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## EXPERIENCES IN FOREST LANDSCAPE RESTORATION (FLR)

# Lessons Learnt from 10 Years of Restoration of Coastal and Sub-montane Tropical Forests: The East Usambara Landscape (Tanzania)

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WWF is one of the world's largest and most experienced independent conservation organizations, with over 5 million supporters and a global Network active in more than 100 countries.

WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature, by: conserving the world's biological diversity, ensuring that the use of renewable natural resources is sustainable, and promoting the reduction of pollution and wasteful consumption.



# PREFACE

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In 2018, the commitment by Tanzania's government\* to restore 5.2 million hectares of degraded and deforested land by 2030 brought us renewed hope for the role of restoration to improve livelihoods and biodiversity in the country. This hope stems from the multiple opportunities that forest landscape restoration (FLR) offers: it can contribute to improving livelihoods, protecting food crops, securing key habitats for animal species, reducing carbon emissions, and more generally, providing a range of ecosystem goods and services. For Tanzania, it was a privilege to be able to join other African countries in the region and across the continent in the commitment to restore 100 million hectares of degraded and deforested land in Africa by 2030 through the African Forest Landscape Restoration initiative (AFR100). Thus, Africa will be a large contributor to the Bonn Challenge and the New York Declaration on Forests.

Today, the key to delivery on these commitments is good concrete experiences on the ground, and we are honoured and humbled in sharing this report which may serve as inspiration to our partners on the continent.

Our FLR efforts in the East Usambaras started 15 years ago and together with our key implementing partner, the Tanzania Forest Conservation Group (TFCG), we are proud to have contributed to reducing the deforestation onslaught in this landscape. Importantly, ensuring that local districts took over the responsibility for continuing FLR work was a milestone towards sustainability of our work. While all is not solved, we are pleased to note that today FLR has gained strong political momentum globally, growing interest by state and non-state actors compared to when we started the project in the early 2000s. We hope that through this publication the lessons we have gathered can support other similar initiatives as well as demonstrate to the world Tanzania's foresight in engaging in FLR already 15 years ago.

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\* <http://wwf.panda.org/?332953/Tanzania-announces-historic-move-to-restore-52-million-hectares-of-degraded-land>



Deforestation and forest degradation take place in Tanzania at an alarming rate due notably to human pressure on land and other natural resources. Natural phenomena, such as climate change, further accelerate this development. The East Usambara Mountains with their valuable conservation forest areas have not been immune to these trends. Improving governance factors, especially regulation of land uses, including farming and forest utilization, can help to secure the high degree of endemism of these forests, the diversity of flora and fauna and security of water supply to the surrounding communities and the urban population of Tanga.

Forest landscape restoration was considered a suitable intervention not only to restore the lost forests in the East Usambaras but also to safeguard the remaining forests, to establish new ones and to improve community livelihoods. When more land for conservation purposes is no longer available, as is the case in the East Usambaras, it becomes vital to consider the array of alternatives – including land sharing between agriculture and forest.

Fundamentally, the forest adjacent communities are well informed about their forests and have their traditional practices of managing them. Many of these practices are aligned with the principles of sustainable development though there are also those, which are becoming unsustainable as the population continues to grow. This report highlights the role of facilitators to customize and promote good practices so that they can be sustainable. The development of alternative income-generating options for example, is important to provide communities with much-needed livelihood opportunities and to deter them from engaging in forest destruction.

The humid forests of the East Usambara mountains are among the regional and global biodiversity hotspots. Finland's involvement in the forests dates back to the 1970s. At the onset the forest sector support focused on logging and sawmilling but was later shifted to conservation and sustainable forest management. The biodiversity of the mountain forests was inventoried in the 1990s in collaboration with Tanzanian and international partners. With Finland's support the conservation and land use plan of the Eastern Arc Mountains was also completed. The Amani Nature Reserve Area was established in 1997. The East Usambaras received the status of UNESCO Biosphere Reserve Area in 2000.

This report shares the experiences in land use planning for protection of the existing reserved areas, establishment of Village Land Forest Reserves, agroforestry and tree planting in the East Usambaras. I am sure it will be useful and inspiring for planning and implementing further forest landscape restoration activities in Tanzania, and in other parts of Africa and beyond.

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# TABLE OF CONTENTS

Preface	1
Executive Summary	4
<hr/>	
<b>INTRODUCTION</b>	<b>6</b>
<hr/>	
<b>PRESENTATION OF THE LANDSCAPE</b>	<b>8</b>
<hr/>	
<b>PROJECT PHASES</b>	<b>12</b>
<hr/>	
<b>IMPLEMENTATION: ACTIVITIES AND RESULTS</b>	<b>14</b>
<hr/>	
<b>PARTNERS AND MAIN ACTORS</b>	<b>21</b>
<hr/>	
<b>GOVERNANCE</b>	<b>22</b>
<hr/>	
<b>CAPACITY BUILDING</b>	<b>24</b>
<hr/>	
<b>COMMUNICATION</b>	<b>25</b>
<hr/>	
<b>SUSTAINABILITY AND EXIT STRATEGY</b>	<b>26</b>
<hr/>	
<b>OVERARCHING LESSONS LEARNT</b>	<b>28</b>
<hr/>	
<b>CONCLUSION AND FUTURE PROSPECTS</b>	<b>31</b>
<hr/>	
References	32



# EXECUTIVE SUMMARY

## Lessons Learnt from 10 Years of Restoration of Coastal and Sub-montane Tropical Forests : The East Usambara Landscape (Tanzania)



The coastal and sub-montane forest of Eastern Africa is ranked as one of the world's 10 most endangered biodiversity hotspots. The East Usambara landscape represents one of the larger forest blocks within this hotspot. It displays an important array of unique biodiversity, such as the Usambara eagle owl (*Bubo vosseleri*), the Sokoke scops owl (*Otus irenae*), the critically-endangered long-billed tailorbird (*Orthotomus moreaui*), the vulnerable dapple-throat (*Arcanator orostruthus*), the vulnerable Swynnerton's robin (*Swynnertonia swynnertoni*), the endangered Usambara weaver (*Ploceus nicolli*), and the endangered Usambara hyliota (*Hyliota usambara*). Approximately 135,000 people live in the landscape, distributed across 35 villages. They depend directly on the ecosystem goods and services provided by the forest including provision of medicinal plants, food, construction material and importantly, regulation and protection of water sources.

Starting in 2004 and for ten years, through three consecutive project phases, WWF together with its local partner, Tanzania Forest Conservation Group (TFCG), and with funding from the Finnish Ministry of Foreign Affairs, conducted a forest landscape restoration (FLR) project "to prevent the loss of globally important biodiversity values, improve the livelihoods of the local population and restore and maintain the multiple functions of forests in the East Usambara Mountains."

The project emphasised the creation of village land forest reserves (VLFs) as a tool to improve connectivity between existing protected areas. Communities were engaged in establishing these reserves and in total 19 village communities established VLFs and six community forest reserves (CFRs). To reduce pressure on natural forests, whilst improving livelihoods, a number of alternative income generating activities were developed with communities, such as butterfly farming, fish farming, agroforestry and beekeeping. Brick-making was also developed to reduce dependence on timber for construction. Equally to minimise fuelwood collection, more fuel efficient stoves were distributed.

Thanks to the project, forest clearance went down by 88 % (between 2006-2012) and communities became more actively involved in preserving the forest. Forest fragmentation was reduced and a 97 ha corridor established between the two main forest reserves, the Nilo Nature Reserve and the Amani Nature Reserve through the Derema Forest Reserve. Alternative income generating activities helped to raise local incomes. By the project end, 1,326 people were involved in beekeeping and farming of the aromatic plant camphor basil, and incomes of targeted villagers increased by 239 % from TZS 101,800 in 2004 to TZS 345,355 in 2013. Fish ponds doubled with most of the fish consumed locally by villagers, thereby providing an alternative source of protein.

Through the project, the number of households using improved stoves increased from 825 in 2008 to 3,465 in 2013. Four brick pressing machines were bought and an estimated 35 % of households in project villages were using these by project end. By November 2013, forest fires had declined by 97 % in VLFs / CFRs.

