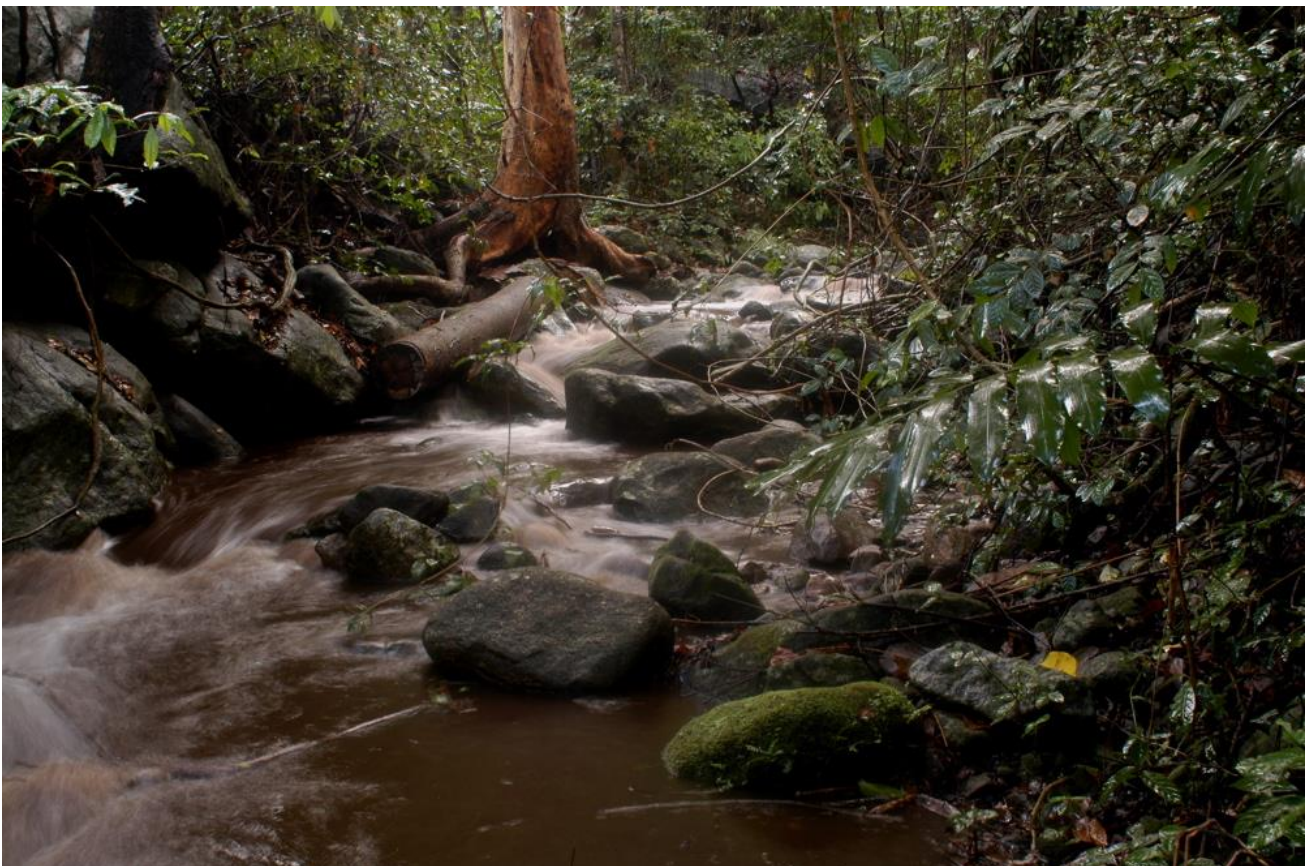




TFCG Technical Paper 43

An analysis of the ecological and financial sustainability of natural forest management in Tanzania

**Dar es Salaam
November 2015**



© Tanzania Forest Conservation Group

Cover photograph by Michele Menegon

Suggested citation:

TFCG. 2015 An analysis of the ecological and financial sustainability of natural forest management in Tanzania. TFCG Technical Paper 43. Pp 1 - 49.

Tanzania Forest Conservation Group

The Tanzania Forest Conservation Group (TFCG) is a Tanzanian non-governmental organization that has been promoting the conservation of Tanzania's forests since 1985. TFCG's mission 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, cooperation and partnership.

TFCG supports field-based projects promoting participatory forest management, environmental education, community development, advocacy and research in the Eastern Arc Mountain and Coastal Forests. To find out more about TFCG please visit our website <http://www.tfcg.org>.

Forest Justice in Tanzania

Forest Justice in Tanzania (FJT) is an advocacy initiative that aims to promote improved governance and increased accountability in Tanzania's forest sector. The initiative is a partnership between the Community Forest Conservation Network of Tanzania, known as MJUMITA and the Tanzania Forest Conservation Group (TFCG). The project is financed by DfID through the Accountability in Tanzania programme (AcT). For more information about the project, please visit: <http://www.tfcg.org/ForestJusticeTanzania.html>.

Executive Summary

This study looks at the financial and ecological sustainability of natural forest management in Tanzania with a view to identifying structural challenges in the sector that are contributing to current, high rates of deforestation and concomitant economic losses. The study presents recommendations intended to achieve more ecologically and economically sustainable forest management in Tanzania.

The study was undertaken as part of the Forest Justice in Tanzania initiative, a project supported by the Accountability in Tanzania programme and implemented through a partnership between MJUMITA and TFCG.

Forests and deforestation in Tanzania

According to the National Forest Resources Monitoring and Assessment of the Tanzania Mainland (NAFORMA, 2015), Tanzania is endowed with between 33.7 and 48.1 million hectares (ha) of forest and woodlands (55 % of the total land area of Tanzania)¹. Based on the NAFORMA inventory data, a large proportion of the forest area (92%) is occupied by woodlands (44.7 million ha) whilst the remaining 8% comprises mangrove forests, montane forests, coastal forests and forest plantations (softwood and hardwood) (NAFORMA, 2015).

Natural forests and woodlands in Tanzania provide important ecological services including soil conservation; sequestration and storage of carbon from the atmosphere; conservation of forested watershed areas supplying water to downstream users; and maintaining important habitats for wildlife as well as other biodiversity resources. Tanzania's forests have exceptional biodiversity values including 128 vertebrate species endemic to Tanzania's Eastern Arc Mountains (Rovero *et al.* 2014).

The area of annual forest loss between 1995 and 2010 is estimated at 372,816 ha (NAFORMA 2015). This gives an annual deforestation rate of 0.8% or 1.1% depending on which forest area figure is used². This is equivalent to over two and half times the area of Dar es Salaam Region being cleared every year. Published NAFORMA data does not distinguish between deforestation rates inside and outside of reserves. Other studies indicate that deforestation is occurring within reserves at a lower rate than outside of reserves (e.g. Godoy *et al.* 2011).

The NAFORMA report (2015) estimates that the annual loss of wood on the mainland is 62.3 million cubic meters (m³) year⁻¹ whilst the annual allowable cut from forests and woodlands is only 42.8 million m³ year⁻¹. This implies a wood deficit of about 19.5 million m³ annually.

According to UNEP (2015) a cost-benefit analysis found that the present value of net economic losses from deforestation and forest degradation to the Tanzanian economy over the 20 years between 2013–2033 is US\$ 171 million for values that are captured by the system of national accounts (mainly timber); or US\$ 3.5 billion if other forest ecosystem services are considered.

In order to improve forest protection and management on the mainland, the government transferred responsibility for the management of Central Government Forest Reserves and forests on general land from the Forestry and Beekeeping Division (FBD) to the Tanzania Forest Services Agency (TFS), a newly established Executive Agency, through the TFS establishment Order of 2010 (URT,

¹ NAFORMA (2015) reports two different estimates for the area of forest and woodland in Tanzania. NAFORMA's land cover data based on Landsat imagery found there to be 33,799,534 ha of forest and woodland in Tanzania, whilst the inventory data found there to be 48.1 million hectares.

² See foot note 1.

2010). According to the TFS Framework Document, one of TFS's objectives is 'Stable ecosystem and biological diversity maintained.'

This study highlights issues in the forestry sector that are affecting the maintenance of stable ecosystem services including biodiversity; and provides recommendations intended to enhance the ecological and financial sustainability of the sector.

According to UNEP (2015) it is economically rational for the URT to invest in conserving forest and woodland resources by directly tackling the direct and underlying drivers of deforestation and forest degradation including expansion of agricultural crop fields into forest areas; illegal logging; uncontrolled/unsustainable charcoal production; uncontrolled livestock numbers and grazing in protected forest areas. Addressing the drivers of deforestation and forest degradation will shift the nation towards a more sustainable economic model that is more effective in reducing poverty.

Objectives of the study

The study assesses the ecological and financial sustainability of natural forest management in Tanzania.

The study focuses on six themes: revenues, expenditure, forest condition, monitoring, joint forest management and coordination between local and central government.

Methods

The report draws upon information from published literature including publicly available Government documents, reports and presentations; and interviews with stakeholders. Stakeholder consultation was carried out in Handeni, Korogwe, Kilosa, Kilwa, and Rufiji Districts. Stakeholders who were consulted include TFS Zonal and District managers and staff; and District Council officers as well as senior staff from the Forestry and Beekeeping Division.

Results

Revenues

Forestry sector revenue collected by FBD (up to 2011/12) and then TFS (from 2012/13-) has increased from TZS 10.9 billion collected by FBD in 2005/06 (Mgoo, 2014) to TZS 75 billion collected by TFS in 2014/15 with a projected revenue for 2015/16 of TZS 87 billion (TFS, 2015).

Plantations provide > 50 % of TFS's revenues. Between 2012/13 and 2013/14, plantations accounted for 64.5% and 56% of revenues respectively. In 2015/16 plantations are projected to contribute 58% of revenue (TFS, 2015) with the remainder coming from natural forests.

TFS (2015) indicates that royalties from the sale of trees for timber and for charcoal are the most significant sources of revenue from natural forests.

Some of the challenges around revenue collection identified by the study include the following:

- Permits to harvest forest produce are being issued in the absence of forest management plans.
- Revenue targets are not based on forest reserve management plans nor assessments of the available forest resource within any particular district or zone. The risk with this approach is that it drives an annual increase in harvesting without considering sustainability and the available resource.

- TFS currently collects revenue from forest produce harvested from village lands although it has no mandate or mechanism to re-invest in the management of village land forests.
- TFS are allocating TZS 25 billion to the Treasury for use on other sectors whilst funds are still needed to achieve TFS's own goal and objectives.
- A rough comparison between GoT data on urban charcoal demand and projected revenues from royalties suggests that royalties are being paid on less than 10 % of charcoal destined for urban markets. This represents a significant shortfall in revenue collection and is likely to distort the overall valuation of the forestry sector and of natural forests specifically.
- The system of national accounts only includes a small fraction of the value of the forestry sector.

Expenditure

Funds released to FBD (2005/6 to 2009/10) and then TFS (2011/12 -) have increased from TZS 5.6 billion in 2005/6 to TZS 57.9 billion in 2013/15 (Mgoo, 2014).

In terms of expenditure on natural forest management, TFS has prioritized investment in Forest Reserve boundary surveying, clearing and marking; and conducting an assessment of the reserves under its control. So far more 13,238 km of reserve boundary have been re-surveyed. TFS has also invested in law enforcement actions including evictions of farmers and charcoal producers operating inside Central Government Forest Reserves.

In the 2015/16 TFS business plan, expenditure on Central Government Forest Reserve management in natural forests is approximately TZS 463 / ha (US\$ 0.22 / ha). This includes continued investment in law enforcement and boundary marking. TFS are also planning to develop management plans for 20 reserves; and to conduct forest resource assessments.

Per hectare expenditure on natural forest management is 2.6% of the US\$ 8.30 that reserve managers stated that they needed (VTA, 2014); and 2.8% of the amount that TANAPA invest per hectare in the management of National Parks.

Per hectare expenditure on natural forest management is significantly lower than investment in plantation management. TFS plan to spend TZS 35,846 / ha of plantation or TZS 111,346 / ha of planted area) compared with the TZS 463 / ha of natural forest reserve.

Forest condition

The NAFORMA forest change analysis; other published forest change analyses; and stakeholder perceptions in the Districts visited by the author point to widespread deforestation and forest degradation in Central Government Forest Reserves; Local Authority Forest Reserves and village forests. In Handeni, Korogwe, Kilwa, Liwale and Tunduru Districts charcoal production and timber harvesting were reported to be continuing uncontrolled across all types of forests. Agricultural encroachment and grazing were also reported to be significant threats in the Southern Zone.

Monitoring

Monitoring is an essential part of good governance. Monitoring data provides a basis for assessing performance relative to targets. URT 2010 indicates that the development of monitoring and evaluation systems is amongst the planned activities for TFS; and states that TFS HQ is responsible for overall monitoring. Currently monitoring is activity and output based on the assumption that if the

planned conservation activities are implemented TFS will attain its objectives and established targets. Monitoring of revenues and expenditures is also in place. However at a national level there is no publicly available monitoring data showing that the objective of maintaining sound forest ecosystems and high biodiversity values is being met. In an era of increasingly accessible and cheap remote sensing data; and given increased national capacity on remote sensing analysis and GIS, annual or biannual monitoring of forest cover within forest reserves (and outside) is increasingly feasible. By establishing a robust impact-level monitoring system TFS would be able to document its performance; and to make a sound economic and political case for increasing investment in natural forest management. Whilst some monitoring should be done by TFS, independent forest monitoring would enhance the legitimacy of monitoring data. For example, with the establishment of the national carbon monitoring centre, there is potential for forest cover change data to be generated independently of TFS; and to be linked with REDD+. In 2007 – 8, DANIDA supported a participatory design process in close consultation with FBD, for an independent forest monitoring programme for Tanzania. Although this was not implemented, the report provides a basis for reviving plans for Independent Forest Monitoring in Tanzania.

Cooperation between TFS District Forest Managers and District Forest Officers

Stakeholder consultation found that there is conflict between TFS District Forest managers and District Forest Officers in some districts, particularly around the issue of revenue collection for forest products from unreserved village forest lands and general land. There is a need for clearer guidelines particularly around the issue of issuing transit permits and harvesting licenses.

Conclusions

Tanzania's natural forests are systematically under-valued. Factors contributing to this include low revenue collection rates by TFS and local government; the non-marketable nature of many forest values; the current system of national accounts which does not account for natural wealth; and a disconnect between revenue collection by Central Government for forest produce from village forests and management responsibilities that are vested in village councils. As a result of the natural forests being under-valued, investment in natural forest management is a fraction of what is needed. This results in weak management leading to deforestation and concomitant economic losses to the nation.

TFS is responsible for ensuring that stable ecosystem and biological diversity are maintained in Central Government Forest Reserves. There have been rapid increases in revenues to TFS. Increased revenues are being achieved in the context of uncontrolled and unsustainable harvesting including from forests outside of TFS's mandate. Revenue targets are being set irrespective of the available resource; the sustainability of the harvesting; and the availability of management plans. Continuing along this trajectory will result in the depletion of the resource with a concomitant collapse in revenues from natural forests. Continued deforestation will also result in heavy costs to the economy due to disruption in ecosystem functioning. Potential costs include losses to the agricultural sector due to reduced dry season flows in rivers originating in formerly forested areas; reduced efficiency in hydro-power generation due to increased siltation and reduced dry-season river flows; increased soil erosion and landslides; and loss of wood and non-wood forest products that underpin most rural livelihoods.

TFS have begun a process of consolidating the reserves under its authority through boundary surveys and marking; and are increasing the number of staff available for reserve management. Nonetheless NAFORMA data and other forest change analyses point to ongoing deforestation within and outside reserves. TFS needs to establish a more robust impact level monitoring system, particularly with regard to its remit of maintaining ecosystem services from Central Government

Forest Reserves. This could build on existing initiatives such as the national carbon monitoring centre; and the independent forest monitoring plans initiated in 2008. There remains a need to improve coordination and cooperation between TFS District Forest Managers and District Forest Officers in order to achieve more efficient and effective law enforcement.

Recommendations

The following recommendations are proposed on the basis of the findings of this study:

- TFS should adhere strictly to the Forest Act 2002 and should only issue permits based on current forest management plans including harvesting plans. Licences should be given based on the harvesting plans supported by current inventory data and strictly follow the Forest Regulations of 2004 including sticking to the minimum girth requirement;
- TFS should only issue permits for those forests that fall under its mandate i.e. Central Government Forest Reserves and forests on general land;
- Revenue from produce harvested from village lands should be re-invested in the management of village land forests including in expanding areas under community-based forest management. This will require a significant re-structuring of the current revenue collection procedures;
- TFS should not be required to remit funds to the Treasury until such time as it is fully achieving its goal and objectives; and generating a surplus;
- TFS should recognize the authority of Village Councils in determining harvesting rates from village land forests and should ensure that it is not issuing permits for harvesting of forest produce from village land;
- National, Zonal and District TFS Revenue targets should be based on consolidated estimates of sustainable harvesting levels from the forest reserves within that particular area. Targets should not be based on historical revenue collection.
- TFS should accord more priority to natural forest management in its plans and budgets;
- It is crucial to take legal action against illegal traders including confiscation of forest products obtained illegally and prosecution.
- More effort is needed to collect revenues and fines to reduce the gap between expected revenues based on the size of the current market for forest produce, and the current revenue levels.
- There is a need to strengthen TFS's accountability for delivering on its mandate to maintain ecosystem services and biodiversity values. Establishing an independent forest monitoring system is considered crucial. If adopted IFM would add value to TFS's work.
- There is a need to re-consider mechanisms for paying communities to engage in the management of protective forest reserves, including allocating funding from other sources to cover joint management costs including joint patrols, boundary marking and law enforcement.
- Scaling up JFM and CBFM should be a priority in order to increase the effectiveness of PFM as a protected areas conservation strategy.
- There is a need to streamline the roles and responsibilities between TFS and District Councils forestry officers who are mandated to manage forest and woodland resources in the districts. Efforts should be undertaken to streamline revenue collection at all levels (i.e. from the village to central government).
- Expanded tree growing should not focus on softwood and hardwood plantations alone but also expanding regeneration and planting valuable indigenous tree species like Mpingo, Mvule, Mninga and various miombo tree species in seriously degraded CGFRs such as Pugu and Kazimzumbwi.

