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Review of TFCG-Facilitated Participatory Forest Management in the Eastern Arc and Coastal Forests of Tanzania

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The Tanzania Forest Conservation Group

The research described in this report was conducted by the Tanzania Forest Conservation Group (TFCG). TFCG is a Tanzanian non-governmental organisation registered in 1985. The mission of TFCG is to conserve and restore the biodiversity of globally important forests in Tanzania for the benefit of the present and future generations. We achieve this through capacity building, advocacy, research, community development and protected area management, in ways that are sustainable and foster participation, co-operation and partnership.

TFCG supports five inter-related programmes: participatory forest management, research, community development, environmental education and advocacy. The geographical focus of TFCG's work is the Eastern Arc and Coastal forests of Tanzania.

The research outlined in this report was conducted as part of a project entitled 'Evaluation of TFCG's participatory forest management initiatives in the Eastern Arc'. The project was financed by the Critical Ecosystem Partnership Fund. The project ran from January 2005 to March 2006. Other activities undertaken as part of this project included the development of a documentary about participatory forest management in Lulanda Village.

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EXECUTIVE SUMMARY

This report documents a review of Tanzania Forest Conservation Group (TFCG)-facilitated Participatory Forest Management (PFM) in the Eastern Arc and Coastal Forests of Tanzania. The review examined progress and issues in the PFM process, and the impact of PFM on both biodiversity conservation and local forest-based livelihoods.

The review was conducted between June 2004 and December 2005, and was carried out by two independent PFM consultants, in collaboration with TFCG staff who are facilitators of PFM, and community members who are forest managers. The methodology used a case-study approach, utilising Semi-Structured Interviewing, participatory techniques, participant observation, and secondary data analysis.

TFCG has succeeded in establishing PFM at various sites in the East Usambaras, West Usambaras, Udzungwas and coastal zone. In the long-run the process has been effective, with forest managers being able to develop plans that are site specific. Forest plans are in place and forests are being managed, often in areas where, prior to PFM, the forests were *de facto* open access. However, at times the planning and management of the PFM process has been inefficient in that facilitators and managers alike, have been learning by doing. At village level, the response has been that villagers are keen to manage local forest. Under Joint Forest Management (JFM), where village forest managers are meant to co-manage with District and Forestry and Beekeeping Department (FBD) staff the level of response is not always reciprocated. At village level, issues of representation in Village Environmental Committees (VECs) specifically, have evolved from men only to mixed sex. Little money has actually been made directly through PFM, but when it has there have been issues of accountability or transparency. It is recommended that as a facilitator, TFCG demand a basic level of record keeping in order that support is continued. TFCG have supported communities in developing skills through on the job learning to exchange visits. Support for local area conservation networks is proving to be an important internal motivational tool, which should continue to be supported. Local conflicts have proven to be best resolved through village reconciliation committees. When police and local authorities are involved, they have proven to emphasise the perceived seriousness of the activity, but have not been conclusive in managing the conflict. Where there may be conflicts with outsiders, who may be aggressive, the assistance of local authorities is essential. As yet, this level of support appears to be absent.

The impact of PFM on biodiversity conservation was positive basing on the people's perception and attitude. There is a clear decrease in forest threats such as no more illegal timber harvesting, decrease in fire incidence and forest encroachment. The bottom line is that having workable management system on the ground we believe has brought positive effects on the state of biodiversity. However, a conventional biodiversity monitoring and evaluation should be carried out to compliment the results from this study.

The impact of PFM on local forest-based livelihoods has at the very minimum contributed to forest-based poverty avoidance, when access to human, natural, social, and financial livelihood assets have been maintained or improved. When PFM is combined with Income Generating Activities (IGAs) and the provision of transfer

payments, then PFM has the potential to contribute to forest-based poverty alleviation. Challenges for PFM facilitators and managers include: minimizing initial negative impacts on specific groups in the community; and seeking partnerships to develop forest-based products and their markets.

Overall, the TFCG–facilitated PFM process is progressing, with the impact on biodiversity conservation and local forest-based livelihoods positive. Over the next ten to fifteen years, TFCG will be able to contribute much more to the learning process, as forest management plans are finalised, and local forest managers continually learn and develop their plans to site specific circumstances.

The lessons that have been learnt from TFCG's experience in facilitating participatory forest management can be translated into a series of recommendations for other facilitators of participatory forest management. These can be summarised as follows:

Facilitating PFM

- Clearly identify and include all stakeholders in PFM from inception to prevent unnecessary conflict between groups;
- Ensure that roles of the VEC and VC are clearly identified and negotiated;
- Raise awareness widely amongst the communities involved in PFM;
- Advise communities that all sub-villages should be represented in VECs in order to be involved in decision-making aspects of management.
- Advise communities that only those sub-villages utilising or in close proximity to forest should be expected to participate in the practical labour of management.
- Advise communities to fully involve people with farms in or adjacent to forest in surveying, clearing and marking forest boundaries.
- Be aware of changes in policy and District by-laws that may affect village by-laws and management plans, and assist villagers to adjust plans accordingly.
- Provide support in setting up and monitoring systems that maintain the role of forest as a social asset in times of seasonal and environmental strain;
- Facilitate negotiation of roles between FBD and village forest managers in forests under JFM.
- Fully involve members of the VECs in activities such as PFRAs, marking of the VFMAs and mapping.
- Facilitate PFM in the order of steps suggested in the CBFM guidelines.
- Take time to facilitate the development of trusting relationships between stakeholders (For instance, District and Village) by arranging frequent formal and informal meetings.
- Ensure that VCs and VECs have copies of documents related to the PFM process, in particular, the maps, management plans and participatory forest resource assessment reports.
- Assist communities to review PFM activities yearly.

Livelihoods

- Focus specifically on supporting poorer households and specific forest user groups who are initially negatively impacted by PFM, to be involved in IGAs, and in particular those that provide alternatives to forest products and services;
- Link support for IGAs and the provision of transfer payments directly to the management of the forest; and

- Seek partnerships with projects, which develop innovative sustainable forest-based products, or alternatives to forest products, and the markets for those products.

Participation

- Support the representation of men and women in VECs, through: direct advice, and extension visits, radio broadcasts and video that promote male and female representation.
- Where women may be unconfident in contributing to meetings, the facilitators should be careful to have focus group discussions with men and women separately. Bringing the groups together at the end once their ideas are formulated has proven to empower women to contribute more in meetings.
- Continue to advise communities that all sub-villages should be represented in VECs in order to be involved in decision-making aspects of management.
- Clearly link support for IGAs and transfer payments to the management of the forest. Make it clear that support in these areas will be removed if there is failure to manage forest as stated in the management plans.

Money and Information Handling: Transparency and Accountability

- Avoid creating high hopes for making money through tourism in areas where tourism is unlikely.
- Invest in training in record keeping. Procedures for revenue collections need to be transparent and VECs need to be held accountable for keeping records that can be viewed by insiders and outsiders alike. Make basic record keeping a prerequisite for continued support.
- Support communities in ensuring, that basic forest rules and maximum fines are known by the whole community, whether through sign-boards or further awareness raising.
- Advise communities to develop a sliding scale of penalties for those not adhering to forest rules, from monetary fines to communal work.
- Investigate alternative systems of reporting information gained by individuals who have been on extension visits to a wider section of the community through e.g. environmental choirs.

Skills and Capability: Learning and Motivation

- Be prepared to provide long term support for capacity building.
- Follow up quickly on assisting communities to extend or manage other forest areas.
- Continue to support the development of Local Area Conservation Networks whose members can act as advisers, facilitators and watchdogs in PFM. These networks are important for the future spread and sustainability of PFM to other villages and areas.

Conflict Anticipation and Management: Appropriateness and Effectiveness

- Encourage the use of local mediators in managing conflicts in a timely and firm fashion, only using Ward and District Officials and the police as a last resort.
- Use video, radio broadcasts and extension visits to highlight the lessons learnt from conflicts faced by those communities involved in PFM. Assist communities

in identifying potential conflicts and developing village by-laws to prevent anticipated conflicts.

- Facilitate a negotiation of roles around patrolling and the support the FBD can offer in areas where village forest managers must contend with outside armed traders.

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LIST OF ABBREVIATIONS AND ACRONYMS

CFR	Community Forest Reserve
CBFM	Community-Based Forest Management
CVL	Certificate of Village Land
DC	District Council
DFO	District Forest Officer
DNRO	District Natural Resources Officer
EUCFP	East Usambara Catchment Forest Project
EUCAMP	East Usambara Conservation Area Management Programme
FBD	Forestry and Bee-keeping Division
FBPA	Forest-Based Poverty Alleviation
GoT	Government of Tanzania
ha	hectare
IGA	Income Generating Activity
JFM	Joint Forest Management
JFMA	Joint Forest Management Agreement
LACN	Local Area Conservation Network
LAFR	Local Authority Forest Reserve
LFBL	Local Forest-Based Livelihoods
MNRT	Ministry of Natural Resources and Tourism
MYP	Misitu Yetu Project
NFR	National Forest Reserve
NGO	Non-Governmental Organisation
NTFP	Non-Timber Forest Product
PF	Private Forest
PFM	Participatory Forest Management
PFRA	Participatory Forest Resource Assessment
SSI	Semi-Structured Interview
TFCG	Tanzania Forest Conservation Group
TSh	Tanzania Shillings
URT	United Republic of Tanzania
VA	Village Assembly
VC	Village Council
VEC	Village Environmental Committee
VFMA	Village Forest Management Area
VLFR	Village Land Forest Reserve

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PART ONE: INTRODUCTION

1. INTRODUCTION

The Eastern Arc and Coastal forests of Tanzania and Kenya are one of Earth's biologically richest and most threatened areas and are designated as a biodiversity hotspot by Conservation International. The Tanzania Forest Conservation Group (TFCG) is a Tanzanian non-governmental organisation (NGO) that has promoted improved forest conservation in the Eastern Arc and Coastal forests of Tanzania since 1985. TFCG's primary motivation to conserve forest is to protect forest biodiversity through protecting, improving, or creating forest habitats, whilst simultaneously protecting and improving local forest-based livelihoods. Since 1998, TFCG has focused conservation activities on facilitating PFM and to date works with 91 villages to managing 75,000 ha of forests.

A major learning opportunity is presented by reviewing TFCG-facilitated PFM in the Eastern Arc and Coastal Forests of Tanzania, in order to:

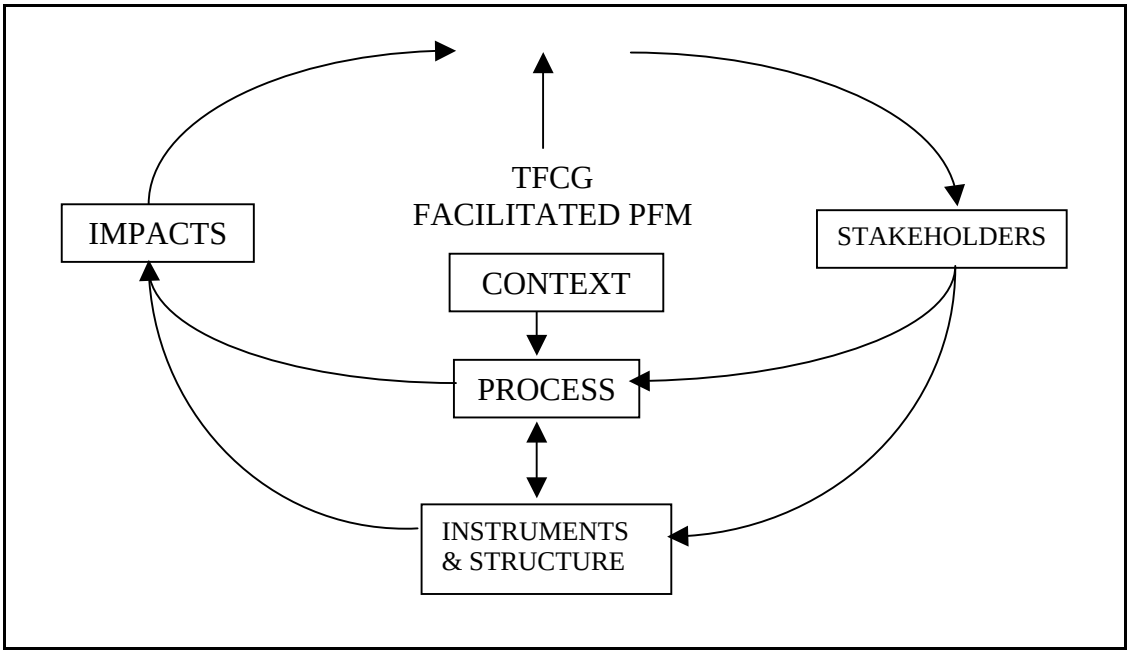
- Analyse the process and impact of TFCG facilitated PFM;
- Document findings through a range of media (Technical Report, Newsletter Articles, Academic Paper, Video for Community Audiences, and Radio Programmes); and Share lessons learned with a range of stakeholders to make progress in PFM.

This report documents the findings of the review.

The aim of the review is to analyse the process and impact of TFCG-facilitated PFM in the biodiversity hotspots of the Eastern Arc and Coastal forests of Tanzania in order to inform a range of stakeholders and make progress in PFM.

The framework for reviewing TFCG facilitated PFM comes from IIED's *'Power Tools' Series Number 1* (Figure 1.1), which shows the links and interplay between context, stakeholders, process, instruments and structure, and impacts, in relation to policies and institutions. The review focuses on two factors in relation to TFCG-facilitated PFM: process and impacts.

Figure 1.1 Framework for Assessing TFCG-facilitated PFM



Source: Adapted from IIED. Getting Started. 'Power Tools' Series Number 1. www.iied.org

The objectives of the review are:

- To assess progress and issues in the PFM process; and
- To assess the impact of PFM on biodiversity conservation and local forest-based livelihoods.

Processes are the dynamics and interactions that bring about change by, and within institutions. With the focus on Village Environmental Committees (VECs), the following PFM processes are investigated and their 'health' evaluated:

- Planning and management – efficiency and effectiveness;
- Participation – representation and responsiveness;
- Money and information handling – transparency and accountability;
- Skills and capability – learning and motivation; and
- Conflict anticipation and management – appropriateness and effectiveness.

Forest conservation (Sunderlin et al 2005, p.1386) is defined as: "*…the successful protection, improvement, or creation of specific forests, and/or specific forest functions and service.*" For the purpose of the review, the impact of PFM on the conservation of forest biodiversity is based on both direct and indirect indicators. The research team identified the following indicators:

- Increased or reduced area of forest under management regime;
- Evidence of forest management practices in place, (For instance, forest management plans, forest boundaries, forest by-laws);
- Reduced or increased threats on forest, (For instance, fire, pit-sawing, illegal collection of forest products);
- Regeneration or degeneration of forest resources (For instance, saplings and forest fauna); and
- Increased or decreased quality and quantity of forest services, (For instance, quantity and quality of spring water and changes in local climate).

The first three criteria are indirect and indicate whether the forest is being protected and management improved. The assumption is that if the forest is managed for biodiversity conservation and/or environmental services then it is more likely that biodiversity will be conserved than if the forest is open access. The last two criteria are more direct and indicate changes in and around the forest.

Local Forest-Based Livelihoods comprise of forest-adjacent households' access to assets and activities that are both directly and indirectly linked to local forest. The impact of PFM on Local Forest-Based Livelihoods is investigated by examining the following underlying questions:

- What livelihood assets (For instance, human, natural, social, financial and physical) and activities is PFM affecting?
- How are assets and activities affected (For instance, access to assets, development of assets, markets for developed assets, and/or wider enabling environment?
- What are the distributive impacts among poorer and better-off households? and
- How does the PFM affect Local Forest-Based Livelihoods in high biodiversity forests?

The methodology uses a case study approach and techniques and tools used range from household and key informant Semi-Structured Interviews (SSIs), group discussions, participatory visualisations and rankings, and secondary data analysis. The findings are based on TFCG-facilitated PFM case study forests.

The report is presented in three parts. Part one includes this introduction, the background to the review, and methodology. Part two presents the findings and a discussion on the findings. Part three draws conclusions to the review.

2. BACKGROUND TO REVIEW

Tanzania National Forest Policy (MNRT 1998) and Forest Act (URT 2002) support Participatory Forest Management (PFM). PFM is (Blomley & Ramadhani 2005) *"…a strategy to achieve sustainable forest management by encouraging the management or co-management of forest and woodland resources by the communities living closest to them, supported by a range of other stakeholders drawn from local government, civil society and the private sector."* PFM incorporates two modes of management: Community-Based Forest Management (CBFM) and Joint Forest Management (JFM). In Tanzania:

- CBFM refers to a forest management regime in which forest-local communities are owner-managers of Village Land Forest Reserves (VLFR), Community Forest Reserves (CFR), or Private Forests (PF); and
- JFM refers to a forest management regime in which forest-local communities are co-managers of Village Forest Management Areas (VFMA) under Joint Forest Management Agreements (JFMA), with Central Government in National Forest Reserves (NFR), or District Governments in Local Authority Forest Reserves (LAFR).

PFM in Tanzania has three principal policy objectives (Blomley and Ramadhani 2005):

- To establish or strengthen effective and representative village Natural Resource Management institutions;
- To maintain or enhance forest quality and condition; and
- To enhance local livelihoods through increased forest revenues and supply of subsistence forest products.

The review examines TFCG-facilitated PFM and its contribution to the above policy objectives through assessing PFM process, and the impact of PFM on biodiversity conservation and local forest-based livelihoods respectively.

2.1 PFM Process

Processes are the dynamics and interactions that bring about change by and within institutions. Institutions include organisations, but also include other long-lived patterns of behaviour, usually with rules attached, like traditions and markets. The experience of PFM in Africa has been that there has been an absence of existing local level institutions through which local roles may operate (Alden Wily 2003). In Tanzania, new institutions have been created at community level, through which PFM is implemented, namely the Village Environmental Committee (VEC) or Village Natural Resource Committee (VNRC).

The following aspects of the PFM process are questioned:

2.1.1 Planning and Management

Experience of PFM in Tanzania and worldwide has shown that PFM is generally a long, slow process and fifteen to twenty years are required to effectively address local concerns and priorities (URT 2003). In Tanzania, stakeholders at all levels are learning-by-doing, which is unlikely to be efficient time wise, but is perhaps likely to less costly in the long-run and more effective than rigid implementation. As yet, PFM

facilitators have provided no performance incentives (URT 2005) to communities for planning and management efficiency and effectiveness, and reviewers of the FBD PFM Programme have recommended that facilitators should do so (URT 2005). A connected concern is over replication, especially since the majority of experience so far comes from donor funded programmes.

Further development of PFM in Tanzania, was thought to be constrained by the lack of villages with village land certificates/titles (URT 2005), which is not the case. 'Land certificates' are only one of several ways in which villages may define (or redefine) the limits and status of their village land area. This may be based on one or more of the following (Section 7, Village Land Act 1999):

- The area described when the village was first registered;
- The area designated as village land under the Land Tenure (Village Settlements) Act of 1999;
- The area demarcated under any procedure or programme since then, and irrespective of whether this has been formally approved or not;
- The area as agreed between the village council and neighboring village councils;
- The area as agreed by the village council with the Commissioner of Lands, the District Council, the Town Council or Forestry/Wildlife Division or any other body in charge of land that borders the village land; and
- The Ministry of Lands has issued a "Certificate of Village Land" (CVL) and the village area is clearly described in the District Register of Village Land.

2.1.2 Participation

The experience from Tanzania is that representative members of VECs tends to evolve from male, local social and economic elites to mixed sex, 'normal' villagers (Alden Wily 2003, Kajembe et al 2003, URT 2003). However, the representation of women on VECs does not sufficiently indicate that they benefit from PFM arrangements nor that their voice is heard in decision making (URT 2003).

2.1.3 Money and Information Handling

Issues of accountability tend to arise in all types of new community level institutions, with communities requiring assistance to form management systems that allow for constructive debate and are accountable to community membership (Alden Wily 2003). Questionable record keeping by forest management committees particularly in respect of income from fines and fees, also eventually leads to stronger reporting regimes and firmer measures for transparency (Alden Wily 2003).

2.1.4 Skills and Capability

PFM facilitators have initially focused on local community awareness raising, specifically of their basic rights and responsibilities. Trends in facilitation have moved from initiating the process at community level slowly with a lot of initial preparation and surveying to developing skills through on the job learning and farmer-to-farmer study tours and networks (URT 2003). Training in book keeping and simple financial management skills have proven essential (URT 2003).

2.1.5 Conflict Management

Local conflicts are usually resolved through village reconciliation committees, which are recognised by the formal village by-laws and are constituted through the

involvement of village elders who are perceived to be wise (Kajembe 2003). In the event that conflicts are unresolved, local authorities may be involved.

2.2 PFM and Biodiversity Conservation

Forest conservation is defined as (Sunderlin et al 2005): *"…the successful protection, improvement or creation of specific forests, and/or specific forest functions and services."* The Eastern Arc and Coastal forests of Tanzania and Kenya are one of Earth's biologically richest and most threatened areas and are designated as a biodiversity hotspot by Conservation International. Consequently, the impetus for forest conservation in the hotspot is to protect, improve and create forest habitats, specifically to ensure the survival of threatened fauna and flora.

In the 1990s, widespread recognition of failures in centrally controlled technocratic forest management regimes led to the development of participatory forest management practices as a route towards securing and sustaining forests. Initially, there was unwillingness to bring reserved forests with high biodiversity or commercial value, under PFM regimes (Wily 2003). In the case of Tanzania, forests in high biodiversity hotspots have now been targeted, but are often those forests that have been heavily degraded. There are few examples of production forests that have been brought under PFM regimes, but recent PFM reviews have suggested that they should start more forests (URT 2003, URT 2005). PFM in Tanzania is less than ten years old, and there is debate as to whether it can or will ensure the conservation of forest biodiversity, despite there being a lack of better alternatives. Direct payments for forest environmental services, biodiversity conservation included, are increasingly being investigated. However, these too involve the participation of forest-local people in the protection of forests.

Biologically based methods for assessing conservation impact are costly in terms of money, time and labour (Danielsen et al 2003, cited in Topp-Jørgensen et al 2004). Also, biodiversity conservation is often not the primary aim of villagers involved in PFM initiatives, which makes in-depth biodiversity surveying impractical and unnecessary from their perspective.

Primary reasons for villagers' involvement in PFM tend to be to protect the forest for local environmental services and specific forest products. Focusing on monitoring threats or resource use and disturbances that are the prime concerns of the villagers provides an indication of an area's biodiversity status (Salafsky and Margoluis 1999, cited in Topp-Jørgensen et al 2004). This approach allows managers to minimise illegal extractions for the benefits of biodiversity in general, but is problematic in that it does not monitor the impact of extractions allowed under PFM (Topp-Jørgensen et al 2004). Significant advantages are that the results are easy to analyse by villagers, and the results are directly related to management interventions (Salafsky and Margoluis 1999, cited in Topp-Jørgensen et al 2004).

The MEMA Projects supported the implementation of PFM in the Iringa District of Tanzania between 1999 and 2003. A scheme was developed to monitor local resource utilisation and forest quality, through patrolling and perception interviews (DLNRO and NORDECO 2003). Patrols recorded observations of selected resource use, disturbances and indicator species perceived as important by local communities.

Interviews complimented patrol observations by providing information on villagers' perceptions of status of and trends in important natural resources and species that pose a threat to their livelihoods. Key elements of the scheme were simplicity, incentive mechanisms, transparency and accountability, and autonomy for local managers (Topp-Jørgensen et al 2004).

Similarly, TFCG have supported communities involved in PFM to carry out Participatory Forest Resource Assessments (PFRA) as outlined in the Community-Based Forest Management Guidelines (MNRT 2001). The assessments outline the forest resources, condition and threats and assist in informing forest management plans and management activities.

With respect to the MEMA Projects, firm conclusions regarding conservation impact were difficult to draw due to the short period of PFM interventions. However, there were examples of reduced threats, such as a reduction in the frequency of traps by more than 50 per cent; improvement in forest quality as perceived by villagers; and increased frequency in wildlife encounters (Topp-Jørgensen et al 2004). Few interventions focused on conserving specific species, but like in a similar scheme in the Phillipines (Danielsen et al 2005), several forest protection interventions indirectly conserved species through general protection of the forest.

Although community-based monitoring may provide an indication as to the effectiveness of management implementation and inform forest managers where to focus their management activities, it may not provide sufficient data on changes in biodiversity values for those whose interest lies purely in conserving biodiversity. In areas considered important for the protection of biodiversity, the community-based monitoring may therefore have to be accompanied by conventional monitoring of the areas' flora and fauna, especially species affected by resource extractions and human inflicted disturbances. As villagers should not carry the burden of protecting national and international interests, funding for the additional monitoring must come from the international community interested in protecting the areas' biodiversity (Topp-Jørgensen et al 2004).

2.3 PFM, Local Forest-Based Livelihoods and Forest-Based Poverty Alleviation

Livelihood (Ellis 2000, p.10) refers to: *"…the assets (human, natural, social, financial, and physical), the activities, and the access to these (mediated by institutional and social relations) that together determine the living gained by the individual or household."* The five dimensions of livelihood assets (DFID 1999, quoted in Hobley and Shields 2000) are:

- Human assets: the skills, knowledge, ability to labour and good health;
- Natural assets: the natural resource stocks from which resource flows useful to livelihoods are derived (For instance, lands, forests and water);
- Social assets: the social resources (networks, membership of groups, relationships of trust, and access to wider institutions of society);
- Financial: the financial resources which are available to people (whether savings, supplies of credit, regular remittances, or pensions); and
- Physical: the basic infrastructure (transport, shelter, water, energy and communications) and the production equipment.

For the purpose of this report, local forest-based livelihoods (LFBL) comprise of forest-adjacent households' access to assets and activities that are both directly and indirectly linked to local forest.

Livelihoods of people living in forest-adjacent communities tend to be diversified and forest-based. For instance, small-scale agriculturalists include forest resources in their livelihood strategy, simply because they cannot obtain sufficient income from any single strategy to survive, and to reduce risks. Forest resources may include:

- Forest products such as timber, building poles, and firewood, and non-timber forest products (NTFP), such as medicinal plants, seeds, animal meat, and honey; and
- Forest services such as the conversion of forest lands as a source of new agricultural land, and water provision.

Deforestation and forest degradation negatively affect local forest-based livelihoods (Brosius 1997; Maruyama & Morioka 1998; Poore 1986: cited in Sunderlin et al 2005). This, together with the correlation between remaining areas of natural forest and chronic poverty[1] (Sunderlin et al 2005, p.1384), highlight the need to link forest conservation with forest-based poverty alleviation (FBPA), and in this case specifically the impact of PFM on local forest-based livelihoods. It is important to note that although PFM facilitators are increasingly aware of the need to link PFM with improving local forest-based livelihoods, it is often seen as an incentive to forest-local people to manage forests. In other words, improving local forest-based livelihoods is seen as a way to meet conservation objectives, rather than alleviate poverty specifically (Gilmour et al 2004, Fisher 2000). Despite this, as previously stated, the Government of Tanzania (GoT) has made enhancing local livelihoods a policy objective of PFM (URT 2001, Blomley & Ramadhani 2005).

Forest–based poverty alleviation (FBPA) is defined as use of forest resources for the purpose of lessening deprivation of well-being on either a temporary or lasting basis, and when applied at household level, is divided into two types (Sunderlin et al 2005, p.1386):

- *Poverty mitigation or avoidance*: the use of forest resources to meet household subsistence needs, to fulfil a safety net function in times of emergency, or to serve as a 'gap filler' in seasonal periods of low income, in order to lessen the degree of poverty experienced or to avoid falling into poverty; and
- *Poverty elimination*: the use of forest resources to help lift the household out of poverty by functioning as a source of savings, investment, accumulation, asset building, and lasting increases in income and well-being.

FBPA can be realised in four ways (Sunderlin 2005, p.1386):

- Converting forests to non-forest land uses such as permanent agriculture;
- Assuring access to forest resources and achieving this either by protecting the existing benefits that forests provide forest-local people, or by redistributing access to, and benefits from, forest resources;

1 Poverty can be defined as a pronounced deprivation of well-being related to lack of material income or consumption, low levels of education and health, vulnerability and exposure to risk, lack of opportunity to be heard, and powerlessness (World Bank 2001, cited in Sunderlin et al 2005, p.1386).

- Making transfer payments to forest-local people who protect forests' environmental services; and
- Increasing the value of forest production through technologies that increase physical forest output, higher prices for forest products, increased processing and forest-based value-adding activities, and the development of new products.

PFM is incompatible with converting forest to non-forest land uses. Though in theory in the CBFM mode, should communities wish to clear fell the whole forest, they could do so (URT 2003). In practice, communities must have a management plan, which is unlikely to be passed if the plan is to clear fell the forest. Furthermore, where communities fail to manage forest in line with their management plans, the Director of Forestry and Beekeeping can remove the rights of community members to manage those forests even in the VLFR (URT 2005).

Forest conservation under PFM regimes does not always assure forest-local people access to forest resources. There is debate over the amount of benefit sharing afforded by differing modes of PFM. In Tanzania, for instance, forests managed under JFM agreements so far, tend to be water catchment or high biodiversity forests, with limited central or local government production forests having been included. In these forests, the priority is protection of habitat and little access to forest resources is offered to forest-local people. There is a concern that without compensation, forest-local communities' investment in PFM will cease (URT 2005). It is for this reason that more emphasis on promoting JFM in government production forests has been recommended (URT 2005).

In comparison, CBFM forests are managed independently by forest-local people and it is they who make decisions and collect revenue from forest product utilisation. In theory it would seem that more benefits are afforded by the CBFM mode, but in practice it depends on the forest type. For instance, CBFM in miombo woodlands in Tanzania have proven to have provided revenue to forest-local people (Lund 2005), but CBFM in Eastern Arc forests tends to focus on smaller areas and have lesser production or service value, often having been highly degraded. Similarly, in India, PFM (specifically in the JFM mode) in Himachel Pradesh Province has focused on degraded areas, and there is recognition that in general it is not benefiting the livelihoods of the poorest (Gouri et al 2004). It is also important to note that often the first thing that local communities do upon gaining ownership and management rights, is to close access to their forests. Reasons for closure of forests include:

- Conservation and protection agendas, maintained by PFM facilitators, who warn villagers about the dangers of over-utilisation (Blomley & Ramadhani 2005);
- Degraded forests that require regeneration before there is much exchange use value; and
- Fear felt by village leaders, village environmental committees (VECs) and community members in general, over their ability to monitor use, should access be permitted.