### Legend

- The 13 massifs of the Eastern Arc mountains
- Natural forest cover

Sources:  
Newmark and Mc Neally (2018) modified

## Key lessons learnt over the course of this project are:

- 1 Ensure long term and diverse funding:** Because of its long-term nature, funding for FLR needs to extend beyond the typical three-year donor cycle and ideally, should be from diverse sources.
- 2 Balance both ecological and social objectives:** Where people are dependent on nature, especially in many deforested or degraded sites, social objectives are as important as ecological ones, and a balance needs to be struck between the two.
- 3 Ensure that communities benefit from protecting and restoring forests:** Income-generating activities provide a good incentive for communities to engage in restoration. Yet, the more vulnerable in the community, particularly women and youth, need to be better targeted for these activities.
- 4 A favourable policy environment is critical:** National policies and programmes can act in favour of or against FLR. They provide the context within which FLR activities are implemented.
- 5 Understand and acknowledge historical and political legacies:** Land tenure and rights may have profound impacts on efforts to restore forests. Recognising and addressing land dispossessions is fundamental to engaging in large scale restoration.
- 6 Agroforestry is an important tool for FLR:** Agroforestry represents one of the tools that can be used in FLR to help achieve both social and ecological objectives in situations where the stakes are high for both, i.e. where poverty is high, people depend directly on the land for their livelihoods and where biodiversity is highly threatened and unique.
- 7 Prioritise restoration interventions within the landscape:** Although it can be challenging, it is important to prioritise restoration interventions within the landscape based on social and ecological criteria.
- 8 Embed the project in local institutions for sustainability:** To achieve the desired long-term impacts on the landscape through FLR, it is important to truly engage local institutions and empower them.
- 9 Raise awareness through a comprehensive communications strategy:** Changing behaviours to reduce pressures on forests necessarily requires awareness raising.
- 10 A strong monitoring and evaluation plan is paramount for adaptive management:** Understanding what has been achieved in a structured manner, and identifying causes for success or failure is the only way to ensure appropriate management changes.
- 11 Identify and share lessons learnt before exiting:** Lessons learnt are valuable for long-term projects as they can help to re-direct or adapt interventions, and/or strengthen valuable ones.
- 12 Management structures for FLR need to reflect its multi-scalar dimension:** Interventions for FLR take place at different spatial scales: politically at the national scale, internationally with donors and locally with partners and communities.

# INTRODUCTION

**THE COASTAL FOREST OF EASTERN AFRICA WAS RANKED AS ONE OF THE 10 MOST ENDANGERED BIODIVERSITY HOTSPOTS BY CONSERVATION INTERNATIONAL (CI).**

Situated in North East Tanzania, the East Usambara landscape is one of 13 landscapes or forest massifs in the 405,852 ha eastern Arc Mountains and East African Coastal Forests hotspot (Newmark and McNeally, 2018). The region displays significant ecological diversity placing it in pride of place among the world's bio-

diversity hotspots. Situated along the Rift Mountains, this ecoregion is made up of coastal, sub-montane, montane and upper montane forests and harbours numerous endemic, as well as threatened, species. Local human populations depend on its natural resources; the ecosystem goods and services provided are of great significance to rural populations, many of whom live in poverty. They include provision of medicinal plants, food, construction material and importantly, regulation and protection of water sources.

The ecoregion is one of the most important in the tropical world and, with only about 10 % of its habitat left, the coastal forest of Eastern Africa was ranked as one of the 10 most endangered biodiversity hotspots by Conservation International (CI). The hotspot is recognised as home to over 1,500 endemic plant species, 16 endemic mammals, 22 endemic birds, 50 endemic reptiles and 33 endemic amphibians (CEPF, 2005). According to the IUCN Red List of Threatened Species, 333 species in this hotspot are listed as either critically endangered, endangered, or threatened.

The highly fragmented nature of the East African forests, including the East Usambaras, reflects the numerous threats stemming from a dense human population, including agriculture, anthropogenic fires, logging, fuelwood collection, mining and grazing. Fragmentation has taken its toll on the overall East Africa Forest hotspot, with a total of 311 forest fragments recently identified, of which 69.8 % are under or equal to 250 ha (Newmark and McNeally, 2018). Within the ecoregion, the East Usambara landscape is one of the remaining larger forest massifs totalling approximately 31,000 ha (EAMCEF website).

The East Usambara landscape with Nilo Nature Reserve in the foreground





Seeking to reverse this trend, in 2004, WWF obtained funding from the Finnish Ministry of Foreign Affairs, and together with the Tanzania Forest Conservation Group (TFCG) initiated a forest landscape restoration (FLR) project in the East Usambara landscape. Unlike other exclusively ecologically-focused restoration efforts, FLR acknowledges the importance of returning forests for both people and biodiversity. This was paramount in a landscape with high population pressure and high levels of poverty. Together with its partner organisation, IUCN, WWF convened a group of experts in 2000 who defined FLR as “*a planned process that aims to regain ecological integrity and enhance human wellbeing in deforested or degraded landscapes*” (WWF and IUCN, 2000). The FLR project in the East Usambaras sought explicitly to conserve forests and improve livelihoods.

### FLR in WWF’s Global Forest Programme

WWF’s ‘Forests for Life’ programme during the period 2001-2006 centred around three global targets: protected areas, sustainable forest management and FLR. The FLR target was “to undertake at least twenty FLR initiatives in the world’s threatened, deforested or degraded forest regions to enhance ecological integrity and human well-being by 2005”. WWF contributed specific steps along the way to this global target, including leading the implementation of 10 long-term FLR initiatives (Mansourian and Vallauri, 2014).

Outside the WWF network, much has been achieved at an international level to raise the political profile of FLR and to advance technical understanding through implementation in key landscapes (Mansourian *et al.*, 2017).

Today, WWF’s global forest strategy includes as one of its global outcomes to contribute to the international ambition to restore “350 million hectares of forest landscapes” by 2030 (New York Declaration on Forests and Bonn Challenge on FLR). These global efforts aim to reverse the trend of forest loss and degradation by putting an emphasis on restoring the ecological functions of degraded forest landscapes.



# PRESENTATION OF THE LANDSCAPE

The entire East Usambara landscape covers an area of approximately 108,200 ha (Burgess *et al.*, 2007), of which about 31,000 ha is forest. The two main districts of Tanzania comprising the East Usambara landscape are Muheza and Mkinga. The highest point in this mountain range is Mt Nilo at 1,506 m.

Rich vegetation present here includes coastal forests, sub-montane and montane forests. Not only is it part of a global hotspot and one of the world's priority ecoregions, but it is also an important bird area (IBA) as well as being a key biodiversity area (KBA). An area of 90,000 ha in the Tanga region, covering part of the East Usambara mountains, has also been designated a Biosphere reserve under the UNESCO convention (see UNESCO website).

**77**  
SPECIES OF ENDEMIC  
AND NEAR-ENDEMIC  
VERTEBRATES CAN BE  
FOUND HERE.

A total of 77 species of endemic and near-endemic vertebrates can be found here (Burgess *et al.*, 2007), many of which are threatened with extinction. Situated essentially in the Tanga region (except for a small part in the Korogwe and Mkinga (Nilo) Districts), the East Usambara landscape is considered to be one of the most important in Africa for birds with several endemic and endangered species, such as the Usambara eagle owl (*Bubo vosseleri*), the Sokoke scops owl (*Otus ireneae*), the critically endangered long-billed Tailorbird (*Orthotomus moreaui*), the vulnerable Dapple-throat (*Arcanator orostruthus*), the vulnerable Swynnerton's Robin (*Swynnertonia swynnertonii*), the endangered Usambara weaver (*Ploceus nicolli*), and the endangered Usambara hyliota (*Hyliota usambara*) (IUCN Redlist).

The landscape is also important for its unique plant species, with 3 % of plants being endemic and 22 % qualifying as 'near endemics' (Birdlife International, 2018). Endemic floral species found in the landscape include 15 wild relatives of coffee and 20 African violet species (TBA, 2007). Rates of endemism for invertebrate species soar, with about 85 % of millipedes being endemic, 45 % of molluscs, and 40 % of butterflies (Birdlife International, 2018). Although relatively small, this mountain range provides numerous ecosystem goods and services to neighbouring human populations, notably, medicinal plants, fuelwood, building materials, fruit and water.

Approximately 135,000 people live in the East Usambara landscape, distributed across 35 villages (WWF, 2007). Indigenous local populations are diverse, and include the Wasambaa (or Sambaa or Shambaa), Bondei and Zigua tribes (Powell *et al.*, 2013). Their livelihoods revolve around small scale subsistence farming that includes bananas, maize, cassava, beans, yams and rice; while cash crops include sugar cane, cardamom, cinnamon, cloves, black pepper, teak and oranges (Powell *et al.*, 2013). Mean farm sizes are around 2.5-3 ha (Hall *et al.*, 2014), and agroforestry is interspersed with open fields and forested areas. Wild foods represent an important component of local people's diets, with Powell *et al.* (2013) finding a total of 92 species of wild (or spontaneously growing/uncultivated) foods being included in people's diets based on a survey conducted in 2009.

