement of the activity.

5) Scheduling

Scheduling of IGA needs special attention to the climate. Crops are dependent of rainy season while other IGA like livestock improvement, soap making etc. are free from rain. Following table shows a sample of rough scheduling of IGA. Detail scheduling has to be done upon the commencement of the activity.



Example of IGA Design Outline

Step 3: Implementation

Here we explain the activities to be implemented: On-farm training, Field visit, Demonstration, Networking, and Input provision / Intensive training.

1) On-farm Training

On-farm training is designed to carry out a small session of training in the village, so that anybody who is interested can easily attend. Duration of one session will be within 2 hours so that FSD does not need to provide lunch. Through the on-farm training, we could assess the interest of the community members and consider moving to the next step: demonstration, field visit etc. We have to adjust time and venue for the on-farm training for the convenience of the community, so that both women and men can easily to attend, e.g. avoiding market days will encourage women to attend the training and start early morning will not disturb the farmers daily work etc.

On maize crop

2) Field Visit

With those who show high interest in the community, the project can take them to field visit. It is better to take them nearby advanced farmers, so that later they could visit the place again by themselves. The number of the participants for the field visit would be limited subject to the means of transport. In case the candidate is beyond the budget limit, FSD could ask the community to select representatives.

Field visit (Mushroom)

3) Demonstration

For the contents whose interest is felt by the community, we can move to demonstration activity. For crop production, we can establish demonstration farm. FSD will negotiate with community for provision of farmland. Community prepares the land and FSD (in collaboration with MOFA) will show how to plant seeds. FSD may provide seeds. As for non-crop activities such as beekeeping, snail rearing etc., we can establish a demo-site with beehives or snail pen etc. The scale of the demonstration farm and number of beehives, snail pens etc. will depend on how much FSD can provide and also how much the community contribute. The materials to provide in this case are demonstration purpose. But the community would still accrue benefit from them.

Training at the demonstration will be given to the community. To take care of the demonstration farm, beehives, snail pen and so on, community members may form a group based on their common interest. FSD does not take initiative to form a group. Due to limited inputs, which FSD can provide, it is natural that the community members are opt to form a group. As for seed provision, it could be divided into individuals according to the available amount as it has been discussed above,

individual trial of the crop production instead of or in combination with demo-farm can be carried out.

4) Input provision / Intensive Training

After the on-farm Training, an intensive training or input provision (or cost sharing of inputs with the community members) to those who has high interest could be considered. To move into this stage, following points must be taken into account:

- Transparency among the community members must be secured when selecting the members to provide inputs.
- Portion to assist should be clarified from the viewpoint that assisting the portion would not create dependency but increase the sustainability of the activity (This could be a form of assisting community organization, as well).

It is important that the provision of such intensive training or materials / equipment should be transparent among the community members. To maintain the transparency, close communication between FSD and community is necessary. On-farm training is the entry point to get into the process for FSD's assistance.

Box 5: Input Provision / Intensive Training in PAFORM

Beekeeping:

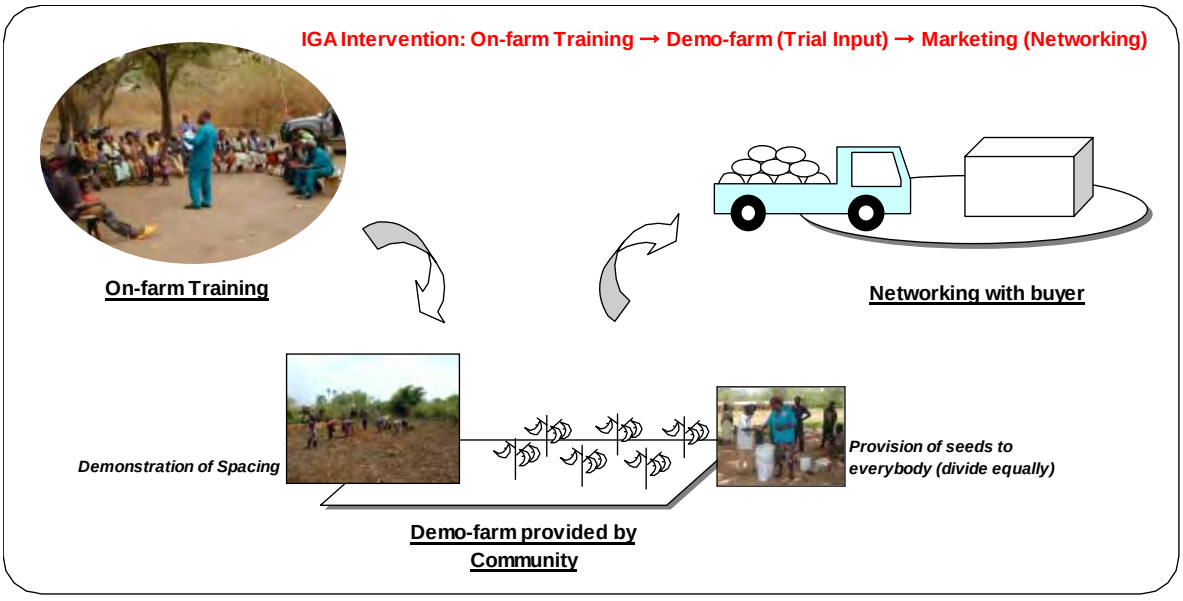
In PAFORM, two beehives (Kenya Top-bar Hive) were provided to each community for demonstration purpose. A community prepared materials to make beehive by themselves and requested the project to conduct training for making beehive. Through the process, it was found that the top-bars of the beehive were difficult to make in the village due to lack of special tools for it. The project judged that providing top-bars would increase the sustainability of beekeeping, hence decided to provide them. It also contributes to saving budget for the Project instead of providing whole set of beehive.

Soap making:

Also soap making training was carried out in a semi-intensive manner after confirming the interest of the community members. Unlike the very intensive training in a classroom, the training was taken place at the village, so that the project did not have to select the trainees to attend. But because the duration of the training was 5 days (morning time only), those who were really interested attended it fully. Ingredient and tools were left to the community as a starter input.

5) Networking

Networking between community and external opportunity can be carried out at any step of the activities. In PAFORM, fortunately we found the opportunity to sell soybean to a nearby food-processing factory. The project contacted the factory and negotiated to sell soybean grown by the target community. The community was able to sell their produce on the demonstration farm and their individual trial (the project distributed the community members a little amount of seeds for trial purpose). For soybean promotion, the project took following step: On-farm training → Demonstration farm and individual trial → Marketing produce to the food-processing factory (networking). Networking activities will be an efficient intervention that FSD can do.



Box 6: Soybean and groundnut marketing to food processing company

In Techiman located around 70km east of Sunyani, there is a food processing company producing soybean oil and other food processed products. They were always in shortage of soybean, hence they have big demand for soybean. PAFORM tried to connect this food processing company with the fringe communities for soybean marketing.

At first the project working group visited the company and discussed demand for the crops, prices, mean of transport etc. with the purchasing manager. Following the timing of harvesting soybean grown in the communities in demo-farms and individual farms, dates for price negotiation and shipping were scheduled. On the date of negotiation, community representatives and the company staff met at the PAFORM office. Two communities brought their produce and the company brought their truck to ship the produce. The company manager weighed the bags of soybean and immediately paid in cash to the community representatives. Community representatives whose community could not harvest enough amount were also invited to witness this trading. They were so enthusiastic to witness the trading. Through this exercise, relationship between community and the company was established. It is therefore expected that community will be able to deal with the company for next crop season.

Step 4: Monitoring & Evaluation (M&E)

Daily monitoring of the activities is essential to practice step-by step strategy. The daily monitoring enables to decide what to do next in each particular community.

To follow-up the outcome and impact of the activities and get lessons, periodical monitoring and evaluation is also required. This M&E can be conducted from the following viewpoint:

- Outcome: to survey those who participated in the trainings (based on the attendance lists of the on-farm trainings, follow up their activities)
- Impact: to survey those who did not participate in the trainings (if those who did not attend the trainings have acquired the knowledge from those who attended and utilized in their activities.

CHPATER 3 RECOMMENDATIONS FOR EXTENSION OF PAFORM APPROACH

This chapter presents technical recommendations for extending PAFORM Approach as participatory approaches for forest reserve management into other forest reserves in the transitional zone. The recommendations are based on the lessons learned from the implementation of PAFORM Project. Following are the topics of the recommendations:

1) Cost Analysis for Extending PAFORM Approach into Other FR

This section discuss the target FR to apply PAFORM Approach and appropriate level of inputs to implement the PAFORM Approach in each FR and required cost. This section provides a basic data and settings for the Action Plan formulated in the Exit Strategy. The activities and cost analyzed in this section refers to the implementation in the FR under Sunyani Forest District, which covers the overall goal of PAFORM and does not include the activities and cost of the Core Team of the Exit Strategy.

2) Collaboration with Other Organizations

Considering the capacity of FSD, some activities like IGA cannot be well implemented without collaborating with other organizations. This section describes the potential collaborators for practicing the PAFORM Approach for the forest reserve management.

3) Recommendations on Green Belt (GB) Implementation

This section summarizes lessons learned from the implementation of GB throughout the project period.

4) Recommendations on Income Generation Activities (IGA) Implementation

This section summarizes lessons learned from the implementation of IGA throughout the project period and also demonstrates the economic analysis of IGA contents to derive risks to threaten the economic feasibility of IGA.

5) Gender Consideration

This section summarizes gender aspects to be considered to implement the PAFORM Approach. These gender aspects are the lessons learned from the implementation of consultation, GB and IGA.

6) Recommendations on Forest Reserve Management Plan Formulation

This section discusses technical issues on identifying present situation of the FR in relation to MoP modification. It has been found that difficulty to follow MoP has been rooted to the difficulties to identify present situation of the FR such as the exact boundary, classified planted area, etc. PAFORM is to improve participatory approaches for forest reserve management, but the participatory approach cannot be well applied unless the venue of the people's interaction is defined well, namely the clear picture of the FR (where is the boundary, where is the MTS area, and so on). To well identify the venue of the people's interaction, technical promotion such as utilization of GPS and GIS is proposed in this section and comments on MoP in relation to the core issue are made.

3.1 Cost Analysis for Extending PAFORM Approach into Other FR

3.1.1 Overall Goal and Super Goal of PAFORM

PAFORM has been implemented with the project purpose of "participatory approaches for sustainable management of the forest reserves in the Transitional Zone are improved through pilot activities in Sunyani Forest District". The project purpose is going to achieve by the termination of the project as we have summarized the improved participatory approaches for forest reserve management as PAFORM Approach and the pilot activities have improved the relationship between FSD and the fringe communities. In this section proposes the timeline and cost for extending PAFORM Approach to the other forest reserves.

After the project, the activities should be directed toward achieving the overall goal of the project and then aimed at the super goal of the project. Overall and Super Goals of the project are:

Overall Goal: Improved participatory approaches for sustainable Forest Reserve Management are adopted in Sunyani Forest District

Super Goal: Forest Reserves in the Transitional Zone are sustainably managed for the best of all segments of society

The targets of Forest Reserves for those goals are identified as following map and table:

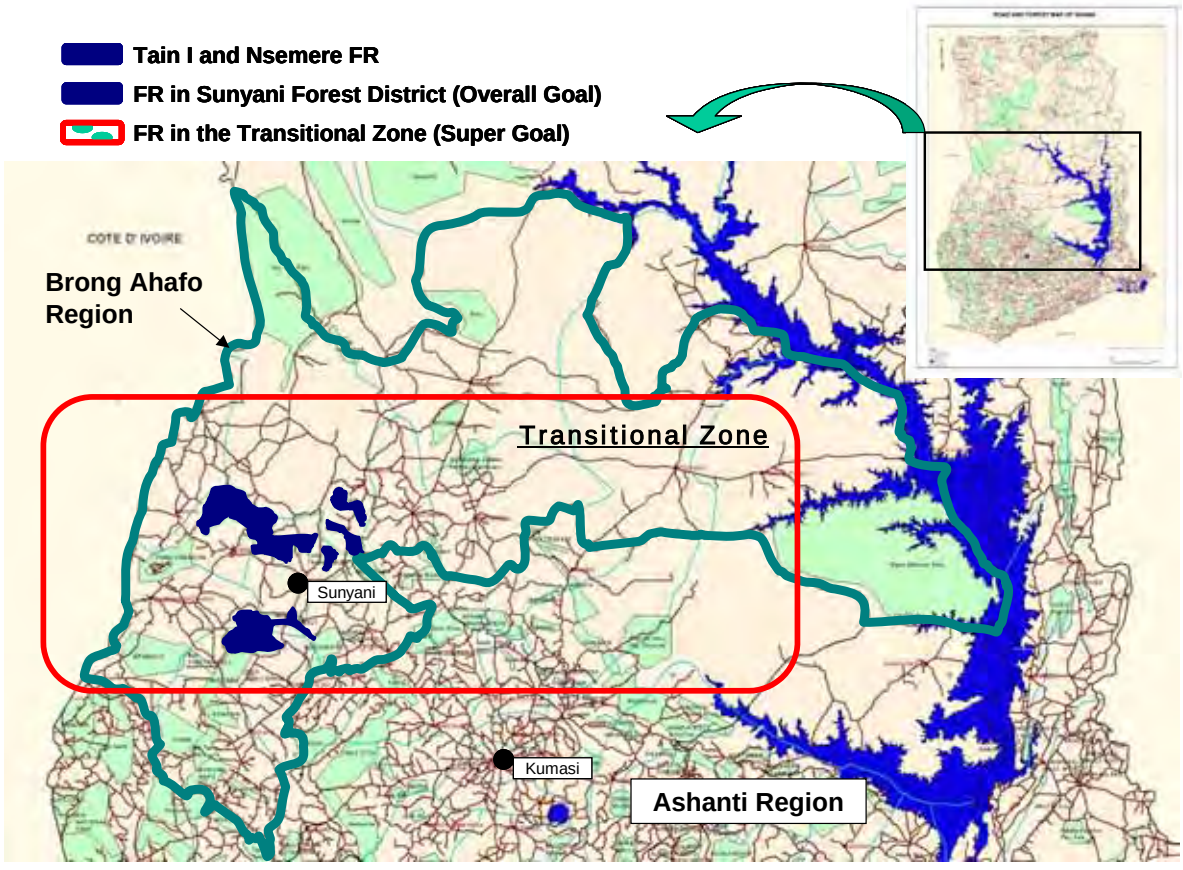


Figure 3.1.1 Location of Forest Reserves in Transitional Zone

FSD needs to develop an action plan with activity, time, budget and responsible person to achieve the overall goal. Toward preparing the action plan. Following shows an estimate of budget according to the activities and time line to extend PAFORM Approach into the Forest Reserves in Sunyani Forest District. Following consideration is made for estimating the budget:

3.1.2 Category of the Area after Project

There will be three categories of the activities to follow after the Project, namely 1) follow-up of 12 pilot communities in Tain I and Nsemere FR, 2) other communities in Tain I and Nsemere FR and 3) other FR in Sunyani Forest District. The Project has dealt with the pilot communities of the first category for three years so that the follow-up activities will be planned based on the three-year experience. FSD can start activities of GB and IGA in the second category according to the forest reserve management plan already prepared in Tain I and Nsemere. As for the third category, FSD has to start with preparing forest reserve management plan and then move on to GB and IGA.

Table 3.1.1 Forest Reserves in Transitional Zone

Target	Forest District	No.	Forest Reserve	Area (km2)	Perimeter (km)	Year of Reservation
Overall Goal (Sunyani District) (B/A Region)	Sunyani	O-1	**Tain I**	**30.56**	**31.35**	**1932**
		O-2	**Nsemere**	**18.13**	**20.04**	**1939**
		–	*Yaya*	*51.36*	*27.48*	*1929*
		O-3	Amama Shelter Belt	44.00	80.48	1932
		O-4	Apaaso	263.38	139.77	1951
		O-5	Tain II	483.67	200.43	1943
		O-6	Sawsaw	67.89	39.60	1939
Super Goal (Transitional Zone) (B/A Region)	Bechem	S-1	Aparapi	19.04	24.12	1937
		S-2	Bosumkese	138.41	68.43	1939
	Goaso	S-3	Goa Shelter Belt	23.75	34.60	1938 – 39
		S-4	Bia Shelter Belt	29.56	30.87	1937 – 38
		S-5	Bia Tano	161.87	57.38	1936 – 37
		–	*Ayum*	*112.85*	*69.24*	*1939*
		–	*Abonyere Shelter Belt*	*41.18*	*43.64*	*1939*
		–	*Bonkoni*	*67.78*	*42.51*	*1932*
		–	*Bosam Bepo*	*135.80*	*64.96*	*1935*
		–	*Dinon*	*150.95*		*1953 – 54*
		–	*Subim*	*238.38*	*79.24*	*1939*
	D/Ahenkro	S-6	Mpameso	322.56	63.09	1937
		S-7	Pamu Berekum	188.87	101.57	1932
	Kintampo	S-8	Bosomoa	150.45	51.30	1929
		–	*Buru*	*302.75*	*47.48*	*Demarcated in 1961*
Super Goal (Transitional Zone) (Ashanti Region)	Offinso	S-9	Afram Head Waters	201.14	9.19	1927
		S-10	Afrensu Brohuma	72.52	48.02	1934
		S-11	Asubima	78.61	43.22	1945
		S-12	Asufu	24.68		1940
		S-13	Gianima	15.70	24.46	1939
		S-14	Kwamisa	99.35	46.70	1926
		S-15	Mankrang	35.50	43.57	1930
		S-16	Opro river	129.29	5.02	1930
	Mampong	S-17	Aboma	45.65		1932
		S-18	Abrimasu	26.21	29.87	1940
		S-19	Awura	124.35		1940
		S-20	Chirimfa	113.93	63.60	1932
		S-21	Offin Head Waters	9.17	23.43	1936
		S-22	Ongwam 1,2	16.30		1926
		S-23	Pru Shelter Belt	92.72		–
	Nkawie	S-24	Tinte Bepo	37.52		1937
		–	*Asenanyo River*	*227.92*	*107.59*	*1937*
		–	*Jimira*	*36.82*		*1932*
		–	*Jimira Extension*	*36.28*		*1937*
		–	*Offin Shelter Belt*	*60.32*		*1936*
		–	*Tano Offin*	*402.23*		*1927*
		–	*Desiri*		*73.80*	–
	Kumawu	S-25	Ongwam	21.87	30.96	1927
		S-26	Bourfoum	294.79		1928
		S-27	Kumawu Water Supply	0.96		1945
		–	*Asonan*	*0.37*		*1928*
		–	*Anumso South*	*12.93*		*1927*
		–	*Anumso North*	*46.52*		*1927*
		–	*Krogiam*	*5.67*		*1928*
	Bekwai	–	*Pompo*	*12.20*		*1930*
		–	*Oda River*	*164.70*		–
		–	*Subin Shelter Belt*	*25.72*		*1940*
		–	*Supuma*	*24.42*		*1928*
		–	*Nkrabia*	*100.20*		*1940*
		–	*Jimi River*	*21.50*		*1937*
		–	*Apamprama*	*34.70*		*1939*
		–	*Denyau*	*12.40*		*1939*
		–	*Fum Headwaters*	*85.83*	*67.65*	*1931*
		–	*Bosumkese Range*	*78.70*		*1931*
		–	*Dampia*	*80.30*		*1937*
		–	*Green Belt*	*14.71*		–
	Edubiase	–	*Numia*	*50.20*		*1928*
		–	*Nyamebe Bepo*	*32.30*		*1930*
		–	*Onuem Bepo*	*34.40*	*23.35*	*1920*
		–	*Onuem Nyamebe S. Belt*	*24.90*	*25.28*	*1926*
		–	*Kunsimoa Bepo*	*10.10*		*1937*
		–	*Kokotintin*	*9.10*		*1940*
		–	*Cherembase*	*6.00*		*1931*
		–	*Afia Shelter Belt*	*21.00*		*1940*
	Juaso	–	*Bandai Hills*	*155.63*		*1928*
		–	*Bobiri*	*55.04*		*1939*
		–	*Dome River*	*30.24*		*1929*
		–	*Minta Hills*	*67.29*		*1937*
		–	*Onyimso*	*9.50*	*15.79*	*1940*
		–	*Prahwa*	*9.95*		*1942*
		–	*South Formanso*	*32.00*		*1925*
		–	*North Formanso*			

Source: B/A Regional Office of FSD and RMSC

Note: [shaded] = Out of Transitional Zone

Table 3.1.2 Category of Area and Activities

Category	Activity
1. 12 pilot communities in Tain I and Nsemere	Follow-up of IGA, GB extension
2. Other Communities in Tain I and Nsemere	IGA and GB implementation
3. Other Forest Reserves in Sunyani Forest Reserves	FRMP formulation, IGA and GB implementation

3.1.3 Conditions of Budget Estimation for Category 2 and 3

- PAFORM defined fringe communities as one located within 5km from the boundary of the forest reserve. The pilot communities were selected from those defined ones. According to the definition that PAFORM employed, there are 33 and 52 fringe communities in Tain I and Nsemere respectively. However, the definition of within 5km from the boundary is a project's own decision. Definition of fringe community can therefore be varied in each FR and FSD can prioritize the fringe communities from closest ones to the FR. Because it seems the number of fringe community is high, it is proposed to make a cycle of activity for one community to be three years. After 3 years of operation in one community, FSD will shift to new community. If FSD stays in one community longer, other fringe communities would have to wait for their intervention of FSD for so long.
- GB and IGA will be implemented with 2 Communities per year per FR considering the available number of field officers.
- FRMP: it is proposed to select 6 representative communities for each FR to formulate FRMP. Socio-economic survey and consultation workshops etc. will be conducted in these representative communities.
- GB: it is proposed that GB is established with 300m x 40m per year per community.
- IGA: it is assumed that IGA contents include 1 demo-farm with 2 crops and other 5 items (livestock, mushroom, beekeeping, snail, and soap making).

Following tables show the proposed flow of activities by year. The first year will be spent for formulating FRMP and then GB and IGA will start from 2nd year. As mentioned above, GB and IGA will be implemented for three years in one community. For GB, seminar for traditional authorities and other stakeholders will be held in the first year and the first GB of 1.2ha will be established in the first year. In three years of the cycle, total 3 GB (3.6 ha) will be established in one community, which will involve 90 households.

Also for IGA, planning and designing will be carried out in the first year and at the same year activities including on-farm trainings, field visits and demonstrations will be implemented. Second and third year for IGA will be decided according to the performance of the first year. According to the response of the community, additional input provision and activities like networking and community organization will be followed.

Flow of Activity

Item		1st Year	2nd Year	3rd Year	4th Year	5th Year	6th year	7th year
FRMP formulation per FR								
GB per Community	Planning / Designing							
	Implementaiton							
IGA per Community	Planning / Designing							
	Implementaiton							

1st Community　　2nd Community

GB: Flow of Activity per Community

Activity	Year 0	1st year	2nd year	3rd year	Remark
Situation Analysis 1 (as part of FRMP formultion)					
Socio-economic Survey	○				
Information Sharing WS	○				
Planning					
Community meetings		○	○	○	1st yr: Target community. 2nd, 3rd yr: only the target group
Seminars for authorities & stakeholders		○			
CBWG inner meetings		○	○	○	every year, different group
Grand Survey for set up of GB area		○	○	○	300m x 40 m per year
Land Preparation		○	○	○	
Planting		○	○	○	
Maintenance		○	○	○	
General administration (MoU exchange)		○	○	○	

IGA: Flow of Activity per Community

Activity	Year 0	1st year	2nd year	3rd year	Remark
Situation Analysis 1 (as part of FRMP formultion)					
Socio-economic Survey	○				
Information Sharing WS	○				
Situation Analysis 2 + Planning / Designing					
Technical / Market Survey		○			
Needs Assessment		○			
Meeting of Working Group		○			
IGA Implementation					
On-farm training		○			
Field visit		○			
Demonstration		○	○	○	
Networking		○	○	○	
Organization			○	○	
Additional Inputs			○	○	
Monitoring		○	○	○	

Figure 3.1.2　Basis for Cost Estimate

Based on the conditions and assumption above, the budget for PAFORM Approach application for Sunyani Forest District for 10 years is estimated. The cost for the major activities is shown below. The cost for socio-economic survey for formulating forest reserve management plan is assumed to contract out. If FSD carries out the survey by its own, the cost will be less. As for establishing GB, a seminar is planned to explain about GB activity for traditional authority and other stakeholders (in this seminar IGA can also be introduced) and therefore the cost for the first year is estimated high. Subsequent years will be planned with less cost. The cost for IGA will also be high in the first year with intensive activities and the subsequent years will go less, though it will depend on the estimation of additional input provision to communities.

Table 3.1.3 Cost Analysis per FR for Extending PAFORM Model (Unit: GHc)

		1st Year	2nd Year	3rd Year	4th Year
FRMP		30,232	-	-	-
GB	Planning		8,270 (4,135)	470 (235)	470 (235)
	Implementation		4,684 (2,342)	4,684 (2,342)	4,684 (2,342)
	Sub-total (1)		12,954 (6,477)	5,154 (2,577)	5,154 (2,577
	Sub-total (round of (1))		*13,000 (6,500)*	*5,200 (2,600)*	*5,200 (2,600)*
IGA	Planning		177 (177)	-	-
	Implementation		5,088 (2,544)	2,062 (1,031)	2,062 (1,031)
	Sub-total (2)		5,265 (2,721)	2,062 (1,031)	2,062) (1,031
	Sub-total (round of (2))		*5,200 (2500 + 200)*	*2,000 (1,000)*	*2,000 (1,000)*
Total (3)		30,232	18,219 (9,198)	7,216 (3,608)	7,216 (3,608)
Total (round of (3)		*30,200*	*18,200 (9,200)*	*7,200 (3,600)*	*7,200 (3,600)*

Note: it is planned to implement GB and IGA in two communities per year. ( ) shows the cost per community. Planning for IGA will be carried out for two communities together.

Following tables show the activities (Plan of Operation) and cost for 10 years for Sunyani Forest District. It is assumed that the activity will be commenced from bigger forest reserves. Yaya forest reserve is not included in this cost estimation since the Community Forest Management Project (CFMP) funded by AfDB has been implemented in Yaya FR and CFMP has developed the FRMP in Yaya FR. Since GB has not been included in CFMP, modification of Yaya FRMP to incorporate GB could be considered in the future.

IGA in PAFORM was implemented in collaboration with MOFA and PAFORM was paying the allowance of MOFA trainers. On this issue, there could be an arrangement at the central ministerial level that MOFA and FSD plan together and the portion for MOFA such as allowance for MOFA Agriculture Extension Agent (AEA) should be borne by their budget. If such arrangement were agreed, the cost for IGA, which FSD should bear, would be saved. Following tables show the plan of operation and its budget estimate with 2 cases: 1) Base Case: FSD covers trainer allowance of MOFA and 2) Case 2: MOFA covers trainer allowance. This format is to guide FSD to prepare their action plan to achieve the overall goal of the project. Detail data on the estimation is attached in Annex.