Table of Contents

EXECUTIVE SUMMARY	II
FORESTS AND DEFORESTATION IN TANZANIA	II
OBJECTIVES OF THE STUDY.....	III
METHODS.....	III
RESULTS	III
<i>Revenues</i>	<i>iii</i>
<i>Expenditure</i>	<i>iv</i>
<i>Forest condition</i>	<i>iv</i>
<i>Monitoring</i>	<i>iv</i>
<i>Cooperation between TFS District Forest Managers and District Forest Officers</i>	<i>v</i>
CONCLUSIONS.....	V
RECOMMENDATIONS	VI
TABLE OF CONTENTS	VII
LIST OF FIGURES	VIII
LIST OF TABLES	VIII
ABBREVIATIONS AND ACRONYMS	X
ACKNOWLEDGEMENTS	XI
1.0 INTRODUCTION	1
1.1 BACKGROUND TO THE STUDY	1
1.2 TANZANIA FOREST SERVICES (TFS) ESTABLISHED.....	1
1.3 OBJECTIVES THE ASSIGNMENT	3
1.4 TASKS OF THE ASSIGNMENT.....	3
2.0 METHODOLOGY AND APPROACH	4
2.1 INFORMATION/DATA COLLECTION AND ANALYSIS.....	4
2.1.1 <i>Data collection</i>	4
2.1.2 <i>Information and Data analysis</i>	4
3.0 RESULTS AND DISCUSSION	5
3.1 ECOLOGICAL AND FINANCIAL SUSTAINABILITY OF ROYALTY REVENUES FROM FOREST PRODUCE AND PRODUCTS FROM NATURAL FORESTS 5	
3.1.1 <i>Types of forest revenues</i>	5
3.1.2 <i>Trends in TFS Revenue collection</i>	6
3.1.3 <i>Revenue collection targets</i>	9
3.1.4 <i>Comparing revenue targets with demand</i>	12
3.1.5 <i>Comparing revenues with the economic value of the forestry sector</i>	13
3.1.6 <i>Summary of challenges facing TFS in collecting revenues</i>	13
3.2 EXPENDITURE ON NATURAL FOREST MANAGEMENT	14
3.2.1 <i>TFS investment in natural forest management</i>	14
3.2.2 <i>TFS expenditure on protective and productive forest reserves and on plantations</i>	15
3.2.3 <i>Comparing actual expenditure with costs of reserve management</i>	18
3.2.4 <i>Comparing TFS revenues with expenditure</i>	18
3.2.5 <i>Summary of challenges related to expenditure</i>	20
3.3 STABLE ECOSYSTEMS AND BIOLOGICAL DIVERSITY MAINTAINED: ARE THE RATES OF FOREST AND WOODLANDS DISTURBANCES DECLINING IN CENTRAL GOVERNMENT FRS?	20
3.2.5 <i>Summary of challenges related to deforestation rates</i>	22

3.4	MONITORING OF DEFORESTATION AND FOREST DEGRADATION TO INFORM TFS PLANNING AND TO EVALUATE TFS'S IMPACT.....	23
3.5	IS PARTICIPATORY FOREST MANAGEMENT (PFM) ACHIEVING SUSTAINABLE FOREST MANAGEMENT AND WHAT IS THE IMPACT ON THE GROUND?	25
	3.5.1 JFM financing	25
	3.5.2 TFS investment in PFM	26
	3.5.2 Stakeholder consultation on CBFM	26
3.6	WHAT ARE ROLES AND RESPONSIBILITIES OF TFS DISTRICT MANAGERS AND OTHER STAFFS WORKING IN DISTRICTS?.....	27
	3.6.1 TFS human resources capacity	27
5.	CONCLUSIONS	29
6.	RECOMMENDATIONS	30
	REFERENCES	32
ANNEX 1.	LIST OF STAKEHOLDERS CONSULTED.....	33
ANNEX 2.	FIGURES	34
ANNEX 3.	APPROVED BUDGET AND ACTUAL EXPENDITURE BY TARGET FOR 2013/2014	35
ANNEX 4.	DISTRICT REPORTS	37
	HANDENI DISTRICT	37
	<i>Forest resources in Handeni District.....</i>	37
	KILOSA DISTRICT	37
	<i>Forest resources in Kilosa District.....</i>	37
	MAMBOYA FR 199HA	37
	<i>TFS forest management activities in Kilosa District</i>	38
	SOUTHERN ZONE.....	39
	<i>Forest resources in the Southern Zone</i>	39
	KILWA DISTRICT	41
	<i>Forest resources in the Kilwa District</i>	41
	<i>Joint Forest Management in Kilwa District</i>	42
	<i>TFS Investments in Kilwa District.....</i>	42
	RUFJI DISTRICT.....	43
	<i>Forest resources in the Rufiji District.....</i>	43
	<i>TFS investments in Rufiji District</i>	45
	KOROGWE DISTRICT.....	45
	<i>Forest resources in the Rufiji District.....</i>	45
	<i>Forest Management Plans in Korogwe District.....</i>	46

List of Figures

FIGURE 1.	FBD (TO 2011/12) AND TFS (2012/13 -) REVENUES TRENDS 2008-2016	6
FIGURE 2.	REVENUE FLOWS FOR CENTRAL GOVERNMENT FOREST RESERVES AND VILLAGE LAND FORESTS.....	11
FIGURE 3.	A COMPARISON OF PROJECTED REVENUES BASED ON URBAN CHARCOAL DEMAND AND TFS PROJECTED REVENUES	13
FIGURE 4.	FUNDS RELEASED ANNUALLY TO FBD AND THEN TFS BETWEEN 2005/6 AND 2013/14	14

List of Tables

TABLE 1.	TYPES OF FOREST PRODUCTS AND SERVICES AND THEIR SOURCES	5
TABLE 2.	TFS REVENUE COLLECTION AND EXPENDITURE FOR 2012/13	7
TABLE 3.	TFS REVENUE PROJECTIONS AND COLLECTIONS 2013/2014	7
TABLE 4.	TFS REVENUE PROJECTIONS FOR 2015/16	8
TABLE 5.	REVENUE COLLECTION ACCORDING TO SOURCES IN HANDENI DISTRICT.....	8

TABLE 6. OBJECTIVE B: BUDGET AND EXPENDITURE FOR 2013/2014.....	16
TABLE 7. OBJECTIVE C: BUDGET AND EXPENDITURES FOR 2013/14	16
TABLE 8. BUDGET AND PERCENTAGE RESOURCE ALLOCATION FOR THE 2015/16 TFS BUSINESS PLAN	17
TABLE 9. 2015/16 TFS BUDGET ALLOCATION RELATIVE TO AREA OF PLANTATION AND NATURAL FOREST.....	17
TABLE 10. ANNUAL FUNDS RELEASED RELATIVE TO ANNUAL REVENUES	18
TABLE 11. TFS 2015/16 PROJECTED REVENUES AND PLANNED EXPENDITURE BY STATION	19
TABLE 12. STAFF AND BUDGET 5 DISTRICTS	22
TABLE 13. FOREST RESERVES IN HANDENI DISTRICT.....	37
TABLE 14. FOREST RESOURCES IN THE SOUTHERN ZONE.....	39
TABLE 15. PERSONNEL IN THE SOUTHERN ZONE.....	40
TABLE 16. CENTRAL GOVERNMENT FOREST RESERVES IN KILWA DISTRICT	41
TABLE 17. REVENUE COLLECTED IN KILWA DISTRICT IN 2014/15.....	41
TABLE 18. RUFJI DISTRICT CENTRAL GOVERNMENT FOREST RESERVES.....	44
TABLE 19. FOREST RESERVES IN KOROGWE DISTRICT	45

Abbreviations and Acronyms

CBFM	Community Based Forest Management
CGFRs	Central Government Forest Reserves
DFM	District Forest Manager
DFO	District Forest Officer
DPs	Development Partners
DSM	Dar-Es-Salaam
FBD	Forestry and Beekeeping Division
FMPs	Forest Management Plans
IRA	Institute of Resources Assessment
JFM	Joint Forest Management
LAFRs	Local Authority Forest Reserve
MDAs	Ministries, Departments and Agencies
MF	Ministry of Finance
MJUMITA	Mtandao wa Jamii wa Usimamizi wa Mimitu Tanzania
MNRT	Ministry of Natural Resources and Tourism
NGOs	Non-Governmental Organizations
PMO-RALG	Prime Minister's Office - Regional Administration and Local Government
SUA	Sokoine University of Agriculture
TaFF	Tanzania Forest Fund
TAFORI	Tanzania Forestry Research Institute
TFCG	Tanzania Forest Conservation Group
TFS	Tanzania Forest Service
ToRs	Terms of Reference
UDSM	University of Dar-Es-Salaam
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
URT	United Republic of Tanzania
VLFRs	Village Land Forest Reserves
VPO-E	Vice President's Office-Environment
WB	World Bank

Acknowledgements

It is my pleasure to take this opportunity to thank all those who in one way or another assisted me to compile this report. During the period of undertaking the study a number of helpful persons is noted to be very large to make individual appreciation here. However, I would like to specifically acknowledge the efforts of all who made this study fruitful. I'm highly indebted to Mrs. Devota Kilahama and the entire family members for looking after me and for her continued encouragements throughout then study and report writing. I also would like to thank Mr. Charles Meshack and Ms. Nike Doggart for their invaluable facilitation, moral support and encouragements to carry out through with this important assignment. I highly appreciate the time and efforts made by the TFS Zonal Officers in Eastern, Northern and Southern zones as well as the TFS officers in Korogwe, Handeni, Kilwa and Rufiji Districts for their kind assistance and support during the field visits. I would also like to thank Mr. Mohamed L. Kilongo, Mr. Emmanuel, Legal Officer, Ms. Anna Lawuo, Mr. Msuya and Ms. Amina Akida all from TFS HQs for their useful contributions and support.

Dr. Felician Kilahama

1.0 Introduction

Recent studies including the National Forest Resources Monitoring and Assessment of Tanzania Mainland (NAFORMA 2015) indicate that the forest and woodland resources on the mainland are disappearing at an alarming rate. This is because the rate of extraction exceeds the rate at which the natural forests and woodlands can regenerate. According to NAFORMA (2015) the annual wood deficit is about 19 million m³. This amount is extracted from forest and woodland resources with concomitant detrimental effects to the environment.

1.1 Background to the study

The Forest Justice in Tanzania Project (FJT) is implemented through a partnership between the Tanzania Forest Conservation Group (TFCG) and MJUMITA, both national non-governmental organizations (NGOs). The study inter-alia, involved undertaking an in-depth analysis of the ecological and financial sustainability of natural forest management in Tanzania. The study focuses on the role of the Tanzania Forest Services Agency.

Natural forests and woodlands in Tanzania provide important ecological services including soil conservation; sequestration and storage of carbon from the atmosphere; conservation of forested watershed areas supplying water to downstream users; and maintaining important habitats for wildlife as well as other biodiversity resources. Most of Tanzania's major rivers originate in forest reserves and other forested areas including the Ruaha, Wami, Pangani and Sigi rivers. Tanzania's forests also have exceptional biodiversity values. Tanzania's Eastern Arc Mountains alone contain 128 endemic vertebrate species (Rovero et al. 2014).

However the natural forests and woodlands of the Tanzanian mainland are under heavy pressure from uncontrolled human activities including deforestation to access new agricultural land and over-harvesting of trees for timber and wood-fuels (in this case firewood and charcoal). NAFORMA (2015) report an annual deforestation rate of 372,816 ha between 1995 and 2010. This is equivalent to over two and half times the area of Dar es Salaam Region being cleared every year³. Deforestation is occurring both inside and outside of reserves. Although published NAFORMA data does not distinguish between deforestation within and outside reserves, Godoy *et al.* 2011 found a constant annual deforestation rate of 0.2% in reserved coastal forests in Tanzania between 1990 – 2007, ranging from an annual deforestation rate of 3.1% in Mtwara Region forest reserves to 0.1% in Lindi and Tanga reserves.

Since its inception the FJT project has identified areas of ongoing deforestation in Central Government Reserves as well as governance challenges that undermine the effectiveness of forest management. Some challenges appear to originate in the structure of forestry sector financing. The study aimed to examine some of these issues in more detail with a view to recommending changes that would enhance the ecological and financial sustainability of the sector.

1.2 Tanzania Forest Services (TFS) Established

The Tanzania Forest Services Agency was established under the Executive Agencies Act Cap. 245 (R.E. 2009) on 30th July, 2010 through the Establishment Order that was published in the Government Notice No. 269.

³ Dar es Salaam Region covers 139,300 hectares. Tanzania's annual deforestation rate is equivalent to 2.68 times the area of Dar es Salaam Region.

The establishment order became effective on 30/7/2010 carrying the message: “*There is hereby established an Executive Agency to be known as the Tanzania Forest Services Agency in its acronym TFS to take over the day to day management of the National Forest, Bee Reserves and forest and bee resources on general lands currently under the responsibility of the Ministry Resources and Tourism*”.

The TFS Framework Document (URT, 2010) outlines the status and governance of TFS; its mission and objectives; and describes its structure in terms of responsibilities and accountability.

The TFS mission was originally ‘*To sustainably manage the National forest and bee resources in order to contribute to the social, economic, ecological and cultural needs of present and future generations*’. (URT, 2010)

This was then revised in the SP II to include the word ‘utilize’: ‘*To sustainably manage and utilize the national forest and bee resources in order to contribute to the social, economic, ecological and cultural needs of present and future generations*’. (TFS, 2015)

The TFS was established in order to improve the quality and value for money of the delivery of public services; as well as to ensure efficient and effective management of forest and bee resources.

The TFS Establishment Order listed the 506 Central Government Forest Reserves; 6 Bee Reserves; 8 Forest Nature Reserves and 15 Forest Plantations to be managed by TFS on behalf of the central government. In its 2015/16 Business Plan (TFS, 2015), these figures are updated to include 455 Central Government Forest Reserves covering ~ 14.2 million ha plus 18 forest plantations covering 284,549 ha and 2.4 million ha of forests on general land.

TFS’s objectives as outlined in the TFS Framework are:

- i. HIV/AIDS infections reduced and supportive services to people living with HIV/AIDS improved;
- ii. Sustainable supply of quality forest and bee products enhanced;
- iii. Stable ecosystem and biological diversity maintained;
- iv. Institutional capacity to deliver services strengthened and;
- v. Gender balance and good governance enhanced.

These were then revised in the TFS Strategic Plan II (TFS,2015) as follows:

- i. HIV/AIDS infections reduced and supportive services to people living with HIV/AIDS improved;
- ii. Good governance and gender balance enhanced;
- iii. Institutional capacity to deliver services strengthened;
- iv. Forest and bee resource base and ecosystems improved;
- v. Utilisation of quality forest and bee products enhanced;

Whilst the first three objectives of the TFS SP II are consistent with the TFS framework, the SP II diverges from the TFS framework with regard to the objectives touching on TFS’s core business removing references to maintaining biological diversity; and shifting from *enhancing the supply* of quality forest products to enhancing *utilization* of forest products.

These objectives are reflected in TFS’s core functions (URT, 2010) which include:

- Establishing and managing central government natural forest and bee reserves;

- Establishing and managing central government forest plantations and apiaries;
- Managing forest and bee resources in general land;
- Enforcing Forest and Beekeeping legislation in areas of TFS jurisdiction;
- Collecting Forestry and Beekeeping revenue;

The policies and strategies used or followed by TFS include those of the MNRT and FBD supported by the Forest Act (Cap 323 RE: 2002), Forest Regulations and other regulatory frameworks like tree harvesting guidelines and the cost-benefits sharing guidelines.

1.3 Objectives the Assignment

The study assesses the ecological and financial sustainability of natural forest management in Tanzania.

The study focuses on six themes: revenues, expenditure, forest condition, monitoring, joint forest management and coordination between local and central government.

1.4 Tasks of the Assignment

The study looks at various related questions including:

- Are TFS revenues from royalties on forest produce from natural forests ecologically and financially sustainable over a twenty year period?
- Is enough being invested in the management of natural forests in Central Government Forest Reserves to meet TFS objectives of ecologically sustainable forest management? Is it being invested in a cost-effective way?
- Do monitoring results demonstrate that TFS has achieved its targets under Objective C of the 2012 – 13 Strategic plan: 'stable ecosystem and biological diversity maintained.' (TFS, 2010)?
- What measures are in place to monitor and report on TFS performance in preventing natural forest loss in Central Government reserves?
- What changes are needed to the Forest Act, regulations, guidelines, budgeting and implementation in order to increase the effectiveness of JFM as a protected area strategy?
- What measures can be taken to promote improved collaboration between local government staff and TFS?

2.0 Methodology and Approach

2.1 Information/Data Collection and Analysis

2.1.1 Data collection

The approach to undertake the assignment was divided into two parts: literature review and data collection through field visits and stakeholder consultation.

The first part involved literature review and development of relevant check lists and questions to allow focused gathering of information on: revenues, expenditure, impact and strategies in the context of TFS's approaches towards improving and ensuring that ecological integrity and financial sustainability from natural forest and woodlands (Appendix A). The assignment started with obtaining some relevant literature such as reports from TFS zones and HQs. The documents gathered include annual and semi-annual reports and other documents like TFS establishment order, business and strategic plans and the Forest Policy (being revised), Forest Act (Cap 323 RE: 2002) and regulations of 2004. Also other publications like the community forest-based management (CBFM) guideline of 2007 and "Mwongozo rahisi wa usimamizi shirikishi wa misitu kwa jamii" (2015) were included in the literature review. Most of the Government documents that were reviewed are publicly available at www.tfs.go.tz

The second part involved undertaking field work in the selected districts of Handeni, Kilosa, Kilwa, and Rufiji as well as undertaking consultations with key stakeholders. Among these include TFS Zonal and District managers and staff; District Council officers and District Commissioners. Others were TFS and FBD officers at the HQs. Where appropriate, interviews with key stakeholders were used to generate the required data/information. Also consultations were done in DSM involving key MDAs (MNRT, VPO-E, PMO-RALG and MF) that are relevant to this study. NGOs such as the Mpingo Conservation and Development Initiative (MCDI), WWF and other institutions like TAFORI and TaFF were consulted. Discussions were also held with some professors at the Faculty of Forestry and Nature Conservation SUA, considered to have some relevant information. Furthermore, some consultations with the relevant Development Partners (DPs) in the Embassies of Denmark and Finland added value to this study.