Threats to the landscape's forests include agriculture, fires, illegal logging, fuelwood collection, artisanal gold mining and grazing. Forest clearance started already in the colonial era, where export crops, such as tea and coffee, replaced forest (Rantala *et al.*, 2013). The job opportunities presented by these plantations attracted more people with a resultant peak in migration to the East Usambaras in the 1940s and 1950s, thus exacerbating pressure on the remaining forests (Rantala *et al.*, 2013).

As a result, natural forests in the East Usambaras are highly fragmented, with a total of 31 fragments over 10 ha in size, with a median size of 74 ha (Newmark and McNeally,



2018) although there are estimated to be 1000s of fragments smaller than 10 ha. Much of this forest is inside catchment forest reserves managed by the central government, although some smaller areas are also protected within tea estates and in village forest reserves. Other fragments can be found on village land that is available for conversion to farmland through the village land allocation system.

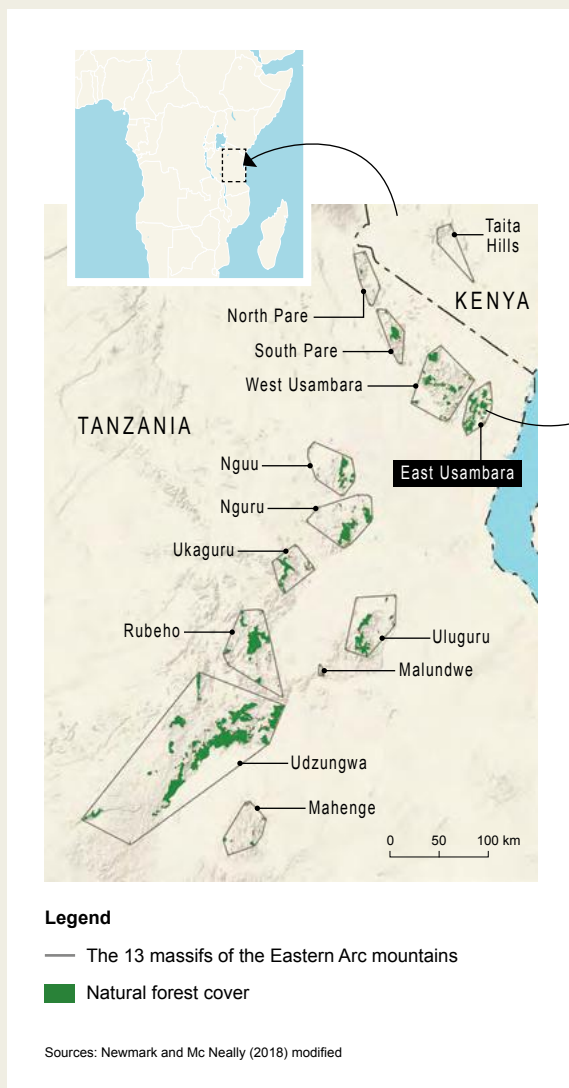
Because of the internationally-recognised importance of this forest region, the Amani Nature Reserve (8,380 ha) was established in 1997 and the Nilo Nature Reserve (6,025 ha) was established in 2007; together they account for close to half of the landscape's forest area.



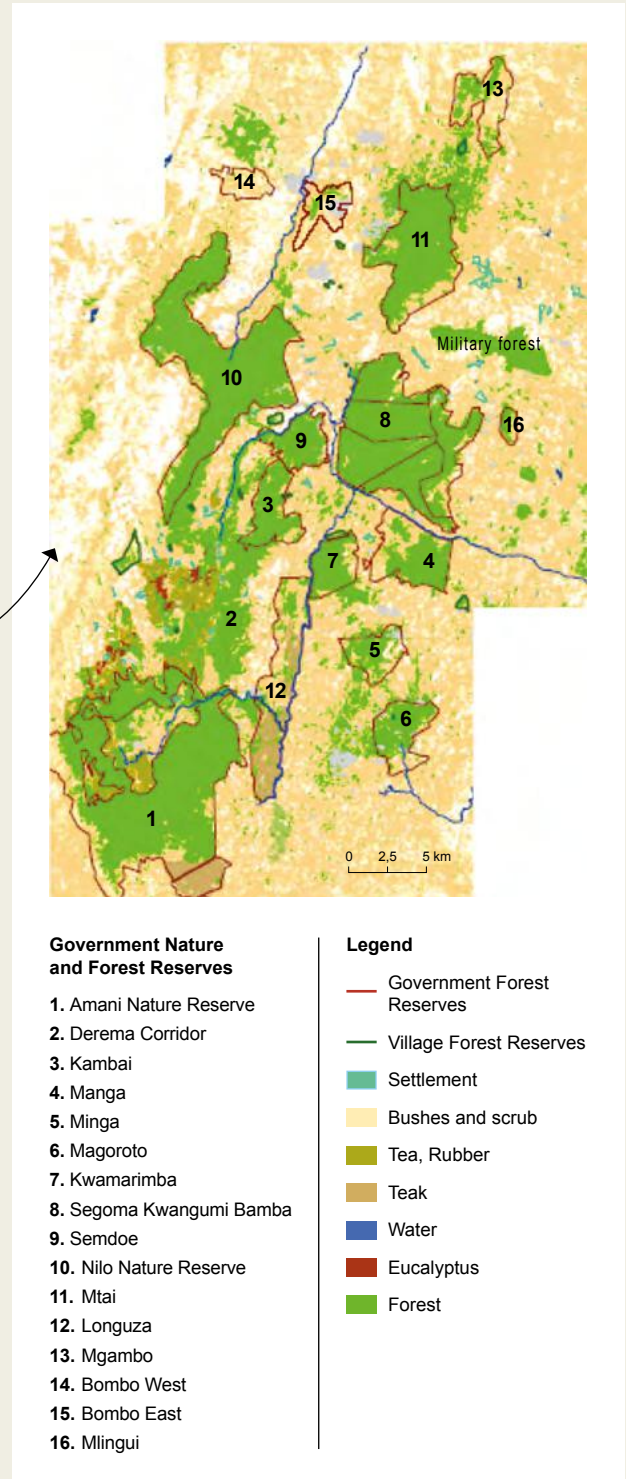
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The East Usambara landscape, a forested treasure under threat

## The landscape



**Figure 1.** Location of the East Usambara landscape within the Eastern Arc mountains



**Figure 2.** Land-uses in the East Usambara landscape early in the project (2006)



↓ Various land-uses and stages of degradation



↓ Human activities in the landscape



↓ An outstanding biodiversity hotspot



**Figure 3.** The landscape in a few images

## PROJECT PHASES

In 2004, WWF International, WWF Finland and WWF Tanzania raised funds from the Finnish Ministry of Foreign Affairs for a three-year FLR project in the East Usambaras. The overall aim of the project was: *“To ensure sustainable livelihoods and management of natural resources, by using forests and global compensation mechanisms effectively and equitably”*. Its immediate objective was *“To prevent the loss of globally important biodiversity values, improve the livelihoods of the local population and restore and maintain the multiple functions of forests in the East Usambara Mountains”*.

The project had four expected results:

1. Enhance connectivity between remaining forest areas;
2. Improve livelihoods through enhanced income-generating opportunities based on the sustainable utilisation of forest goods and services;
3. Improve good forest governance in the East Usambara landscape;
4. Measure the impact of the project and communicate its lessons learnt elsewhere across the Eastern Arc and Coastal forests.

The overall programme was delivered through three consecutive phases. The first phase ran from 2004 to 2006, the second phase was designed and implemented from 2007 to 2009, and the third phase ran from 2010 to 2012 with a one-year no-cost extension into 2013. Unusual for most projects, in this case, the same objectives and outcomes were kept throughout the three programme phases over 10 years.