Table 3.1.4 Implementation Plan

Version 1

Target	Category	FR	Activity: Category	Activity	1st Year After P: Apr. to Dec. 2009	2nd Year: 2010	3rd year: 2011	4th Year: 2012	5th Year: 2013	6th Year: 2014	7th Year: 2015	8th Year: 2016	9th Year: 2017	10th Year: 2018
Overall Goal	Pilot Communities	Tain I (6 communities)	GB	300 m x 4 communities										
			IGA	Additional input provision / Networking										
		Nsemere (6 communities)	GB	300 m x 6 communities										
			IGA	Additional input provision / Networking										
	Other Communities in Tain I and Nsemere	Tain I	Planning / Designing	GB										
				IGA										
			GB	300 m x 2 communities										
			IGA	On-farm training / Field visit / Demo										
				Additional input provision / Networking										
		Nsemere	Planning / Designing	GB										
				IGA										
			GB	300 m x 2 communities										
			IGA	On-farm training / Field visit / Demo										
				Additional input provision / Networking										
	Other FR in Sunyani	FR 1	FRMP	Strategic Plan / Operational Plan										
			GB	Planning / Designing										
				300 m x 2 communities										
			IGA	Planning / Designing										
				On-farm training / Field visit / Demo										
				Additional input provision / Networking										
		FR 2	FRMP	Strategic Plan / Operational Plan										
			GB	Planning / Designing										
				300 m x 2 communities										
			IGA	Planning / Designing										
				On-farm training / Field visit / Demo										
				Additional input provision / Networking										
		FR 3	FRMP	Strategic Plan / Operational Plan										
			GB	Planning / Designing										
				300 m x 2 communities										
			IGA	Planning / Designing										
				On-farm training / Field visit / Demo										
				Additional input provision / Networking										
		FR 4	FRMP	Strategic Plan / Operational Plan										
			GB	Planning / Designing										
				300 m x 2 communities										
			IGA	Planning / Designing										
				On-farm training / Field visit / Demo										
				Additional input provision / Networking										
Super Goal (B/A Region)	Bechem	2 FR	FRMP											
			GB / IGA											
	Goaso	3 FR	FRMP											
			GB / IGA											
	D/ Ahenkro	2 FR	FRMP											
			GB / IGA											
	Kintampo	1 FR	FRMP											
			GB / IGA											
Total Cost														

Cycle : GB = 3 years per community
IGA = 3 years per community
Implementation: 2 communities per year per FR

Table 3.1.5 Implementation Plan (Cost Estimate: Base Case)

Version 1

Target	Category	FR	Activity		Unit Cost	1st Year After P	2nd Year	3rd year	4th Year	5th Year	6th Year	7th Year	8th Year	9th Year	10th Year
			Category			Apr. to Dec. 2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
					(GHc)	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
Overall Goal	Pilot Communities	Tain I (6 communities)	GB	300 m x 4 communities (excl. Afras I&II)	2,600	10,400	0	0	0	0	0	0	0	0	0
			IGA	Additional input provision / Networking	1,000	6,000	6,000	0	0	0	0	0	0	0	0
		Nsemere (6 communities)	GB	300 m x 6 communities	2,600	15,600	15,600	0	0	0	0	0	0	0	0
			IGA	Additional input provision / Networking	1,000	6,000	6,000	0	0	0	0	0	0	0	0
	Other Communities in Tain I and Nsemere	Tain I	Planning / Designing	GB	4,100	4,100	0	0	0	0	0	0	0	0	0
				IGA	200	200	0	0	0	0	0	0	0	0	0
			GB	300 m x 2 communities	2,600	0	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200
			IGA	On-farm training / Field visit / Demo	2,500	0	5,000	0	0	5,000	0	0	5,000	0	0
				Additional input provision / Networking	1,000	0	0	2,000	2,000	0	2,000	2,000	0	2,000	2,000
		Nsemere	Planning / Designing	GB	4,100	4,100	0	0	0	0	0	0	0	0	0
				IGA	200	200	0	0	0	0	0	0	0	0	0
			GB	300 m x 2 communities	2,600	0	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200
			IGA	On-farm training / Field visit / Demo	2,500	0	5,000	0	0	5,000	0	0	5,000	0	0
				Additional input provision / Networking	1,000	0	0	2,000	2,000	0	2,000	2,000	0	2,000	2,000
	Monitoring (Tain I and Nsemere) per staff				1,400	5,600	5,600	5,600	5,600	5,600	5,600	5,600	5,600	5,600	5,600
	Other FR in Sunyani	FR 1	FRMP	Strategic Plan / Operational Plan	30,200	0	30,200	0	0	0	0	0	0	0	0
			GB	Planning / Designing +1 st year	6,500	0	0	13,000	0	0	13,000	0	0	13,000	0
				300 m x 2 communities (2nd / 3 rd yr)	2,600	0	0	0	5,200	5,200	0	5,200	5,200	0	5,200
			IGA	Planning / Designing	200	0	0	200	0	0	200	0	0	200	0
				On-farm training / Field visit / Demo	2,500	0	0	5,000	0	0	5,000	0	0	5,000	0
				Additional input provision / Networking	1,000	0	0	0	2,000	2,000	0	2,000	2,000	0	2,000
				Monitroing per staff	1,400	0	0	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800
		FR 2	FRMP	Strategic Plan / Operational Plan	30,200	0	0	30,200	0	0	0	0	0	0	0
			GB	Planning / Designing +1 st year	6,500	0	0	0	13,000	0	0	13,000	0	0	13,000
				300 m x 2 communities (2nd / 3 rd yr)	2,600	0	0	0	0	5,200	5,200	0	5,200	5,200	0
			IGA	Planning / Designing	200	0	0	0	200	0	0	200	0	0	200
				On-farm training / Field visit / Demo	2,500	0	0	0	5,000	0	0	5,000	0	0	5,000
				Additional input provision / Networking	1,000	0	0	0	0	2,000	2,000	0	2,000	2,000	0
				Monitroing per staff	1,400	0	0	0	2,800	2,800	2,800	2,800	2,800	2,800	2,800
		FR 3	FRMP	Strategic Plan / Operational Plan	30,200	0	0	0	30,200	0	0	0	0	0	0
			GB	Planning / Designing +1 st year	6,500	0	0	0	0	13,000	0	0	13,000	0	0
				300 m x 2 communities (2nd / 3 rd yr)	2,600	0	0	0	0	0	5,200	5,200	0	5,200	5,200
			IGA	Planning / Designing	200	0	0	0	0	200	0	0	200	0	0
				On-farm training / Field visit / Demo	2,500	0	0	0	0	5,000	0	0	5,000	0	0
				Additional input provision / Networking	1,000	0	0	0	0	0	2,000	2,000	0	2,000	2,000
				Monitroing per staff	1,400	0	0	0	0	2,800	2,800	2,800	2,800	2,800	2,800
		FR 4	FRMP	Strategic Plan / Operational Plan	30,200	0	0	0	0	30,200	0	0	0	0	0
			GB	Planning / Designing +1 st year	6,500	0	0	0	0	0	13,000	0	0	13,000	0
				300 m x 2 communities (2nd / 3 rd yr)	2,600	0	0	0	0	0	0	5,200	5,200	0	5,200
			IGA	Planning / Designing	200	0	0	0	0	0	200	0	0	200	0
				On-farm training / Field visit / Demo	2,500	0	0	0	0	0	5,000	0	0	5,000	0
				Additional input provision / Networking	1,000	0	0	0	0	0	0	2,000	2,000	0	2,000
				Monitroing per staff	1,400	0	0	0	0	0	2,800	2,800	2,800	2,800	2,800
	Total Cost for Sunyani Forest District					52,200	83,800	71,200	81,200	97,200	82,000	71,000	77,000	82,000	71,000
Super Goal (B/A Region)	Bechem	2 FR	FRMP												
			GB / IGA												
	Goaso	3 FR?	FRMP												
			GB / IGA												
	Dr Ahenkro	2 FR	FRMP												
			GB / IGA												
	Kintampo	1 FR?	FRMP												
			GB / IGA												
Total Cost															

Cycle GB = 3 years per community
IGA = 3 years per community
Implementation: 2 communities per year per FR

Table 3.1.6 Implementation Plan (Cost Estimate: Case 2: Trainers allowance and their transportatino cost for IGA are borne by MOFA)

Target	Category	FR	Activity		Unit Cost	1st Year After P. Apr. to Dec. 2009	2nd Year 2010	3rd year 2011	4th Year 2012	5th Year 2013	6th Year 2014	7th Year 2015	8th Year 2016	9th Year 2017	10th Year 2018
			Category		(GHc)	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
Overall Goal	Pilot Communities	Tain I (6 communities)	GB	300 m x 4 communities (excl. Afras I&II)	2,600	10,400	0	0	0	0	0	0	0	0	0
			IGA	Additional input provision / Networking	900	5,400	5,400	0	0	0	0	0	0	0	0
		Nsemere (6 communities)	GB	300 m x 6 communities	2,600	15,600	15,600	0	0	0	0	0	0	0	0
			IGA	Additional input provision / Networking	900	5,400	5,400	0	0	0	0	0	0	0	0
	Other Communities in Tain I and Nsemere	Tain I	Planning / Designing	GB	4,100	4,100	0	0	0	0	0	0	0	0	0
				IGA	200	200	0	0	0	0	0	0	0	0	0
			GB	300 m x 2 communities	2,600	0	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200
			IGA	On-farm training / Field visit / Demo	1,800	0	3,600	0	0	3,600	0	0	3,600	0	0
				Additional input provision / Networking	900	0	0	1,800	1,800	0	1,800	1,800	0	1,800	1,800
		Nsemere	Planning / Designing	GB	4,100	4,100	0	0	0	0	0	0	0	0	0
				IGA	200	200	0	0	0	0	0	0	0	0	0
			GB	300 m x 2 communities	2,600	0	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200
			IGA	On-farm training / Field visit / Demo	1,800	0	3,600	0	0	3,600	0	0	3,600	0	0
				Additional input provision / Networking	900	0	0	1,800	1,800	0	1,800	1,800	0	1,800	1,800
	Monitoring (Tain I and Nsemere) per staff				1,400	5,600	5,600	5,600	5,600	5,600	5,600	5,600	5,600	5,600	5,600
	Other FR in Sunyani	FR 1	FRMP	Strategic Plan / Operational Plan	30,200	0	30,200	0	0	0	0	0	0	0	0
			GB	Planning / Designing +1 st year	6,500	0	0	13,000	0	0	13,000	0	0	13,000	0
				300 m x 2 communities (2nd / 3 rd yr)	2,600	0	0	0	5,200	5,200	0	5,200	5,200	0	5,200
			IGA	Planning / Designing	200	0	0	200	0	0	200	0	0	0	0
				On-farm training / Field visit / Demo	1,800	0	0	3,600	0	0	3,600	0	0	3,600	0
				Additional input provision / Networking	900	0	0	0	1,800	1,800	0	1,800	1,800	0	1,800
				Monitroing per staff	1,400	0	0	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800
		FR 2	FRMP	Strategic Plan / Operational Plan	30,200	0	0	30,200	0	0	0	0	0	0	0
			GB	Planning / Designing +1 st year	6,500	0	0	0	13,000	0	0	13,000	0	0	13,000
				300 m x 2 communities (2nd / 3 rd yr)	2,600	0	0	0	0	5,200	5,200	0	5,200	5,200	0
			IGA	Planning / Designing	200	0	0	0	200	0	0	200	0	0	200
				On-farm training / Field visit / Demo	1,800	0	0	0	3,600	0	0	3,600	0	0	3,600
				Additional input provision / Networking	900	0	0	0	0	1,800	1,800	0	1,800	1,800	0
				Monitroing per staff	1,400	0	0	0	2,800	2,800	2,800	2,800	2,800	2,800	2,800
		FR 3	FRMP	Strategic Plan / Operational Plan	30,200	0	0	0	30,200	0	0	0	0	0	0
			GB	Planning / Designing +1 st year	6,500	0	0	0	0	13,000	0	0	13,000	0	0
				300 m x 2 communities (2nd / 3 rd yr)	2,600	0	0	0	0	0	5,200	5,200	0	5,200	5,200
			IGA	Planning / Designing	200	0	0	0	0	200	0	0	200	0	0
				On-farm training / Field visit / Demo	1,800	0	0	0	0	3,600	0	0	3,600	0	0
				Additional input provision / Networking	900	0	0	0	0	0	1,800	1,800	0	1,800	1,800
				Monitroing per staff	1,400	0	0	0	0	2,800	2,800	2,800	2,800	2,800	2,800
		FR 4	FRMP	Strategic Plan / Operational Plan	30,200	0	0	0	0	30,200	0	0	0	0	0
			GB	Planning / Designing +1 st year	6,500	0	0	0	0	0	13,000	0	0	13,000	0
				300 m x 2 communities (2nd / 3 rd yr)	2,600	0	0	0	0	0	0	5,200	5,200	0	5,200
			IGA	Planning / Designing	200	0	0	0	0	0	200	0	0	200	0
				On-farm training / Field visit / Demo	1,800	0	0	0	0	0	3,600	0	0	3,600	0
				Additional input provision / Networking	900	0	0	0	0	0	0	1,800	1,800	0	1,800
				Monitroing per staff	1,400	0	0	0	0	0	2,800	2,800	2,800	2,800	2,800
	Total Cost for Sunyani Forest District					51,000	79,800	69,400	79,200	92,600	78,400	68,600	72,200	78,200	68,600
Super Goal (B/A Region)	Bechem	2 FR	FRMP												
			GB / IGA												
	Goaso	3 FR	FRMP												
			GB / IGA												
	Dr Ahenkro	2 FR	FRMP												
			GB / IGA												
	Kintampo	1 FR	FRMP												
			GB / IGA												
Total Cost															

Cycle : GB = 3 years per community
IGA = 3 years per community
Implementation: 2 communities per year per FR

3.2 Collaboration with Other Organizations

It was necessary to collaborate with other agencies to implement IGA and GB in the pilot communities of PAFORM. PAFORM also implemented construction of boreholes in Afrasu community for their improving living standard in collaboration with other institution. Health education activities were also conducted in collaboration with the Ministry of Health. In this section summarizes the issues of collaboration between FSD and others to extend PAFORM Approach. Following tables show the list of collaborators during PAFORM project period and potential collaborators for future.

Table 3.2.1 Collaborators during the Project Period of PAFORM

Collaborator	How collaborated	Cost borne by the Project
1.1 Ministry of Food and Agriculture (MOFA)	MOFA provided trainers for IGA. They also gave technical assistance to PAORM.	Trainer allowance and materials for training.
1.2 Local advanced farmer	They accepted field visit of farmers.	Payment for accepting visitors
1.3 Private food company	Trading of soybeans introduced by IGA	Transportation of produce and community representative for networking with the buyer
1.4 District Assembly (DA)	They allocated fund from the World Bank to the fringe community to construct borehole.	Subsidized the portion of the cost, which should be borne by community.
1.5 Ministry of Health (MOH)	Training for health education for improving living standard	Trainer allowance

Table 3.2.2 Future Potential Collaborators

Collaborators	Field of Collaboration	Cost to be borne by FSD
2.1 Ghana National Fire Services	Training and monitoring	Cost for training
2.2 Ministry of Education (MOE)	Demo-farm establishment in the school compound	Trainer allowance, materials (seeds, etc.)
2.3 Micro finance [eg. MASLOC]	Financing capital for community	Facilitation for networking, community organization, capacity building (proposal preparation etc.)
2.4 UNDP/GEF/SGP [Grant program]	Subsidizing capital for community	

3.2.1 Collaboration with MOFA

1) Activities in Line with MOFA Development Policy

For FSD's continuous commitment to IGA, collaboration with the Ministry of Food and Agriculture (MOFA) will be necessary. To establish an effective collaborative work between FSD and MOFA, it is recommended that FSD should follow the development policy of MOFA. MOFA is mandated to support agriculture development, which is the main income source of the rural communities. For example, as future collaboration, FSD could talk to MOFA and recommend for prioritization of certain IGA to implement in the fringe communities. To make easier collaboration for both parties FSD should follow the policy of MOFA and could maintain the line of the national development policy, as well. In PAFORM, the Project introduced the target communities to soybean production, which is one of the recommended crops in the development policy of MOFA.

2) Collaboration Framework

At District / Regional level, FSD officer in charge as well as district and regional managers and the

district and regional directors of MOFA are to coordinate each other. Field staff of FSD and Agriculture Extension Agent (AEA) of MOFA are to coordinate each other at field level. Working framework between District / Regional level and field level for both FSD and MOFA is to give instruction and feedback: FSD field staff and AEA give feedback to their respective manager / director at district level and the district levels will give instruction to the field officers. Important decisions that cannot be made at district /regional levels such as task / cost allocation between FSD and MOFA, the central offices of FSD and MOFA would coordinate for the decisions. Figure below shows the basic framework of FSD / MOFA collaboration.

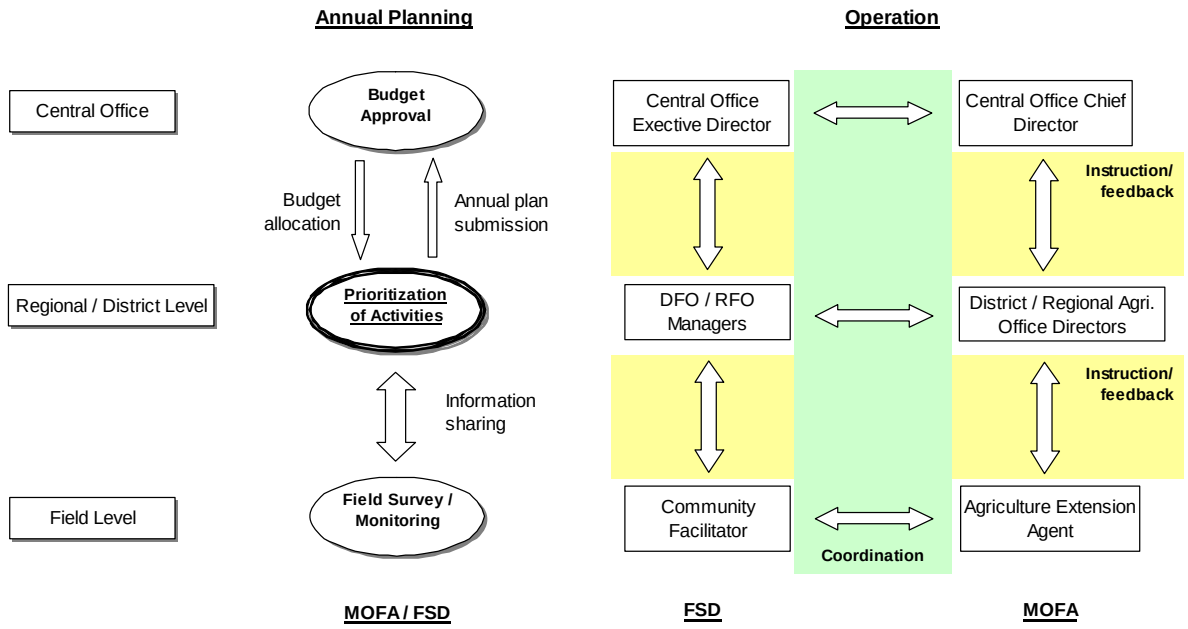


Figure 3.2.1 Framework of Collaboration between FSD and MOFA

In PAFORM, FSD requested AEA to cooperate for on-farm trainings. Through the IGA activities, it is expected that AEA will be well known by the target communities. Since one AEA covers 3,000 to 4,000 farmers, PAFORM was a good opportunity for the community to know the staff of MOFA. Community Facilitators of PAFORM developed their relationship with AEA on the ground so that C/F could also build their capacity in technical assistance to the community.

3) Prioritization at Regional / District Level and Coordination at Central Level

PAFORM / FSD has sourced the trainers allowance for MOFA staff when they conducted on-farm training. Existing project made FSD possible to source fund for the allowance of other institutions. However, it would be more proper that both parities, namely MOFA and FSD agree with their annual operation plan and appropriate each party's own budget. According to MOFA, prioritization of activities is mainly made at the regional / district level, so that discussions between MOFA and FSD at regional / district level prior to formulate annual operation plan of both parties is crucial.

It is therefore recommended that FSD and MOFA at regional / district level should have a series of meetings to discuss the collaborative work for IGA prior to get annual operation plan approved at the central level of the both ministries. At the central (ministerial) level there should also be

coordination between two parties to allocate the necessary budget for each party's role according to the annual operation plan prepared at regional / district level.

Earlier participation of MOFA staff in IGA is also recommended for better collaboration between FSD and MOFA. Timing of MOFA's participation in FSD's IGA should also be discussed at regional /district level. Following table describes the activity break-down for IGA as to show the collaboration field between FSD and MOFA.

Table 3.2.3 Field of Collaboration with MOFA (Case of IGA)

Step	Activity	Work sharing		Cost sharing	
		FSD	MOFA	FSD	MOFA
1	Orientation on IGA in PAFORM Model	○	?	○	?
2	Needs Assessment in the community (at least 1 day per community)	○	?	○	?
3	Market survey	○	?	○	?
4	Technical Analysis	○	○	○	?
5	Selection and Prioritization of IGA Contents	○	?	○	?
6	Procurement of materials (in case technical expertise is needed)	○	?	○	?
7	On-farm training	○	○	○	?
8	Field visit	○	○	○	?
9	Demonstration	○	○	○	?
10	Intensive training	○	○	○	?

3.2.2 Local Advanced Farmer

IGA in PAFORM facilitated field visits to local advanced farmers such as livestock farmer and mushroom farmer. They live in the vicinity of the target communities so that the community members could easily access to the advanced farmers. Also the innovation of the advance farmers could also be relatively applicable to their locality. Through the activities of PAFORM, some farmers in the pilot communities have appeared to be mushroom growing or snail rearing practitioners. They could also be the host of farmers' field visit. To promote IGA, collaboration with those local resource persons will be effective. FSD is to bear the cost of field visit activity.

3.2.3 Private Food Company

As an activity of IGA, PAFORM introduced the pilot communities to a food processing company in Techman, which has a big demand for soybean. PAFORM introduced the communities to soybean crop and connected them to the food processing company to sell the produce. Networking between buyers (external opportunity) and farmers will be an effective collaborative work since the products to promote for IGA should have their prospective market to sell. Following is the contact of the food company in Techman. This company would remain as a prospective external opportunity for the communities in B/A region.

Company	Contact	Products to deal
GHANA NUTS LTD Contact: Purchasing Manager	P. O. Box 825, Techman – B/A Tel/Fax: 0653-22123 e-mail. infor@ghananuts.com web: www.ghananuts.com	Soybean Groundnut (China type) Voacanga (medicinal plant) Others

3.2.4 District (Municipal) Assembly

The highest priority needs of community may not be necessarily to increase income but to construct basic infrastructures such as water supply facility. Albeit the capacity of FSD is limited, responding to the community needs as much as possible would acquire the credibility and trust of the community to FSD. It is, therefore, recommended that FSD should collaborate with other organizations to fulfill their needs or assist community to convey their request to the appropriate organizations.

As for the case of PAFROM, the highest priority needs of the community in Afrasu I and II was safe water supply (drilling boreholes). C/F of PAFORM intensively informed the situation to the Sunyani Municipal Assembly and the Assembly considered the situation on the ground in allocating their fund supported by the World Bank. As a result, the Assembly managed to allocate fund to drill two boreholes in Afrasu I community. In this collaboration, cost for constructing borehole was borne by the Municipal Assembly and the main job of FSD in this case will be coordinating work.

3.2.5 Ministry of Health

As discussed above, community may also have high priority in health issue. In this case as well, FSD should collaborate with the Ministry of Health to meet with the community needs. In PAFORM, through the communication with the pilot communities by the community facilitators, it was found pressing needs for women in some communities to acquire knowledge on health such as family planning. The Project considered situation and requested nurses and midwives of the governmental hospital to give a hand and conducted health education trainings in the four communities of Awhene, Kofitumkrom, Afrasu I and II. The Project paid the training allowance. Again not only IGA but also any activities, which would improve living standard of the community, still serve to achieve the goal of FSD, namely the sustainable forest reserve management.

3.2.6 Ghana National Fire Service

Ghana National Fire Service (GNFS) is a governmental agency under the Ministry of Interior. In 1997, Ghana National Fire Service Act was endorsed to re-establish the National Fire Service to provide for the management of undesired fires and made provisions for related matters. The Act was, however, flawed with respect to wildfire management and did not go far enough with respect to empowering local communities and groups to deal with wildfire management issues. Yet GNFS is still to cover all the areas of fire: domestic, industry and wildfire and GNFS are in better position to handle with fire.

The Ministry of Lands, Forestry and Mines therefore stated the collaboration with GNFS among others in the National Wildfire Management Policy developed in 2006. The expected fields of collaboration with GNFC are 1) developing and carrying out fire suppression and training programmes, and 2) developing comprehensive mechanism for detecting and monitoring fire incidence. The collaboration between FSD and GNFC should be continued as defined in the national wildfire management policy.

3.2.7 Ministry of Education

PAFORM has established demo-farm for introducing soybean as a new crop for the communities as part of IGA. The demo-farms established in the Project were managed by group of community members who have common interest in growing new crops. However, in some communities the management did not work as some demo-farms ended up with grass covering yard. This situation may partly be attributed to free riding among the members.

During the planning process, there was an option to use a portion of schoolyard for demo-farm establishment. Farms of people in some communities are far away from their residence and if demo-farm was established in the farm area, it might be a case that people who had farm in different direction from the location of demo-farm would not easily be able to access to the demo-farm. Schools are normally located near the residential area, so that demo-farm would be easily observed from the residents of the community. Also school pupils could be a daily manager of the demo-farm and they can learn agriculture from it. Demo-farm in a schoolyard should be in small size, but we could expect significant demonstration effects. If we took this option for establishing demo-farm, FSD would need to collaborate with the District Education Office, as well as schoolteachers and PTA.

3.2.8 Collaboration with Institutions Dealing with Micro-finance Scheme

PAFORM IGA has suggested categorizing the contents of IGA into following three groups according to the scale of initial investment and technical difficulty:

A) Activities for which farmers already have their capital, knowledge and skill (maize crop, small ruminant, poultry, etc.): inputs is basically on-farm trainings to improve the skill of farmers

B) Activities that are relatively new to farmers and the required inputs are small enough for farmers to invest by themselves (soybean crop, groundnut crop, tigernut crop, etc.): in addition to on-farm trainings, establishment of demonstration farm and provision of seeds to farmers as trial will be carried out.

C) Activities that are relatively new to farmers and require relatively high capital (beekeeping, snail, mushroom, etc): confirm the interest of farmers through on-farm training and assist in input provision.

Among the above categories, especially in category C, provision of initial inputs will be limited considering the capacity of FSD (As for PAFORM, materials only for demonstration was provided to the communities). IGA in PAFORM is based on the initiative or commitment of the community members and is cautious on developing dependency of the community members by providing too much input.

However, it could be a case that the difficulty of preparing initial investment cost becomes the major barrier for many community members to commit themselves to new activities albeit their willingness to commit. To cope with such case, seeking for institutions, which are running micro-finance scheme, and introducing the communities to them will be a measure.

The Government of Ghana with the President's Special Initiatives has established a scheme called Microfinance And Small Loans Scheme (MASLOC), whose participating agencies are the Ministry of Food and Agriculture and other 5 ministries, Rural and Community Banks and other 9 banks and Ghana Cooperative Credit Union Association and other 4 Microfinance Institutions (MFI). MALSLOC provides micro-credit and small loans to the communities on their application. They

have a Brong Afaho regional office[1] in Sunyani town, as well.

It is recommended that FSD can network the target fringe communities with such institutions and assist the community to organize themselves and utilize such scheme for their investment.

MASLOC is providing micro finance to the group of people with minimum 5 to maximum 25, regardless they are registered to District Assembly or not. The amount to lend is 100 to 1,000GHc per person. The term of repayment is one year and interest rate is 10%, which is the lowest range for borrowing money from financial institutions in Ghana. People are supposed to visit their respective District Assembly (DA) to meet representatives of MASLOC posted in DA (normally two staff are posted in DA from MASLOC). MASLOC staff in DA will initially inspect the proposal from the people and final appraisal will be issued in the Accra HQ. According to the Sunyani regional office of MASLOC, the appraisal process takes one month.

According to the Sunyani regional office of MASLOC, there were 8,000 applications in B/A region in 2007 and among them around 3,000 were appraised. Total lending amount for all the country in 2007 was around US$50 million. What you have to write on the proposal is 1) name of the business, 2) amount required to borrow, and 3) purpose of the business. FSD could assist community to go through the process of the application.

3.2.9 Utilization of External Fund

As one of the possible external grant funds that the community might be able to access could be Small Grants Programme (SGP) under GEF / UNDP.[2]. SGP has been introduced in Ghana in 1992. SGP in Ghana supports community level initiatives that promote sustainable economic growth and social development within the GEF focal areas such as biodiversity conservation, climate change, land degradation, etc. The programme integrates poverty reduction as a critical entry point in environmental management and human development.

Eligible entity for SGP is NGO or CBO (Community Based Organization) registered in District Assembly. SGP activities include environmental management by establishing Community Resource Management Areas (CREMA) and Community Protected Area (CPA) that are managed by community initiatives. In addition to that, the programme promotes alternative livelihood (income generation) activities to link environmental management and poverty reduction of the locals who are engaged in the environmental management.

IGA or GB activities and concepts developed by PAFORM are considered consistent with the targets of SGP such as climate change, land management etc. However, to access to the programme, community members have to register to the District Assembly as CBO. It may not be easy for the community members to develop themselves to become a registered CBO, but FSD could assist organizing the community members who show their dedicated commitment through GB and IGA.

According to the programme officer of SGP, SGP provides maximum US$50,000 per project. There are 60 to 70 applications from allover the country every year and 15 to 18 projects among them have been appraised every year. That calculates US$22,000 to US$27,000 per project on average. It may indicate that acquiring the fund would not be an easy business. SGP also provides a fund for capacity

[1] MASLOC Brong Afaho Regional Office
2nd Floor, Queen of Peace Building, P.M.B. Sunyani Tel: 061-28167

[2] Contact: THE GEF / SMALL GRANTS PROGRAMME
UNDP
P.O. Box 1423, Accra Tel: (233-21) 227323 Fax: (233-21) 779970 Email: gefsgp@ghana.com

building with maximum US$3,000 per party. This fund is provided to NGO and CBO whose applications were disqualified. NGO or CBO can use this fund for their capacity building such as attending training course. SGP has also been providing a capacity building workshop every year to the candidate groups to apply SGP. Though access to SGP would not be easy, FSD could consider assisting the community to organize themselves to be registered CBO.