The closing of the forest area whether under JFM or CBFM initially seems to result in a negative impact on people's livelihoods by restricting the utilisation of forests (Blomley & Ramadhani 2005). Without providing alternatives, it is likely to be especially hard for poorer households that are disproportionately dependent on forest

resources, in that a higher proportion of their total income comes from forest resources, whether through subsistence use or exchange for cash (Vedeld et al 2004).

Transfer payment arrangements are made when forest-local communities are compensated financially for conserving forest for environmental services (For instance, water catchment protection, biodiversity conservation, carbon storage, and recreational values) that benefit external groups (For instance, down stream water users, and international community). In the case of Tanzania, the international community is eager to support biodiversity conservation, and is willing to support small local community investments to achieve that goal, but there is no evidence of down stream water users' willingness to compensate upstream dwellers for their catchment services (URT 2003). Due to the lack of benefits afforded by JFM modes in water catchment forests, there are those that believe that payment for environmental services provided under JFM is important, but is not likely to materialise in the near future (URT 2003).

Income Generating Activities (IGAs) are increasingly seen as an essential accompaniment to PFM in Tanzania, especially where direct and indirect forest-related benefits are limited, or slow to emerge (URT 2003). Increasing the value of production through process and market development has been highlighted (URT 2001, URT 2003, URT 2005).

3. METHODOLOGY

3.1 Description of Research Techniques and Tools

The methodology incorporates three techniques, which were used in combination:

- Participatory techniques;
- Ethnography; and
- Secondary data analysis.

There are three main types of participatory tools, which were utilised and can be grouped as follows:

- Semi-Structured Interviewing (SSI);
- Diagramming and Visualisations; and
- Scoring and Ranking.

Ethnography is a technique of social anthropology, where the researcher draws on participant observation to gain an insight into everyday living. The lead and assistant researchers have spent a combined total of six years living in three of the villages adjacent to three of the case study forests[2]. TFCG Field Officers are based in the villages where PFM is facilitated. This assessment draws on the combined experiences of the lead and assistant researchers and TFCG Field Officers as members of these communities.

The research method includes the analysis of secondary data, for instance, official documentation, organisational files and reports, maps and aerial photographs. This technique complements those of participatory techniques and ethnography.

Table 3.1 shows the range of techniques and tools used in the Review.

Table 3.1 Range of techniques and tools used

Key Research Issues	Methodological Techniques			
	Participatory Techniques			Secondary Data Analysis
	SSI's	Diagramming and Visualisations	Scoring and Ranking	
Context	TFCG and other stakeholders.	Time lines with key events in development of CBFM initiatives.	Brainstorming; Ranking of pressures on forest	TFCG Documents; Published documentation.

[2] Kerry Woodcock spent four years (1994-1998) living and working in Kambai and visited Kwezitu, Vuga (Mpanga forest), and Lulanda as a TFCG Project Co-ordinator and Facilitator of Participatory Approaches, and PhD researcher.
Charles Meshack spent one year (1996) living and working in Lulanda as a TFCG Field Officer and frequently visits all TFCG facilitated forests in his capacity as Projects' Officer (1997-2005) and Executive Officer (2005-present). His MSc Dissertation was based on fieldwork in Ambangulu.
Camilla Bildsten spent a total of one year (between 1996- 2001) in Vuga (Mpanga forest) as a MPhil researcher.

Stakeholders	TFCG and other stakeholders.	Diagram of concentric circles of 'primary' and 'secondary' stakeholders; Stakeholders positions, interests and needs chart; 3R's Matrix; Stakeholders' relationship map or matrix; Stakeholder power to influence and potential to affect or be affected diagram and table; Sources of power table;	Brainstorming to identify stakeholders;	Stakeholder Identification through written records.
Process	TFCG Field Officers, VEC, DFO, IGA groups, key village informants.	Time line of process; Issues analysis; Root cause analysis; Mapping conflicts over resources.		TFCG documentation; Stakeholder records.
Impacts	Household and focus groups: Questions asked, notes written on answers, interesting quotes included.	Diagram of forest – based livelihood institutions, livelihood diagrams and mapping, impact diagramming, forest walks, forest mapping.	Household wealth ranking, household assets observed.	Population statistics; PFRA Reports.

Source: Author 2004.

The research is divided into two main issues: Process and Impact. The following describes the research tools used for each.

3.1.1 PFM Process

In the field analysis of the PFM process, individual and group semi-structured interviews (SSI's), informal discussions, participatory mapping and timelines of the PFM process were utilised (Table 3.1).

For each forest case study, the lead or assistant researcher and respective TFCG Field Officer led a meeting with each Village Environmental Committee (VEC). The VEC members were encouraged to draw a map of the forest showing the location of sub-villages, rivers, farmland, and other forest areas. The forest boundaries were marked and specific areas of conflict identified, along with changes that had occurred since starting the PFM process. The participatory mapping exercise was used to initiate a timeline of events that had occurred through the PFM process. With each event, the issues and progress were discussed.

From the participatory mapping and timeline exercises, key informants were identified and interviewed to learn more about the issue. These were often those people who had had conflicts with the PFM forest and those that had helped to resolve the conflict. Other stakeholder groups and individuals identified for SSIs were those members of both customary and TFCG assisted forest-linked livelihood or Income Generating Activity (IGA) groups (For example, herbal, honey, and butterfly collectors).

Analysis of field reports, academic papers and the combined knowledge of the lead and assistant researchers and TFCG Field Officers complimented the participatory techniques.

3.1.2 Impact of PFM

The impact of PFM was analysed with respect to biodiversity conservation and local forest-based livelihoods.

The impact of PFM on the conservation of forest biodiversity was assessed with the use of indicators at selected case study forest sites (For instance, water quantity and quality, incidence of wildfires, increase of vermin etc). Techniques and tools utilised were participatory forest mapping with VEC members; forest walks with key informants; SSIs with key informants; and the analysis of Participatory Forest Resource Assessments (PFRAs).

The impact of PFM on Local Forest-Based Livelihoods was examined using an in-depth case study approach. Due to time constraints a smaller number of case study forests (For instance, Kwezitu, Mpanga, Lulanda, Ambangulu, and Ruvu South) were selected for this part of the review. For each case study forest a social analysis of the villages participating in forest management was undertaken, in order to identify households for SSIs on forest-linked livelihood. Income groups were identified through the use of key informants, secondary data analysis, and the retrospective use of indicators for assessing income group through household livelihood assets.

Key informants, namely Village Government members and TFCG Field staff, gave an initial identification of the poorer, middle and richer households in the village. Secondary data, such as Village Government documentation on household income groups (Appendix 2) and TFCG reports on Savings and Credit Schemes where household income groups were identified and utilised. Population figures for each village were obtained from the Village Government. The figures were already broken down into sub-villages and number of households. For Lulanda, the figures were conveniently broken down into number of poorer, middle and better-off households in each sub-village. In each sub-village approximately ten percent of households were selected for SSIs. Where a breakdown of poorer, middle and richer households were given, (For instance, in Lulanda), household SSIs were selected in proportion to number of households in these income groups. In other cases an equal number of poorer, middle and better-off households were selected.

Whilst conducting SSIs, the researchers cross-checked income groupings retrospectively, by noting household physical assets (Table 3.2). The researchers and TFCG staff informed the identification of criteria through their previous knowledge and experience of living in either the villages in question or villages nearby.

Table 3.2 Criteria for Identifying Income Groups through Household Physical Assets (an individual must have some the assets).

Income Group/Asset	Poor	Middle	Rich
Physical	Pole and mud house, with earth floor and grass or leaf roof. Furniture: mat bedding, rudimentary stools.	Pole and mud house with cement floor and corrugated iron roof. Furniture: chairs and stools, coffee table, pole bed with woven mattress.	Brick house, cement floor, plastered and white-washed, windows with glass or shutters, with corrugated iron roof. Furniture: sofa chairs with sponge cushions, decorative doilies, dining table and chairs, beds with mattresses, bicycles, hurricane lamps, Thermos flasks.

Source: Woodcock, Meshack and Bildsten, 2005.

SSIs were combined with participatory livelihood mapping. Members of the household were asked to draw a picture or map of their livelihood, showing their house in relation to fields, forests, and water sources and where and what they utilised for their livelihood. The maps were used to inform the interviewing, highlighting areas that were initially missed or needed clarification. In order to analyse trends in impact of PFM on forest-based livelihoods, informants were asked to show and discuss their household forest-based livelihoods now, before PFM, and offer suggestions for strengthening livelihood activities and diversification in the future. Interesting quotes and perspectives were noted, with particular reference to the opportunities and challenges that households have faced and are facing.

To compliment household SSIs, members of forest-based customary and TFCG facilitated IGA groups were interviewed to learn more about their opportunities and challenges.

After completing the SSIs, village meetings were held in order to present the preliminary findings. The researchers and TFCG staff led the meeting and the meeting participants were broken into groups to draw linkage diagrams depicting the impact of the forest in the past (prior to PFM), in the present (with PFM), and in the future (their hopes for the future). These diagrams typically included the impact of PFM on biodiversity conservation, KAP, and livelihood. The diagrams were presented to the whole meeting and further linkages were added and discussed by meeting participants, researchers and TFCG staff.

3.2 Selection of Case Study Forests

TFCG facilitates PFM in the biodiversity hotspots of the Eastern Arc and Coastal forests of Tanzania. TFCG works in the Eastern Arc forests of West Usambara, East Usambara and Udzungwa; and in the Coastal forests of Dar es Salaam and Coast Regions (Table 3.3).

For the purpose of the review, forest case studies were selected to cover the range of:

- Forest type (Eastern Arc Forest: Sub-Montane and Lowland; and Coastal Forest);
- Reservation process (Private Forest, VLFR, VFMA in LAFR, VFMA in NFR);

- Type of management (Owner-Manager, Co-Manager); and
- PFM mode (CBFM, JFM).

All TFCG-facilitated PFM forests were taken as case studies for the investigation of the PFM process. Due to time constraints only the following case studies were selected for assessing the impact of PFM: Kwezitu, Mpanga, Lulanda, Ambangulu, and Ruvu South. Of these only Kwezitu and Lulanda had full impact assessments with the rest being assessed rapidly.

Table 3.3 TFCG-Facilitated PFM Forests in Tanzania

Forest Name	Forest Area (ha)	Forest Type	Reservation Process	Type of Management	PFM Mode	Year of PFM Start
EASTERN ARC FORESTS						
East Usambara						
Kwezitu	12.8	Sub-Montane	VLFR	Owner-Manager	CBFM	1998
Mzungui	34	Sub-Montane	VLFR	Owner-Manager	CBFM	2003
Shambangeda	3.3	Sub-Montane	VLFR	Owner-Manager	CBFM	2003
Kwevumo	4	Sub-Montane	VLFR	Owner-Manager	CBFM	2004
Mpanga*[3]	30	Sub-Montane	VLFR	Owner-Manager	CBFM	1994
Handei*	156	Sub-Montane	VLFR	Owner-Manager	CBFM	2001
Kizingata*	6.2	Sub-Montane	VLFR	Owner-Manager	CBFM	2001
Kizee*	37.6	Lowland	VLFR	Owner-Manager	CBFM	2004
Kambai	7.68	Lowland	VLFR	Owner-Manager	CBFM	1996
Nkanyarika	45	Lowland	VLFR	Owner-Manager	CBFM	2004
Manyani-Mikitengo	10	Lowland	VLFR	Owner-Manager	CBFM	2004
Michungwani	2.5	Lowland	CFR	Owner-Manager	CBFM	1998
Southern Udzungwa						
Lulanda		Sub-Montane	VFMA in LAFR	Co-Manager	JFM	1996
Ihili	35.2					
Fufu–Mgwila	280.7					
Lugoda-Lutali		Sub-Montane	VFMA in LAFR	Co-Manager	JFM	1999
Mholomelwa	22					
Igoda	80.3					
Lugoda-Lutali	10.6					
Mkonge	32					
Ipafu	108.9					
Kitwite	52					
West Usambara						
Sagara	577	Sub-Montane	PFR	Owner-Manager	CBFM	2002
Vugiri	12.51	Sub-Montane	VLFR	Owner-Manager	CBFM	1999
Bagamoyo	24.65	Sub-Montane	VLFR	Owner-Manager	CBFM	1999
Vugiri	135.97	Sub-Montane	VFMA in NFR	Co-Manager	JFM	1999
Ambangulu	2100	Sub-Montane	VFMA in NFR	Co-Manager	JFM	1998
COASTAL FORESTS						
Ngaramia	35.5	Coastal	VLFR	Owner-Manager	CBFM	2000
Chakenge	315.87	Coastal	VLFR	Owner-Manager	CBFM	2001
Kipangenge	232.78	Coastal	VLFR	Owner-Manager	CBFM	2001
Bokomnemela	112.86	Coastal	VLFR	Owner-Manager	CBFM	2001
Ruvu South[4]	35,000	Coastal	VFMA in NFR	Co-Manager	JFM	2000

[3] * N.B. TFCG started facilitating PFM at Mpanga, Handei, Kizingata and Kizee forests in 2004. Prior to this, EUCFP and EUCAMP were facilitators.

Source: Woodcock and Meshack, 2004.

3.3 Review Design

The review was led by Dr. Kerry Woodcock a Social Geographer and independent PFM Consultant, and assisted by Charles Meshack a Forest Ecologist and TFCG Executive Director, and Camilla Bildsten a Social Anthropologist and independent PFM consultant. The work was conducted in eight phases between June 2004 and December 2005 (Table 3.4). The methodology utilises a case-study approach.

Table 3.4. Phases of Review

Phase	Period	When	Who	What and Where
1	5 days	21 June – 25 June 2004	Kerry Woodcock, Charles Meshack, TFCG Field Officers.	Initial Review in Dar es Salaam based Workshop.
2	28 days	26 June – 27 July 2004	Kerry Woodcock and TFCG Field Officers: Phillipo Mbaga and Hamadiel Mgalla.	Intensive field visits (Process) to East Usambara and Southern Udzungwa.
3	12 days	October – December 2004	Kerry Woodcock	Drafting of Technical Report.
4	22 days	January 2005	Charles Meshack, TFCG Field Officers.	Intensive field visits (Process & Impact) to Coastal and West Usambara.
5	21 days	7 April- 26 April 2005	Kerry Woodcock, Charles Meshack, Camilla Bildsten, and TFCG Field Officers: Hamediel Mgalla, Phillipo Mbaga, and Eustack Boniface.	Intensive field visits (Impact) to East Usambara and Southern Udzungwa.
6	21 days	May – June 2005	Charles Meshack and TFCG Field Officers.	Intensive field visits (Impact) to Coastal and Southern Udzungwa.
7	24 days	May – December 2005	Kerry Woodcock assisted by Charles Meshack and Camilla Bildsten.	Finalise write-up of Technical Report, Newsletter Article, and Academic Paper.
8	10 days	December 2005	Charles Meshack.	Disseminate findings: Technical Report, Newsletter Article, Academic Paper, Video for Community Audiences, and Radio broadcasts.

Source: Authors, 2004.

The first phase was led by Kerry Woodcock and based in Dar es Salaam in a workshop setting, with TFCG Officers and Field Officers[5]. The workshop (Appendix 1) formed the initial review, developed participants' analytical skills, and offered techniques to facilitate stakeholders' self-analysis. The analyses from the workshop are incorporated into the Technical Report.

[4] Ruvu South is facilitated jointly by TFCG and the Misitu Yetu Programme of CARE-Tanzania.
[5] The workshop participants included: Kerry Woodcock, Charles Meshack, Simon Mosha, Phillipo Mbaga, Amiri Said, Hamadiel Mgalla, Francis Mponela, Abrahaman Mndeme, Sanford Kway, Raymond Nlelwa, Bettie Luwuge.

Phases two and four involved intensive field visits in order to analyse the PFM process at selected case study sites. Kerry Woodcock led phase two fieldwork at East Usambara and Southern Udzungwa case study sites (Table 3.1), whilst Charles Meshack led phase four at Coastal and West Usambara case study sites.

Phases three and seven entailed Kerry Woodcock and Charles Meshack drafting and finalising the Technical Report, Newsletter Article, and Academic Paper.

Phases five and six involved intensive fieldwork in order to analyse the impact of PFM on biodiversity conservation and local forest-based livelihood. Kerry Woodcock and Camilla led field visits to East Usambara and Southern Udzungwa case study sites, and Charles Meshack led field visits to Coastal and West Usambara case study sites.

Phase eight involved Charles Meshack distributing the findings of the assessment through the Technical Report, Newsletter Article, Academic Paper, Video for Community Audiences, and Radio Programmes.

3.4 Trustworthiness of Findings

Much rigor in the social and natural sciences is linked with measurements, statistical tests, and replicability. The purpose of rigor is trustworthiness. Reductionist rigor is an attempt to minimise the element of personal judgement in establishing trustworthiness (Pretty 1993). That it does not work well in the social sciences is only too evident from the widespread mistrust of the findings of questionnaire surveys. Pretty (1993) proposed complementary foundations for the analysis of trustworthiness. The assessment can be found to be trustworthy based on Pretty's (1993) analysis of trustworthiness, involving:

- Prolonged and intense engagement;
- Triangulation of sources and methods;
- Peer debriefing; and
- Checking by participants.

3.5 Opportunities and Limitations of Methodology

Time and money constraints meant that researchers were not able to conduct full impact assessments at all TFCG facilitated PFM case study sites. For this reason full impact assessments were conducted at Lulanda and Kwezitu case studies, with rapid impact assessments conducted at Mpanga, Ambangulu and Ruvu South case studies. A participatory system of assessing impact in a rapid manner was developed and tested in the field through the assessment.

Whilst conducting household SSIs, the researchers were aware of choosing times that would work for villagers. For instance, in certain villages and with certain households, the researchers had to ensure that household SSIs were completed by early afternoon at the latest, or else respondents may be inebriated. In one village, an unexpected funeral had to be arranged and the Village Government worked with TFCG to arrange an earlier time for the meeting, so that neither would impinge on the other.

English was used for the initial workshop assessment with TFCG staff. Swahili was used in meetings, interviews and formal and informal discussions throughout the assessment. Kerry Woodcock and Camilla Bildsten both have a working knowledge of Swahili. To avoid any misunderstandings caused by language, they were teamed up with TFCG staff who could speak English, but for whom Swahili is their mother tongue. Occasionally Kihehe was used in Mufindi District, as some women only spoke Kihehe, although they could understand Swahili. Nicholas Kisonga, a TFCG staff member who is local to the area assisted in these circumstances.

PART TWO: FINDINGS, DISCUSSION & CONCLUSIONS

4. PFM PROCESS

4.1 Findings

The findings are presented by case study forest, as follows.

4.1.1 East Usambara Case Studies

Kambai VLFR

Background

Kambai VLFR covers an area of 7.68 hectares and is closest to the sub-villages of Kambai A and Kambai B. The two sub-villages of Kweboha and Msakazi are situated further away to the south. Kambai NFR lies to the west of the VLFR.

The area of land that is now Kambai VLFR, was originally thought to have been allocated to a Makonde man in the village. When he left Kambai over 20 years ago and never returned, the land was not reallocated as the villagers were uncertain whether he would return. The area remained forested and only forest products were collected from the area, such as firewood and ropes. (Meshack 2004; pers. comm.)

Two villagers farming on land adjacent to the forest, claim that the land was theirs, but they had no need of cultivating that area. They agreed to the VLFR, when Makange, a past TFCG Field Officer, suggested to them and the VC that the area would be ideal for a VLFR.

Effect of Past Policies and Institutions

Past forest reservation policies in the area still have an effect on the attitude of villagers towards forest. For instance, Kambai B sub-villagers reported clearing and cultivating areas of public forest bordering the Kambai NFR with the express purpose of being compensated for their crops in the future:

> *"Our fathers' did not farm nearby the forest, because of animal pests attacking crops. For us, the possibility of being compensated for our tree crops makes it worthwhile."*

Kweboha sub-villagers reported similarly, that six years ago, they had heard rumours about an area of forest being reserved (Derema NFR). Foresters advised them to plant trees amongst the forest trees so that they could be compensated.

Although Kambai villagers are not involved in JFM they have heard about pilot JFM initiatives elsewhere in East Usambara. The overwhelming attitude is best demonstrated through the following villager's statement:

> *"If foresters are not able to manage the forest reserves alone, that means that they have failed. If the forest is to be managed by villagers we must be paid. We can't work together with foresters because they are being paid. It is better we each work alone."*

Summary of Participatory Forest Resource Assessment

Villagers who took part in the PFRA noted that there were very few timber species, a lot of Mhande, a species suitable for firewood, and many tree species with medicinal properties.

Summary of Management Plan

The VLFR was declared in 2005. By-laws that support the management plan include, for instance: restricted tree cutting; restricted collection of firewood to dry wood only; and prohibited bee-keeping.

Planning and Management Process

Table 4.1 is a timeline of the planning and management process of Kambai VLFR, summarising major events in process, issues and progress.

Table 4.1 Kambai VLFR Planning and Management Process Timeline

Date	Event	Issues	Progress
2000	TFCG Field Officer initiated the idea of VLFR in Kambai, by speaking with VC.		
2000	Issue of VLFR raised in VA, by VC and TFCG.	Villagers feared that their land would be included in the VLFR and that protecting the forest would encourage crop pests.	VC assured farmers with fields adjacent to the forest that their land would not be taken and TFCG raised conservation awareness. VA agreed to VLFR.
2000	VC surveyed the boundary of the VLFR.	Farmers with fields adjacent to VLFR were not involved in surveying the boundary.	
2000	Map drawn by TFCG Field Assistants and Village Chairman.		
2001	VLFR boundary planted with Cedrella seedlings.	Drought caused few tree seedlings to survive. Sections of boundary not clearly defined.	
2002	VEC formed.	Women initially reluctant to become members of VEC. Poor attendance of VEC members at meetings, which are meant to occur once per month, but rarely do. Some members of VEC moved to other areas. Poor reporting of VEC to VC. VEC in need of equipment such as gum-boots, raincoats, paper and files.	Presently 7 men and 5 women in VEC. TFCG support VEC with paper and files.
Feb. 2002	Draft Management Plan developed and approved by VA.	Village by-laws with penalties as high as 47,000 TShs were made prior to District passing an environmental by-law setting village by-law penalties below 20,000 TShs. The by-laws need to be adjusted to come in line with the District.	By- laws were reviewed and revised.
2003	PFRA carried out by TFCG Field	Hard and tiring work to complete in one day. Difficult to understand tree	Assessing the size and species of trees in the

	Assistants and 12 members of VEC.	species.	VLFR assisted in developing the management plan.
2003	Farmers adjacent to VLFR raised issue of boundary dispute with Village Chairman.	Farmers adjacent to VLFR feel that a 10 metre width of their land has mistakenly been incorporated into the VFLR.	
Sept. 2003	Kweboha sub-village held meeting to discuss prospect of having a VLFR in their vicinity.	Initial area, cultivated before they started marking boundaries. Another area has been identified, but the trees are small and they are waiting to see if TFCG thinks it is suitable for biodiversity conservation. A small area has already been encroached for cultivation.	Idea of VLFR spreading to other areas.
2004	TFCG assisted village representatives to visit JFM and CBFM initiatives in West Usambara.		Valuable learning tool.
2004	Encroachment by one farmer on VLFR identified by VEC.	Approx. 1 metre width of land along the inside of the VLFR boundary was cultivated and bananas and lemons planted.	VEC held discussions with perpetrator and warned him of the penalties of his actions. This acted as a deterrent and no further action was taken.
2004	Guests from LACN visited VLFR.	Highlighted that firelines were under bad management and needed clearing. VC is reluctant to arrange communal work for clearing firelines. Suggested reason is that they have many development responsibilities that have a higher priority.	LACN is useful in exchanging ideas and motivating VECs.
Future	Management plan revised and passed.	To be approved by District.	
	Enlarge VLFR to connect with Kambai FR.	To be approved by VC and VA.	Increase in area of forest managed.
	Kweboha to have VLFR their vicinity.	Area's encroached while waiting for TFCG to assist.	
	More tree planting on farms for fruit and timber.	TFCG supply of seedlings inadequate.	

Source: Based on a timeline drawn by Kambai VEC in a meeting with Lead Researcher and TFCG Field Officer and Assistant; and Authors' Fieldwork, Kambai 2004.

Participation

Kambai village has four sub-villages: Kambai A and Kambai B are close to Kambai VLFR; and Kweboha and Msakazi are between one and two hours walk away. All sub-villages are represented in the VEC, therefore participating in the decision making process, but it is Kambai A and Kambai B that are responsible for the practical work of managing the forest. This decision was made on the basis of Kweboha and Msakazi's distance from the forest, thereby gaining few direct benefits

from the forest, and the distance and time it would take to get to the forest to participate in communal work.

The VC call villagers to do communal work on a weekly basis: Kambai A on Thursdays and Kambai B on Fridays. When practical work is required for the VLFR then this system of communal work is utilised. In this way the boundary has been cleared and planted with tree seedlings and firelines cut. Elders and those living close to the forest participate in patrolling and monitoring.

Members of the LACN visited Kambai VLFR and identified that the firelines hadn't been kept clear. VEC claim that the VC is reluctant to organise communal work on the VLFR as they see other development work requiring communal work as a priority.

The women of Kambai A and Kambai B reported that the majority of them are aware of the VLFR, but not all have seen it. Many have been involved in the communal work of clearing the boundary, cutting firelines and planting trees, and have participated in the VA's, conservation awareness workshops led by TFCG and FINNIDA, and PFRA led by TFCG.

There are 12 VEC members and in 2004 five were women. When the VEC was formed, women were given an equal opportunity to become members (places for six men and six women), but the women were reluctant to take those places. Of those that were selected their attendance is low, due to time constraints and the higher priority of home responsibilities. Being shy to speak publicly or being worried about being ridiculed is also an issue. Kambai women requested that TFCG assisted them with training in how to contribute their ideas, along with assistance with IGAs.

The farmers who cultivate adjacent to the VLFR were consulted prior to the forest being demarcated, but as a farmer notes: "*…the VC and VEC did not involve us in marking the boundary.*" Two farmers[6] are, in 2004, contesting a 10-metre wide strip along the northern boundary, which they say, is their land. One of the farmers' sons has uprooted trees marking the boundary and encroached on the forest for cultivation, planting lemons and bananas. VEC members warned him of the penalties associated with breaking the by-laws and have decided not to take further action, as he has apologised.

Money and Information Handling

No money has so far been made in respect to the VLFR.

The draft management plan, written on 21 February 2004, set high monetary penalties. In May 2004 the District passed an environmental by-law that recommended that village by-law fines should be set lower than 20,000TShs, as District fines are between 20,000 and 50,000 TShs. The management plan was revised at the next VA, and was presented to the District and declared a VLFR in 2005.

Kambai women report that because they do not always get to VA and VEC meetings, they do not always know what is happening.

[6] Ernest Kiswaga and Rodrick Razaro.

VEC are reported to not always share their issues with villagers in the VA meetings that occur four times a year. VEC members are often not present and do not give their report.

Skills and Capability
Kambai VEC does not appear to be as motivated as it could be. Members report that there is poor attendance of meetings and that monthly meetings are rarely scheduled. A number of members have moved away from the area. There is poor attendance of VEC members in VA and poor if non-existent reporting to VC and VA.

Women were initially reluctant to become members of VEC, due to their many household responsibilities. They also feel shy or worried about being ridiculed when speaking out in public meetings. Kambai women requested that TFCG assisted them with training in how to contribute their ideas, along with assistance with IGAs.

Conflict Anticipation and Management
TFCG Field Assistants act as advisers to the VC, VEC and villagers. For instance, those farmers who are in dispute with VEC over a 10-metre wide stretch of land that in 2004 is within the VLFR boundary have been advised by TFCG Field Officers to plant their own trees in the disputed area as a compromise. The farmers can harvest the trees and the forest area can remain protected from fire, as no farmer who has planted trees on his farm is likely to use fire to clear it. The farmers feel that it would be a good compromise, but the issue is not fully resolved.

VECs plan is to extend Kambai VLFR area to connect with Kambai FR. One elder who is often used as an advisor in conflict issues, is informally discussing the issue with his son who has land in that area, to see whether it is acceptable to him for the land to come under the VLFR.

VEC have warned the person who uprooted trees on the boundary and encroached on the VLFR by planting banana and lemon seedlings about the penalties of breaking by-laws. They feel that this alone has frightened him and believe that he will not encroach again.

Lessons Learnt
All sub-villages should be represented in the VEC, but only those sub-villagers who are close to the VLFR should be involved in the communal labour of managing the VLFR.

Kambai farmers advise others starting out on the VLFR route that, *"VEC should look to see who is farming next to the forest and should include these people in boundary marking."* This ensures that all concerned understand where the boundaries are, and potential conflict is reduced.

The PFRA of the VLFR is a valuable tool for making management decisions on how to use or to protect the VLFR. It is labour and time intensive and should be organised with that in mind.

The LACNs are a valuable tool in motivating and inspiring VECs in their work and should continue to be supported.

Recommendations
The recommendations are for TFCG to continue to facilitate the villagers in managing their VLFR. Specific recommendations are as follows:

- Villagers to re-clear and re-plant boundary with tree seedlings;
- Villagers to re-elect VEC and redefine VEC and VC roles and responsibilities; Particular attention should be paid to reporting by VEC to the VC and VA and to the responsibility of VC to organise communal work for the VLFR when requested by VEC;
- Respond to women's request for training in public speaking, debating and reporting in order to participate more fully in process;
- Investigate ways of communicating information in the village to a wider proportion of the population, for instance, through informal household networks and communal choirs;
- A couple of villagers' recommended that the VLFR be extended to join with Kambai Central Government Forest: "*The forest isn't big enough to support the whole village. It should be extended.*" Also, Kweboha sub-village Chairman has held talks with the sub-village members about having a VLFR in their vicinity. Each time the forest area has been encroached for cultivation prior to starting, while they wait for TFCGs assistance. TFCG should look for ways to support and encourage field staff to support villagers' desire to manage forest areas in a speedier fashion; and
- Continue to support LACN as a motivator and quality control measure.

Nkanyarika and Kwatango (Bomani) VLFRs

Background to Nkanyarika and Bomani VLFRs
Nkanyarika and Bomani are two separate forest areas. Nkanyarika forest is within the boundary of Kiwanda village and Kwatango (Bomani) forest falls within the boundaries of both Kiwanda and Kwatango villages.

