Workshop Report

STAKEHOLDERS WORKSHOP ON THE CONSERVATION AND MANAGEMENT OF THE TAITA HILLS FORESTS

Taita Hills Safari Lodge

February 7th – 10th 2005

CRITICAL ECOSYSTEM PARTNERSHIP FUND

THE EAST AFRICAN WILD LIFE SOCIETY

March 2005

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List of Acronyms

CCTT	County Council of Taita Taveta
CEPF	Critical Ecosystem Partnership Fund
EAWLS	East African Wild Life Society
FD	Forest Department
ICIPE	International Centre of Insect Physiology and Ecology
KARI	Kenya Agricultural Research Institute
KEFRI	Kenya Forest Research Institute
LOI	Letter of Inquiry
MoA	Ministry of Agriculture
MoL	Ministry of Lands
NEMA	National Environment Management Authority
NGO	Non-Governmental Organisation
NMK	National Museums of Kenya
PA	Provincial Administration
THEN	Taita Hills Ecotourism Network
TTWF	Taita Taveta Wildlife Forum
UoG	University of Ghent
UoH	University of Helsinki
WWF-EARPO	Wild Wide Fund for Nature – East African Regional Programme Office

Executive Summary

This document presents the proceedings and outcome of a stakeholders workshop organised by East African Wild Life Society (in February 7th – 10th 2005) to discuss the conservation and management of Taita Hills forests. The Critical Ecosystems Partnership Fund (CEPF) funded the workshop as part of its initial and crucial efforts in the conservation of Taita Hills Forests and its biodiversity. This workshop was held on the premise that: (a) the funding opportunities available through CEPF have generated a lot of 'Dollar-Driven' interest among various stakeholders, some of whom lack clear conservation objectives; (b) despite the more than 25 years of conservation and research work in Taita Hills forest cover and biodiversity have continued to decline; (c) a lot of research has been conducted in Taita Hills but very little (or none at all) has been used to improve conservation and management of forest resources and (d) there is a clear lack of collaboration and coordination of activities and programmes by various stakeholders, especially NGOs working in Taita Hills.

The purpose of the workshop was to give stakeholders an opportunity to discuss key threats and challenges as well as identify the best options for restoration and connectivity enhancement among the Taita Hills forests fragments. Specific objectives for the workshop were: (a) to leverage stakeholders' understanding of the threats, challenges as well as opportunities for the conservation and sustainable use of forests resources in Taita Hills; (b) to provide an opportunity for stakeholders to share experiences and learn from each other; (c) to identify and prioritise interventions for restoration and increased connectivity; (d) to learn and appreciate the respective capacities and limitations of various stakeholders involved with the conservation of Taita Hills Forests; (e) to clarify on the CEPF funding opportunities and limitations; and (f) to work out a way forward on the restoration process in light of the limited funding opportunities available through CEPF (and other donors).

The District Commissioner, Taita Taveta, opened the workshop. It involved a total of 36 participants, 16 of which represented community groups from various parts of Taita Hills; 5 represented various government departments; 10 represented NGOs (local and international); 4 represented Universities conducting research in Taita Hills and 1 represented the donor, CEPF.

Methodologies for the workshop process included presentations by various resource persons on different thematic areas; group work and plenary discussions. The presentations made covered: the background of Taita Hills Forests; experiences from past efforts in the region; research work findings and recommendations and interventions (both ongoing and planned). Breakout groups were used for most of the in depth discussions while plenary sessions were used to consolidate and validate outcomes from discussions during the breakout groups.

Prof. Luc Lens, A biological connectivity expert from the University of Ghent, made the keynote presentation for this workshop, whose has a long history of work in Taita Hills. The presentation illustrated how scientific research findings from the study of birds (and other biodiversity) in Taita Hills can be used to design and implement a landscape connectivity intervention among the various forest fragments of Taita Hills.

Through the workshop process, participants identified Ngangao; Mbololo; Chawia; Mwambirwa and Kasigau as the main indigenous forest blocks for Taita Hills. Associated with these blocks were several other fragments, which collectively make a total of 38 fragments. A full list of all the forest fragments, acreage, nature of forest cover (indigenous or exotic) and location is presented in Table I below.