Information on Small Grants Programme (SGP) (interview to programme coordinator of SGP)

- Small Grants Programme (SGP) is available for NGOs and community (CBO)
- New York HQ allocates the fund every year in July.
- This global fund is distributed to 119 countries.
- Programs / Projects related to the following five fields are eligible.
  1) Biodiversity conservation (tree planting, fire protection, etc,)
  2) Climate change mitigation (tree planting, renewal of energy materials (stove, etc,))
  3) POP (Persisting Organic Pollutant) e.g. organic farming
  4) Sustainable land management
  5) International water (e.g. Volta river)
- Livelihood support is a cross-cutting issue for all the fields (each activity can (or should?) include livelihood component)
- How to apply for the fund:
  1) The applicant must be recognized organization by law (NGO certified by Registry General Department and the Ministry of Social Welfare, or CBO certified by District Assembly or Environmental Protection Agency)
  2) Firstly they have to identify the problems to solve
  3) Secondly identify what intervention is necessary
  4) Thirdly the organization must show evidences that they talked to the community and the ideas of the project come from the community (not the organization's own idea). Community would prepare letter to certify the organization who will work for them.
  5) Fourthly, they have to submit a concept paper of around 2 pages (application form)
- A Committee consisting of the committees of NGOs, Donors (WB, UNIDO, UNDP), and Academics is formed with 11 members to evaluate the applications.
- The fund to be given is maximum 50,000 US$/project or organization, but in most cases they would get less than the maximum and if the performance is good, the second found would be given (e.g. 1st phase 30,000US$ and then 2nd phase 20,000US$).
- SGP will carry out monitoring for the funded projects.
- The fund is released in July every year. Applicants can submit the application anytime throughout the year and normally the evaluation takes 3 months. Since the July is the fund-releasing month, it is better to submit the application before July (January to June).
- SGP started in 1992 and now its 4th Phase (2007 – 2010). On average 400,000US$/year has been funded. 60 – 70 applications have been received annually and 15 – 18 applications have been approved per year.
- Those who are judged that their capacity is not good enough, SGP recommends them to apply for Planning Grant: SGP provides 3,000US$ for capacity building activities of the organization (attending training, workshop etc.).
- Also SGP organizes a week capacity building workshop every year and invite the organizations who did not qualify for the funding.
- Partnership program is with other donor agencies, not with the Government (for CFMP, it is an agreement between AfDB and GEF).
- To apply for partnership for PAFORM, agreement between JICA and GEF should be made.
- GEF also has a scheme to fund the government (Large GEF and Medium GEF). Regional office is located in Senegal.

3.3 Recommendations for Implementing Green Belt (GB) Activity

3.3.1 Lessons learned for GB establishment during the field activities in Tain 1 and Nsemere

1) GB size and participants number

The proposal to invite community members to attend Green Belt establishment was very attractive for them because they can expect to harvest fruit in near future as well as to use the land for farming same as Taungya System. FSD proposed to allocate boundary area of the FR as GB to protect the FR against encroachment, illegal felling and suspecting activities for fire prevention under the continuous observation by the community people.

For the GB establishment, FSD ensured to provide land and seedlings, and community members agreed to plant the fruit trees and maintain them. The problems were limitation of both areas GB allocated (maximum in full length of the perimeter) and FSD's budget. Expected numbers who wanted to join was not small. How the area of GB shall be divided into communities and how the community set up the GB groups were big issues. Therefore, GB groups need to be manageable size to maintain the communication among the members.

The project proposed 300 m (x 40 m = 1.20 ha) for a GB Group roughly consist of 30 community members at the first year. Each GB group selected a convenient place for fruits planning and for their daily works.

First, people told that the 300 m for 30 persons is too narrow. They requested that size should be expanded next year. Wild fire attacked the GB and planted fruit trees were almost destroyed on the first year. Then, FSD proposed additional 600 m for each community and replacement for the first 300m (900 m x 40 m =3.6 ha) in the following year.

However, the GB group learned that maintenance of the GB is not easy work and 900 m is too heavy for them. Therefore, they selected 300 m recovery and 300 m expansion (Total 600 m x 40 m = 2.40 ha). Further, membership 30 was suitable size for management according to their experience. Some members did not attend the allocated work and they had to pay fine. In second year, most of GB group made minor member change and several new members were welcomed.

It means, the GB group membership may be suitable roughly 30-40 members for maintaining the Group unity. The size of GB for a group can be expanded to 400-500m (1.6 - 2.0 ha) per each community.

2) Securement of the land use right for GB

GB areas were surveyed and marked on the map. Temporally pegs were set up at every point (50 m interval). The area was defined at paper map and attached to the Memorandum of the Understanding (MOU). The point records were also added to the map as Longitude and Latitude. GB area is secured both for FSD and GB group. The MOU with map shall be endorsed by the District Assembly, Traditional Councils and Regional Forest Office by means of witness signature.

PAFORM Project planned to set up concrete pillars on the every survey points to show the boundary on the ground. But the plan was not be implemented. FSD and GB group both sides did not recognize the necessity for setting up the pillars because the boundary of the GB is always clear. GB group maintains the area by weeding, therefore, if the fruit trees grown, people and FSD can identify who have the right to harvest the fruit.

At least 2-3 years, the boundary line will become very clear as following pictures show. Grasses inside the GB are cut properly.

In Ghanaian custom, land use right under the Chieftaincy is authorized by the chief. There are no written agreements about who use the land, but it may be clear for every community member. In this meaning, additional new land marks for GB area may not so be important for the GB members.

Asuofri GB area | Kwatire GB area | Afras 1 GB area

Boundary of the GB is easy to identify, GB group cutting grass inside the GB. In dry season they cleared boundary grass for the fire prevention.

Principally, boundary line of the FR is secured by stone pillars and annual maintenance works by the FSD. GB needs to be maintained for long time, more than 50 years. Responsible FSD staff will be transferred and FSD may change the position. Records can be stoked unknown filing cabinet. GB group members will be changed into their sons and daughters. Therefore, the MOU is important and it is evidence in legal basis. And set up the land marks on the real ground is evidence for the use of GB for long time for assuring the right to the successors of the original GB group members in the future.

Some special trees are expected to be planted as landmark for community members to identify the location at the corner of the GB.

3) Technical and general support from FSD

Planting Fruit trees was the first experience for the GB group members, therefore, PAFORM provided technical support for them. Community members know how to plant Teak (1100 seedlings per hectare), but method of Mango and or Citrus planting are different from that of teaks. FSD requested MOFA to conduct technical guidance. MOFA staff visited every community/GB site, and explained how to mark the positions for digging the planting hole, using meter tape and rope and how to make planting holes. The seedlings were delivered to the site when GB group finished the land preparation and digging the planting holes.

Planting had been done smoothly by the GB group in a day for their allocated area. After 3 month, the seedlings are growing well. Survival ratio in 2008 (2nd year) is exceeded 90%

Kwatire: 2007 Planted Citron | Kwatire: 2008 Planted Citron | Kobedi: 2008 Planted Mango

After planting, Community Facilitator (C/F) occasionally visited the GB sites and advised the suitable timing of weeding. GB group members also occasionally visited, observed the site, and decided to conduct weeding by themselves. If GB group succeed in protecting the GB against wild fire, the Citrus will bear fruit in 3-5 years later.

In the future, trimming and grafting techniques for getting good fruit are expected.

The GB maintenance is long term work. Unexpected incidences may occur, and young seedlings can be affected by these incidents. Therefore, it is recommended for GB group members to have their own nursery. Although PAFORM did not practice community nursery establishment because of limited time flame, if the community members can manage a nursery, it will be possible to produce funds through selling the seedlings.

FSD shall obtain necessary technical skills, and shall implement technical advices for the GB group(s) by themselves. Occasional and timely advices are expected. Ordinary visiting and finding the problems is most important collaborative works with GB group and FSD. The limited existence for technical services by the FSD officers was a problem to be reinforced.

3.3.2 Recommendations for disseminating the GB activities

Through lessens learned of the GB activities by PAFORM, following points are recommended for disseminating the Green Belt activities to other FRs.

1) Site selection of GB establishment

If many community members participate in GB activities, much interest and care will be paid to the FR protection. If wild fire occurs, many people will come and fight against the fire.

The total area of planed GB may be expected to be divided into several parts to meet the number of the fringe communities and its population size. Every community will establish several GB groups, and divides the areas to each GB group.

It may be difficult to arrange areas for many communities and GB groups. The available officer of FSD is one or two persons for a FR. FSD need to provide budget at least one year before the GB planting.

Therefore, the GB area allocation to GB group should be implemented gradually. At first, it is recommended to select 2-3 communities and to conduct workshop. If the community agreed to join the GB activities, FSD can assist a group formation. The group member is expected to share the work for land preparation, planting holes digging, and planting seedlings within one day work respectively. 30 members for 300m x 400m is one of choice based on the experience in PAFORM.

The member size and quantity of the allocating area depends on FSD budget; therefore, FSD shall prepare the budget for a community by means of possible number of providing seedlings at the community workshop. Then, FSD shall decide target communities and GB group(s). The number of the GB group shall be gradually expanded and covers total fringe communities in the future.

2) Securement of the GB area for GB group

GB establishment by GB group is implemented based on MOU (Memorandum of Understanding) in PAFORM. The location was surveyed and shown in the maps. Any legal parties can identify the GB area on the ground by using these maps.

MOU can be evidence for the GB area. Therefore, keeping the original MOU is very important. The Document shall be kept not only the both sides but also the related traditional authority and legal authority such as lawyers.

On the ground, boundary pillars constructions on the every survey points (50m interval) are advisable. But any pillars will be destroyed within the long time flame; therefore, at the same time, it is suggested that GB group shall plant an ornament tree as commemorative. After 10 years, it can be the symbol of the cooperation between FSD and GB group.

3) Option to reduce cost

For disseminating the GB activity in sustainable manner, cost is unavoidable factor. If the cost is high, FSD could not continue the GB establishment for nation wide. The projected cost for a GB group for 300m (1.2 ha) is 7,500GHc and more for first 2 years for preparation and planting, in addition, annual maintenance cost may be 1,990GHc and more. Within this figure, Government side/FSD needs to shoulder 6,500GHc for establishment and 430GHc/year for general administration. (GB group will shoulder 1040GHc for construction stage and 1,500GHc/year term for maintenance by means of their labor force). The figure seems to be rather expensive. What are the main reasons?

The cost projection shows that first year for preparation, mainly formulating participatory W/S and establishing the GB group. FSD has to conduct rather large scale of W/S. In general custom of Ghana, FSD needs to provide “Lunch” for all participants on such occasion, and it cost more than 1,260 GHc (200 community members’ attendance).

The first stage to introduce the GB activities into a new area/district, large scale community W/S and procedures for getting approvals from the traditional authorities; nevertheless, these W/Ss and procedures can handled more simplified manner in second, third year, and can reduce travel cost for outside advisors, authorities (reduce the number of participants). If FSD can conduct community W/S without shoulder the lunch, and with small number of FSD staffs, the cost can be reduced from 1,500GHc to 200GHc (2 FSD staff 2 days). Next important item is W/S for stakeholders. It is also need on the first stage to get general understanding from various peoples concerned; nevertheless, if the concept is approved, the seminars can be reduced in scale. The cost for W/S 1,950GHc may be reduced to 500GHc (meeting room + stationary). Then FSD shall shoulder the cost for preparation is around 925GHc per each GB group.

Direct expense for planting is projected 1,050GHc roughly, 500GHc belongs to FSD and 550GHc belongs to GB group. Direct cost for planting, FSD needs to shoulder the cost for seedling and technical service. The technical service depends on MOFA staff. If FSD can handle the technical training and services, cost will be reduced. Even the technical services are requested to be done by MOFA, this direct expense will be 500GHc by FSD, may not be so expensive but rather reasonable.

If the GB activities become common practices in nation wide, the construction cost shouldered by FSD may be reduced into 2,300GHc per GB group and 430GHc/year for general administration. The range/plantation supervisors shall handle the supporting works for the GB group.

Table 3.3.1 Alternative Cost Estimate

Item	Original projection			Reduced projection			Main factor to reduce the cost
	FSD	GB group	Total	FSD	GB group	Total	
Direct Expenses							
Land preparation	75.0	361.5	436.5	75.0	361.5	436.5	
Planting	427.9	140.0	567.9	427.9	140.0	567.9	
Maintenance		48.0	48.0		48.0	48.0	
Sub total	502.9	549.5	1,052.4	502.9	549.5	1,052.4	
Indirect Expenses							
Preparation W/S	4,135.0	320.0	4,455.0	925.0	320.0	1,225.0	**Not provide Lunch**
Land demarcation	504.0	47.0	551.0	358.0	47.0	405.0	
Land preparation	313.0	0.0	313.0	129.0	0.0	129.0	**Technical guide by FSD**
Planting	92.0	0.0	92.0	44.0	0.0	44.0	
General administration	930.0	120.0	1,050.0	364.0	120.0	484.0	**MOU signing event simplified**
Sub total	5,974.0	487.0	6,461.0	1,820.0	487.0	2,307.0	
Grand total	6,476.9	1,036.5	7,513.4	2,322.9	1,036.5	3,311.4	
General administration	432.0	1,512.0	1,994.0	432.0	1,512.0	1,994.0	

3.4 Recommendations for Income Generation Activities (IGA)

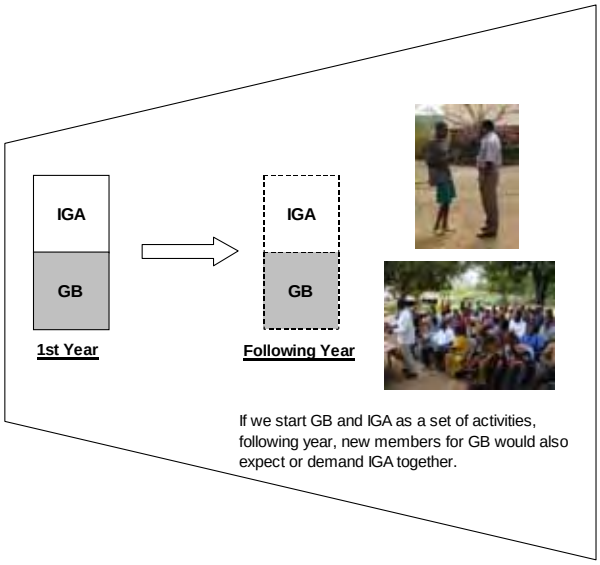
3.4.1 Independent Implementation of Activities (Portfolio of Activities)

It is recommended that activities such as MTS, GB and IGA should be implemented independently in order to make unit cost of activity as low as possible, because concentrating the options of activities on one group of the community members, i.e. combining the activities as a set would create a financial constraint to expand and continue the activities.

For GB activity, it is required to select around 30 people per year who can receive the land for GB activity due to possible land reclamation in a year. GB is planned to establish every year and because the boundary of the forest reserve would be long enough (Circumferences of forest reserves in Brong Ahafo region varies from 20km to 270km), eventually all the community members would get a portion of land for GB as the activity continues year by year. From this viewpoint, it might be an option that IGA could be implemented targeting GB croup members every year in order to reach the whole community.

However, concentrating activities on one group, i.e. combining different activities and put them into one group would bring a financial risk. If GB and IGA were combined and targeted to one group of the community members, the same set-up would have to be applied for other groups for extending the activities. If we decide to implement only GB when budget is short, the community members might not accept it or complain about it since the group assisted in previous year had also received assistance for IGA.

Once we start the activities of GB and IGA as a set of activities, we may have to continue the activities as a set in order not to make disparity among different groups to work with. Only the option left in the year of budget shortage will be scale-down both GB and IGA, e.g. to reduce the number of group from 30 members to 20. However, if we implement GB and IGA independently, there could be other options when the budget is short, i.e. to implement only GB or IGA.



CFMP funded by AfDB has been implementing Alternative Livelihood activities for MTS group. Alternative Livelihood activities in CFMP are implemented to link the natural resource conservation and poverty reduction in the fringe communities. Combining MTS and Alternative livelihood activities would, however, cause that the unit cost for promoting MTS becomes high.

To implement various forest reserve management activities with limited budget, it is recommended to make unit cost of each activity low, i.e. to implement each activity independently, in order to secure the options of activities (portfolio of activities) according to the financial situation of each year. Also not to combine activities and not to pour them into one group of community member would lower disparity between the members and non-members, even if non-members of this year would be targeted in the following year. Although GB or MTS is supposed to establish every year, if unexpectedly the activity got stagnant, the gap between the people who became the members of GB or MTS in early years and those who are still waiting to be a member of GB or MTS would be wider.

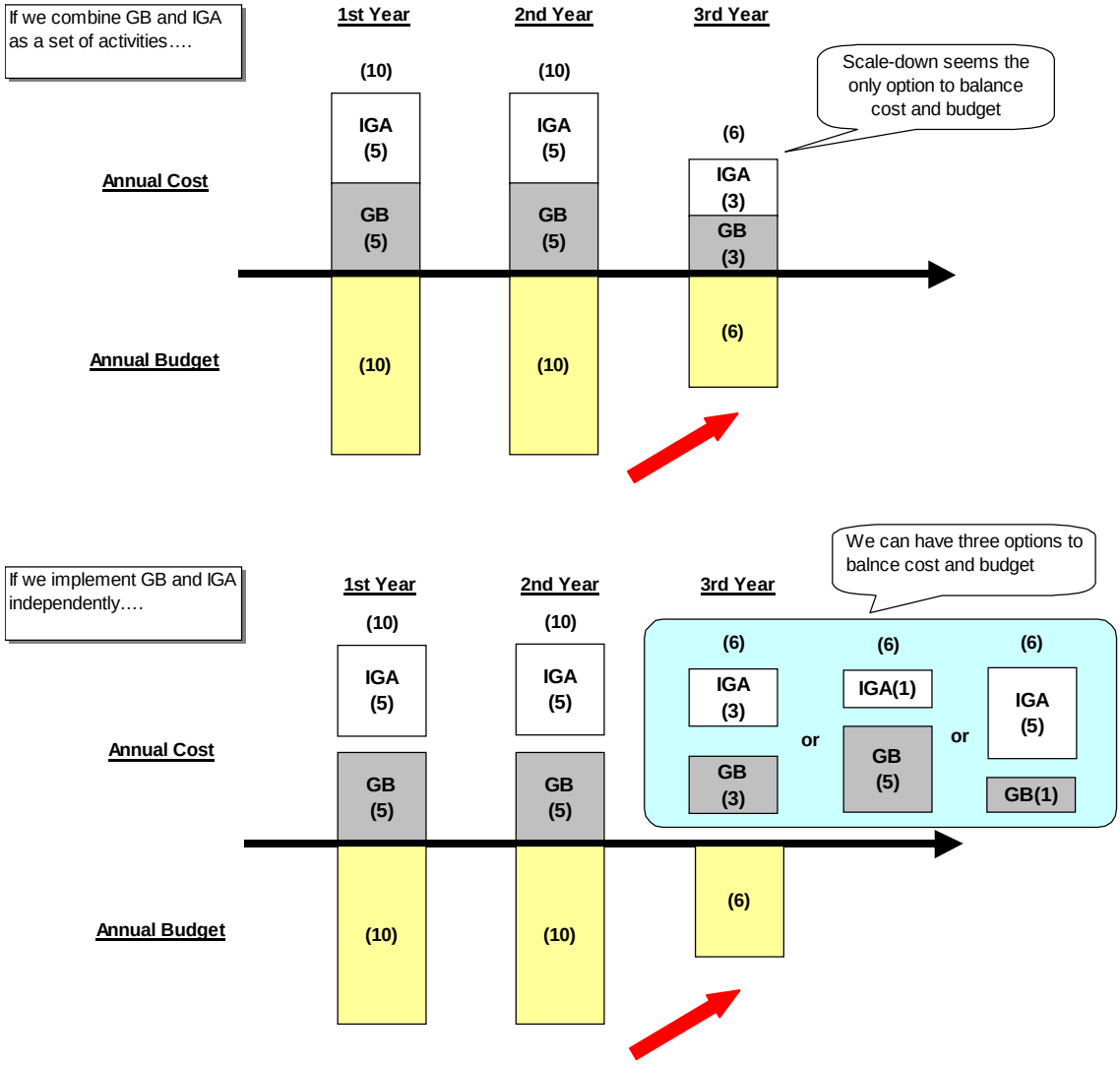


Figure 3.4.1 Options Widen by Independent Implementation of Activities

3.4.2 Issues to Be Considered in Implementing IGA

1) Provision of Inputs

Basic principle of IGA in PAFROM is to minimize input provision considering the extension of impact toward whole community (minimize control by the project and equitable opportunity for as many as people). One of the options is only to provide technical trainings and coordinate stakeholders to network. In case of considering physical input provision, the ownership of the community and public equity has to be taken into consideration.

As for the establishment of demonstration farms, it is assumed that necessary materials would be provided to the demonstration farms. This case might create disparity or jealousy to the other community members. To avoid this, consensus among the community members prior to the implementation should be made, e.g. to allocate a little seeds for individuals to try out.

In case of establishing demonstration facilities such as beehives, snail pen etc., increase of

establishment sites will result in swelling of FSD budget. For such case that considerable inputs are required, FSD could find committed farmers who can take care of the demo-facility through on-farm training and field visit. Also such process of activities, a person who will be given with the facility will be entrusted by the community, i.e. IGA process would enhance transparency in the community.

Table 3.4.1 Options for Inputs

Input	Option	Merit	Shortfall
Small inputs: Soybean seeds etc.	1. Do not provide	Does not create dependency	
	2. Provide only to demonstration farm		May create disparity between demo farm owner and community
	3. Provide community as trial input as well as demonstration farm	Impact could be greater.	Might create dependency
	4. Establish many demonstration farms and agree with the owner to surrender the half of the produce to the community as seeds	Considering the dependency on the project and equity between demo farm owners and community	
Large inputs: beehives, snail pen etc.	Start with on-farm training, then facilitate field visit. After that, consider the provision of inputs according to the situation of the community.	Step by step process may create transparency in the community and justify the provision on input to certain group of people.	Benefit may fall in the small number of the community.

2) Demonstration Farm /Facility

Location

On establishing demonstration farms /facilities, their location should be taken into consideration. If we decide to use private farm, we should consider the equity between the owner of the farm and other community members in terms of input provision. Otherwise it might cause a risk that the community members think that the activity belongs to the project but not to them. A measure could be to establish the demonstration farms at the site of public place like schools. In the big communities or communities near town, using public place might better serve the whole community. As for the small communities, the community is relatively well united so that it would be easier to make consensus among the community members under the supervision of the chief. Also considering tribal issue, not a single but a few demonstration farms / facilities in a community will be considered, so as for each and every community member to be able to access the demonstration farms.

Management of Demo-farm and Role of Mediator

Demo-farm was managed basically with the initiative of the farmer group, but the performance varied by community. Demo-farm groups with active leader and/or strong unity such as Adantia and

Kwatire showed good attention to their demo-farm and good harvest were achieved. On the other hand, some of the demo-farms are observed unattended. In Nyamponase, the demo-farm was covered with grass and resulted in nil harvest. The demo-farm group in Nyamponase made a rule to fine 4GHc for the absentee without reason. But the fine was too high for the members and they rather left the group instead of paying the fine.

Although all the communities should have a rule to share the work and benefit, some of them did not work. One reason could be the fact that the land was a common one, i.e. reclaimed for demo-farm with permission from landowner, who does not engage in farming. Since it belongs to no one of the demo-farm members, they might have thought each other that someone would care for it. As a result, no one cared for it.

Good leadership with the members to respect agreed rule should be a factor to be successful in demo-farm management, but actual situation is not always the case. It is then considered that mediators such as Odikro and FSD staff (C/F) themselves should more profoundly mediate the group when they face problems. Other way of coping with the risk of mismanagement of common land, there would be an option to use a private land of a farmer as demo-farm, so that responsibility of taking care of land will be clearer.

Clarification of The Role of Demo-farm

The Project initially planned to use demo-farm for one crop season only. Therefore, though some communities decided to continue using the demo-farm, most of the communities have already returned the land to the landowner after they finished harvesting crops. It is considered that the activity of demo-farm was relatively short. It is evaluated that compared to GB activity, which is considered as a long-term activity, incentives for building good relationship among the members of the demo-farm might have been weak and therefore the leadership among the group was difficult to grow.

The primary purpose of the demo-farm is to obtain knowledge from it and getting profit out of the harvest in demo-farm is secondary purpose. This principle might have caused the lack of incentive for farmers to well manage the demo-farm in PAFORM. For drawing incentive of farmers to well manage the demo-farm, it could be a way to plan the operation of demo-farm for long-term like for a few years rather than one crop season and define the purpose of demo-farm not only as the venue to learn but also to get profit.

Measures for Big Community

In some communities like Adantia, the number of demo-farm group is small compared to the population of the total community. Since the activity is based on the interest of the community members, small number does not always indicate negative aspect. However, still we could learn the situation of the community and improve the design of the project activities. In large community, it might be considered that the information dissemination should be somehow difficult to flow sufficiently throughout the community due to the size of the community. There might be a case, albeit it is assumption, that there are several groups of people mutually or historically formed within the community, so that when one group dominates an activity, other people would stop seeking the opportunity of joining the activity. In such case, not to consider a community as a unit but divide it to several blocks would be a measure to effectively reach the whole community, although the project has to consider its capacity (budget, number of staff etc). Apart from such assumption, further information collection on the real picture of the community should be carried out.

3) Group Organization

The lesson about group organization for the project is not to commit very much by the project. The experiences indicate that group organization by the external initiative would not likely to work, and so often recommended that the project avoid organizing rigid group such as registering members, preparing by-law etc. However, depending on the level of activities, group organization can be effective. For example, marketing can be effective in collective way. So, it should still be considered assisting the community to get together for the sake of effectiveness in the field such as marketing or purchasing materials. Table below summarizes the organization level. The lower the column is in the table, the more difficult the group organization will be to implement.

Table 3.4.2 Level of Group Organization (The lower in the table, the more difficult to organize)

Item	Level of Organization	Remarks
Technical Assistance	No need to organize group	
Soybean, groundnuts, soap making	Collective marketing	Even if collective marketing did not work, farmers could sell produce individually or use for self-consumption.
Mushroom	Collective purchasing materials (+ collective marketing)	Marketing can be individual basis.
Beekeeping (in case to use honey extracting machine)	Processor – Raw material supplier Collective purchasing materials (+collective marketing)	Formation of processor group would be required.

3.4.3 Economic Feasibility of IGA

(1) Expected Income from IGA Contents

Cost – benefit analysis on each IGA content is conducted referring to the existing data on MOFA, interviews to farmers, market prices and other information collected. On the analysis, it is assumed that the labor for the activities is managed within family labor. Also materials provided in their locality without purchasing, is eliminated from the cost. The analysis is, hence, to base on income for household instead of profit for enterprise. As for fixed capital, which can be sued for several years for the operation such as beehives, snail pens, soap cutter, annual depreciation cost is reflected to the cost. Table below summarizes the result of the analysis.

The analysis below indicates the standard of the cost and benefit for the IGA contents implemented in PAFORM. With the prices (average in 2008) and yield, all the contents can earn income. However, price and yield can fluctuate according to natural and market conditions and that will be the basic threatening to secure income from the activities. Following sections analyzes the factors to threaten the economic feasibility of the activities from the actual status of the activities in the pilot communities.

Table 3.4.3 Cost – Benefit Analysis by IGA Content (As of 2008 Average Price)

Item	Production (Crop: per 10a)	Unit Cost (GHc)	G. income (GHc)	Cost (GHc)	Net income (GHc)	Rent (GHc)	N. income 2 (GHc)
Soap	350 nos	0.3	105	91.9	13.1 (12%)	－	13.1
Parazole	20 gallon	2.5	50	24.5	25.5 (51%)	－	25.5
Pomade	24 nos	2.0	48	33.9	14.1 (29%)	－	14.1
Maize	200 kg	0.3	60	2.9	57.1 (95%)	20.0	37.1 (62%)
Groundnut	130 kg	0.5	65	5.6	59.4 (91%)	21.7	37.7 (58%)
Tigernut	36 kg	1.5	54	21	33.0 (61%)	18.0	15.0 (28%)
Soybean	150 kg	0.4	60	4.5	55.5 (93%)	20.0	35.5 (59%)
Mushroom	100 packs	1.5	150	55	95.0 (63%)	－	95.0
Beekeeping	40 liter/5hives	4.0	160	67	93.0 (58%)	－	93.0
Snail	200 nos	0.6	120	44	76.0 (63%)	－	76.0

Note: Data is based on MOFA and interviews to farmers. ( ) in income is net income ratio. Cost does not include family labor, so the profit is not calculated. Cost for crops consists of seeds and herbicides.