In 2001, after hearing a radio broadcast about making VLFRs, Kiwanda VC sent a letter to the District asking for assistance in making plans for Nkanyarika to become a VLFR. They are still awaiting a response. Within the forest area there is cultivation by Tongwe villagers.

In 2001, after being involved in the JFM of Manga FR, Kwatango village initiated, with the assistance of EUCAMP, a VLFR, in the area known locally as Mkitengo. EUCAMP was later phased out and in 2003, TFCG approached Kwatango VC and VEC and offered to facilitate the planning of the VLFR. In 2004, a conflict with Kiwanda village over the position of the VLFR boundary was highlighted. It was at this time that TFCG approached Kiwanda village to help facilitate the process. Kiwanda reported that the forest area is in two parts, one part known as Mkitengo, which they concur is within Kwatango land, but a greater portion, known locally as Manyani is within Kiwanda land. TFCG have agreed to mediate between the two communities to solve the problem.

Planning and Management Process

Tables 4.2 and 4.3 are respectively, timelines of the planning and management process of Kwatango VLFR and Nkanyarika VLFR, summarising major events in process, issues and progress.

Table 4.2 Kwatango (Bomani) VLFR Planning and Management Process Timeline

Date	Event	Issues	Progress
2001	Kwatango participated in EUCAMP facilitated meeting to introduce and raise awareness about JFM of Manga FR and VLFRs.	EUCAMP planned to train Kwatango VEC, but no training occurred prior to phase out of EUCAMP.	
2001	VLFR area identified by VEC; Boundary identified with assistance of EUCAMP; Boundary cleared; and draft management plan written and sent to District.	EUCAMP phased out before bringing paint to assist in marking boundary; Boundary not cleared since 2001; and Draft Management Plan not returned from District.	
2003	TFCG offered to facilitate Kwantango with PFM process.		Kwatango agreed.
2004	VEC identified 15 acres of VLFR encroached for cultivation; and hunting activity.	15 acres of VLFR encroached by member of Kiwanda village. Boundary dispute began between Kwatango and Kiwanda villages.	
2004	TFCG approached Kiwanda and offered to facilitate PFM process.	Kiwanda reports that approx. 50 ha of the forest area falls within their land and approx. 20 ha fall within Kwatango village land. Kiwanda VC believes that their village boundary extends to the Makoba Valley, but Kwatango are taking the boundary as being where the beacon can be found. This Kiwanda says is the Mission boundary and does not relate to the village boundary.	Kiwanda plan to hold a meeting with Kwatango elders to discuss village land boundaries. Request the mediation of TFCG.

Source: Based on timelines drawn by Kwatango and Kiwanda VECs in meetings with Lead Researcher and TFCG Field Officer and Assistant; and Authors' Fieldwork, Kwatango and Kiwanda 2004.

Table 4.3 Nkanyarika proposed VLFR Planning and Management Timeline

Date	Event	Issues	Progress
2001	Radio broadcast provides impetus to selecting a forest area to manage.	Sent letter to District asking for assistance in how to start VLFR. As of 2004, no response. Need assistance from technicians to raise conservation awareness amongst all villagers.	TFCG have offered to facilitate process.
2002	Hunting fires encroaching on forest.	Hunters from Magorotto caused forest to catch fire. Sent message to adjacent village to control fire.	Are considering making a by-law with penalties for those causing

	destruction of the forest by fire. Presently issue a warning.

Source: Authors' Fieldwork, Kiwanda 2004.

Skills and Capability
In the cases of Nkanyarika and Kwatango (Bomani) VLFRs, although the VECs are keen on the idea of VLFRs, little practical management of the forests has actually occurred. Kwatango were initially assisted by EUCAMP until the programme was phased out. Kiwanda requested assistance from the District in 2001, but have not received any response. Both communities have dabbled in setting up a VLFR, but without outside assistance have suffered from a lack of skills and capability. It is hoped that with TFCG offering their services as a facilitator that the process can be rejuvenated and VECs skills can be developed.

Lessons Learnt
Radio is a useful medium through which to communicate information about CBFM to the villagers and was the impetus for Kiwanda becoming involved in setting up their own VLFRs.

VECs require ongoing training and facilitation in CBFM in order to develop the skills and capability to plan and manage VLFRs.

Where village boundaries are unclear, the process of marking VLFR boundaries is difficult. The village boundaries need to be identified first. Without clear records and maps this is time consuming and the assistance of the District is required.

Recommendations
TFCG facilitate boundary conflict discussions between Kiwanda and Kwatango and co-ordinate assistance from the District.

TFCG train VECs in planning and management process.

Michungwani Community Forest Reserve

Background to Michungwani Community Forest Reserve
Michungwani is a sub-section of Kwamtilli sub-village of Kuze-Kibago village. In 2002 and 2003 the acting leader of Michungwani was in talks with the Village Chairman about forming Michungwani as a separate sub-village in its own right. Michungwani has 28 households and only 25 households are required to form a separate sub-village. No progress has been made on this issue, as the acting leader left to live in Dar es Salaam in 2003 and another leader has not come forward. In addition, leadership changes at village level have taken place.

Michungwani Community Forest Reserve (CFR) was initiated in 1998 when the TFCG Field Officer for the area approached the 'owner' of the forest area. He advised him of the change in forest policy and suggested that his area be suitable to manage as a private forest. The owner agreed, but solicited the assistance of his fellow community members in managing the forest, and so making it a CFR. The forest area

is now under the management of Michungwani, a sub-section of Kwamtilli sub-village.

Summary of Participatory Forest Resource Assessment
Villagers who took part in the PFRA noted that there had been a lot of tree cutting and resin collection prior to the forest becoming CFR. There was evidence of regeneration of saplings and spring water.

Summary of Management Plan
Access to forest is for modern bee-keeping; collection of firewood; and mushrooms. Medicinal plant collection is permitted at a cost of TShs 500 per herbalist per time. No herbalists have requested permits as yet, as they are able to obtain herbs from alternative sources. In the future, the committee believes there will be more demand for medicinal plants from their CFR, as alternative forest resources will be unprotected and degraded.

Planning and Management
Table 4.4 is a timeline of the planning and management process of Michungwani CFM, summarising major events, issues and progress.

Table 4.4 Michungwani CFR Planning and Management Timeline

Date	Event	Issues	Progress
5 May 1998	TFCG Field Officer approached owner of forest land. He advised him about the change in policy and suggested that he reserve and manage the 2.5 ha forest area.	Since, Michungwani isn't an official sub-village the forest cannot be a VLFR and so is a CFM. It therefore makes it difficult to be able to report and speak to VC.	Michungwani has enough households to become a sub-village in its own right. Talks with the last Village Chairman seemed to be moving in the right direction. With a change in leadership and the loss of their spokesperson, who moved to Dar es Salaam, the process is stalled.
1998	Owner agreed, but suggested that he needed help in managing the forest and so formed a group of 6 male household heads.	Realised that it wasn't good to just have men as part of group, as women are users too. Also it didn't look good to just have 6 households using firewood.	Women are now members of committee. Increased the members who would benefit from forest to the whole of Michungwani.
1998	Cleared and marked boundary with teak trees.		Teak trees growing well. Plan to thin and harvest and plant a second line of trees.
2001	TFCG sent members on study tour to Babati.		Decided to start committee of 10.
2001	Reported to VC about Private Forest Reserve.	VC weren't aware of changes in forest policy.	TFCG assisted with raising their awareness about the change in forest policy.
2001	Draft management		VC suggested that they

	plans and by-laws written.		make by-law about collecting of stones from forest.
2001	TFCG assisted with IGAs, e.g. bee-keeping, vegetable nurseries, improved fuel stoves.	Honey harvest poor.	TFCG and District assisted with technical advice on bee-keeping.
2001	PFRA: identified type of trees and size of trees.	Easy to walk around boundary, but more difficult to walk inside forest. Many hornets and thorns. Found one animal in trap.	Discovered species that they didn't know were in forest. Useful in writing management plan.
2002	Cleared fireline: divided into sections and adjacent farmers helped in clearing. Took approx. 2 hours and is needed twice a year.		Boundary well maintained.
2002	VA meeting to approve draft management plan.	People were asking whether it "is true that you can't hit monkeys that are stealing crops." Committee member retorted that, "even if a person steals your crops, you cannot touch them in their own habitat."	Draft management plan approved.
12 Apr 2002 3Oct 2002	LACN started. Network with 8 villages through exchange visits.		Participation good and learn a lot by exchanging ideas.
2002/ 2003	Visitors to forest: Ambangulu and Raskatani VEC members on TFCG exchange visit; African Rainforest Conservation Society; and Muheza DNRO.		Proud of their achievements.
2003	Increased committee to 12 members.		
2003	Revised management plan.		
2004	VA meeting to approve revised management plan.		The meeting went quickly as the villagers now understood the process.
2004	5 hunters found in forest.	Woman committee member approached hunters, but they didn't take any notice until she called for the male committee leader.	Raised awareness concerning management of forest.

Source: Based on a timeline drawn by Michungwani CFM Committee in a meeting with Lead Researcher and TFCG Field Officer and Assistant; and Authors' Fieldwork 2004.

Participation

Michungwani CFR has transformed from a select group of six households participating in its management to the entire 28 households of Michungwani community. The forest committee has expanded to include both women and men and

appears cohesive. The committee would welcome a change in status of the forest from CFR to a VLFR. This would involve the formulation of Michungwani into a sub-village in its own right. This appears at present to be long in coming to fruition. The benefit of a change in status would be to ease reporting to VC and VA and therefore gain their support in conflict management in particular.

Money and Information Handling
For any money that is made from the CFR, the plan is that:

- 40% is to go to the Village Development Committee;
- 30% is for the CFR Committee to purchase equipment for management activities, for instance, bush knives;
- 20% is to be saved for sustaining IGAs, such as bee-keeping; and
- 10% is to be used for emergencies, for instance, allowances for LACN member to travel to meetings.

At present a female member of the committee looks after any money that is made. The committee plan to open a bank account once they have the minimum requirement of 50,000 TSh.

Most money so far has come from visitors to the project who pay a 10,000 TShs visitation fee. The group has been supported by TFCG in starting modern bee-keeping. They were assisted with six hives in June 2003, but the honey harvest in March 2004 was disappointing. They hope for a better harvest next time.

The forest committee has been active in raising awareness of the changes in forest policy within Kuze-Kibago village. They have done this predominantly through their management and planning activities with the VC and VA. Initially the VC hadn't heard about the changes in forest policy, but with the assistance of the TFCG Field Officer and committee members the VC understood the change in policy and the benefits of managing their own forest areas. One committee member has taken the opportunity in a political meeting to tell other villagers that they can also start their own forest reserves. Due to his awareness raising there is another area in Kuze-Kibago village where villagers wish to make a forest reserve. He will make a follow up and assist them.

Skills and Capability
The forest committee is motivated and has demonstrated capability in managing the CFR and very much appreciate the assistance that TFCG offers. They would like to develop their skills in bee-keeping and feel that their capability to manage the forest would be increased if the status of the forest changed from CFR to that of a VLFR, as in that way they would gain more support from the VC and VA.

Conflict Anticipation and Management
A committee member whose house is closest to the CFR heard what turned out to be five pig hunters in the forest in February 2004. She approached them in the forest, telling them that the forest was a CFR now. They laughed at her and said she was crazy. So she called for the Chairman of the committee. Upon hearing a man's voice, they ran away. The hunters were from a more distant sub-village of Kuze-Kibago and they hadn't been aware that the area was reserved. The issue was raised in the VA, and the committee was asked, "*Is it true that we cannot hit monkeys that are stealing*

our crops?" A committee member replied, "*If a person steals your crops, you cannot touch him in his own home.*" The committee members believe that now there is more awareness about their forest reserve, there will be little conflict.

Lessons Learnt
Exchange trips and the LACN are vital in the exchange of ideas and were the impetus for the development of the forest committee.

If Michungwani was formalised as a sub-village in its own right, the committee feels that communication would be easier, as they would have a formal way of reporting to the VC and VA about their issues and gain more support in conflict resolution in particular.

The forest committee appears motivated and is a source of inspiration for other members of Kuze-Kibago village.

The support of TFCG in raising awareness at VC and VA; supporting the forest committee in their management activities and IGAs is much appreciated.

Recommendations
TFCG should continue to support the LACN; exchange trips; and IGAs, (particularly the bee-keeping process already initiated); and follow up on the other areas of Kuze-Kibago village where villagers wish to initiate their own VLFR.

Kwezitu VLFR

Background to Kwezitu VLFR
Kwezitu village, meaning 'to' or 'at' the 'thick forest', was first settled by Sambaa. The Sambaa believed that the forest was a place of protection. Those that followed people to the forest and wished them harm, would become blind or lost in the forest. The first people settled on an escarpment near the present day sub-village of Mkalamo. From this vantage-point they could easily check for enemies and throw stones from the escarpment should enemies try to enter the village. (Woodcock 2000 & 2002)

An elder of Gonja sub-village remembers a customary rule governing the use of forest resources in Kwezitu forest (Woodcock 2000 and 2002):

> *"The first inhabitants of the area saw a small river deep inside the forest, which they called Netondwe. It never ran dry and contained many fish, shrimps and crabs. If you went to catch fish, you must only catch fish. If you went to catch shrimps, you must only catch shrimps. If you went to catch crabs, you must only catch crabs. If you took both fish AND crabs, you would not see the way home."*

And recalls (Woodcock 2000 and 2002):

> *"It was some time in the 1950s that a man from Gonja went to the forest and cut a tree for his own uses without first asking the elders. When it was discovered what he had done he was forced by the elders to pay a fine of a goat."*

Between 1966 and 1990 there was heavy logging of the forests of East Usambara, supported by the government. Much of the forests around Kwezitu were logged. Villagers admit they gained some advantage from the logging in terms of timbers and the building of the road, but clearly note the environmental effects of deforestation: less rain, less river water, fewer animals and less indigenous trees. As one elder expressed his feelings about those times: "People didn't have a voice."

In 1992 Kambai Forest Reserve, which borders Kwezitu village, was gazetted and in 1993 its boundaries extended. In 1994 TFCG began working in the adjacent village of Kambai. In 1997 members of Kwezitu village requested that TFCG assist them in tree nurseries, tree planting and managing their public forest, which TFCG duly did. In 2000, Kwezitu VLFR was initiated.

Summary of Management Plan

Kwezitu VLFR has been closed to use since 2000. The only use at present is that of Mkalamo sub-village, whose only water source comes from the stream that flows out from the VLFR. Around 2006, Kwezitu VEC and VA will decide whether to open the VLFR and if so to what uses.

Members of VEC suggest that in the future firewood and medicinal herb collection could be allowed. They envisage making restrictions on what and how to collect based on information they hope 'experts' will offer. Permits will be offered to local herbalists, identified through interviews and past behaviour, to collect in an environmentally friendly manner. A charge is likely to be applied to herbalists collecting for business purposes as opposed to for household use.

In the future they may harvest timber, but their hopes are mostly on visitor fees from tourists, researchers and conservationists. They have also been advised by a member of FBD to get assistance to write a pamphlet about the different species in the forest to sell to visitors.

VEC found the PFRA useful in analysing the amount and type of resources in the forest and believe it will assist them in deciding the forest use, if any, in the future.

There are three guards in total, two selected from Gonja sub-village and one from Mkalamo sub-village. Each of the guards has fields adjacent to the VLFR and finds it easy to guard the forest while at their fields each day. If other villagers see any encroachment, they know to inform the guards and the guards are to apprehend those encroaching. However, as one villager pointed out: "*The by-law is presently silent about the precise procedure for apprehending encroachers.*"

Planning and Management Process

Table 4.5 is a timeline of the planning and management process of Kwezitu VLFR, summarising major events, issues and progress.

Table 4.5 Kwezitu VLFR Planning and Management Process Timeline

Date	Event	Issues	Progress
21 April	TFCG Field Officer held meeting with		All supported the initiation of the VLFR.

2000	elders of sub-villages closest to forest (Gonja, Vungwe, Mkalamo and Msige), about the change in forest policy.		
2000	Meeting with VA to select a VEC. 2 members from each sub-village adjacent to forest. Total of 8 members.	Difficult to include women, as they did not want to be members.	Women in village heard radio broadcasts saying that every committee should have women included. Women later pushed to get onto the committee.
2001	VEC surveyed boundary. Took 4 days in total over two weeks.	Informed each sub-village which day they would be in their area and requested that all people with farms next to the forest should be present. Some farmers were not present and one farmer argued that one area inside the forest was his land.	Further discussion.
2001	VEC and members of village planted 1000 tree seedlings around boundary.	It was difficult to carry tree seedlings from tree nursery to Gonja as it is far away. Some people pulled up tree seedlings due to conflict with boundary.	Held sub-village assembly meeting to discuss issue further with those farmers in conflict over the boundary.
2002	New VEC selected. Drew map. Sub-village guards selected.		
2002	Cleared boundary with communal labour of 4 sub-villages closest to forest.		
2002	Young man encroached on forest near Mkalamo.	Wasn't aware of boundary.	VEC talked to him.
2003	Committee drafted management plan.	Didn't have skills.	TFCG trained them.
Nov. 2003	PFRA undertaken by committee	Didn't have experience in naming tree species, so one member who is very knowledgeable became very tired being called by everyone to identify tree species. In general difficult and tiring.	Useful in forming management plan.
Dec. 2003	Mkalamo sub-village has an idea to manage an area of forest as it is being degraded. Thinking of joining it with existing VLFR. Only a pathway separates them.	Has not been formalised.	
2003	TFCG supported VEC members to go on an exchange visit to Babati.		
2003	Boundary issue continues.		
2004	WWF and FBD visit		Exchange of ideas.

	forest.		
2004	Allanblackia and Butterfly IGAs initiated.	Difficult to collect seeds as many animals had already eaten them.	Private groups prospering with Butterfly Project.
2004	Revised management plan.	Haven't sent it to District yet.	

Source: Based on a timeline drawn by Kwezitu VEC in a meeting with Lead Researcher and TFCG Field Officer and Assistant; and Authors' Fieldwork 2004.

Participation

Initially it was difficult to involve the women in the VEC, as they were unwilling to be committee members, due to the gossip created and mistrust of husbands, by mixed groups going to the forest together. Having heard a radio broadcast arguing that every committee should have women, a group of women pushed to become committee members. The VEC presently consists of six women and seven men. The women VEC members report that there is no problem in their involvement now, as they believe the men in Kwezitu now have a higher understanding.

Money and Information Handling

Money has been collected from visitors' fees, at 10,000 TShs per head. Visitors have included members of WWF and FBD. This and any other money that is made from the forest is to be divided into three parts:

- 35% for VDC;
- 35% for VEC for management activities; and
- 30% for guards.

The opinion expressed by villagers interviewed was that it is: "*Good to use money for the motivation of guards and VEC. The rest should be for the VDC for the development of the village in general.*" The VDC have received some money and have used it for buying books and pens for the VDC. With any money they receive later, they hope to buy cement for the school.

In marking the boundary, the VEC informed each sub-village of which day they would be in their area and requested that all those farmers who had land adjacent to the forest should be in their fields. This method worked well in general, with one exception. One farmer has two households, one in Gonja sub-village and one in Kambai village. He was residing in Kambai at the time of boundary marking. A letter was sent to him, but was never received. The boundary was marked without his presence and two areas, a half acre in total, of bananas have been incorporated into the VLFR. VEC attempted to keep as many cultivated areas out of the VLFR as possible, but for those inside the forest it was impossible without compromising the forest itself. VEC believe the conflict to have come to a conclusion, but for the farmer the conflict is still unresolved.

Skills and Capability

VEC were not skilled in writing the management plan. TFCG assisted in training them.

Conflict Anticipation and Management

The farmer in conflict over the forest land took up the matter of his half acre of banana being incorporated inside the VLFR with the Village Chairman, who

delegated the responsibility to the VEC. Four VEC members visited him at the disputed area. The farmer reports that one member was causing trouble by not allowing him to speak and saying that he knew the area better than the farmer despite the farmer having lived in the area for longer. The other members were begging to let him have an opportunity to speak. "*We could have reached a very nice conclusion if all would have had the opportunity to speak. That man is using his authority to suppress others,*" said the farmer.

The farmer later sent a letter to the Ward, but had no response. He still hopes for a quarter of an acre or two banana trees, but says if it's not possible then he is not a trouble-maker, and will accept it. He requested that TFCG facilitate a meeting with VEC, VC and himself to resolve the problem. He suggested that VEC should be trained in how to resolve conflicts so that they can manage themselves when TFCG is no longer facilitating.

A young man from Mkalamo, uprooted tree seedlings from the boundary in dispute of an area of one and a half acres of his fathers' cardamom being incorporated into the VLFR. VEC spoke to him and he and his father know they are no longer allowed to go there or they can receive a fine. The family is now landless and borrows or rents land from others.

Lessons Learnt
A central tree nursery makes it difficult to transport tree seedlings to the VLFR boundary. A possible solution would be to have tree nurseries at each sub-village adjacent to VLFR, and close to homes, to reduce the distance in carrying seedlings to the boundary.

VEC must anticipate conflict in defining VLFR boundaries. Calling all adjacent farmers to fields whilst marking boundaries was a good strategy in attempting to dissolve conflict. Conflict has still occurred and VEC have succeeded in the most part in managing the conflict.

Recommendations
TFCG should continue to support farmers in farm forestry; offer training in conflict resolution; and follow up on Mkalamo sub-villagers' idea to add an area of forest to the VLFR.

Mzungui VLFR

Background to Mzungui VLFR
Mzungui forest is so called, due to a story about the cave that is inside the forest. The villagers believed there was a large snake living inside the cave and so when people went to the forest, they would be warned, "*look with care!*" or "*mzungui!*" as it is said in Kisambaa.

Prior to the 1950s, there were two chiefs, Kisatu and Tununtu, who used a large rock in the forest for tambiko or sacrificial rainmaking rituals. No restrictions or rules concerning the use of the forest are remembered.

Mzungui VLFR is 34 hectares and connects the two NFRs of Nilo and Semdoe. It is owned and managed by Kizerui village. Three people, a traditional herbalist and two younger educated men, sent a letter to TFCG asking for their assistance in making Mzungui a VLFR. The TFCG field officer initially thought the letter was sent by the VC. After arranging an initial meeting the officer found that few VC members attended and his job was at first to raise awareness amongst the VC to gain their support.

Planning and Management Process

Table 4.6 is a timeline of the planning and management process of Mzungui VLFR, summarising major events, issues and progress.

Table 4.6 Mzungui VLFR Planning and Management Timeline

Date	Event	Issues	Progress
1 Jan. 2000	Kizerui registered as a village	There were sub-villages that didn't want to be part of Kizerui.	DC visited area and assisted in resolving issue.
2000	VC noticed Mzungui forest area encroached by fire and cultivation.	Most of the people using the area for farming were not ready to leave. They saw the area as future farm land.	VC informed VA that no more cultivation was to take place in the forest as it is important for water catchment.
Sept. 2001	3 villagers who had heard of Handei and Kwezitu VLFRs, were key in wanting assistance in creating VLFR. Villagers wrote letter to request assistance from TFCG and had VC authorise and stamp letter.	In initial meeting with TFCG, many members of VC were not present, as the process had been initiated by 3 villagers and they were not fully aware. .	TFCG agreed to facilitate and started by training VC how to facilitate the process of selecting a committee.
13 Oct. 2002	VA selected VEC.	Initially some members thought that there would be payment for their work in VEC.	TFCG held a meeting with VEC and specified that VEC members were volunteers.
2002	Kizerui joined LACN.		
2003	Boundary cleared, trees planted, and map drawn.	Village Chairman unclear about his responsibilities: arranged activities without involving VEC.	TFCG facilitated a meeting to resolve issues, highlighting the need for good communication between VEC and VC.
1 Mar. 2003	Forest encroachment.	A villager who had cultivated land in forest prior to it being a VLFR, tried to sell the land to an outsider.	VC intervened.
4 Mar. 2003	Visitors from WWF.		
5 March 2003	Fire encroached on forest.	Affected approx. 1 hectare of VLFR.	VEC warned perpetrators rather than fining and formed a committee of farmers around VLFR to assist neighbours in fire

			control should there be an outbreak.
21 Aug. 2003 – 13 Dec. 2003	PFRA	Noted that timber species almost disappeared.	Suggested increase in tree planting on farms; allow regeneration of forest; and introduce improved wood stoves.
25 Aug. 2003	Donors of TFCG project visited.		
29 Oct. 2003	VA to increase awareness of wise use of forest resources.		
18 Nov. 2003	Two VEC representatives went on study tour to Lushoto.		Useful in writing management plan.
1 Mar. 2004	TFCG trained VEC to write management plan.		VEC wrote management plan.
27 Apr. 2004	TFCG trained villagers in the use of Brick Press.	Haven't saved enough money to buy Brick Press.	
2004	Allanblackia project introduced by TFCG as IGA.	They were too late for harvesting.	Next year.

Source: Based on a timeline drawn by Kizerui VEC in a meeting with Lead Researcher and TFCG Field Officer and Assistant; and Authors' Fieldwork 2004.

Participation

VEC has 12 members in total of which five are women. Representatives have been selected from each sub-village. There have been changes in the make up of the VEC and only two members from the original committee remain. These two members happen to be two of three villagers who were the driving force for initiating the VLFR. The third initiator was excluded from the committee as he is a member of the VC and WC and is responsible for penalties. He still attends VEC meetings and participates in management activities. The present VEC is working well and there is only one member who is not attending meetings. They plan to select a person to take his place.

Terminalia seedlings were planted on VLFR boundary. VEC marked area with sticks and then community members from sub-villages closest to VLFR were involved in clearing and planting trees.

Participating in the PFRA helped in developing the VLFR management plan and a strategy for decreasing the reliance on forest products by starting farm forestry and improved wood stove initiatives.

Money and Information Handling

Initially the Village Chairman was unclear of his responsibilities in relation to the VLFR, and organised activities without involving VEC. TFCG mediated between the

Village Chairman and VEC to define each of their roles. The Village Chairman and VEC now report having good communication.

Skills and Capability
TFCG plan to support IGAs, such as farm forestry, particularly for cash crops such as oranges and cashew nuts. It will be particularly useful if those farms around VLFR have planted trees as that will prevent farmers from using fire as a farm management tool.

Conflict Anticipation and Management
One person sold land, which was inside the VLFR to a man from another area. Then he moved away himself. The VC intervened and told the man that the land did not belong to him. The man complained, but to no avail as he hadn't involved the Land Committee in the transfer of land.

Fire encroached on the forest and VEC warned the perpetrators. VEC assisted farmers around the boundary to form a committee to respond to fire encroaching on the forest. In this way they hope to be successful in preventing fire encroaching on the forest in the future.

VEC realise the need to patrol VLFR boundary while boundary trees are still young and until all villagers are fully aware of the VLFR and restrictions on use. VEC patrol the boundary and the fire committee assists VEC by reporting anything untoward.

Lessons Learnt
The motivation of three villagers can inspire a whole village to create and manage their own VLFR.

VEC have anticipated further fire encroachment on the forest and have helped to form a fire committee, made up of farmers on the forest boundary, that can respond quickly to fire outbreaks and can assist them in checking for any signs of other types of encroachment.

Recommendations
TFCG continue to train and support VEC in raising awareness of VLFR and the roles of the villagers in managing the VLFR; mediate when requested; and follow through with plans to implement IGAs, such as farm forestry and improved wood stoves.

Kwevumo VLFR

Background to Kwevumo VLFR
Kwevumo VLFR is so named for the sound (literally wind blow) that could be heard from the forest in the past when it was a large forest. Kwevumo VLFR is owned and managed by Misalai village of which there are four sub-villages: Misilai barabarani; Misilai shuleni; Mlalo; and Kigoma.

The area that contains the forest was part of a Tea Estate until 1967 when the boundaries were redistributed and the forest fell within village land. The land wasn't

claimed for farmland and in the 1980s and early 1990s the forest was heavily logged by Sikh Sawmills.

Planning and Management Process

Table 4.7 is a timeline of the planning and management of Kwevumo VLFR, summarising major events in the process, issues and progress.

Table 4.7 Kwevumo VLFR Planning and Management Process Timeline

Date	Event	Issues	Progress
2002	LACN raised awareness about the idea of VLFR.	Initially, VC not interested in making area a VLFR.	Issue brought up in VA and VC backed idea.
2003	Requested that TFCG assist. Knew of their work in Kwezitu through LACN.		TFCG assisted with process and VEC selected.
Feb. 2004	Neighbouring village, Kazita, stated that an area of the forest came within their boundaries too.	Not fully reconciled, but relationship with Kazita is good.	
20 Apr. 2004	VEC and VC surveyed and cleared boundary.	Forest edge areas cultivated for bananas, cardomon and coffee. Trees not planted on boundary yet as no money for tree seedlings. Plan to plant Grevillea rather than Albizia. Albizia self germinates easily and therefore the boundary may become unclear.	Resolved conflict by meandering around cultivated areas.
2004	WWF field visit.		

Source: Based on a timeline drawn by Misilai VEC in a meeting with Lead Researcher and TFCG Field Officer and Assistant; and Authors Fieldwork 2004.

Participation

There are six men and six women in Misilai VEC. Initially, there were many people wanting to be a VEC member, but some couldn't read or write. Unfortunately, these people were made fun of, but the VA decided that VEC members should be able to read and write in order to keep records. Every three years a new committee will be selected.

The sub-villages of Misilai Barabarani and Misalia Shuleni are the closest to the VLFR and are responsible for carrying out communal management activities, such as boundary clearing and marking. Members of each of Misilai sub-village are represented in VEC.

Money and Information Handling

In the VA it was at first difficult to explain the concept of a VLFR to villagers who were worried about losing potential farmland. Previously, the forest area had been divided up to individuals, but farmers hadn't yet used it for cultivation. When the VLFR was seen to benefit the whole village the concept was accepted.

Skills and Capability
Misilai require assistance from TFCG throughout the planning and management process. They also require assistance with setting up tree nurseries to enable them to grow seedlings for planting on the boundary.

Conflict Anticipation and Management
Those farming bananas, cardamom and coffee around the forest edge were involved in boundary marking. At first many were angry about the possibility of losing their land. Their involvement led to an arrangement of meandering around those areas cultivated and the conflict was resolved. VEC report that everyone understands about the boundary and no one has brought any complaints. However, in the meeting that the researchers attended, one man arrived late and was very angry complaining that he hadn't been involved in boundary marking and that his land had been incorporated into the VLFR. The Village Chairman was surprised and annoyed that he hadn't brought his complaint before. He said he would speak to him at a later date.