The threats in these forests are similar to other regions within the Eastern Arc Mountains. The only difference would be the order of priority. The following threats were identified as the priority concerns in Taita Hills:

- Encroachment (for settlement; agriculture and livestock grazing);
- Over-extraction of firewood and building materials
- Poor enforcement of government policies and regulations;
- Lack of awareness among the communities living adjacent to forests

- Fires (both deliberate and accidental); and
- Colonization by the suppressive and fast growing exotic tree species

Lack of coordination among various conservation projects and stakeholders and the piecemeal implementation of interventions were identified as key challenges that stakeholders needed to overcome in order for any interventions to realize significant results and impacts.

Development of alternative livelihood options; forest restoration and connectivity enhancement; survey and gazettement of the few remaining forest blocks; development of participatory forest management plans and continued monitoring of forest cover as well as biodiversity changes were identified as the key interventions that would yield more positive results. Participants also identified organisations best placed to address these threats (on the basis of political goodwill; capacity; experiences and lessons from past efforts). The participants took note of and appreciated the efforts of the University of Ghent (UoG); University of Helsinki (UoH) and National Museums of Kenya (NMK) that have established long-term research and biodiversity monitoring programmes in Taita Hills. Birdlife International will also soon launch its monitoring process. Closer collaboration among these institutions was emphasized.

In implementing the restoration and connectivity enhancement process, the following steps would be followed:

Step I: Survey and mapping of various forest fragments (especially plantations and the minor fragments that have not been given any attention in the past) to ascertain the exact acreage;
Step II: Connectivity analysis and modelling;
Step III: Development and implementation of an integrated restoration and connectivity enhancement programme (that would involve a combination of the interventions identified above).

An integrated monitoring programme would also be developed to run parallel to the aforementioned restoration process. The entire restoration and connectivity enhancement process would involve a number of key stakeholders including: Forest User Groups from the various forest sites; the Forest Department (FD); Kenya Forest Research Institute (KEFRI); National Museums of Kenya (NMK); The University of Ghent (UoG); The University of Helsinki (UoH); Taita Taveta Wildlife Forum (TTWF); East African Wild Life Society (EAWLS); International Centre for Insect Physiology and Ecology (ICIPE); Birdlife International and Nature Kenya.

Key outcomes of this workshop are summarized into threats, interventions and stakeholders (per forest site) as presented in Table II below.

The workshop also provided a good opportunity for the CEPF African Grants Officer (who participated at the workshop) to outline the CEPF funding opportunities and limitations. The officer explained the review process that the Letters of Inquiry (LOIs) undergo and outlined the criteria used. A few of the LOIs that have been taken through the process were used as examples to illustrate various aspects of the review process.

The Officer also had an opportunity to define the CEPF's immediate conservation priorities for the Taita Hills (which fall within the bigger restoration and connectivity process outlined above). He identified the following as the immediate activities and projects that CEPF would have an interest in funding:

- Restoration of Mwambirwa Forest that suffered a devastating fire in 2003 (whose LOI done by Sigha Sigha Group has gone through the initial and crucial stage of approval).
- Enrichment planting (and community policing to check overgrazing) of Chawia Forest (an isolated home of about 20 individuals of the critically endangered Taita Thrush). This would be done through an appropriate community group to be identified. FD and EAWLS were asked to identify an appropriate community group to implement this project.
- Undertaking Step I (Survey and mapping) and Step II (Connectivity analysis and modelling) of the wider restoration and connectivity enhancement process before end of 2005. The Forest Department (to take lead in the mapping and survey process), East African Wild Life Society (to deal with community issues) and the

University of Ghent (to undertake a connectivity analysis and modelling) were identified as the best suited stakeholders to kick-start this process.

- Development of EAWLS-Wundanyi Office as a resource centre for the coordination of all the CEPF activities in Taita Hills. This was based on the fact that the Office has for a long time been a reference centre mainly for community groups as well as research institutions and individuals working in Taita Hills.