(2) Constraints and Opportunities Observed from Practice of IGA

Some of the IGA contents have not yielded the fruits yet making it difficult to assess the economy of the activities. Subject to such constraint, observations on IGA through the monitoring activity are described and analyzed.

1) Production

a) Soybean / Groundnut / Tigernut

Proper crop husbandry

Production of soybean, groundnut and tigernut on the demo-farm was far less than expected. Because it is a demo-farm managed by an instant made group, low production was much attributed to poor management of the farm. Most of the community members decided to self- consume or keep the produce from the demo-farm for seeds of next season. Anyway, the situation indicates that yield can be easily lower than expected unless proper care was not given to the farm.

Soil condition

Soybean was newly introduced crop in the pilot communities. In some demo-farms, number of pods was observed small and the size of the seeds was also observed small. The major reason is considered that there was absence of adequate root nodule bacteria especially due to the first time to grow soybean on the farm. From second crop, the condition would be improved, but when we introduce new crop to the area, soil condition should be considered.

Weather condition

Another critical issue is weather. Implementation of IGA and also GB was heavily affected by rainfall. It is very difficult to predict the climate change, but with current global trend of climate change, we should be fully aware of the risk of climate change especially for crop farming. The figure below shows the rainfall records from 2004 to 2007 in Sunyani District (MOFA Sunyani Office). The figure indicates that the rainfall from April to Jun and September to October is fluctuating very much.

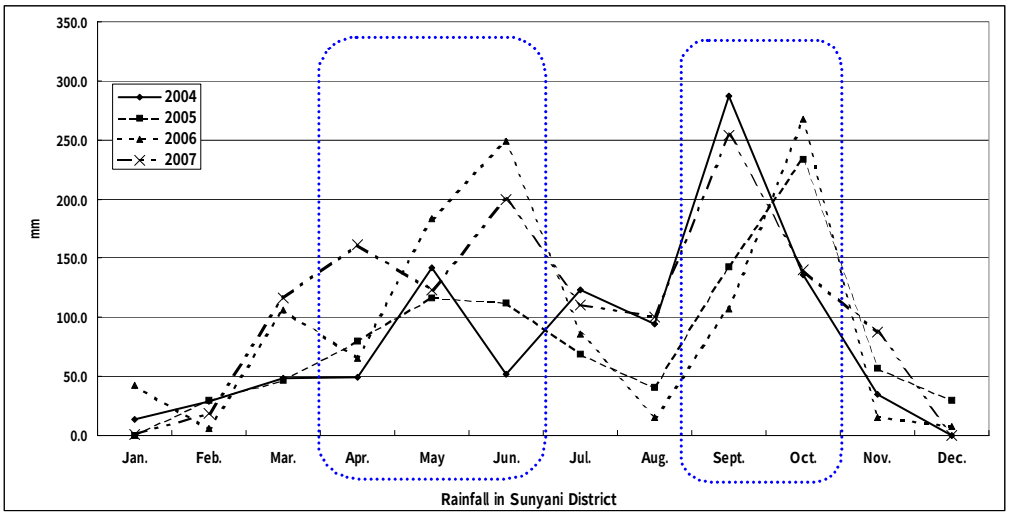


Figure 3.4.2 Monthly Rainfall in Sunyani from 2004 to 2007

b) Mushroom

Production of mushroom in the pilot communities has been also observed less than expected. Mushroom production introduced by PAFORM was to utilize mushroom pack produced by local advanced mushroom growers. If the mushroom pack was properly maintained, it could yield every five days for more than three months. However, some community members were saying the mushroom did not grow well from the pack. Following reasons could be attributed to the low production:

Proper watering

It needs watering to mushroom pack three times per day. If the pack becomes dry, the spore will not be activated. Regular watering, i.e. proper care for the pack will result in good harvest.

Proper way of picking mushroom

When picking mushroom from the pack, it has to be removed totally without leaving any roots. If roots remain in the pack, it will disturb the second growth of spore. Careful harvesting work is required.

Proper Housing

Mushroom pack should be stored in a house, which can maintain adequate humidity. Ideal house would be with thatched roof, mud wall, straw or thatched matt inside on the wall, and palm nut shell on the ground. Actually in the villages, majority of houses was made of mud wall and thatched roof. Therefore, if there were an empty local house in the village, it could be utilized for the mushroom pack store.

In actual practice in the pilot communities, they could not get ideal house to store the packs. That might have been the cause of low production, as well. Utilizing locally available materials including such empty house is an advantage of drastically reducing production cost. However, if the production is so affected, considerable amount of investment in store housing should be taken into account (an analysis will be given below).

c) Snail Rearing and Beekeeping

None of the community members have harvested for this contents, but AEA in MOFA and some advanced farmers gave advice to the project. The point is, the more attention is given to the snail

pens or beehives, the more harvest will be expected, i.e. labor and harvest is in trade-off relation. Snakes or aunts can attack beehives before bees are nested into the hives. Animals can also attack snail pen if it is not well attended. To increase survival rate is a key for high production. Survival rates of these contents would depend on the intensiveness of labor.

2) Loss during Processing and Post Harvest

a) Soybean / Groundnut / Tigernut / Maize

Post-harvest loss was also observed significant to the introduced crops. For groundnut and tigernut, damage from rats was reported from the communities. For soybean, because of prolonged rain in September, drying process of harvest took time and moisture content of soybean did not go down smoothly and significant amount was spoiled in the process (in Adantia, loss was reported at 30%). It is so difficult to cope with natural condition, but the storing produce should be taken into account.

For maize, the project conducted training for storage improvement. Most of farmers in the pilot communities store maize without removing husk. However, this practice causes to bring insects and caterpillars into the storage resulting in considerable loss. The project introduced to storing maize after removing husks. That could contribute to reducing post-harvest loss.

b) Soap making

It was observed in the communities that when they cut a bar of soap into pieces, there was some margin, which cannot be sold at the same price of the proper product due to irregular size. Accumulation of such loss will cause the low income. Especially because net income ratio of soap is low, reducing loss could contribute a lot to the return of business. To minimize the margin of soap, the size of soap bar cutter should be accurate to cut the soap bar into equal size.

3) Price Fluctuation (for Products and Inputs)

a) Market Price of Products

Seasonal Fluctuation

In relation to climate change, we can observe the fluctuation of market price of crops such as maize, soybean etc. Figure on the right hand shows the market price of maize and groundnut in Sunyani in 2007 (MOFA Sunyani). The price of groundnut indicates relatively stable trend throughout the year, but the price of maize varies from 0.1 GHc/kg to 0.25 GHc/kg. As for soybean, it was 80GHc/bag in August to September 2008 while 35GHc/bag in November 2008. It is important for even farmers in the community to monitor the market prices of the products.

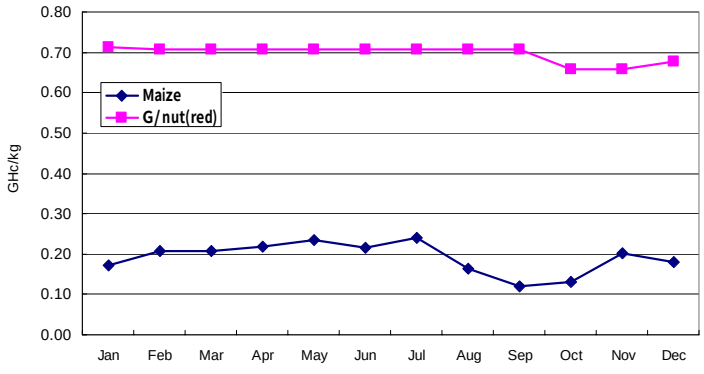


Figure 3.4.3 Market Price of Maize & Groundnut in 2007 (Sunyani) (Source: MOFA)

Variety

If you target scarce variety, it will fetch high return. PAFORM introduced white type tigernut, which is sold double price of black type one

Products with High Demand: mushroom and honey

According to the pilot community situation, market for mushroom seems abundant. All the mushroom are sold out very quickly within the local community market. Even some people come to buy mushroom to the custodian of the mushroom group. It is also reported from an existing advanced beekeeping farmer that honey is also the same situation with mushroom as the products were all sold out within the community and people outside the community come to buy honey. Farmers could challenge into these business since the demand for the products is high. As for parazole and pomade, they found less demand in the community, so the soap making group is rather concentrating on soap only.

b) Price of Inputs

Price for inputs will be another threatening factor for the activity. In IGA of PAFORM, the price of coconuts oil for soap making has increased making it difficult for the community members to re-invest in the business. The project sent the trainer again to the community and introduced alternative ingredient (perm oil instead of coconuts oil), which is cheaper.

4) Procurement of Seeds / Inputs

Procurement of inputs is another issue to continue the activity. Most of the inputs for the contents tried in PAFORM are available in around Sunyani, but caution for procuring inputs would be given to especially soybean. There are farmers in and around Sunyani who can provide soybean seeds, but the quality of the seeds are not certified. If the quality of the seeds is bad, germination will be poor. Certified seeds are available in Tamale, very long distance from Sunyani. Therefore, the Project conducted seed storage training to keep some seeds from their first production. Procuring quality seeds would be critical. MOFA could provide information about where to get quality seeds. Also since MOFA is promoting soybean crop, FSD could request MOFA that FSD join in them and include the fringe communities in MOFA's target.

5) Home Consumption

It has been observed in the pilot communities that significant amount of the products are self-consumed. Because of self-consumption, the gross return of sales does not meet the production cost (soap and mushroom). Therefore, the community members feel difficulty in re-investment. Because they have to source the cost for procurement not from the earnings but from their pocket, they feel reluctant to re-invest in the second round of the business.

Unlike industrial goods, foods and consumables can be self-consumed even if the products were not able to sell. Also self-consumption reduces daily expenditure of the household account. But it has to be in their calculation that the cost will meet with the sales of all the amount of production.

6) Utilization of Local Materials

As has been discussed, utilization of locally available materials will contribute to drastically reducing cost of production. Examples from the PAFORM pilot activities are mushroom storehouse, animal house, snail feeds and pen. Snail can be fed with cocoyam leaves and fruits and they require little amount so that the feed can be collected just from home garden.

As for snail pen, the project introduced rather expensive high standard pen as used in the economic analysis, but it can be built with locally available materials, as well. Self-invention of farmers has been proved applicable from the actual practice of the farmers in the pilot communities. After the

on-farm training, more than 10 farmers in Kofitumkrom and Asuofri communities have built their own snail pens with little amount of cash spending, though some pens were inadequate (easy to get heat), so that survival rate was low. Technical advice to the farmers is still necessary together with the self-invention of farmers.

(3) Measures to Secure Income

Considering the structure of the cost, production period, market environment as well as lessons learned from the pilot activity, basic measures to secure income for IGA contents are suggested as following description.

1) Soap, Parazole and Pomade

They require considerable cost, so that the net income ratios show relatively low. Advantages of these products are high turn over of capital, lower labor intensity compared to crop production and the point that people can make these products at home. Making high turn over of capital by selling the products as quickly as possible in the market will be the factor to contribute to high income. According to the actual practice in the villages, demands for parazole and pomade are relatively low so that the community members were rather concentrating on soap making, which can expect stable demand.

Also as happened in the pilot activity as mentioned above, the rise of cost can be expected especially the ingredients for soap, parazole and pomade are foreign products, which can be influenced from the international markets. The producers should acquire knowledge on alternative ingredients whose costs are cheaper, or it must be considered to increase of selling price of the products when the production cost gets higher.

2) Crop

The cost is considered only for seeds and herbicides, the net income ratios of the crops are calculated as high as around 90%. However, most of the farmers are renting land from the landowner with share cropping contract, (absa) for which they pay one-third of produce to the landowner. Therefore, the net income ratios of the crops for the peasant farmer are estimated at around 60% (except tigernut). Income increase by crop production can be achieved by yield increase, quality improvement, reduction of loss during storage, and selling the products at the period when the price becomes high.

Introduction of new crops enables farmers to select the crops to grow. Combination of several crops to grow is a measure to avoid risks from fluctuating factors such as climate situation, market situation. Inter-cropping of legume and maize is also a suggested measure to maintain the soil fertility. Leguminous crop fixes nitrogen from the air; so that better or stable yield can be expected.

Inter-cropping (maize and groundnut) in Awhene demo-farm

Introduction of soybean, which is legume, is meant not only for its product value but also for soil fertility maintenance. Inter-cropping with groundnuts will also be effective. As well as nitrogen fixing effects, leaves of groundnuts can work as mulch, which can suppress weeds and maintain moisture in the soil.

3) Beekeeping

The depreciation costs of beehive, bee suit, smoker etc. should be taken into account. Its net income

ratio shows relatively lower. Increasing the number of beehive makes the efficiency of use of bee suit and smoker high and increasing yield will be the key to increase income. Labor and yield are in trade-off relation as intensive care should be able to avoid risk of non-nesting due to invaders such as snakes and aunts. Local demand for honey seems very high.

Table 3.4.4 Efficiency Increase by the Number of Beehives

No. of Beehive	1	2	3	4	5	6
Yield (liter)	8	16	24	32	40	48
G. Income (GHc)	32	64	96	128	160	192
Annual Cost for Beehive	7	14	21	28	35	42
Annual Cost for Bee-sutis etc.	21	21	21	21	21	21
Cost for bee wax	2	4	6	8	10	12
Total Cost (GHC)	30	39	48	57	66	75
N. Income (GHc)	2	25	48	71	94	117
Ratio (%)	6%	39%	50%	55%	59%	61%

Note: Costs of bee-suits and smoker are constant as the cost of beehive increases with number.

4) Mushroom

Farmers can buy the mushroom packs from suppliers, but they have to buy the packs in bulk to reduce the transportation cost. It needs some extent of scale to establish the mushroom production as business. Empty houses left in the villages give a good condition to store the mushroom packs. That is an advantage of the farmers in the villages. But if the house is not in good condition, investment in renovating the house into adequate storehouse should be taken into account. In case the one wishes to establish the facility for making mushroom pack, it needs considerable capital and intensive training for the skill. Analysis for establishing facility will be given below. Local demand for mushroom is also very high.

5) Snail Rearing

Maintaining high survival rate of the snail will lead to high return, but it requires intensive labor. Survival rate of snail and labor intensiveness would be of trade-off relation. Although the construction of high standard snail pen costs a lot, it can be made with locally available materials, as well. In such case, the cost can be drastically reduced. To increase survival rate, fencing would be an effective investment to protect the pen from animals. Locally available materials like bamboo or off-cuts of timber can be utilized to build fence cheap.

Fencing snail pen (Adantia community)

(4) Towards Sustainable IGA: Issue of Capital

During the field monitoring, issue of lack of capital to continue or expand the activities was so often heard from the communities. In this section analyzes the issue of capital using cash flow sheet for the IGA contents, which requires considerable initial cost. Initial cost is swelled by the amount of fixed capital. Cost of consumable inputs should be recovered from the gross income of the production, but fixed capital cannot normally be recovered by one round of production. Here we analyze how long it would take to recover the capital. The contents in question are soap making, beekeeping, snail rearing and mushroom.

1) Soap

Fixed cost consists of soap cutter, big bucket, hand gloves and hydrometer. Duration of these items is assumed as 5 years except for hydrometer. The cost for these items is estimated at 42GHc in total. For soap making, interval of production depends on how quickly you sell the products. Because the fixed cost is not high, you can recover the capital even after the second round of the production (350 pieces per time is produced). Table below shows the cost recovery according to the number of operation for soap making. The table indicates that if only one round of production per year would not recover the capital but 2 times per year would already recover the capital, and as you increase the operation, the income ratio will get higher. Increasing turn over of the capital is one of the keys for increasing income and this point would contribute much to soap making.

Table 3.4.5 Income from Soap Making

Interval	Every year	Every 6 months	Every 4 months	Every 3 months	Every 2 months	Every month
Production per year (batch)	1	2	3	4	6	12
Fixed Cost 'GHc)	42	42	42	42	42	42
Consumable (GHc)	84	168	252	336	504	1,008
Total Cost (GHc)	126	210	294	378	546	1,050
G. Income (GHc)	105	210	315	420	630	1,260
N. Income (GHc)	-21	0	21	42	84	210
N. Income Ratio (%)	-20	0	7	10	13	17

2) Beekeeping

Fixed cost for beekeeping consists of beehives, bee-suit and smoker. It is assumed that durations of beehives, bee-suit and smoker are 10 years, 5 years and 10 years respectively. If you prepare 5 beehives, one smoker and 2 sets of bee-suits, it would cost 470GHc as capital. Adding to bee wax, initial cost is estimated at 480GHc. According to cash flow shown on Table 3.6, it would take four years to recover the capital from the income of honey.

Table 3.4.6 Flow Analysis: Beekeeping with 5 Beehives

	Cost					B - C	
Year	Beehive / smoker	Beesuit	Bee wax	Total	Benefit	per year	Cumulative
1	370	100	10	480	160	-320	-320
2			10	10	160	150	-170
3			10	10	160	150	-20
4			10	10	160	150	130
5			10	10	160	150	280
6		100	10	110	160	50	330
7			10	10	160	150	480
8			10	10	160	150	630
9			10	10	160	150	780
10			10	10	160	150	930
11	370	100	10	480	160	-320	610
12			10	10	160	150	760
13			10	10	160	150	910
14			10	10	160	150	1,060
15			10	10	160	150	1,210
16		100	10	110	160	50	1,260
17			10	10	160	150	1,410
18			10	10	160	150	1,560
19			10	10	160	150	1,710
20			10	10	160	150	1,860
Total	740	400	200	1,340	3,200	1,860	15,400
						IRR =	43%

In case preparing only one beehive, Table 3.7 indicates that cost recovery would not be possible. Therefore, it is analyzed that beekeeping would have to start with at least two beehives. In case of having two beehives, the capital can be recovered in five years. The analysis suggests that it would be easier to start beekeeping with small capital, but it would take longer time to recover the capital. It is also estimated that if you have more than seven beehives, you could recover the capital in three years.

This analysis assumes the yield of 8 liters per beehive per year. If proper care is not given to the beehives, the yield will be lower than that. It is therefore remarked that the more number of beehive you take care, the more attention should be given to beehive husbandry. Normally beehives can be placed close to each other, hence the labor intensiveness would not increase drastically according to the number of beehives, but the aspect of labor should also be taken into account.

Table 3.4.7 Flow Analysis: Beekeeping with 1 Beehive

Year	Cost				Benefit	B - C	
	Beehive / smoker	Beesuit	Bee wax	Total		per year	Cumulative
1	90	100	2	192	32	-160	-160
2			2	2	32	30	-130
3			2	2	32	30	-100
4			2	2	32	30	-70
5			2	2	32	30	-40
6		100	2	102	32	-70	-110
7			2	2	32	30	-80
8			2	2	32	30	-50
9			2	2	32	30	-20
10			2	2	32	30	10
11	90	100	2	192	32	-160	-150
12			2	2	32	30	-120
13			2	2	32	30	-90
14			2	2	32	30	-60
15			2	2	32	30	-30
16		100	2	102	32	-70	-100
17			2	2	32	30	-70
18			2	2	32	30	-40
19			2	2	32	30	-10
20			2	2	32	30	20
Total	180	400	40	620	640	20	-1,400
						IRR =	1%

3) Snail

Fixed cost for snail rearing is the pen, which costs 294GHc as a high standard one. Duration of the pen is assumed as 10 years. The cash flow analysis on Table 3.8 indicates that it would take three years to recover the capital. As experienced in the pilot activity of PAFORM, farmers can make snail pen with locally available materials, so that the capital can be drastically cheaper.

Table 3.4.8 Flow Analysis: Snail Rearing

Year	Cost				Benefit	B - C	
	Snail pen	Snail var		Total		per year	Cumulative
1	294	15		309	120	-189	-189
2		15		15	120	105	-84
3		15		15	120	105	21
4		15		15	120	105	126
5		15		15	120	105	231
6		15		15	120	105	336
7		15		15	120	105	441
8		15		15	120	105	546
9		15		15	120	105	651
10		15		15	120	105	756
11	294	15		309	120	-189	567
12		15		15	120	105	672
13		15		15	120	105	777
14		15		15	120	105	882
15		15		15	120	105	987
16		15		15	120	105	1,092
17		15		15	120	105	1,197
18		15		15	120	105	1,302
19		15		15	120	105	1,407
20		15		15	120	105	1,512
Total	588	300	0	888	2,400	1,512	13,230
						IRR =	54%

4) Establishing Mushroom Pack Making Facility

In case of purchasing mushroom pack from outside enterprise, there will be no fixed cost unless you build a new storehouse. But if you go into mushroom pack production, it requires significant capital. The amount capital depends on the capacity of facility to establish. According to the interview to a mushroom pack-making farmer in Sunyani, following estimation is made:

- Capacity of the facility: 3,000 Packs per year.
- Concrete yard: 10 feet x 10 feet
- Storehouse: constructed

Costs for shade (storehouse), concrete yard, materials including one drum, a shovel and a sprayer are estimated at 800GHc, 250GHc, and 76GHc totaling 1,126GHc as fixed cost. Cost for making one mushroom pack is estimated at around 0.25GHc and the pack is sold at 0.4GHc. With these assumptions, the number of mushroom pack to make and sell to recover the capital is calculated at around 7,300 packs. Since the capacity of the facility is 3,000 packs per year, it would take three years to recover the capital.

Table 3.4.9 Flow Analysis: Mushroom Pack Facility (3,000 Packs/year)

	Cost						B - C	
Year	Shade	Concrete yard	Drum etc.	Materials for pack	Total	Benefit	per year	Cumulative
1	800	250	76	736	1,862	1,200	-662	-662
2				736	736	1,200	464	-198
3				736	736	1,200	464	266
4				736	736	1,200	464	730
5				736	736	1,200	464	1,194
6			76	736	812	1,200	388	1,582
7				736	736	1,200	464	2,046
8				736	736	1,200	464	2,510
9				736	736	1,200	464	2,974
10				736	736	1,200	464	3,438
11			76	736	812	1,200	388	3,826
12				736	736	1,200	464	4,290
13				736	736	1,200	464	4,754
14				736	736	1,200	464	5,218
15				736	736	1,200	464	5,682
16			76	736	812	1,200	388	6,070
17				736	736	1,200	464	6,534
18				736	736	1,200	464	6,998
19				736	736	1,200	464	7,462
20				736	736	1,200	464	7,926
Total	800	250	304	14,720	16,074	24,000	7,926	72,640
							IRR =	69%

(5) Conclusion

All the IGA contents introduced in PAFORM can be economically feasible as long as proper management is exercised. However, as analyzed above, there are number of risks to threaten the profitability of the activities. As pointed out in several occasion above, commitment to the activities could reduce the risks. As heard from community members, it is indicated that acquiring knowledge and skill would encourage farmers to commit themselves.

On the other hand, issue of capital has been clearly stated in the above economic analysis. Economic analysis suggested the amount of the capital necessary to start the business and the period to recover the capital. Apart from soap making, the analysis indicates that it would take three to four years to recover the capital for beekeeping, snail rearing and mushroom pack production (But also it was evidenced that farmers can reduce cost by using their local materials).

FSD could consider providing the community with subsidy for the capital to start the IGA. However, the amount of subsidy, which can be provided from FSD, is limited, alternative ways to cope with the issue should be taken into consideration. One way to cope with capital issue is to access micro-finance facility. FSD can also work for the community to network with them and outside opportunity and help organize community members to tackle the capital issue.

Because IGA in PAFORM provided only inputs for demonstration purpose, the materials provided to the community was so limited that the community members who share the same interest formed a group voluntarily. The group can be called as Common Interest Group. Community members could effectively organize group when they share interest. IGA in PAFORM started with on-farm trainings, and the approach was to expect that the community members grow their interest and commitment and through the process, committed people would be identified so that when FSD decides to provide subsidy for the capital of IGA, the target will be more clear and transparency for selecting people to receive subsidy will be installed in the community. The point that the economic feasibility is based on the commitment of people will also be the point for external assistance.

< Supplementation>

Soap Making

1. Cost -Benefit of Soap Making

(1) Cost of Materials for soap making

Item	price	unit
Sodium hydroxide (liquid)	2.00	bottle
Sulfric acid	2.00	
Binder (chemical)	2.00	
Multi-purpose chemical (reducing acidity)	2.00	
Sodium hydroxide (Soda)	6.00	6kg
Coconut oil	60.00	6 gallons
Colors yellow and blue	2.00	
Perfume	7.00	1bottle
Detol	1.00	1bottle
Soap cutter (GHc22/5 years)	4.40	
Bucket (big) (GHc10/5 years)	2.0	
Hand gloves x 2sets (GHc5/5 years)	1.0	
Hydrometer (GHc5/10 years)	0.5	
Total amount	91.90	GHc

(2) Gross income by soap sale

350 pieces of soap from the materials

350*0.3 =105.00 GHc

(3) Net Profit

13.10 GHc

3. Cost -Benefit Of Parazole

(1) Cost of Materials for Pomade

Item	price	unit
Petroleum jelly	16.00	1 gallon
Liquid paraffin	6.60	2 cups
wax	2.50	
Color	1.00	
Perfume	3.00	
24 containers	2.20	
Jerrican (8GHc/5 years)	1.60	
Hand gloves x 2sets (GHc5/5 years)	1.0	
Total amount	33.90	GHC

(2) Gross income by soap sale

24 containers of pomade

24*2= 48.00 GHc

(3) Net Profit

14.10 GHc

2. Cost -Benefit Of Parazole

(1) Cost of Materials for Parazole

Item	price	unit
Acetone	10.00	1 gallon
Hypochroride	3.50	2 cups
Sodium hydroxide (Soda)(Solid?)	1.00	
Container (20 empty gallons)	6.00	
Colors yellow and blue	1.00	
Bucket (big) (GHc10/5 years)	2.0	
Hand gloves x 2sets (GHc5/5 years)	1.0	
Total amount	24.50	GHc

(2) Gross income by soap sale

20 gallons of parazole from the materials

20*2.5= 50.00 GHc

(3) Net Profit

25.50 GHc

Crop Production

4. Cost - Benefit of Crop

Maize (per ha)

Item	Unit	Amount	U/Price	Price	Remark
Gross Income (Main)	kg/ha	2,000	0.30	600	
GI (By-rpdocut)	GHc/kg				
Total	GHc/ha			600	
Cost					
Seeds	kg	22.5	0.8	18	
Feritilizers	kg				
Pestiide	100g	15.0	0.75	11	
Transportation					
Hired Labor	M/M				
Sub-total				29	
Net Income (1)				571	95%
Rent				200	
Total				229	
Net Income (2)				371	62%

Groundnuts (per ha)

Item	Unit	Amount	U/Price	Price	Remark
Gross Income (Main)	kg/ha	1,300	0.5	650	
GI (By-rpdocut)	GHc/kg				
Total	GHc/ha			650	
Cost					
Seeds	kg	45	1	45	
Feritilizers	kg				
Pestiide	100g	15.0	0.75	11	
Transportation					
Hired Labor	M/M				
Sub-total				56	
Net Income (1)				594	91%
Rent				217	
Total				273	
Net Income (2)				377	58%

Tigernuts (per ha)

Item	Unit	Amount	U/Price	Price	Remark
Gross Income (Main)	paint/ha	360	1.5	540	
GI (By-rpdocut)	GHc/kg				
Total	GHc/ha			540	
Cost					
Seeds	kg	25	8	200	
Feritilizers	kg				
Pestiide	100g	15.0	0.75	11	
Transportation					
Hired Labor	M/M				
Sub-total				211	
Net Income (1)				329	61%
Rent				180	
Total				391	
Net Income (2)				149	28%

Soybean (per ha)

Item	Unit	Amount	U/Price	Price	Remark
Gross Income (Main)	kg/ha	1,500	0.40	600	
GI (By-rpdocut)	GHc/kg				
Total	GHc/ha			600	
Cost					
Seeds	kg	38	0.90	34	
Feritilizers	kg				
Pestiide	100g	15.0	0.75	11	
Transportation					
Hired Labor	M/M				
Sub-total				45	
Net Income (1)				555	93%
Rent				200	
Total				245	
Net Income (2)				355	59%

Others

5. Cost - Benefit of Other Contents

Oyster Mushroom (100 packs)

Item	Unit	Amount	U/Price	Price	Remark
Gross Income (Main)	pack	100	1.5	150	
GI (By-rpdocut)					
Total	GHc			150	
Cost					
Mushroom pack	pack	100.0	0.4	40	
Transportation	LS			15	
Housing					use empty house
Total				55	
Net Income				95	63%

Beekeeping (5 beehives)

Item	Unit	Amount	U/Price	Price	Remark
Gross Income (Main)	liter/hive	40	4.0	160	
GI (By-rpdocut)					
Total	GHc			160	
Cost (depreciation)					
Beehive (10 years)	1/10	5	7	35	70GHc/hive
Beesuit (5 years)	1/5	2	10	20	50GHc/set
Smoker (10 years)	1/10	1	2	2	20GHc/set
Bee wax		5	2	10	
Total				67	
Net Income				93	58%

Snail Rearing

Item	Unit	Amount	U/Price	Price	Remark
Gross Income (Main)	nos	200	0.6	120	
GI (By-rpdocut)					
Total				120	
Cost					
Snail Var	GHc/nos	15	1	15	
Snail Pen (10 years)	1/10	1	29	29	294GHc
Feed				0	use home residual
				0	
				0	
Total				44	
Net Income				76	63%

Cost for Establishing Mushroom Pack Making Facility

Mushroom cost for Constructing Pack Making Facility

Cost for making mushroom pack (Exclude fixed cost)

Item	Unit Cost		Q'ty	Cost		Remark
Saw - dust (transportation)	40	GHc/1000kg	1	40.0	GHc/1200 packs	
Spore (from Accra)	3	GHc/bottle	60	180.0	GHc/1200 packs	
Lime	2	GHc/pack	2	4.0	GHc/1200 packs	
Feed-brown (feeds for chiken)	75	Ghc/bag	0.3	22.5	GHc/1200 packs	
Polyten bag	4	GHc/packet	12	48.0	GHc/1200 packs	
Total				294.5	GHc/1200 packs	
				0.25	GHc/pack	

Cost for fixed cost

Item	Unit Cost		Q'ty	Cost (Total)		Depreciation Cost	
Cement for yard	30	GHc/bag	5	150	GHc/20years	7.50	GHc/year
Sand for yard	40	GHc/place	1	40	GHc/20years	2.00	GHc/year
Labor for constructing yard	60	GHc	1	60	GHc/20years	3.00	GHc/year
Drum	30	GHc/tin	1	30	GHc/5 years	6.00	GHc/year
Shade	800	GHc	1	800	GHc/30years	26.67	GHc/year
Shovel	8	GHc	2	16	GHc/5years	3.20	GHc/year
Sparyer	30	GHc	1	30	GHc/5years	6.00	GHc/year
Total				1,126		54.37	GHc/year
In case empty house is used for shade				326		27.70	
Assumed 3,000 packs per year are made (Total cost)						**0.02**	GHc/pack
Assumed 3,000 packs per year are made (In case empty house is used for shade)						**0.01**	GHc/pack

Total cost to make one mushroom pack: **0.27** GHc/pack
Selling price of mushroom pack: **0.40** GHc/pack

Mushroom
1harvest/pack x 90days/5days = 18 harvest/pack

Market price
1 GHc/6harvest 3.6 GHc/pack

Whole sale
0.5 GHc/6harvest **1.5** GHc/pack 0.4 GHc/pack

3.5 Gender Consideration

3.5.1 Necessity of Gender Consideration in PAFORM

Gender is defined as “the social relationship between Women, Men and Children as opposed to biological sex differences” in National Gender and Children Policy by Ministry of Women’s and Children’s Affairs (MOWCA) in 2008. The MOWCA emphasizes on development of Ghana by achieving equal status for women and in other words, any gender issue is not only women’s issues but also men’s issue. In virtue of a series of sensitization on this matter, this concept is spreading at the national level in Ghana. However, it is still in progress, we can not say that the concept of equality is sufficiently taken root in the community level

For example, generally daughters go away from their parents with their husbands when they get marriage in their teens according to an interview result in the target community which is dominated by the immigrants from northern part of Ghana. Since the period that daughters can help their parents is very short and limited, there is tendency that parents prefer having sons to daughters and they prioritize sons for higher education. Such situation can be thought to be one of causes of low literate rate of women in compared with men. Women and girls struggle various tasks such as cooking, sale of produce, water fetching. Sometimes they are marginalized and their opportunities to join in the decision making process both in the communities and their homes are often limited.