The East Usambara landscape: a view looking to Kwamgumi with Nilo Nature Reserve in the foreground



© Nilo Duguit



**Table 1.** Programme phases

Dates	Phases in the landscape	Related events
2003-2004	<b>Inception Phase</b> - Preparing concept and searching for seed funding to start – funded by WWF	First workshop on FLR held in 2004 in Tanzania
2004-2006	<b>Phase I</b> - Project ‘East Usambara Forest Landscape Restoration, North-East of Tanzania’ funded by the Finnish Ministry of Foreign Affairs and WWF with the intention to improve connectivity in the landscape, livelihoods and forest governance, and to measure impact and learn lessons.	
2007-2009	<b>Phase II</b> - Project ‘Conserving forests and improving livelihoods in a multifunctional landscape in the East Usambara Mountains of North-East Tanzania’ funded by the Finnish Ministry of Foreign Affairs and WWF to continue the project of Phase I, with a special focus on monitoring.	
2010-2013	<b>Phase III</b> - Project ‘Securing long term benefits for the communities and forests of the East Usambara Mountains – Tanzania’ funded by the Finnish Ministry of Foreign Affairs and WWF. It continued the work from the first two phases, with a special focus on lesson learning.	Bonn Challenge on FLR (2011)

# IMPLEMENTATION: ACTIVITIES & RESULTS

Activities in the landscape were designed to achieve wider landscape scale results. Because of the scale of intervention FLR is inherently more complex and multi-faceted. Thus, long term FLR results build on a vast typology of actions (protected area, forest management, active restoration, agroforestry, alternative income-generating activities, capacity building...).

## Activities

With the pressing need to reduce fragmentation, particularly in between forest reserves, improving connectivity between protected areas was prioritised. The main tools to achieve this connectivity were: establishing village land forest reserves (VLFRs), supporting tree planting and agroforestry, development of strategies for protecting river banks in villages and assisting private companies (East Usambara Tea Company – EUTCO – Magoroto and Kwamtili) to develop their patches of natural forest as reserves.

Communities were eager to establish VLFRs for a number of reasons, including for protection of water sources, to support butterfly farming or beekeeping and ecotourism. Through the project, WWF and TFCG facilitated the creation of 19 VLFRs. Each VLFR has a legal status as it is recorded in the district register, and community members develop a management plan and bylaws for their reserve which are then approved by the village assembly and the district council. Six community forest reserves (CFRs), which are initiated at the level of the clan rather than the village, were also established under the project. A perceptible change in villagers' attitudes towards their village forests was noted, with for example, encroachment being displaced to tea plantations rather than their own forests!

To reduce illegal logging, brick-making equipment was introduced to replace construction poles, and improved cooking stoves were brought in to reduce the need for fuelwood.

Agroforestry was developed with villagers using several species, for example, mixing timber trees, with cardamom, cinnamon and cloves, or teak with maize. This helped to steer farming away from monoculture crops as was the case in many areas with cardamom for example. In this way, the trees could act as stepping stones in the landscape, reducing fragmentation and supporting more wildlife.

Watering a local nursery



© Jilber Pakka Karaman

Women played a key role in tree plantation



**TO SUPPORT MANY OF THESE ACTIVITIES, THE PROJECT PARTNERED WITH YOUTH SELF EMPLOYMENT FOUNDATION (YOSEFO) AND CARE TO PROMOTE TWO COMMUNITY BANKS.**

Through the project, several hundred (small-scale) tree nurseries were established at the village level. This was a gap in previous projects, and served to provide a diversity of native tree species (e.g. *Ocotea usambarensis*, *Allanblackia stuhlmanii*, *Cephalosphaera usambarensis*), and exotic species (such as *Acrocarpus fraxinifolius*, *Melica exelsa*, *Khaya anthotheca*, *Terminalia spp.*, *Senna spp.*, *Azelia quanzensis*, *Grevelea robusta*, *Ocimum spp.*). Native species have been used, notably to speed up the recovery of degraded lands, protect river banks and for fuelwood production, medicinal plants and agroforestry.

Training has been provided to villagers so that on the one hand they can grow the saplings, and on the other, so that they better understand the relevance of tree planting. The trees are used by villagers on their farms, along water courses and they sell any extra trees outside the village. For example, in Kuze Kibago and Kwezitu many seedlings have been bought by the forest service for planting around the edge of the Nilo Nature Reserve. Whereas in the past tree planting was encouraged without sufficient information and explanation, now villagers have a better understanding of the role and reason for their tree planting efforts (Sumbi, 2013).

In order to better protect scarce water resources, strategies were developed with villagers to conserve water sources and plant fruit trees (rather than crops) along river banks to reduce sedimentation. Recognising the importance of trees for water, the project prompted the development by village governments of a series of bylaws and fines to ensure that water courses were protected and restored.

To reduce pressure on forests, and to address the livelihoods dimension of the project objective, a number of alternative income-generating activities were introduced, including fish ponds, butterfly farming and beekeeping. They attempted to look at the whole chain from production to marketing. Several activities built on expertise and experiences developed earlier through other projects (e.g. butterfly farming and fish ponds).

To support many of these activities, the project partnered with Youth Self Employment Foundation (YOSEFO) and CARE to promote two community banks. Through these microfinance schemes villagers were encouraged to save money as well as obtain loans to facilitate their economic endeavours and promote environmentally-friendly activities.



Land use plans were designed in 18 villages through the project. Out of these, 12 have been endorsed by the district authorities and are being implemented, while the other six are still underway.

The project also sought to engage with tea companies which manage land containing some of the forest fragments. Actions were limited even though a number of discussions were held, notably to see how to produce fuelwood necessary for the tea production through eucalyptus plantations that would not jeopardise the rest of the forest cover in the East Usambaras. Indeed, tea companies have encouraged villagers to plant eucalyptus to buy them for their heating needs, but that has limited the breadth of species used by villagers, and eventually led to them selling these eucalyptus at a better price in Tanga. The result is that the EUTCO tea company for example has turned to sawmills to recover teak offcuts and has also tried to rehabilitate its own eucalyptus plantations.

Butterfly farming, one of the alternative activities generating new incomes for local people



Beekeeping



**Table 2.** Key activities by phases

Date	Type of activity	Key activities
2004-2006	<b>Land use analysis</b>	Production of detailed SPOT satellite images showing 16 land use categories and identifying key connectivity areas. Survey and analysis of the three target forest gaps between Nilo, Semdoe, Kambai, Kwangumi and Manga Forest reserves.
	<b>Protection</b>	Creation of nine village land forest reserves and two community forest reserves, as well as endorsement by the district council of three village forest management plans and by-laws.
	<b>Restoration</b>	Establishment of a total of 120 small-scale tree nurseries (producing more than 250,000 seedlings) out of which 7 are school nurseries, 10 individual and 103 group nurseries. Plantation of a total of about 460,000 trees during this phase.
	<b>Alternative income-generating activities</b>	Introduced four brick making machines to enable the construction of modern brick houses. Construction of 35 fuel-efficient stoves and 80 beehives.
	<b>Training and capacity building</b>	Establishment of three pilot centres (in Kuzekibago, Kizerui and Segoma villages) on landscape management practices; organised awareness-raising public meetings for over 20,000 people; study tours to Mvomero district for the project and relevant district staff to gather experiences on land use planning, and another to Iringa for farmers. Inclusion of environmental education guidelines in existing primary education teaching curriculum for 13 schools and printing of four different environmental education books that were distributed to 18 primary schools.
2007-2009	<b>Land-use planning</b>	Drafted four new village land use plans.
	<b>Protection</b>	Initiated seven new additional village land forest reserves managed by communities and drafted their management plans.
	<b>Restoration</b>	Planted about 350,000 trees. Established 183 small-scale tree nurseries. Produced 465,330 seedlings.
	<b>Micro-finance</b>	Launching loans and savings schemes: since the start of the project, a total of TZS 20,050,000 (USD 15,912) have been issued as loans and TZS 3,950,900 (USD 3,135) received as returns.
2010-2013	<b>Protection</b>	Established a new forest reserve (75ha) at Misalai village. Initiated joint forest management activities in several villages adjoining the Derema Forest Reserve and the Mtai Forest Reserve.
	<b>Restoration</b>	Established 521 small-scale tree nurseries. Produced 1,212,781 seedlings. Planted about 500,000 seedlings.
	<b>Training and capacity building</b>	Trained 913 members of the communities (73 % men and 27 % women) in tree nursery and agroforestry practices. Trained a total of 676 people (67 % men and 33 % women) in beekeeping. Trained 546 people (41 % women and 59 % men) from 12 villages in farming the medicinal plant <i>Ocimum kilimandscharicum</i> (camphor basil). Trained a total of 593 people (72 % men and 28 % women) on threats monitoring involving mostly the Village Environmental Committee and Village Government Council members and the project field extension officers.

## Results

Monitoring was initiated in the second phase of the programme as it was identified as a shortcoming in the first project phase (Mansourian and Vallauri, 2012). It looked specifically at disturbance, management effectiveness and threats. A monitoring officer was hired in the second phase of the project, and villagers were trained and actively engaged with for example, implementing disturbance transects.