The neighbouring village of Kazita has suggested that part of the VLFR may fall within their village boundaries. Misilai report that they have good relations with Kazita and expect their elders and VC to clear up any misunderstandings.

Lessons Learnt
Boundary disputes with the neighbouring village of Kazita and with at least one farmer who previously cultivated at the forest edge are still simmering and need to be resolved.

Recommendations
TFCG should continue to support VEC through the process and with farm forestry initiatives.

Shambangeda VLFR

Background to Shambangeda VLFR
Shambageda VLFR covers an area of approximately 3.3 hectares. The area was originally a communal village farming area, predominantly for cardamom and coffee cultivation. The area was originally larger, but when farmland was required the area was divided out to those in need. TFCG initiated the idea of a VLFR by speaking with the VC and then supported the VC in raising the issue in the VA. In June 2003 Shambangeda VLFR was initiated.

There is a separate area of forest that is on one farmers' land. He will include his family in deciding whether to manage it as a Private Forest Reserve. The VEC plan to motivate each farmer with an area of forest to mark his area with trees and manage the area as a Private Forest Reserve.

Summary of Management Plan
By-laws that support the management plans include the charging of 10,000 TShs to visitors to the VLFR. Fines are the penalty for fire encroachment and felling trees. In the case of minor mistakes, like grazing, firewood or pole collection, VEC suggest a penalty of communal work on the VLFR, such as boundary clearing.

Planning and Management Process

Table 4.8 is a timeline of the planning and management process of Shambangeda VLFR, summarising major events, issues and progress.

Table 4.8 Shambangeda VLFR Planning and Management Process Timeline

Date	Event	Issues	Progress
2003	TFCG approached VC about possibility of starting a VLFR.		VC inspired by the idea of a VLFR.
2003	In VA raised awareness about initiating a VLFR and selected VEC.	Difficult as many villagers were suspicious that the forest would be owned by TFCG or the government. Needed a lot of clarification.	All activities in forest were stopped. Informed that if anything required from forest, must make a request to VEC.
2003	VEC surveyed area and boundary marked.	Four farmers affected with a quarter of an acre taken each.	VC held a meeting with those affected and gave them six months to move their cardomon.
2003	Two VEC representatives went to Lushoto for exchange visit.		
2003	Drew VLFR map.		
Jan. 2004	PFRA	Data not processed yet.	Learned that most timber trees have been harvested. Only ten remaining.
2004	Started tree nursery to raise Grevillea tree seedlings for boundary and farms. Started fish ponds. Developed management plan.		
27 Mar. 2004	TFCG assisted in forming by-laws.	VEC and VC have no copy of draft management plan. By-laws not passed yet.	

Source: Based on a timeline drawn by Shambangeda VEC in a meeting with Lead Researcher and TFCG Field Officer and Assistant; and Authors' Fieldwork 2004.

Participation

Shambangeda village has three sub-villages: Shambangeda A; Shambangeda B; and Gonja. VEC has a total of 12 members (four women and eight men), four selected from each sub-village, with a chairman and secretary chosen for each sub-village. All but one member is participating fully, with that member not attending meetings since the beginning of the process.

Money and Information Handling

TFCG, VEC and VC collaborate on sharing information with VA.

Skills and Capability
VEC appreciate the support of TFCG in developing their skills. They aim to be role models to other villagers by planting trees on their farms.

Conflict Anticipation and Management
TFCG promised to bring a brick press to the village, but haven't due to lack of funds. Villagers are complaining that soon they will be invading the forest for building poles.

Lessons Learnt
The skills VEC develop in planning and managing a VLFR may be used to support and motivate individual farmers to manage Private Forest Reserves.

Recommendations
TFCG should be wary about 'promising' items to the village, such as in the case of the brick press. Villagers may become unmotivated with the process or use it as an excuse for not following regulations, as in the case of "*…being forced to invade the forest for building poles*."

Mpanga VLFR

Background to Mpanga VLFR
Mpanga VLFR is managed jointly by two villages: Hesambia and Vuga. There are four sub-villages adjacent to the forest: Mpanga and Shashui (sub-villages of Vuga); and Maweja and Mwakeni (sub-villages of Hesambia). Each sub-village has representatives in the VEC.

EUCFP initially facilitated village meetings to start the VLFR, but support was not maintained. It appears that key members in the communities were initially motivated, and in a TFCG arranged meeting in 2005 those same people spoke with passion and knowledge. In practice, the communities do not seem to be maintaining authority. The fact that since 2002, 14 farmers (7 from Mpanga; 3 from Maweja; and 4 from Shashui) on the boundary have been encroaching on the forest and the VCs and police have failed to put a halt to it shows that the political will is not there.

In 2005, TFCG have taken on the responsibility of facilitating the communities to manage the forests.

Table 4.9 is a timeline of the planning and management process of Mpanga VLFR, summarising major events, issues and progress.

Table 4.9 Mpanga VLFR Planning and Management Process Timeline

Date	Event	Issues	Progress
1993	Wakilindi traditional rituals.	Traditional rules not strong.	Destruction of forest noticed.
1994/ 95	Hesambia and Vuga villages held an informal meeting about the forest.		Decided to start protecting the forest.

1998	By-laws were established. Formulated a small committee from members of two villages.		Supported by District.
1999	Resource Assessment undertaken with assistance of Catchment Forestry Programme.		
7 & 8 August 94	VA meeting in respective villages.		Forest closed to any uses. Requested Government support.
19 May 1995	Forest boundary surveyed.		Started preparing forest management plans.
19 July 1995	Joint village meeting.		Agreed on starting date for clearing forest boundary.
25 July 1995	Started to clear forest boundary.		Leaders from village, ward, division, district and region participated.
4 Sept. 1995	Villagers continued clearing boundary.		
8 Nov. 1995	Joint Village Meeting.		Forest by-laws established.
1 Dec. 1995	VA meeting.		Forest by-laws approved.
1996	VEC formed.		Management plan prepared and submitted to VAs.
1996	By-laws sent to Ward Development Committee.		Approved.
1997	By-laws sent to Muheza DC.	Retained, as no management plan submitted.	
1997	Farmer clearing field by burning.	Fire spread to forest.	VEC gave a warning to farmer.
1997	2 villagers caught pitsawing.		Admitted mistake and fined TSh 5,000 each.
8 Nov. 1999	PFRA with Catchment	Condition of foresr noted as degraded.	Helped prepare management plans.
2002	Management plan submitted to Ward DC.		Approved.
2002	New VEC formed.		13 members from each village, mixed sex.
2002	By-laws and management plans submitted to Muheza DC.	Management plans not returned to village.	
2002	14 farmers with fields adjacent to boundary started cultivating at forest boundary.	VEC reported incidents to police in Maramba. Farmers interrogated and told to stop cultivating. They continue to cultivate. Police have handed over responsibility to village government.	Not resolved.
2005	DNRO visited village.	Management plans still not passed.	DNRO promised that he was working on it.

Source: Based on a timeline drawn by Hesambia and Vuga Villagers in a meeting with Lead Researcher and TFCG Field Officer and Assistant; and Authors' Fieldwork 2005.

4.1.2 Southern Udzungwa Case Studies

Lulanda JFMA in LAFR

Background to Lulanda Forest
Lulanda Forest covers a total area of 315.9 ha and consists of three forest patches: Ihili (35.2 ha), Fufu (82.6 ha) and Mgwilwa (89.3 ha); with a planted corridor (108.8 ha) connecting Fufu and Mgwilwa patches.

According to Lulanda villagers, between 1941 and 1945 officers under the British Forestry Department marked the boundaries of what was a continuous area of forest with beacons (Woodcock 2000). Local people were told to leave the area as the forest was reserved (Woodcock 2000), although no official declaration or boundary maps exist (Lovett & Pocs 1992).

In the 1950s the British administration encouraged local people to return to the area on the condition that they cultivate coffee (Woodcock 2000). A Forest Attendant (FA) was placed in Lulanda at this time, but deforestation for coffee and subsistence agriculture went unchecked by the FA and District Commissioner (DC) and Lulanda was gradually broken into three discrete forest patches (Woodcock 2000). In the 1960s further degradation of the forest went unchecked with logging permits being issued by the District to outside contractors.

In the early 1990s biologists Condon, Lovett and Pocs visited the forest patches and noted the biodiversity value of the area (Lovett & Pocs 1992). In 1993, TFCG began discussions with Lulanda Village Council (VC) and elders as to the possibility of facilitating them in managing the forest area and initiated the planting of a forest corridor between the forest patches. In 1996, the Village Government and elders assisted TFCG in planting new forest boundaries and the forest corridor. In 1998 the boundaries were made official with the assistance of the District Forest Officer. Since 1996, TFCG has facilitated the joint management of Lulanda Forest with Lulanda Village and Mufindi District.

Summary of Management Plan
The forest is closed, apart from to herbalists registered with VEC who are permitted to collect medicinal herbs; modern bee-keepers; and minimal firewood collection to those poorer households.

Planning and Management Process
Table 4.9 is a timeline of the planning and management process of Lulanda Forest, summarising major events, issues and progress.

Table 4.9 Lulanda Forest Planning and Management Process Timeline

Date	Event	Issues	Progress

1993	TFCG approached VC about possibility of facilitating management of forest.	Forest not officially gazetted as LAFR. Villagers suspicious of TFCG's motives for facilitating management of forest.	TFCG worked in village to promote improved livelihoods through donating a maize-milling machine to Lulanda women's group. VC and individuals donated land for planting a forest corridor between Fufu and Mgwilwa forest patches.
1996	TFCG casual workers, VC and village elders surveyed and planted forest boundary with *Hakea saligna*.	Lulanda and neighbouring villagers were suspicious that the VC had entered into an agreement where the forest would be owned by TFCG.	TFCG, VC and VA meetings held in order to clarify the situation. This enabled villagers to correctly inform friends and relatives in neighbouring villages.
1996 - 1998	DFO visited Lulanda on several occasions for discussions on forest management.		
1998	New forest boundary officially demarcated, with assistance of DFO, Land Mapping Division, TFCG and VC.	No issues, as discussions held with stakeholders prior to demarcation.	
July 2002	VEC formed with a total of 15 representatives: 2 male and 1 female representatives from each of the 4 sub-villages, one representative from the School, and one each from Primary Health Care and Agricultural Ward Committees.	Two members not attending VEC meetings: one moved away from area and the other ill. VEC patrolled forest, but without gum boots and raincoats difficult work. Without by-laws difficult to stop any degradation of the forest.	New VEC members need to be elected.
Oct. 2002	Draft Management Plans and by-laws written by VEC and VC.	No knowledge in developing management plans. Draft management plan not presented to VA. Villagers asked the TFCG Project Manager to submit the draft management plan to DFO for amendment, but no comments were received in time. Researcher and present TFCG Project Manager met with DFO in 2004, who told us that the office has misplaced the plan.	Looking at example management plan, along with exchange visits to other JFM forests assisted VEC in formulating plan.
2003	Half of the forest corridor burnt by uncontrolled field clearance fire. Fire line width that was cleared was small and that field fire crossed	Half of saplings on forest corridor destroyed. It took villagers two days to put out fire. It was a lesson learnt that the fine line width should be expanded.	VC called for communal work to maintain and expand the fire line. VC passed a by-law to prevent those cultivating close to forest boundary from using fire to

	fire line to corridor.		prepare fields. VEC formed a fire patrol. VC and TFCG reported farmer who's fire got out of control to police. Farmer was told to pay fine to VC and to plant trees on corridor. Tree replanting was done and some trees regenerated.
2003	Communal work on fire lines initiated: Every Tuesday alternate sub-villages work communally on maintaining fire lines.	Attendance is always good. Rumours have it that some villagers want payment like TFCG casual labourers.	
2004	Communal work on forest corridor initiated: Every Saturday VEC and members of Savings and Credit Scheme work on replanting forest corridor.		
May 2004	PFRA conducted by VEC and TFCG casual labourers.	A camera would have been useful to show others what was inside the forest.	In Ihili forest patch a pathway was noted along the hillside. VEC will suggest to VC that it be closed.
2004	Draft Management Plan re-formulated by VEC with assistance of TFCG Project Manager and passed by VA.		
2005	Draft Management Plan presented to DFO and DNRO for amendment.		

Source: Based on a timeline drawn by Lulanda VEC in a meeting with Lead Researcher and TFCG Field Officer and Assistant; and Authors'ieldwork 2004.

The planning and management of Lulanda forest has always been particularly efficient in terms of following the sequencing of MNRT CBFM Guidelines, with particular reference to the Draft Management Plan initially being agreed at the VA and then submitted the DFO, it was latter noted by the DNRO that they have misplaced the draft management plan. This had the effect of VEC trying to manage the forest without a plan and with little authority. With better facilitation by TFCG the draft management plan was later reformulated and agreed by the DNRO.

Lulanda villagers took initiatives to put off fire in order to prevent burning the corridor. The fire was so strong exacerbated with strong wind and that villagers were not able to prevent the fire from burning the corridor despite their efforts. They used tree branches, hoes, water etc to fight against fire. Since the fire was so strong it

crossed the fire line, which is usually cleared by villagers annually as precaution measure. It took two days to put off the fire. The village learnt an important lesson and by-laws preventing those cultivating on the boundary of the forest were put in place and are enforced. They also increased the clearance width of the fire line.

Participation

VEC has strong and committed leadership and all sub-villages, men and women, and school, primary health care and agricultural sectors of the community are represented in VEC. With delay in getting comments and approved management plan from the DFO, at times they have felt restricted in their ability to respond to management issues. With the draft management plan eventually agreed in 2005, VEC are empowered to plan and respond to management challenges.

TFCG have assisted the DNRO and DFO to visit Lulanda on a number of occasions. The DNRO and DFO are participating in the planning and management of the forest through taking part in VA meetings to discuss planning and management issues, and have been supportive in making joint forest management agreements. Delay in approving management plan and by laws is a major issue which many villages involved in PFM are currently facing. Although reasons are not directly explained, in many cases this reflects uncertainties over cost and benefit sharing arrangement.

Each sub-village takes turns each Tuesday at working communally on the forest corridor. VEC reports that attendance is often good.

Up until 2004, each Saturday was allocated for VEC members to patrol and work on the fire line and forest corridor. Beginning in 2005, members of the Savings and Credit Scheme have joined in this work as a prerequisite of joining the scheme. All members apart from the old and ill are expected to attend.

Money and Information Handling

TFCG has taken much time and care over developing trust between themselves, the DNRO, the VC and the villagers in general. Initially, villagers distrusted even their own VC, believing that the forest had been sold to TFCG. Informal discussion and meetings were required to raise awareness about the change in forest policy and law and to allay suspicion and fear.

Between 2001 and 2004, TFCG facilitated the planning of the draft management plan. A draft management plan was produced by VEC and the VC, and was presented to the VA for approval. This provided an understanding of the village as a whole. VEC and VC asked the TFCG Project Manager to submit on behalf the plan to the DNRO. However it was noted that, the District was slow to respond and provide feedback to the community. In 2004, the lead researcher and present Project Manager met with the DFO, and were informed that, the draft management plan had been misplaced. Fortunately TFCG had a copy of the draft management plan.

Little if any money has passed through VEC. One minor issue is due to TFCG paying casual labourers to maintain tree nurseries and plant the forest corridor. Occasionally this causes some villagers to feel jealous and request payment for working communally on the forest. Although this is only a small section of the community, it indicates that greater awareness of TFCGs and the villagers' role could be made.

A more significant issue arose when two of TFCGs casual labourers, sold tree seedlings meant for the forest corridor to people from a neighbouring village and kept the money for themselves. TFCG paid the money back to the village via the VC out of the perpetrators' wages. Within the village there was debate over how this money should be spent and eventually it was decided that the money be used to buy iron roofing for new village government offices. A section of the community felt unhappy with the decision and would have preferred the money to be divided between individual members of the community. To add to the issue, despite the money having been given to the VC the iron roofing took a long time to materialise and rumours started as to whether members of the VC had used the money for themselves. However, the iron roofing is now in place on the new village government buildings.

Skills and Capability
VEC and VC report that it was difficult to write the draft management plan, as they had no previous experience. The guidance of the TFCG Project Manager, along with members taking part in the PFRA, and extension visits to TFCG facilitated PFM sites in Tanga and Morogoro greatly assisted their efforts.

VEC Secretary is keeping records in his notebook. TFCG should continue to investigate ways to maintain and support record keeping.

Conflict Anticipation and Management
The VC reported the man, whose field clearance fire accidentally got out of control, to the police. He was summoned and issued a fine. He ran away from the village for over a year without paying the fine and upon returning was extremely ill. The VC and VEC took pity on him and decided not to go to the police again, but the villagers in general complained to the VC that they were not penalising him. The VC decided to insist that he undertake replanting of the corridor on Saturdays, but due to illness his family took on the responsibility.

Lessons Learnt
Money and information handling transparency and accountability are essential, as any problems can escalate due to poor transparency in both areas.

Having an agreed management plan to follow is important to VECs, as it gives them something to refer to, whilst also empowering them to deal with illegalities.

Recommendations
TFCG staff provide good example of following guidelines as much as possible; seek ways to simplify record keeping and assure it is done; and ensure that copies of management plans are made and that VECs and VCs have copies.

Lugoda Lutali JFMA in LAFR

Background to Lugoda Lutali Forests
Lugoda Lutali Forests cover a total area of 215.8 ha and consist of six forest patches: Ipafu (108.9 ha), Igoda (80.3 ha), Kitwite (52 ha), Mkonge (32 ha), Mholomelwa (22ha) and Lugoda Lutali (10.6 ha). The forest patches are managed jointly by Mufindi District and four villages (Ikaning'ombe, Igoda, Luhunga and Mkonge).

Ipafu forest is managed by Ikaning'ombe and Igoda villages, Igoda by Igoda village, Kitwite by Luhunga village, and Mkonge, Mholomelwa and Lugoda Lutali by Mkonge village.

The forest patches are thought to have been one continuous area of forest, which was gazetted as a LAFR in the 1940s. The forest was gradually broken into patches in the 1960s and 1970s through forest clearance for agricultural land and logging by the District, villagers and outsiders.

In 1998, members of TFCG and the DNRO initiated meetings with the VC of each village to promote JFM of the forest patches. The idea was introduced to VAs and in 1999 VECs were formed in each of the four villages to implement the planning and management process.

Planning and Management Processes

Tables 4.10 - 4.13 are timelines of the planning and management processes of Lugoda Lutali Forests, summarising major events, issues and progress.

Table 4.10 Ipafu Forest Planning and Management Process Timeline

Date	Event	Issues	Progress
1998	TFCG, DNRO, VC meet to discuss possibility of JFM.		VC agreed to present idea to VA with support of TFCG and DNRO.
1998	VA to present idea of JFM.	Villagers' farming adjacent to forest needed to be convinced. Villagers were afraid that TFCG wanted the forest for their own benefit.	After long discussions in the meeting, the VA agreed.
1999	VEC formed. 15 (10 men and 5 women) members in total chosen by VC: 5 members from each sub-village.		
1999	Pine tree nursery established by village, with technical and seed support from TFCG. Seedlings to be planted on forest boundary.		
1999	Boundary cleared by TFCG, VEC, and VC.	Dispute between Ikaning'ombe and Igoda as to where boundaries fall within forest.	District, TFCG and elders assisted in resolving village boundary dispute. Decided that approximately 25% of forest area came under Ikaning'ombe and 75% under Igoda.
2000	VEC and villagers planted tree seedlings around forest boundary.	Some farmers lost fields in boundary marking.	No disputes as farmers had other areas to farm.

2000	Sub-village Environmental Committees formed.		
2001	Map of forest drawn by TFCG and District Land Mapping Department.	Villagers were involved but copies were not returned to villagers.	
2001	TFCG assisted VEC members to go on exchange visit to Morogoro.		
2002	Foreigners and Nationals visited Ipafu forest to see Colobus monkeys with assistance of TFCG.	Visitors passed through Igoda without meeting with Ikaning'ombe. Lack of transparency caused distrust between two villages. Ikaning'ombe is unsure if money passed hands and feels left out of the management loop.	
2002	TFCG brought IGA expertise to villages: improved stoves, fish ponds, modern beekeeping and pig keeping.	Delay in TFCG providing equipment to harvest honey and fish.	Equipment received in 2004, so now harvesting.
2002	TFCG assisted VEC members on exchange visits to Arusha and Tanga.		
2003	Researchers from SUA and WCST visited VEC to learn about PFM experience.		
2003	Ilondo LAN formed (involving Ikaning'ombe, Igoda, Mkonge, Iyegeya and Lulanda villages).		
2003	TFCG filmed in forest and showed in village, initiating discussion on managing forest.		
June 2003	Ikaning'ombe and Igoda VECs developed draft management plan.	Was presented to VA for approval and submitted to District but misplaced.	VEC found it difficult to implement management plan without document.
2003	Environmental choir group established.		
2004	PFRA undertaken by TFCG and VEC.		
May 2004	TFCG assisted District Tourism Officer to visit forest in order to initiate collaboration.		

Source: Based on a timelines drawn by Ikaning'ombe and Igoda VECs meetings with Lead Researcher and TFCG Field Officer and Assistant; and Authors' Fieldwork 2004.

Table 4.11 Igoda Forest Planning and Management Process Timeline

Date	Event	Issues	Progress
1998	TFCG, DNRO, VC meet to discuss possibility of JFM.		VC agreed to present idea to VA with support of TFCG and DNRO.
1998	VA to present idea of JFM.		VA agreed.
1999	VEC formed.	No women selected.	2003 women added to VEC.
1999	TFCG, VEC and VC marked boundary with tree seedlings from TFCG supported tree nursery.	Conflict with those villagers farming close to boundary.	Majority of farmers accepted boundary. There are still some that feel unhappy about loosing their farms, but VEC and VC continue to educate them.
1999	TFCG suggested planting three lines of trees on the boundary: Forest boundary; Village use; Farmers on boundary.	Two lines were planted, but farmers on boundary didn't wish to plant on their farms, as they saw it as extending the area of the forest, rather than giving them a benefit.	TFCG now promote farm forestry, especially to those farmers around the boundary.
1999	Guards selected from VEC to patrol forest boundary.	A difficult job without gum boots. Request TFCG assistance.	
2002	Draft management plan developed by VEC and VC with assistance from TFCG.	Not presented to VA or District. No copies. Lost. VEC fail to do activities they planned, and difficult to penalise or fine offenders without management plan to back them up.	Utilise village by-laws, such as preventing clearing of fields by fire.
2003	4 women (1 from each sub-village) selected to join VEC.		
2003	First fine issued for farm clearance fire (8,000 TShs).	Unsure of % of fine that goes to VEC, VC and Ward.	Guessed, as no reference.

Source: Based on a timelines drawn by Igoda VEC in meeting with Lead Researcher and TFCG Field Officer and Assistant; and Authors' Fieldwork 2004.

Table 4.12 Kitwite Forest Planning and Management Process Timeline

Date	Event	Issues	Progress
1999	TFCG and DNRO held meeting with VC to discuss possibility of JFM.		VC agreed.
1999	VA to discuss idea.	Farms inside forest.	Allowed farmers to harvest crops and then closed forest.
1999	TFCG and individual tree nurseries established. TFCG seedlings used to plant boundary.	One tree species didn't grow well.	Utilised others.
1999	VEC started.	One member died and a replacement	

		was selected. He doesn't participate.	
1999	Forest boundary cleared by VEC and farmers on boundary.		
2000	TFCG, District, VEC and VC placed beacons on boundary.		
2000	3 women joined VEC.		
2000	Villagers planted pine trees on boundary.	Some tree seedlings uprooted. Stolen for the purpose of planting on individual woodlots.	VEC noted that trees stolen and people were afraid to continue stealing.
2000	Map drawn by TFCG, VC and Land Planning Division.	VEC hasn't got a copy.	
2002	Draft management plan developed by VEC and VC.	Presented to VA for approval and submitted to District but misplaced. Difficult to continue with management activities without a plan.	
2004	PFRA undertaken by TFCG and VEC.		

Source: Based on a timelines drawn by Luhunga VEC in meeting with Lead Researcher and TFCG Field Officer and Assistant; and Authors' Fieldwork 2004.

Table 4.13 Mkonge, Mholomelwa, and Lugoda Lutali Forests Planning and Management Process Timeline

Date	Event	Issues	Progress
1999	TFCG approached VC about possibility of JFM.		Presented to VA.
1999	VA	Villagers concerned about where they would collect firewood.	VA accepted JFM, but requested that forest would be open for collecting dry firewood.
1999	TFCG brought tree nursery for boundary planting and for individual farms.		
2000	Boundary surveyed by VEC, TFCG and Ward.	Fields inside forest taken away from villagers.	VEC and TFCG told farmers that the area was forest, so it was the farmers themselves who had made a mistake.
2001	Boundary planted with tree seedlings.	Some trees uprooted by those farmers whose fields were taken away.	VC intervened and those farmers are now participating in management.
2002	Draft management plan written by VEC and VC.	Presented to VA for approval and submitted to District but misplaced.	Using village by-laws to manage forest.

Source: Based on a timelines drawn by Mkonge VEC in meeting with Lead Researcher and TFCG Field Officer and Assistant; and Authors' Fieldwork 2004.

The planning and management of Lugoda Lutali forests has always been particularly efficient in terms of following the sequencing of MNRT CBFM Guidelines, with particular reference to the Draft Management Plan initially being agreed at the VA and then taken to the DNRO who misplaced the plan. This had the effect of VEC trying to manage the forest without a plan and with little authority. By-laws have been utilised efficiently, in particular with respect to not permitting field clearance by fire on those farms adjacent to forest. With better facilitation by TFCG the draft management plans were reformulated and agreed in 2005.

Participation
In the initial selection of VECs, women were often not selected. In the majority of cases after being on TFCG assisted exchange visits, VEC has decided that women members should be included.

TFCG have assisted the DNRO and District Tourism Officer to visit Lugoda Lutali forests on a number of occasions, for discussions with VCs, VECs and VAs. TFCG, the District and the villages all appear to be collaborating effectively.

Money and Information Handling
Between 2001 and 2004, TFCG facilitated the planning of the draft management plan. Draft management plans were produced by VECs and VCs, and were presented to the VA for approval. This enhanced the understanding of the village as a whole. VECs and VCs had asked the TFCG Project Manager to submit the plans to DNRO on their behalf. In 2004, the lead researcher and present Project Manager met with the DFO, and were informed that, the draft management plans were misplaced. It was fortunately that TFCG had copies of the draft management plans.

Little if any money has passed through VEC. The delay in signing the management agreement makes VEC members feel powerless to fine offenders.

Skills and Capability
VEC and VC report that it was difficult to write the draft management plan, as they had no previous experience. The guidance of the TFCG Project Manager, along with members taking part in the PFRA, and extension visits to TFCG facilitated PFM sites in Tanga, Morogoro and Arusha greatly assisted their efforts.

Conflict Anticipation and Management
Conflicts have been managed as they happen and have been resolved through a combination of the District, TFCG, VCs, VECs, and village elders.

Lessons Learnt
The lessons learnt are the same as in Lulanda. Money and information handling transparency and accountability are essential, as any problems can escalate due to poor transparency in both areas. Having an agreed management plan to follow is important to VECs, as it gives them something to refer to, whilst also empowering them to deal with illegalities.

Recommendations
TFCG staff provide good example of following guidelines as much as possible; seek ways to simplify record keeping and assure it is done; and ensure that copies of management plans are made and that VECs and VCs have copies.

4.1.3 West Usambara Case Studies

Vugiri VLFR

Background
The name of 'Vugiri' originates from a Sambaa word 'vui', meaning short rains. Sambaa people living in dry lowland areas used 'Vui', when referring to highland areas where they cultivated crops during the short rains. Non-Sambaa people found it difficult to pronounce 'vui' and would say 'Vugiri', hence the present day place name.

It is reported that in the 1960s, Vugiri forest was full of wildlife, such as leopard, buffalo, and elephants. It was a very thick forest with countless water springs and streams. In the 1970s, the forest started to be degraded due to timber harvesting by outsiders. Further degradation and deforestation followed, with cultivation in open forest areas that had been cleared for logging, and wildfires that happened during the dry season and during the clearing of new agricultural fields.

The Vugiri VLFR is located in Vugiri Ward, Bungu Division in Korogwe District. The forest is 12.51 ha and is under the management of Vugiri Village. The forest is situated at the latitude of 5°4' to 5°6' South and longitude 38° 26' to 38° 28' East. The forest is 500-1240m ASL. To the North, Vugiri VLFR borders the Ambangulu Tea Estate forest, Vugiri NFR and Bagamoyo VLFR; to the South borders Vugiri Village; and to the East borders Bagamoyo village.

Due to government reforms the number of sub-villages per village has been reduced to five. Vugiri Village has three sub-villages close to the forest: Machole, Kilu and Shule ya Zamani; and Kisafi and Ng'ombe are far from the forest.

The forest serves as a water source for the villagers and provides other forest services. The idea of village forest conservation started in 1999 when TFCG staff started the facilitation process of PFM with support from the Korogwe District.

Summary of Forest Resource Assessment
Results from the PFRA showed the following: forest regeneration was low, with a noted decrease in wildlife, overgrazing, and uncontrolled medicinal herb harvesting. Forest users included Vugiri and Bagamoyo villagers, with uses observed to be, hunting, animal trapping, building pole and fuel wood collection, mainly for domestic purpose. The PFRA team also noted more than 26 plant species for timber, herbs, fruits and fuel wood.

Summary of Management Plan

The management objective is to manage the forest and environment for sustainable utilization of forest resources for the Vugiri community members. Specific objectives include managing the forest through:

- Planting trees in degraded forest areas and gap filling;
- Managing forest areas, specifically for cultural uses and ecotourism;
- Promoting IGAs outside the forest land, for instance, agroforestry, improved stoves, zero grazing for cattle keeping, building houses by using pressed mud bricks and establishing tree woodlots; and
- Improving household livelihood through improved agriculture practices.

The monitoring indicators include: number of trees planted and surviving; wildlife increased in the forest; increased income from IGA; decreased illegal forest activities; and increased forest regeneration.