2.1.2 Information and Data analysis

The information and data that were collected, were analysed using normal qualitative methods especially calculations for totals, means, frequencies and percentages. And using the results to make comparisons and making qualitative value judgments across the studied districts. The information from the field was also used to make comparisons with what is contained in literature and to making assessments on various peoples' or public perceptions about TFS and the conditions of the natural forests as a whole.

3.0 Results and Discussion

3.1 *Ecological and financial sustainability of royalty revenues from forest produce and products from natural forests*

This section looks at trends in TFS revenues and attempts to determine whether revenues and revenue collection targets are based on sustainable forest management principles; and whether current levels of revenue collection can be sustained over a 20 year period.

3.1.1 Types of forest revenues

In accordance with the Forest Act Cap. 323 (RE: 2002) and the TFS Framework Document (URT, 2010), TFS is authorized to charge fees and royalties in respect of permits issued for harvesting natural forest produce and for undertaking other activities in Central Government Forest Reserves and Plantations. TFS’s mandate also extends to general land.

TFS’s revenue also comes from royalties and fees from forest produce from plantations and from the logging and miscellaneous deposit account. The TFS Business Plan 2015/16 (TFS, 2015) provides a summary of revenue-generating products and services. These include:

Table 1. Types of forest products and services and their sources

Product / service	Source
Standing trees for logs, pulp, veneer and poles	Forest plantations, natural forests including mangrove forests, forest reserves and forests in general lands
Wood fuel (charcoal and firewood)	Forest plantations, natural forests
Eco-tourism	Forest plantations, catchment forests and nature reserves
Research sites and materials	Forest plantations and natural forests
Telecommunication tower sites	Forest plantations and natural forests
Mining and prospecting sites	Forest plantations and natural forests
Medicinal plants	Forest plantations and natural forests
Honey, beeswax and bee colonies	Bee reserves, apiaries in plantations and natural forests and beekeeping production centres.

Source: TFS, 2015.

The main sources of revenue from natural forests are fees and royalties. The Forest Act 2002, states that a permit to harvest forest products or conduct other activities in a forest reserve will specify:

‘the fees, royalties and other charges that must be paid in connection with the grant of a permit or the undertaking of any activities authorised by the said permit.’ Forest Act 2002 Section 51 4) (h)

The Forest (Amendment) Regulations (2015) specify the fees payable in respect of different permits. For example these regulations specify that TZS 16,600 shall be paid as a fee for every 75 kg charcoal bag or TZS 240 / kg.

The Forest Act (*Cap 323 RE: 2002*) Section 49 (4) also states that:

No permit shall be granted under this Part unless the activity in respect of which the permit is applied for is:

- (a) Consistent with any forest management plan applicable to the forest reserve where it is proposed to undertake the said activity;

Section 49 (6) of the Forest Act (*Cap 323 RE: 2002*) is also clear that the right to issue permits for harvesting and other activities for forests on village land rests with the Village Council:

A village council shall, by resolution, which shall require confirmation by the village assembly, ... in respect of the granting of permission to any person to undertake, for other than domestic purposes, any of the activities to which this Part refers in a village land forest reserve or a village forest.

Fees are required to be paid in advance of harvesting as part of the procedures stipulated to secure a harvesting permit.

Compounding fees can also be collected in respect of illegally harvested natural forest produce. The Forest Act 2002 describes the process of compounding an offence as follows:

95.-(1) The Director or any officer specifically authorised by the Director by notice published in the Gazette may..., if he is satisfied that a person has committed an offence against this Act, compound such offence by accepting from such person a sum of money together with the forest produce, if any, in respect of which the offence has been committed.

The Forest Act 2002 also goes on to clarify that fines and royalties collected by compounding an offence shall be paid to the Tanzania Forest Fund:

(6) Any sum of money received under this section shall, after deduction of reasonable expenses, be paid into the Fund.

3.1.2 Trends in TFS Revenue collection

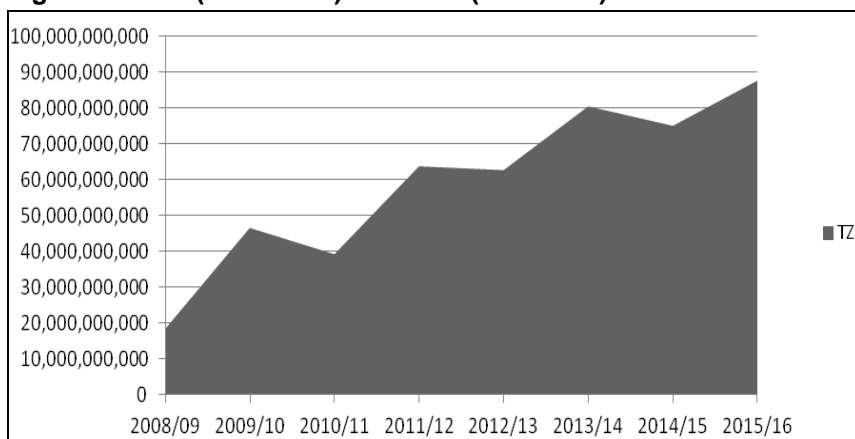
According to the TFS establishment order and the business plan, TFS revenues will be accrued from forest and bee reserves, and products and services from the forest plantations, apiaries and forests in general lands.

In accordance with the Forest Act 2002 fees, royalties and other charges should be obtained from forest reserves that are managed in accordance with a management plan.

Forestry sector revenue collected by FBD (up to 2011/12) and then TFS (from 2012/13 -) have increased from TZS 10.9 billion collected by FBD in 2005/06 (Mgoo, 2014) to TZS 75 billion collected by TFS in 2014/15 with a projected revenue for 2015/16 of TZS 87 billion (TFS, 2015).

The revenue collection trend for 2008 to 2016⁴ is indicated in Fig. 1.

Figure 1. FBD (to 2011/12) and TFS (2012/13 -) revenues trends 2008-2016



Data Source: TFS, 2015

⁴ Includes projected revenue for 2015 /16.

Plantations generate > 55 % of TFS's revenues. Between 2012/13 and 2013/14, plantations accounted for 64.5% and 56% of revenues respectively. TFS, 2015 states that for 2015/16 'it is expected that about 58% of the revenue will be generated from forest plantations'.

In the 2015/16 business plan, royalties comprise 60.58 % of the total projected revenue. Other significant revenue collection categories include the Logging and Miscellaneous Deposit Account (LMDA) which applies to plantations.

Data regarding the source of revenues in terms of the percentage of revenues coming from different categories of forests e.g. plantations, productive forest reserves, protective forest reserves, general land and unreserved forests on village land is not presented systematically with the exception of statements about revenue from plantations. Similarly data distinguishing between royalties and fees from different forest produce (e.g. charcoal vs. timber) is not provided in the TFS business plan.

Revenue collection for **2012/13** was projected to reach TZS. 75,137,558,879.00 and the actual revenue collection was **TZS. 62,667,893,056** (Mgoo, 2014) as indicated in Table 2 (a shortfall of about TZS 12.5 billion) see also Annex 3.

Table 2. TFS revenue collection and Expenditure for 2012/13

Zone	Financial Year 2012/2013	
	Collection	Expenditure
HQ	5,056,211,711	7,544,197,271
Eastern	8,925,497,595	1,644,474,899
Southern	2,728,430,161	1,573,435,113
Southern HL	475,539,814	1,643,018,362
Central	579,441,352	1,020,321,428
Western	2,106,085,038	1,891,400,156
Northern	1,522,336,490	1,970,784,559
Lake	1,228,675,316	1,078,275,902
Plantations	40,045,675,579 (64.5%)	12,535,908,580
Total	62,667,893,056	30,901,816,270

Source: TFS HQ, Mpingo House, Nyerere Road, Dar-Es-Salaam.

For the **2013/14** period TFS was projected to collect TZS. 68,173,076,761 and managed to collect **TZS 73,567,846,375** (Table 02) with a surplus of about TZS 5.4 billion.

Analysis of collected revenue for 2013/14 indicates that TZS 58.2 billion was collected from royalties and fees charged from various forest produces and products (plantations contributing about 56% and natural forests 44 % or TZS. 25.6 billion). Additionally, about TZS 12.6 billion were collected as logging miscellaneous deposit account (LMDA), which are revenues retained at source by the forest plantations.

TFS also collected about TZS. 2.6 billion on behalf of the Tanzania Forest Fund (TaFF) and another TZS 4.2 billion and about TZS 698.8 million collected for TRA (VAT from plantations) and District Councils (cess) respectively.

Table 3. TFS revenue projections and collections 2013/2014

Zone	Revenue projections (TZS)	Actual revenue Collected (TZS)	Surplus/Deficit (TZS)
HQ	1,027,255,067	898,927,896	-128,297,171
Eastern	9,505,216,955	12,298,871,036	2,793,654,081
Southern	4,086,136,500	5,529,030,398	1,442,893,898
Southern HL	3,449,749,969	1,526,798,091	-1,922,951,950

Zone	Revenue projections (TZS)	Actual revenue Collected (TZS)	Surplus/Deficit (TZS)
Central	2,303,380,000	1,292,159,433	-1,011,220,567
Western	4,088,554,304	6,818,083,467	2,729,529,163
Northern	4,949,385,079	1,696,326,903	-3,253,058,176
Lake	5,198,410,000	2,374,534,535	-2,823,875,465
Plantations	33,564,822,342	41,133,114,688 (56%)	7,141,302,213
Total	68,173,076,761	73,567,846,375	4,967,779,480

Source: TFS HQ, Mpingo House, Nyerere Road, Dar-Es-Salaam.

For 2015/16 the revenue projections indicate a similar pattern with an overall projected revenue of TZS 87.6 billion of which TZS 53 billion is projected to come from forest royalties and TZS 17 billion from LMDA (TFS, 2015).

Table 4. TFS Revenue Projections for 2015/16

Stations	Total revenue projection 2015/16 '000 TZS
Central	2,076,148.00
Eastern	12,004,008.00
Forest plantations	51,011,132.00
HQ	1,224,891.00
Lake	4,000,000.00
Northern	2,950,000.00
Southern	6,730,232.00
Southern Highland	2,400,000.00
Western	5,200,000.00
Total	87,596,411.00

Source: TFS, 2015

In terms of the geographical distribution of revenue collection, Tables 2, 3 and 4 show a range of between TZS 0.4 and 8.9 billion per zone across the seven TFS zones in 2012/13; between TZS 0.8 and 12.2 billion in 2013/14; between TZS 2 and 12 billion in 2015/16. In all three years, the Eastern Zone (Morogoro, Coast and Dar es Salaam Regions) has generated the highest revenues; and the Southern Highlands and Central Zones have the lowest revenues. Natural forests generate 42 % - 45% of TFS revenue.

Since the published revenue figures are categorized according to the source of the revenues in terms of zonal, headquarters and forest plantations (in lump-sums), they do not show how much of the revenue was generated from different produce e.g. timber and charcoal; and how much is from fines or from royalties / fees. National level data on revenue categorized by forest produce was not secured during the course of the study, however, in some districts like Handeni, district-level data shows that a large proportion (about 71%) of revenue collected for 2014/2015 accrued from charcoal fees (Table 3) followed by timber royalties (about 20%) as indicated in Table 5.

Table 5. Revenue collection according to sources in Handeni District

No	Sources of Revenues	Amount Collected (TZS)			% of Total
		Jul - Dec 2014	Jan – Jun 2015	Total	
1	Royalties from sale of trees from natural forests	105,518,110	55,544,030	164,062,130	20.26
2	Fees collected from sale of charcoal	247,857,960	326,107,200	573,965,160	70.89
3	Royalties from sale of firewood	5,662,160	717,920	6,380,080	0.79
4	Royalties from sale of poles	409,520	562,000	971,520	0.12
5	Fees from Timber dealers	4,608,000	768,000	5,376,000	0.66

No	Sources of Revenues	Amount Collected (TZS)			% of Total
		Jul - Dec 2014	Jan – Jun 2015	Total	
6	Fees from log dealers	512,000	256,000	768,000	0.09
7	Fees from withies dealers (registration)	1,536,000	-	1,536,000	0.19
8	Fees from Saw-millers (registration)	512,000	-	512,000	0.06
9	Frees from Charcoal dealers (registration)	9,216,000	4,352,000	13,568,000	1.68
10	Fees from firewood dealers (registration)	1,792,000	-	1,792,000	0.22
11	Fees from furniture mart (registration)	256,000	-	256,000	0.003
12	Fees from woodworks (registration)	9,875,400	-	9,875,400	1.22
13	Fees from other forest products dealers	1,833,000	153,300	1,986,600	0.24
COMPOUNDING FEES					
14	Fees from charcoal offences	2,080,000	3,620,000	5,700,000	0.70
15	Fees from offences related to wood	2,430,000	1,297,000	3,727,000	0.46
16	Fines related to other offences	-	300,000	300,000	0.04
17	Research fees	355,000	-	355,000	0.04
18	Entrance fees to Nature Reserves	994,500	-	994,500	0.12
19	Fees from Transit passes	2,665,850	4,242,500	6,908,350	0.85
20	Camping fees in Nature Reserves	-	1,032,000	1,032,000	0.13
21	Fees from other sources	487,500	-	487,500	0.06
22	Fees from honey and beeswax	2,073,000	1,512,000	3,585,000	
23	Miscellaneous receipts	544,300	4,898,500	5,442,800	0.67
24	Grand Total	401,218,300	408,362,750	809,581,050	100

Source: TFS Handeni District.

The importance of charcoal as a revenue source was also documented by Albert and Monga (2014) in a survey of revenues from forest produce in 23 districts. Albert and Monga (2014) found that in 2013/14 about TZS 3 billion was collected from 23 districts, out of which 62% (TZS 1.9 billion) was collected from charcoal royalties and 38% (TZS 1.1 billion) were collected from timber. Albert and Monga (2014) also found that 41% of the revenues from royalties from charcoal from the 23 districts included in the study, came from Rufiji District alone. These high revenue figures from the Eastern Zone should also be considered against the findings of the District-level forest governance monitoring conducted by the Forest Justice in Tanzania project which found that Rufiji District issued 3022 harvesting permits and yet conducted only 2 patrols in the period of 2012/13 (Albert and Monga, 2014).

The available data indicate that royalties from the sale of trees from natural forests and fees collected from the sale of charcoal are the most significant sources of revenue from natural forests. In the context of assessing the sustainability of revenues from natural forests, this is significant given the absence of forest management plans in 96% of reserves (NAO, 2012). The findings suggest that permits to harvest forest produce are being issued by TFS in the absence of forest management plans counter to the requirements of the Forest Act 2002. The increase in annual revenues suggests that the rate of issuing harvesting permits is also increasing from year to year.

3.1.3 Revenue collection targets

Budgeting and revenue collection targets are currently based on the TFS strategic plan and TFS's overall revenue targets. Each financial year TFS agrees with the Treasury on the target for the amount TFS should collect and on its ceiling budget. TFS's revenue is expected to exceed its budget with the understanding that TFS will remit the excess amount to the Treasury (see Figure 2) to finance other Government programmes and departments. There is pressure on TFS to collect as

much revenue as possible. This situation means that TFS's revenue targets are not based on forest reserve management plans nor assessments of the available forest resource within any particular district or zone. Instead, the targets are usually based on past records and experiences e.g. if the zone during the past financial year had collected five billion; the expectation for the next financial year is to collect more than that. Thus, they are encouraged to set a target with a 9 – 10 % percent increase on previous performance. The risk with this approach is that it drives an annual increase in harvesting without considering sustainability and the available resource.

The study found that, in terms of revenue collection, some zones are under-performing whilst others exceeding their revenue targets. For example, in the **Northern zone** in 2014/15 the target for revenue collection was TZS 3.2 billion but they managed to collect only TZS 2.8 billion. In contrast, in the **Southern zone** total revenue collection in 2014/15 was TZS. 6.8 billion against the targeted amount of TZS 4.8 billion. In 2014/15, the Southern Zone planned to collect about TZS. 2.7 billion from the sale of timber but instead collected about TZS. 5.9 billion (196% of planned collection). The target for revenue collection from charcoal was TZS. 641.4 million and they collected TZS.564.4 million (shortfall of about TZS. 76.9 million). The target for compounding fees or charges was TZS.31.5 million but they collected only TZS. 3.2 million, resulting in a shortfall of about TZS 28.2 million. The zone also expected to net about TZS. 428 million however, they managed to collect nothing (zero) from the sale of confiscated forest produces and products. In Kilwa district in 2014/15 TFS collected 1.8 billion, 82% of this was from sale of trees and timber while charcoal contributed 8%.

The plus and minus trends in revenue projections and collections is an indication that TFS has continued to operate in the way that FBD used to project revenue collection without basing it on natural forests and woodlands allowable cut and the accompanied management plans. A difference noted between FBD and TFS is that TFS has increased its capacity to collect revenues, although the revenues are mostly collected from unmanaged forests. In some cases once the trees are harvested and produces like logs or poles or products like charcoal or timber are intercepted without permits, these are then 'legalised' by TFS by issuing permits retrospectively. Instead it is crucial to take legal action against illegal traders including confiscation of forest products obtained illegally and prosecution instead of compounding and/or charging them royalties/fees and then allowing them to go. Illegal traders must experience a significant negative impact if they operate illegally and evade payment of royalties or fees by not sticking to procedures and requirements of the Forest Act.

By issuing harvesting permits without considering the source of the forest produce, TFS also risks over-stepping its mandate by issuing permits that result in harvesting in village land forests whilst TFS's mandate is to manage Central Government Forest Reserves and forests on general land.