In conclusion, the participants resolved to work more collaboratively and seek to establish linkages and synergies with other stakeholders and programmes targeting the conservation of Taita Hills Forests.

Table I: Taita Hills Forests (Excluding Sagalla and Kasigau Forests)

Name	**Area In Hectares**	Vegetation Type	**Location**
1. Choke	73.5	Indigenous	Mbale
2. Kinyeshamvua	49.5	Eucalypts + pine	Mgambonyi
3. Mwandongo	688	Eucalypts + pine + caltris	Mbale/Msau
4. Chawia	86	Indigenous + some exotic	Chawia
5. Kichuchenyi	?	indigenous	Ngerenyi?
6. Fururu	14.12	Indigenous	Ngerenyi
7. Ngomenyi	0.2	Indigenous	Ngerenyi
8. Ndiwenyi	5.6	Indigenous	Ngerenyi
9. Susu	1.7	Mixed	Ngerenyi
10. Kilulunyi	0.25	Exotic	Wusi
11. Mbili	10.23	Eucalypts + black wattle	Wesu
12. Wesu rock	50	Eucalypts + black wattle	Wesu
13. Weni mwana	5.26	Indigenous	Iyale/Wesu rock
14. Mtete	0.28	Bare rock	Iyale
15. Mwarangu/Mwakinyambu	200	Encroached	Near Kishushe
16. Iyale	22.33	Mixed	Werugha
17. Mwarunga	-	Pine/caltris	Saghasa
18. Mwarungu	400	mixed	Makandenyi
19. Ngangao	123.4	Indigenous	Maghimbinyi
20. Irizi	476	Eucalypts, cypress, black wattle, pine	Wumingu
21. Mchungunyi	8	Pine	Mgange D
22. Jaycee	10	Black wattle	Mgange Dawida
23. Vuria	115	Exotic + some indigenous	Mgange Dawida
24. Ikuminyi	-	Encroached	Mwanda
25. Igho mkundu	2000	Encroached	Mwanda
26. Ighi ikumu	100	Black wattle	Mwanda
27. Mwanganini	14.6	pine	Mwanda Mlamba
28. Weni Mbogho	2.0	Indigenous	Shigharo
29. Modangache/Weni tole	3.4	Eucalyptus	Shigharo
30. Goye	14.1	shrubs	Shigharo
31. Sungululu	50	eucalypts	Shomoto/Kitukuni
32. Boma	-	exotic	Wundanyi town
33. Mwachora	6.4	Indigenous + eucalypts	Wundanyi
34. Macha	14.57	Eucalypts + cypress + black wattle	Wundanyi
35. Mbololo	220	Indigenous	Wongonyi
36. Kalangu	200	bare	Mbololo/Paranga
37. Mwambirwa	375.3	Exotic + some indigenous	Mwambirwa

38. Mraru	200	Shrubs + eucalypts	Mole

Table II: A Summary of Interventions and Stakeholders Per Site

Forest Site	Threat/Issue/Challenge	Appropriate Interventions	Best Suited Stakeholders
All sites	• Reduction of vegetation cover, • Land degradation, • Encroachment (Agriculture & grazing) • Poverty	• Development of forest restoration programmes	FD, Forest User Grps; KEFRI, UoG, ICIPE
		• Community policing	FD, PA, Forest User Groups
		• Agro forestry/farm forestry	FD, Forest User Grps, KEFRI, EAWLS; MoA
		• Development of Participatory Forest Management Plans	FD, Forest User Grps EAWLS, KEFRI, ICIPE
		• Development of alternative livelihoods	FD, Forest User Grps, EAWLS, MoA, MoL, KEFRI, ICIPE
		• Education and awareness on bests practices in Natural resources use and management	PA , NEMA, FD, KCT, EAWLS, MoA, MoL, KEFRI, ICIPE, TTWF
All sites	• Over extraction - unauthorized removal of forest products(firewood, timber; herbs etc)	• Monitoring and evaluation	Birdlife International; Nature Kenya, UoG, UoH,
		• Encouraging farm/agro forestry	FD, Forest User Grps, KEFRI, EAWLS; MoA
		• Restoration (gradual replacement of exotic plantations)	FD; Forest user Grps; EAWLS: KEFRI, University of Ghent, NMK
		• Enforcement/Regulation of licensing	FD; Forest User Grps
		• Participatory law enforcement	PA, FD, NEMA, Forest User Grps
All sites	• Community's negative attitudes towards forests conservation • Lack of Awareness	• Awareness creation and development of livelihood incentives	FD, Forest User Grps, EAWLS, MoA, MoL, KEFRI, ICIPE
		• Improve communication among various stakeholders	FD; TTWF; EAWLS; WWF-EARPO
All sites	• Inadequate management capacity among the community groups	• Entrepreneurship training, Management skills training	Pact-Kenya, EAWLS, TTWF, ICIPE
		• Networking and Information Communication Technology	TTWF, UoH, THEN; FrankTech Computers