By-laws include, for instance, prohibited utilisation of forest resources such as timber harvesting, cultivation, hunting and using fire to harvest honey. Utilisation that requires permits, include research and any commercial uses. Uses that are free include: collection of firewood, restricted to dry wood only and only once per week; vegetable and fruit picking; water collection; placing beehives; collection of grasses for house thatching; ritual activities; and access to footpaths through the forests. The minimum fine for any illegal activities is Tsh 5,000 or on occasion a goat.

Planning and Management Process

Table 4.14 is a timeline of the planning and management process of Vugiri VLFR, summarising major events in process, issues and progress.

Table 4.14 Vugiri VLFR Planning and Management Process Timeline

Date	Event	Issues	Progress
Before 1991	There was no forest harvesting.		
1992	Harvesting started.	Outsider from town came to harvest timber with licence. The forest was open for harvesting. At that time, communities had no 'voice'. Harvesting was supervised by the government forest guard.	
1994	DIAP – Diocese Integrated Agricultural Project started to work in village.	The project did not last long as it was not participatory.	The project stopped
1998	Issue of VLFR raised in VA, by VC and TFCG and awareness raised.	Villagers started confiscating timber and caught 83 timber sawers.	Reports to the District Council and the District Commissioner suspended the timber harvesting
1999	TFCG staff organised a meeting with seven village leaders.	Village leaders initially did not understand the concept of PFM.	
1999	Village tree nursery established as well as at primary school.	Some resistance continued.	TFCG continued to raise conservation awareness. VA agreed to start VLFR.

2000	VEC formed	The Government Forest guard threatened the VEC, wanting them not to perform their job. Illegal timber harvesting continued not only in Vugiri Village land forest, but in all Ambangulu Tea forests. The VEC consists of women.	TFCG staff continued to raise environmental awareness. The Ward Environment Committee with 25 members was formed to assist in stopping the illegal timber harvesting. The committee was supported by the Ward Executive Officer.
2002	More members of the Ward Committee were involved to reach a total of 24 plus.	An informal agreement was developed with the aim of stopping the illegal timber harvesting.	
2002	Village land surveyed and map produced. Draft forest management plans prepared.		The map produced was for the whole forest area of Ambangulu.
2002	The government forest guard shifted to other forest sites such as Dindira.		Harvesting of timber continued in other sites
2003	Formed officially the LACN called 'Tumaini'.		
2003	VEC testing management plans.		Collection of dry fuel wood once per week; promoted improved stoves; and zero grazing.
2003	PFRA conducted with VEC.		PFRA results used to develop management plans.
2004	Reviewed the management plan .		Draft management approved by the VC and the ward.
2005	New village government elected hence new VEC formed.	Only one member from the old committee was appointed. The new VEC need training and if possible should include the other old VEC members.	

Source: Based on a timeline drawn by Vugiri VEC in a meeting with Lead Researcher and TFCG Field Officer and Assistant; and Authors' fieldwork, Vugiri 2005.

Participation

Vugiri VEC representatives are part of the Tumaini LACN. The Network team initially met to draft the plan. The plan required addressing the following central issues:

- How are the communities going to protect and improve the forest resource of Vugiri and the Ambangulu forest as whole?
- How should the villagers be enabled and organized to manage the forest? and
- How are the communities going to benefit from PFM?

The draft management plan was prepared and passed through the respective VCs and VAs and revised accordingly. TFCG advised VECs to prepare separate management plans to suit individual village needs. Throughout the process, TFCG staff and the Korogwe DNRO and DFO assisted the respective VEC as advisors. The respective

village forest plans have been submitted to the Korogwe District Council for approval.

Vugiri villagers have participated in clearing and planting the forest boundary. The Tumaini LACN conducts patrols and monitors illegal forest activities in collaboration with VEC. Using the LACN was an approach to strengthen the respective VECs in controlling illegal timber harvesting.

Money and Information Handling
The total amount of money that has been collected from fines has not been established. Researchers and visitors fees were recorded, but the Tumaini LACN keeps this money.

Skills and Capability
Since 2000, the old Vugiri VEC, including village government members, have received various training. Some of the trainings include roles and responsibilities of VEC and government members in the management of forest. The committee meets monthly to discuss the progress of forest management. However, in 2005 a new village government with 25 members has been elected. Four village committees with five members each have been formed. The current Vugiri VEC was elected following the government directives that each village should have a VEC. From the old VEC only one member has been appointed to join the new VEC. This leaves many questions about the selection process of the VEC. The new VEC of only five members are not clear on their roles and responsibilities regarding the VLFR. The old VEC had 12 members with representatives from each sub-village. This leaves a gap in three ways. Firstly, the five members of VEC are not sufficient to take up the anticipated responsibility of forest management. Secondly, the members were elected by the VC and VEO, leaving no room for the VA to select and approve members. Thirdly, members who have been selected are new, with the exception of one. Therefore, the new committee must be provided with relevant training. Overall, the VC should be reminded to follow the agreed process of selecting VEC members.

Conflict Anticipation and Management
TFCG Field Officers and Assistants act as mediators to the VC, VEC and villagers, (For instance, in the case of boundary conflicts between Vugiri and Bagamoyo VLFRs). The two village governments were advised to agree on a temporary boundary, as both Vugiri and Bagamoyo have similar interest in protecting the forest. Vugiri villagers feel that the issue is resolved, but Bagamoyo villagers are still discontented. An alternative to be suggested is that the two villages agree to manage the forest jointly.

Lessons Learnt
Study tours are a valuable tool in enabling villagers to exchange experiences and innovations.

The LACNs are valuable in linking communities involved in PFM.

PFM has produced significant biophysical results at site level, with forests regenerating and healthy environments restored through protecting forest springs and water sources. This is due to the fact that the community is/has:

- Willing to invest in management measures;
- Ownership of their resources;
- Empowered to make key decisions affecting resource regeneration; and
- Developed management plans and bylaws, and effectively uses them to manage illegal forest utilization.

Recommendations
Villagers need further training in book keeping and transparent management of funds.

The conflict between Bagamoyo and Vugiri on the issue of the VLFRs shared boundary needs a quick resolution. If possible, the two villagers should agree to manage the forest jointly.

The elected VEC of Vugiri and VC need retrained in their roles and responsibilities, and the basic topics of PFM such as: forest monitoring, record keeping, finance management, forest management plans, by-law preparations, and patrols.

Bagamoyo VLFR

Background to Bagamoyo VLFR
Bagamoyo VLFR is located in Bagamoyo village, Vugiri ward, Korogwe district. The forest has 24.65 ha and borders the Ambangulu Tea Estate and Vugiri VLFR to the north, the village of Mlalo to the East, and Bagamoyo village to the south. The forest boundary between Vugiri and Bagamoyo, though it has been agreed, it seems that further discussion is continuing between the two villages in order to establish a boundary satisfactory to both. The village population is approximately 1658, with 295 households.

In the early 1980s the forest was heavily harvested for timber. In 1998, TFCG started a community-based project in Ambangulu, with Bagamoyo village being one of the first villages to be involved. In 1999, after being involved in the JFM of Ambangulu Tea Estate forest, it was observed that there were still small forest areas remaining under village land. Bagamoyo village initiated a VLFR with the assistance of TFCG. In the process of demarcating the VLFR, a conflict between the Vugiri and Bagamoyo arose. Village elders from both villages managed the conflict by forming a temporary boundary with the assistance of TFCG. During the discussion with both VECs it was observed that Bagamoyo is not content with the position of the boundary, and claim that Vugiri has taken their land.

In 2003, Bagamoyo VEC confiscated timber that was found illegally cut in their forest. The confiscated timber was used to build their village primary school. Bagamoyo village had been without a primary school for years.

Summary of Forest Resource Assessment
The Participatory Forest Resource Assessment was conducted in 2004. The TFCG staff facilitated the VEC to conduct this assignment with support from Korogwe DFO. Threats identified include: uncontrolled grazing and unsustainable forest product utilization. Forest degradation was due to uncontrolled commercial timber harvesting licenses. The team noted that the forest is the source of water for their village. The

information collected was analysed and the results were used to prepare the management plans in the same year of 2004.

Summary of Forest Management Plan

The objective of the VLFR is to improve forest management for sustainable utilization of forest products. Other specific objectives include: replanting trees in degraded forest areas; protecting cultural sites for ecotourism; and promoting income generating activities for enhancing household's livelihood. The forest is currently closed to any uses and by-laws stipulate clearly that the minimum fine for any illegal activity is Tsh 5000, or in some circumstances a goat.

Planning and Management Process

Table 4.15 is a timeline of the planning and management process of Bagamoyo VLFR, summarising major events in process, issues and progress.

Table 4.15 Bagamoyo VLFR Planning and Management Process Timeline

Date	Event	Issues	Progress
1980s	Legal timber harvesting.	Timber in forest over harvested. No community involvement in harvesting.	No action taken.
1998	TFCG started environmental awareness meetings; and facilitated the formation of VEC.	Illegal forest activities reported, such as timber harvesting and encroachment.	Training provided to VEC.
1999	VLFR area identified by VEC; boundary identified with assistance of TFCG; boundary cleared; and draft management plan and by laws written.	Forest boundary conflict between Vugiri and Bagamoyo village.	Elders from both villages of Vugiri and Bagamoyo involved in solving conflict, using old existing village maps. Temporally agreed on the boundary, but Bagamoyo still not happy.
2003	VEC identified 26 timber trees cut in forest and confiscated them. On a second occasion, the DFO took the timber to the district.		The confiscated timber was used to build village primary school. The three arrested culprits were taken to the Ward Environmental Council.
2004	TFCG facilitated the survey of village forest, map production, resource assessment and management plans.	Delays in getting feedback on the registration of their forest.	Implementing the provisional management plans and by laws. Community members are allowed to collect fuel wood once a week (usually on Thursdays).
2005	New village government elected.	Sub villages reduced to five maximum; some of the previous members were not elected; the village government has only four committees.	The village government has decided to include members who were not elected from the previous government.

Source: Based on timelines drawn by Bagamoyo in meetings with Assistant Researcher and TFCG Field Officer and Assistant; and Authors' fieldwork, Bagamoyo 2005.

Skills and Capability
Since 2000, Bagamoyo VEC, including village government members, have received various training. Training has included roles and responsibility of VEC and government members in the management of forest. The committee (with 12 members) meets monthly to discuss the progress of forest management. However, in 2005 a new village government with 25 members has been elected. Unlike Vugiri, the Bagamoyo village government did not dissolve the old VEC as the VC knew that their role is specifically on forest management.

VEC members have participated in various study tours, in order to improve VEC's skill and capability. They have learnt various topics including beekeeping, forest management, fish pond keeping, improved stoves etc

Stakeholders
Stakeholder relationships were examined through a participatory mapping exercise. The stakeholders included the village government, VEC (new and old), fuel wood collectors, livestock keepers, Tea estate, ward and timber dealers. The relationship was observed to be positive among the stakeholders, however it was seen that the relationship with timber dealers (including pit sawyers) was not encouraging, as was that with the government forest guard. It was noted that the negative relationship between VEC and the government guard was due to uncontrolled timber harvesting that was happening in the Tea Estate forest of Ambangulu and Bagamoyo VLFR.

Lessons Learnt
There are many ways of resolving conflict and one of them is to involve the village elders in resolving conflicts related to forest or village boundaries. Identifying and agreeing on the forest boundary is a step to success in PFM.

Newly elected VEC members require training related to PFM, such as VEC's role and responsibilities, record keeping, and patrolling. This will enhance their capability to plan and manage VLFRs.

Recommendations
TFCG should facilitate a resolution of the forest boundary conflict, through discussions between Vugiri and Bagamoyo and co-ordinating assistance from the District where the village land map can be accessed.

Ambangulu Forest JFMA: The Case of Kieti Village

Background
Ambangulu Forest is located in Korogwe District, on the Mashindei/Lutindi peaks. It is the most southern forest West Usambara. The forest is a typical sub-montane Eastern Arc forest and is well known as one of the highest diversity forests in the Eastern Arc. The forest is the only remaining forest at this altitude in West Usambara, and is considered a conservation priority for its water catchment services for Korogwe District. The forest is the home to rare species such as the Usambara eagle owl and the torrent frog, both endemic to the eastern Arc.

Eight villages surround the forest, all of which have issues with poor land management and scarcity of land. The population is approximately 7000, and the main ethnic group is Wasambaa. Agriculture and animal husbandry, both of which are supported by forestry systems, forms the backbone of the local economy. A small share of livelihood income comes from selling livestock, milk, vegetables, wage labor (Tea Estate) and other outside jobs. The land holding ranges from 0.1 ha to more than 2.0 ha per head.

The forest is managed under a Joint Environment Ward Committee with 25 members in total (12 of which are women) with representative from each community and one representative from the Tea Estate. Meetings are held monthly, but each VEC oversees the management of their respective forest area. Ambangulu forest covers approx. 20km^2 in total, and is divided into areas that are under different management regimes, as follows: Ambangulu Tea Estate Private Forest (16km^2); Vugiri NFR (2.8km^2), and individual VLFRs (1.2km^2).

Prior to TFCG facilitation, the forest was heavily degraded. Rampant clearance of forest vegetation was common under the open access regime of resource use, and this was exacerbated by chronic conflicts over the land and forest tenure between the communities and the district authority. The users, specifically the Tea Estate Company reached the point of requesting the support of the FBD to stop the illegal timber harvesting that was continuing, but no action was taken. In 1998, with financial support from IUCN-Netherlands, TFCG launched a community-based forest management programme. Grazing and other extractive products are controlled and regulated by VEC, through a forest management plan. Six years after protection, the forest condition has significantly improved.

The objectives of managing the forest include:

- Protecting forest for watershed management;
- Utilising forest sustainably to maintain forest products, such as firewood and timber; and
- Replanting and improving the condition of the forest.

A study was carried out to examine the timber stock and results showed that there were only a few timber trees remaining. It was recommended that timber harvesting cease. Firewood extraction is permitted from dead trees only. Initial collection was twice per week, but in reviewing the management plan and after the introduction of energy saving wood stoves, collection has been reduced to once per week.

Summary of Forest Resource Assessment

Eight villages surround the Ambangulu forest. These are Kieti, Vugiri, Bagamoyo, Old Ambangulu, Kwamasimba, Mlalo, Makweli and Kwamhanya. After consultation between representatives from the communities, local government authorities as well as foresters and the Ambangulu Tea Estate Manager, it was jointly decided that the forest management plan should encompass the whole forest rather than separate village forest management areas. Despite this, there are clear forest boundaries for the Ambangulu Tea Estate, Vugiri NFR, and Vugiri, Bagamoyo and Old Ambangulu VLFRs.

The Participatory Forest Resource Assessment (PFRA) was conducted in 2004 with the following objectives: to provide information about tree resources and their use to communities; to make the community aware of their forest resources; and to assess the threats to forest conservation.

The PFRA team comprised of 13 members: two District Forest Officers; two TFCG West Usambara staff; one member of the District Council; and a representative from each village, of which two were village leaders. Consultative VC and VA meetings were conducted to introduce the purpose of PFRA and were followed by training the PFRA team.

In summary, the results showed that there were more than 38 species of plants in Ambangulu Tea Estate forest and the Vugiri NFR. The species identified offered forest products, such as timber, fuel wood, medicine, and edible fruits and vegetables. Grazing and pole cutting were observed to be major threats to forest conservation.

In Kieti village, the area that was set aside for VLFR was under cultivation. It was observed that limited land for agriculture was the main factor for the villagers continuing to cultivate in the VLFR.

Summary of Management Plan

The Joint Ward Environmental Committee is responsible for managing Ambangulu forest. It is made up of 25 representatives from the eight villages (three per village) and one representative from the Ambangulu Tea Estate and Korogwe DFO. Committee members must be approved by the Ward Development Committee. The committee is in power for a maximum of three years and there after an election is held.

Prohibited activities include: cutting of any tree; charcoal burning; agriculture; cultivating on steep slopes and on the edges of rivers; using fire for hunting or honey harvesting; and digging sand, minerals or collection of stones in the forest.

Activities that require a permit include: harvesting of reserved trees on villager's farms; medicinal herbs for business; fuel wood for burning bricks and for businesses; animal hunting and research.

Activities that are free include: collection of fuel wood once per week; vegetable picking; medicinal herbs; fetching water; cutting grass for thatching houses; ritual activities; placing and visiting bee hives; and visiting the forests for residents only.

Planning and Management

Table 4.16 is a timeline of the planning and management process of Kieti Private Forest Reserve, summarising major events, issues and progress.

Table 4.16 Kieti Community Forest Reserve Planning and Management Timeline

Date	Event	Issues	Progress
1960	The forest was thick and intact.		
1973/4	Villagezation	The forest was divided to villagers.	Village primary school and

			road were constructed, new agricultural farms were opened.
1976-1998	Commercial timber harvesting was intensified	The harvesting occurred in the Ambangulu Tea Estate forest, public land, and village land. It was uncontrolled timber harvesting, communities were not involved and wildfire happened every year.	Harvested areas were followed by opening of agricultural land. The government forest guard allowed the timber dealers to harvest timber.
1998	TFCG arrived in the village and raised environmental awareness, through meetings.	Villagers were initially reluctant to accept what TFCG staff said about managing their forest. They thought TFCG was coming to confiscate the remaining forest (timber business were behind the this).	
1998-1999	52 incidences of illegal timber harvesting reported in the Ambangulu forest as whole.	Six pitsawers arrested and their tools confiscated.	Communities taking measures to stop illegal timber activities.
1999	Tree nursery started at primary school.		Villagers started believing TFCG after they had seen their school children involved in tree planting.
2000	Study tours were conducted.		VEC formed with seven members, including two women.
2001	Draft management plans and by-laws written.		
Dec 2003	A new VEC was formed with two representatives from each sub village. It was approved by the VA.		New VEC was formed with 20 members including 10 women. The first VEC was dissolved because it failed to deliver what it was expected to do.
2003	PFRA: identified that people were still cultivating in the village forest land.	Limited land for agriculture.	Villagers still cultivating in the village land forest.
2003	Village assembly meeting.	The meeting was about environmental awareness on the importance of forest.	.
Feb 2003	Two farmers arrested for setting fires in their farms.		VEC fined the culprits Tsh 6000 each.

Source: Based on a timeline drawn by Kieti Private Forest Reserve Committee in a meeting with Lead Researcher and TFCG Field Officer and Assistant; and Authors' fieldwork 2005.

Participation

The Kieti VEC is responsible for environmental management activities, such as controlling illegal timber harvesting, controlling wild fires, and protecting water sources. VEC is also responsible for mobilising communities to plant trees, constructing improved stoves and building houses using pressed bricks.

VEC is made up of 20 members with two representatives from each of the ten sub-villages of Kieti. Three representatives from VEC participate in the Joint Environment Committee.

The Joint Forest Committee conducts forest patrols across the forest in collaboration with the respective VEC. The committee has played a major role in strengthening the VECs in their respective areas.

There are good relations and co-operation between the villages adjacent to Ambangulu forest. There is one exception, Mashindei village, who rejected the idea of being part of the Joint Environmental Committee, due to being involved in illegal timber harvesting on their village land as well as in Ambangulu forest.

Stakeholders
Stakeholders include: livestock keepers, Korogwe District, primary schools, TFCG, ADP, eight adjacent villages, timber dealers and VCs. Generally, it was noted that there were positive relations among the stakeholders. However, negative relationships between the timber dealers and the VCs, and VCs and livestock keepers were noted.

Money and Information Handling
For any money that is made from the Ambangulu Tea Estate forest, the plan is that:

- 30% is to go to the respective VEC adjacent to the Ambangulu Tea Estate Forest; and
- 70% is for the Ambangulu Tea Company.

At present the joint agreement between the Ambangulu Tea Company and the adjacent villages (Kieti, Vugiri, Bagamoyo, Old Ambangulu, Kwamasimba, Mlalo, Makweli and Kwamhanya) and the Korogwe District Council has not yet been signed

Skills and Capability
The Joint Environmental Committee is motivated and has demonstrated capability in managing the Ambangulu forest as whole. They appreciate the assistance that TFCG offers in supporting the Tumaini LACN and the VECs. They would like to develop their skills in good farming practices and beekeeping. They also appreciated the support from the Tea Estate Company for allowing communities to collect fuel wood, mainly in the form of branches from the Tea Estate. Concerns over Eucalyptus tree species drying water sources were expressed and they wanted TFCG to advise them on how to proceed.

Conflict Anticipation and Management
Kieti VEC have failed to convince farmers who are cultivating in the proposed VLFR to stop and shift to other areas. This indicates that it is difficult to set aside a VLFR, in places where there is limited agricultural land. This remains an issue to be solved.

Lessons Learnt
There is potential for ecotourism in the area through promotion by the Tea estate. Tourism could generate funds for Ambangulu forest management.

The Tea estate provides villagers with access to the Eucalyptus plantations for their firewood needs. Villagers still utilise this firewood source, so the supply and demand of Eucalyptus should be assessed.

Ambangulu forest is divided into areas that are under different management regimes, namely private forest, NFR and VLFRs. A Joint Environmental Committee has been set up to manage Ambangulu forest as one ecosystem, but it is unclear whether this is supported by the forest act. Further investigation is required.

Recommendations
TFCG should:

- Assist the Ambangulu joint committee to set up a forest monitoring system;
- Continue to support the Tumaini LACN in terms of training, for instance in advocacy; and
- Make sure that the role of Tumaini LACN and the Ambangulu Joint committee is clear.
- Ensure that the joint management agreement is signed by all parties.

4.1.4 Ruvu South Forest Reserve VFMAs and VLFRs: The cases of Kipangege and Kibwemwenda

Kipangege VLFR and VFMA

Background
Ruvu South Forest Reserve covers 35,500 hectares. This includes approximately 1900 ha of dry coastal forest and 8300 ha of woodland. The remainder of the reserve is a mosaic of thicket, wetland and grassland. The reserve is in Kisarawe and Kibaha Districts in the Coastal Region, which is within 20 km of Dar es Salaam. The reserve is part of the Kisarawe District Coastal Forests' Important Bird Area and has a population of at least two threatened bird species, the Sokoke Pipit and the East Coast Akalat. The close proximity of Ruvu South FR to Dar es Salaam and its outlying population puts the reserve under significant pressure from resource use. Eight villages and two sub-villages surround Ruvu South FR, with a total population of 12,501.

Since 2000, TFCG has been working with the FBD and other stakeholders to develop JFM for Ruvu South FR and CBFM for adjacent forest areas. The NFR of Ruvu South is managed jointly by the eight villages surrounding the reserve via VFMAs.

Kipangege VLFR borders the NFR of Ruvu South and covers an area of 232.78ha. The area that is now Kipangege VLFR was originally settled and was known as Mkubagile. During villagization in 1974 the villagers were resettled to a place initially called Kitaluni (following the presence of a sisal nursery). Having relocated people from Mkubagile, the area started to naturally regenerate to a full forest. Villagers started to harvest trees for building, timber, and charcoal, and collecting medicinal herbs, causing degradation that was exacerbated by wild fires that burned the Mkubagile area (now the Kipangege VLFR) during the dry season.

In 2001 the Misitu Yetu Project in collaboration with FBD staff based at Kongowe, facilitated communities to manage this area. The VLFR is totally protected, and the village have set aside an additional area of village land where they can continue to

obtain forest products (it is open access for the villagers). This area and an area inside Ruvu South FR are still used as a place for burial.

Effect of Past Policies and Institutions

Past Forest reservation policies in the area still have an affect on the attitude of villagers towards the forest. For instance, the Kipangege villagers have decided to protect the VLFR by banning all forest uses. This attitude mirrors that of the FBD in the past, which used to manage forest against people. This decision has a positive impact on the forest, but negatively affects disadvantaged groups (For instance, the poor and old). Initially, however, protection is necessary, since the forest is heavily degraded. Management plans are reviewed every three years.

Summary of Forest Resource Assessment

Kipangege VLFR boundaries are as follows:

- North borders the village settlement of Kipangege;
- East borders Mohamed Enterprise Farm;
- West borders the earth road to Kola village; and
- South borders the Ruvu South FR.

A PFRA was carried out for both the VLFR and VFMA in 2004 by VEC in collaboration with TFCG staff from the Misitu Yetu Project, FBD and Kibaha DNRO. Resources noted in the VLFR were medicinal herbs, timber trees, building poles, charcoal and fuel wood. Wildlife noted included: birds such as guinea fowl and the following listed in Kiswahili (kanga, vichoji, kwale, kisengeni, nguya, kurumbizi, tutu, sundisundi, sholwe, cheke, mungo, vitolondo, kikucha); butterflies, baboon, bush pig, warthog, tortoise, and hare. A large pond was also noted, which is the source of water for villagers.

Summary of Management Plan

The long-term objective of Kipangege VLFR is to manage and protect biodiversity and water sources for the benefit of present and future generations. Short term objectives include: mobilising communities to protect forest, tree planting, promoting alternative initiatives such as improved stoves, and promoting IGAs such as intensive agriculture, livestock keeping and beekeeping.

Before starting Kipangege VLFR, villagers and people from outside the village used to access the forest products without any control measures. As a result the forest was degraded to the extent of deforestation in some areas. Communities decided to ban the majority of forest uses during the period of testing the forest management plans. NTFPs can be collected upon getting a permit from the VEC and paying a small fee. Free uses include: visiting burial places for rituals; collecting dry fuel wood, water, thatching grass, fruits, medicinal herbs and wild vegetables; as well as access to footpaths through the forest.

Planning and Management Process

Table 4.17 is a timeline of the planning and management process of Kipangege VLFR, summarising major events in process, issues and progress.

Table 4.17 Kipangege VLFR Planning and Management Process Timeline

Date	Event	Issues	Progress
Before 2000	No VLFR	Over utilization of forest products through charcoal harvesting, causing forest degradation.	Nobody was concerned.
2001	TFCG through the Misitu Yetu Project initiated the idea of VLFR in Kipangege, by mobilising community members through village assembly meetings.	The village forest was heavily degraded due to charcoal burning.	
2001	The VA selected the 12 VEC members of which five were women. There are about 14 village forest guards (Seven form each village of Kipangege and Soga)	The meeting helped to determine the VLFR boundary, and the need for a tree nursery. The VFMA for Ruvu South FR is managed jointly by Kipangege and Soga villages.	The VEC marked the VLFR boundary and the tree nursery was established. VEC manages both the VLFR and the VFMA of Ruvu South NFR.
2001	VC surveyed the boundary of the VLFR.	The boundaries were clear and no conflict emerged.	The boundary of VLFR planted with trees.
2004	Map drawn by TFCG Field Assistants and Village Chairman.		
2004	Planning team was formed and conducted PFRA.	The committee was mainly responsible for resource assessment and developing the VFMA and by-laws. It was considered as a planning team. VEC were not happy about the selection of the new team. The tree species that were used by communities for timber, charcoal production, poles, firewood were rarely found in the reserve and they were very small in quantity. The PFRA required a considerable investment of time and money. The participation from the community was very good, but poor for government staff who required allowances.	The PFRA process for Ruvu was simplified because the forest is for protection so there was no need to determine sustainable utilization levels. The PFRA was seen to be very useful as the planning team were able to appreciate the status of the resource at Ruvu and this enabled them to prepare the management plans and by-laws as well as setting up the monitoring system for the VFMA. The provisional plans and by-laws have been approved by the Kibaha DC, but the agreement with FBD is still in process.
2004	Village forest guards conduct forest patrols, sometimes with the support of project vehicles.	Four bags of charcoal found in the forest. Sold at price of Tsh 2000 per bag. The area under VFMA is about 1917ha. The land is huge to be covered on a single patrol. It borders Kifuru, Kola, Malangalanga, Mpiji and Boko.	TFCG support VEC with paper and files and on occasion with the project vehicle during patrols.
2005	One VC member was caught being involved in charcoal burning	He was fired from the committee.	

Future	Management plan for the VLFR to be revised in 2006 and passed. More tree planting on farms for fruit and timber. Strengthen patrol team and control wildfires

Source: Based on a timeline drawn by Kipangege VEC in a meeting with Assistant Researcher and TFCG Field Officer and Assistant; and Authors' fieldwork, Kipangege 2005.

Participation

The Kipangege village patrol team conducts patrols once a week. It is a team of twelve members and is elected after two years on a rotational basis so that every villager has an opportunity to understand the forest through patrolling. When practical work is required for the VLFR then this system of communal work is utilised. In this way the boundary has been cleared and planted with tree seedlings. The households and farmers adjacent to forest participate in reporting illegal forest activities.

There are 12 VEC members and in 2005 six were women. When VEC was formed, qualification was highlighted for the member to be selected a member of VEC. Each sub-village selected at least one representative. The VEC members meet once a month to discuss various issues that are related to both VLFR and VFMA.

The Kipangege VEC is a member of SHIWAMARU, which is the LACN of Ruvu. Members have learnt that the network meetings have been an appropriate forum for the adjacent communities to Ruvu South FR to discuss common issues and share experiences related to PFM.

Stakeholders include MISACA, village forest guards, FBD, VEC, traditional healers, hunters, charcoal burners, and timber dealers. While VEC appreciated positive relationships with other interest groups, there is a negative relationship with charcoal producers, some of who have moved to other areas.

The patrol team has been conducting regular forest patrols, but when they encounter charcoal that has been produced illegally, they find it difficult to carry the materials out of the forest due to a lack transport. In some cases the patrol team has resorted to destroying the charcoal or kilns.

Money and Information Handling

No money has so far been recorded in respect to the VLFR. The approved final management plan, written on August 2004, has set monetary penalties and fees for the collection of NTFPs. The management plan is on a three year piloting phase until August 2006 when there would be an opportunity to review. It was noted that the handling of cash obtained from penalties was not transparent for all VEC members.

Skills and Capability
Kipangege VEC appear to be motivated as they have received intensive training on how to conduct patrols, arrest culprits, and keep records. Members report that there is good attendance of meetings that are meant to be monthly. Women are well represented in the committee and feel that they have been capacitated to do their task without much difficulty.

Conflict Anticipation and Management
The TFCG Project staff have provided training to VEC and patrol teams on conflict management. This has included procedures to arrest culprits of illegal activities. For instance, once a culprit is arrested in the forest, the patrol team confiscates his or her working tools and requests to report to VEC where a penalty would be decided. In case he or she rejects to pay the penalty, further action is taken where the issue is forwarded to the court through the FBD.

Lessons Learnt
It was observed that once the VLFR was set aside, the conservation utilization was decided which limits the use of the forest. In a way this is necessary because most of the forest set aside is degraded, but on the other hand negatively impacts disadvantaged groups within the village.