FRs provide fringe communities with various natural resources such as firewood/poles, mushroom bush meet and so on. In addition to that, FR plays an important role for water resource conservation, therefore, forest deterioration can cause water resource deterioration, which results in increase of women’s burden for water fetching since water fetching is one of the heaviest tasks for women. In addition, collection of NTFPs except grass cutter hunting is also women’s job. In other word, women can be influenced by natural degradation more directly than men are.

It is needed to improve their environment by forest resource conservation and community development. As described in “PAFORM Approach”, FSD is requested to participate in communities’ activities and to consider how FSD can contribute to their livelihood improvement, which achieves women’s development at the same time. However, there are cases that women are neglected in their communities and it is important to integrate gender consideration into PAFORM for various activity implementations and its expansion in other areas. This sub-chapter describes various experiences and lessons learnt regarding gender consideration through PAFORM activities and presents some recommendations to improve women’s conditions.

3.5.2 Experiences in PAFORM Project

1) Female Community Facilitator Assistants

When C/Fs were deployed in their communities, three Community Facilitator Assistants were also selected in the communities to support C/F and to disseminate information to the people. Unfortunately, the selected assistants were all male reflected by their tradition that women do not come to the front so often. However, it was not equitable in terms of gender equality. Therefore, based on the discussion among the C/Fs, PM, APM and Japanese experts, the communities were requested to select three female Community Facilitator Assistants in addition to the male Assistants and they accepted and welcomed the idea. According to C/Fs, female leaders are not new for some communities since there are female elders and some activities had been initiated by women. On the other hand, women in Afrasu II had been virtually neglected in all the public meeting and had been marginalized in all the major decisions that would seek the welfare of the people. However, three women were

selected as Assistants along with other communities and they have been supported by all community members including male members.

The female Assistants dedicate themselves to organize and mobilize the community members to take interest and active part in decision making and they take leadership position in the communities. In addition, during their leisure time the female assistants disseminate, explain and clarify issues that were not well understood by other women who attended or did not attend community meetings. There is no difference of functions between female and male Assistants, even though the fact that it is difficult for women to work during hours for meal preparation. As a whole, female Assistants can encourage other women to join in the PAFORM activities, which leads to more participation of female in decision making in the communities. They serve as role model to the many females and the young girls.

2) Access to trainings

Some interview results clarified that women have to get permissions from their husbands if they want to join in some trainings, while men do not have to. Also women can participate in the trainings continuously 3 days at longest since they are very busy for house keeping. Therefore, PAFORM requested the soap making trainers to divide the training into two series (3 days and 2 days) or reduce the training days since trainers said it takes 5 days for the training. Moreover, C/Fs tried to convince men to allow women to participate in the training in favorable manner to improve their income.

There are market days fixed in each area, generally once per week, which is very important to sell their produces and make their living. Sale of farm produces is mainly women's job, it is difficult for them to join in any training on the market day. Although C/F always arranged the training schedule based on the community's availability in advance, there was the case that the training day was set at the same day for market. It resulted in less female participation at the training. Based on the experience, PAFORM fixed another venue for training, which is located on near the market place to enhance women's participation, if the training day was necessarily set on the market day. Proper scheduling and arrangement to avoid excluding women is essential.

3) Favorable IGA components for Women

According to the interview study in August 2008 by C/Fs, the most popular IGA component among women was soap making (including pomade and parazole) in most of the target communities. The reason why for the selection by the respondents was that soap making is possible to get benefits in the short period compared with farming activities and they can manage the work around their houses. Although soap making is done by group work due to the relatively small initial capital at present, they wish to work individually in the future after they can get more cash income, which will be possible for women to manage their limited time for improvement of their income.

On the other hand, soybean and tiger nut cultivation and poultry were relative unpopular among IGA components. The interviewees responded that the cultivation of soybean and tiger nut is very heavy load and some interviewees had doubt the benefit since these crops are new for the people. Concerning for poultry, there is a reason why that the activity needs capital for cage constructions, which can not be accessible for women. The survey was done in August 2008 before the harvest of these crops above, therefore, they have yet to realize the benefits caused by these crops sale. However, after the harvest of soybean, some women in Afrasu I prepared meal by using harvested soy bean for the trial following explanation by female MOFA staff during the on-farm training, who taught how soybean can be used for cooking and types of food. According to the C/F, the community members who tasted meal

expressed their satisfaction with the food they prepared. Now they realized the advantage of soy bean cultivation, they have willingness to expand size of farmland for soybean.

4) Health care training in collaboration with another organization

A series of individual interviews in Afrasu I showed a possibility the community do not have any information and knowledge related to family planning[3]. Therefore, the responsible C/F interviewed intensively in Afrasu I and Afrasu II to confirm the situations. As a result, it was revealed that they do not have any idea that it is possible to control their children's number in these communities. Not only women but also men expressed their interest to access the information. It is expected that if they can control the number of children properly, parents can provide more sufficient educational opportunities to their children, which can lead to more job opportunities for individuals. In addition, the new concept can help to reduce the pressure on the FR. The "Business Plan of FC 2008-2012", recognizes HIV as one of big issues that has an adverse effect on the labor force around the FR. Therefore, healthcare consideration for fringe communities is also important for FR conservation.

Box 1 I do not want to have more babies, but

According to one Kusasi woman in Afrasu I, she has 6 children and both she and her husband think the number is enough to keep due to high educational fee. However, she said "I will have to deliver more babies from now on due to the natural works." with an air of resignation. It seemed that she and her husband do not have knowledge how to control the children's number.

According to a maternity nurse of the Chiraa Hospital that is under the Ministry of Health, she and her three co-workers are providing necessary information concerning reproductive health to visitors to the hospital and they are supposed to visit communities monthly by using motorbikes. Their responsible communities are 15 including Afrasu I and Afrasu II, however, they have never been to these communities due to the bad road conditions to there. It is useful for FSD to organize such training and in such case, FSD can become liaison between communities and line agencies.

After the approval of the family planning training organization at the PAFORM weekly meeting, a basic training was implemented on a trial bases in Afrasu II, which is much marginalized community compared with other target communities. Based on the nurse's suggestion in advance, both male and female participated in the training together and total participants numbers were several dozens. At the training, the nurse explained how to use contraception pill by showing the pill and condom and told them the price of those. The responsible C/F of Afrasu II also emphasized that if they go to the Chiraa Hospital, they can access to this kind of information and they can meet the nurse again. There was an active question and answer discussion after the nurse's explanation.

It was very surprising given that most of women in Afrasu II could not express their opinions and ask questions when basic IGA concept was introduced by the C/F one year before. However, female participants were still shy according to the trainer. It is probably because the topic has close relation with their private health issue. After the discussion, one woman called the trainer and asked her "My menstruation period is around three weeks, however, the period is sometimes changed. Is it normal?" Obviously, it is difficult for any woman to ask such individual questions in presence of men except her husbands. It is suggested to organize next training separately male and female based on the experience.

According to the C/F's monitoring around one month after the training, 10 men purchased the contraception materials for practical purpose and 5 women went to the Chiraa Hospital to get further

[3] In other communities, e.g. in Forkuokrom, people know they can access to information related to family planning in the hospital in Sunyani

information. PAFORM prepared only entry point for them to access to such knowledge, however, it can be said that the people take advantage of their knowledge acquired through the training.

3.5.3 Recommendations

Women's situations are very tough and severe, however, it is true that some women try to struggle and tackle these problems which they are facing. Some countermeasures can be proposed to improve the situations and expand PAFORM activities to other areas based on various experiences.

1) Interview to Marginalized Women

W/S and socio-economic survey are very important for data collection. However, there is possibility such studies lose sight of marginalized people, especially, handicapped person, household headed by women and so on, it is not done intentionally, though. There can be cases that women are not allowed to express their opinions officially at meetings or they cannot join in the decision making in some areas. Therefore, in addition to community W/S organization and socio-economic survey, it is important for FSD staff to approach marginalized women individually to identify what kinds of difficulty they are facing. In some cases it is needed to visit the same woman again and again to let her open her mind. It is possible to get important information by a pickup trigger through these attempts above.

2) Further Female Staff Deployment

Activities of female Community Facilitator Assistants are remarkable, they have contributed to positive participation of other women in various activities so far. For the expansion of PAFORM activities in other areas, it is proposed to select female assistants to support FSD field staff. In addition, further deployment of female staff of FSD and MOFA can promote PAFORM activities since they can get familiarity with women in the communities and they can realize difficulties that the women are facing more easily than men do. One female FSD staff has many female friends in Forkuokrom since she has visited to the community frequently with previous long-term Japanese experts for IGA. Moreover, female MOFA staff has been trained as trainers of cooking.

3) Organization of Accessible Training

It is important to organize effective trainings for communities to expand PAFORM activities in other areas. It is common that women are busier than men, according to the 1987/1988 living standard survey, women's time commitment are 15 to 25 percent greater than those of men due to heavy housekeeping shouldered by women (World Bank, 1999). Therefore, the time, date and venue for training should be taken consideration into women's availability as much as possible. The period of training also should be examined, since women are not allowed to participate in long term training (maximally three days in general) by their husbands. If these considerations can be taken, women can access to the same information as men do. On the other hand, in case of some sensitive matters such as family planning training, it is desirable to divide training time for male and female, which enable women to be opened to ask sensitive and private questions to trainers.

It is fact that some components such as healthcare and family planning, which seems irrelevant with forest conservation can contibute to improvement of community livelihood. It is no need to target only women, however, if some training components are recognized as necessary for women and if they have accordance with the concept of FC Business Plan, it is recommendable to introduce and organize any training reflecting demands and needs in the communities.

4) Involvement of Both Male and Female

There is one interesting case that a woman in Afrasu I who used to enjoy the income by groundnut cultivation, however, she had to give up continuing the work since her husband instructed her to help his work in maize field and she could not have enough time for the work. There is possibility that the husband neglected the benefit resulting from groundnut and he was not interested in her income increase.

One man expressed his happiness toward his wife's soap making activity since it can reduce their expenditure for soap purchase and transportation fee going for shopping to the town. In addition, some men joined in the soap making training and they contributed to note taking. So, soap making is not regarded as only women's work, the majority of participants is women, though. Of course, it is very important to consider what kinds of IGA are suitable and accessible for women. It can be said that soap making meets to women's condition and needs that they want to work around their works. However, it is not desirable to introduce any IGA component only for women. With support from male, female's activities can be developed further. "Focusing only on women will just keep women marginalize and sustainable programs need involve both men and women" according to World Bank (1999)[4].

When new crops cultivation is introduced in any community, social situations should be considered. The World Bank report above describes that the introduction of new cash crop can cause for the worse of inequality between men and women. A survey concerning income sharing in each household in the PAFORM target communities, which was done by C/Fs in August 2008 demonstrated that generally men have right to make decision how to consume the income from main farm produce such as maize and what kinds of crops they would cultivate in next season. On the other hand, women are responsible for meal preparation for their families and major ingredient of stew/soup such as tomato and the income from these crops can be managed by mainly women. The introduction of soybean cultivation can contribute to income increase in the communities in the future and it also can help women by their cooking variety increase and health improvement. It is essential to consider how both men and women can access to benefits equally and the involvement of both male and female is important for community development.

[4] World Bank (1999), Ghana, Gender Analysis and Policy Making for Development

3.6 Recommendations for Forest Reserve Management Plan Formation

3.6.1 MoP Evaluation and Recommendations

Forest Reserve Management Plans (FRMP) of Tain I Forest Reserve (FR) and Nsemere FR were developed, following the Manual of Procedure (MoP). However, the FSD personnel who joined in FRMP formation faced significant difficulties how to develop FRMP, especially, it was very difficult for the personnel to describe the part of "Measurable Objectives" by using only existing data in accordance with the MoP. It is because that some necessary data were not acquired and as a result, FSD had to implement additional survey to some extent to grasp the latest conditions, which is called as the Check Survey. In other words, if necessary data is missing, the description in the part of "Measurable Objectives" tends to be narrative and general.

Generally, any management plan for forest conservation in any country, consists (a) general condition of the target area/forest, (b) the latest condition of the target forest, (c) expecting conditions to lead in future (Long term target), (d) substantial operational works such as harvesting volume, replanting area, etc. in specified time frame (5-10 years are general), and (e) necessary facilities, materials, man powers, and budgets. The existing MoP in Ghana covers all necessary aspects described above and any missing factors or too detail factors cannot be found.

So, why the MoP is said to be too complicated and troublesome to refer for writing up FRMP so often? It is probably because that the MoP requests planners to set "Goal" and "Measurable Objectives" quantitatively per each zone. The planner may not have ideas or concrete images how to set and calculate measurable objectives, and it is also difficult for them to find substantial methods how to project the harvest from FRs in the future. PAFORM established some Working Group (WG) for efficient project operation and WG1 was in charge of FRMP formation of Tain I and Nsemere FR. The WG1 members discussed the difficulties to draft the FRMP. At first, the WG1 members examined the gaps between drafted FRMG and MoP and then they discussed how to fill the gap. They reached at a conclusion that there is no need to simplify the MoP and it is better to attach recommendation how to improve the existing MoP.

A series of recommendations how to fill the gap and how to improve FRMP formulating in Ghana was prepared based the discussions above as *"How to solve the difficulties to harmonize Items on Manual of Procedures Forest Resource Management Planning and Real Strategic Forest Management Planning in Case of trial on Tain I Forest Reserve, Sunyani Ghana* (WG1 and N.Miyazaki, October 2008). The summary of the recommendations is shown in next chapter 3.4.2.

In addition, it mentions the importance of use of Geographic Information System (GIS) for map making. The manual of GIS use is prepared as "*Technical Manual on How Effectively Apply the GIS Techniques for Forest Management Planning Sunyani Ghana*: (N.Miyazaki, December 2007).

3.6.2 Recommendations

Recommendation 1: Identification of FR location in the digital map

It is needed to resurvey the locations of FR boundary pillars by using GPS and to identify their longitude and latitude in the FR map. PAFORM/JICA provided 3 sets of GIS software to FSD Brong Ahafo Regional office in 2006 and 2007. In addition to that, a JICA advisor prepared a GIS operation manual as mentioned above. Some FSD personnel obtained the GIS operation techniques through on-the-job-training, which was done by the Japanese adviser of PAFORM. It is recommended for FSD to apply and extend this acquired techniques and procedures for FRMP formation into other FRs. The

FSD personnel who mastered the GIS operation technique through PAFORM shall be assigned as instructors for other FSD personnel.

Related part on MoP
Part 1: Current situation
Section 1 Location and Extent 1.2 Area, perimeter

Recommendation 2： Identification of the area approved to use for farming even within FRs, which have been located on the FRs before the Forest Law enforcement

It is recommended to conduct interviews to farmers and traditional authorities to identify the farmland within FR, which are approved to be used for farming, and to conduct land survey by using GPS for location map formulation.

MoP Section Related
Part1: Current situation
Section 2: Property rights 2.3 Domestic usufruct rights /customary rights

Recommendation 3: Formation of digital maps of FRs

It is needed to prepare digital base maps of the FRs and compartment maps, which enable planners to grasp the latest forest conditions and to see the outputs of activities based on the operational plans.

Related on Part 1: Current situation
Section 4 : State of the Forest Resource 4.2 Natural forest
SUPPORTING MAPS

Recommendation 4: Compartment system formation of FRs

Unfortunately, many FR's locations in Ghana are not identified clearly in the coordination system map, especially, FRs in the Transitional Zone except a few productive FRs due to a big amount of existing teak. Therefore, it is needed to formulate compartment system maps based on the latest conditions.

Recommendation 5 : Forest classification standards

It is needed to clarify standard for forest type categorization in the MoP. The each forest type shall be demarcated within each compartment and it is required to give names as sub compartment to them.

MoP Section Related
Part 1: Current situation
Section 4 : State of the Forest Resource 4.2 Natural forest and 4.3 Plantation forest

Recommendation 6 : Forest inventory book

Vegetation maps showing the areas/compartment of forest categories should be prepared by using satellite image. The data should be complied as the forest inventory book, which can provide data to measure the achievement level of the measurable objectives.

Related on MOP
Part 1: Current situation
Section 4 : State of the Forest Resource 4.2 Natural forest

Recommendation 7: Re-survey of planted area for mapping

The location shall be re-surveyed at all corners of the actual planted area by using GPS in

collaboration with Taungya farmers, private developers and plantation contractors. The Taungya agreements in the document, location maps and compartment maps should be prepared.

Related on Part 1: Current situation
Section 4 : State of the Forest Resource 4.3 Plantation forest
Section 6: Past Management for Production 6.2 Plantation production areas
Related on Part 2 Proposals for Future Management
Section 5 Management for Production
5.4 Conversion / Plantation Development Area 5.4.1 Measurable objective

Recommendation 8: Development of GPS manual and mapping manual

It is recommended to prepare the GPS manual for Range Supervisors (R/S) and Plantation Supervisors (P/S) and to promote GPS use among them. In addition, FSD is requested to provide enough GPS to the R/Ss and P/Ss.

Related on Part 2: Proposals for Future Management
Section 5 Management for Production
5.4 Conversion / Plantation Development Area
5.4.3 Management prescriptions (Site Selection and Demarcation)

Recommendation 9: Estimation of Teak production in the Transitional Zone

It is needed to estimate teak production and prepare a yielding table of FR. It is possible to check whether actual production can achieve the target based on the yielding table above in the future. Then the planner can estimate the suitable harvesting volume of teak taking consideration into the sustainability of FR.

Related on Part 2: Proposals for Future Management
Section 5 Management for Production
5.3 Plantation Production Area 5.3.4 Indicative levels of production

Recommendation 10: Projection measures for Goal of the forest management

It is necessary to assure sustainable yielding by means of maintaining the balance between growth increments and harvesting size. The projection of forest situation for several decades and/or structure of the area distribution by tree age is called as “Sustainable yielding projection”. If the harvesting size planed is less than the size estimated suitable size of the yielding, the management plan is regarded as sustainable. Generally, this calculation is carried by every 5 years.

Related on Part 2: Proposals for Future Management
Section 1: Goal of Forest Reserve Management
Section 2: Beneficiaries of Forest Reserve Management

Note: the detailed measures of this projections are explained on the ”*How to solve the difficulties to harmonize Items on Manual of procedures Forest Resource Management Planning and Real Strategic Forest Management Planning in case of trial on Tain 1 Forest Reserve Sunyani Ghana*”.

Recommendation 11: Preserve the Taungya Documents/ Agreements

It is needed to prepare Taungya agreement and related record format. The agreement and map as its attachment shall be kept by the legal third party such as a lawyer to be validated for 30-40 years.

Related on Part 2: Proposals for Future Management
Section 5 Management for Production
5.4 Conversion / Plantation Development Area
5.4.3 Management prescriptions (Modified Taungya System (MTS)
5.4.5 Rights And Responsibilities Under The Modified Taungya Responsibilities of FSD

Recommendation 12: Add fire hazardous map as a supplement data on FRMP

The area damaged by fire shall be shown roughly in the FRs compartment maps, and it is needed to describe tree species, year and those who planted (in Taungya's case, name of group/community who planted, name of developer and so on) in the year. The record shall be transferred to stakeholders and kept for next plantation. This record will contribute to avoidance of conflicts in the future between FSD and people who planted.

Related on Part 1: Current situation
Section 4 : State of the Forest Resource 4.6 Factors affecting the forest resource

Recommendation 13: Identification of the planted location

It is a big issue for the field officers and community participants that try to plant the new teak how to identify the land where Teak seedlings were planted before based on the FRMP. Given that the Modified Taungya System that says the regenerated teak stands by sprouting after the harvest belong to those who originally planted, the places for next 5 years planting plan needs to nominate the substantial places where are allocated to the communities for MTS, plantation companies and so on. In this meaning, the locations for the planting plan places shall be shown on the attachment maps of the management plan.

Related on Part 2: Proposals for Future Management
Section 5 Management for Production
5.4 Conversion / Plantation Development Area
5.4.4 Indicative levels of production

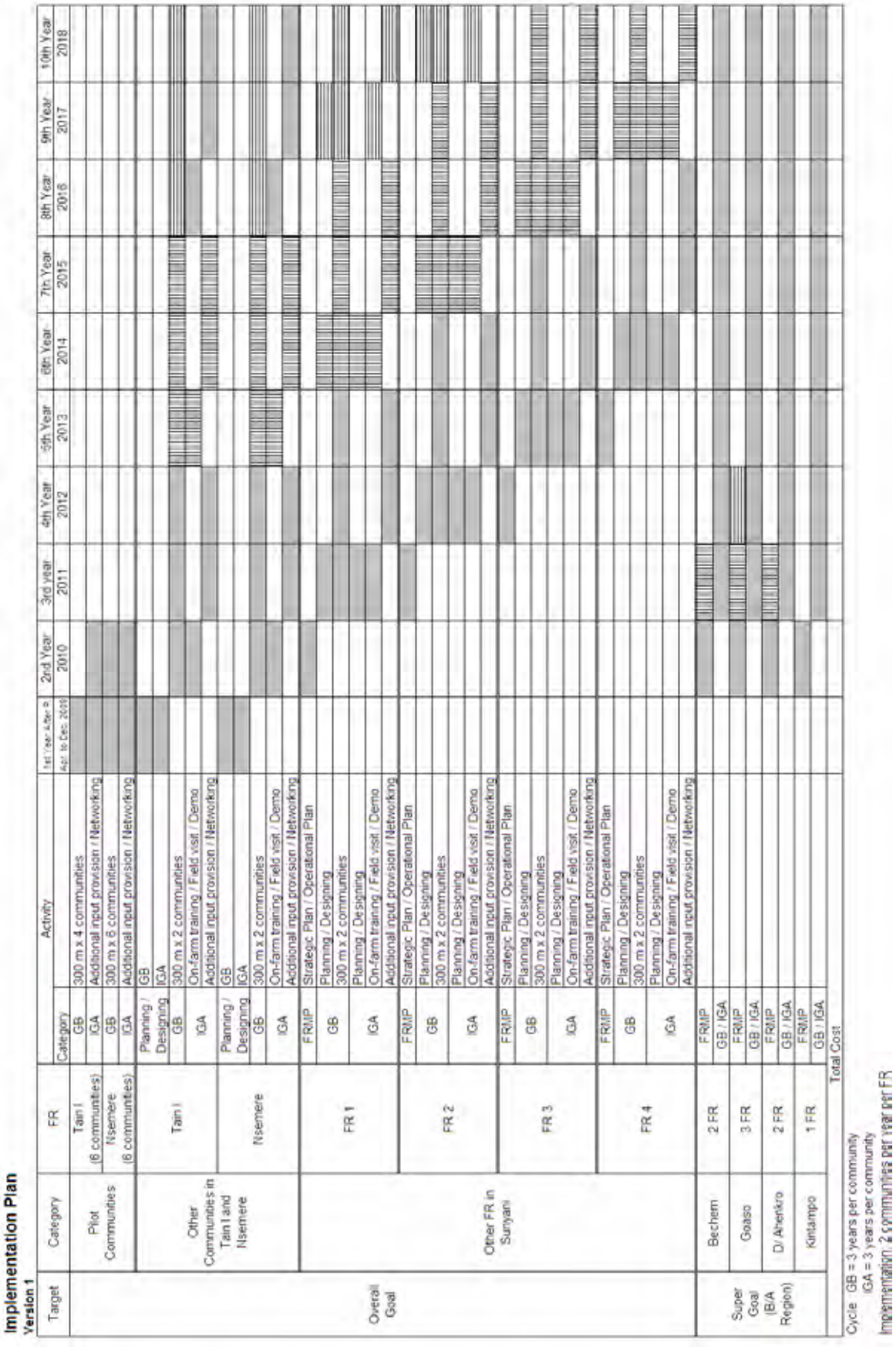
Supplementation

1. Back Data of Cost Estimate

2. Additional Data for Formulation of the Strategic Forest Management Plan / MoP Modification

1. Back Data of Cost Estimate

Supplementation 1 Back Data of Cost Analysis



Implementation Plan (Cost Estimate: Base Case)