The project has helped to improve management of forest reserves in the landscape. The protected areas' management effectiveness tracking tool (METT) was also applied three times over the course of the project to assess management effectiveness in 18 VLFRs. In 14 forests the METT scores remained stable or increased, whilst in three it decreased slightly. Village environmental committees felt empowered and able to manage their own forests without outside assistance, except for monitoring equipment. A greater understanding of the need to allow forests to regenerate by reducing human activities has been evidenced by the establishment of bylaws for VLFRs.

Villages participating in the project increased from 18 to 30. Forest clearance has gone down and communities are more actively involved in preserving the forest. Satellite images and forest cover analysis of the landscape indicate a massive reduction in forest clearing of over 88 % between 2006 and 2012, highlighting the importance of establishing forest reserves (even at village level). Transect measurements showed that the proportion of trees cut inside village forest reserves has been divided by 3 (from 0.03 % in 2009 to 0.01 % in 2013), and similarly, in community forests it has been divided by 5 (from 0.4 % in 2009 to 0.08 % in 2013).

Natural forest fragmentation was reduced and a 97 ha connection established between the two main forest reserves, the Nilo Nature Reserve and the Amani Nature Reserve in Misalai through the Derema Forest Reserve. The gazettement and protection of the Derema forest corridor as a National Forest Reserve (956 ha and boundary length of 27.2 km) was confirmed in 2009. Inside Amani Nature Reserve, forest cover between 2000-2010 remained stable at 2,908 ha forest in 2000 and 2,906 ha in 2010 (i.e. a 0.01 % annual forest loss). An estimate for the East Usambara KBA suggests a similar

**FOREST CLEARANCE  
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COMMUNITIES ARE  
MORE ACTIVELY INVOLVED  
IN PRESERVING  
THE FOREST.**

Deforestation was reduced to a rate < 0.01 % during the project





**THANKS TO THE PROJECT, LOCAL PEOPLE'S INCOMES WERE SIGNIFICANTLY INCREASED THROUGH ALTERNATIVE INCOME GENERATING ACTIVITIES.**

trend, with total forest cover in 2000 at 10,655 ha (out of a total area of 38,936 for the KBA) and in 2010 at 10,647 ha, therefore a drop of only 8 ha in 10 years or 0.01 % annually (Tabor *et al.*, 2016). In Muheza district a loss of 38 ha over the 2000-2010 period was estimated, from 14,904 ha to 14,866 ha (Tabor *et al.*, 2016). Although these figures cannot be attributed entirely to the project, it would have contributed to them. This relative stability of forest cover is in itself an important result.

Socio-economic results were far greater than anticipated. Thanks to the project, local people's incomes were significantly increased through alternative income generating activities. While initially the project aimed to improve the livelihoods of at least 300 people in the landscape, by the project end, 1,326 people were involved in beekeeping and farming of the aromatic plant camphor basil, and incomes of targeted villagers increased by 239 % from TZS 101,800 in 2004 to TZS 345,355 in 2013. Marketing centres for both camphor basil and honey processing and packaging were established through the project. Links were established with the National Institute for Medicinal Research (NIMR) to certify two brands of camphor basil finished products as insect repellent candles and a rub for flu and colds. These are sold both locally and to the International Centre of Insect Physiology and Ecology (ICIPE) in Nairobi. Fish ponds doubled with most of the fish consumed locally by villagers, thereby providing an alternative source of protein. Thanks to outreach activities, over 90% of the population of the East Usambaras has a better understanding of the benefits of forests.

Two of the main threats, logging for fuelwood and construction, have been tackled by introducing improved cooking stoves and promoting brick houses. The number of households using improved stoves increased from 825 in 2008 to 3,465 in 2013. Four brick pressing machines were bought and an estimated 35 % of households in project villages are using these. The threat of forest fire has also been tackled through the design of 18 community-based forest fire management plans and by-laws, as well as training for village government committees and village natural resource committees from 31 project villages. By November 2013, occurrence of forest fires in VLFRs / CFRs had declined by 97 %. Tree ownership has contributed to villagers protecting them more from fire. The prohibition of mining was also included in the by-laws of 18 villages with a resulting decline of 78 % in illegal mining in project villages by 2013.

Mining in Amani Nature Reserve declined



**Table 3.** Key results (2004-2013)

Type	Key performance indicators	Results
<b>Threat reduction</b>	Forest loss for the East Usambara KBA from 2000-2010	<b>0.01 %</b>
	Percent reduction in clearing of natural forests in the landscape (2006-2012)	<b>88 %</b>
	Decline in forest fires in village land forest reserves and community-based forest reserves	<b>97 %</b>
	Increase in number of households using improved stoves (2008-2013)	<b>320 %</b>
<b>Forest management, protection and restoration</b>	Number of village land use plans (2004-2013)	<b>18</b>
	Total area of new village land forest reserves	<b>1,041 ha</b>
	Management effectiveness score in most reserves (using the METT tool)	<b>2009: 53 - 63 % 2013: 67 - 86 %</b>
	Number of seedlings produced in project nurseries	<b>~1.9 million</b>
	Number of seedlings planted by the project	<b>~1.3 million</b>
<b>Income generating activities</b>	Area under new agroforestry systems	<b>440 ha</b>
	Number of individuals involved in beekeeping and aromatic camphor basil farming by project end - proportion of women	<b>1,326 68 %</b>
	Number of beehives supported by the project	<b>1,249</b>
	Percent increase in annual income among targeted villagers (2004-2013) thanks to activities supported by the project	<b>239 %</b>
<b>Financial measures</b>	Number of villages with newly introduced microfinance schemes	<b>5</b>
	Number of members in village savings and loans scheme (2013)	<b>2,090</b>
	Percent of women in village savings and loans scheme (2013)	<b>63 %</b>

# PARTNERS AND MAIN ACTORS

The project was initiated by WWF (Tanzania, International and Finland) which entered into partnership with the Tanzania Forest Conservation Group (TFCG) to implement activities in the landscape. WWF Tanzania held responsibility for coordination and management, while WWF Finland was the liaison with the main donor, the Finnish Ministry of Foreign Affairs.

The government of Finland has been a major actor in the East Usambara landscape since the 1970s when it supported an Indian-run sawmill (White and Mustalahti, 2005). Following an international outcry, a logging ban was put in place in 1986 and since then the Finnish government has been supporting forest conservation and restoration projects in the region. It supported for example, the East Usambara Catchment Forest Programme (EUCFP) and the creation of the Amani Nature Reserve in 1997.

A key player in the region, TFCG had locally-based staff in six villages in the East Usambaras and was responsible for much of the on-the-ground implementation. The project built notably on their previous work on butterfly farming around Amani Nature Reserve. Three field officers from TFCG were implementing activities based in the landscape, collaborating closely with the authorities, schools and the private sector. The fact that they were from the region also increased their ability to engage effectively with local villagers.

The national government was involved through its Forestry and Beekeeping Division. Authority for the two main reserves – Amani and Nilo – rests with the central government. Through the Tanga regional catchment project (funded by FINNIDA) they provided guidance and support to the FLR project, including through forest boundary clearing around the two Forest Reserves, updating forest management plans and coordinating the gazette-ment process of the Derema Forest Reserve, patrols, sensitisation and awareness raising.

The other main public sector actors were the Muheza and the Mkinga District Councils. As local level authorities, Muheza and Mkinga District Councils played an important role in defining land use plans in the landscape, particularly at the village level, and in the corridors between the two main reserves.

Private sector companies were involved in the project as they are active land users and some also harbour forests within their concessions (particularly tea estates). They focused notably, on engaging local communities in alternative income-generating activities, such as butterfly farming. Tea estates were also brought into the project as they are landowners in the landscape, although in the end their involvement was limited due to a lack of clear guidelines from the government policy framework to help private forest owners manage natural forests on their land as private forest reserves. Furthermore, their involvement was reduced because of the opportunity cost to set aside private forest reserves and forego expansion of land for commercial crops such as cocoa, and tea plantations.

The project was supported technically by the International Centre of Insect Physiology and Ecology (ICIPE), based in Kenya, concerning income generating activities such as beekeeping products and camphor basil farming. They provided expertise in the chemical extraction process by providing local communities with equipment.



Amani Nature Reserve



Butterfly in East Usambara



# GOVERNANCE

To understand governance or decision-making in FLR in the East Usambaras, we consider four broad aspects: firstly legislation, secondly tenurial arrangement, thirdly co-management arrangements and finally the governance structures per se around the project.