The Forest Act supports sustainable use of forest resources within village land provided that harvesting permits are issued by the village council in accordance with an agreed management plan. Village Councils can charge fees for produce from village land. The Village Council are also liable to pay VAT to TRA; and forest product traders must pay their registration fees to TFS. This requirement applies both to forests within village land forest reserves; and to unreserved forests on village land. This latter type of forest, is the forest category referred to in the Forest Act , 2002 Section 4 (c) (iii) on types of forests:

- (c) village forests which consist of:
 - (i) village land forest reserves;
 - (ii) community forest reserves created out of village forests

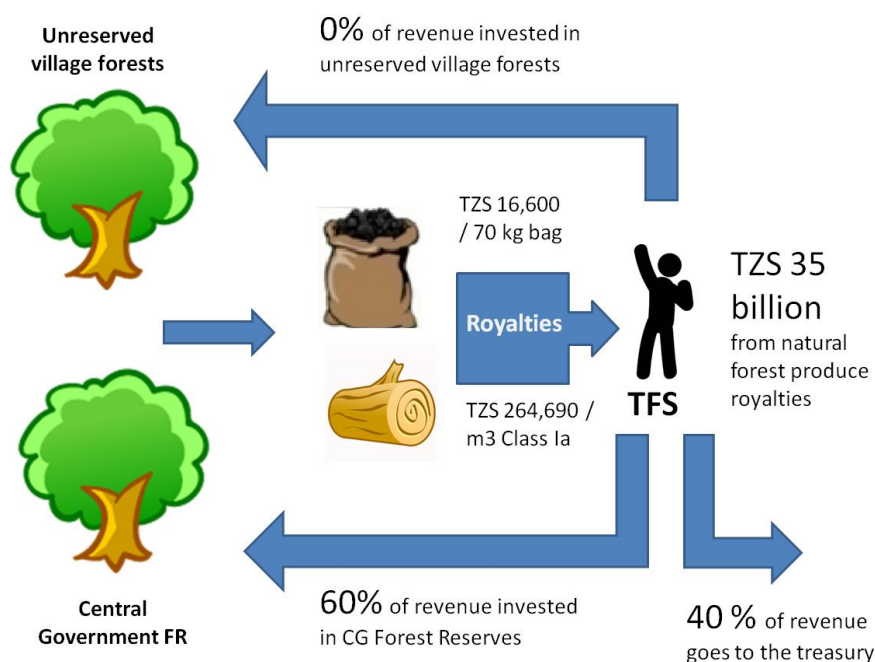
(iii) forests which are not reserved which are on village land and of which the management is vested in the village council.

There has been a tendency for this category of forest to be treated as 'general land' however this is not supported by the Land Act 1999 nor the Village Land Act 1999. Similarly the TFS Business plan (TFS, 2015) recognizes that 21.6 million ha of land are village land rather than general land.

Given limited harvesting potential in many productive Central Government Forest Reserves, it is clear that a significant proportion of the revenues from natural forest produce that TFS is currently collecting, are based on forest produce harvested on village land. This means that TFS are collecting revenue from forests that it has no mandate or intention to manage. Within TFS, there is no mechanism in place to channel any of those funds back into the management of the village forests. Instead TFS note that forests on village lands are unsustainably managed. That communities struggle to invest in the management of the forests is directly linked to the current structure of financing whereby TFS collects revenues from the village land forests without re-investing any of that revenue into the management of the forests. There is no mechanism by which any proportion of the royalties or fees revenues collected from the village land forests can be used for their management. Under the current system, village land forests will continue to be deforested. This will result in negative livelihood impacts for rural communities and the loss of nationally important ecological services. As the village forests decline, TFS will no longer be able to collect revenues from those forests. This will result in a decline in TFS's revenues from natural forests. The natural capital is being eroded to the degree that revenue streams cannot be sustained.

The study was unable to determine precisely the relative importance of royalties from forest produce on village land and from central government forest reserves as this data is not published, however, in Kilosa District, TFCG found that none of the Central Government Productive Reserves could support sustainable harvesting due to the forests already being over-harvested. Under the current system, this link between revenue collection and investment management can only be restored when communities establish village land forest reserves, whereby they have the exclusive right to collect harvesting fees from those forests.

Figure 2. Revenue flows for Central Government Forest Reserves and village land forests.



3.1.4 Comparing revenue targets with demand

In 2005, Milledge et al. (2007) estimated that under-collection of royalties reached up to 96% of the total amount of potential revenue due. There are indications that under-collection of royalties is still widespread. If we compare TFS 2015/16 revenue targets with estimates of urban charcoal consumption, it is apparent that there are still very significant shortfalls in revenue collection.

The draft Biomass Energy Strategy and Action plan (BEST, 2014) that was developed in close consultation with TFS includes the following chart:

Table 18: Estimates of Household Wood Fuel Demand in 2012 (m³ wood equivalent & tonnes)

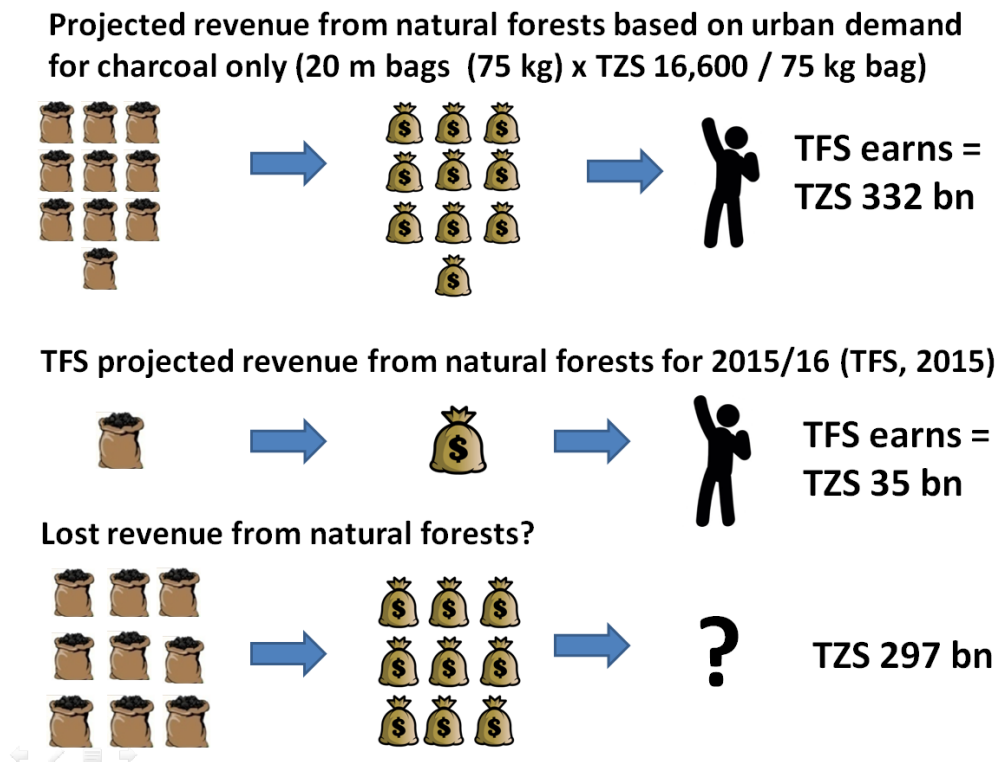
Wood Fuel Demand	Fuel Wood (firewood)		Charcoal	
	tonnes (mi)	m3 Fuel Wood (mi)	tonnes (mi)	m3 Fuel Wood equiv (mi)
Rural	20.97	29.96	0.52	3.88
Urban	1.64	2.34	1.51	11.38
Total	22.60	32.29	2.03	15.26

Sources: Tanzania Forest Services Annual Plan, 2013, National Bureau of Statistics 2002 and 2012 Census, and 2007 Household Budget Survey, and Tanzania Commission for AIDS, Tanzania HIV/AIDS and Malaria Indicator Survey 2011-12, Tanzania Forest Conservation Group (TFCG), Study on Sustainable Charcoal Marketing Survey, 2013 (MNRT, 2013, NBS, 2007, NBS, 2009, NBS, 2013b, TACACIDS, 2013 and TFCG, 2013)

If we only look at the urban charcoal consumption, we find that urban demand for charcoal is 1.51 million tonnes. According to the Forest (amendment) regulations 2015, the fee for one 75 kg bag of charcoal is TZS 16,600. The 1.51 million tonnes is equivalent to ~ 22 million bags of charcoal. If we multiply those 22 million bags by the TZS 16,600 fee we see that the potential revenue is TZS 334 billion. This is an order of magnitude more than TFS's total projected revenue from royalties from non-plantation forests of TZS 35 billion (TFS, 2015).

There remains a TZS 297 billion discrepancy between potential revenue from natural forests based on published charcoal demand figures; and the TFS projected revenues. This is likely to be an under-estimate given that it only includes charcoal. Other forest produce coming from natural forests will further increase the potential earnings. This highlights that the market for natural forest produce is far larger than is currently reflected in TFS plans; and suggests that natural forest management should be the highest priority in the forestry sector.

Figure 3. A comparison of projected revenues based on urban charcoal demand and TFS projected revenues.



3.1.5 Comparing revenues with the economic value of the forestry sector

According to UNEP (2015) a cost-benefit analysis found that the present value of net economic losses from deforestation and forest degradation to the Tanzanian economy over the 20 years (2013–2033) is TZS 273 billion (US\$ 171 million) for values that are captured by the system of national accounts and which can therefore be reflected in the gross domestic product (GDP). If other ecosystem services are included in the analysis, the value of losses reaches US\$ 3.5 billion.

These figures indicate that the current system of national accounts only documents 4.8% of the value of the forestry sector to the national economy based on the present value of net losses (US\$ 171 million) that are captured in the national accounts compared with the US\$ 3.5 billion in net losses when other ecosystems services are included. The structure of the system of national accounts contributes to the forestry sector being under-valued; and fails to capture the value of natural capital that the natural forest estate comprises. For instance, environmental services from forests and woodlands including carbon sequestration, water catchment, biodiversity and soil conservation values are not captured in national accounts, despite their enormous value to the national economy.

According to UNEP (2015) deforestation and forest degradation reduces the value added of the forestry sector (tangible benefits) and the positive indirect ecological effects to other sectors (intangible benefits). Combining these two factors the costs of deforestation (i.e. losing a hectare of catchment forest reserve or forest nature reserve) amounts to TZS 83,771 ha-1 year-1 (2013 value-UNEP, 2015).

3.1.6 Summary of challenges facing TFS in collecting revenues

With regard to revenue collection, the study points to the following key challenges:

- Harvesting permits are being issued in the absence of management plans and harvesting plans;
- Revenue targets are based on historical revenues rather than on robust estimates of harvesting potential;
- Revenues are being collected by TFS on forest produce harvested from village land forests with no mechanism in place to re-invest those revenues in the management of the village land forests. This is contributing to widespread deforestation and forest degradation of village land forests.
- Revenues from fines are very low suggesting that forest produce is being ‘legalised’ ex post by allowing royalties to be paid after produce are harvested.
- A rough comparison of charcoal demand and projected revenues suggests a significant shortfall in revenue collection.
- The forestry sector is under-valued in the current system of national accounts due to the exclusion of non-marketable values including ecosystem services.

The overall question for this section of the report is: are TFS revenues from royalties on forest produce from natural forests ecologically and financially sustainable over a twenty year period? Based on the analysis and discussion above, it is clear that the revenues are collected from unmanaged natural forests and woodlands with no mechanism in place to safeguard the sector’s ecological and financial sustainability over the next twenty years. Based on the current system forest cover will continue to decline; as will revenues from natural forests as resources become more scarce. The system is neither ecologically nor financially sustainable over a 20 year period.

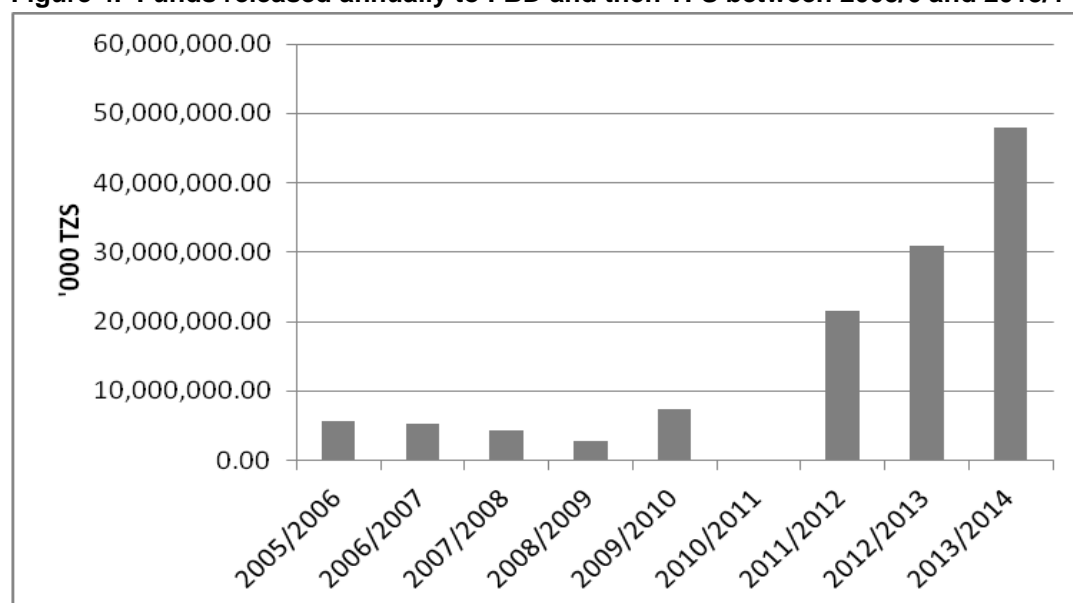
3.2 Expenditure on natural forest management

This section assesses whether investment in natural forest management is adequate to meet TFS’s objectives and whether it is proportionate to the national value of natural forests.

3.2.1 TFS investment in natural forest management

Funds released to FBD (2005/6 to 2009/10) and then TFS (2011/12 -) have increased from TZS 5.6 billion in 2005/6 to TZS 57.9 billion in 2013/15.

Figure 4. Funds released annually to FBD and then TFS between 2005/6 and 2013/14



Source: Mgoo, 2014

Between 2011 /12 – 2013/14, investment in natural forest management comprises investment in productive forest reserves under Objective B and investment in protective forest reserves under Objective C. Whilst for the 2015 /16 plan, the re-structuring of the objectives results in all reserve investment being included under Objective D. The level of investment in the general land forests under TFS's mandate is unclear. There is negligible investment in village land forests since these fall outside of TFS's management mandate.

Types of investment / expenditure

Most of the investments in natural forest reserve management that have been made by TFS have been related to resurveying and consolidation of forest reserve boundaries. Achievements include consolidation of forest boundaries of 102 forest reserves by resurveying and clearing 13,328 km of boundary (TFS, 2015).

In addition to boundary consolidation, TFS raised over 575,000 seedlings in the Kibaha Central Nursery (Eastern Zone) in 2013/14 of which 328,770 seedlings (57%) were planted along the boundaries and in degraded patches of Ruvu South and North FRs. The remaining (43%) were planted by adjacent villages and individuals (TFS Officer, pers. comm.).

Between 2011/12 – 2013/14 TFS also increased new forest plantation area by 9,947 ha from 83,659 ha – 91,606 ha; and replanted 14,200 ha (TFS, 2015). The expansion includes the establishment of a new plantation in Korogwe District, Tanga Region. Additionally, TFS is working hard to establish forest plantations within the Mbizi and Wino areas in Rukwa and Ruvuma Regions respectively. In these areas TFS is planting mainly exotic tree species especially *Pines*, *Cypress* and *Eucalyptus*.

TFS has also been establishing a more accurate and complete inventory of the forest assets that they are managing. This review involves all the central government FRs being assessed in terms of: name, location, GN number and year of gazette, area (ha), management plan (if in place), record of inventories (harvestable volume), adjacent villages, state of forest (extent of deforestation or degradation or species health and general condition regarding human activities such as villages, farming and/or grazing animals etc.). TFS (2015) reports that: '*preliminary field reports revealed that there are 455 forest reserves⁵ with a total area of 14,256,133.03 ha; out of which 11 are Nature Reserves (305,600 ha). Also there are 18 forest plantations covering an area of 284,549.85, out of this planted area is 91,606 ha.*'⁶

Other investments include two staff houses at Mtibwa Teak plantation plus a new office block. At Rubare forest plantation an office block that was started by FBD, has now been completed. Other constructions were done at Wino and Ukaguru forest plantations towards improving working facilities. In total TFS has constructed 8 offices and staff houses (TFS Staff, pers. Comm.).

3.2.2 TFS expenditure on protective and productive forest reserves and on plantations

In order to get a sense of the level of expenditure on natural forest management, it is interesting to compare investment in plantations and natural forest management.

As noted previously until 2014, expenditure on productive reserves and plantations falls under Objective B, whilst expenditure on protective reserves falls under Objective C.

⁵ The TFS establishment order narrated 506 national FRs that are under the mandate of the Agency.

⁶ P. 6, TFS, 2015

In 2013/14 the budget for objective **B: Sustainable supply of quality forest and beekeeping Products enhanced** was about TZS 24 billion with actual expenditures of about 23 billion (92%). On the other hand, the annual budget for objective **C: Stable ecosystem and biological diversity maintained** was about TZS 4 billion and actual expenditure of about TZS 3 billion (73%). The difference in the figures between these two crucial objectives indicates significant differences between the prioritization of these two objectives (Table 05 and 06) with the budget for objective C comprising only 16% of the budget for objective B.

OBJECTIVE B: Sustainable supply of quality forest and beekeeping Products enhanced

Table 6. Objective B: Budget and expenditure for 2013/2014

Targets	Budget (TZS)	Expenditure (TZS)	% of Expenditure against budget
Target 01: 1.36 million ha of production forest reserves (natural and plantation) managed based on management plans by June 2014;	7,719,432,662	7,185,342,462	84
Target 02 : 50,000 ha of new forest plantations and 26,083 ha of bee reserves gazetted by June 2014	10,005,334,307	9,679,633,798	97
Target 03: Beekeeping Improvement programme implemented in 30 districts and 4 demonstration centers by June 2014	471,487,352	375,300,714	80
Target 04: Compliance to regulation, operations and quality standards of forest and bee products and services attained at 50% by June 2014	6,605,199,864	5,552,341,699	84
Total objective B	24,801,454,186	22,792,618,672	92

Source: URT 2014c

OBJECTIVE C: Stable ecosystem and biological diversity maintained

Table 7. Objective C: Budget and expenditures for 2013/14

Targets	Budget (TZS)	Expenditure (TZS)	% of Expenditure against budget
Target 01 : 1.8 million ha of protection forests assessed and managed by June 2014	3,853,210,143	2,774,074,956	72
Target 02: Area under participatory forest management (PFM) increased from 1.4 million to 4.5 million by 2014	176,843,000	161,509,342	91
Target 03: wood fuel Action Plan implemented by June 2014	54,360,000	59,129,500	109
Total objective C	4,084,413,143	2,997,713,798	73.3

Source: URT 2014c

In Table 6, TFS under objective B (Target 2) spent nearly TZS 9.7 billion on the establishment of 50,000 ha of new forest plantations as well as to have 26,083 ha of bee reserves gazetted by June 2014 (equivalent to TZS 128,000 ha⁻¹ without distinguishing plantations and bee reserves). Although there is no distinction between the actual expenditures on plantations area relative to expenditure on bee reserves, it is anticipated that most of this was spent on industrial plantations rather than on bee reserves.