Version 1

Target	Category	FR	Activity			Unit Cost	1st Year After P. Apr. to Dec. 2009	2nd Year 2010	3rd year 2011	4th Year 2012	5th Year 2013	6th Year 2014	7th Year 2015	8th Year 2016	9th Year 2017	10th Year 2018
			Category			(GHc)	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
Overall Goal	Pilot Communities	Tain I (6 communities)	GB	300 m x 4 communities (excl. Afras I&II)		2,600	10,400	0	0	0	0	0	0	0	0	0
			IGA	Additional input provision / Networking		1,000	6,000	6,000	0	0	0	0	0	0	0	0
		Nsemere (6 communities)	GB	300 m x 6 communities		2,600	15,600	15,600	0	0	0	0	0	0	0	0
			IGA	Additional input provision / Networking		1,000	6,000	6,000	0	0	0	0	0	0	0	0
	Other Communities in Tain I and Nsemere	Tain I	Planning / Designing	GB		4,100	4,100	0	0	0	0	0	0	0	0	0
				IGA		200	200	0	0	0	0	0	0	0	0	0
			GB	300 m x 2 communities		2,600	0	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200
			IGA	On-farm training / Field visit / Demo		2,500	0	5,000	0	0	5,000	0	0	5,000	0	0
				Additional input provision / Networking		1,000	0	0	2,000	2,000	0	2,000	2,000	0	2,000	2,000
		Nsemere	Planning / Designing	GB		4,100	4,100	0	0	0	0	0	0	0	0	0
				IGA		200	200	0	0	0	0	0	0	0	0	0
			GB	300 m x 2 communities		2,600	0	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200
			IGA	On-farm training / Field visit / Demo		2,500	0	5,000	0	0	5,000	0	0	5,000	0	0
				Additional input provision / Networking		1,000	0	0	2,000	2,000	0	2,000	2,000	0	2,000	2,000
	Monitoring (Tain I and Nsemere) per staff					1,400	5,600	5,600	5,600	5,600	5,600	5,600	5,600	5,600	5,600	5,600
	Other FR in Sunyani	FR 1	FRMP	Strategic Plan / Operational Plan		30,200	0	30,200	0	0	0	0	0	0	0	0
			GB	Planning / Designing +1 st year		6,500	0	0	13,000	0	0	13,000	0	0	13,000	0
				300 m x 2 communities (2nd / 3 rd yr)		2,600	0	0	0	5,200	5,200	0	5,200	5,200	0	5,200
			IGA	Planning / Designing		200	0	0	200	0	0	200	0	0	200	0
				On-farm training / Field visit / Demo		2,500	0	0	5,000	0	0	5,000	0	0	5,000	0
				Additional input provision / Networking		1,000	0	0	0	2,000	2,000	0	2,000	2,000	0	2,000
				Monitroing per staff		1,400	0	0	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800
		FR 2	FRMP	Strategic Plan / Operational Plan		30,200	0	0	30,200	0	0	0	0	0	0	0
			GB	Planning / Designing +1 st year		6,500	0	0	0	13,000	0	0	13,000	0	0	13,000
				300 m x 2 communities (2nd / 3 rd yr)		2,600	0	0	0	0	5,200	5,200	0	5,200	5,200	0
			IGA	Planning / Designing		200	0	0	0	200	0	0	200	0	0	200
				On-farm training / Field visit / Demo		2,500	0	0	0	5,000	0	0	5,000	0	0	5,000
				Additional input provision / Networking		1,000	0	0	0	0	2,000	2,000	0	2,000	2,000	0
				Monitroing per staff		1,400	0	0	0	2,800	2,800	2,800	2,800	2,800	2,800	2,800
		FR 3	FRMP	Strategic Plan / Operational Plan		30,200	0	0	0	30,200	0	0	0	0	0	0
			GB	Planning / Designing +1 st year		6,500	0	0	0	0	13,000	0	0	13,000	0	0
				300 m x 2 communities (2nd / 3 rd yr)		2,600	0	0	0	0	0	5,200	5,200	0	5,200	5,200
			IGA	Planning / Designing		200	0	0	0	0	200	0	0	200	0	0
				On-farm training / Field visit / Demo		2,500	0	0	0	0	5,000	0	0	5,000	0	0
				Additional input provision / Networking		1,000	0	0	0	0	0	2,000	2,000	0	2,000	2,000
				Monitroing per staff		1,400	0	0	0	0	2,800	2,800	2,800	2,800	2,800	2,800
		FR 4	FRMP	Strategic Plan / Operational Plan		30,200	0	0	0	0	30,200	0	0	0	0	0
			GB	Planning / Designing +1 st year		6,500	0	0	0	0	0	13,000	0	0	13,000	0
				300 m x 2 communities (2nd / 3 rd yr)		2,600	0	0	0	0	0	0	5,200	5,200	0	5,200
			IGA	Planning / Designing		200	0	0	0	0	0	200	0	0	200	0
				On-farm training / Field visit / Demo		2,500	0	0	0	0	0	5,000	0	0	5,000	0
				Additional input provision / Networking		1,000	0	0	0	0	0	0	2,000	2,000	0	2,000
				Monitroing per staff		1,400	0	0	0	0	0	2,800	2,800	2,800	2,800	2,800
	Total Cost for Sunyani Forest District						52,200	83,800	71,200	81,200	97,200	82,000	71,000	77,000	82,000	71,000
Super Goal (B/A Region)	Bechem	2 FR	FRMP													
			GB / IGA													
	Goaso	3 FR?	FRMP													
			GB / IGA													
	D/ Ahenkro	2 FR	FRMP													
			GB / IGA													
	Kintampo	1 FR?	FRMP													
			GB / IGA													
Total Cost																

Cycle : GB = 3 years per community
IGA = 3 years per community
Implementation: 2 communities per year per FR

Implementation Plan (Cost Estimate: Case 2: Trainers allowance and their transportatino cost for IGA are borne by MOFA)

Target	Category	FR	Activity			Unit Cost	1st Year After P. Apr. to Dec. 2009	2nd Year 2010	3rd year 2011	4th Year 2012	5th Year 2013	6th Year 2014	7th Year 2015	8th Year 2016	9th Year 2017	10th Year 2018
			Category			(GHc)	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
Overall Goal	Pilot Communities	Tain I (6 communities)	GB	300 m x 4 communities (excl. Afras I&II)		2,600	10,400	0	0	0	0	0	0	0	0	0
			IGA	Additional input provision / Networking		900	5,400	5,400	0	0	0	0	0	0	0	0
		Nsemere (6 communities)	GB	300 m x 6 communities		2,600	15,600	15,600	0	0	0	0	0	0	0	0
			IGA	Additional input provision / Networking		900	5,400	5,400	0	0	0	0	0	0	0	0
	Other Communities in Tain I and Nsemere	Tain I	Planning / Designing	GB		4,100	4,100	0	0	0	0	0	0	0	0	0
				IGA		200	200	0	0	0	0	0	0	0	0	0
			GB	300 m x 2 communities		2,600	0	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200
			IGA	On-farm training / Field visit / Demo		1,800	0	3,600	0	0	3,600	0	0	3,600	0	0
				Additional input provision / Networking		900	0	0	1,800	1,800	0	1,800	1,800	0	1,800	1,800
		Nsemere	Planning / Designing	GB		4,100	4,100	0	0	0	0	0	0	0	0	0
				IGA		200	200	0	0	0	0	0	0	0	0	0
			GB	300 m x 2 communities		2,600	0	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200
			IGA	On-farm training / Field visit / Demo		1,800	0	3,600	0	0	3,600	0	0	3,600	0	0
				Additional input provision / Networking		900	0	0	1,800	1,800	0	1,800	1,800	0	1,800	1,800
	Monitoring (Tain I and Nsemere) per staff					1,400	5,600	5,600	5,600	5,600	5,600	5,600	5,600	5,600	5,600	5,600
	Other FR in Sunyani	FR 1	FRMP	Strategic Plan / Operational Plan		30,200	0	30,200	0	0	0	0	0	0	0	0
			GB	Planning / Designing +1 st year		6,500	0	0	13,000	0	0	13,000	0	0	13,000	0
				300 m x 2 communities (2nd / 3 rd yr)		2,600	0	0	0	5,200	5,200	0	5,200	5,200	0	5,200
			IGA	Planning / Designing		200	0	0	200	0	0	200	0	0	0	0
				On-farm training / Field visit / Demo		1,800	0	0	3,600	0	0	3,600	0	0	3,600	0
				Additional input provision / Networking		900	0	0	0	1,800	1,800	0	1,800	1,800	0	1,800
				Monitroing per staff		1,400	0	0	2,800	2,800	2,800	2,800	2,800	2,800	2,800	2,800
		FR 2	FRMP	Strategic Plan / Operational Plan		30,200	0	0	30,200	0	0	0	0	0	0	0
			GB	Planning / Designing +1 st year		6,500	0	0	0	13,000	0	0	13,000	0	0	13,000
				300 m x 2 communities (2nd / 3 rd yr)		2,600	0	0	0	0	5,200	5,200	0	5,200	5,200	0
			IGA	Planning / Designing		200	0	0	0	200	0	0	200	0	0	200
				On-farm training / Field visit / Demo		1,800	0	0	0	3,600	0	0	3,600	0	0	3,600
				Additional input provision / Networking		900	0	0	0	0	1,800	1,800	0	1,800	1,800	0
				Monitroing per staff		1,400	0	0	0	2,800	2,800	2,800	2,800	2,800	2,800	2,800
		FR 3	FRMP	Strategic Plan / Operational Plan		30,200	0	0	0	30,200	0	0	0	0	0	0
			GB	Planning / Designing +1 st year		6,500	0	0	0	0	13,000	0	0	13,000	0	0
				300 m x 2 communities (2nd / 3 rd yr)		2,600	0	0	0	0	0	5,200	5,200	0	5,200	5,200
			IGA	Planning / Designing		200	0	0	0	0	200	0	0	200	0	0
				On-farm training / Field visit / Demo		1,800	0	0	0	0	3,600	0	0	3,600	0	0
				Additional input provision / Networking		900	0	0	0	0	0	1,800	1,800	0	1,800	1,800
				Monitroing per staff		1,400	0	0	0	0	2,800	2,800	2,800	2,800	2,800	2,800
		FR 4	FRMP	Strategic Plan / Operational Plan		30,200	0	0	0	0	30,200	0	0	0	0	0
			GB	Planning / Designing +1 st year		6,500	0	0	0	0	0	13,000	0	0	13,000	0
				300 m x 2 communities (2nd / 3 rd yr)		2,600	0	0	0	0	0	0	5,200	5,200	0	5,200
			IGA	Planning / Designing		200	0	0	0	0	0	200	0	0	200	0
				On-farm training / Field visit / Demo		1,800	0	0	0	0	0	3,600	0	0	3,600	0
				Additional input provision / Networking		900	0	0	0	0	0	0	1,800	1,800	0	1,800
				Monitroing per staff		1,400	0	0	0	0	0	2,800	2,800	2,800	2,800	2,800
	Total Cost for Sunyani Forest District						51,000	79,800	69,400	79,200	92,600	78,400	68,600	72,200	78,200	68,600
Super Goal (B/A Region)	Bechem	2 FR	FRMP													
			GB / IGA													
	Goaso	3 FR	FRMP													
			GB / IGA													
	D/ Ahenkro	2 FR	FRMP													
			GB / IGA													
	Kintampo	1 FR	FRMP													
			GB / IGA													
Total Cost																

Cycle : GB = 3 years per community
IGA = 3 years per community
Implementation: 2 communities per year per FR

Basis of Plan

Conditions of Cost Estimate:

1) One cycle of activity for one community is set as **3 Years.** After 3 years of operation in one community, FSD will shift to new community.
2) GB and IGA activities will be implemented with 2 Communities per year per FR.
3) FRMP: Select 6 representative communities for each FR to formulate FRMP
4) GB: 300m x 40m per year per community
5) IGA: contents include 1 demo-farm with 2 crops and other 5 items (livestock, mushroom, beekeeping, snail, and soap making)

Flow of Activity

Item		1st Year	2nd Year	3rd Year	4th Year	5th Year	6th year	7th year
FRMP formulation per FR								
GB per Community	Planning / Designing							
	Implementaiton							
IGA per Community	Planning / Designing							
	Implementaiton							

1st Community　　2nd Community

GB: Flow of Activity per Community

Activity	Year 0	1st year	2nd year	3rd year	Remark
Situation Analysis 1 (as part of FRMP formultion)					
Socio-economic Survey	○				
Information Sharing WS	○				
Planning					
Community meetings		○	○	○	1st yr: Target community. 2nd, 3rd yr: only the target group
Seminars for authorities & stakeholders		○			
CBWG inner meetings		○	○	○	every year, different group
Grand Survey for set up of GB area		○	○	○	300m x 40 m per year
Land Preparation		○	○	○	
Planting		○	○	○	
Maintenance		○	○	○	
General administration (MoU exchange)		○	○	○	

IGA: Flow of Activity per Community

Activity	Year 0	1st year	2nd year	3rd year	Remark
Situation Analysis 1 (as part of FRMP formultion)					
Socio-economic Survey	○				
Information Sharing WS	○				
Situation Analysis 2 + Planning / Designing					
Technical / Market Survey		○			
Needs Assessment		○			
Meeting of Working Group		○			
IGA Implementation					
On-farm training		○			
Field visit		○			
Demonstration		○	○	○	
Networking		○	○	○	
Organization			○	○	
Additional Inputs			○	○	
Monitoring		○	○	○	

FRMP Cost estimate

Item	Unit Cost		Q'ty	Total	Remark
Check Survey	20	GHc/day	25	500	20GHc/time for Land Cruiser
Secondary data collection	500	GHc/pack	1	500	
Orientation meeting	1,400	GHc/time	2	2,800	from B/A Region budget estimate
Socio-economic survey	10,000	GHc/contract	1	10,000	Contract
Inventory of reserve (RMSC)				0	by RMSC
Information Sharing WS				0	
Fuel (L. Cruiser + Pcik-up x 1 time) x 6 communities	36	GHc/time	6	216	20GHc for L. Cruiser, 16GHc for Pick-up
Snack (lunch pack x 200 persons) x 6 communities	2	GHc/pack	1,200	2,400	
Statinery for 6 communities	100	GHc (LS)	6	600	
Consultation WS					
Fuel	36	GHc/time	6	216	
Snack (lunch pack x 170 persons)	2	GHc/pack	1,200	2,400	
Statinery	100	GHc (LS)	6	600	
Preparation of First Draft	500	GHc (LS)	1	500	from B/A Region budget estimate
Stakeholders meeting	500	GHc (LS)	1	500	from B/A Region budget estimate
Preparation of Second Draft	1,000	GHc (LS)	1	1,000	from B/A Region budget estimate
Explanatory meeting for FSD staff	3,000	GHc (LS)	1	3,000	
Validation WS	4,000	GHc (LS)	1	4,000	from B/A Region budget estimate
Finalization of FRMP	1,000	GHc (LS)	1	1,000	from B/A Region budget estimate
Total				30,232	

Orientation of PAFORM to Sunyani Disrict FR (Internal Meeting) 1st day: Orientation, 2nd day (Action Plan preparation)

Item	Unit Cost		Q'ty	Total	Remark
Renting Conference room with 100 staff					Regional Office and District Office
Room	50	GHc/day	2	100	
Lunch	7	GHc/person	200	1,400	
Stationery	50	GHc (LS)	2	100	
Handout copy	200	GHc (LS)	1	200	
Total				1,800	

Cost analysis for GB establishment.

Cost for GB consist various factors. It needs to cover activities from conducting community meeting to maintenance of the planted GB. The works and materials are some belongs to FSD and some belongs to CBWG.

1 Factors for Green Belt establishment

First, needed funds is divided several factors from starting time for the preparation to final stage for maintain into following 5 stages.

(1) Plan making and workshop

At the beginning stage, FSD needs to conduct several community meetings for introducing the GB activities. This community meeting will be carried together with the explanation of Strategic Forest Management Plan concepts. At least community meeting shall be implemented 2-3 times for each community. Then the principle understanding matter shall be reported to the traditional authorities and related regional/provincial councils and other stake holders through some kind of seminar(s). To conduct these meetings/seminars, FSD have to provide meeting materials (Paper, explanation charts, opinion cards and other materials/stationary), cost for the meeting rooms (if necessary), and travel allowance for the FSD staff and in some case for the participants such as invited guests, commentators, advisors. Based on the Ghanaian tradition, at least lunch and coffee brakes need to prepare.

(2) Grand survey for set up the GB area

Location of the GB is decided by the mutual understanding with CBWG and FSD. Basically, the location is suitable nearest place from the village of members CBWG. FSD shall send a land survey team, and CBWG join the land survey for helping the survey and fixing the land for CBWG. Collaborative work on land survey is bases for establishing good relationship between two parties. Both sides clearly defined the location (boundary) on the ground.

Land survey is implemented 2 FSD staff and several (5-10) CBWG members. Based on the experience, this survey team can demarcate GB area (40m X 300m) in a half day. The survey team use one GPS, 2 mater tapes (50m), and marking tape. CBWG members prepare temporally pegs for marking the survey points and clearance grass and small trees on the survey line.

After land survey finished, FSD shall prepare a paper map which shows the location and shape of the defined GB for the CBWG, and give it to the CBWG. The location map shall mention the position data (every point of GPS reading, longitude and latitude). The survey map also shows a reserve's boundary pillar position and number to make clear the GB position in relation with official reserve's boundary. The cost for land survey is mainly lobular cost shouldered by the CBWG. FSD need to supply the permanent boundary pillars for marking the GB area on the ground. The permanent pillar is expected at least the size of 10cm x 10 cm X 100 cm and made by concrete. The pillars shall be mined by the CBWG and FSD officer shall attend for the witness.

(3) Land preparation (clearing grass, spacing/pegging, digging planting hole, etc.)

After the fixing the place of GB, the member of CBWG shall implement land preparation works for tree planting. These works are included (a) clearance of grass, (b) deciding the planting place suitable distance keeping each planted tree (Spacing), (c) pegging (give mark /peg on the point where a planting hole digging), and (d) planting hole digging.

For spacing, some technical support may necessary. A extension officer from FSD or MOFA shall be involved. Based on PAFORM experience, 20-30 members of CBWG can work for 1-2 day for clearance of grass, half day for pegging, 1 day for planting hole digging on the GB area (300m X 40m 1.2 ha)

(4) Planting (seedling)

Plant seedlings cost is included purchasing the seedlings, hauling the seedlings from nursery to stock yard (temporally nursery of DFO), exporting the seedling to the GB site, distribute the seedlings to the planting hole site, plant the seedling to the planting hole. Some technical guidance is requested for how to plant the seedlings by FSD or MOFA extension officer. Including the technical guidance, CBWG can plant the seedlings in a half day for the GB (1.2 ha) by 20 to 30 participants, based on the PAFORM experiences. Seedling is prepared by the FSD and transferred to CBWG.

(5) General administration by FSD

After the GB planted, FSD officer shall occasionally visit the community and the site, and give advices about how treat the planted seedlings in health, suitable timing for weeding, preparation for wild fire prevention, etc. The range supervisor is requested to hold the latest situation and activities implementing or not implementing the works that are agreed and recorded action plan of each CBWG.

2 Cost estimation by 300m (40m X 300m)

The cost was calculated based on the experiences of the GB activities implemented PAFORM. The unit is 300m x 40m (1.20 ha), for a CBWG who implemented 300m/year by 30 CBWG members. This 300m unit for 30 persons was decided by both sides through the series of discussions with the community, and taking into account for meeting the possibility of annual budget of the FSD. The cost is estimated, materials such as seedlings, concrete pillars, and stationeries for technical guidance and daily allowance, and transport for FSD staff to attend the meetings or to conduct technical guides. The cost for CBWG is estimated as the laborer fee if the works are carried by hiring. The cost of CBWG means their contribution or share of duty. The first community meeting to formulate GB activity to a community is expected in open manner; therefore, number of participants projected 200 persons and projected providing lunch by the FSD budget.

Summary of Cost Projection for Green Belt Activity (1st Year of One Community per FR)

Categories	FSD	CBWG	Total
(1) Plan making (workshops and seminars)	4,135	320	4,455
(2) Grand survey for set up the GB area	504	47	551
(3) Land preparation (clearing grass, spacing/pegging, digging planting hole, etc.)	388	362	750
(4) Planting (seedling)	520	140	660
(5) Maintenance works (weeding)	0	48	48
(6) General administration	930	120	1,050
Sub total (2) ～ (6)	2,342	717	3,058
Grand Total (Starting Time: 1st and second year)	**6,477**	1,037	7,513

I unit for 300m length (1.2 ha for 30 participants CBWG)

Summary of Cost Projection for Green Belt Activity (2nd and 3rd Year of One Community per FR)

Categories	FSD	CBWG	Total
(1) Plan making (workshops and seminars)	235	320	555
(2) Grand survey for set up the GB area	504	47	551
(3) Land preparation (clearing grass, spacing/pegging, digging planting hole, etc.)	388	362	750
(4) Planting (seedling)	520	140	660
(5) Maintenance works (weeding)	0	48	48
(6) General administration	930	120	1,050
Sub total (2) ～ (6)	2,342	717	3,058
Grand Total (Starting Time: 1st and second year)	**2,577**	1,037	3,613

I unit for 300m length (1.2 ha for 30 participants CBWG)

Cost projection for Green Belt Activity (1st Year of FR) — 1 unit for 300m length (1.2 ha for 30 participants CBWG)

Categories	Gov.FSD expected budget						Com.CBWG shouldering			Total	Sub Total	
Activities	Personnel		Cedi	Material		Cedi	Personnel		Cedi	Exp		
Items for cost	Qu	UP	Exp	Qu	UP	Exp	Qu	UP	Exp		Gov	Comm
(1) Plan making (workshops and seminars)												
Community meeting 2 times in village												
Travel allowance												
FSD officer, 5 persons 1 day X 2 times	10	30	300							300		
Transportation												
L Cruiser: 0.25Cedi/km x 80km x 2times	2	20	40							40		
Lunch for participants												
(200 +10)persons X 2				420	3	1260				1260		
Stationary 2 times				2	50	100				100		
Seminars for authority and stake holders 1 time												
Travel allowance												
FSD officer, 5 persons 1 day X 1 time	5	30	150							150		
Transportation												
Gest and stakeholders 20 person X 1 times	20	20	400							400		
Renting Car (mini bus level) 1 days	1	300	300							300		
Daily allowance for participants												
20 persons X 10 X 1 time	20	30	600							600		
Remunerate												
Gest commentetor 2 persons X 1day	2	200	400							400		
Lunch for participants												
(20 T.C. + 10 Com. and FSD) x 1 time				30	5	150				150		
Renting a meeting room and facility 1 times				1	300	300				300		
Stationary 1 time				1	200	200				200		
CBWG inner meeting												
Daily allowance equivqent												
50 persons X 6 times X 1/4 day (2 hours per time)							75	4	300	300		
C/F advising the inner meeting	6	2.5	15							15		
Stationary (Pencil, note book etc)				1	20	20	1	20	20	40		
Sub Total			2105			2050			320	4455	4135	320
(2) Grand survey for set up the GB area												
Grand survey for GB area demarcation												
Travel allowance												
FSD offices, 2 persons 1 day X 1 times	2	30	60									
Transportation												
Pick-up: 0.20Cedi/km x 80km x 1time				1	16	16				16		
Stationary												
Color tape, Point marker, paper, copy				1	100	100				100		
Grass cutting for survey line 10 persons X 1day							10	4	40	40		
Boundary piller setting												
Temporary pegs making							20	0.05	1	1		
Concreat piller												
Perchasing and transportanon to roadside				14	7	98				98		
Set up the 14 pillers 3 persons X 5 day							15	0.4	6	6		
Travel allowance for instraction												
FSD officer, 1 persons 5 days (Instruction)	5	30	150							150		
Transportation for instructor												
Pick-up: 0.20Cedi/km x 80km x 5times				5	16	80				80		
Needed instruments (FSD shall provide from the stock)												
1 GPS												
2 meter tapes												
Needed man power (FSD Officers survey)												
GB survey, map making -> 3 persons 2 days												
Sub Total			210			294			47	491	504	47
(3) Land preparation (cleaning grass, spacing pegging, digging planting hole, etc.)												
Clear the land (Grass removing)												
labolor 30 perons 1 day							30	4	120	120		
Spacing												
Peg preparanon 150 pegs 100 pegs= 1 cedi							150	0.01	1.5	1.5		
Technical guidance 1 day 1 specialist 40 cedi day	1	40	40							40		
Transportation for the technical guide												
Pick-up: 0.20Cedi/km x 80km x 1time				1	16	16				16		
Stationary material				1	5	5				5		
Labolor 30 perons 1 day							30	4	120	120		
Planting hole digging												
Technical guidance 1 day 1 specialist 40 cedi day	1	40	40							40		
Transportation												
Pick-up: 0.20Cedi/km x 80km x 1time				1	16	16				16		
Stationary material												
Copy of guide book paper				300	0.04	12				12		
Compost and other 100g X 150 seedlings (15 kg)				15	5	75				75		
Labolor 30 perons 1 day							30	4	120	120		
Administration by FSD												
Travel allowance for FSD staff 4 times	4	30	120							120		
Transportation												
Pick-up: 0.20Cedi/km x 80km x 4times				4	16	64				64		
Sub Total			200			188			361.5	749.5	388	361.5

Cost projection for Green Belt Activity (1st Year of FR) — 1 unit for 300m length (1.2 ha for 30 participants CBWG)

Categories			Gov FSD expected budget						Com CBWG shouldering			Total	Sub Total	
	Activities		Personnel		Cedi	Material		Cedi	Personnel		Cedi	Exp		
		Items for cost	Qu	UP	Exp	Qu	UP	Exp	Qu	UP	Exp		Gov	Comm
(4) Planting (seedling)														
	Purchase the seedlings													
		Mango 1.5 Cedi /seedling	105	1.5	157.5							157.5		
		Citron 1.2 Cedi/seedling	167	1.2	200.4							200.4		
	Transportation the seedling 1 time to 1 road side					1	70	70				70		
	Labolor													
		Hauling the seedling (road side to GB site)							5	4	20	20		
		Plant the seedlings (30persons 1 day)							30	4	120	120		
	Administration and guidance by FSD													
		Travel allowance for FSD staff 2 times	2	30	60							60		
		Transportation												
		Pick-up: 0.20Cedi/km x 80km x 2times				2	16	32				32		
Sub Total					417.9			102			140	659.9	519.9	140
(5) Maintenance works (weeding)														
	Weeding : 2 times the planted year and 2 times next year													
		Labolor (3 persons 1 day times 4)							12	4	48	48		
Sub Total					0			0			48	48	0	48
(6) General administration														
	MOU Exchange Ceremony													
		Traver allowance for FSD Official												
		Representatives from 3 District + 1 Regional	4	30	120							120		
		Guest from Traditional Council 4 persons	4	30	120							120		
		Gest from District assembly and district Gov. 4	4	30	120							120		
		Village committee member 10	10	5	50							50		
		CBWG Member							30	4	120	120		
		Transportation												
		Renting Car for Gest				1	200	200				200		
		L Cruiser: 0.20Cedi/km x 80km x 2times				2	20	40				40		
		Lunch (for 70 persons)				70	3	210				210		
		Notice Boad for the community				1	50	50				50		
		Stationary and papers				1	20	20				20		
Sub Total					410			520			120	1050	930	120
Grand Total (Starting Term: 1st and second year)					#REF!			#REF!			#REF!	#REF!	#REF!	#REF!
(7) General administration (recurrent cost for every year basis)														
	Periodical Guidance and evaluation meetings annualy basis													
		Traver allowance for FSD Official												
		Once a mounth / 1 day (observing and meeting)	12	20	240							240		
		Transportation												
		Pick-up: 0.20Cedi/km x 80km x 12times				12	16	192				192		
	Dayry care and observation, patroll by CBWG													
		Labolor half day for every week by 4 persons							108	4	432	432		
	Wild fire prediction													
		Boundary cleaning												
		Labolor 30 persons 1 day times 4							120	4	480	480		
	Patroling Dic. To Apl. (5Month)													
		Labolor 2 persons 4 hours per day							150	4	600	600		
Sub Total (recurrent Cost for every basis)					240			192			1512	1944	432	1512

Note: Some shere of the FSD staff saraly for each activity is not included.

Villagers work force fee is projected as equivalent value as if the simmilar work had carried by employed cases.

Community's expences means them contributed value in voluntary bases by thure own labolor forces.