Tanzania has a comprehensive set of environmental and forest legislation. In 1995 a National Land Policy was launched, followed by an Environmental Policy in 1997 and a Forest Policy in 1998. The more recent (2015) national biodiversity strategic action plan (NBSAP) under the Convention on Biological Diversity (CBD), recognises that these policies are obsolete and need updating. It also acknowledges the need for better cross-sectoral integration (United Republic of Tanzania, 2015). A draft forest policy was produced in 2008 but was put on hold as new developments such as REDD+ and institutional changes occurred. Today, the latest (2018) revised forest policy is ready for endorsement. Reflecting the Aichi targets under the CBD, the NBSAP includes a target (target 14) to restore ecosystems by 2020.

Gathering and celebrating success with local communities is part of the strategy to increase their awareness and engagement



Concerning tenure, forest land in Tanzania is largely under government ownership, although customary ownership also exists, at least de facto, and open access land can also be found. Government ownership dates to the post-colonial period, when in 1961 in taking back land from the British colonists, the Tanzanian government took back control of all lands, even that which had previously been under customary tenure (Miller, 2013). A lack of title deeds creates further challenges where communal or private ownership is claimed (Rantala *et al.*, 2013). Thus, many areas that are de jure government-owned, are de facto community owned and some tension has been generated, as for example in the establishment of the Derema corridor in the East Usambara landscape. In 2008, during the second phase of the project, replicating the eviction process for the gazettement of the Amani Nature Reserve, a total of 1,128 farmers were evicted from the Derema corridor in exchange for financial compensation (Hall *et al.*, 2014). Since then, some farmers present

**COMMUNITY-BASED  
FOREST MANAGEMENT  
HELPED COMMUNITIES  
TO ESTABLISH  
STRONGER RIGHTS  
OVER THEIR NATURAL  
RESOURCES.**

in the project area have voluntarily ceded some land that lies within the Derema corridor to enable it to regenerate or be used for active restoration (tree plantations). In return, and in line with the Tanzanian Land Law of 1999, they have received other land in lieu as well as financial compensation. Nevertheless, the legal establishment of a forest reserve in this biologically important corridor remains a contentious issue among the farmers who were evicted, and for whom, in some cases, compensation was slow and inadequate (Miller, 2013). As a global organisation working in many different contexts, that are often politically and socially complex, WWF recognises and appreciates the social challenges that some conservation projects have implied. To better address these challenges the global organisation has developed an 'Environment and Social Safeguards Integrated Policies and Procedures (SIPP)' to ensure that adverse environmental and social impacts are avoided or, when unavoidable, are minimised and appropriately mitigated and/or compensated for. In the case of the Derema corridor, WWF sought to collaborate with the government to assist communities that needed to be relocated and compensated.

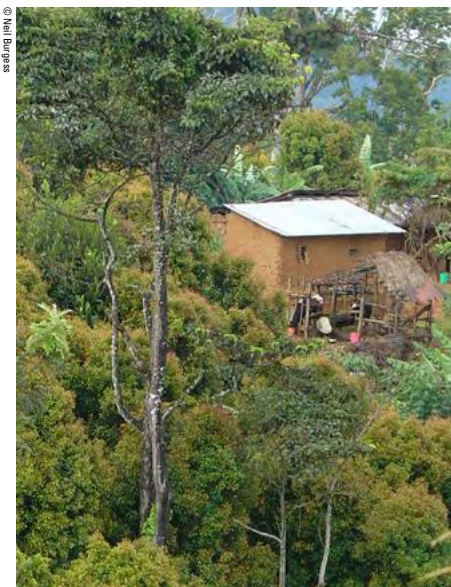
Possibly to remediate past eviction policies, there is an explicit Tanzanian government objective to bring communities into forest management, through participatory forest management. Participatory forest management is promoted in particular on 'general lands' or open access areas which are at higher risk of conversion. The participation of communities in Tanzania is through two mechanisms: joint forest management (JFM) where both communities and the government collaborate particularly in managing official forest reserves, and community-based natural resource management, where communities take the leadership. Through the project, JFM was initiated in four National Forest Reserves that included over 12 villages. Community-based forest management helped communities to establish stronger rights over their natural resources, a mechanism that has yielded positive results on forest cover (Blomley *et al.*, 2008). Village forest bylaws and management plans that were developed under the project, helped to clarify and affirm these rights.

A project steering committee was established early on in the project with representatives from Muheza and Mkinga Districts (the district executive directors, district natural resources officers, districts forest officers), Tanga regional administration, Tanga Regional Catchment Forests project, regional natural resources advisor, Amani and Nilo Nature Reserves (chief conservators from the two reserves), Eastern Arc Endowment Funds, Tanzania forest service representatives, the private sector (tea estates, Magoroto and Kwamtili estates) and two representatives from WWF Tanzania and TFCG management. Occasionally, representatives from the Finnish Embassy in Tanzania, and from WWF Finland would also join. The committee's role was to advise and supervise. It also played an instrumental role in promoting synergies and linking together different stakeholders involved in the project. The role of the project steering committee was also important in providing capacity support to the landscape stakeholders. It helped to build cohesion among stakeholders and a common understanding, which were important once WWF left the landscape. Follow-on activities taking place in the landscape can now operate under this banner, and benefit from the lessons learnt during the ten years of project implementation.

# CAPACITY BUILDING

Capacity was strengthened at different levels, notably to improve local communities' understanding of the importance of forests and of restoring forest cover. A long-term approach was taken by emphasising training of local trainers. Each of the targeted villages in the landscape has a natural resources committee. Its members were trained in various techniques such as agroforestry, tree planting and forest management. Members of these committees are committed to improving their forests and water resources, and to maintain a register of illegal activities. Based on these registers, the committee takes action, including reporting the incident to the authorities depending on its severity. Working with villagers helped to disseminate the information across villages through word of mouth. It also ensured that the knowledge was embedded within the local community.

TFCG organised lectures in different schools to introduce them to the importance of forests and trees, raised issues about climate change and forest fires. School teachers have been an important target group in this project. Seminars about the importance of the forest were held specifically for school teachers. Through these seminars teachers' capacity to relay this information to their students was increased, and they were also able to exchange ideas with other teachers in the landscape. As a result, most schools in the landscape have established small-scale tree nurseries so that they can plant trees around the school and improve their immediate environment as well as having their own supply of fuelwood and construction timber. Teaching children about restoration had a powerful knock-on effect as they returned home with seedlings from their school tree nursery and explained to their parents how to plant them.



Agroforestry, as a tool to both generate income and improve forest cover

Capacity building also took place at the level of district officials who were taken on study tours and received training in forest governance and participatory forest management (in the Danish training centre of Arusha). The capacity of village government representatives was also strengthened, particularly as concerns legal requirements and procedures to tackle illegal forest activities.



Tending seedlings in a school tree nursery

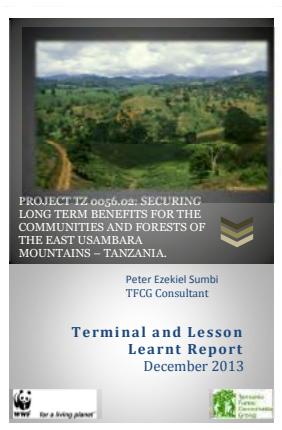


# COMMUNICATION

At the level of the landscape, significant awareness raising efforts were made in order to change villagers' attitudes and behaviours towards the natural forest. For example, during world environment days (5 June) major events were planned all day in the landscape with local stakeholders. They included drama, dances by school children and speeches. Village meetings were held regularly to raise awareness (although the presence of women and youth was limited). As a result, awareness of the Forest Act improved from 33 % in 2008 to 88 % by June 2012 as indicated by surveys.

Printed materials included posters, signboards, leaflets and books. Over 2000 books and leaflets about the importance of forests and measures to conserve and restore the forest were distributed in schools. A total of 30 signboards informing communities about the problems of illegal gold mining and timber harvesting were established in the landscape. They also served to promote tree planting and improved management of water sources and river banks. Radio programmes were launched on three different radio channels and programmes recorded for the TV. Several articles were also published in the local press.

Small 'libraries' were set up in several villages. These consisted of a cupboard with some books and magazines and provided another way of communicating important environmental messages. They also served to disseminate information on alternative income-generating activities such as beekeeping, butterfly farming, medicinal plants etc.



In 2013, efforts to gather lessons learnt were synthesised in a final report (Sumbi 2013)



During world environment days, major events were planned including drama, dances by school children and speeches to raise awareness.