In Table 7 TFS under objective C (target 01) used nearly TZS 2.8 billion for assessment and management of 1.8 million ha of protection forests. This is equivalent to TZS 1,500 ha⁻¹ of natural

forest.

Whilst under Objective B, TFS spent about TZS 7.2 billion on target 01: 1.36 million ha of production forest reserves (natural and plantation) managed based on management plans by June 2014; the expenditure is equivalent to TZS 5,294 ha-1.

This shows that in 2013/14 TFS spent 3.5 times as much per hectare on the management of existing plantations and productive reserves than on the management of protective reserves: and approximately one hundred times more per hectare (TZS 128,000 / ha) on new plantations than it spent per hectare on the management of protection forests (TZS 1,500 / ha).

In the 2015/16 business plan, the SP II objectives provide the basis for the plan with the management of productive and protective natural forest reserves and plantations lumped together under Objective D.

Table 8. Budget and percentage resource allocation for the 2015/16 TFS Business Plan

Objectives	Budget estimates (TZS)	% Resource Allocation
A. HIV/AIDS infections reduced and supportive services to people living with HIV/AIDS improved;	248,507,000	0.45
B. Good governance and gender balance enhanced;	3,893,164,200	6.90
C. Institutional capacity to deliver services strengthened;	30,645,899,810	56.00
D. Forest and bee resource base and ecosystems improved;	20,144,185,990	36.52
E. Utilisation of quality forest and bee products enhanced;	314,820,000	0.57
Total	55,156,577,000	100.00

Source: TFS, 2015

TZS 20.1 billion or 36.4% of the total TFS budget are allocated to objective D which includes reserve management (TFS, 2015). Within this objective, > 75 % of the funds (TZS 16.8 billion) are allocated to plantation and reserve management (Target 02: All forests and bee reserves managed by June 2019) with the largest single allocation (TZS 10.2 billion) being allocated to silvicultural operations in 18 forest plantations (Activity 06) (TFS, 2015).

Table 9. 2015/16 TFS Budget allocation relative to area of plantation and natural forest

Budget Allocated to Objective D Target 02: reserve management (TZS)	TZS 16,800,000,000	a
Budget Allocated to Objective D Target 02: Activity 05: silvicultural operations (TZS)	TZS 10,200,000,000	b
Budget Allocated to Objective D Target 02: other activities (not 05)	TZS 6,600,000,000	c
Planted area within the 18 forest plantations	91,606 ha	d
Area of 18 forest plantations (ha)	284,549 ha	e
Forest reserve area (ha)	14,256,133 ha	f
Investment / ha of plantation	TZS 35,846.20 / ha	b/e
Investment / ha of plantation planted area	TZS 111,346.42 / ha	b/d
Investment / ha of other forest reserves	TZS 462.96 / ha	c/f

Source: TFS, 2015

As indicated in Table 9, this suggests that investment in natural forests is approximately TZS 462.96 / ha (US\$ 0.22 / ha) compared with TZS 35,846 / ha (US\$ 16.67 / ha) of plantation i.e. expenditure per hectare of natural forests is 1.3% of expenditure per hectare of plantation. These figures also indicate that planned investment in natural forests per hectare for 2015/16 (TZS 462.96) is 30% of

the level in 2013/14 (TFS 1,500) suggesting a downward trend in per hectare expenditure.

TFS (2015) state that '*Forest plantations have been allocated TZS 25 billion which represents 45.3% of the total budget (Total budget = TZS 55.2 billion) due to priority placed in expanding areas under plantations to enhance sustainable supply of wood raw materials. Plantations provide 60% of the total financing of the Agency and therefore huge investments in plantation forestry is crucial in order to build sustainable financial base of the TFS.*'⁷

This may also reflect a perception that it is easier for TFS to earn revenues from plantation forests than from sustainable management of natural forest in part due to the ongoing depletion of the natural forest resource which has already resulted in the extraction of all trees of harvestable girth in many Central Government Productive Forest Reserves.

Another contributing factor is that under the status quo, TFS are collecting revenue from forests that are not directly under their management. This is because, in the absence of management plans and a permitting process that can trace forest produce back to its source, some of the forest produce from which TFS is earning a revenue come from village land; which is outside of the TFS management mandate.

3.2.3 Comparing actual expenditure with costs of reserve management

In 2010, as part of the Valuing the Arc project, interviews were held with district forest officers, district catchment managers and nature reserve conservators across the 22 districts of the Eastern Arc Mountains. Information gathered related to the costs of administering reserves. The reserve managers stated that they needed US\$ 8.3 / ha per year to meet their management objectives, a figure that is comparable to the US\$ 7.7 spent by TANAPA on the management of National Parks. The survey found that at that time, Local authority forest reserves received just 10% of the funds needed, whilst national (catchment) Forest Reserves and Nature Reserves received around one third (Valuing the Arc, 2014).

If we compare the planned US\$ 0.22 (TZS 462.96) per hectare investment in natural forest management for 2015/16 with the needs as outlined by the reserve managers in 2010, the current level of investment is ~ 2.6 % of the amount that is needed.

3.2.4 Comparing TFS revenues with expenditure

When we compare the funds released to TFS (Figure 5) with the revenues presented in Figure 1 we see that funds released to TFS range from 34 % to 63 % of the revenues.

Table 10. Annual funds released relative to annual revenues

Year	Revenue '000 TZS	Funds released '000 TZS	Expenditure as a % of revenue
2011/12	63,752,485	21,505,383	34
2012/13	62,668,602	30,901,816	49
2013/14	73,567,846	47,901,145	65
2015/16 (projected / planned)	87,956,411	55,156,578	63

Of the balance some goes to the Tanzania Forest Fund; some is paid as 5% Cess on royalties and 18% VAT; and some is paid direct to Treasury. For example in 2015/16 TZS 25 billion is planned be remitted to the Treasury (TFS, 2015) equal to 25.8% of the projected revenue.

⁷ p. 21. TFS, 2015

It is also interesting to compare the revenues and expenditure by TFS station (Table 10). This shows that the Eastern and Southern zones have the highest net revenue. These zones also receive slightly more funding than other zones, although the additional expenditure is not proportional to the additional revenue that these zones generate.

Table 11. TFS 2015/16 projected revenues and planned expenditure by station

Stations	Total revenue projection 2015/16 '000 TZS	Total planned expenditure 2015/16 '000 TZS	Difference '000 TZS
Central	2,076,148.00	2,570,904.00	- 494,756.00
Eastern	12,004,008.00	3,020,035.00	8,983,973.00
Forest plantations	51,011,132.00	25,000,000.00	26,011,132.00
HQ	1,224,891.00	10,098,444.00	- 8,873,553.00
Lake	4,000,000.00	2,733,472.00	1,266,528.00
Northern	2,950,000.00	2,895,615.00	54,385.00
Southern	6,730,232.00	3,435,432.00	3,294,800.00
Southern Highland	2,400,000.00	2,486,784.00	- 86,784.00
Western	5,200,000.00	2,915,892.00	2,284,108.00
Total	87,596,411.00	55,156,578.00	32,439,833.00

Both plantation's and natural forest's revenues significantly exceed expenditure. For example, TFS earned TZS 41 billion in 2013/14 (Table 3) from the plantations whilst spending TZS 22 billion on Objective B (Table 6). In contrast for the natural forests, TFS earned TZS 22 – 32 billion per year and spent approximately TZS 2 billion on Objective C. Whilst it is recognized that the categories for the revenue and expenditure data are not directly comparable, under the current system expenditure on natural forest management is significantly lower proportionate to the revenue that they generate.

With natural woodlands the crucial management intervention is to limit human disturbances and then let natural regeneration occur. As such, this is a low cost approach to wood production that brings many additional benefits in terms of biodiversity, water catchment protection, provision of food and other non-timber forest products for rural communities and other ecological services; whilst avoiding some of the risks associated with plantations including invasive species; and vulnerability to disease and fire. However, for the man-made forest plantations, it requires intensive silvicultural operations requiring more investment in expertise, equipment and labour.

The additional benefits that natural forests and woodlands provide need also to be taken into consideration when prioritizing investment. The protective natural forests are crucial assets for the national wellbeing in terms of regulating water flows and general supply of water for various uses domestically, commercial, irrigation, hydro-power generation, wildlife and many other uses. Most of the major rivers throughout the mainland have their origins in the forest nature reserves or other catchment forests. Furthermore, most internationally recognized biodiversity including endemic and near endemic species of flora and fauna are found in the forest nature reserves.

This demonstrates that more analysis is needed to identify the most profitable area for TFS to focus on; and that there is a strong economic case to be made for more investment in productive natural forest management. This comparison should be considered in the context of the apparent low revenue capture rate discussed in the previous section. The 'profitability' of natural forest management would be significantly higher if the revenue capture rate was higher; and if the other ecological values of natural forests were taken into consideration.

Although we do not have data on how much of TFS revenue is derived from forests on village land, the amount re-invested is negligible in the 2015/16 TFS Business Plan, being limited to establishing 1 village bee reserve of Chilangu (Objective D: Target 05). This is understandable given that TFS's mandate does not extend to forests on village land however it is concerning that TFS are collecting revenue from village land forests with no plan or mandate to re-invest in the management of those forests.

3.2.5 Summary of challenges related to expenditure

With regard to expenditure, the study points to the following key challenges:

- TFS investment in the management of Central Government Forest Reserves is 2.6% of the required expenditure as estimated by the reserve managers.
- Per hectare investment in management of productive and protective Forest Reserves is approximately US\$ 0.22 / ha compared with US\$ 16.67 / ha invested in plantation management.
- TFS are collecting revenue from village land forests with no plan or mandate to re-invest in the management of those forests.
- Low investment in natural forest management combined with low revenue capture rate for forest produce from natural forests results in a vicious circle that directly contributes to deforestation and forest degradation.
- Sustainable management of natural forests is a valuable opportunity for national development that the current system does not capture. The 'window of opportunity' to develop this is closing rapidly given high deforestation rates.
- TFS are allocating TZS 25 billion to the Treasury for use on other sectors whilst funds are still needed to achieve TFS's own goal and objectives.

Is enough being invested in the management of natural forest in order to meet TFS objective of ecologically sustainably managed forests and woodlands on the mainland? Are the investment made in a cost-benefit way? These and possibly other questions need to be explored further in order to enable TFS to deliver and meet its objective accordingly. This study has indicated that there is significant difference in investments made in forest plantations compared to the investments made in natural forests. Given the deforestation that NAFORMA has recorded it is clear that not enough is being invested in natural forests and woodlands management. It would be useful to increase funding to natural forests to the rate of at least TZS 20,000 ha⁻¹ year⁻¹, in order to maintain healthier natural forests but concentrating efforts in strategic FRs of national and global importance for instance, forest nature reserves but also those productive forest reserves that can generate sufficient revenues and at the same time maintaining sound environmental values such as carbon sinks.

It would be useful for TFS and FBD in collaboration with other institutions like VPO-Division of Environment to seek for approval for payment for environmental services (PES) from policy and decision makers in order to increase the institutional capacity to invest, manage and conserve critical natural forest and woodland areas on the mainland. By addressing deforestation in this way, Tanzania would also be in a stronger position to access climate funding as the global community move towards more performance-based REDD+ (Reducing Emissions from Deforestation and Forest Degradation in Developing Countries).

3.3 *Stable ecosystems and biological diversity maintained: are the rates of forest and woodlands disturbances declining in Central government FRs?*

The TFS strategic framework states that one of TFS's four objectives is 'stable ecosystems and biological diversity maintained'. In TFS's 2nd Strategic plan, this was changed to '*Forest and Bee*

resource base and Ecosystems Improved' with the specific reference to biodiversity being dropped. This section provides a brief look at whether the original objective is being met.

The NAFORMA data provides a national overview of deforestation rates but the published data does not distinguish between reserved and unreserved forests. In a study by Godoy *et al.* (2011) that covered 108 reserves in coastal Tanzania, they found a mean annual deforestation rate of 0.2% between 1990 and 2007. 76 % of deforestation was accounted for by eight reserves, namely Forest Reserve (Mangrove) No. 27, Mnazi Bay-Ruvuma Estuary Marine Park, Ruvu North Fuel FR, Kiwengoma FR, Masanganya FR, Ngarambe-Tapika FR, Ruvu South FR and Tong'omba FR.

Localised deforestation analyses conducted by TFCG using remote sensing data have documented annual deforestation rates in Central Government Forest Reserves ranging from a loss of 4% / yr of high forest from Ruvu South FR between 2000 – 11 (Gwegime, 2013b); and 0.81% and 0.17% for Mkingu Nature Reserve and Kanga Forest Reserve respectively for the period 2010 – 14 (TFCG internal report).

Additional studies are also available documenting deforestation within Central Government Forest Reserves including analyses conducted by the Conservation and Management of the Eastern Arc Mountain Forests.

Most of these studies pre-date TFS management. As it was beyond the scope of the study to conduct a forest change analysis based on remote sensing for all Central Government Forest Reserves, the survey interviewed reserve managers to document their perceptions of current trends in deforestation within reserves.

According to the TFS District Forest Managers in Kibaha, Kilosa and Rufiji, disturbances in FRs have declined as a result of the TFS staff presence in the districts. Since 2012/13 the rate of visiting various FRs in the districts has increased. In Kibaha District for instance, they have increased patrols and undertaken evictions in collaboration with the District Councils' authorities including the District Security and Peace Committee under the District Commissioner (DC). The manager cited Ruvu South FR (35,000 ha) as a typical case such that before launching TFS and eventually posting TFS staff at the district level, the FR was under constant human pressure especially illegal logging and charcoal production. The District Council, which was managing the FR on behalf of the central government, was not able to control and stop human activities from taking place in the FR due to very limited capacity with few staff and limited funds. However, upon arrival, TFS staff began to undertake serious patrols and as a result the situation has rapidly changed.

Ruvu North FR (32,000 ha) has also experienced high rates of historical deforestation (Godoy *et al.* 2014). The reserve is designated for the production of woodfuels (to supply firewood and charcoal) for the residents in Dar-Es-Salaam City and Kibaha town including adjacent peri-urban areas in the Coast and Dar-Es-Salaam Regions. The Manager indicated that the situation in the reserve is now more under control.

On the other hand, it was reported that disturbances in Forest Reserves in Handeni, Korogwe, Kilwa, Liwale and Tunduru Districts are still uncontrolled particularly from charcoal producers and timber harvesting. The forests in those districts are also pressurized for farming especially in village land in Kilwa and Liwale District where a high rate of expansion of sesame and maize farming is threatening natural forests and woodlands. Additionally, encroachments in FRs for illegal logging and unauthorized livestock grazing are prevalent in the Southern regions of Lindi, Mtwara and

Ruvuma. The reasons provided for failure to curb illegal human activities in central government FRs include:

- Inadequate number of TFS staff in the districts; and
- Inadequate facilitation in terms of financial resources and necessary equipment.

This reinforces the findings from Section 3.2 that levels of investment in natural forest management are lower than is needed.

Although some TFS District Forest Managers indicated that the rate of disturbances in FRs has declined, there is a vacuum of data to assess this perceived trend, whilst in some cases such as Kazimzumbwi, Ruvu South and Ruvu North the decline in active harvesting may be a product of there being very few harvestable trees remaining in these reserves.

As noted previously, very few FRs have approved Forest Management Plans and the funding level in natural forests is still level low. This reinforces the findings of the National Audit Office –NAO (2012) that only 4% of the Central Government FRs have management plans and that even where management plans are in place, they are poorly implemented due to inadequate financing. The majority (96%) have no approved management plans. In addition to that the NAO report (2012) noted that MNRT through FBD had no effective mechanisms of issuance of licenses at the District level.

Table 12. Staff and Budget 5 districts

	No of Staff	FR area (ha)	Staff needed	Budget 2014/15	Approved 2014/15	Released 2014/15	Comments
Millions of TZS							
DISTRICTS							
Handeni		21,327		149			
Kilwa	7 and 2 temp	192,324	38	302.47	204.22	171.69	(79.16% of approved budget was released). Spent TZS 5.7 m on JFM
Kilosa	7	109,546	50				
Rufiji	18	>90,000	45	167	167	167	
Korogwe	8	17,591	10				

On the other hands, stakeholders reported that the management of forest nature reserve for instance, Chome, Nilo and Amani forest nature reserves seems to be improving. This may be due to increased staff numbers and donor funding from the European Union, UNDP and others.

3.2.5 Summary of challenges related to deforestation rates

With regard to deforestation rates, the study points to the following key challenges:

- Deforestation and forest degradation are occurring in many forest reserves with some Central Government Forest Reserves including now having little forest left in them;
- The absence of management plans means that management is not oriented to maintaining ecosystem services.
- Data to assess current rates of deforestation in Central Government Forest Reserves is fragmented or absent;

- TFS's objective to maintain biodiversity has been subsumed in a more general objective that loses the specific focus on biodiversity thereby risking that biodiversity conservation is no longer a priority in TFS planning.

If the mission of TFS is to sustainably manage and utilise the national forest and bee resources (reserves) in order to contribute to socio-economic, ecological and cultural needs of present and future generations, then TFS needs to be more strategic and deliberate in its efforts to reduce deforestation in its Protective and Productive Reserves. The development and implementation of management plans is a key step. This is recognized in the TFS 2015/16 plan which includes a target of preparing 18 forest management plans and reviewing 2 forest management plans (TZS 785 million). Whilst this is a positive step, with over 400 forest reserves, it is important that the rate of implementation be increased; and that this step be tied to future revenue projections.