Forest Site	Threat/Issue/Challenge	Appropriate Interventions	Best Suited Stakeholders
		• Community based forest monitoring/community scouting	Birdlife International; Nature Kenya, NMK, TTWF
All sites	• Poor governance • Incapacities of FD to manage • Outdated policies and legislation • Lack of Gazettement	• Surveys and gazettement,	FD, TTWF, CCTT; EAWLS
		• Participatory Law Enforcement	FD; NEMA; PA; Forest User Grps
		• Formation and development of Forest User Groups	EAWLS, FD, Pact-Kenya, TTWF
		• Training of User Groups in environmental governance and management	FD, , NEMA, TTWF, EAWLS
		• Advocacy for the enactment of new Forest Bill • Lobby of Local Members of Parliament	EAWLS (KFWG), TTWF, and Forest User Grps
All Sites	• Lack inventory biodiversity, • Gaps in biological knowledge	• Biodiversity inventory and mapping	UoG, UoH; NMK; Nature Kenya; Birdlife International; EAWLS
All sites	• Gov't Sanctioned development	• Environmental impact assessment	NEMA; FD; Forest User Grps
Mwambirwa	• Forest fires and colonization by eucalyptus	• Forest Restoration	FD, Sigha Sigha Grp; KEFRI, UoG, EAWLS, ICIPE
		• Forest Surveillance and monitoring	PA., FD, Forest User Grps
Salaita, Lotima	• Squatter problem	• Alternative settlement land	GoK, MoL, CCTT, TTWF, FD
		• Law enforcement/Eviction	GoK, MoL; FD

1.0 INTRODUCTIONS

1.1 Welcome Remarks *By **Ali Akber Kaka, Director East African Wildlife Society***

The director of the East African Wildlife Society welcomed the participants and the District Commissioner. He noted that it was unfortunate that for over 20 years conservation work has been going on in the Taita Hills and yet the forest cover was still declining. He noted that fragmentation has continued despite these efforts. His hope was that the process that is now bring initiated by the CEPF, especially the partnerships that the CEPF strategy suggested will eventually bring about a reversal of the declining forest cover and escalating fragmentation.

The director supported the emphasis of community partnership and involvement in the process citing that unless the community can derive tangible benefits from conservation then they will not support the process. He emphasised that without community support all conservation efforts will be futile.

He challenged the participants to contemplate the current move towards deriving benefits from wildlife and natural resources sustainably. Noting that the time when wildlife conservation was an end in itself had already come to an end and conservation thinking is now shifting to wildlife paying for its own conservation, he informed the participants that it was time that people owned the resources that they live with. Wildlife, forests and forest products and other natural resources that occupied community land should bring benefits to those who live with them. Those who own wildlife should then be responsible for their well-being and also for the damage that this wildlife may cause to others.

1.2 Opening Speech *By The District Commissioner, Taita Taveta*

After welcoming the invited guests and thanking the organizers of the workshop and showing gratitude for the honour of participating in the workshop and opening it, the DC proceeded to highlight the plight of forests in Kenya in general and the Taita Hills Forests in particular.