# SUSTAINABILITY AND EXIT STRATEGY

The programme has relied on external donor funding throughout its different phases which, in the long term, is not a financially viable model. Having said that, several factors may be said to contribute to the programme's sustainability. Three aspects of sustainability are explored here:

1. Financial sustainability of the activities;
2. Institutionalisation of the project and human capacity;
3. The process employed for WWF's exit strategy.

## Financial sustainability

In terms of financing, the project was primarily dependent on funding from the Government of Finland (84 %), although WWF also contributed one sixth of the overall amount (Table 4). Income-generating activities could be said to contribute to the overall financial sustainability of the project, as funding from the project supported local villagers to help them generate a regular income which could extend beyond the lifetime of the project.

**Table 4.** Overall budget by phase (sources: WWF-Finland)

	Finnish Ministry of Foreign Affairs	WWF	Total (EUR)
<b>Inception phase</b>	-	unknown	-
<b>Phase I – 2004-2006</b>	253,478	63,370	316,848
<b>Phase II – 2007-2009</b>	469,037	82,771	551,808
<b>Phase III – 2010-2013</b>	920,434	162,429	1,082,863
<b>TOTAL</b>	<b>1,642,949</b>	<b>308,570</b>	<b>1,951,519</b>
	<b>84 %</b>	<b>16 %</b>	<b>100 %</b>

## Institutional sustainability

During the three project phases, efforts were made to engage the relevant district officials, build their capacity (notably in participatory forest management) and also provide them with necessary equipment and tools (including for example, motorbikes to travel around the landscape) so that they were in a position to maintain the momentum generated by the project. Indeed, an underlying philosophy of the project was to invest in people rather than merely equipment and field activities. In this way, the termination of WWF project activities did not signify the end of the investment as the key people remaining in the landscape acquired new skills and knowledge that they could continue to apply. Awareness about the value of the East Usambara forests remains high among the communities who feel both responsible and accountable for management of their forests. Visible reductions in forest fires, encroachment and illegal mining reflect this awareness. A special task force on illegal mining activities in the landscape was set up at the end of 2017, such that no illegal mining activities have been reported since then.



World Environment Day (June 5<sup>th</sup>) became a key date in the landscape for celebrating through collective events

Good collaboration between the communities and local government authorities continues. The support to village forest reserves and related village natural resource committees also provides stability to conservation and restoration actions in the long term beyond the project. Other local level institutions were also established such as eight local area community forest conservation networks which discuss the need to preserve forest values, tackle forest threats and the need for good forest governance in the landscape.

#### **Anecdotal evidence from a visit by Isaac Malugu in 2017**

Isaac Malugu (ex-forest officer of WWF Tanzania) visited the landscape in 2017, and found that the districts are still actively pursuing former project goals. For example, the district of Muheza is providing land in compensation to farmers who are willing to give up their land in the Derema corridor. At the community level, not only are community members willing to give up some of their land but they also continue to pursue some of the income-generating activities started during the project, such as horticulture and butterfly farming. The savings and loans schemes are still running. While encroachment into the forest is going down, tree planting continues to increase, particularly in the context of agroforestry. And local communities continue to maintain tree nurseries. Improved cooking stoves are being used, thus reducing pressure on the forest.

## **Exit strategy**

In 2013, WWF organised a workshop to formally end its involvement in the landscape and to transfer ownership of the project to the local stakeholders, and in particular, to the two districts. This workshop was the culmination of a set of actions to ensure a well-designed exit strategy from the landscape. Discussions were centred on the process to hand over project responsibility to the two districts, and to design district-level action plans for the next phase.

Since the end of this project, two other major projects have been started in the landscape: the first one with funding from the UNDP/GEF on payments for ecosystem services which works with communities around the two main forest reserves in the landscape. The second project is implemented by TFCG and is funded by the EU focusing on eight communities to increase and diversify their incomes, strengthen their resilience and reduce their vulnerability to climate change-related impacts. These projects build on the ten years of experience and investment generated through the FLR project.



# OVERARCHING LESSONS LEARNT

The East Usambara FLR project is unique in that it received funding by the same donor for three phases that carried through the same objectives. This reflects the understanding by the main donor – the Finnish government – of the long-term nature of environmental and social processes underlying FLR in such a landscape. The approach taken by the donor is a salient lesson (number 1 below), however, other key lessons for FLR emerge from this project as well.

## 1 Ensure long term and diverse funding

**Because of its long-term nature, funding for FLR needs to extend beyond the typical three-year donor cycle and ideally, should be from diverse sources.**

In the case of the East Usambara landscape, the donor – the Finnish Ministry of Foreign Affairs – had the comprehension and foresight to fund three phases of the same project. Recognising the multiple facets of and complexity inherent in FLR projects. In contrast, all too often donor funding is short term and expects rapid results, something which is difficult, if not impossible, to achieve when it comes to restoring ecosystems such as forests. Yet even ten years is short in the context of restoration and in the long term, sustainable and diverse financing (including income generating activities) is essential for FLR.

## 2 Balance both ecological and social objectives

**Where people are directly dependent on nature, especially in many deforested or degraded sites, social objectives are as important as ecological ones, and a balance needs to be struck between the two.**

The East Usambara FLR project sought to achieve both social and ecological objectives through its restoration efforts, recognising that ecological objectives alone could not be met without providing some benefit to local communities so that they would maintain their forests in the long term. This contrasts with some of the narrowly-focused interventions which are frequently at the expense of local communities or only aimed at limited objectives (e.g. planting a given number of trees).

## 3 Ensure that communities benefit from protecting and restoring forests

**Income-generating activities provide a good incentive for communities to engage in restoration. Yet, the more vulnerable in the community, particularly women and youth, need to be better targeted for these activities.**

In addition to providing alternative income-generating activities, facilitating access to credit and to markets was important in the East Usambaras. Furthermore, longer term benefits need to be secured and schemes that can help to secure shared benefits between communities and the government should be developed.

## 4 A favourable policy environment is critical

**National policies and programmes can act in favour of or against FLR. They provide the context within which FLR activities are implemented.**

In Tanzania, three national policies were particularly supportive of the FLR project: the forest policy, the land law and the forest act. In addition, these policies helped to strengthen community rights to land, forests and resources, which appears to be a critical enabling factor for FLR.

## 5 Understand and acknowledge historical and political legacies

**Land tenure and rights may have profound impacts on efforts to restore forests. Recognising and addressing land dispossessions is fundamental to engaging in large scale restoration.**

In Tanzania, local land and forest rights were abolished during the colonial period with subsequent negative impacts on local communities. As such, attempts to restore forests need to re-establish a solid and legally recognised link between local people and their forests.

## 6 Agroforestry is an important tool for FLR

**Agroforestry represents one of the tools that can be used in FLR to help achieve both social and ecological objectives in situations where the stakes are high for both, i.e. where poverty is high, people depend directly on the land for their livelihoods and where biodiversity is highly threatened and unique.**

In the East Usambaras where the majority of the population depends on agriculture, agroforestry was an effective means of combining trees with crops and achieving dual objectives of restoring some connectivity across the landscape whilst maintaining crops.

## 7 Prioritise restoration interventions according to degradation

**Although it can be challenging, it is important to prioritise restoration interventions within the landscape based on social and ecological criteria.**

The project initially focused on the linkages between forests given the biological urgency of securing connectivity, but that was at the expense of restoring degraded forest reserves. Pinpointing specific priorities to add ecological value within the landscape can be tricky. In the case of the East Usambaras, not only was restoration urgently needed between reserves but also, importantly, within them.

## 8 Embed the project in local institutions for sustainability

**To achieve the desired long-term impacts on the landscape through FLR, it is important to truly engage local institutions and empower them.**

After ten years, the continuity of the project and its objectives is more likely given the support and engagement of the local level government (at the district level) and the creation of local village level institutions (such as village forest reserves). Collaborating with a well-established local NGO, TFCG, was also a significant success factor. Champions within the landscape can help to maintain the objectives of the project and to provide ongoing support to landscape stakeholders seeking to continue some activities related to FLR. In the case of the East Usambaras, in some villages community-based trainers were mentored so that they could continue to provide technical assistance beyond the project.

## 9 Raise awareness through a comprehensive communications strategy

**Changing behaviours to reduce pressures on forests and engage communities in restoration necessarily requires awareness raising.**

The project applied a diversity of communications approaches to reach its target audience in the landscape which, as shown through surveys, proved successful. A comprehensive and targeted communications strategy is key to FLR, as it serves to change attitudes and behaviours. Planting trees and establishing nurseries could also be useful practical tools for sensitisation.