3.4 Monitoring of deforestation and forest degradation to inform TFS planning and to evaluate TFS's impact

Monitoring is an essential part of governance. Monitoring data provides a basis for assessing performance relative to targets. URT (2010) states that 'The TFS Chief Executive shall directly be answerable to the Permanent Secretary of the Ministry of Natural Resources and Tourism. The Permanent Secretary will oversee the interests of the Ministry and the Government in general. There shall be a Ministerial Advisory Board (MAB) that will advise the Minister on the performance of TFS.'

In order for the MAB and the Permanent Secretary to hold TFS accountable, they need reliable data on its performance relative to its targets.

This study looked at the monitoring systems currently in place, particularly with a view to assessing how Objective D "Forest and bee resource base and ecosystems improved" is being monitored.

The TFS Business plan outlines 27 targets to be achieved under the 5 objectives with each target having a corresponding 'key performance indicator'. Specific targets are also documented in the TFS strategic plan II.

URT 2010 indicated that the development of monitoring and evaluation systems is amongst the planned activities for TFS; and states that TFS HQ is responsible for overall monitoring. In its 2015/16 business plan, TFS allocates TZS 1.5 billion to developing a performance management system. The plan also states that it will be using the Management Effectiveness Tracking Tool to monitor performance.

For the past three years TFS monitoring efforts have relied heavily on patrols and visits from senior officers from the HQs as well as officers from the monitoring and evaluation unit. Furthermore, TFS in collaboration with MNRT has regularly monitored revenue collection throughout the zones and its impact is noted in increased revenue collection.

According to Zonal and District TFS Managers monitoring is done within the zones through regular visits to various sites to check if what was planned and budgeted for has been accomplished with required standards and value for money. This is conducted by officials from the zonal HQs to districts while the district staffs are monitoring and trying to control illegal forest produces and products through regular patrols and at established check points. Before establishing TFS most of the monitoring in the regions and districts was done through the field surveillance units but after abolishing them regular field monitoring is done by the staff in the districts and backed up by regular visits by staff from Zonal HQs as well as TFS HQs. Normal planned monitoring is done by TFS HQs

staff quarterly or semi-annually and annually. The idea is to monitor performances i.e. result-based performances by relating targets, planned activities and what has been achieved on the ground. In case of contracted work and investments the monitoring exercise tries to establish whether the planned expenditures are met if not what are the reasons. Furthermore, monitoring is conducted to establish in the interests of the institution and the public as a whole whether the element of value for money has been fulfilled.

Most of the monitoring currently implemented by TFS is at the activity level or output level. This relies on the assumption that if the planned activities are implemented, TFS will attain its objectives. The business plan does not include indicators at the objective or goal level.

In the context of maintaining natural forest ecosystem services, the NAFORMA data provides the most robust, current national assessment of forest cover and forest change. As described previously, the results indicate widespread deforestation although the published results do not distinguish between deforestation in reserves and in village forests outside village forest reserves.

At a national level there is currently no publicly available monitoring data showing whether or not the original TFS objective of maintaining sound forest ecosystems and high biodiversity values is being achieved.

Impact indicators should include changes in forest cover in forest reserves. In an era of increasingly accessible and cheap remote sensing data; and given increased national capacity on remote sensing analysis and GIS as a result of programmes such as NAFORMA and CCIAM, annual or biennial monitoring of forest cover within forest reserves (and outside) is feasible. Other impact level indicators could include status of indicator species including endemic or near-endemic species; changes in the rate of activities such as illegal logging that cause forest degradation (based on base-line data if available).

TFS could also collaborate with Ministry of Water and the River Basin Offices to monitor fluctuations in the flow of water in streams or rivers flowing from catchment forests or forest nature reserves.

By establishing a robust impact-level monitoring system TFS would be able to document its performance; and to make a sound economic and political case for increasing investment in natural forest management. Whilst some monitoring should be done by TFS, independent forest monitoring would enhance the legitimacy of monitoring data. For example, with the establishment of the national carbon monitoring centre, there is potential for forest cover change data to be generated independently of TFS; and to be linked with REDD+. In 2007 – 8, DANIDA supported a participatory design process in close consultation with FBD, for an independent forest monitoring programme for Tanzania. Although this was not implemented, the report provides a basis for reviving plans for Independent Forest Monitoring in Tanzania. An independent monitoring system could generate data on key indicators that could be used by TFS to improve decisions and enhance forest and woodland resources protection and conservation.

Independent forest monitoring should be considered for incorporation in the ongoing revision of the Forest Act in order to accommodate independent monitoring requirements including reporting and how the generated information shall be used.

3.5 Is Participatory Forest Management (PFM) achieving sustainable forest management and what is the impact on the ground?

3.5.1 JFM financing

In a review of the effectiveness of JFM involving 110 sites across Tanzania, Persha and Meshack (2015) found that *'there is no evidence of impact of JFM on extreme forest degradation and deforestation, although there is weak evidence for a positive impact on slowing forest degradation. We found no significant difference in deforestation rates between JFM and non-JFM forest reserves during 2000 – 2012.'*

The researchers also found that *'There is wide variation in the extent to which JFM implementation in practice confirms to the program's formal design as went out in Tanzanian policy, particularly around revenue generation opportunities and revenue sharing arrangements with villages, and full legal processing of JFM agreements with villages'*.

Expansion of PFM initiatives throughout the country is an important requirement. This is because TFS may not be everywhere but FRs are surrounded by villages and local communities. If the adjacent village communities engage in joint forest management and are motivated to protect and look after the forest resources near them; the chances of reducing illegal human activities inside the FRs are most likely to increase.

The government has adopted some guidelines on cost-benefit sharing. The guidelines link benefits to reserve-specific revenues. This is challenging particularly for the catchment reserves where JFM has mostly been piloted. These reserves tend to have low cash revenues since no harvesting is permitted; and other revenue streams such as eco-tourism have yet to be properly developed. Thus whilst communities may have the right to 25 % of the revenues to that reserve, if the revenues are negligible so too will be the flow of revenues to the communities. Without an incentive to participate, communities will not volunteer their labour, particularly in the context of widespread rural poverty.

The JFM guidelines (MNRT, 2013) state that *'forest management costs and benefits must be 'balanced' – in other words if communities are undertaking approximately 25 % of the forest management responsibilities (costs), they should expect to receive approximately 25 % of the local forest benefits. Making JFM agreements 'unbalanced' will mean that they are not sustainable in the long term.'* However the system that is then proposed makes no attempt to balance actual costs with actual revenues.

Although development partners have spent, and continue to spend millions of dollars on joint forest management, the sustainability of the approach as implemented at present is questionable. There is a need to link expenditure and benefit sharing on JFM with reserve-specific budgets and management plans rather than tying benefits solely to reserve-specific cash revenue.

As such, there is a need to re-consider mechanisms for paying communities to engage in the management of protective forest reserves, including allocating funding from other sources to cover joint management costs including joint patrols, boundary marking and law enforcement. The financing mechanisms for JFM needs to be reviewed so that communities engaged in JFM have the right to be paid for their participation in reserve management activities. This right to participate in reserve management; and to be paid for participation should be embedded in the new Forest Act.

3.5.2 TFS investment in PFM

According to the TFS Business plan and associated targets for the financial year 2013/2014 the agency under Objective C regarding 'stable ecosystems and biological diversity maintained' had three targets; one of the targets was: "area under PFM increased from 4.1 million to 4.5 million hectares by June 2014.'

To attain this target TFS allocate TZS. 354,185,000/= to implement four activities as follows:

- Carry out resources assessment , prepare management plan and Joint Forest Management (JFM) Agreement for one FR in Western Zone;
- Manage forest wildfires in forested areas by maintaining fire facilities;
- Conduct training to four (4) Village Natural resources Committee (VNRC) on Community Forest based Management (CBFM) guidelines in four (4) Districts; and
- Promote income generating activities in seven (7) villages around forest nature reserves and FRs in the Northern Zone.

The 2013/2014 performance report then indicates that the annual approved budget (target code-C02C01) was TZS 176,843,000/= with actual expenditure of TZS. 161,509,342/=.

In terms of performance, the TFS annual report for 2013/2014 provides information on the activities that were accomplished. The reports states that a total of 79 JFM agreements were reviewed in the Northern Zone, and 12 village land forest management plans were endorsed in Eastern Zone. Furthermore, initial work to prepare forest management plans, review of forest management agreements and bylaws continued in other zones (details of these not provided). In addition, a total of 23 VNRCs with 347 members from Central Zone were trained on PFM, encroachment, conservation and compliance. Also participatory forest resources assessment (PFRA) meetings were conducted in three (3) villages in Central Zone and one village in the Western Zone was supported to establish a Village Land Forest Reserve. Additionally 163 villagers in the Northern Zone were trained regarding income generating activities (IGAs) including aspects of raising seedlings, beekeeping dairy/goat farming, fishing farming, growing spices and vegetable production.

Although the 2013/14 business plan indicated a target of 'an increase of forest area under PFM from 4.1 to 4.5 million ha but the reported achievements do not include this issue', this target was not reported on in the 2013/14 annual report. As such it is not possible to assess the impact of the activities that were financed.

In the 2015/16 TFS Business Plan, TZS 93 million is allocated to training VNRCs on JFM; and TZS 106 million to finalizing and signing JFM agreements.

As such, it is clear that TFS is continuing to invest some funds in the establishment of JFM. However no funds are clearly allocated to pay communities for the ongoing costs of reserve management.

For JFM to bring impact more widely there is a need to increase budgetary allocations for the establishment and implementation of JFM. If JFM will be accorded priority and scaled up accordingly and the strategies and activities effectively implemented, it can contribute to reducing deforestation; improving livelihoods and governance.

3.5.2 Stakeholder consultation on CBFM

According to the stakeholder consultation conducted as part of this study, implementation of PFM in the districts visited was rated low. In districts like Kilosa, Kilwa and Liwale, PFM is being

implemented but through the efforts of NGOs such as Mpingo Conservation and Development Initiative (MCDI) and the Tanzania Forest Conservation Group. Most of the PFM operations in the Southern Zone, were focused on community-based forest management (CBFM) and are being undertaken in villages in Kilwa and Liwale districts where MCDI is collaborating with MJUMITA and LIMAS to assist villages to benefit from forest resources available on villages' land.

Stakeholders expressed concern at relying on NGOs and donors' support to implement CBFM activities in villages and communities, which is appreciated but does not ensure long-term sustainability of PFM performances and contributions to improving livelihoods as well as poverty reduction at the grassroots level. The experiences show that once the support from the development partners is over, communities cease implementation due to inadequate capacities at the local level to continue on their own; and inadequate incentives for the VNRC members to accord priority to CBFM work. This challenge is well documented and donors and NGOs are now focusing on CBFM that includes sustainable utilization of forest and woodland resources on village lands in order to generate income through marketing and sale of forest produces. It is intended that the revenues from these forest produces will then be available for investing in forest management. This is actively taking place through programmes including the LIMAS programme in Lindi, Mtwara and Ruvuma; the National Forestry and Beekeeping Programme; and the Transforming Tanzania's Charcoal Sector Project.

3.6 What are roles and responsibilities of TFS District Managers and other staffs working in Districts?

3.6.1 TFS human resources capacity

The government through TFS is recruiting more staff as a key measure to increase its capacity. The work force in 2015 includes 1501 Forest staff; 127 beekeeping staff and 196 support staff. This compares with a requirement of 2865 forest staff; 727 beekeeping staff and 299 support staff.

Most forest reserves have no staff managing them with the exception of the forest nature reserves. except very few staffs allocated to FNRs (e.g. Amani Forest Nature Reserve). It was a common practice for the district councils to take care of the central government FRS existing in the districts. This strategy did not work out well because the capacities within the districts in natural resources has been very low hence most of over 500 FRs have been unmanaged for a very long time giving chance for the people to use them as "open access regimes" leading to serious deforestation and forest degradation.

After TFS was established in 2010 it was expected that the central government FRs will be improved in terms of forest management strategies and approaches as well as improved capacity (staff and financial resources) to look after the reserves. TFS now have 98 District Forest Managers in place, of whom seven have responsibility for two districts. The DFMs are supported by other staff (e.g. Handeni 7; Kilwa 4; Rufiji 18 and Korogwe 6 including the District Managers). Furthermore, the capacities in forest nature reserves and bee reserves has been enhanced. Despite this increase most FRs still have no-one to manage them directly.

For the financial year 2015/16 TFS has been allowed to employ about 500 staffs to manage FRs and bee reserves. This is an important step towards enhancing forest protection particularly in central government FRs. The distribution of these employment opportunities is as follows:

- 50 professionals (degree holders);
- 450 technical staff (Diploma and certificate holders)

These will be posted directly to specific FRs and TFS may start with those forests and woodlands of strategic importance.

The study found that staff working at the district level are trying as much as they can to enforce the law but they are operating in difficult circumstances. TFS (2015) states that *'In some cases, one forest officer manages up to 130,000 hectares of natural forests⁸. Meanwhile some data shows a standard rate of 5,000 ha per forester.'*

Their efforts are further hampered by having little equipment (vehicles and motor cycles) thus making it difficult for the staff to control illegal activities. For instance, in Handeni District uncontrolled harvesting of trees for timber, charcoal production, poles etc is still a serious challenge in both village lands and some reserves. Illegal loggers are using chain saws, which are highly destructive leading to serious losses. It was also noted that TFS staff and the district council forestry officers are operating according to parallel structures in most districts. For example in Handeni, Rufiji and Korogwe they are operating from different office buildings. Only in Kilwa are they housed in one building. This inhibits collaboration and cooperation. Management of the sector would be enhanced if the accountability, reporting and planning channels were streamlined.

Additionally, it was noted that the relationships between TFS staff and those in the district councils is still weak. One staff in the district council remarked *"I am only involved during special tasks such as undertaking evictions and/or specific operations"*, however, on daily routines they hardly interact with each other. This creates some weaknesses in the management of the forest and woodland resources in the districts. Pressure for both TFS and the District Council to raise more revenues is another source of conflict between TFS and the district councils. The experiences show that where antagonisms exist forestry operations are jeopardized because of poor relationships between the staffs in the sub-sector and also with the local community at the grassroots level.

Basically the roles and responsibilities between TFS and district staffs are clearly defined. For instance, the TFS District Forest Managers and his/her team are supposed to manage and take care of all central governments' FRs in the district. In addition, TFS is supposed to manage forest and bee resources in general lands but also "reserved trees" regardless where they are. The latter is however, an area of overlap because TFS have been operating in village lands where the District Forest officers are also trying to collect some district revenues through cess or direct royalties. It is important that both TFS and district forest and beekeeping staff work as one team and try as much as possible to collaborate and assist one another. This may entail undertaking regular meetings and consultations with one another. It should also be possible to plan and strategize together for the better performances.

There is a need to streamline the roles and responsibilities between TFS and District Councils forestry officers who are mandated to manage forest and woodland resources in the districts. For instance, in the context that TFS staffs are concentrating on managing the CGFRs while the district forestry officials dealing with LAFRs and DFO's office assisting villages to manage and benefits from the forest resources on the village lands.

In terms of law enforcement, both offices are required to enforce national law. DFOs have additional responsibility to enforce the district by-laws.

⁸ This is roughly equivalent to the area of Dar es Salaam region.

In terms of the issuance of licenses and transit permits, the study found that perceptions of those who were interviewed varied regarding roles and responsibilities suggesting more clarity is needed regarding the issuance of licenses and transit permits TFS District Managers and DFOs.

Over the last few years, some villages implementing community-based forest management have started producing and selling forest produces and products. The MNRT issues licenses books and other facilities for undertaking proper business. Furthermore, the MNRT has started issuing special hammers for use in villages and these are currently kept by DFOs with the hope that once a village will meet the criteria the village can use the hammer directly. What is important is to define limits of TFS District Managers, DFOs in issuing licenses and TPs but also the case of villages with own FRs and operating under CBFM should be taken into account.

Recently TFS senior management Team met with PMO-RALG (TAMISEMI) in Dodoma. This was meant to improve coordination and iron out differences that exist between the central government and the local government authorities in the context of sustainable natural forest management.

5. Conclusions

Tanzania's natural forests are systematically under-valued. Factors contributing to this include low revenue collection rates by TFS and local government; the non-marketable nature of many forest values; the current system of national accounts which does not account for natural wealth; and a disconnect between revenue collection by Central Government for forest produce from village forests and management responsibilities that are vested in village councils. As a result of the natural forests being under-valued, investment in natural forest management is a fraction of what is needed. This results in weak management leading to deforestation and concomitant economic losses to the nation.

TFS is responsible for ensuring that stable ecosystem and biological diversity are maintained in Central Government Forest Reserves. There have been rapid increases in revenues to TFS. Increased revenues are being achieved in the context of uncontrolled and unsustainable harvesting including from forests outside of TFS's management mandate. Revenue targets are being set irrespective of the available resource, the sustainability of the harvesting and the availability of management plans. Continuing along this trajectory will result in the depletion of the resource with a concomitant collapse in revenues from natural forests. Continued deforestation will also result in heavy costs to the economy due to disruption in ecosystem functioning. Potential costs include losses to the agricultural sector due to reduced dry season flows in rivers originating in formerly forested areas; reduced efficiency in hydro-power generation due to increased siltation and reduced dry-season river flows; increased soil erosion and landslides; and loss of wood and non-wood forest products that underpin most rural livelihoods.

TFS have begun a process of consolidating the reserves under its authority through boundary surveys and marking; and are increasing the number of staff available for reserve management. Nonetheless NAFORMA data and other forest change analyses point to ongoing deforestation within and outside reserves. TFS needs to establish a more robust impact level monitoring system, particularly with regard to its remit of maintaining ecosystem services from Central Government Forest Reserves. This could build on existing initiatives such as the national carbon monitoring centre; and the independent forest monitoring plans initiated in 2008. There remains a need to improve coordination and cooperation between TFS District Forest Managers and District Forest Officers in order to achieve more efficient and effective law enforcement.