Forest management activities include conducting patrols, but large forest areas make patrolling difficult on foot. To be more effective transport is necessary, hence communities must be assisted with transport (For instance, bicycles and if possible a vehicle that can assist in carrying the confiscated forest products such as charcoal and timbers). Without this assistance patrol teams are forced to destroy illegally collected forest products which they encounter in the forest, as they are not able to carry the products out.

The PFRA required a considerable investment of time and money, but was very useful because the planning team members were able to appreciate the status of the resource. This enabled them to prepare the management plans and by-laws according to the current status of the forest, as well as setting the monitoring system for the forest management areas.

The LACNs are a valuable tool in linking VECs, by bringing them together so that they can share experiences.

Recommendations
Though VEC is a member of LACN, it was observed that the entry fee of Tsh 20,000 is very high. LACNs should investigate ways of assisting VECs to meet entry fees.

Kibwemwenda VLFR and VFMA

Background
Kibwemwenda VLFR covers an area of 112.86 hectares and is about 3.5 km away from the village of Kibwemwenda, which has three sub-villages (Msese, Gezaulole and Makutopora).

The area of land that is currently Kibwemwenda VLFR, was originally used by the Germans to dig gravel for the central railway construction. Until 1935 the land had the remnants of old machines that used to make gravel and the staff quarters where they used to stay and operate the machinery. In the 1960s the forest started to regenerate, but in 1974 during villagization, Kibwemwenda village was allocated near to this land. The regenerated forest was used by Kibwemwenda and nearby Sangwe village for collecting building poles and fuelwood, and making charcoal for business and subsistence use. The forest was degraded to the extent of threatening the water spring to dry. Wild fires that burn this area annually have also contributed to the degradation of the forest.

The idea of setting aside land as a VLFR was brought to the village by the TFCG Project staff in 2001. In 2004, with the help of the FBD, the VLFR boundary was surveyed and beacons positioned and a map of the VLFR developed.

Summary of Forest Resource Assessment
Kibwemwenda VLFR boundaries are as follows:

- North borders the open village area of Kibwemwenda;
- East borders the Ruvu South FR (number one Beacon);
- West borders Sangwe and Kipangege villages; and
- South border the open village area of Kibwebwenda.

The PFRA was conducted by VEC in collaboration with TFCG Project staff and FBD and Kisarawe DNRO. Resources noted included medicinal herbs, trees for timber, building poles, charcoal and fuelwood. Wildlife found included birds, butterflies and animals such as baboon, bushpig, warthog, tortoise, hare and snakes (seven species of snakes were noted). The forest is the source of water for the villagers of Kibwemwenda and nearby villages. Major threats facing the forest include wildfires, charcoal burning, and harvesting of building poles and fuelwood.

Summary of Management Plan
The long term objective of VLFR is to manage and protect biodiversity and water sources for the benefit of present and future generations. The short term objectives are to improve community livelihood by mobilizing communities to protect forest, and promote alternative initiatives such as improved stoves, tree planting, intensive agriculture, livestock keeping and beekeeping.

Prior to the VLFR, villagers and people from outside the village used to access forest products without any control measures. As a result the forest was degraded to the extent that some areas became deforested. Since forming the VLFR, communities have decided to ban the majority of forest uses during the period of testing the forest management plans. NTFPs can be collected upon getting a permit from the VEC and paying a small fee. Free uses include visiting burial places for rituals, collecting dry fuelwood, water, thatching grass, fruits, medicinal herbs and wild vegetables for home use, and accessing footpaths through the forest.

In the VFMA activities that are permitted must be with payment and are as follows: research (Tsh 10,000), commercial collection of medicinal herbs (Tsh 6,000), commercial collection of fruits (Tsh 5,000), placing bee hives (Tsh 200 per hive per year), and tourist visits (Tsh 20,000 per day).

It was noted that the by-laws stipulate very clearly that the fine will be charged according to the mistake committed. The maximum fine charge is Tsh 50,000 and this is for vehicles caught in the forest with forest products and the minimum is Tsh 2,000 for grazing in the forest.

Reading through the management plans and by-laws, it is evident that fines charges are the same across the villages irrespective of whether it is a VFMA or a VLFR. This should be encouraged, as it would not make sense to charge different rates for the same mistake committed in the Ruvu South FR as opposed to a VLFR.

Planning and Management Process

Table 4.18 is a timeline of the planning and management process of Kibwemwenda VLFR, summarising major events in process, issues and progress.

Table 4.18 Kibwemwenda VLFR Planning and Management Process Timeline

Date	Event	Issues	Progress
Before 2000	No VLFR.	The forest was used for ritual use, but timber harvesting and charcoal burning led over exploitations of forest resource.	No action.
2000	TFCG staff through the Misitu Yetu Project initiated the idea of a VLFR in Kibwemwenda, by mobilising community members.	Initiated tree nursery with trees to be planted on the boundary, but many trees died because of lack of water. The need for the forest boundary was discussed, including the burial places	
2001	Meetings with VC and VA.	The idea was accepted by the VA.	VEC started the process of demarcating the forest boundary.
2004	PFRA conducted.		Results used to develop management plans.
2003 and 2004	VLFR boundary planted with tree seedlings.	The annual wildfires killed all the planted trees. To date wildfire remains a major threat to the forests both for the VLFR and the NFR.	
2005	VC surveyed the boundary, map drawn and beacons positioned with the assistance of FBD surveying team.		The VLFR boundary and forest gaps were replanted with a variety of trees species.
2005	VEC formed with 12 members, of whom 50% are women. Patrol team initiated.	VEC members were required to have training related to job performance, for instance role and responsibilities, and record keeping.	VEC manages both the VLFR and VFMA of Kibwemwenda. MYP provides training and stationary to VEC.
2001-2004	VEC has been involved in boundary clearing annually.		
2002-04	The LACN assisted village		Exchange visits are a valuable learning tool.

	representatives to visit JFM and CBFM initiatives in West Usambara, and Kilimanjaro.		LACN is useful in exchanging ideas and motivating VECs.
2002-04	Village planning team established.	VEC was not happy with the selection of village planning team.	PFRA conducted in the VFMA and VLFR.
2005	Forest patrol conducted regularly with some support from TFCG and FBD.	Confiscated ten bags of charcoal that were sold for TSh 17,000, but it was not clear where the money went. Two people have threatened the village forest guards and armed traders have threatened the patrol team with their life. Many charcoal burners have run away from the village to other sites such as Mzenga (Bwembuda). Wild fires remain a major threat. No law enforcement by FBD and DC. Uncontrolled charcoal licenses issued by the DC.	
Future	Management plan revised and passed. Explore means of wildfire control. More tree planting on farms for fruit and timber. Replanting the boundary with trees.	Delay in signing the JFM agreement, and waiting for management plan to be agreed by DC.	

Source: Based on a timeline drawn by Kibwemwenda VEC in a meeting with Assistant Researcher and TFCG Field Officer and Assistant; and Authors' fieldwork, Kibwemwenda 2005.

Participation

Kibwemwenda village has four sub-villages: Msese, Makutopora, Ngeta and Gezaulole; all of which border Kibwemwenda VLFR. There are 12 VEC members and in 2005 six were women. When VEC was formed, qualification for member selection was highlighted. Each sub-village selected at least one representative. VEC meets once a month to discuss various issues that are related to both the VLFR and the VFMA of which they have management responsibility.

Like Kipangege, the village patrol team conducts patrols once a week. It is a team of twelve members and is elected after two years on a rotational basis so that every villager has an opportunity to understand the forest through patrolling. Villagers have noted that forest patrolling is intensive work that needs regular support from the FBD. For instance, the patrol team needs a vehicle to carry confiscated forest products, as well as transport that will help them to patrol a large VFMA of 1150 ha. In addition, FBD need to provide armed guards, as during patrols they have encountered armed traders who threaten their life. When practical work is required for the VLFR then the system of communal work is utilised. In this way the boundary has been cleared and

planted with tree seedlings. The households and farmers adjacent to forest areas participate in reporting illegal forest activities.

The Kibwemwenda VEC is a member of SHIWAMARU, which is the LACN of Ruvu. VEC have learnt that network meetings are an appropriate forum for communities adjacent to Ruvu South FR to discuss common issues and share experiences related to PFM. Concerns have been raised over the registration fee of Tsh 20,000 per VEC, which is high considering that VEC has no source of income. VEC suggested that the registration fee should be reduced by 50 per cent to Tsh 10,000.

Money and Information Handling
No money has so far been recorded in respect to the VLFR or the VFMA. The approved final management plan, written on August 2004, has set monetary penalties and fees for collecting NTFPs. The management plan is on a three year piloting phase until August 2006 when there will be an opportunity to review. It was noted that the handling of cash obtained from penalties was not transparent.

Skills and Capability
Kibwemwenda VEC appear to be motivated as they have received intensive training on how to conduct patrols, arrest culprits, and keep records. Members report that there is good attendance of meetings that are meant to be monthly. Women are well represented in the committee and feel that they have been capacitated to do their task without difficulties.

Conflict Anticipation and Management
The TFCG staff have provided training to the VC, VEC and patrol team on conflict management. This has included procedures to arrest culprits of illegal activities.

In 2004, a Village Planning Team (VPT) was selected for the purpose of selecting community members to conduct the PFRA and to prepare by-laws and management plans. This caused a conflict between VEC and the VPT. VEC claimed that it was not fair for the VPT to conduct the PFRA as they felt that they could do it. It is suggested that PFRA becomes one of the role of VECs and when it comes during the implementation stage then VEC should have the mandate of making a decision of whether they would need support from the village. This would reduce the confusion of creating another institution and also would build the capacity of VEC in understanding the resource they are managing.

Lessons Learnt
In villages that are involved in the management of both VFMAs and VLFRs, the same VEC should be responsible for management, on behalf of the villagers and VC.

The PFM process has contributed significantly in raising awareness on gender equality and the need for women and men to cooperate in conserving forests. This was observed in the composition of VEC members.

Communities are motivated in the management of Ruvu South FR but the JFM agreements between the respective village government and the Director of FBD have

not yet been signed. Limited participation and support by FBD officials in the whole process of JFM was stated by VEC as the main cause of the delay.

Lack of clear guidelines on cost and benefit sharing between the FBD and villagers of confiscated forest products is likely to discourage community participation in PFM. For instance, patrols showed that some FBD workers and VEC members were involved in the illegal charcoal trade.

Armed illegal forest traders were reported to have threatened the life of VEC and forest patrol team members. If support from FBD is not intensified, it is likely that the community will stop conducting patrols.

Population pressure on Ruvu South FR from people living outside the surrounding villages is extremely high. Illegal harvesting of forest trees for charcoal and timber continues at a high level.

Continued and uncontrolled issuing of licenses for charcoal production and harvesting of timber by Kibaha and Kisarawe District Councils remains a challenge.

Almost total failure by FBD, Kibaha and Kisarawe District Councils to enforce forest laws for conserving Ruvu South FR will lead to the disappearance of this forest.

Recommendations
The charges for fines should be the same for illegal forest activities committed in VFMAs and VLFRs. These should be in harmony with the parent law (Forest Act 2002).

The LACNs are a valuable tool for learning and sharing experiences among the VECs and this forum should continue to be supported.

The proximity of Dar es Salaam to Ruvu South FR (approximately 40km) provides unique opportunities for marketing forest products produced through PFM and development of eco-tourism.

TFCG should provide active follow up to ensure that the JFM agreements are signed by FBD.

4.2 Lessons Learnt

The following summarises the lessons learned.

4.2.1 Planning and Management: Efficiency and Effectiveness

There is little difference in the day-to-day practical planning and management of forests at village level, between CFRs, VLFRs, and JFMAs in LAFRs and NFRs. The difference lies in the level of autonomy and support from village and district government and the time it takes to develop relationships of trust between the Village and District if the relationship was previously fraught with distrust (Box 4.1).

Box 4.1

Villagers managing CFR (For instance, Michungwani) would prefer the status of the forest to be a VLFR. It would be easier to report to the VC and VA and support from VC and VA would be greater

in managing conflicts and in raising awareness within and between villages.

Villagers managing forests as VFMAs in LAFRs (For instance, Lulanda) would have preferred the status of the forest to be a VLFR, or at the very least be 'designated managers', rather than co-managers. They feel that they would have more control over management decisions. TFCG took many years to facilitate the development of a trusting relationship between the Village and District.

Source: Authors' Fieldwork, 2004.

In the cases of TFCG-facilitated PFM, the planning process has not always been as efficient as it could be. The time from initiation of idea to the passing of management plans by the District has taken anywhere from one to seven years to complete. The slow process has been for the following reasons (Box 4.2):

- Time taken to develop trusting relationships between institutions;
- Having to facilitate PFM process prior to guidelines being published;
- Changes being made to District environmental by-laws leading to reviewing of village by-laws and draft management plans; and
- Logistical failures in getting management plans from the village to District in a timely manner.

Despite the inefficient process, TFCG and the Village institutions have learned by doing and the planning process has in fact been effective with the majority of management plans being agreed by 2005.

Box 4.2

The CBFM Guidelines (FBD 2001) offer an overview of the facilitation of the PFM process. Guidelines of the legal basis for PFM have been drafted recently (Blomely and Ramadhani 2005) and these separate JFM and CBFM more clearly. TFCG however, began facilitating PFM in forests prior to the publishing of the initial guidelines (For instance, Kwezitu, Kambai and Lulanda Forests), which is why the planning process has not always followed the suggested order of stages in the guidelines. This has led to inefficient planning at times, with for instance, PFRAs being conducted after the drafting of management plans. Although, whether PFRAs have been conducted prior to drafting of management plans or after, they have been found to be effective in assisting villagers to develop and/or adjust management plans.

Similarly, the passing of District environmental by-laws setting a cap on village by-law fines in Muheza District in 2004, led to adjustments having to be made to draft management plans (For instance, Kambai Forest). Although not a particularly efficient process, the draft management plans are just that – drafts. TFCG, Village and Districts institutions and the FBD have been learning effectively by doing.

TFCG Field Officers are often based in the villages in which they facilitate PFM. This is ideal for the facilitation of the PFM process at village level. However, the realities of Tanzanian village life, with distance and often lack of transport to District Offices, have at times led to delays in the typing up and handing over of Management Plans to DNROs (For instance, Kwezitu Forest), or worse still, misplacement of the document by the DFO (For instance, Lulanda Forest). Hold ups in the passing of management plans have led to VECs and VCs feeling powerless to act on management plans that have either not been agreed or at worse are misplaced.

Source: Authors' Fieldwork 2004.

Management efficiency and effectiveness is broken down and discussed in the following sections.

4.2.2 Participation: Representation and Responsiveness

At village level, positive responses to PFM have spread through:

- Dedicated and motivated individuals in the community;
- TFCG awareness raising and training;
- TFCG-facilitated extension visits;
- TFCG-facilitated Credit and Savings Schemes;
- TFCG-facilitated IGA Groups;
- Villagers sharing experiences through LACNs; and
- Villagers sharing experiences informally through family and friendship networks.

Representation of different stakeholders in VECs has changed over time. Participation by women as members of VECs was initially low, with either women not being selected at all, or women declining positions, due to:

- Lack of interest;
- Lack of confidence in speaking in meetings;
- Lack of time due to household and family responsibilities; and
- Fear of gossip caused by mixed groups going to the forest.

Presently, all TFCG-facilitated VECs have female, as well as male representatives. These changes have occurred through attitude shifts in both men and women, promoted by radio broadcasts, extension visits, and TFCG advice.

In the majority of cases women fully participate in management decisions and activities, although in some cases (For instance, Kambai Forest) women may not participate in meetings as much as their male counterparts. This they attribute to conflicting family and household responsibilities and/or lack of confidence in public speaking in meetings. In cases where TFCG have paid particular attention to empowering women to express their ideas, their participation has become strong (For instance, Lulanda Forest). TFCG have found that initially separating males and females in meetings and having focus group discussions, enables women to speak without fear and clarify their ideas, before presenting them to a mixed group.

All sub-villages are represented in the VECs for management decision-making purposes. Villagers have learnt through experience that only those sub-villages that are in close physical proximity to the forests should be expected to be involved in the practical labour of management (For instance, in marking, planting and patrolling forest boundaries and clearing fire lines). VECs have learned that this system works best, through experience, or have been advised by TFCG or other VECs when on extension visits.

The practical labour of management is often done through communal work, where specific sub-villages or sections of sub-villages are expected to work communally on designated days. VCs diligence in allocating and monitoring communal work to forest management activities varies. In villages where TFCG have facilitated the introduction of Savings and Credit Schemes (For instance, Lulanda Forest), working communally on forest management activities has become a prerequisite of joining the scheme, although the elderly or ill are exempt from communal work. This has led to a marked increase in the attendance of villagers for communal work.

In marking and planting forest boundaries there have been cases where villagers with farms adjacent to the forest have not been fully involved. This has led to ongoing conflicts, with farmers pulling up tree seedlings, continuing to farm inside the forest

and lingering boundary disputes. Villagers specifically advise others wishing to be involved in PFM to directly involve those farmers with fields in or adjacent to forest in surveying and physically marking the boundary.

In forests under JFM where forests are meant to be co-managed by village managers and FBD staff, then often there is little actual support.

4.2.3 Money and Information Handling: Transparency and Accountability

At village level, it was noted that very little, if any, money had been made directly through PFM. Where money had been collected from fines, the issue of absent draft management plans had left VECs unconfident about fine limits and the percentages to be distributed to different stakeholders. The most revenue was being collected through the collection of money from visitors (specifically researchers and members of donor organisations) and there were often high hopes of future revenue being collected from tourists in the future.

Where more than one village was involved in a JFMA (For instance, Ipafu) distrust was created when tourists were taken to the forest to view Colobus monkey through the VEC of one village and the other VEC was not involved. The procedure through which tourists and their money should pass had not been properly developed.

When issues of money are not handled transparently then the consequences on the forest can be negative.

It is evident that VECs are not meeting as regularly as they have proposed in draft management plans. There are also concerns in some cases (For instance, Kambai Forest) that VECs are not reporting to VCs or VAs regularly, if at all. VEC Secretaries are recording meeting minutes, fines, visitor numbers, VEC meetings and communal work attendance to differing extents. TFCG have assisted VECs with stationary and pens, but especially as management plans are passed, VECs will be required to be more accountable for maintaining records that are comprehensive and readable. This is an area where more focus is needed.

TFCG have assisted many community members to go on extension visits to other PFM forests. Community members greatly appreciate being able to participate in these visits, and many have returned with new insights to assist in their own PFM efforts. The information is rarely distributed widely in the community. In order to maximise and extend the learning that these individuals gain, better systems of reporting information to a wider section of the community need to be established.

Similarly, women in some communities (For instance, Kambai Forest) complain that they do not always know what is happening with regards to the forests, as they are unable to attend all VAs and male relatives may not pass on information. Alternative systems of spreading information to a wider section of the community need to be investigated. One such way that TFCG is experimenting with is through Environmental Choirs.

4.2.4 Skills and Capability: Learning and Motivation

Communities are often motivated to manage forests, but lack the skills and capability to proceed alone. TFCG has facilitated communities to learn and develop management skills and capabilities, through:

- Practical involvement in management through membership of VECs and patrol teams rotating through the community;
- Awareness raising through the following media: village meetings, radio broadcast, video, and environmental choirs;
- Bringing together of stakeholders;
- Advising VCs and VECs;
- Working directly alongside communities; and
- Sending individual community members on extension visits to other PFM forests.

The motivation to maintain and develop management skills and capabilities is increased through:

- Observance of environmental benefits;
- Greater control over management of forest resources;
- Future potential for money making;
- Visitors in the form of donors, researchers, District and Ward Officials, extension visitors, and LACN members, who bring a sense of pride to community members, whilst serving as external watchdogs (Box 4.3); and
- Savings and Credit Schemes and IGAs introduced to the community as a benefit of managing forests.

Box 4.3

Initial motivation to clear boundaries and fire lines is strong, but as villagers and the research team have noted, the motivation to maintain them may be discouraged. In one case, (For instance, Lulanda Forest) Communities expressed their feelings that, it was very sad to find out that the corridor was burnt by a careless farmer who did not like to adhere to the established rules and procedures of clearing farms using fires. In another case, (For instance, Kambai Forest) a visit from LACN members highlighted the need to clear the boundary, and motivated VEC to request VC to arrange communal work to clear the boundaries.

Source: Authors' Fieldwork, 2004.

There have been instances where facilitation from District Authorities, GOs, and NGOs has not always been forthcoming, consistent, or timely. For instance:

- Letters written to District Authorities asking for assistance have gone unanswered (For instance, Nkanyarika Forest);
- Closure of programmes facilitating the PFM process (For instance, EUCAMP) have left villagers without continuing assistance (For instance, Kwatango Forest); and
- TFCG has not always followed up quickly on villages who wish to extend forest areas and or manage new areas (For instance, Kambai Forest).

TFCGs investment in training community members should be protected by ensuring that when new VEC members are selected key members are retained, so that on the job training can take place.

4.2.5 Conflict Anticipation and Management: Appropriateness and Effectiveness

Since the PFM process has predominantly been one of learning by doing, conflict has tended to be managed as it occurs. Villagers have utilised a variety of people to mediate in conflicts, ranging from: VEC members, VC members, village elders, TFCG staff, Ward and District Government Officials to the police.

Where the police have been involved (For instance, Lulanda and Mpanga Forests), they have been effective in conveying the seriousness with which the degradation of the forest is taken. However, the time and money taken for VEC members to follow up on cases was found to be inappropriate and ultimately ineffective with fines not being paid. In the case of Lulanda, the VA decided to punish the perpetrator through communal work on the forest.

In learning by doing, communities have experience and knowledge to pass on to other communities wishing to become involved in PFM. One of the resounding messages from communities is that in order to reduce the likelihood of boundary conflicts, those farming in and around the forest, must be fully involved in the surveying, marking and planting of forest boundaries.

When conflicts have occurred, it has led to the development of village by-laws in order to prevent further potential conflicts. For instance, when a farm clearance fire got out of control and entered forest (For instance, Lulanda Forest), a by-law was passed prohibiting the use of fire in farm clearing adjacent to forest.

In forests that under JFM and are under threat from outsiders who may be armed, then village forest managers must have support from the FBD.

4.3 Recommendations for Facilitation of PFM Process

The following recommendations are generated from the lessons learnt by assessing the TFCG-facilitated PFM process. Where the recommendations are specific to TFCG, they will also be of value to other facilitators of the PFM process.

4.3.1 Planning and Management: Efficiency and Effectiveness

- To be efficient, facilitate PFM in the order of steps suggested in the CBFM guidelines. Learning by doing can be particularly effective, but can be inefficient.
- Take time to facilitate the development of trusting relationships between stakeholders (For instance, District and Village) by arranging frequent formal and informal meetings.
- Leaving VCs and VECs without copies of Draft and Final Management Plans, even temporarily, is both inefficient and ineffective, leading to VCs and VECs feeling powerless and unmotivated to manage forest. To be both efficient and effective, it is essential that copies of Draft and Final Management Plans should make their way back to the village. Alternatively, copies should be made in the village, either using carbon paper or written long hand, prior to Management Plans leaving the village to be taken to the District for amendment or legalising.
- Keep up to date with District by-laws and revise village by-laws and management plans accordingly.

- Utilise CBFM Guideline suggestions for assisting communities to review PFM yearly.

4.3.2 Participation: Representation and Responsiveness

- Support the representation of men and women in VECs, through: direct advice, and extension visits, radio broadcasts and video that promote male and female representation.
- Where women may be unconfident in contributing to meetings, the facilitators should be careful to have focus group discussion with men and women separately. Bringing the groups together at the end once their ideas are formulated has proven to empower women to contribute more in meetings.
- Continue to advise communities that all sub-villages should be represented in VECs in order to be involved in decision-making aspects of management.
- Continue to advise communities that only those sub-villages utilising or in close proximity to forest should be expected to participate in the practical labour of management.
- Advise communities to fully involve people with farms in or adjacent to forest in surveying, clearing and marking forest boundaries.
- Clearly link support for IGAs and transfer payments to the management of the forest. Make it clear that support in these areas will be removed if there is failure to manage forest as stated in the management plans.
- Facilitate negotiation of roles between FBD and village forest managers in forests under JFM.
- VECs should be fully involved in activities such as PFRAs, marking of the VFMAs and mapping.

4.3.3 Money and Information Handling: Transparency and Accountability

- Avoid creating high hopes for making money through tourism in areas where basic infrastructure is lacking and tourism is unlikely.
- Offer more facilitation in record keeping. Procedures for revenue collections need to be transparent and VECs need to be held accountable for keeping records that can be viewed by insiders and outsiders alike. Make basic record keeping a prerequisite for continued support.
- Support communities in ensuring, that basic forest rules and maximum fines are known by the whole community, whether through sign-boards or further awareness raising.
- Advise communities to develop a sliding scale of penalties for those not adhering to forest rules, from monetary fines to communal work.
- Investigate alternative systems of reporting information gained by individuals who have been on extension visits to a wider section of the community. One such alternative system is through the use of environmental choirs.

4.3.4 Skills and Capability: Learning and Motivation

- Continue to facilitate PFM in existing communities. Communities still lack the confidence in their skills and capabilities to proceed with PFM without strong facilitation.
- Follow up quickly on assisting communities to extend or manage other forest areas.

- Continue to support the development of LACNs whose members can act as advisers, facilitators and watchdogs in PFM. These networks are important for the future spread and sustainability of PFM to other villages and areas.

4.3.5 Conflict Anticipation and Management: Appropriateness and Effectiveness

- Encourage the use of local mediators in managing conflicts in a timely and firm fashion, only using Ward and District Officials and the police as a last resort.
- Use video, radio broadcasts and extension visits to highlight the lessons learnt from conflicts faced by those communities involved in PFM. Assist communities in identifying potential conflicts and developing village by-laws to prevent anticipated conflicts.
- Facilitate a negotiation of roles around patrolling and the support the FBD can offer in areas where village forest managers must contend with outside armed traders.

5. IMPACT OF PFM ON BIODIVERSITY CONSERVATION

5.1 Findings

The findings are presented by case study forest and the impact of PFM on biodiversity conservation, is indicated by the following:

- Increased or reduced area of forest under management regime;
- Evidence of forest management practices in place, (For instance, forest management plans, forest boundaries, forest by-laws);
- Reduced or increased threats on forest, (For instance, fire, pit-sawing, illegal collection of forest products);
- Regeneration or degeneration of forest resources (For instance, saplings and forest fauna); and
- Increased or decreased quality and quantity of forest services, (For instance, quantity and quality of water sources and changes in local climate).

5.1.1 Lulanda VFMA

Increased area of forest under management regime

The area of land that is managed through a JFMA between Mufindi District and Lulanda Village is larger than the actual area of forested land that was known as Lulanda prior to PFM. In Ihili forest patch an area of land has been incorporated inside the forest boundary in order to provide protection to the river water source. The area is being planted with indigenous tree species and an area of Eucalyptus planted by one farmer will gradually be harvested by him and replaced by indigenous trees. In Fufu forest patch three areas had been farmed, but farmers were prohibited from continuing to cultivate and these areas were incorporated into the forest boundary. Similarly, in Mgwilwa, areas immediately adjacent to the forest were incorporated into the forest boundary. Between Fufu and Mgwilwa an area of about 70 ha, that had previously been communal farm land, has been planted with indigenous trees as a forest corridor.

Declared a VFMA in a LAFR and managed under a JFMA

Since 1998, forest boundaries have been marked, and by-laws pertaining to forest have been in place. The District agreed forest management plans in 2005.

Reduced threats to forest

Threats to the forest immediately prior to the JFMA included: deforestation through conversion of forest to agricultural land and burning of forest from uncontrolled fires from traditional honey collectors and farmers clearing fields adjacent to the forest; pit-sawing; and degradation through illegal collection of forest products.

The clearing of forest for agricultural land and pit-sawing have ceased completely. In 2003 a field clearance fire got out of control and caused damage to the forest corridor. The VC and the community took the misdemeanour seriously and penalties were given. By-laws have been developed to prevent the use of fire for clearing fields adjacent to the forest. The fact that it is seen as a serious crime within the community means that fire is likely to be a lesser threat from now on.

Honey collection using fire has completely ceased and modern hives and harvesting equipment is now utilised.

In 2002 a man de-barked trees in Ihili for building twine. He was penalised by doing communal work on the forest, planting trees and clearing fire lines.

The PFRA of May 2004 noted minimal disturbance in the forest. Collection of medicinal plant parts had disturbed a few trees where bark had been completely removed to the extent that the tree would die, and some trees were damaged due to a poor method of harvesting tree roots. Firewood and sand and stone collection, both of which were illegal, were noted to a limited extent, and both had caused localised damage to saplings.

Regeneration of forest resources
The quantity of dry firewood can be observed to have increased, simply due to collection having ceased since 1998. With the forest less disturbed trees have regenerated and local people who have had access to the forest have noted that building pole species and medicinal plant species have regenerated in the forest. Forest fauna is perceived to have increased, noted most visibly through an increase in crop pests.

Increased quantity and quality in forest services
Spring water within and around the forest is perceived to be cooler, taste better and not to dry out as it has in the past.

5.1.2 Kwezitu Forest

Increased area under management regime
Prior to PFM, the area of forest that is now Kwezitu VLFR was forest on public land, with uncontrolled open access to forest resources. With the closing of the forest, and the formation of the VLFR, the area of forest under a management regime has increased. The VLFR has been cleared and planted with trees.

Declared a VLFR
Since 2000 the forest has been closed, with forest boundaries marked, and by-laws pertaining to forest put in place in 2001. The District agreed forest management plans in 2005.

Reduced threats to the forest
There is a clear decrease in forest threats for example the main threats immediately prior to PFM, were cultivation of cardamom and bananas under the forest canopy, collection of firewood by Mkalamo sub-village, and medicinal plant collection. Cultivation and firewood collection has currently ceased. Open grazing in the forest has stopped instead the project is promoting zero grazing. No bush fire incidence was recorded burning the forest.

Regeneration of forest resources
Results from PFRA shows that the forest harbours important flora and fauna diversity. The team recorded more than 55 plant species. The main use of these plants include medicine, timber, building poles, fuel wood and cooking oil from tree seeds. They also recorded ficus tree species which grow on water sources. More than 8 species of

birds and about 13 different species of vegetable, medicinal plants were recorded. The forest also provides health habitat for different species of butterflies.