The DC highlighted the complexity of the Taita Hills situation given that the hills where the forests are found also constitute the traditional settlement, agriculture and livestock grazing land. The problems associated with human population increase including increasing demand for land for agriculture, settlement and associated household needs have increased pressure on the forests. The complexity of the situation makes necessary government intervention difficult given the negative socio-economic implications that may be associated with these interventions.

The DC noted that despite the fact that for over 20 years conservation work has been done in the Hills by numerous NGOs and development organizations such efforts have been piecemeal and uncoordinated. He also noted that the numerous research projects done have not adequately informed the management of the forests. Collaboration among stakeholders was therefore stressed and the workshop noted to be a good beginning.

Commending Conservation International and especially the Critical Ecosystem Partnership Fund for qualifying the Taita Hills as a hotspot and a priority funding area, the DC assured the partners of government support to the conservation effort. He also called for caution and accountability among those responsible for expending the CEPF funds in order to maximize the expected results. The DC also invited other donors to join in the efforts of the CEPF team in this hotspot.

2.0 WORKSHOP SYNOPSIS

The Taita Hills form one in a chain of 12 main mountain blocks in the Eastern Arc Mountains that stretch for some 900 km from the southwest of the Udzungwa Mountains in southern Tanzania to the Taita Hills of Southeast Kenya. This chain of mountains is characteristically high in endemism and, sadly, fragmentation. The Taita Hills have lost about 98 percent of their forest cover.

The Taita Hills have suffered a lot of degradation mostly due to expansion of populations and associated demand for land. Although for over 20 years these forests have received much attention in research and conservation efforts the decline in forest cover and associated loss of biodiversity has not been visibly checked. The lack of coordination in the work of conservation NGOs, development partners, researchers and communities is largely blamed for this lack of tangible impact of the conservation efforts.

The CEPF since declaring this area a hotspot has received over 25 letters of enquiry seeking to address the problems facing this hotspot. Majority of these applications did not show the synergies that this area needs in order to achieve tangible positive impacts that have been elusive in the last 20 odd years. Some of the suggested interventions were also either deficient or misplaced given the CEPF conservation outcomes for the hotspot.

This workshop was thus organized by the East African Wildlife Society with funding from the CEPF to deliberate on the best way to work together among the many organisations and interest groups working in the hotspot and to prioritise the best interventions given the funding limitations of the CEPF for this hotspot.

2.1 Workshop Rationale

The workshop was organized by EAWLS (with funding from CEPF) based on the following justification:

- The interest that the funding opportunity (through CEPF) has generated among various stakeholders – More than 25 LOIs have been received by CEPF to date for this hotspot.
- The reality of limited conservation funding available from CEPF for this hotspot.
- Recognition of the need to leverage the efforts of various stakeholders
- An opportunity to tap into the existing expertise for advice on the best options available for the conservation of forest habitats and resources in this region.
- Lessons learnt from past efforts here and elsewhere.

2.1.1 Purpose

The purpose of the workshop was to identify key threats and deliberate on the best options for restoration and enhanced connectivity of the Taita Hills Forest fragments

2.1.2 Objectives

The workshop was guided by this set of objectives:

- To leverage stakeholders' understanding of the threats, challenges and opportunities for the conservation and sustainable use of forests resources in Taita Hills.
- To provide an opportunity for stakeholders to share experiences and learn from each other
- To identify and prioritise interventions for restoration and increased connectivity
- To learn and appreciate the respective capacities and limitations of various stakeholders involved with the conservation of Taita Hills Forests.
- To clarify on the CEPF funding opportunities and limitations.
- To work out a way forward on what happens in this process in light of the funding opportunities available through CEPF (and other donors).