6. Recommendations

The following recommendations are proposed on the basis of the findings of this study:

- TFS should adhere strictly to the Forest Act 2002 and should only issue permits based on current forest management plans including harvesting plans. Licences should be given based on the harvesting plans supported by current inventory data and strictly follow the Forest Regulations of 2004 including sticking to the minimum girth requirement;
- TFS should only issue permits for those forests that fall under its mandate i.e. Central Government Forest Reserves and forests on general land;
- TFS should recognize the authority of Village Councils in determining harvesting rates from village land forests and should ensure that it is not issuing permits for harvesting of forest produce from village land;
- TFS should not be required to remit funds to the Treasury until such time as TFS is fully achieving its goal and objectives; and generating a surplus;
- Revenue from produce harvested from village lands should be re-invested in the management of village land forests including in expanding areas under community-based forest management. This will require a significant re-structuring of the current revenue collection procedures;
- TFS should recognize the authority of village councils to manage village forests including forests which are not reserved which are on forest land;
- National, Zonal and District TFS Revenue targets should be based on consolidated estimates of sustainable harvesting levels from the forest reserves within that particular area. Targets should not be based on historical revenue collection.
- TFS should accord more priority to natural forest management in its plans and budgets;
- Mechanisms to include the value of forest ecosystem services in the system of national accounts should be explored;
- It is crucial to take legal action against illegal traders including confiscation of forest products obtained illegally and prosecution. The practice of accepting fees or royalties retrospectively for products intercepted whilst in transit, should be discontinued.
- More research is needed in order to determine the relative profitability of investing in high-cost, high-return plantations compared with investing in medium -cost, medium-return natural woodlands.
- There is a need to strengthen TFS's accountability for delivering on its mandate to maintain ecosystem services and biodiversity values
- Engagement of independent monitoring agents would add value to TFS's work hence establishing such a tool is highly recommended;
- There is a need to re-consider mechanisms for paying communities to engage in the management of protective forest reserves, including allocating funding from other sources to cover joint management costs including joint patrols, boundary marking and law enforcement.
- Scaling up JFM and CBFM should be a priority in order to increase the effectiveness of PFM as a protected areas conservation strategy.
- Efforts should be undertaken to streamline revenue collection at all level (i.e. from the village to central government).
- There is a need to streamline the roles and responsibilities between TFS and District Councils forestry officers who are mandated to manage forest and woodland resources in the districts.
- Expanded tree growing should not focus on exotic softwood and hardwood plantations alone but also expanding regeneration and planting valuable indigenous tree species like Mpingo, Mvule,

Mninga and various miombo tree species in seriously degraded CGFRs such as Pugu and Kazimzumbwi;

- Villages with ample forest/woodland areas be encouraged and supported to gazette sufficient forest/woodland areas for production of forest produces as well as for ecosystem conservation for the villages' benefits and the nation as a whole.

References

- Albert, A. and E. Monga, 2014 Are district officials playing their part in providing forest justice in Tanzania? A report on a survey of forest governance at District level.
<http://www.tfcg.org/forestJusticeTanzania.html>
- Camco Clean Energy (Tanzania) Limited, 2014. Biomass Energy Strategy and Action Plan.
- Godoy. F. L., K. Tabor, N. D. Burgess, B. P. Mbilinyi, J. Kashaigili and M. K. Steininger. 2011. Deforestation and CO2 emissions in coastal Tanzania from 1990 to 2007. *Environmental Conservation* 1 – 10.
- Gwegime, J., M. Mwangoka, H. Said, E. Mulungu, K. Nowak and N. Doggart (2013a) Two surveys of the plants, birds and forest condition of Pugu and Kazimzumbwi Forest Reserves in 2011 and 2012. TFCG Technical Paper 36. DSM, Tz. 1-121 p.
- Gwegime, J., Mwangoka, M., Mulungu, E., Perkin A. and K. Nowak (2013b). The biodiversity and forest condition of Ruvu South Forest Reserve. TFCG Technical Paper 37. DSM, Tz. 1-72 pp.
- Milledge, S.A.H., I. K. Gelvas and A. Ahrends (2007). Forestry, Governance and National Development: Lessons Learned from a Logging Boom in Southern Tanzania. An Overview. TRAFFIC East/Southern Africa / Tanzania Development Partners Group / Ministry of Natural Resources of Tourism, Dar es Salaam, Tanzania. 16pp.
- Mgoo, J. 2014. Institutional arrangements and forest sector financing. Presentation to the National Forestry Conference. December 2014
- MNRT, 2015. National Forest Resources Monitoring and Assessment of Tanzania Mainland: Main Results. 124 p.
- NAO (2012) National Audit Office performance audit on management of forest harvesting by the MNRT, Dar-Es-Salaam, Tanzania
- Persha, L. and C.K.M. Meshack, 2015 Is Tanzania's Joint Forest Management Program an triple win? Understanding causal pathways for livelihoods, governance and forest condition impacts. Grantee Final Report to 3iE.
- Rovero, F., M. Menegon, J. Fjeldsa, L. Collett, N. Doggart, C. Leonard, G. Norton, N. Owen, A. Perkin, D. Spitale, A. Ahrends and N. D. Burgess. 2014. Targeted vertebrate surveys enhance the faunal importance and improve explanatory models within the Eastern Arc Mountains of Kenya and Tanzania. *Diversity and Distributions*, (Diversity Distrib.) (2014) 1–12
- TFS (2015). Business plan and associated budget for financial year 2015/2016
http://www.tfs.go.tz/uploads/TFS_Business_Plan.pdf
- URT (2010) TFS Framework document. 26p: TFS, Dar-Es-Salaam, Tanzania
- URT (2012) TFS Annual implementation report for 2011/2012, 27p; TFS, Dar-Es-Salaam, Tanzania
- URT (2013a) TFS Annual implementation report (2012/2013), 21p; TFS, Dar-Es-Salaam, Tanzania
- URT (2013b) TFS Business plan and associated budget for the financial year 2013/2014, 55p
TFS-Dar-Es-Salaam, Tanzania
- URT (2013c) National Strategy for Reduced Emissions from Deforestation and Forest Degradation Vice President's Office. 100p.
- URT (2014a) TFS Annual implementation report (2013/2014), 31p; TFS, Dar-Es-Salaam, Tanzania
- URT (2014b) TFS Strategic plan 2014 to 2019, TFS-Dar-Es-Salaam, Tanzania, 39p
- URT (2014c) An overview of the forestry and beekeeping sub sector: Achievements, Challenges and Priorities for financial year 2014/15. A paper presented by Ms. Gladness Mkamba, Ag. Director for Forest and Beekeeping at the 2014 Natural Resources Sector Review Meeting 16/10/2014. 11p
- UNEP (2015) Forest ecosystems in the transition to green economy and the role of REDD+ in the United Republic of Tanzania: UNEP, Nairobi, Kenya
- Valuing the Arc. 2014. There are also costs of Conservation. *The Arc Journal* 29. P. 20.

Annex 1. List of stakeholders consulted

No	Name of Stakeholder	Institution/Address
1	Ms. Gladness Mkamba	FBD
2	Mr. Deusdedit Bwoyo	FBD
3	Mr. Mohamed Kilongo	TFS-HQs
4	Mr. Emmanuel	TFS-HQs
5	Ms. Amina Akida	TFS-HQs
6	Ms. Anna Lawuo	TFS-HQs
7	Mr. Gaspar Makala	MCDI
8	Mr. Mustafa Mfangavo	DFO- Kilwa District
9	Mr. Salhina Kashenge	TFS Kilwa
10	Ms. Bernadetha Kadala	TFS Kibaha
11	Mr. Thomas Selanniemi	TA-FBD
12	Ms. Monica Kwiluhya	DED Same
13	Mr. Leonard Lyimo	FBD
14	Mr. Johnson Kigula	TFS HQs
15	Mr. Charles Meshack	TFCG – Executive Director
16	Ms. Monica Kagya	FBD-MNRT
17	Ms. Nike Doggart	TFCG (TA)
18	Ms. Bettie Lwuge	TFCG

Annex 2. Figures

Table E: Summary of Annual Budget against actual Expenditures by Targets

EXPENDITURE FOR THE YEAR JULY 2012 TO JUNE 2013

Objective / Target	Annual Budget (TZS)	Expenditure (TZS)	% of expenditure / budget
Objective A: HIV/AIDS infections reduced and supportive services to people living with HIV/AIDS improved;			
Target 01: supportive services established and operating by 2013	202,432,500	153,894,500	76%
Target 01: 1.36 million ha of production forest reserves (natural and plantation) managed based on management plans by June 2013;	7,049,570,812	7,812,884,592	111%
Target 02: 50,000 ha of new forest plantation and 26,083 ha of bee reserves gazetted by June 2013;	765,113,600	589,896,612	77%
Target 03: Beekeeping improvement programme implemented in 30 districts and 4 demonstration centers by June 2013;	344,082,629	587,515,619	171%
Target 04: Compliance to regulations, operations and quality standards of forest and bee products and services attained at 50% by June 2013;	3,921,583,447	2,690,438,076	69%
OBJECTIVE C: Stable ecosystem and biological diversity maintained			
Target 01: 1.8 million ha of protection forests assessed and managed by June 2013;	4,326,164,673	3,266,072,540	75%
Target 02: Area under PFM increased from 4.1 million to 4.5 million ha by June 2013;	549,806,500	413,978,355	75%
Target 03: Wood fuel action plan implemented by June 2013;	82,115,000	51,965,200	63%
OBJECTIVE D: Institutional capacity to deliver services strengthened			
Target 01: Revenue accrued from Forest and beekeeping resources increased from 33 to TShs. 35 billion by June 2013;	1,355,822,138	1,048,645,134	77%
Target 02: TFS Human resource capacity developed by June 2013;	1,824,690,190	1,182,287,888	65%
Target 03: Level of provision of requisite working facilities and administrative operation attained 60% by 2013;	12,393,999,849	10,803,218,495	87%
Target 04: physical infrastructure and service provision maintained and increased by 30% by June 2013	2,547,376,182	1,138,661,569	45%
Target 05: monitoring and evaluation system developed and implemented by June 2013	1,038,053,292	1,048,834,810	101%
OBJECTIVE E: Good governance and gender balance enhanced			
Target 01: Good governance and National Anticorruption strategy Action Plan implemented by 2013;	208,940,000	113,522,880	54%
GRAND TOTAL	36,609,750,812	30,901,816,270	84%

Annex 3. Approved budget and actual expenditure by target for 2013/2014

Target Code	Target Description	Approved Annual Budget	Actual Expenditure	% Expenditure
OBJECTIVES A: HIV/AIDS infections reduced and supportive services to people living with HIV/AIDS improved				
A01S01	Target 1: Supportive services established and operating by June 2014	210,915,000	191,981,500	91
OBJECTIVE B: Sustainable supply of quality forest and beekeeping Products enhanced				
B01D01	Target 01: 1.36 million ha of production forest reserves (natural and plantation) managed based on management plans by June 2014;	7,719,432,662	7,185,342,462	84
B02D01	Target 02: 50,000 ha of new forest plantations and 26,083 ha of bee reserves gazetted by June 2014	10,005,334,307	9,679,633,798	97
B03D03	Target 03: Beekeeping Improvement programme implemented in 30 districts and 4 demonstration centers by June 2014	471,487,352	375,300,714	80
B04D01	Target 04: Compliance to regulation, operations and quality standards of forest and bee products and services attained at 50% by June 2014	6,605,199,864	5,552,341,699	84
	TOTAL OBJECTIVE B	24,801,454,186	22,792,618,672	92
OBJECTIVE C: Stable ecosystem and biological diversity maintained				
C01D01	Target 01: 1.8 million ha of protection forests assessed and managed by June 2014	3,853,210,143	2,774,074,956	72
C02C01	Target 02: Area under participatory forest management (PFM) increased from 1.4 million to 4.5 million by 2014	176,843,000	161,509,342	91
C03C01	Target 03: wood fuel Action Plan implemented by June 2014	54,360,000	59,129,500	109
	TOTAL OBJECTIVE C	4,084,413,143	2,994,713,798	73
OBJECTIVE D: Institutional capacity to deliver services strengthened				
D01C01	Target 1: Revenue accrued from forest and beekeeping resources increased from TZS. 33 to 35 billion by June 2014	903,235,755	807,602,608	89
D02C01	Target 02: TFS Human resources capacity developed by June 2014	1,379,797,928	1,342,764,737	97
D03C01	Target 03: level of provision of requisite working facilities and utilities statutory rights and administrative operation attained 60% by 2014	16,562,435,711	16,120,217,521	97

Target Code	Target Description	Approved Annual Budget	Actual Expenditure	% Expenditure
D04C01	Target 04: Physical infrastructure and service provision maintained and increased by 30% by June 2014	5,760,794,145	1,738,936,533	30
D05C01	Target 05: Monitoring and evaluation system developed and implemented by June 2013	2,073,595,901	1,788,485,491	86
	TOTAL OBJECTIVES D	26,679,859,439	21,789,006,890	82
OBJECTIVE E: Good governance and gender balance enhanced				
	Target 1: Good governance and National Anticorruption Strategy Action Plan implemented by 2013	155,486,000	123,824,620	80
	TOTAL OBJECTIVE E	155,486,000	123,824,620	80
GRAND TOTAL		55,932,127,768	47,901,145,480	86

Annex 4. District Reports

This section presents the results of the field visits that were made to Handeni, Kilosa, Kilwa and Rufiji Districts.

Handeni District

Forest resources in Handeni District

There are 8 FRs with total area of 21,327.2 ha (Table 08) managed by TFS on behalf of central government. One is the catchment forest (Gendagenda South: 1,918.2ha) for protecting sources of water but also keeping biodiversity resources in situ and maintaining sound environmental and ecological services.

Table 13. Forest Reserves in Handeni District

No	Name of the FR	Area (hectares)		GN No	Comments
		Productive	Protective		
1	Gendagenda North	890.7	-	Sch.	Boundaries not cleared and maintained
2	Gendagenda South	-	1,918.2	Cap 132 of 1950	Boundaries not cleared and maintained
3	Handeni Hill	544.0	-	426 of 23.9.1960	Boundaries not cleared and maintained
4	Korogwe Fuel	10,805.0	-	383 of 22.11.1957	Being converted into a forest plantation
5	Kwamakuranga	181.3	-	330 of 04.10.1957	Mining activities- gold within the FR area
6	Kwasumba	2,933.3	-	Sch.	Boundaries not cleared and maintained
7	Magambazi	749.5	-	Sch.	Boundaries not cleared and maintained
8	Mtunguru	3,305.2	-	Supp. 59 Cap 389	Boundaries not cleared
Total forest area (ha)		19,409	1,918.2		
		21,327.2			

Source: Handeni District Forest Office September, 2015

Kilosa District

Forest resources in Kilosa District

Kilosa District is located in Morogoro Region in the western part of the district. Geographically the district is characterized by three zones: flood plains; plateau and mountainous/upland areas (Shishira *et al.*, 1997). The flat undulating plains with an altitude of about 550 m extending east and in most cases these flood plains for the recent years have been experiencing frequent and unpredictably heavy foods during the rainy seasons. Kilosa district possesses 9 forest reserves:

Tarangwe FR	715 ha
Mamboya FR	199ha
Uponda FR	332ha
Milindo FR	3,101ha
Ikwamba	834 ha
South Mamiwa/Kisara FR	6,692 ha
Kihirili FR	245 ha

Ukwiva FR	78,700 ha
Palaulanga Mountain FR	10,488 ha

For many years the FRs in Kilosa district have provided ground cover and protected the flood plains from unnecessary floods. This has been possible for the past decades because the ecosystem functions have been functioning well due to sufficient forest and woodland cover. However, for the past two decades there has been an increased rate of tree cutting because of uncontrolled human activities related to agricultural expansion, incoming high numbers of livestock in Kilosa district as well as increased incidences of illegal logging in FRs and other protected areas including parts of Mikumi National Park. Furthermore, experiences shows that in most of the central government FRs, the conditions of the forests have been worsening becoming poor over the years. The Ukaguru and Rubeho mountains including the Ukwiva ranges as well other uplands areas have been important water catchments with 12 permanent rivers that used to have water flowing throughout the year originating from the catchment forests. The natural forests and woodlands often intercept rainfall and enable the rain water to percolate (seep) into the ground and eventually emerge as streams and rivers from within the catchment forests and other watershed areas. The forests dominated by the main canopy stratum with other canopies underneath and eventually grasses and other herbaceous vegetation growing thereby forming an important ecosystem within Kilosa district. In that context the structure of forests and woodlands with multiple layers are ecologically important not only for regulating water flows throughout the dry season; but also providing a wide range of crucial habitats for many species of animals, birds, reptiles, amphibians and insects.

There are 10 catchment forests reserves in the district five of them (Ikwamba, Mamboto and Mamiwa-Kisara South) are critical forests located in the high steep slopes of Ukaguru Mountain ridges, which are part of the Eastern Arc Mountains chain that are rich in biodiversity values. Additionally these FRs with high rainfall patterns are the main sources of water flowing throughout the year and benefiting many local communities from uplands to downstream. Other forests (Kihirili and Ukwiva FRs) cover an extensive area of the east facing escarpment are also important catchment areas but most often disturbed by annual dry season fires thereby reducing their water catchment values. The Mamiwa-Kisara South FR (about 6,692 ha and relatively undisturbed) is the main source of Wami River, which is intake point for water supplied to the residents of Chalinze areas and others adjacent along the pipe that enables water to flow from the river to Chalinze in Bagamoyo District, Coast region. Other rivers originating from the Kilosa district ecosystems including Mwega, Sasima and Iyove, which discharge water in the great Ruaha River as it flows toward Kidatu Dam and thereafter into Rufiji River discharging water into the Indian Ocean.

TFS forest management activities in Kilosa District

Currently and TFS is struggling to control and reduce disturbances by limiting human access into the FRs but still facing challenges related to inadequate funding and limited staff capacity. For instant, there are 10 TFS staff while they need at least 50 foresters to be able to manage the forests in quite difficulty terrains. Within the limited capacity TFS for the past three years has been working on the following activities:

Pala-ulanga FR had a management plan that ended in 2009 but this plan was not implemented. However, efforts have been made by district TFS staff to revise and update the FR management plan.