## 10 A strong monitoring and evaluation plan is paramount for adaptive management

**Understanding what has been achieved in a structured manner, and identifying causes for success or failure is the only way to ensure appropriate management changes.**

At the end of the first phase the project was unable to report detailed progress because it did not have a solid M&E plan. This was corrected as of the second phase. The recruitment of a monitoring officer who worked closely with not only project staff, but also local stakeholders, helped to develop and apply good monitoring measures. The latter were useful in determining progress and informing future phases. At the end of the three phases, although some monitoring continues, the challenge remains to re-group the data in one central location so that it can be aggregated and used.

## 11 Identify and share lessons learnt before exiting

**Lessons learnt are valuable for long-term projects as they can help to re-direct or adapt interventions, and/or strengthen valuable ones.**

In the East Usambara FLR project, the last phase of the project explicitly sought to gather and share lessons learnt so that future related interventions in the landscape could learn from this 10-year intervention. It was also a means of keeping alive the memory of the successes and difficulties. Such lesson learning is of value in all large-scale conservation interventions, and even more so in the dynamic and relatively unexplored terrain of FLR.

## 12 Management structures for FLR need to reflect its multi-scalar dimension

**Interventions for FLR take place at different spatial scales: politically at the national scale, internationally with donors and locally with partners and communities.**

In Tanzania for example, WWF had to juggle the relationship and collaboration with the Finnish donor, the national actors, the local partner, TFCG, as well as local authorities and communities.



# CONCLUSION AND FUTURE PROSPECTS

The East Usambara landscape is an ecologically unique area, providing not only global biodiversity benefits but also very real local ones through the maintenance of hydrological cycles and flows, and the provision of non-timber forest products including locally and globally valuable medicinal plants. Its fate is closely intertwined with that of the local communities living in the landscape. Poverty constrains their options however, and

unless people can benefit directly from conservation and restoration of the forest, the fragility of both the social system and the ecological one remains very real.

Through the Eastern Usambara FLR programme (2004-2013), WWF and partners have demonstrated that there are means to align the social and ecological systems. Restoring forests for both immediate benefits to people and longer-term benefits to the ecosystem is a necessary and feasible option within the East Usambaras. Agroforestry techniques, alternative income-generating activities that are compatible with forest conservation and restoration, community forestry and support in terms of market access and finances, all contributed to the overall package of the ten-year FLR initiative in this landscape.

Yet much more remains to be done. Despite increased human capacity and political will in the landscape, without supportive institutions and longer-term sustainable financing schemes, FLR achievements remain fragile and further scaling up may be compromised. Continued habitat and biodiversity loss jeopardise achievements to date and the long term prospect of securing a viable landscape that connects key forest areas in the Coastal Eastern African forest ecoregion.

To determine long term impact, the status of the landscape some years (e.g. 5-10) after the end of the project would provide valuable insights into the sustainability of the FLR actions. Although generally not scheduled by WWF, such post hoc evaluations may offer useful lessons on the success of the exit strategy as well as recommendations for future interventions in the landscape and guidance for other FLR projects.

For an organisation such as WWF, pulling out of a fragile landscape, leaving vulnerable communities to continue an FLR initiative represents an inevitable risk. The role of district officers in the East Usambaras is vital. But, as elsewhere, the interest of politics and economics may significantly skew good intentions.

Forests in good conservation status provide not only natural capital of global importance, but also very real local benefits for people: water, timber and non-timber forest products, including medicinal plants



## REFERENCES

- BirdLife International, 2018. *Important Bird Areas factsheet: East Usambara Mountains*. Downloaded from <http://www.birdlife.org> on 22/07/2018.
- Blomley, T., Pflieger, K., Isango, J., Zahabu, E., Ahrends, A. and Burgess, N., 2008. Seeing the wood for the trees: an assessment of the impact of participatory forest management on forest condition in Tanzania. *Oryx*, 42(3): 380-391.
- Burgess, N.D., Butynski, T.M., Cordeiro, N.J., Doggart, N., Fjelds , J., Howell, K. *et al.*, 2007. The biological importance of the Eastern Arc mountains of Tanzania and Kenya. *Biological Conservation*, 134: 209–231.
- CEPF, 2005. *Ecosystem Profile - Eastern Arc Mountains and Coastal Forests of Tanzania and Kenya*. Washington DC : CEPF, 118 pages.
- Hall, J.M., Burgess, N.D., Rantala, S., Vihemaeki, H., Jambiya, G., Gereau, R.E., Makonda, F., Njilima, F., Sumbi, P. and Kizaji, A., 2014. Ecological and social outcomes of a new protected area in Tanzania. *Conservation biology* 28(6): 1512-1521.
- Mansourian, S., Dudley, N., Vallauri, D. 2017. Forest Landscape Restoration: Progress in the Last Decade and Remaining Challenges. *Ecological Restoration*, 35(4): 281-288.
- Mansourian, S. and Vallauri, D., 2012. *Lessons Learnt from WWF's Worldwide Field Initiatives Aiming at Restoring Forest Landscapes*. Marseille: WWF France, 61 pages + appendices.
- Mansourian, S. and Vallauri, D., 2014. Restoring Forest landscapes: important lessons learnt. *Environmental Management*, 53(2): 241-251.
- Miller, K. J., 2013. *Establishing the Derema Corridor in the East Usambara Mountains, Tanzania: A Study of Intentions versus Realities*. MS thesis.  s : Norwegian University of Life Sciences, 97 pages.
- Newmark, W.D. and McNeally, P.B., 2018. Impact of habitat fragmentation on the spatial structure of the Eastern Arc forests in East Africa: implications for biodiversity conservation. *Biodiversity and Conservation*, 27(6): 1387-1402.
- Powell, B., Maundu, P., Kuhnlein, H.V. and Johns, T., 2013. Wild foods from farm and forest in the East Usambara Mountains, Tanzania. *Ecology of food and nutrition*, 52(6): 451-478.
- Sumbi, P.E., 2013. Project Tz 0056.02: *Securing Long Term Benefits For The Communities And Forests Of The East Usambara Mountains – Tanzania. Terminal and Lesson Learnt Report*. Dar es Salaam: TFCG, 47 pages.
- Tabor, K., Kashaigili, J.J., Mbilinyi, B. and Wright, T.M., 2016. *Forest cover and change for the Eastern Arc Mountains and Coastal Forests of Tanzania and Kenya circa 2000 to circa 2010*. Cambridge: Birdlife, 38 pages.
- TBA (Tropical Biology Association), 2007. *Amani Nature Reserve: An introduction*. Cambridge: Tropical Biology Association, 20 pages.
- United Republic of Tanzania, 2015. *National Biodiversity Strategy and Action Plan (NBSAP)*. Dar es Salaam: Vice President's Office, 154 pages.
- White, P. and Mustalahti, I., 2005. Finnish Forestry Assistance: Success story or failure? Analyses of case studies from Sub-Saharan Africa and their possible impacts on Poverty Reduction. *Silva Carenica* 48.
- WWF, 2007. *Project plan*. Helsinki: WWF Finland.
- WWF and IUCN, 2000. *Minutes of the Forests Reborn Workshop*, Segovia (unpublished).

### Websites

- Conservation International website: <https://www.conservation.org/NewsRoom/pressreleases/Pages/The-Worlds-10-Most-Threatened-Forest-Hotspots.aspx>
- Embassy of Finland Dar es Salaam: <http://www.finland.or.tz/public/default.aspx?contentid=339199&nodeid=31634&contentlan=2&culture=en-US>
- EAMCEF website: <http://www.easternarc.or.tz/mountain-blocks/east-usambara/index.html>
- IUCN Redlist of Threatened Species: <http://www.iucnredlist.org>
- Tanzania Forest Reserve Agency: <http://www.nature-reserves.go.tz/fnr/nilo>
- UNESCO: <http://www.unesco.org>



This report is part of a series that aims to share lessons learnt from WWF's long term field programmes on Forest Landscape Restoration worldwide.

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## 1.3

In million, the number of trees planted by the project in the East Usambara landscape in 10 years.

## Zero

or almost zero (0.01 %), the deforestation rate in the landscape during the decade of the project. The decline in forest fires reached 97 %.



## 239 %

The increase in villagers' annual income (2004-2013) thanks to all alternative income-generating activities proposed by the project (agroforestry, beekeeping, butterfly farming etc.).

## 84 %

The share of the budget funded by the Finnish Foreign Affairs Ministry over 10 years, a rare and pioneering commitment to forest landscape restoration.



#### Why we are here

To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

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