2.1.3 Expected Results

The workshop by seeking to achieve the above objectives was expected to yield these outcomes:

- Better understanding of the conservation threats and challenges of Taita Hills Forests (per site).
- A set of key interventions required to address the threats of loss of forest biodiversity as well as fragmentation
- A better understanding of the respective roles of stakeholders involved in the conservation of the Taita Hills forests

- Opportunities identified for enhanced collaboration and partnership among various stakeholders
- An appreciation of CEPF opportunities and limitations for funding conservation initiatives within the hotspot
- A narrowed list of stakeholders with potential to access funding from CEPF.
- A timeframe on the actions required for the identified stakeholders to access funding from CEPF

2.1.4 Levelling of expectations

In order to incorporate the expectations of the participants in the discussion process of the workshop the participants listed what they expected to have achieved by the end of the workshop.

The major expectations that emerged and which could reflect the needs that were addressed in this workshop included:

- An understand the CEPF operations, as well as the role of other stakeholders, their role in conservation of Taita Hills and the opportunities for networking, formation of linkages and collaboration in improving conservation efforts in the Taita Hills hotspot.
- Development of efficient plans concerning information and data sharing among the stakeholders
- Insight on various self-sustaining and implementable interventions that can be funded in order to restore lost biodiversity in the Taita Hills hotspot and enable the community see the value of forest through alternative livelihoods that minimize excessive exploitation of forest resources
- Clear identification of strategic partners with clear complementary roles to ensure effective use of CEPF funding for the benefit of the Taita Hills Forests and partnerships established with each entity playing its role at the micro-level and coordination done at the macro-level
- A harmonized, well-coordinated funding protocol that minimizes duplication of funding while promoting maximum conservation of resources

2.1.5 Representation

The workshop drew its participants from various stakeholders working in the region in different levels and capacities. These included researchers and research institutions, local and international NGO representatives, relevant government departments (arms of the central government) local government representatives CBO leaders and various resource persons selected for their role in connection with the work they have done or they are currently undertaking in the Taita Hills.

The workshop brought together 36 participants representing 13 CBOs, the district wildlife forum (Taita Taveta Wildlife Forum) the local government, the agriculture and forest departments of the central government, 4 national and regional NGOs as well as three research institutions. Also represented were three foreign universities (Universities of Antwerp, Ghent and Helsinki) and 2 international NGOs having conservation programs in the Taita Hills Forests.

Summary of Stakeholder Groups Represented at the Workshop

Stakeholder Group	Description	Past and Present Efforts in the Conservation of Taita Hills
Mbololo CBO	• CBO	• Tree planting • Forest protection • Restoration • Protection of springs • Grass planting • Farm forestry
Kasigau Community Environmental Committee	• CBO	• Afforestation of Mt Kasigau • Protection of catchment areas • Assist community to plant fruit, timber and building trees • Farm forestry
Agriculture Department	• Government Department	• Agricultural extension of improved production/farming techniques • Promotion of agro forestry trees e.g. avocado and macadamia in the highlands and mangoes and cashew nuts in the lowlands • Trying out of soil conservation structures for farmers like terraces and micro-catchments e.g. negarims and proper tillage practices
East African Wild Life Society	• Membership conservation organisation • NGO	• Supporting local organisations in the conservation of biodiversity • Previous projects have included - Integrated conservation and management of selected forests in Taita Hills (1995-96) - Biodiversity conservation of Taita Hills - CORE programme - Cross boarder biodiversity conservation programme
African Butterfly Research Institute	• Research Institution	• Research • Education of importance of butterfly conservation and habitat conservation
County Council of Taita Taveta	• Local Authority formed under the Local Government Act Cap 265	• A peoples government within the district • By-laws formulated within the Act • Advice on development policies and provides services in line with central government policies • Careful to see that the environment is concerned • Environment committee within the council • TTCC holds in trust all public/utility/common land including hills and forests
Mbenge ya Mrangi Women Group	• CBO	• Neem Soap Making • Conservation of forest, water catchment Future plans • Starting tree nurseries