Enhancing FRs Conservation and Ecosystem services: In Kilosa district TFS has been working on resurveying FRs boundaries and installing signboards. For instance, South Mamiwa FR has 65 km of boundary and about 50 km have been resurveyed and enhanced through clearing and digging

directional trenches, which are part of the boundary marker. Furthermore, where boundaries have been cleared, fixing signboards indicating that this is a protected area unauthorized human activities not allowed. When resurveying of boundaries is carried out by a multidisciplinary team involving representatives of local communities as well as the experts from the Department of Lands in the District Council. Where necessary new beacons are installed as the permanent boundary marker and using the geographical positioning system (GPS) coordinates are taken to keep proper data indicating where the beacons are installed. Boundary resurveys also done to Ukwiva FR with 141 km of boundary and over 60 km have been resurveyed during 2014/15 financial year. A total of 118.5 km have been resurveyed and cleaned at a total of TZS 36 million.

In terms of equipment TFS Kilosa has one vehicle (Nissan) a bit old although running but at very high maintenance and running costs, Also possess five motorbikes. In total there is 10 staff members in Kilosa district of which four are working at the district headquarters and six stations in the field. The district for 2014/15 managed to collect about TZS 260 million (spending about TZS 142 for the same period). On the other hand, the District Council has two foresters and their budget is about TZS 12 million annual at a rate of TZS one million per month. In most cases the budget remains in books because the District Council hardly disburses funds to forestry section only salaries are paid but very little if any funds for operations and/or staff allowances or other benefits at work.

The Kilosa District Council with two foresters but have managed to prepare 10 villages harvesting plans and in collaboration with TFS the district is trying to reduce illegal exploitation by also collaborating with NGOs namely TFCG and MJUMITA to increase the local communities' control of the forest resources in the village/community lands. This is positive move towards enhancing ecological services though improved community capacities which is rated to control illegal exploitation of forest resources from 20 to 70%. According to the Kilosa District Strategic Plan (2015/16 to 2019/20: the district intends to raise 10,000 seedlings year⁻¹ to be planted in various localities within the district and priority will be in seriously degraded areas and in villages where tree planting would be considered necessary. Furthermore, efforts will be done to train 10 villages in community-based forest management (CBFM) annually. Also it is intended to reduce forest degradation/destruction from 20,000 ha to about 5,000 ha. The district also intends to assess the land cover types and changes by using the satellite imageries.

Southern Zone

Forest resources in the Southern Zone

The forest resource of the Southern Zone comprise Coastal Forests (including the mangrove forests) and the Miombo Woodland. Mangrove forests are found along the coastal belt of mainland Tanzania and the Mafia Island. The Southern zone has **49** Central government FR covering an area of **1,223,786.8** ha, one Forest Nature Reserve (Rondo) with an area of **11,742.26** ha and **21** Local Authority Forest Reserves covering an area of **55,647.6** ha. The central government FRs is as indicated in the following **Table 09**.

Table 14. Forest Resources in the Southern Zone

Region	District	Number of Forest Reserves	Productive	Protective	Total Area (Ha)
			Area (Ha)	Area (Ha)	
Lindi	Kilwa	11	176,297.0	16,606.0	192,903.0
	Lindi	7	31,113.4	16,673.0	47,786.4
	Liwale	1	80,423.0	18,000.0	98,423.0
	Nachingwea	1	28,490.8		28,490.8

Region	District	Number of Forest Reserves	Productive	Protective	Total Area (Ha)
			Area (Ha)	Area (Ha)	
	Ruangwa	1	740.0	-	740.0
Subtotal	5	21	317,064.2	51,279.0	368,343.2
Mtwara	Masasi	3	22,089.0	-	22,089.0
	Mtwara	3	14,422.4	0	14422.4
	Nanyumbu	2	14,245.0	6,620.0	20,865.0
	Newala	4	-	9,534.3	9,534.3
	Tandahimba	1	-	48,703.0	48,703.0
Subtotal	5	13	50756.4	64857.3	115613.7
Ruvuma	Mbinga	1		1,600.0	1,600.0
	Songea	6	8,903.2	465.0	9,368.2
	Tunduru	4	170,945.3	154,627.0	325,572.3
	Namtumbo	3	305,539.4	96,750.0	402,289.4
	Nyasa	1		1,000.0	1,000.0
Subtotal	5	15	485,387.9	254,442.0	739,829.9
Grand Total	15	49	853,208.5	370,578.3	1,223,786.8

The Southern Zone has a total of 112 staff and 92 of them are permanent staff (84 being forestry experts and 8 beekeeping staff and 10 are supporting staff) while 20 are employed on contract basis as outlined in Table DDD.

Table 15. Personnel in the Southern Zone

S/N	Category	Number of Forest staff	Number of Beekeeping staff	Total	Remarks
1.	Professional (Degree)	28	2	30	MSc. (4) and BSc. (26)
2.	Technical (Diploma)	25	5	30	
3.	Technical (Certificate)	19	1	20	
4.	Attendants	2	-	2	
4.	Accountant	-	-	1	
5.	Supplies officer			1	
6.	Technician			1	
7.	Record Assistant	-	-	1	
8.	Secretary/Typist	-	-	2	
9.	Watchmen	-	-	4	3 employed on temporary basis
10	Check points			5	Employed on temporary basis
11	Office Attendants	-	-	3	Employed on temporary basis
12.	Drivers	-	-	12	9 Employed on temporary basis
	TOTAL	74	8	112	

NB: Out of 30 supporting staff, 20 are employed on contract basis.

In the Southern zone through efforts of NGOs (MJUMITA, Mpingo (MCDI) and WWF) many villages (particularly in Kilwa, Liwale, Nachingwea, and Tunduru Districts) are becoming active in controlling

their forest and woodland resources after realizing financial benefits and being able to improve community services using the money accrued from sale of forest produces and products.

In the Southern zone, the absence of management plans is compounded by low staff capacity (112 staff against needed 245 to manage 1,223,786 ha of FRs). Furthermore, financial allocations are inadequate to enable each forest reserve to have effective management in place. As in other zones, the combination of high levels of harvesting, no management plans and limited staff capacity is resulting in revenues from royalties being obtained in a manner that risks being ecologically and financially unsustainable.

Kilwa District

Forest resources in the Kilwa District

Table 16. Central Government Forest Reserves in Kilwa District

No	Name of Forest Reserve	Adjacent Villages or Communities)	Area (Ha)	Declaration/GN
1	Kitope	Marendego, Kinjumbi, Somanga Simu	3,387	312-12/9/57 Productive and Productive value
2	Malehi	Nanjilinj A	38,850	175-25/4/1957 Productive and Protective
3	Mangrove Kilwa	Mbwemkuru, Rushungi, Kiswele, Mangisani, Kisongo, Lihimalyao, Namakongoro, Pande Mikoma, akimwela, Namwedo, Mtitimira, Pande plot, Malalani, Mkondaji, Songo mnara, Kilwa kisiwani, Kilwa masoko, Kisangi, Mkwanyule, Mpara, Singino, Kivinje, Mtoni, Mtukwao, Miteja, Mtandango, Tingi, Njianne, Somanga, Marendego, Songosongo	36,737	1932-55 (GN-
4	Mbinga kimaji	Kipatimu-nandembo, Kandawale	1,874	103-27/03/1959(57) Protective
5	Mtarure	Migeregere, Ngea, Kipindimbi, Kikole, Nainokwe, Liwiti	60,484	313-13/9/57 Productive
6	Mitundumbea	Mchakama, Kiwawa	8,547	376-15/11/1957
7	Ngarama north	Kiwawa, Hoteli tatu, Mandawa, Mtandi	39,628	400-11/11/1955 Protective and Productive
8	Ngarama south	Kiranjeranje, Mbwemkuru, Makangaga, Mirumba	7,078	300-12/9/1957 Protective and Productive
9	Pindiuro	Makangaga /Nakiu	11,795	Cap 132P-1363 Protective and Productive
10	Rungo	Likawage	22,586	319-2/11/1956 Productive
11	Tong'omba	Kibata, Hanga, Pungutini, Mtende	1,987	250-14/7/1961 Protective
	TOTAL		192,314	

Kilwa District contributed TZS **1,807,088,569** or 76.57% of 6.8 billion revenue collected in the Southern Zone for the financial year 2014/15 as indicated in Table 11.

Table 17. Revenue collected in Kilwa District in 2014/15

Code	TZS	Percentage of Total
140351	1,486,745,259	82.3
140353	159,315,330	8.8

Code	TZS	Percentage of Total
140357	4,370,146	0.24
140311	41,618,600	2.3
140349	69,530,189	3.8
140345	20,996,800	1.2
140316	2,464,600	0.12
140312	15,314,000	0.8
140327	6,023,605	0.32
140354	205,040	0.1
140357	505,000	0.03
TOTAL	1,807,088,569	100

The Budget for 2014/15 was about TZS 302,465,200/= but TFS approved TZS 204,217,800 finally the district received TZS 171,659,744/= which is 79.16% of approved budget. This received amount was not enough to enable TFS to execute its mandates in Kilwa District

The status of TFS staff in Kilwa District is as follows:

Academic level	No of staff
Degree	2
Diploma	2
Certificate	3
Temporary	1
Casual	2

Joint Forest Management in Kilwa District

Since TFS started operating in Kilwa District in 2013 it has been working on JFM activities including training the Village Forest or Natural Resources Committees and the local communities on various aspects of forest conservation and record keeping as well as how to manage wildfires during the dry season. For 2014/2015 TZS. 5,748,000/= were spent on JFM activities.

TFS Investments in Kilwa District

Since 2013 TFS has invested in FRs boundary opening and this activity involved resurveying and demarcation of the boundaries in collaboration with key stakeholders like the adjacent villages and local communities. These activities have been done in six FRs namely Mitarure, Ngarama Kaskazini, Ngarama Kusini, Pindirol, Malehi and Kitope. The same activities are currently taking place in Mbinga Kimaji FR. Most of these FRs were heavily inhabited by illegal occupants undertaking various human activities but after opening up the boundaries all those who had been inside the reserved area were evicted and severely warned not to return otherwise heavy punishment will follow including being jailed. Additionally sign board (large and small) indicating that a certain forest is FR have been erected for notifying the public. By end of 2014/2015 financial year 61 large boards and 186 small boards have been posted in various FRs including Ngarama South, Ngarama North, Pindirol, Malehi, Mitarure and Kitope, Additional Boards are being prepared for three FRs: Mitarure, Ngarama North and Mangrove. Thereafter, similar activities will continue in other FRs.

Until now four kilometers of boundaries have been cleared in five FRs but work is still continuing. A total of TZS 75,564,000/= have been spent on the above reported activities. Also patrols have been undertaken to curb illegal human activities in the Kilwa District.

The TFS budget for 2015/16 in Kilwa District is TZS. 220,536,500/= that will be used to implement the following priority activities:

- To open up the boundaries in two FRs including fixing the sign;
- To prepared Forest Management plans for two FRs;
- To establish two check-points;
- To undertake regular patrols and to enforce the law accordingly especially when the villages are mandated to harvest and sell forest produces in own villages;
- Conduct training to villages and communities adjacent to FRs;
- Under tree planting (gap filling or enrichment planting) in some FRs in collaboration with the District Council;
- TFS in Kilwa District is anticipating to collect about TZS. 1.8 billion for 2015/16 financial year. By end of September 2015 the revenue collection has reached TZS. 458.1 million (25.45% of projection).

It was found that in Kilwa and Rufiji districts where MCDI is trying to assist some villages to benefit from the natural forest and woodland resources available within the village lands, it has been rather difficult for the villages to make use of the district forest hammer. The challenges that cropped up was the use of forest hammers to legalize timber and logs obtained in declared or gazetted village forests and woodlands. It was the practice that TFS District Managers had the authority of keeping and maintaining the district hammer. However, accessing the hammer by the villages became a serious issue in such villages like *Nanjirinji* "A" in Kilwa district and *Likawage* village in Rufiji district. Why the situation became so hard that way for the TFS District Managers to become unwilling to provide needed services is not easy to understand. The Services of TFS at the district level was needed because by then the MNRT had not provided special hammer services to the villages that are operating within the PFM guidelines and had obtained relevant documents like licence books and receipt from MNRT but not the hammers.

The situation has been alleviated after the MNRT issuing special hammers to DFOs from Kilwa, Liwale, Rufiji, Tunduru Districts in the Southern area to service the villages where MCDI has been operating in collaboration with MJUMITA (e.g. in Liwale) or in collaboration with MJUMITA and WWF (e.g. in Tunduru District). The villages can now be serviced through DFOs and TFS remain with the overall authority of undertaking regulatory mandated making sure that forest produces and products obtained from the villages are legally obtained and compliance is good. Issuing villages' hammers is one of the impacts of the decision makers forest academy (DMFA) organized by MNRT through Uongozi Institute). The last conference organized at held in the Municipality of Mtwara (15-16 July 2015) focused on forest and local community benefits and through that conference the participants raised the concern why it has taken very long time for MNRT to issue hammers to DFO for use in villages. It was agreed during the conference that in future the MNRT can issue the hammer to a specific village once it is proved that the village has required capacity to use the hammer and has fulfilled special conditions set by the MNRT. This procedure is meant to prove that the village is able to use the hammer well and according to stipulated rules but if proved that the village is misusing the hammer then the MNRT can withdraw it from servicing the village and return it to the Ministry.

Rufiji District

Forest resources in the Rufiji District

Rufiji district is in the Coast Region and possesses 33 FRs managed by TFS on behalf of the central government.

Table 18. Rufiji District Central Government Forest Reserves

Name of FR	JB	Owner ship	Area in ha		Declaratio n (GN No)	Variation Gvt. Notice no.	Revocation Gvt. Notice No
			Producti ve	Protective			
Bumi	E/R2/1	T.T	519.8		Sch.		415/17/7/64
Katundu	1086	T.T	4,727.0		155/3/6/66		
Kikale	1983	T.T	1,000		Cap.132 P.1351		
Kireungoma	RE/R/6/1	T.T	34.0		Sch.		413/17/7/64
Kipo	1086	T.T	1,749.0		Cap.132 P.1351		
Kumbi	E/R/2/1	T.T	27.9		Sch.		433/24/7/64
Delta mangroves	634	T.T	40,469.0		Cap.132 P.1350		
Mohoro	615	T.T	2,349.0		Cap. 132 P.1349		
Mohro river	602	T.T	49.0		204/22/766		
Mchungu	1082	T.T	1,000.0		Cap. 132 P.1352		
Mpanga	NIL	T.T	900.0		Cap. 132 P.1352		
Mtanza	NIL	T.T	4,922.0		Cap. 132 P.1352		
Mtita	RE/R/7/1	T.T	2,998.0		Cap. 132 P.1350		329/26/7/60
Mandundu	RE/R/2/1	T.T	29.9		Sch.		414/17/7/64
Namakutwa	610	T.T	3748.0		Sch.		
Nerumba	E/R/2/1	T.T	23.1		Sch.		434/24/7/64
Ngulakula	NIL	T.T	2,399.0		Cap.132 P.1352	331/15/7/1960	
Nyamuete	610	T.T	400.0		Sch.		
Nyumbubuni	-	T.T	2,999.0		Sch.	330/15/7/1960	
Rondondo	C/18/469	T.T	379.6		By Germans 1912		435/24/7/1964
Ruhoi River	508	T.T	68,619.0		444/26/10/1962		
Rupiage	-	T.T	4,118.2		Sch.		
Tamburo	1620	T.T	5,997		Cap. 132 P.1351		
Utete	625	T.T	949.0		"		

During 2014/15 Rufiji District collected TZS. 3.6 billion but allocated and spent only TZS. 167 million (about 4.6%) of the generated revenues

For the financial year 2015/16 TFS in Rufiji District is anticipating collecting TZS. **YYY** and by end of September 2015, the TFS had collected 842 million and has received only TZS 39 million (4.6%) during the same period of collected amount. According to records 82 traders are registered for charcoal, 35 for firewood, 13 for mangroves poles, 10 for other poles operating in Mchungu, Kikale and Rufiji Delta FR areas for 2014/15.

TFS investments in Rufiji District

TFS has tried to protect all the forests but still in very difficult condition due to limited capacity in terms of staff and financial resources. In that context most of the FRs are not as well managed as expected. However, for the past two years TFS has tried to open up boundaries in five out of **22** FRs (Table 12). Boundaries have been resurveyed and consolidated through clearing and installation of beacons as well as fixing the signboards (both concrete and aluminium types). Investments made are as follows:

Name of FR	Area (ha)	Km consolidated
Tamburu	5252	30.7 km
Muhoro River	50.4	3.4 km
Muhoro	2702	27 km
Kikale	1169.5	14.45 km
Mchungu	1525	12 km
Total	10,698.9	87.55

Korogwe District

Forest resources in the Rufiji District

In Korogwe District there are seven central government's FRs with a total area of about 17,591.88ha managed or under the jurisdictions of TFS but also two local authority FRs exist with a total area of about 382.8 ha: Korogwe Hill (146ha) and Lukoka (236.8ha). The conditions of these FRs are considered to be in very bad shape as no management strategies are in place

Table 19. Forest Reserves in Korogwe District

No	Name of the FR	Area (hectares)		GN No	Comments
		Productive	Protective		
1	Chagandu	6,526.2	-	295 of 20.6.58	Boundaries not cleared
2	Mafi Hill	-	2,509.1	436 of 24.7.64	Boundaries not cleared
3	Mwenga	1,159.0	-	297 of 20.6.58	Boundaries not cleared
4	Ndolwa	1,173.8	-	301 of 20.6.58	Boundaries not cleared
5	Bombo West	3,523.0	-	1 of 1959	Boundaries not cleared and hardly maintained
6	Bombo East	470.0	-	?	GN number not located
7	Vugiri	-	40	226 of 1961	Boundaries not cleared and hardly maintained
Total Area (ha)		4,548	13,043.88		
		17,591.88			
Local Authority Forest Reserves-Korogwe District					
8	Korogwe Hill	146.0	-		GN not located
9	Lukoka	236.8	-		302 year not known?

Funding from TFS was about **TZS 130 million** for 2014/15 and not much revenue was collected from sale or utilization of forest and woodland resources. Less than **TZS 8 million** was collected

month⁻¹ or about TZS. **94 million** year⁻¹ during the financial year 2014/15. The district budget was TZS. **120 million** for the same period but received only **34 million** shillings implying an expenditure on forest and woodland management of about TZS. **2.8 million** month⁻¹.

Forest Management Plans in Korogwe District

In most cases the forest reserves in Korogwe district do not have approved forest management plans and the reserve boundaries have not been cleared. No data on the forest resource was available at the district, not even the data generated by NAFORAMA nor vegetation maps or landcover maps.