Unit price concern

Fuel 1 litter= 1.2 Cedi Land Cruiser Cost: 20 Cedi per day (80km/day)

Labolor 1/day = 4.0 Cedi

Travel allowance/Daily allowance =20 Cedi/day for FSD officer

Travel allowance/Daily allowance =40 Cedi/day for Outsid technical person

Remunerate for high level experts = 200 Cedi/day

Planting Design for 300m unit (1.20 ha)

50% Mango and 50% Citron

Mango (40m/8m X 300m/8 m)/2= 94 — Space 8 x 8 — 93.75

Citron (40m/6m X 300m/6m) /2 = 167 — Space 6 x 6 — 166.6666

10% is need for replace

Seedling is (105 Mango and 180 Citron)/ 300m

Abbreviansons

Gov = Government of Ghana FSD

Com. = Community people /villagers/member of CBWG

FSD = Representatives from Forest Service Office of District and Provincial

T/C = Repeesentatives from Traditional Council of related district, township, and community

C/F = Community Facilitator or FSD Service officer as act for C/F

Cost projection for Green Belt Activity (2nd and 3rd Year of FR) — 1 unit for 300m length (1.2 ha for 30 participants CBWG)

Categories	Gov FSD expected budget						Com.CBWG shouldering			Total	Sub Total	
Activities	Personnel		Cedi	Material		Cedi	Personnel		Cedi	Exp		
Items for cost	Qu	UP	Exp	Qu	UP	Exp	Qu	UP	Exp		Gov.	Comm.
(1) Plan making (workshops and seminars)												
Community meeting 2 times in village												
Travel allowance												
FSD officer, 2 persons 1 day X 2 times	4	30	120							120		
Transportation												
L Cruiser: 0.25Cedi/km x 80km x 2times	2	20	40							40		
Stationary 2 times				2	20	40				40		
CBWG inner meeting												
Daily allowance equivipent												
50 persons X 6 times X 1/4 day (2 hours per time)							75	4	300	300		
C/F advising the inner meeting)	6	2.5	15							15		
Stationary (Pencil, note book etc)				1	20	20	1	20	20	40		
Sub Total			175			60			320	555	235	320
(2) Grand survey for set up the GB area												
Grand survey for GB area demarcation												
Travel allowance												
FSD officer, 2 persons 1 day X 1 times	2	30	60									
Transportation												
Pick-up: 0.20Cedi/km x 80km x 1time				1	16	16				16		
Stationary												
Color tape, Peint marker, paper, copy				1	100	100				100		
Grass cutting for survey line 10 persons X 1day							10	4	40	40		
Boundary piller setting												
Temporary pegs making							20	0.05	1	1		
Concreat piller												
Perchasing and transportation to roadside				14	7	98				98		
Set up the 14 pillers 3 persons X 5 day							15	0.4	6	6		
Travel allowance for instruction												
FSD officer, 1 persons 5 days (Instruction)	5	30	150							150		
Transportation for instructor												
Pick-up: 0.20Cedi/km x 80km x 5times				5	16	80				80		
Needed instruments(FSD shall provide from site stock)												
1 GPS												
2 meter tapes												
Needed man power (FSD Officers survey)												
GB survey map making -> 1persons 2 days												
Sub Total			210			294			47	491	204	47
(3) Land preparation (cleaning grass, spacing pegging, digging planting hole, etc.)												
Clear the land (Grass removing)												
labolor 30 persons 1 day							30	4	120	120		
Spacing												
Peg preparation 150 pegs 100 pegs= 1 cedi							150	0.01	1.5	1.5		
Technical guidance 1 day 1 specialist 40 cedi/day	1	40	40							40		
Transportation for the technical guide												
Pick-up: 0.20Cedi/km x 80km x 1time				1	16	16				16		
Stationary material				1	5	5				5		
Labolor 30 persons 1 day							30	4	120	120		
Planting hole digging												
Technical guidance 1 day 1 specialist 40 cedi/day	1	40	40							40		
Transportation												
Pick-up: 0.20Cedi/km x 80km x 1time				1	16	16				16		
Stationary material												
Copy of guide book/paper				300	0.04	12				12		
Compost and other 100g X 150 seedlings (15 kg)				15	5	75				75		
Labolor 30 persons 1 day							30	4	120	120		
Administration by FSD												
Travel allowance for FSD staff 4 times	4	30	120							120		
Transportation												
Pick-up: 0.20Cedi/km x 80km x 4times				4	16	64				64		
Sub Total			200			188			361.5	749.5	388	361.5
(4) Planting (seedling)												
Perchase the seedlings												
Mango 1.5 Cedi/seedling	105	1.5	157.5							157.5		
Citron 1.2 Cedi/seedling	167	1.2	200.4							200.4		
Transportation the seedling 1 time to 1 road side				1	70	70				70		
Labolor												
Houling the seedling (road side to GB site)							5	4	20	20		
Plant the seedlings (30persons 1 day)							30	4	120	120		
Administration and guidance by FSD												
Travel allowance for FSD staff 2 times	2	30	60							60		
Transportation												
Pick-up: 0.20Cedi/km x 80km x 2times				2	16	32				32		
Sub Total			417.9			102			140	659.9	519.9	140
(5) Maintenance works (weeding)												
Weeding 2 times the planted year and 2 times next year												
Labolor (3 persons 1 day times 4)							12	4	48	48		
Sub Total			0			0			48	48	0	48

Cost projection for Green Belt Activity (2nd and 3rd Year of FR) 1 unit for 300m length (1.2 ha for 30 participants CBWG)

Categories			Gov: FSD expected budget						Com.CBWG shouldering			Total	Sub Total	
	Activities		Personnel		Cedi	Material		Cedi	Personnel		Cedi	Exp		
		Items for cost	Qu	UP	Exp	Qu	UP	Exp	Qu	UP	Exp		Gov.	Comm.
(6) General administration														
	MOU Exchange Ceremony													
		Traver allowance for FSD Official												
		Representatives from 3 District + 1 Regional	4	30	120							120		
		Guest from Traditional Council 4 persons	4	30	120							120		
		Gest from District assembry and district Gov. 4	4	30	120							120		
		Village committee member 10	10	5	50							50		
		CBWG Member							30	4	120	120		
		Transportation												
		Renting Car for Gest				1	200	200				200		
		L Cruiser 0.25Cedi/km x 80km x 2times				2	20	40				40		
	Lunch (for 70 persons)					70	3	210				210		
	Notice Boad for the community					1	50	50				50		
	Stationary and papers					1	20	20				20		
Sub Total					410			520			120	1050	930	120
Grand Total (Starting Time: 1st and second year)					#REF!			#REF!			#REF!	#REF!	#REF!	#REF!
(7) General administration (recurrent cost for every year basis)														
	Periodical Guidance and evaluation meetings annualy basis													
		Traver allowance for FSD Official												
		Once a mounth 1 day (observing and meeting)	12	20	240							240		
		Transportation												
		Pick-up: 0.20Cedi/km x 80km x 12times				12	16	192				192		
	Davry care and observation, patroll by CBWG													
		Labolor half day for every week by 4 persons							108	4	432	432		
	Wild fire prediction													
		Boundary cleaning												
		Labolor 30 persons 1 day times 4							120	4	480	480		
	Patroling Dic. To Apl. (5Moenth)													
		Labolor 2 persons 4 houre per day							150	4	600	600		
Sub Total (recurrent Cost for annuary basis)					240			192			1512	1944	432	1512

Note: Some shere of the FSD staff saraly for each activity is not included.

Villagers work force fee is projected as equivqarent value as if the simmilar work had carried by employed cases.

Community's expences means their contributed value in voluntary bases by thire own labolor forces

Unit price concern

Fuel 1 litter= 1.2 Cedi Land Cruiser Cost: 20 Cedi per day (80km/day)

Labolor 1/day = 4.0 Cedi

Travel allowance/Daily allowance =20 Cedi/day for FSD officer

Travel allowance/Daily allowance =40 Cedi/day for Outsid technical person

Remunerate for high level experts = 200 Cedi/day

Planting Design for 300m unit (1.20 ha)

50% Mango and 50% Citron

Mango (40m/8m X 300m/8 m)/2= 94 Space 8 x 8 93.75

Citron (40m/6m X 300m/6m) / 2 = 167 Space 6 x 6 166.66667

10% is need for replace

Seedling is (105 Mango and 180 Citron) 300m

Abbreviations

Gov = Government of Ghana FSD

Com. = Commu ity people villagers member of CBWG

FSD = Representatives from Forest Service Office of District and Provincial

T.C = Representatives from Traditional Council of related district, township, and community

C.F = Community Facilitator or FSD Survice officer as act for C.F

IGA (Planning / designing)

Item	Unit Cost		Q'ty	Total	Remark
Technical / Market survey					
Motorbike	6.4	GHc/time	6	38.40	
Stationery			LS	50.00	
Needs Assessment					
Motorbike	6.4	GHc/time	6	38.40	
Stationery			LS	50.00	
Total				**176.80**	

IGA (Implementation) 1st year per Community

Item	Cost	Remark	*Cost without Trainer Allowance*	
			FSD	*MOFA*
On-farm training				
2crops (combined)	52		*17*	*35*
Livestock	74		*24*	*50*
Mushroom	57		*7*	*50*
Beekeeping	112		*12*	*100*
Snail	51		*16*	*35*
Soap	440		*440*	*0*
Sub-total	**786**		*516*	*270*
Field Visit & Field Day				
2crops (combined)	71		*6*	*65*
Livestock	109		*59*	*50*
Mushroom	91		*41*	*50*
Beekeeping	91		*41*	*50*
Snail	76		*41*	*35*
Sub-total	**438**		*188*	*250*
Demonstration				
2crops (combined)	176		*111*	*65*
Mushroom	156		*106*	*50*
Beekeeping	376		*326*	*50*
Snail	530		*495*	*35*
Marketing & seed storage (crop)	82		*12*	*70*
	1,320		*1,050*	*270*
Total	**2,544**		*1,754*	*790*

IGA (Implementation) 2nd & 3rd year per Community

Item	Cost	Remark	Annual Cost	*Cost without Trainer Allowance*			
				FSD	*Remark*	*FSD (Annual)*	*MOFA (Annual)*
Additional Inputs							
Livestock	256	for 2 years	128.00	*206*	*for 2 years*	*103.00*	*25.00*
Mushroom	176	for 2 years	88.00	*126*	*for 2 years*	*63.00*	*25.00*
Beekeeping	116	for 2 years	58.00	*66*	*for 2 years*	*33.00*	*25.00*
Snail	221	for 2 years	110.50	*186*	*for 2 years*	*93.00*	*17.50*
Soap	276	for 2 years	138.00	*276*	*for 2 years*	*138.00*	*0.00*
Total	1,045		522.50			*430.00*	*92.50*
Networking & Organization	508		508.00	*508*		*508.00*	*0.00*
Total	1,553		**1,030.50**	*508*		*938.00*	*92.50*

IGA Implementation Cost (Excluding Monitoring Activity)

Crop (Maize + Soybean) (Demo-farm of 1 acre)

Activity	Cost for FSD and Collaborator		Community	
	Item	Cost (GHC)	Item	Cost (GHC)
On-farm training	Trainer allowance (MOFA)	15		
	Seeds for maize	1		
	Pesticides for maize	5		
	Sprey gun for maize	4		
	Seeds for soybean	1		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)	20		
	Total	52		
Demo-farm establishment (1 acre)	Seeds for maize (4.5kg/0.5ac)	4	Tools for sewing	
	Seeds for soybean(7.5kg/0.5ac)	7		
	Garden line	3	Fertilizer	
	Trainer allowance (MOFA)	15	Pesticide	5
	Supervision (MOFA senior officer)	30		
	Maize seeds for individual trial (50kg)	44		
	Soybean seeds for individual trial (50kg)	47		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)	20		
	Total	176		
Field day	Trainer allowance (MOFA)	15		
	Supervision (MOFA senior officer)	30		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)	20		
	Total	71		
Marketing +Seed storage training	Trainer allowance (MOFA) x 2times	30		
	Fuel Cost (Bike for C/F) x 2times	12		
	Fuel Cost (4WD for other) x 2times	40		
	Total	82		
Grand Total		381		

Crop (Groundnut + Tigernut) (Demo-farm of 1 acre)

Activity	Cost for FSD and Collaborator		Community	
	Item	Cost (GHC)	Item	Cost (GHC)
On-farm training	Trainer allowance (MOFA)	15		
	Seeds for groundnut	1		
	Seeds for tigernut	2		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)	20		
	Total	44		
Demo-farm establishment (1 acre)	Seeds (9kg/0.5ac)	9	Tools for sewing	
	Seeds (5kg/0.5ac)	10		
	Garden line	3	Fertilizer	
	Trainer allowance (MOFA)	15	Pesticide	5
	Supervision (MOFA senior officer)	30		
	Groundnut seeds for individual trial (50kg	50		
	Tigernut seeds for individual trial (25kg)	50		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)	20		
	Total	193		
Field day	Trainer allowance (MOFA)	15		
	Supervision (MOFA senior officer)	30		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)	20		
	Total	71		
Marketing +Seed storage training	Trainer allowance (MOFA) x 2times	30		
	Fuel Cost (Bike for C/F) x 2times	12		
	Fuel Cost (4WD for other) x 2times	40		
	Total	82		
Grand Total		390		

Livestock

Activity	Cost for FSD and Collaborator		Community	
	Item	Cost (GHC)	Item	Cost (GHC)
On-farm training	Trainer allowance (MOFA Senior Officer)	30		
	Animal medicines	18		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)	20		
	Total	74		
Field visit	Trainer allowance (MOFA Senior Officer)	30		
	Payment for the owner of the site	15		
	Animal medicines	18		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)	20		
	Fuel Cost (4WD for other)	20		
	Total	109		
Introducing improved buck	Trainer allowance (MOFA Senior Officer)	30		
	Buck (2 heads)	140		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)	20		
	Fuel Cost for transporting buck	60		
	Total	256		
Grand Total		439		

IGA Implementation Cost (Excluding Monitoring Activity)

Mushroom

Activity	Cost for FSD and Collaborator		Community	
	Item	Cost (GHC)	Item	Cost (GHC)
On-farm training	Trainer allowance (MOFA Senior Officer)	30		
	Mushroom pack (2pcs)	1		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)	20		
	Total	57		
Field visit	Trainer allowance (MOFA Senior Officer)	30		
	Payment for the owner of the site	15		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)	20		
	Fuel Cost (4WD for other)	20		
	Total	91		
Demonstration	Trainer allowance (MOFA Senior Officer)	30	Store house for keeping mushroom	
	Mushroom pack (100 pcs)	40	(utilize empty house)	
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)	20		
	Fuel Cost for transporting buck	60		
	Total	156		
Additional Inputs	Trainer allowance (MOFA Senior Officer)	30	concrete yard	
	Drum (2 cans)	60	sawdust	
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)	20		
	Fuel Cost for transporting buck	60		
	Total	176		
Grand Total		480		

Bekeeping

Activity	Cost for FSD and Collaborator		Community	
	Item	Cost (GHC)	Item	Cost (GHC)
On-farm training	Trainer allowance (Private)	30		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)	20		
	Total	56		
Field visit	Trainer allowance (Private)	30		
	Payment for the owner of the site	15		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)	20		
	Fuel Cost (4WD for other)	20		
	Total	91		
Demonstration	Trainer allowance (Private)	30	Store house for keeping mushroom	
	Beehive (2 sets)	140	(utilize empty house)	
	Beesuit (2 sets)	100		
	Smoker	20		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)	20		
	Fuel Cost for transporting buck	60		
	Total	376		
On-fam training (harvesting)	Trainer allowance (Private)	30		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)	20		
	Total	56		
Additional Inputs	Trainer allowance (Private)	30		
	Top-bar of beehive (20 sets)	60		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)	20		
	Total	116		
Grand Total		695		

Snail rearing

Activity	Cost for FSD and Collaborator		Community	
	Item	Cost (GHC)	Item	Cost (GHC)
On-farm training	Trainer allowance (MOFA)	15		
	Snail (2)	10		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)	20		
	Total	51		
Field visit	Trainer allowance (MOFA)	15		
	Payment for the owner of the site	15		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)	20		
	Fuel Cost (4WD for other)	20		
	Total	76		
Demonstration	Trainer allowance (MOFA)	15		
	Snail pen (3 blocks)	309		
	Carpenter & Marson	100		
	Snail (4)	20		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)	20		
	Fuel Cost for transporting materials	60		
	Total	530		
Additional Inputs	Trainer allowance (MOFA)	15		
	Cement (3bags)	60		
	Net (board) (20 set)	60		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)	20		
	Fuel Cost for transporting materials	60		
	Total	221		
Grand Total		878		

Soap making

Activity	Cost for FSD and Collaborator		Community	
	Item	Cost (GHC)	Item	Cost (GHC)
On-farm training (5 days)	Trainer allowance (Private)	150		
	Ingredients (350 soap)	84		
	Soap cutter (duration 5 years)	22		
	Ingredient (24 pomade)	32		
	Ingredient (20 gallons parazole)	22		
	Fuel Cost (Bike for C/F) (5 times)	30		
	Fuel Cost (4WD for other) (5 times)	100		
	Total	440		
Additional Inputs (follow-up)	Trainer allowance (Private)	30		
	Inputs (one round set)	160		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)	20		
	Fuel Cost for transporting materials	60		
	Total	276		
Grand Total		716		

Monitoring by C/F: 2 days per week or 10 days per month or 120 days per year
Monitoring by Senior FSD Staff 1 day per month with 1 personnel, 1 day for three months with 3 personnel

Monitoring (Up to 2 communities per day)

	Day	Week	Month	Year
Cost for Motorbike	6.40	12.80	64.00	768.00
Monitoring by Senior Officer				
Cost for vehicle			20.00	240.00
Cost for day allowance			*20.00*	*240.00*
Cost for day allowance			*40.00*	*160.00*
Total			104.00	1,408.00

Networking & Organization (1 community)

Item	Unit Cost		Q'ty	Total
Community Meeting (20 times/year)				
Water	2.00	GHc/bag	20	40.00
Stationary			LS	100.00
Attendance of C/F				
Motorbike	6.40	GHc/time	20	128.00
Attendance of Senior Officer				
Landcruiser (4 times)	20	GHc/time	4	80.00
Day allowance x 2 staff	20	GHc/person	8	160.00
				508.00

Vehicle Cost

Item	Type	Cost		Remark
Efficiency	Land Cruiser	6.80	km/liter	
	Pick-up	9.00	km/liter	
	Motorbike	25.00	km/liter	
Fuel cost	Land Cruiser	0.18	GHc/km	1.2 GHc/liter
	Pick-up	0.13	GHc/km	
	Motorbike	0.05	GHc/km	
Maintenance (incl. insurance)	Land Cruiser	0.07	GHc/km	20,000km/year 1,335GHc/year
	Pick-up	0.07	GHc/km	20,000km/year 1,335GHc/year
	Motorbike	0.03	GHc/km	12,000km/year 355GHc/year
Total	Land Cruiser	0.25	GHc/km	
	Pick-up	0.20	GHc/km	
	Motorbike	0.08	GHc/km	
Per 60km	Land Cruiser	15.00	GHc	
	Pick-up	12.00	GHc	
	Motorbike	4.80	GHc	
Per 80km	Land Cruiser	20.00	GHc	
	Pick-up	16.00	GHc	
	Motorbike	6.40	GHc	

Maintenance (Land Cruiser & Pick-up)

Item	Unit Cost		Q'ty per year	Total Cost
Regular Servece	50	/5,000km	4	200
Tire	150	pc	2	300
Car battery	50	pc	1	50
insurance	65	contract	1	65
Other maintenance	120	month	6	720
				1,335

Maintenance (Motorbike)

Item	Unit Cost		Q'ty per year	Total Cost
Tire	50	pc	2	100
insurance	15	contract	1	15
Other maintenance	20	month	12	240
				355

IGA Implementation Cost (Excluding Monitoring Activity and Trainer Allowance)

Crop (Maize + Soybean) (Demo-farm of 1 acre) Excluding Trainer Allowance

Activity	Cost for FSD and Collaborator		Community	
	Item	Cost (GHC)	Item	Cost (GHC)
On-farm training	Trainer allowance (MOFA)			
	Seeds for maize	1		
	Pesticides for maize	5		
	Sprey gun for maize	4		
	Seeds for soybean	1		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)			
	Total	17		
Demo-farm establishment (1 acre)	Seeds for maize (4.5kg/0.5ac)	4	Tools for sewing	
	Seeds for soybean(7.5kg/0.5ac)	7		
	Garden line	3	Fertilizer	
	Trainer allowance (MOFA)		Pesticide	5
	Supervision (MOFA senior officer)			
	Maize seeds for individual trial (50kg)	44		
	Soybean seeds for individual trial (50kg)	47		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)			
	Total	111		
Field day	Trainer allowance (MOFA)			
	Supervision (MOFA senior officer)			
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)			
	Total	6		
Marketing +Seed storage training	Trainer allowance (MOFA) x 2times			
	Fuel Cost (Bike for C/F) x 2times	12		
	Fuel Cost (4WD for other) x 2times			
	Total	12		
Grand Total		146		

Crop (Groundnut + Tigernut) (Demo-farm of 1 acre) Excluding Trainer Allowance

Activity	Cost for FSD and Collaborator		Community	
	Item	Cost (GHC)	Item	Cost (GHC)
On-farm training	Trainer allowance (MOFA)			
	Seeds for groundnut	1		
	Seeds for tigernut	2		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)			
	Total	9		
Demo-farm establishment (1 acre)	Seeds (9kg/0.5ac)	9	Tools for sewing	
	Seeds (5kg/0.5ac)	10		
	Garden line	3	Fertilizer	
	Trainer allowance (MOFA)		Pesticide	5
	Supervision (MOFA senior officer)			
	Groundnut seeds for individual trial (50kg	50		
	Tigernut seeds for individual trial (25kg)	50		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)			
	Total	128		
Field day	Trainer allowance (MOFA)			
	Supervision (MOFA senior officer)			
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)			
	Total	6		
Marketing +Seed storage training	Trainer allowance (MOFA) x 2times			
	Fuel Cost (Bike for C/F) x 2times	12		
	Fuel Cost (4WD for other) x 2times			
	Total	12		
Grand Total		155		

Livestock (Excluding Trainer Allowance)

Activity	Cost for FSD and Collaborator		Community	
	Item	Cost (GHC)	Item	Cost (GHC)
On-farm training	Trainer allowance (MOFA Senior Officer)			
	Animal medicines	18		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)			
	Total	24		
Field visit	Trainer allowance (MOFA Senior Officer)			
	Payment for the owner of the site	15		
	Animal medicines	18		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)			
	Fuel Cost (4WD for other)	20		
	Total	59		
Introducing improved buck	Trainer allowance (MOFA Senior Officer)			
	Buck (2 heads)	140		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)			
	Fuel Cost for transporting buck	60		
	Total	206		
Grand Total		289		

IGA Implementation Cost (Excluding Monitoring Activity and Trainer Allowance)

Mushroom (Excluding Trainer Allowance)

Activity	Cost for FSD and Collaborator		Community	
	Item	Cost (GHC)	Item	Cost (GHC)
On-farm training	Trainer allowance (MOFA Senior Officer)			
	Mushroom pack (2pcs)	1		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)			
	Total	7		
Field visit	Trainer allowance (MOFA Senior Officer)			
	Payment for the owner of the site	15		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)			
	Fuel Cost (4WD for other)	20		
	Total	41		
Demonstration	Trainer allowance (MOFA Senior Officer)		Store house for keeping mushroom	
	Mushroom pack (100 pcs)	40	(utilize empty house)	
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)			
	Fuel Cost for transporting buck	60		
	Total	106		
Additional Inputs	Trainer allowance (MOFA Senior Officer)		concrete yard	
	Drum (2 cans)	60	sawdust	
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)			
	Fuel Cost for transporting buck	60		
	Total	126		
Grand Total		280		

Bekeeping (Excluding Trainer Allowance)

Activity	Cost for FSD and Collaborator		Community	
	Item	Cost (GHC)	Item	Cost (GHC)
On-farm training	Trainer allowance (Private)			
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)			
	Total	6		
Field visit	Trainer allowance (Private)			
	Payment for the owner of the site	15		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)			
	Fuel Cost (4WD for other)	20		
	Total	41		
Demonstration	Trainer allowance (Private)		Store house for keeping mushroom	
	Beehive (2 sets)	140	(utilize empty house)	
	Beesuit (2 sets)	100		
	Smoker	20		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)			
	Fuel Cost for transporting buck	60		
	Total	326		
On-farm training (harvesting)	Trainer allowance (Private)			
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)			
	Total	6		
Additional Inputs	Trainer allowance (Private)			
	Top-bar of beehive (20 sets)	60		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)			
	Total	66		
Grand Total		445		

Snail rearing (Excluding Trainer Allowance)

Activity	Cost for FSD and Collaborator		Community	
	Item	Cost (GHC)	Item	Cost (GHC)
On-farm training	Trainer allowance (MOFA)			
	Snail (2)	10		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)			
	Total	16		
Field visit	Trainer allowance (MOFA)			
	Payment for the owner of the site	15		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)			
	Fuel Cost (4WD for other)	20		
	Total	41		
Demonstration	Trainer allowance (MOFA)			
	Snail pen (3 blocks)	309		
	Carpenter & Maison	100		
	Snail (4)	20		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)			
	Fuel Cost for transporting materials	60		
	Total	495		
Additional Inputs	Trainer allowance (MOFA)			
	Cement (3bags)	60		
	Net (board) (20 set)	60		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)			
	Fuel Cost for transporting materials	60		
	Total	186		
Grand Total		738		

Soap making (Excluding Trainer Allowance)

Activity	Cost for FSD and Collaborator		Community	
	Item	Cost (GHC)	Item	Cost (GHC)
On-farm training (5 days)	Trainer allowance (Private)	150		
	Ingredients (350 soap)	84		
	Soap cutter (duration 5 years)	22		
	Ingredient (24 pomade)	32		
	Ingredient (20 gallons parazole)	22		
	Fuel Cost (Bike for C/F) (5 times)	30		
	Fuel Cost (4WD for other) (5 times)	100		
	Total	440		
Additional Inputs (follow-up)	Trainer allowance (Private)	30		
	Inputs (one round set)	160		
	Fuel Cost (Bike for C/F)	6		
	Fuel Cost (4WD for other)	20		
	Fuel Cost for transporting materials	60		
	Total	276		
Grand Total		716		

2. Additional Data for Formulation of the Strategic Forest Management Plan / MoP Modification

Supplementation 2: Additional data for Formulation of the Strategic Forest Management Plan MoP Modification

1 Introduction

As a whole, it can be said that Manual of Procedure (MoP) describes the objectivities for zoning in Forest Reserves clearly. The contents of Part 1, Part 2, and Part 3 to be filled, which are described in MoP can be recognized as necessary ones, and the composition has a commonality of manuals for forest management plan formulation in other countries. The reason why FSD planning officers feel it is difficult to make FR Management Plan based on MoP is probably its insufficient explanation how to describe according to the content. For example, it is very difficult to identify what is difference between the words “goal (Part 2 section1)”, “General management objectivities (Part 2 section 3)”, and “measurable objectivities by each zone (Part 2 section 4)”. Therefore, further explanation is requested for the FSD planning offices to form the FR Management Plan.

One person said, “MoP is very complicated, and need to be simplified”. Does it mean the MoP requests too much and shall some items be omitted? Generally, the process of formulating forest management plan is not very simple, planners are requested to have broad field of knowledge and experiences. In addition, documented records concerning tree plantation are necessary. The reason why MoP suggests the planning team shall included directors of District forest office and Regional forest office is that the planning works need broad knowledge and experiences and power.

MoP describes that objectivities of management plan in measurable/countable manner shall be shown. For Teak planting, logging are general items for every same kinds of Forest Management Plan. It is not very tough for planners to describe quantitative objectivities. However, measurable objectivities on fauna protection area, hillside protection area, and so on may not easy.

For avoidance of such confusion for completion of Part 1, Part 2, Part 3, some explanatory notes shall be added by each Part. As a whole, general principle/standards based on the national plan or guidelines shall be mentioned in Part 1, and, the planed works under the national plan or guideline, the reserved forest expects substantial amounts/quantity of produce shall be mentioned in the measurable manner in Part 2. Part 3 mentions who carries the plan by what kinds of measures, and how to monitor / evaluate the results for next plan making.

Following proposals for MoP modification is developed taking into account important discussions made with JP expert (Mr. Sato) and Counterparts at the second year of the PAFORM project (2005).

2 A proposal for additional explanations on important sections

(sample/idea) for additional explanation notes are follows: *(*Bold letter part is copied from MoP, *in italics is additional explanation proposed*)

PART 1: CURRENT SITUATION

Section 1: Location And Extent
1.1 Geographical Location [And 100,000 Map]
1.2 Area, Perimeter
1.3 District Administration

Additional note: Simple explanation and a map (if not available, a sketch map) showing the location of area including main towns, roads (national and provincial level), river and so on surrounding the Forest Reserve shall be shown. Attachment of appendices of map is requested. .The reserve’s location and area shall be defined with location data of pillars (boundary pillars are defined based on the

coordination system (longitude and latitude) or axis is expected). The defined boundary lines shall be delineated on a topographic map. If these records are not found, the planner carrying boundary pillars survey by GPS is advisable. If GIS map can use, the GPS data shall be put into the GIS Map. Area and Perimeter shall be calculated by the GIS computer. The map is requested to mention, map direction, scale, and legend.