Increased quantity and quality in forest services
There is a water spring source inside the VLFR. It is the only water source of Mkalamo sub-villagers. Villagers appreciate the effect of protecting the forest on the protection of the water source. The other service includes soil erosion control as well as land slides.

5.2 Discussion

The impact of PFM on biodiversity was reported by community members to be positive basing on the decrease of threats to forests. Communities reported that illegal forest activities have decreased since the onset of PFM. In the other hand they mentioned that vermin has increased in destroying crops in their farms, especially people who farm adjacent to forest. An increase in forest fauna has caused households who cultivate fields adjacent to forest spend more time protecting crops by scaring crop pest away. This means that improved conservation creates conducive habitats for fauna to breed and in the other hand causes loss to farmers.

Basing on the results from the Participatory Forest Resource Assessment (PFRA), presence of workable management plans and by laws and people's perception on forest management are concrete evidence to indicate that there is positive change in ecosystem and biodiversity. In other words the alternatives Income Generating Activities (IGA) that have been established in the project sites provide contribution and incentives towards local community support for the conservation of biodiversity.

5.3 Conclusion

Changes in ecosystem and biodiversity are often difficult to measure and require more time than the limited duration of this evaluation. However, it is evident that threats to the forests have been reduced and this may have positive effects on the state of biodiversity. It is recommended that a conventional biodiversity impact assessment should be carried out in order to compliment to the results that have been based on the perception of adjacent community members.

6. IMPACT OF PFM ON LOCAL FOREST-BASED LIVELIHOODS

6.1 Findings

The following describes each of the case study forests: Lulanda; and Kwezitu.

Lulanda Forest is situated in the Southern Udzungwa Mountains, in Mufindi District and is managed in the JFM mode as a Mufindi District LAFR, managed by Lulanda Village. The forest covers a total area of 315.9 ha and consists of three forest patches: Ihili (35.2 ha), Fufu (82.6 ha) and Mgwilwa (89.3 ha); with a planted corridor (108.8 ha) connecting Fufu and Mgwilwa patches.

The forest was one continuous area in the 1940s when it was declared a LAFR. In the 1950s the area was deforested for coffee cultivation leading to the gradual break up of the forest into three separate patches of 'island' forest in a 'sea' of cultivated land (Woodcock 2002). Further degradation of the forest went unchecked in the 1960s with logging permits being issued by the District to outside contractors.

In the early 1990s the biodiversity value of the forest (Lovett & Pocs 1992) was brought to the attention of TFCG by visiting Biologists. In 1993, TFCG began discussions with Mufindi District Forest Office (DFO) and Lulanda Village Council (VC) and elders as to the possibility of facilitating them in managing the forest area. In 1996, TFCG began to informally facilitate the DFO and VC to jointly manage the forest. In 1998, the forest boundaries were made official and draft management plans were developed and put into practice. In 2005, the draft management plan was agreed by the DFO.

Kwezitu Forest is situated in the East Usambara Mountains, in Muheza District and is managed in the CBFM mode as a VLFR, managed by Kwezitu Village. The forest is relatively small in comparison to Lulanda with an area of 12.8 ha. Kwezitu Village is situated in a forest 'rich' environment, with village boundaries bordering Kambai NFR (gazetted in 1994) and Derema proposed NFR that are protected principally for water catchment. There are remaining areas of forest on public land, which were not deforested, but these are heavily degraded from the affects of logging in the 1970s and 1980s.

TFCG had been working in nearby Kambai Village since 1994. In 1996, Kwezitu Villagers requested that TFCG assist them with tree nurseries, planting trees on hilltops and around water sources and in managing an area of forest on public land. Since then, TFCG have facilitated Kwezitu in the process of managing their forest. The forest has been declared a VLFR since 2005.

Despite Lulanda being managed in the JFM mode and Kwezitu in the CBFM mode, both forests are high biodiversity forests and are protected as such. Initially both were closed to access and all activities, but both now allow access to specific groups for specific purposes, (For instance, medicinal herbalists for medicinal plant collection in both, and modern bee-keepers for honey collection and poorer household members for firewood collection in Lulanda).

Household livelihood strategies in both villages are diversified, but are based on small-scale agriculture and forest-based products and services. Diversified strategies range from professionally paid positions (For instance, teachers, nurses, game scouts), piecemeal paid work (For instance, tea pickers), small businesses (For instance, tea houses, maize milling machines and small shops), sale of cash crops (For instance, tea, coffee, timber, maize, bananas, honey, butterfly pupae), animal husbandry (For instance, goats, pigs, cows, guinea pigs), sale of crafts (For instance, woven baskets and mats), to local service trades (For instance, medicinal herbalists and builders).

The findings are as follows and are presented by case study forest, answering the underlying questions by examining each of the five livelihood assets in turn. Tables 6.1 and 6.2, summarise the findings from the case studies of Lulanda and Kwezitu respectively.

Table 3. Summary of the positive and negative impacts of PFM on Local Forest-Based Livelihoods in Lulanda

Livelihood Asset	Positive Impacts	Negative Impacts
Human	[D] Access to traditional health services maintained. [D] [I] Development of individuals' skills and knowledge. [I] Increased numbers of children attending Secondary School.	[D] Increased time spent on protecting crops from forest fauna, leaving less time for other activities. [D] Danger that knowledge of medicinal plants becomes restricted to an elite group of herbalists with permits to access the forest.
Natural	[D] Access to forest permitted to medicinal herbalists, modern beekeepers, and poorer household members in need of firewood. [D] Better-off households changed choice of crops to those that are more permanent and are incompatible with the use of fire in field clearing (i.e. trees). [D] Regeneration of forest flora and fauna, providing improved source of medicinal plants, firewood and a potential draw for future tourist activities. [D] Increased quality and quantity of water. [I] Development of alternatives to forest products.	[D] Reduced access to forest products and services. [D] Access to forested land prohibited. [D] Increased crop damage. [D] Poorer households chose to abandon forest-adjacent fields, due to increase in crop pests and the prohibition of the use of fire in field clearing.
Social	[D] [I] Developing and providing access to networks through LACN and group memberships in IGA groups. [D] Forests return to customary role as a social buffer, by providing a secure source of firewood for poorer households with few alternatives. [D] Villagers demand that Village Government represent them by ensuring penalties for illegal forest activities are enforced. [D] Relationship between District and	[D] Poorer households becoming reliant on social networks for alternatives to forest products.

	Village improved.	
Financial	[D] Income for medicinal herbalists and modern beekeepers. [D] [I] Trees planted on farms as a source of savings. [I] Introduction of Savings and Credit Scheme. [I] Income for members of IGA groups.	[D] Traditional honey collectors and hunters lost income.
Physical	[I] Improved mud-brick housing. [I] Improved Stoves.	

N.B. [D] denotes a direct impact of the PFM process; and [I] denotes an indirect impact derived through IGAs and transfer payments.
Source: Authors' Fieldwork, 2005.

Table 4. Summary of the positive and negative impacts of PFM on Local Forest-Based Livelihoods in Kwezitu

Livelihood Asset	Positive Impacts	Negative Impacts
Human	[D] [I] Development of individuals' skills and knowledge.	
Natural	[D] Collection of medicinal plants and firewood planned for future. [D] Water source maintained. [D] Habitat of butterflies maintained.	[D] Farmers with fields inside forest or on forest boundary lost land. [D] Access to forest products denied.
Social	[D] [I] Developing and providing access to networks through LACN and group memberships in IGA groups.	
Financial	[D] [I] Trees planted on farms as a source of savings. [I] Income for members of IGA groups, in particular butterfly farmers.	[D] Traditional honey collectors and hunters lost income.
Physical	[I] Improved mud-brick housing. [I] Improved Stoves.	

N.B. [D] denotes a direct impact of the PFM process; and [I] denotes an indirect impact derived through IGAs and transfer payments.
Source: Authors' Fieldwork, 2005.

6.1.1 Lulanda Forest

Natural Assets

Prior to PFM Lulanda forest was *de facto* open access despite being a LAFR. The villagers freely obtained forest products and services, whilst the DFO permitted outside contractors to log. Since 1996 and TFCG-facilitated PFM, access to forest resources has been closed to all, but for a few permitted resources and activities. As of 2005, access to forest resources is permitted to specific groups for specific purposes, namely collection of medicinal plants, modern bee-keeping, and minimal collection of firewood, sand and stones.

Access to new lands is prohibited to all, and villagers acknowledge that without TFCGs facilitation, the forest would have been degraded or even deforested (Leonard Kavaya 2005): *"It is because of the project that Ihili and Fufu forests are here."*

Access to previously farmed lands has reduced for some households in the village, either through loosing land directly in forest demarcation, or indirectly through change in use. Many households were forced to stop farming fields that were incorporated inside the forest reserve boundary, or the forest corridor (Box 6.1, 6.2 & 6.3). Many of those households with fields adjacent to the forest have chosen to change land use. By-laws preventing the use of fire for clearing fields adjacent to forest, have led villagers to either chose to leave fields fallow, or change their choice of crops on those fields, to crops with a longer growth span that are incompatible with fire. For instance, Theo Msindila changed her crops from maize to pine, bamboo and bananas. A reported regeneration of forest fauna, (For instance, antelope, bush pig, baboon and blue monkey), or what villagers see as vermin, has caused an increase in crop damages in forest adjacent fields. This too has led to fields being abandoned (Box 6.1). Despite the negative affects of increase in forest fauna, villagers hope that in the future, forest fauna will entice tourists to visit the forest, so that the community can benefit financially from tourism.

Box 6.1

Pausoni Mlamka has two wives. One wife has been forced to farm far away, because she lost a field in the boundary marking of Fufu forest patch. His other wife had two acres of maize near Fufu forest patch, but since managing the forest, there have been too many baboons attacking crops, so she no longer uses that field.

Source: Authors' Fieldwork, 2005.

Box 6.2

Valence Masonda has five fishponds, four of which are now inside the forest. At present he is allowed to harvest his fish, but is concerned that in the future the law may change, preventing him from harvesting.

Source: Authors' Fieldwork, 2005.

Box 6.3

Telesia Mponzi is a widow whose daughter worked as a house girl in Dar es Salaam for two years in order to save money for them to build a new house in the village. She had one acre of maize in Mgwilwa forest patch, but the village government told her to leave the field, as they wanted to plant trees. She participated in planting, *"If the village government say that we should do something and all the villagers have agreed, you can't say anything!"* She would appreciate the opportunity to be able to collect firewood from the forest, *"Winds have knocked a lot of trees down in the forests, and there is a lot of dry wood. I would like to go to collect firewood, but not to go and cut trees down."*

Source: Authors' Fieldwork, 2005.

Access to water is perceived to have increased. Villagers attribute an increase in water level in ground springs and an increase in flow in the Ilondo River whose source is in Fufu forest patch, to improved forest management.

In 1996, access was initially closed to all forest resources and activities. Shortly after closure, a group of medicinal herbalists requested that they be allowed to resume collection of medicinal plants for the benefit of the community. Their request was granted and to date there are approximately six medicinal herbalists who are permitted to collect medicinal plants in the forests. Regeneration of medicinal plants near and

adjacent to existing forest paths has been noted (Kita Mduvike 2005): "*I am a herbalist for childhood fever cramp. Now, I collect medicine easier and quicker than before. The forest is less disturbed and I do not have to go so far into the forest to find the species I need.*" The increasing availability of medicinal plants is appreciated community wide, since all households depend on herbal medicine, since there are no local alternatives, there being no dispensaries in the community. Conserving the forest, as a source of medicine, has become the priority use value (Betti Kigola 2005): "*Managing the forest for medicine is more important than being allowed access to firewood.*" That access to medicinal plants is by permit only, means that there are some individuals in the community who collected for their own use who have now lost access to medicinal plants, and must now rely on medicinal herbalists with permits.

Since 1996, traditional bee keeping has been prohibited due to the use of fire in honey collection, which is a threat to the forest. This has affected two honey collectors in the village, who no longer have access to the forest resource (Box 6.4). The Women's Maize Milling Machine Group placed the first modern hives in Ihili in April 2005.

Box 6.4

Pausoni Mlamka was a traditional beekeeper. His traditional beehives can still be seen in Fufu, but he no longer has access to them. He is interested in the modern beehives, but does not have enough money to buy the materials required to make and use them. He is not prepared to take the financial risk, as there is no guarantee that the bees will take to the modern hives.

Source: Authors' Fieldwork, 2005.

Since 1996, access to the forest resource is prohibited to all, but the permitted specialist groups, (For instance, medicinal herbalists and modern beekeepers). Community members in general, are prohibited from accessing the forest resource and so collecting forest products, such as firewood and building poles. Initially there were a few incidences of illegal collection of both firewood and polewood, but just by walking along forest paths it is evident that for the most part no firewood or polewood is being collected. The forest floor is littered with dry wood (Hamadiel Mgalla, Pers. Ob. 2005) and regeneration of saplings is noted (Valence Masonda 2005): "*Now, there are many more building poles.*"

TFCG has assisted individuals in the community in tree planting, by distributing seeds and seedlings and offering expertise in farm forestry. It is members of better-off households who have been encouraged out of necessity and ability to spare the land, time and resources to plant exotic and indigenous tree species in their fields, as an alternative source of timber and firewood (Box 6.5). Poorer households must rely on indigenous trees around their fields (Box 6.6), the charity of family and friends who may allow them to collect firewood or polewood from their woodlots, or buy polewood (Boxes 6.5, 6.7 & 6.8).

Box 6.5

Valence Masonda is a Primary School Teacher and Manager of the Savings and Credit Scheme. In 1998 he was given seeds by TFCG and planted a one and half acre woodlot of pine near his home. The woodlot saves his household time in collecting firewood as they can tell the children to "*run and get firewood.*" He allows the poor and ill to collect firewood from his woodlot: "*the priority is to the old.*"

Source: Authors' Fieldwork, 2005.

Box 6.6

Betti Kigola collects firewood from indigenous trees in and around her fields, taking her a five-hour round trip. She admits it would be easier on her if the forest was open for collecting firewood, but believes that saplings could be trampled on or damaged when collecting. In her opinion, managing the forest for medicine is more important than being allowed access to firewood. She buys medicine from those herbalists who are permitted to collect.

Source: Authors' Fieldwork, 2005.

Box 6.7

Sikimbila Mduvike is an old widow who sells bananas and makes baskets and mats for a living. Prior to PFM she collected firewood from Fufu forest patch, but now collects from pine woodlots belonging to relatives. The pine woodlots are closer than Fufu, but she would prefer to collect from the forest as the indigenous species she would select has a higher calorific value and the smoke makes the food taste better than pine. She has not profited directly from forest since access to it was closed, but in her opinion closing the forest is good as it is saving medicine.

Source: Authors' Fieldwork, 2005.

Box 6.8

Angelina Mkiwa finds it difficult to obtain building ropes and poles and relies on relatives who have indigenous woodlots to either give or sell them to her.

Source: Authors' Fieldwork, 2005.

Members of poorer households would prefer to have access to forest firewood, for ease of collection and quality (Boxes 6.6, 6.7 & 6.9). Despite this preference, there is general consensus, even among poorer households that access for firewood is less important than access for medicinal herbs (Boxes 6.6 & 6.7). Fears voiced by women, surrounding permitting access to forest firewood, are that:

- Regenerating saplings could be damaged and general forest degradation would reduce availability of medicinal herbs, which are valued community wide; and
- Women who are the collectors of firewood, could be unfairly blamed for any illegal activities or forest degradation occurring in the forest.

The VEC is also apprehensive about opening up the forest to firewood, and wild vegetable, mushroom and fruit collection as (Castory Mdalingwa, Lulanda VEC Secretary 2005): *"It would be difficult to monitor and people would see where the timber trees are located."*

Since 1996, there has been a vast difference in housing in Lulanda. In 1996, there were only two brick houses in the village, now approximately a third of all houses are built of sun-dried brick with corrugated iron roofs (Charles Meshack, Pers. obs. 2005). If this trend continues the need for building poles will be reduced, though timber for roofing, hardware and carpentry will still be in demand. For the better-off households timber will continue to be sourced from woodlots. For the poorer households sourcing of timber may still be problematic.

In late 2005, Lulanda VEC has decided to allow, on a trial basis, access once per month to those who have few alternative firewood sources. Collection of building poles is not permitted, nor is it likely, since FBD guidelines suggest that the utilisation of timber products not be permitted in Local Authority Protection Forests (URT 2005).

In conclusion, the impact of TFCG-facilitated PFM on household natural assets in Lulanda is positive in respect to access to water, medicinal plants, honey from modern bee keeping, and possibly firewood through permits offered to poorer households. Indirect positive impacts come from: development of alternative sources of forest products, (For instance, farm forestry and brick making); and development of existing IGAs, (For instance, modern bee keeping, fish farming, and pig farming). The community hopes that the increase in forest fauna may be a magnet for tourists in the future, with eco-tourism being a possible IGA in the future.

When access to natural assets, (For instance, firewood and polewood) are denied it is the poorer households who are most negatively affected, as they are unable to secure alternatives to forest products, and must rely on the charity of others. In the case of Lulanda, this issue is starting to be addressed on a trial basis, by permitting poorer households access to firewood once per month.

PFM negatively affects access to forestland for agriculture and has affected how forest-adjacent fields are used. If this trend in land use change continues then there would be a likely increase in tree coverage in fields adjacent to the forest. This would be positive in terms of biodiversity conservation, with trees acting as biological corridors for forest fauna. The impact on livelihood is likely to be positive too, with permanent tree crops acting as security for times when cash is needed, but that is only provided that land is available for food crops also.

Human Assets

Since PFM, Lulanda forest, as discussed previously, is viewed locally as primarily a ‘forest of medicine’. A select group of individual medicinal herbalists have permits to collect medicinal herbs, which they use to treat members of the community. In this way, the impact of PFM on human assets can be seen as maintaining access to health services in a community that depends upon herbal medicine. In Lulanda, herbal medicine is a specialist activity with few individuals collecting their own medicinal herbs, however, the few that did collect for domestic use have lost access to this resource. There is a danger that PFM, in the JFM mode in particular, is tending to make medicinal plant collection elitist and the knowledge base on medicinal plants from the forest becomes so small that in future years it will be lost. Regardless, general knowledge about forest medicines, vegetables, mushrooms and fruit seems minimal in Lulanda, possibly due to a number of reasons:

- People moved into the area in the 1950s, which is relatively recent in terms of building a knowledge base; and
- Lulanda forest provides the only forest habitat in the vicinity of the community and so the relationship between people and forest is less close than in other regions.

This begs the question as to whether reduced access of the general community to the forest, will continue to reduce forest flora based knowledge in the future. TFCG

facilitated educational programs that involve the Primary School in nature walks through the forest, are vehicles through which cultural knowledge may be maintained.

An increase in forest fauna causes households who continue to cultivate fields adjacent to forest to spend more time protecting crops by scaring crop pests away, and so have less time to spend on pursuing alternative livelihood strategies and activities. For instance, Castory Mdalingwa, VEC Secretary, noted, *"Farmers spend more time chasing baboons and are not coming to work on development days."* It is the poorer households with little alternative farm land that have to continue to farm in fields close to the forest. Children, who are usually responsible for chasing vermin, are the most affected, and may be absent from school, possibly affecting their future knowledge and skill development.

Throughout the process of planning and implementing PFM, TFCG have supported individuals (from school children to women and elders) in the community to develop their knowledge, experience, and skills through access to practical hands-on experience, seminars, training, exchange visits, and the use of media. Practical hands-on experience has come in the form of: tree planting on forest boundaries and corridors; developing and managing tree nurseries; forming and managing Village Environmental Committees (VECs) and Local Area Conservation Networks (LACNs); and record keeping. Seminars have included environmental awareness. Training has been offered in bee-keeping, and making and maintaining improved stoves. Exchange visits to other PFM sites in Tanzania has motivated and inspired individuals to exchange ideas and keep momentum. The use of the Swahili Newsletter Komba, along with radio broadcast and video has also served to inspire action and develop knowledge.

Women in particular have benefited from the development of skills and experience gained through participating in forest management. TFCG officers have been careful to encourage involvement of women in meetings and committees. Between 1996 and 2005, the difference in women's ability to be vocal in mixed meetings is particularly evident.

The traditional beekeepers no longer have access to the forest for honey collection and the authors noted that they were being alienated rather than their skills being utilised as an asset to those beginning modern bee-keeping initiatives.

PFM has had a positive impact on access to health services, and the development of skills and knowledge. Negative impacts are related to increasing time spent on chasing increased number of crop vermin, and a danger that PFM, under JFM in particular, may lead to forest-based knowledge becoming elitist.

Social Assets

TFCG-facilitated PFM has supported the development of VECs and IGA groups, introduced and enabled access to external institutions to the community (For instance, Savings and Credit Scheme, District Natural Resource Office), and enabled villagers access to community networks through exchange visits.

The development of VECs and villagers' increased awareness of their communal and individual rights and responsibilities in managing the forest, has empowered villagers

to require more of the village government that represents them. For instance, in 2003 a villager caused the forest corridor and an area of forest to be burned, through negligence in managing a field clearing fire. A year later he returned to the village after being absent for a year from fear of the consequences. Villagers started to complain when the village government took no further action (Leonard Kavaya 2005): *"You are asking us to replant trees on the corridor, when that man was the one who burnt the trees and he is sitting at home!"* Villagers demanded that the village government force the man to plant trees on the corridor. Since, he was sick, his family took on the responsibility of repaying his debt to the community, by replanting trees in the corridor. By listening and responding to the needs of those they represent, the village government is developing a trusting relationship with its people.

Similarly, it is hoped that through the PFM process the relationship between Village and District government will develop. Presently, TFCG plays a facilitatory role between the two, in that it is usually TFCG officers who take PFM plans back and forth between the Village and the District. This is simply due to ease of transport (TFCG Field Officer has a motorbike) on the part of both the Village and the District. This is a key challenge for the scaling up of PFM without NGO and donor assistance.

The majority of households have members in a variety of IGA groups. Working in groups is a risk alleviating strategy that works by spreading the financial and labour costs amongst members. Poorer households, headed by older widows, tend not to have membership in IGA groups, due to lack of time and money to invest in the group.

Since the initiation of PFM, poorer households are no longer able to rely on access to forest resources. They are now forced to rely on their social networks of family and friends, in order to obtain access to timber forest products such as firewood and polewood from individual woodlots (Boxes 6.5, 6.7 & 6.8). With access to forest firewood being offered to poorer households on a trial basis, reliance on social networks may be alleviated to a certain extent.

A prerequisite of joining the Savings and Credit Scheme is that members must work on planting the forest corridor each Saturday. Membership of this group allows individuals access to financial benefits, for which villagers are grateful.

There have been minor issues of jealousy and conflict between TFCG casual workers and other members of the community. For instance, the widow of a TFCG casual worker had land boundary issues with neighbouring farmers who were angry towards her husband for using his position to illegally sell village tree seedlings to a neighbouring village. This, however, has less to do with her husband's position with TFCG and more to do with his misconduct.

Overall, the impact of PFM on social assets is positive, by developing and providing access to networks, group memberships, relationships of trust, and access to wider institutions of society. Areas where care is needed are in developing the relationship between District and Village and in causing reliance of poorer households on social networks for alternatives to forest products. TFCG must be careful not to take on too much of the work and to allow both parties to take equal responsibility for developing the relationship between District and Village. The reliance of poorer households on

social networks for alternatives to forest products should be addressed either through offering access to forest products or in seeking alternative ways to ensure they obtain these resources.

Financial Assets

Table 6.3 lists the range of Income Generating Activities (IGAs) noted within Lulanda ***and*** Kwezitu Villages. IGAs are separated into those that are customary, innovative, or have ceased since PFM and those that are:

- Directly linked to local forest through forest products and services;
- Indirectly linked to local forest as alternatives to forest products, or are the result of transfer payments made by TFCG to the community for managing and protecting the local forest; and
- Not linked to local forest.

Table 6.3 Range of Income Generating Activities Noted in Lulanda and Kwezitu Villages

Income Generating Activities		Customary	Innovative	Ceased since PFM
Directly Linked to Local Forest	Forest Product Related	Medicinal Plant Collecting.	***Bee Keeping (Modern Hives)***; ***Forest-Based Tourism***; Charging Research Fees; *Butterfly Farming; Allanblackia Seed Collection*.	Traditional Honey Collection; Hunting and trapping of animals for wild meat; Pit-Sawing.
	Forest Service Related	Collection of water for domestic use.	Fish Farming.	Farming undercover of protected forest: bananas, ***bamboo***, and *cardamom*; Clearing of forest for farmland.
Indirectly Linked to Local Forest	Based on Alternatives to Forest Products	Animal Husbandry: Dairy Cows, Goats; Pigs, Poultry, ***Guinea Pigs***; Carpentry; Food crop farming.	Farm Forestry; Brick-Making and house building; Improved Stove Making; *Medicinal Plant Nurseries*.	
	Transfer payment for protecting and managing forest		***Maize Milling Machine***; Savings and Credit Scheme.	
Not Linked to Local Forest		Basket and mat weaving; ***Coffee Farming***; *Tea Farming*; Teahouses; Shops; Professional Positions: School Teacher, Nurse; Tea Picking.		

N.B. Those IGAs printed in *italics* were noted in Kwezitu and not Lulanda; and those in bold italics were found in Lulanda and not Kwezitu.
Source: Authors' Fieldwork, 2005.

Since PFM, income directly from forest resources have been restricted to that produced locally by specialist groups in the community, (For instance, medicinal herbalists and modern beekeepers). In LAFR that are reserved for protection, any fines collected must be remitted to central government, but it is common for local agreements to be made that allow villagers to retain fines locally (URT 2005). In Lulanda fines have not been given as penalties for illegal activities (For instance, polewood collection, and uncontrolled field fires). Instead penalties have been in the form of community service, by repaying debt to community by labouring, such as replanting the forest corridor or planting on forest boundaries.

Hopes for obtaining direct financial benefits from the forest in the future stem from harvesting timber (Lulanda Village Chairman 2005): *"If the District decide to harvest timber in the far future, then a percentage of the money should be left for communal purposes."* There are others who hope to be able to collect polewood in the future. Whether these uses would be possible in reality is debatable, since Lulanda is now primarily a protection LAFR. Forest-based tourism is another hope for the future with tentative networks created between TFCG, the District Tourism Office, and local tourist based businesses (For instance, Fox Farm in Mufindi District), but little action on the ground (Box 6.9).

Box 6.9 Tourism

A nature trail has been developed through Fufu forest patch, with the biological and local names of trees with specific local uses along the path identified and marked. Lulanda villagers along are hopeful that tourists would be encouraged to visit the forests to view fauna and flora. The nearby Mufindi Highland Lodge on Fox Farm offers tourists eight log cabins with activities that include mountain biking, horse riding, walking, bird watching and scenic drives, and could be a possible source of tourists.

Source: Authors' Fieldwork, 2005.

TFCG have facilitated individuals and self-formed groups within the community to develop both customary and innovative sources of income through a variety of Income Generating Activities (IGAs). Facilitation has been in the form of offering advice and expertise directly from TFCG staff or by bringing in specialists from outside the communities to extend knowledge and skills to community members. At the most simple level, the formation of a few initial IGA groups has provided the inspiration and impetus for other community members to form their own range of IGA groups.

Of those IGAs that are innovative and are directly linked to the local forest, fish farming has potential and is proving lucrative for the few that have ponds (Box 6.10). Modern bee keeping (Box 6.11) is still in the early stages with little income having been generated as yet. Medicinal herbalists have suggested that developing medicinal plant nurseries would be of interest to them. This is perhaps an area that TFCG could investigate further.

Box 6.10 Fish Farming

TFCG has supported fish farming as an alternative IGA, aimed at providing an alternative protein source to wild meat. Support has been provided through training, technical advice, and the provision of fingerlings as start up capital. This service has been provided in collaboration with the respective District Fisheries experts.

Source: Authors' Fieldwork, 2005.

Box 6.11 Modern Bee-Keeping

TFCG, in collaboration with the District bee-keeping Officer, provide training to villagers in bee keeping. Training focuses on selection of beehive types, how to construct beehives, selection of area for placing beehives. Promotion of bee keeping is based on a good potential market for bee products and low capital and operational costs. Initially, bee keeping in Lulanda involved only men, but since 2004 women have been involved.

Source: Authors' Fieldwork, 2005.

Of those IGAs that are innovative and are indirectly linked to the local forest as alternatives to forest products, farm forestry (Box 6.12), in the form of woodlots and agroforestry, has been facilitated by TFCG for the longest. For a few of the better-off households these trees form a cash income when sold to others for timber for furniture making or house building. For the majority, these trees are seen as a form of savings and security for times when they may need to harvest and sell timber for cash and as an alternative to strategies used prior to PFM, (For instance, polewood collecting or paying pitsawers for timber from the local forest). Brick making for house building (Box 6.13) has taken off in Lulanda, where approximately a third of houses are made of bricks, and other households aim to have improved houses in the future. Improved stoves are utilised also (Box 6.14).

Box 6.12 Farm Forestry

Over the last 13 years, through the support of TFCG, over 1,000 people have been trained in farm forestry, and villagers and TFCG staff have planted over one million trees. Trees have been planted as a source of building materials, fuelwood, cash income, and as part of a process of restoring forest connectivity. TFCGs training in farm forestry emphasis the practical, focusing on species selection, establishment of tree nurseries, and management of trees.

Source: Authors' Fieldwork, 2005.

Box 6.13 Brick-Making

Almost all households in villages adjacent to the Eastern Arc and Coastal Forests rely on tree poles to build their houses. Approximately 300 building poles are required per two-roomed house that typically last for two to five years. TFCG promotes mud brick making, which can reduce the amount of building poles used by up to 60 per cent. TFCG has provided a number of simple brick making machines. With TFCGs support approximately 100 houses have been built, using mud bricks in Lulanda.

Source: Authors' Fieldwork, 2005.

Box 6.14 Improved Stoves

Almost all households in villages adjacent to the Eastern Arc and Coastal Forests rely on charcoal or firewood for cooking. Traditional three-stone fires are inefficient and the smoke that is generated is damaging to people's eyes and lungs. TFCG has promoted fuel-efficient stoves that can reduce the amount of fuelwood used by 50 per cent. With a simple chimney, the stoves draw smoke away from the eyes and lungs of those cooking or in the home. The stoves are simple to construct, and with TFCGs support, over 200 households now use fuel-efficient stoves in Lulanda. Training on the construction of improved stoves was achieved through study tours to Arusha, where field staff and community members were taught and brought back the knowledge to their community.