		• Growing fruit trees
Management of Arid Zone Initiatives and Development Options (MAZIDO)	• Conservation NGO	• Conservation of biodiversity and water in Wongonyi/Mbololo Future plans • Deal with river system for Mwalui, Mole, Mlundinyi and Ndile streams • Restoration of river valleys by planting both exotic and indigenous trees • Planting a special bamboo (*Dendrocalamus ginganteus*) which will assist in alleviation of poverty
Sigha Sigha Support Group	• Environmental CBO for Mwambirwa	• Planning to rehabilitate the devastated (?) Mwambirwa Forest • Marketing the forest as an ecotourism destination
Chawia Environment Committee	• CBO	• Tree nursery at Chawia Location, Mwatate Division • Maroko Shallow well spring construction • Replacement of exotic trees with indigenous trees in Chawia Forest • Protect different species of animals and birds and conserve Chawia Forest • Currently expanding tree nursery to raise more tree seedlings for sale • Hope to establish ecotourism project
Shalom	• CBO	• Environmental protection • Soil erosion prevention ***Current Projects*** • 'Merry-go-round' • Tree nursery • FFS
Ngangao Community Forest Association	• Environmental CBO for Ngangao • Aspiring to be registered as a Users Association for Ngangao Forest	• Conservation of Ngangao Forest and its environs • Sustainable use of resources • Community awareness on environment and conservation • Tree planting and tree nursery establishment • Protection and development of water catchments • Ecotourism project
Forest Department	• Government institution established under cap 385	• Development of forests • Agro forestry • Catchment area conservation and protection for socio-economic development
Taita Hills Ecotourism Network	• Ecotourism Marketing CBO	• CBO sensitisation on biodiversity conservation • Assisting CBOs fill CEPF LOIs • Marketing and networking of eco-products collaboration with University of Helsinki
Worldwide Fund for Nature – Eastern Africa Regional Programme	• International NGO with a regional programme office in east Africa	• Capacity building of CBOs through Training of Trainers workshops as part of cooperation for CEPF • Assist in training of trainers in filling out of CEPF LOIs in Eastern Arc

Office (WWF-EARO)		Mountains and Coastal Forests Biodiversity Hotspots
Nature Kenya (EANHS)	• Conservation NGO	• Promotes the study and conservation of biodiversity in EA (General) • Collaborated with NMK in various research expeditions • Published information on Taita in the Journal of EANH • Collaborated with GEF in Cross border project Current Activities in Eastern Arc • Monitoring through FD and KWS • Member of coordination unit of CEPF Eastern Arc Future plans • Monitoring biodiversity • Community capacity building
Pact Kenya	• Regional NGO	• Enhancement of conservation of Natural resources for improved livelihood of the landowners through capacity building • People cantered sustainable natural resource management • Socio-economic and conservation goals balance of the members
National Environmental Management Authority (NEMA)	• Gov't department mandated to supervise and coordinate environmental management efforts in the country	• So far has done awareness creation of the Environmental Management and Conservation Act (EMCA)
Kenya Forestry Research Institute (KEFRI)	• Government institution mandated to conduct research in forestry and allied natural resources	Has conducted several activities in collaboration with Pact Kenya and FD • PFM in catchments – Mganze and Mwanda locations • Rehabilitation of water catchment/nursery and tree seed harvesting – Mbanga Ngombe, Mbanga Ngwate, Maghonyi • Ecological status of LUMO Sanctuary ecosystem • PRA at Kea Mdoi and Kasigau • PFM to be extended to Vuria, Maghonyi, Kasigau etc • Farm forestry activities in the Bura, Munshi, Kishushe etc
Taita Taveta Agricultural Project (TTAP) – Danida District Coverage	• Rural agricultural development programme working in Taita Taveta District	• Improving standard of living through sustainable agricultural development • Organisation of farmers in Mwambirwa/Mbololo Forests (partnership with EAWLS/FD) • Support to raising of tree seedlings in nurseries – Kitobo Forest • Forest Department an implementing line department
Kitobo Community Forest Conservation and Environment Association	• CBO formed to monitor and protect Kitobo Forest	• Rehabilitation of Kitobo forest • Establishment of tree nurseries
Mwanda Environment Conservation Unit	• Conservation Self Help Group	• Tree nursery – indigenous and exotic • Goal is to plant as many trees as possible so that in future there is enough rain
University of Helsinki -	• A leading university in Europe	• Provision of skills and capacity for land use change monitoring including