Section 2: Property Rights
2.1 Ownership of the Reserve

Additional note: on A2.3.4 of the MoP describes" Firstly the forest reserves in Ghana are unique in that the land in the reserves and the forests are for the most part the property of the traditional landowners. The Forest Service is mandated only to manage them for the benefit of the owners and in the interest of the nation" The section 2 declares that the FMP is planned based on the respecting of such traditional right.
On 2.1 shall explain the substantial traditional authority's name and right and assure these rights by the plan.
Table below is expected to list up related stool(s) and areas approximately

Ownership	*Area in ha*	*District Assembly*	*Remarks*
XXXX State *XXXX Stool* *XXXX Stool*			

.

2.2 Date of Gazette and Management Rights (Dates of Any Excisions)

Additional note: write the date of gazette and official number of the gazette paper

2.3 Domestic Usufruct Rights /Customary Rights

Additional note: On 2.3, even the area as gazette forest reserve, traditional right shall be maintained as principle, nevertheless, to care the different objectivities for establishing the forest reserve, it may be necessary to restrict the right, If the reserve needs such restriction, the plan shall explain the reasons and significant level of the restriction.

2.4 Timber Harvesting Rights

Additional note: 2.4 is mainly apply to the Natural High Forest area managed under the selective cutting.
If the reserve have concessions, mention the concession name, area, authorized date and No. of the official paper, location compartment number(s)

2.5 NTFPs Commercial Harvesting Rights

Additional note: If the reserve has the part of areas for NTFP for commercial collecting, the principle for NTFP collection manner or limit shall be mentioned on 2.5. If not have the special areas, the plan shall mention that the area is basically not allowed NTFP collection for commercial purpose (only allowed for domestic use).

2.6 Others (E.G. Prospecting or Mining Rights Plantation Development Rights)

Additional note: if special right has not existed in the target area, mention only that the reserve has no special use right approved.

Section 3: Local Context
3.1 Demography
3.2 Economy
3.3 Local People's Relations with the Reserve
3.4 District Development Plan

Additional note: Based on the socio-economic survey mentioned on A.2.5.2 of MoP, briefly explanations are requested on one or two paragraph(s) each. On 3.3 Name, and population of each fringe community is expected to mention (Using s simple table).

Section 4: State of the Forest Resource
4.1 Physical Features

Additional note: Simple descriptions about General feature of
Topography: land feature (gentle sloppy area,, mountainous area, or Savannah, grasslands etc in majority),
Elevation: highest place, lowest place and average, and water/river system (name, direction of flow, etc.)
Climate: rainfall, rainy/dry season (from when to when), temperature, Main wind direction on different season, etc.
Soil: main soil pattern based on national standards or FAO standards

4.2 Naturel Forest (Extent, Composition, Condition Class, GHI etc. And Reference to Summaries from the National Inventory Included as Appendices)

Additional note: Explain what kinds of natural forest (forest type, crown-density, main species, height and diameter, distribution (average, majority, etc) are covering the reserve. The location shall be mentioned by the compartments number

Forest classification item	*Area*	*Main distribution area explanation (compartment, etc)*
Total		

Forest distribution map is expected to add in this part .Following tables are example for explaining the condition of the natural forest by forest type

Table Volume m^3/ha, Stem number/ha, Basal area/ha										
	> 30 dbh			*> 70 cm dbh*			*> 110 cm dbh*			*remarks*
F type	*Mean*	*RME*	*E %*	*Mean*	*RME*	*E %*	*Mean*	*RME*	*E %*	
F type 1										
F type 21										
F type 3										
Total										

This type of tables for Volume, stem number, and basal area are general pattern of the forest Inventory survey to be done by RMSC. Therefore, if inventory report by RMSC is available, 3 patterns of the above table shall add on this part.
If the reserve has harvestable size of stands in significant area, name list of dominant tree species shall be added in this section.

4.3 Plantation Forest (Extent, Composition, Condition- Details of the National Inventory And Summaries of the Relevant Tables Provided as Appendices)

Additional note: First, Briefly explain the historical view of the plantation establishment including activities by HIPC, MTS, and Private developer (Planted area, species, planted year, and planted compartment). Second, comparisons between planted record and latest remaining plantation, and the main causes why the differences are arisen (harvested, illegal felling, wild fire, etc.) shall be explained.

The latest plantation area distribution map shall be prepared. If these data are not existed or missing, the planner shall implement "check survey" for identifying the remaining plantation areas using GPS. If GIS map is available, insert the check survey results into the map.

The latest remaining plantation areas shall summarise on table form below is advisable.

Age Class	Area (ha)	Average Crown Density (%)
0		
1-4		
5-9		
10-14		
15-19		
20-24		
25-29		
30-34		
35-39		
40-45		
Total		

4.4 Non Timber Forest Product Resources

Additional note: Explain briefly what kinds of NTFPs are generally used by the surrounding communities, how the people control the harvesting these NTFPs in sustainable manner, and the quantity of these NTFPs harvested in annual base if it possible. If the reserve has special areas for NTFPs for special community or special occasions, mention them. If the reserve does not have these special areas, mention the general rule or general custom (harvesting season, main usage such as home consumption or commercial purpose) and procedures to give approvals the usage of NTFPs If the reserve has the general standards for controlling NTFPs harvesting, to summarize about main products the harvesting level showing on following table is advisable

Name of NTFPs	*Allowable size or quantity /year*	*Harvestable location Name of compartment*	*Name of Permitted community*
NTFP 1			
NTFP 2			
NTFP 3			

4.5 Wildlife Resources

Additional note: Based on inventory report on the natural conditions to be done by RMSC, identified main species on flora and fauna. If the report recognizes that there are endangered, rare, endemic etc

specie within the FR, mention their names and level of importance or dangerous situation for protection. If the report did not recognize such important flora and fauna, explain general manner for the protection of wild life under the wild life protection law.

4.6 Factors Affecting the Forest Resource (Fire, Encroachment, Illegal Felling, Etc.)

Additional note: Explain briefly about the difficulties for conserving/maintaining the reserve focus on (a) wild fire (how many ha was destroyed, frequency of fire breakout, main reason, and countermeasures), (b) encroachment (same), Illegal felling (same), and (c) other factors (same).

Section 5: Past Management for Protection and Research

5.1 Environmental Protection Areas
5.2 Biodiversity Protection Areas

Additional note: If the reserve is earmarked, show the areas on Map, and explain the location (related compartment and key land marks). Explain briefly about the flora and fauna and the protection condition, key factors for the protection. If no special area demarcated, describe" There are no area is demarcated for biodiversity protection of flora and fauna protection".

5.3 Fauna Protection

Additional note: Explain legal and illegal hunting situation and how hunting affects on wild life/fauna protection in general

5.4 Fire Protection

Additional note: In the Transitional zone, wild fire is very serious issue, therefore, detail explanations countermeasures against fire, damaged forest records (past several years record on fire incidence and statistic information on damaged areas) shall be described. This section is details of explanation made in section 4.6 above. Attach following table, if it is advisable

Year	*Number of fire*	*Damaged area (ha)*	*Needed area for replanting*	*Remarks*
2005				
2006				
2007				
2008				

5.5 Research Areas (Including PSPs)

Additional note: If the reserve has research plots (Long term and periodical observation carried out by the research organization, university, and other responsible body), explain the contents of research (Objectives, Name of responsible organization, established year, etc.). If the reserve has no research plots, only describe "The reserve has no special plots for research"

Section 6: Past Management for Production

Additional note: Belief explanation and tables are requested to be prepared for 10 years in the past, plantation/regeneration, NTFPs production and revenue come from forest produce from the reserve management
The forest produce results shall evaluate to comparer with the management plan that was covered past 10 years if the previous plan was made.

6.1 Timber Production Areas (Compartments, Harvesting Schedule, Progress Map, Production Levels Over The Last 10 Years)

Additional note: The felling/harvested volume or number of stand shall be mentioned year-by-year, in location, volume/number, unit price, and total revenue. Harvested places also shall be mention on management map compared with previous plan. Fill the following table is expected.

	Harvested						*Revenue*	*Name*
Year	*Comp.*	*Spp.*	*Area(ha)*	*volume*	*number*	*Total*	*Unit/m^3 or / timber*	*Logger*

The line is filled by one logging site by a contractor or bidding (one logging company or payer of the revenue)

Spp. is species harvested, if the harvested stands are including many species, dominant and high value specie shall be mentioned.

6.2 Plantation Production Areas (Compartments, Planting Final Felling And Thinning Over The Last 10 Years, Other Operations Over The Last Five Years, Summary Of Production Over The Last 10 Years)

Additional note: Same as 6.1, and fill the following table

Harvested								*Revenue*		*Name*
Harvested Year	*Main or Thinning*	*Comp.*	*Spp*	*. Age*	*Area(ha)*	*volume*	*number*	*Total*	*Unit/m^3 or / timber*	*Logger*

The line is filled by one logging site by a contractor or bidding (one logging company or payer of the revenue)

"Spp". is species harvested, if the harvested stands is natural stand, dominant and high value specie shall be mentioned.

6.3 Non Timber Forest Production (Inc. Bush meat) (Current Management, Markets And Opportunities, Main Results From NTFP Survey, Issue And Control Of Hunting Licences)

Additional note: If the reserve has special area for NTFPs, and collecting some revenue from NTFPs collectors, planner shall briefly explain, what kinds of NTFPs produce revenue, quantity and price filling the following table, but the reserve has no such special areas, explain the general condition and general benefit for the NTFPs collector or user.

Kind of NTFPs	*Amount/year*	*Total revenue*	*Remarks*
NTFP 1			
NTFP 2			
NTFP 3			

Add information about hunting licence issued to whom and general condition to permit

Section 7 Past Management for Local People

7.1 Domestic Use Rights

Additional note: If the reserve has special dictionary benefit to local community, explain the special benefit during past 10 years. If not, only mention that "The domestic right had realized through principles explained above (Section 2.3, section 4.4, and Section 6.3)".

7.2 Revenue Collected and Distributed to Owners in Last 10 Years

Additional note: Briefly explain the income and expenditure during past 10 years including NTFPs. Total expenditure is total budget by each year allocated for the management (including expenditure for regeneration/planting, expenditure for stumpage selling bidding, general management cost such as boundary clearance, maintain of pillars. etc. and general administration cost such as field officers salary, maintenance for vehicles, facilities etc.) If a DFO manages several reserves and officers services, facilities maintenance reflecting to all reserves case/items allocates these costs to reflect ratio of the area to the total area. The detail figures shall be shown on section 8.3 below.

	Total revenue	***Total expenditure***	***Distributed revenue 1000Gh ¢***		
Year	***1000Gh ¢***	***1000Gh ¢***	***Stool***	***Traditional C.***	***District Assemblies***
Total					

7.3 Cultural Sites

Additional note: If the reserve has special cultural site, explain users, general usage, and mention the location on compartment map.

Section 8: Infrastructure and Administration

8.1 Access Roads, Tracks, Pillars, Forest Stations, Fg Posts, Forest Nurseries
8.2 FD Responsible Office And Staffing

Additional note: This section requests planner to describe the latest situation for the administration facilities, therefore; explain in brief about forest road system (how long and /ha, general condition), boundary pillars (how many exist and how many lost or need to repair), field officers station, vehicles, bicycles, instruments such as GPS, pocket compass for field survey instruments, and main supplier/facility (nursery) for the reserve management,

8.3 Income & Expenditure Ratios

Additional note: Explain in brief on past five years financial results, revenue from forest produce, and expenditure/budget used for the management for the reserve. FSD officers contribute to the management of the reserve but not only for the reserve. In this case, allocate the human cost reflecting the ratio of total reserves areas concern and the area of the reserve.

Year	***Income***			***Expenditure***							***Balance***
	Log sales	***Others***	***Total***	***Regeneration***	***Fire pre-vention***	***Wood sales***	***Etc.***	***Total***	***Admi***	***Total***	

Note: Abbreviation "Admi" is General administration cost including staff salary
Year can round in 5 years unit (1998-2002, 2003-2007)

Section 9: Conclusion
9.1 Strengths and Weaknesses of Past Management
9.2 Opportunities and Threats to Future Management

PART 2: PROPOSALS FOR FUTURE MANAGEMENT

SECTION 1: GOAL OF FOREST RESERVE MANAGEMENT

Additional note: Generally, long focused objectives or "Goal" is normatively described on this section such as "to realize sustainable management and as well as contribute society of the surrounding community". This kind of description is suitable for the first paragraph but not enough. Planner is requested to show a visual feature, if the management activities are carried on at the planed term. It means, now if the reserve is occupied by denuded grassland at 80%, the conditions shall be changed by conducting plantation works aiming at 80% cover of the Teak plantation. This kind of measurable target shall be shown on this section. Following table is advisable to show the "Goal"

	ON 2008 (now)		*Goal*		*Increase or*	*Remarks*
Forest Type	*Area (ha)*	*Structure(%)*	*Area (ha)*	*Structure(%)*	*Decrease*	
Closed N.F						
Middle N.F						
Open N.F						
Shrub						
Grass						
Man made F						
After harvest						
Farm						
other						
Total				*100 %*		

Note: Possible, If you have forest inventory book data, this table is expected different sheets for deferent zone that are planed on section 3. Category of the Forest type shall be followed general standards to meet the reserved ecological conditions.

SECTION 2: BENEFICIARIES of FOREST RESERVE MANAGEMENT

2.1 The national interest
2.2 The resource owners

Additional note: This section shows the general principle for the management of the reserve

SECTION 3: GENERAL OBJECTIVES AND ZONATION OF THE FOREST RESERVE

Additional note: At the 1st paragraph on this section, planner is requested to show the zoning principle, what kind of zone will be set, The zones shall be shown on the Map and the following table.

Name of zone	*Area (ha)*	*Objectives or reason*	*Management principle*
1. protection zone			
a. XXX protection			
b. hill side protection			
c. riverside protection			
d. Swamp Sanctuaries			
e. Special biological protection.			
f. etc.			
g. etc.			
2. Timbre production zone			
a. production N.F			
b. Plantation F			
c. Convalescence area			
d. Conversion area			
3. NTFPs production zone			
a. XX production			
b. etc.			
Total			

Note :
1. The categories of zone shall follow the zoning proposal of the FMG. The total area shall be equal to the reserve's total area. The definition of zones shall be followed to the explanation made on the MoP (A2.3.3).
2. Simply explain the most important point for explaining the objectives that the planner planed to set the zone on the column "Objectives".
3. Simply explain the measures to realize the objectives such as key restrictions for felling, hunting, etc. on the column "Management principle"
4. Detailed explanation of the zoned management objectivities and principles shall be explain on 3.1 to 3.n and section 4, section 5 below.

3.1 Protection objectives and zones
3.2 Production objectives and zones
3.3 Beneficiary objectives and zones

SECTION 4: MANAGEMENT FOR PROTECTION

Additional note: This section explains the forest protection in each zone. The reasons why the zone is necessary and important are needed to be explained. Some zones are set to follow the governmental decision such as Special biological protection areas, Provenance protection areas, Special Biological

Protection areas. Forest management regime of these zones shall strictly follow the regulations to meet the protection objectivities.

On section 4, MoP requests planner to write (a) Measurable objectives, (b) Management Regime, (c) Management prescription, (d) Right and responsibilities for each protection zone. Planner may face difficulties how to define the measurable objectives for Hill sanctuary, for example. What is the measurable indicator to verify the level of protection? In same meaning, there are same difficulties to define the measurable indicators to other protection zones. MoP itself is describing the items (a) to (d) above in narrative manner. If the planner faces difficulties to show or to describe the measurable indicators for the management zone, the planner shall follow/copy the sentences as same as mentioned on the MoP in narrative explanations on the MoP related sections.

4.1 Hill Sanctuaries
4.1.1 Measurable objectives
4.1.2 Management regime
4.1.3 Management prescriptions
4.1.4 Rights and responsibilities

Additional note: Basically follow the description on MoP (A.2.6 2.1 as Measurable objectives, A2.6.2.3 as Management regime, A2.6.2.4 Management prescriptions, and A.2.6.5 as Rights and responsibilities). If some local modification is needed, add the needed matter as second paragraph of A.2.6.2.3 instructed.

4.2 Swamp Sanctuaries
4.2.1 Measurable objectives
4.4.2 Management regime
4.4.3 Management prescriptions
4.4.4 Rights and responsibilities

4.3 Provenance protection areas
4.3.1 Measurable objectives
4.3.2 Management regime
4.3.3 Management prescriptions
4.3.4 Rights and responsibilities

4.4 Special biological protection areas
4.4.1 Measurable objectives
4.4.2 Management regime
4.4.3 Management prescriptions
4.4.4 Rights and responsibilities

4.5 Cultural Areas
4.6.1 Measurable objectives
4.6.2 Management regime
4.6.3 Management prescriptions
4.6.4 Rights and responsibilities

4.6 Research Areas
4.7.1 Measurable objectives
4.7.2 Management regime
4.7.3 Management prescriptions
4.7.4 Rights and responsibilities

4.7 Fauna Protection Areas
4.8.1 Measurable objectives
4.8.2 Management regime

4.8.3 Management prescriptions
4.8.4 Rights and responsibilities

4.8 Fire Buffer Zone
4.9.1 Measurable objectives
4.9.2 Management regime
4.9.3 Management prescriptions
4.9.4 Rights and responsibilities

4.9 Fire Shelterbelts
4.9.1 Measurable objectives
4.9.2 Management regime
4.9.3 Management prescriptions
4.9.4 Rights and responsibilities

Additional note: From 4.1 to 4.9, basically describe same scene to follow the descriptions of MoP related part (A.2.3 to A.2.9). If these is a protection zone can be divided into several parts, which have different protection level, write the area for each different protection levelled part, and explain management regime, management prescriptions, and right and responsibility to meet the protection measures or principle of each part.

4.10 Convalescence (and Enrichment) Areas
4.10.1 Measurable objectives
4.10.2 Management regime
4.10.3 Management prescriptions
4.10.4 Rights and responsibilities

Additional note: Convalescences area is defined as "Forest which due to either the effects of past logging or fire is now at stage where it can not be logged in the present management cycle. A guide of 15m^2 /ha basal area or less is indicative in this case" and the objectives as "Area left to regenerate until commercially sized timber available for felling" This means the zone shall be maintained until the forest stands to reach enough size for harvest. The area where young natural forest regenerated in natural after illegal logged is not needed to be replanted, nevertheless, these regenerated parts need to protect from felling, therefore, these areas/parts need to set aside from ordinal rotation system of the selecting cutting system.

Measurable objectives is shown by area, target size of stands for recombine to log production zone, and years or rotation periods to be kept as the convalescences zone.

Management prescription is expected to explain how to maintain the regenerated stands from felling. And if special treatments are needed, explain how the enrichment shall be carried out (Species, number of seedlings/ha), or tree improvement treatment, etc.

Rights and responsibilities is expected to explain restrictions for the community people including collection of NTFPs with reasonable reasons and terms of the restrictions may continue, if the general customary right of the reserve are not applied to this regenerated areas.

SECTION 5: MANAGEMENT FOR PRODUCTION

5.1 Timber Production Area
5.1.1 Measurable objectives
5.1.2 Management regime
5.1.3 Management prescriptions
5.1.4 Indicative levels of production
5.1.5 Rights and responsibilities

Additional note: Timber production area is the most important and popular by means of sustainable yielding management. Generally in Ghana, natural tropical rain forests are included in this category, and long time managed by concessions under selective cutting system. On the Transition Zone in Ghana, area of this kind of rich natural forest may be limited; therefore, principally, additional note is needed for this category.

If the reserve has significant level of rich natural forest as defined this category/zone, the plan shall show the allowable harvesting volume/year, cutting ratio in means of volume, lower limitation for cutting stands by means of volume/ha and lowest allowable diameter size/dbh, cutting rotation year, and limitation of harvesting area/year (basically the area=(total area of the Management Unit)/(rotation year)). These conditions are the bases to assure the sustainable yielding.

On 5.1.1 shows Measurable objectives. It means 5.1.1 shall shows quantity of log/timber harvestable/year. 5.1.4 also shows "Indicative levels of production. How difference between these 2 items? In general, selective cutting volume per year is equivalent to the total growth increment/year, then total forest in a management unit maintain total volume and capacity of total yearly growth. As Item 5.1.1 shows the harvestable size/volume per year, then 5.14 shall explain the suitability of the harvest size assuring the sustainable yielding under the selective cutting system of the Management Unit.

Nevertheless, the problem/difficuly is how to show the reasonable reasons for defining the harvestable size/volume per year. The planner needs to collect the data related to the annual growth of the targeted management unit. Generally, on Teak man made forest concern, forestry university, and/or forestry science institutions have some information about growth prediction of Teak (please see5.3.4 Indicative levels of production below . The section is explaining a yielding table for Teak man made gorest growth prediction.).

For natural forest concern, permanent growth increment survey plots data are available. If you can not find any data above, you have to make your data to collect own field survey. The measures you can find on some text book on wood measurement. The official procedures how to make a growth prediction table is not mentioned on the MoP.

5.2 NTFP Production
5.2.1 Measurable objectives
5.2.2 Management regime
5.2.3 Management prescriptions
5.2.4 Indicative levels of production
5.2.5 Rights and responsibilities

Additional note: The MoP describes that" a measurable objectives will be that the harvestable volume is maintained or increased, and that the boundaries of the area are respected by other forest users" therefore, if the data is available for the suitable size of harvest. Forest-produce, such as Rattan, the planner shall show the limitation of quantity/year and controlling measures (getting permission, and reporting the harvested results) on section 5.5.2 and 5.5.3 below. If such data is not available, measurable objectives shall be written "Maintain the size of harvest", and right and responsibility write" management responsibility shall belong to the authorized collectors union or collaborative group/bodies who have to control themselves to avoid over collection for maintaining the sustainable harvest for next generation of people".

5.3 Plantation Production Area

Additional note: On the Transitional Zone, Teak plantation may be the most important forest for the sustainable yielding and forest protection, therefore; Plantation in the Production area shall be given more priority and need detailed information. At present, Teak plantation areas are not clearly recognized by the FSD. Planted areas are not recorded on management map. Taungya style forestation has been conducted on broad areas; nevertheless, the records, where the plantation was

had carried out by whom is not clear. Planted places were in many cases duplicated. The latest situation of the Teak plantation is generally unknown. The planner needs to verify the official records, and may need to conduct field survey. Then fix the exact places, areas remaining, crown density of each remaining stands. The teak plantation shall be demarcated and delineated it's areas on the management map, and give a sub-compartment names.

5.3.1 Measurable objectives

Additional note: The measurable objectives of this section, MoP describes" Regular production of marketable produce providing a commercial return on investment (A2.7.4.1)". This means is quantity of harvestable timber at substantial time flame. When the planted part reach the harvestable age, how many stands or cubic mater of logs can harvest and to maintain production level haw many ha of replanting is necessary? The detail calculation process shall be shown on 5.3.4 below. Here the planner is requested to show the target level of yearly producing in future.

5.3.2 Management regime

Additional note: on the management regime, MoP describes that the descriptions shall be expected "Plantations established by use of seedling stock (rarely direct seeding) and managed in accordance with well tested silvicultural principles specific to the particular species using thinning at defined intervals to maximize production of material of commercially desirable diameters"(A2.7.4.2). This description on the Mop is the common regime of the plantation forest, therefore, to insert the same sentence to your management plan.

Author's Yielding prediction table

	Stating Vol Num.		Thinning		Harvest	
	Number	Vol/ha	N	V	N	V
2.5	900					
7.5	800	60				
12.5	650	106	300	31.8		
17.5	375	143	250	63		
22.5	200	174	100	64		
27.5	150	198			150	187
32.5	150	209			150	209
37.5	150	209			150	209

5.3.3 Management prescriptions

Additional note: No addition than MoP explanation on A2.2.7.4.3 to 4.12

5.3.4 Indicative levels of production

Additional note: This section is expected to show the suitable reason that 5.3.1 mentioned figures (measurable target). This circulation method is not standardized. MoP does not show standard circulation formula or methods. Applicable yielding table is also needed. Planner needs to make a table shown on 4.2 of Part 1. Then project the situation in the future to slide the class of areas according to the expecting year (generally, 5 years period is used as an unit term). Then calculate a 5 years after situation using a yielding table and crown density.

In Ghana transition zone, if the planner cannot find the applicable yielding table, use following table temporally. Repeat same sliding for more than 6 times (30 years future: more than at least 1 rotation period for Teak plantation). The measurable objectives will be defined; almost same areas plantation by age class and it will realize the stabile or continuous level of the harvestable quantity

Following table shows a temporary image describing the "Goal" as 35 years period's target breakdown of Teak plantation area.

5.3.5 Rights and responsibilities

Additional note: No addition beyond MoP explained on A2.7.4.17.

5.4 Conversion / Plantation Development Area

Additional note: Conversion area is defined as "Areas where forest cover and regeneration is minimal and might be suitable for conversion to plantations". A guide of "5m2 / ha basal area or less" would suggest this condition"(MoP A.2.7.5). And the areas shall be managed for "to restore tree cover on severely degraded areas of the forest reserve". Through the establishment of plantations, the areas shall be managed in order to restore environmental functions and to generate revenue for the resource owners (MoP A2.7.5). The areas are expected to be categorized into Plantation Development Area above. But it is not mentioned in MoP when the category will be changed. Planner may need what kind of condition is needed for change of conversion area into Plantation development area. Maybe the planted area that reached to the necessary level to some extent the stand volume can be measured. In general, the planted part reach to similar level of yielding table showing condition, exceeded age 5 is suitable. But growing condition is poor, wait until the average dbh of stand reached to 10 cm.

5.4.1 Measurable objectives

Additional note: The measurable objectives shall be mentioned how many ha are categorized into this class, and how many ha shall be planted in the substantial years of range. Then the conversion area will be diminished by the year XXX in briefly the detail process for converting to Plantation development area shall be explained on the section 5.4.4 below.

5.4.2 Management regime
5.4.3 Management prescriptions
5.4.4 Indicative levels of production

5.4.5 Rights and responsibilities
Additional note: No addition for these 4 sections.

SECTION 6: MANAGEMENT FOR LOCAL PEOPLE

6.1 Revenue from forest reserve management

Additional note: this section shows the expected level of the revenue to share the profits with local beneficiaries and land owner/traditional authority. Therefore, every zone managed according to the regimes above, then how much revenue will be gained is the main term of this section. Project the possible value for coming significant years in yearly average bases.

6.1.1 Measurable objectives

Additional note: On this section, MoP requests planner to write "To ensure that as owners of the reserve, the people of ..... shall receive the gross revenue arising from the utilization of the forest reserve in accordance with this management plan, less any deductions the Forest Service is authorized to make by law in order to carry out its operations (A2.82.1.)"

Target/Goar 35 years after
Forest Structure by Age Class

	Area (ha)	Vol. (m^3)	Tree Numb.	Harvest Level (Vol)		Expected
			(1000 stand	Thinning	Main	Revenue
Age class0	747.45	0	0			
Age class1	250.00	0	22500			
Age class2	250.00	1500	20000			
Age class3	250.00	2650	16250			
Age class4	250.00	3575	9375			
Age class5	250.00	4350	5000			
Age class6	250.00	4950	3750			
Age class7	250.00	5225	3750			
Age class8	444.90	8369	6006			
Age class9	0.00	0	0			
Total	2942.35	30619	86631	3970	8369	309461

6.1.2 Management regime
6.1.3 Management prescription
6.1.4 Indicative levels of revenue
6.1.5 Rights and responsibilities

6.2 Access to forest products for domestic use
6.2.1 Measurable objectives
6.2.2 Management regime
6.2.3 Management prescription
6.2.4 Indicative levels of production
6.2.5 Rights and responsibilities

Additional note: No special advice to be added for the items on 6.2 above

PART 3: PROPOSALS FOR IMPLEMENTATION

Additional note: No special advice to be added for Part 3.

SECTION 1: ADMINISTRATION AND FINANCE

1.1 Infrastructure development and maintenance
1.1.1 Types of Activity
1.1.2 Operational Arrangements

1.2 Reserve/FMU administration
1.2.1 Responsibilities
1.2.2 Operational Planning Process

1.3 Reserve finance
1.3.1 Objectives
1.3.2 Financial agreement

SECTION 2: MONITORING and REVISION

2.1 Monitoring system
2.1.1 Objectives [accountability, transparency, assess progress]
2.1.2 Parameters/indicators.
2.1.3 Records and reporting

2.2 Procedures for revision of the plan