Source: Authors' Fieldwork, 2005.

Innovative IGAs that are indirectly linked to local forest as transfer payments from TFCG to the community for conserving forest are the Maize Milling Machine and Savings and Credit Scheme (Box 6.15). The bringing of these benefits is perceived as a reward to the community for protecting and managing the local forest: *"If it wasn't for that forest, we wouldn't have had help starting the Savings and Credit Scheme or had the Maize Milling Machine. Why is it we have these? Because of the forest!"* (Unorio Masonda 2005)

Box 6.15 Savings and Credit Scheme

TFCG organised training in starting and managing a savings and credit scheme. Three credit community groups have been formulated in the three sites of Ambangulu, Mazumbai, and Lulanda, with a total of 389 members (71 Ambangulu, 215 Mazumbai, and 103 Lulanda). The members have contributed more than TShs 5,000,000 and TFCG has contributed approximately TShs 2,860,000.

Source: Authors' Fieldwork, 2005.

A prerequisite of joining the Savings and Credit Scheme is that members who are physically able must work on the forest on a Saturday morning, planting trees on the boundary and forest corridor and clearing firelines. This makes a clear and tangible link between the forest and the bringing of a benefit.

IGAs that have ceased since the introduction of PFM of the local forest, include traditional honey collection and hunting, along with pitsawing that ceased prior to PFM, but since TFCG have been working with the communities. The ceasing of these traditional IGAs has affected individuals who are experts in these areas. Alternatives to these traditional IGAs have been introduced (For instance, the introduction of modern beehives and increased focus on alternative protein sources through fish farming and animal husbandry). It is not always these traditional experts who take up these alternatives, often due to the risk in investing in new technology (Box 6.4). It would be wise for TFCG to foster links with these traditional experts to the alternatives, (For instance, get the traditional honey collector involved in modern bee-keeping as an expert advisor, utilising his skills and knowledge). By fostering links, conflict may be reduced, the alternatives may be more successful, and the experts may maintain their income.

The top three requirements of cash income are to build:

- Human assets through paying for children's Secondary Education;
- Physical assets through paying for the building of improved brick housing;
- Financial assets, through paying for initiation and maintenance costs of IGAs.

The building of financial assets allows for the improvement in human and physical assets. In Lulanda, there has been an observable improvement in housing and an increasing number of children going to Secondary School. Villagers have attributed these two improvements primarily to the introduction of the Savings and Credit Scheme (Box 6.16), which has given them the means to initiate innovative IGAs and make and save more money.

Overall the greatest positive influences of PFM on financial assets in Lulanda are indirect. For instance, the Savings and Credit Scheme introduced by TFCG as a

transfer payment to the community for protecting the forest and trees planted on farms as a source of savings and 'pension' for the future. Direct influences are minor and specific to specialist users.

Physical Assets
The impact of PFM on basic infrastructure is in terms of improved housing through an increase in financial assets; and improved stoves through skill and knowledge building.

6.1.2 Kwezitu Forest

Natural Assets
Kwezitu Forest is closed to access, but the management plan will be reviewed in a couple of years and there are plans to permit access to medicinal herbalists for the collection of medicinal plants and perhaps some firewood collection. Farmers on the boundary of the forest lost land in the initiation of the VLFR and there were a couple of farmers who lost land from inside the forest reserve (Box 6.16 & 6.17).

Box 6.16

Isaac Kajembe of Gonja, a sub-village of Kwezitu, lost half an acre of bananas that were incorporated inside the forest boundary. He was away from the area when the forest boundary was agreed and he was initially angry that he was not consulted or compensated for his banana crop. After numerous consultations with VEC and TFCG, he eventually decided to leave matters lie and is supportive of the forest.

Source: Authors' Fieldwork, 2005.

Box 6.17

Mzee Yohana of Mkalamo, a sub-village of Kwezitu, lost one and a half acres of cardamom in the marking of the forest boundary. He had been living in Bumbuli, Lushoto, but moved to Kwezitu in 1998 to utilise the land that had belonged to his father. In 1999 the forest boundary was marked and he was told not to farm there anymore. It was his only land, so he must rent land from others now. Initially his son was angry and uprooted trees on the boundary, until VEC and the Village Government intervened.

Source: Authors' Fieldwork, 2005.

Mkalamo sub-villagers' only water source comes from the forest and it is a regularly stated benefit of maintaining and improving the forest habitat community wide: *"If you don't manage the forest, then water sources can dry up. If you were to destroy forest, you would then see the importance of forest."* Those with fishponds note that the forest maintains streams permanently and so allows them to continue with that activity. Butterfly farmers are aware that conserving the forest, creates the habitat for butterflies.

At present, access to forest products within Kwezitu Forest is denied. This has impacted Mkalamo sub-villagers the most, as prior to the closure of the forest they collected firewood from the area. The impact appears minimal however, as there are other forest resources in the area, which villagers have access too (For instance,

forests on public lands and more controversially Kambai FR and Derema proposed FR).

Human Assets

Throughout the process of planning and implementing PFM and in supporting the development of IGAs, TFCG have, in much the same way as in Lulanda, supported individuals (from school children to women and elders) in the community to develop their knowledge, experience, and skills through access to practical hands-on experience, seminars, training, exchange visits, and the use of media.

Kwezitu villagers' requested TFCGs assistance in the PFM process and are grateful for TFCGs support in making them more knowledgeable and skillful. This knowledge has led to some villagers becoming aware of other forested areas that could benefit from the protection of VLFR status, namely an area of forest on public land adjacent to Kwezitu VLFR and a tree covered ridge top that extends from the VLFR. It is important to note, however, that having the knowledge does not seem to convert into the skill and momentum to move to action. Villagers still believe they require TFCGs facilitation in this.

Social Assets

TFCG-facilitated CBFM in Kwezitu, like in Lulanda, has supported the development of VECs and IGA groups, introduced and enabled access to external institutions to the community (For instance, Savings and Credit Scheme, District Natural Resource Office), and enabled villagers access to community networks through exchange visits, and support for Local Area Conservation Networks (LACNs). Overall the impact of TFCG-facilitated PFM on social assets in Kwezitu is positive.

Financial Assets

Since the forest is closed to all activities, no direct financial benefits are obtained from forest. Should illegal activities occur then fines could be given and these would be paid to and kept by designated forest guards. As yet no fines have been given, and any illegalities have been dealt with by warnings.

TFCG have facilitated individuals and self-formed groups within the communities to develop both customary and innovative sources of income through a variety of Income Generating Activities (IGAs). Facilitation has been in the form of offering advice and expertise directly from TFCG staff or by bringing in specialists from outside the communities to extend knowledge and skills to community members. Table 6.1 shows the range of Income Generating Activities noted within Kwezitu.

The innovative IGAs are all a result of TFCG facilitation, apart from medicinal plant nurseries (Box 6.18), which some herbalists have initiated of their own accord or have ideas to in the future. This is an area that TFCG should investigate further.

Box 6.18 Medicinal Plant Nurseries

In Antakae, a sub-village of Kwezitu, there are four medicinal herbalists who are experimenting with medicinal plant nurseries around their homes. The impetus to start nurseries came when the boundaries were marked for Derema proposed NFR and they realised the forest would be closed. They would like assistance with their tree nursery.

Source: Authors' Fieldwork, 2005.

Of those IGAs that are innovative and are directly linked to the local forest, Butterfly farming which is piloted in East Usambara is proving to be a high value IGA (Box 19), but as a pilot project it is as yet not far reaching in its impact geographically. Stewart Shetui of Gonja, a sub-village of Kwezitu collects butterflies from around the forested ridge above his fields. He has three small butterfly nets and two large. Small nets cost TShs 3,700 and large nets approximately TShs 11,100. Nets were initially bought on credit from the project. It takes him approximately three hours to feed butterflies each morning. There are 14 people in his group, each with their own nets and each with one male and one female butterfly. Any extra butterflies are sold or the strongest two are kept and the rest are released into wild. He can go a year without needing to collect any butterflies from outside the group. Males are shared between group members, which is a security benefit of being part of a group. The group sends pupae to market each month and makes between 50,000 and 150,000 TShs each month.

Box 6.19 Butterfly Farming

The Amani Butterfly Project was initiated as a pilot project in partnership with TFCG in 2002. Pupae are sold for live butterfly exhibits in Europe and North America. Depending on species, each pupa is worth between US$1.00 and US$2.50, with 61 per cent of earnings going directly to butterfly farmers, 7 per cent to community development, 25 per cent to project running costs, and 7 per cent to the Tanzania Wildlife Division.

There are around 250 farmers, based in four villages in East Usambara who are butterfly farming. Butterfly farmers' farm individually or in small groups of up to three households, but sell pupae at market as part of a larger group of between 10 to 30 households. Farmers' start by catching female butterflies from the wild and placing them in shade net cages with host plants grown from forest-sourced seed in nurseries. Once the eggs hatch from the first generation, farmers place the small larvae on host plants until they pupate. Farmers' sell pupae to the project, and retain some pupae from each farmed generation so that they seldom need to catch more female butterflies from the wild, once a captive population has begun. Male butterflies are captured from the wild periodically, to maintain genetic diversity in the captive populations.

Source: www.amanibutterflyproject.org.

Butterfly farming is proving to be the highest income generating activity in the area (Christopher Luka and Anna Christopher : Vungwe, a sub-village of Kwezitu; 2005): *"Our greatest income comes from butterfly farming, followed by food crop farming, and the tea house."* Elias Shekegenda of Vungwe, notes that his income from butterfly farming is greater than that from cardamom. Others have heard that butterflies make more money than cows. Salehe Amiri says that: *"It is only because of butterflies that he has been able to buy a plot of land and build a brick house for his family."* Those that have seen the income generated by butterfly farming are just waiting for the chance to start themselves, John Elias Mzalia of Antakae summed it up: *"I am dying to join the butterfly project. I am very sorry not to have started. Even if there was an entrance fee of 50,000 TShs, I would pay it!"*

Farmers are dependent upon the health of the forest as a source of adult butterflies to start their captive populations and as a continuing source of seeds for their host plant nurseries (Salehe Amiri: Antakae, a sub-village of Kwezitu; 2005):

"Conserving forests, protects the habitat of the butterflies. Without the forest, you would not see many of the species here. If you cut the forest, you won't see butterflies on the path. Two years ago the Tea Company clear felled an area of forest near Antakae for firewood. Now we see few butterflies here. We must go to Vungwe, which is closer to the forest and collect from along the roadside there."

There are by-laws preventing people from destroying the forest and a condition of joining the Butterfly project is that (Elias Thomas Muhoado: Mkalamo, a sub-village of Kwezitu; 2005):*"If you see anyone breaking the law and entering the forest illegally, then you must report the incidence to the VEC. Up to now there have been no incidences."*

Fish farming has potential for those that have ponds. Allanblackia nut collecting (Box 6.20) is still in the early stages with little income having been generated as yet. Kwezitu villagers have high hopes for forest-based tourism in the future. In nearby Amani, forest-based tourism has been attempted since the late 1990s with little impact. Unless tourism develops in Amani, it is unlikely that tourism will develop in Kwezitu, which has no permanent road or public transport. Despite the lack of conventional tourists however, there have been a series of visits from donors, researchers, government officials, and NGO personnel interested in seeing CBFM first hand. Each of these visitors pays 10,000 TShs to visit the forest and the money is divided up as follows: 35 per cent to the Village Development Committee (VDC); 35 percent to VEC for management activities; and 30 percent to forest guards. So far the VDC have used money to pay for stationary and VEC has used money to pay members travelling allowances, for instance, when meeting with Local Area Conservation Networks.

Box 6.20 Allanblackia Nut Collecting

TFCG are one of a number of partners with Unilever in the Novella Project, established to supply Allanblackia oil. TFCGs specific role in the project is to ensure environmental sustainability and to assist the communities to harvest according to good practices.

The seeds from Allanblackia trees contain fat that is used occasionally within communities. Research by Unilever suggests that in addition to the use of Allanblackia oil for the frying of African foods, the oil could also be used in margarine and other spreads world-wide.

The first pilot phase started in January 2004 and farmers from Kwezitu were amongst 2000 farmers who were registered as collectors with Allanblackia trees on their farmland and who sold nuts for processing.

A baseline survey undertaken by the Novella Project in 2003 suggests that farmers could earn an annual income of between TShs 182,000 and 480,000, contributing to household income by more than 40 per cent of annual income earned within three months of the year. This income would be expected to increase ten-fold by 2015 when domesticated plants start fruiting.

A central tree nursery with about 200,000 is being cultivated and farming groups are taking initiatives to develop their own nurseries with about 7000 seedlings.

In Kwezitu, the financial benefits are as yet small and for few, but the seed has been planted and there is hope for future financial returns.

Source: www.undp.org/business/gsb *and Authors' Fieldwork, 2005.*

Of those IGAs that are innovative and are indirectly linked to the local forest as alternatives to forest products, farm forestry, in the form of woodlots and agroforestry, has been facilitated by TFCG for the longest. For a few of the better-off households these trees form a cash income when sold to others for timber for furniture making or house building. For the majority, these trees are seen as savings and security for times where they may need to harvest and sell timber for money and as an alternative to strategies prior to PFM, (For instance, polewood collecting or paying pitsawers for timber from the local forest). In Kwezitu, brick making hasn't taken off as much as in Lulanda. The majority of houses are still made using polewood, probably because there are alternative sources of building poles in East Usambara, there being forests on public lands that are not under a management regime and the Catchment forests nearby that are easily accessible (Elias Shekegenda, 2005):

> *"The village government is very strict and there are many eyes. People are afraid to enter Kwezitu forest. It would be easier to enter Kambai (NFR), because it is a larger area and there are only three guards and a high population."*

Similarly, improved stove making is not as popular in Kwezitu as in Lulanda, due to their being plenty of forested areas from where firewood can be obtained.

In Kwezitu, where the Savings and Credit Scheme was about to be introduced, community members were aware that they were being positively favoured because they were protecting and managing their local forest (Mzee 2005): *"Experts are coming to our village because they are directed here by TFCG. TFCG is here because of our forest. What will happen if we cut down our forest and plant coffee? Will those experts still come?"*

It is hoped that this link between the forest conservation and the bringing of benefits to the community will be emphasised and strengthened, as is the case in Lulanda. It is also suggested that similar links are investigated and introduced with the Butterfly Project. In 2004, when the researchers first visited Kwezitu, some Butterfly groups did not realise that the Butterfly Project was even linked to TFCG. In 2005 it was evident that this link had clearly been emphasised. Now a concerted effort should be made to link it even more to protecting the forest as a habitat of the butterflies.

Physical Assets

The impact of PFM on basic infrastructure is as in Lulanda, in terms of improved housing through an increase in financial assets; and improved stoves through skill and knowledge building.

6.2 Discussion

The impact of TFCG-facilitated PFM on local forest-based livelihoods is both direct through support for the PFM process and indirect through support of forest-linked IGAs and the provision of transfer payments (Tables 6.1 and 6.2).

In Lulanda, at community level, TFCG-facilitated PFM (specifically JFM) has had a direct and positive impact on human, natural and social livelihood assets (Table 6.1). Presently, the primary benefit of protecting the forest is in maintaining and improving medicinal herbalists' access to medicinal plants, so that community access to herbal medicine and the traditional health services upon which they depend is maintained (Table 6.1). The primary focus of the community in managing the forest is as a 'forest

of medicine'. Direct positive impacts are differentiated at household level, with better-off households who have planted tree crops and those households who have members who are involved in specific forest user groups, (For instance, medicinal herbalists and modern beekeepers), benefiting from improvements in their human, natural, social and financial assets (Table 6.1).

At community level, direct negative impacts are to human and natural livelihood assets, with reduced access to the forest and forest products, potentially leading to forest knowledge becoming specialised (Table 6.1). In the early stages of PFM, the forest was 'closed' and access to forest land and forest products was prohibited. The majority of households natural assets were negatively impacted either through loss of land in boundary marking or change in land use, or through restricted access to forest products (Table 6.1). Human assets such as the ability to labour and ability to develop skills and knowledge are jeopardised, when those households with land adjacent to the forest, spend a disproportionate time protecting crops from forest fauna rather than on farming or attending school (Table 6.1). The financial assets of households, that prior to PFM, had members that hunted or collected honey using traditional methods are impacted negatively (Table 6.1). Poorer households' natural and social livelihood assets are hit the hardest, particularly in relation to restricted forest firewood collection (Table 6.1). The result is that poorer households become more reliant on their social networks of relatives and neighbours to obtain alternatives to forest firewood (Table 6.1). This situation has led to access to natural assets slowly evolving, with an experiment in allowing poorer household members access to forest firewood, once per month. In this way, the forest, under PFM, can be seen to be re-emerging, as was customary, as much more than a natural asset, to a social asset that provides security to poorer households in times of seasonal and environmental strain (Table 6.1). Facilitators and community members alike, are apprehensive about allowing access to firewood, fearing that it will be a disincentive to farm forestry initiatives, and difficult to monitor sustainability of use. This may be so, and the challenge lies in investigating ways to encourage members of poorer households to become more involved in IGAs based on alternatives to forest. Forest managers must also develop systems to monitor the sustainability of use, should access to forest products be permitted.

TFCG has attempted to counterbalance some of these negative impacts of PFM through transfer payments (For instance, savings and credit scheme) and support of IGAs. Support for forest-based IGAs, (For instance, farm forestry and modern bee keeping), aims to counterbalance the negative impact of PFM on natural assets specifically (Table 6.1). In general, when PFM is combined with transfer payments and support for IGAs then the impact on livelihood assets is positive, with improved access to natural, social, human, physical, and financial livelihood assets for the better-off households in particular, but with much less positive affect on poorer households (Table 6.1). The poorer households are much less willing to risk the time or money to be involved in innovative IGAs, and so as demonstrated in the case of firewood must rely more heavily on their social networks of friends and family to secure alternatives to forest products.

Innovative IGAs that appear to be in need of further development in Lulanda, are modern bee-keeping, along with experimenting with commercial medicinal plant

nurseries and forest-based tourism. It is suggested that TFCG seek further support in developing these products and their markets.

In comparison to Lulanda, TFCG-facilitated PFM (specifically CBFM) in Kwezitu has had less direct positive or negative impact on local forest-based livelihoods (Table 6.2). This is due to the forest being small in area, already heavily degraded and there being alternative forest resources in the area in the form of forests on public lands, and more controversially *de facto* open access National Forest Reserves (NFR). The most prominent impacts have been to natural assets, particularly related to forest services. Positive impacts are for one sub-village in particular through maintaining and improving the quantity and quality of the forest water source (Table 6.2). Negative impacts are for individuals who lost land from areas inside the forest and on the forest boundary (Table 6.2).

With TFCGs complementary support of IGAs and provision of transfer payments the indirect impact of PFM, in Kwezitu, is positive on human, social, financial, and physical assets, with the financial assets being impacted most positively (Table 6.2). This is down to one innovative IGA, butterfly farming. Put simply, whereas Lulanda is presently the 'forest of medicine', Kwezitu is the 'forest of butterflies'. In 2004, one of the authors visited Kwezitu and was surprised to find that butterfly farmers had not made a clear link between the Amani Butterfly Project, and TFCG and the protection of the forest. In 2005 it was clear that the link between the two had been made clearer. It is now suggested that somehow the link be made clearer through action. Those that are caught indulging in illegal forest activities are not permitted to be involved in butterfly farming, but perhaps, better still butterfly farmers should be directly involved in forest management activities as a prerequisite of being members of the project. Similarly, it is recommended that care be taken in linking forest protection with the provision of the Savings and Credit Scheme, in much the same way as it has been in Lulanda.

In summary, in forests of high biodiversity, in the initiation of PFM, whether under JFM or CBFM, forests are often 'closed', prohibiting access to forest resources in order to allow for regeneration of forest fauna and flora, thereby increasing natural assets in the long-term. In the short-term, the impact of 'closing' the forest is negative on natural, social and financial livelihood assets, with poorer household members, members of specialised forest user groups, and individuals that have lost land in boundary marking, initially the most negatively impacted. Members of better-off households are less vulnerable, already having alternatives to forest products, alternative livelihood strategies, and alternative farmland, and readily able to take the risks required in taking advantage of transfer payments and innovative IGAs that may be offered in conjunction with PFM.

Over time, as facilitators and managers learn progressively through the PFM process, the overall impact of PFM on human, natural, social, and financial livelihood assets can become positive. The forest may return to its customary role of acting as a natural and social asset for poorer households who may be given the opportunity of obtaining occasional permits to collect forest firewood. Traditional forest users may be permitted access to the forest, regaining access to natural and financial assets for themselves, and in the case of medicinal herbalists specifically, maintaining human assets for the community as a whole. Changes in the use of land adjacent to forest

reserves, to more permanent tree crops, improve households' access to natural and financial assets. Negative impacts to human and natural assets may become more acute in relation to an increase in forest fauna attacking crops, causing increased time to be spent in protecting crops, leaving less time for other activities. Participating in the PFM process alone, builds community and households' human and social assets, by providing an arena through which skills and knowledge, relationships of trust, and improved village governance is developed. The introduction of transfer payments and IGAs in conjunction with the PFM process increases the positive impact on all livelihood assets, and is felt community wide.

The impact of PFM on local forest-based livelihood changes over time. Initial negative impacts, on specific members of the community, are minimised over the long term, when site-specific, progressive changes are made to the PFM process. PFM directly contributes to both maintaining and improving the human, natural, social, and financial livelihood assets that forests have offered forest-adjacent communities since before the colonial era. When PFM is combined with transfer payments and support for IGAs, then the contribution to livelihood assets can be increased, also adding to physical assets that are not met, in the high biodiversity forests, by PFM.

6.3 Conclusion

The impact of TFCG-facilitated PFM, on local forest-based livelihoods, in the high biodiversity forests of the Eastern Arc Mountains of Tanzania, has overall been positive, irrespective of whether PFM is under CBFM or JFM. Forests that are managed under participatory regimes have at the very minimum contributed to forest-based poverty avoidance, when access to human, natural, social, and financial livelihood assets have been maintained or improved. When support for the PFM process is combined with support for the development of forest-linked IGAs and their markets, and the provision of transfer payments for forest-local people managing the forest, then PFM has the potential to contribute to future forest-based poverty elimination.

The challenge for managers and facilitators of PFM in high biodiversity forests, is to encourage the continual re-negotiation of roles, and to:

- Provide support in setting up and monitoring systems that maintain the role of forest as a social asset in times of seasonal and environmental strain;
- Focus specifically on supporting poorer households and specific forest user groups who are initially negatively impacted by PFM, to be involved in IGAs, and in particular those that provide alternatives to forest products and services;
- Link support for IGAs and the provision of transfer payments directly to the management of the forest; and
- Seek partnerships with projects, which develop innovative sustainable forest-based products, or alternatives to forest products, and the markets for those products.

APPENDICES

Appendix 1.
Workshop: An Initial Participatory Review of TFCG-Facilitated PFM

The aim of the workshop was to make an initial review of TFCG-facilitated PFM prior to reviewing PFM in the field. The objectives of the workshop were to gain an overview of PFM progress and issues with TFCG Field Officers, whilst developing the methodology for the fieldwork. The workshop was held at the TFCG Office in Dar es Salaam from 21 June to 25 June 2004, and led by Kerry Woodcock. Findings are incorporated into the report, and key findings are summarised here in note form.

Workshop Outline

Day 1: TFCG meeting and Stakeholder Power Analysis.

Day 2: Stakeholder Power Analysis

Day 3: Investigating Process through Conflict Analysis

Day 4: Investigating Process through Conflict Analysis

Day 5: Analysis of Impacts

Workshop Plan

DAY 1			Mon 21 June 2004
TIME	SESSION	METHOD	OUTPUTS
1130 – 1300	Introduction; Review Overview; Workshop Overview. Intro. To Stakeholder Power Analysis. Identify stakeholders and stakeholder groups;	Brainstorming; Stakeholders within a community exercise (p52); Stakeholder dependency and power diagram (p47).	List of stakeholders and stakeholder groups for each forest case study.
1300 – 1400	Lunch		
1400 –1500	Categorise stakeholders; How are they represented? Institutions and Organisations?	Diagram of concentric circles of primary and secondary stakeholders. Organograms and decision making flow diagrams: VEC, District, FBD, TFCG, others inside and outside communities.	Diagram of primary and secondary stakeholders for each forest case study.
1500 – 1620	Investigate stakeholders' positions, interests and needs	Positions, interests and needs chart (p66)	Charts for a couple of forest case studies.
1620 – 1630	Close		Homework: complete remaining

			charts.

DAY 2			Tue 22 June 2004
TIME	SESSION	METHOD	OUTPUTS
0930 –1100	Identify patterns of interaction between stakeholders - 3Rs	3Rs Matrix (p71)	Matrix for a couple of forest case studies
1100 – 1130	Break and preparation		
1130 – 1300	Context of interaction between stakeholders - relationships	Stakeholders' relationship map or matrix (p71); see IIED notes	Maps or matrix for a couple of forest case studies
1300 – 1400	Lunch		
1400 –1530	Assess stakeholder power and potential	Sources of Power Table (p54); Stakeholder dependency and power diagram (p47).	Tables or Diagrams for a couple of forest case studies
1530 – 1620	Conclusions to stakeholder power analysis	Drawing together of case study files and presentation of case studies	Either presentation of a stakeholder power analysis for a forest case study, or extra time to work together on analysing further case studies.
1620 –1630	Close		Homework: complete tables, maps and diagrams for each forest case study.

DAY 3			Wed 23 June 2004
TIME	SESSION	METHOD	OUTPUTS
0930 –1100	Intro. to process and conflict analysis Institutional arrangements and relationships. How are stakeholders and stakeholder groups represented? Institutions and Organisations?	Organograms and decision making flow diagrams: VEC, District, FBD, TFCG, others inside and outside communities.	Diagrams of what should happen and what is actually happening for each forest case study.
1100 – 1130	Break and preparation		
1130 – 1300	Issues that lead to conflict in relation to participation of stakeholder groups in VECs.	Issues Analysis (p39); 3 key mechanisms questions.	Actions identified for successful participation – representation and responsiveness
1300 – 1400	Lunch		
1400 –1500	Identifying Costs and Benefits of PFM	Modify gender analysis matrix (p92)	Costs and benefits of PFM noted
1500 – 1620	Role and impacts of policy and legislation on PFM	Discussion on policies and legislation that support PFM and those	

		that do not.(p96)	
1620 –1630	Close		

DAY 4			Thurs 24 June 2004
TIME	SESSION	METHOD	OUTPUTS
0930 –1100	Analysis of PLANNING & MANAGEMENT process and mechanisms	Time Line of process (p30); or Issues Analysis (p39); 3 key mechanisms questions in relation to agreements, regulations.	Actions identified for successful planning and management – efficiency and effectiveness
1100 – 1130	Break and preparation		
1130 – 1300	Issues that lead to conflict in relation to MONEY and INFORMATION HANDLING within and between institutions, e.g. VECs, District.	Issues Analysis (p39); 3 key mechanisms questions	Actions identified for successful money and information handling – transparency and accountability.
1300 – 1400	Lunch		
1400 -1530	Identify range of strategies used to manage conflicts and how they have changed over time.	Conflict management time line (p108)	
1530 – 1620	Analysis of CONFLICT ANTICIPATION and MANAGEMENT within and between institutions	Discuss strengths and limitations of different systems of conflict management (p172, vol.1); 3 key mechanisms questions	
1620 -1630	Close		

DAY 5			Fri 25 June 2004
TIME	SESSION	METHOD	OUTPUTS
0930 -1100	Identify key progress and issues for each forest case study	Individual Field Officers review forest case study files and draw up Issues Analysis table (p39) to present to group.	
1100 – 1130	Break		
1130 – 1300	Presentations	Each Field Officer gives a five minute presentation of key progress and issues for their forest case studies; the group help develop fieldwork plan for each case study.	Fieldwork plan developed for each forest case study; what issues need to be investigated further at each site.
1300 – 1400	CLOSE		

N.B. Workshop material adapted from Means et al, 2002. (Pages in the table refer to Means et al, 2002)

Notes on Key Findings from Workshop

Key lessons learnt in analysing the progress and issues in the PFM process that were highlighted in the workshop were:

- To include all forest-adjacent farmers in boundary marking to prevent on-going boundary disputes;
- To clearly identify and include all stakeholders in PFM from inception to prevent unnecessary conflict between groups;
- To include all sub-villages in making management decisions, but only sub-villages adjacent to the forest in practical management;
- To ensure that roles are clearly identified and negotiated, as village leaders either tended to take over the role of VEC, or at the other end of the continuum, failed to support VEC;
- To raise awareness, build better relationships between TFCG and government staff, and negotiate roles to prevent jealousy and mistrust; and
- To be aware of changes in policy that effect village by-laws and management plans, and assist villagers to adjust plans accordingly.

Appendix 2.

Lulanda Village: Number and Percentage of Households by Sub-Village and Household Head

		Number of Heads of Household who are:					
Name of Sub-Village	Number of Households	Men	Women	Widows	Widowers	Elders	Disabled
Mtelemko	76	50	17	5	0	3	1
Ndolela	40	23	10	3	1	3	0
Lugangada	58	36	14	3	1	4	0
Chamguhu	71	41	16	8	0	5	1
Total Number of Households	245	150	57	19	2	15	2
Percentage of Households	100	61.2	23.2	7.7	0.9	6.1	0.9

Source: Village Council for District Council, 2003.

Lulanda Village: Number and Percentage of Households by Asset Group

	Asset Group			
Name of Sub-Village	Poorer	Middle	Better-Off	Total Number of Households
Mtelemko	2	71	3	76
Ndolela	12	22	6	40
Lugangada	1	29	28	58
Chamguhu	10	38	25	71
Total Number of Households	25	160	60	246
Percentage of Households	10.2	65.3	24.5	100

Source: Village Council for District Council, 2003.

Number and Percentage of Households Interviewed in Lulanda by Asset Group

	Asset Group			
Name of Sub-Village	Poorer	Middle	Better-Off	Total Number of Households Interviewed
Mtelemko	4	1	1	6
Ndolela	4	0	2	6
Lugangada	1	2	2	5
Chamguhu	2	4	2	8
Total Number of Households Interviewed	11	7	7	25
Percentage of Households Interviewed	44	4.38	11.67	9.84

Source: Authors' Fieldwork, 2005.

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