Finland		forests
Birdlife International African Partnership	• Global Network of NGOs working to conserve birds, habitats and sites through working with people	• Member of the coordination unit that supports CEPF in coordinating activities in the hotspot • Monitoring of IBAs and all sites in the hotspot
National Museums of Kenya and University of Antwerp	• NMK involved in research, conservation and protection of Kenya's Natural heritage. UA involved in research leading to conservation of Taita Hills	• Various research projects • Training activities into the biodiversity of the hills and best solutions for problems e.g. Taita Hills Biodiversity Project and follow-up
Taita-Taveta Wildlife Forum	• A community-based trust providing a platform for members to participate in the management of natural resources occurring outside protected areas in Taita Taveta District.	• Supports members in management of natural resources at their disposal on a sustainable yield basis
LUMO Community Wildlife Conservation Trust	• Community conservation organisation involved in ecotourism	• Spring catchment protection in Vuria • Agroforestry in settled areas in private land • Afforestation and re-afforestation in communal land

3.0 Summary of Thematic Presentations

Resource persons from various backgrounds were invited to make presentations on the following thematic areas:

- The general overview of Taita Hills Forests
- The biodiversity and ecological value of Taita Hills Forests
- Experiences from past conservation efforts
- Past, present, and future conservation initiatives of Taita Hills forests

Following is a summary of the various presentations made.

3.1 Background Information on the Forest Fragments of Taita Hills; Eastern Arc Mountains

Presentation By: Muigai D. N.; District Forest Officer, Taita Taveta

The presentation highlighted on the location, size, conservation status, and ownership as well as forest management issues.

Taita Hills form the north most part of the Eastern Arc Mountains. Due to human settlements and agriculture, the once continuous mist forest is presently highly fragmented and comprise up to 52 patches completely detached from each other. The forests greatly vary in size with the smallest being Kulundu (0.08 ha) and the largest being Igho Mkundu (2000 ha). Out of the 52 forest patches only 24 are gazetted and only 3 out of the 24 gazetted are surveyed. The surveyed ones are Mbololo Juu, Mwambirwa, and Ngangao Forests. Both gazetted and non-gazetted forests occupy 8902.01 ha which approximately 0.52% of the total district area.

Vegetation types in these forest patches vary from indigenous exotic with most of them being a mixture between the two. These forests are home to endemic animals including birds and insects. The local community members have low awareness on the biodiversity riches in the forests because they provide little or no tangible benefits.

The following table summarizes the existing forest patches sizes, vegetation type, location and ownership/legal status.

Government Gazetted Forests

Forest	Size (Ha)	Location
Kasigau	202.3	Voi Division
Choke (Mnjonyi)	73.5	Wundanyi Division
Fururu	14.12	Mwatate Division
Figi	0.4	Wundanyi Division
Goye	8.23	Voi Division
Kilulunyi	0.25	Wundanyi Division
Kinyeshamvua	495	Wundanyi Division
Kulundu	0.08	Wundanyi Division
Mwandongo	688	Wundanyi Division
Mwachora	6.4	Wundanyi Division
Mwakamu	1.5	Mwatate Division
Mchungunyi	8	Wundanyi Division
Macha	14.57	Wundanyi Division
Mdengu	0.36	Mwatate Division
Mbili	10.23	Wundanyi Division
Ngomenyi	0.2	Wundanyi Division

Ndiwenyi	5.6	Mwatate Division
Ngangao	123.4	Wundanyi Division
Susu	1.7	Mwatate Division
Weni Mbogho	2.0	Wundanyi Division
Weni Mwana	5.26	Wundanyi Division
Weni Tole	3.4	Wundanyi Division
Mtete	0.28	Wundanyi Division
Mbololo Juu	68.8	Tausa Division
Iyale	22.33	Wundanyi Division
	Total Area: 1310.41 Ha	

Taita Taveta County Council Forests

Forest	**Size (Ha)**	**Location**
Chawia	86	Mwatate Division
Ngangao	139	Wundanyi Division
Fighi Ya Mkumu	1000	Wundanyi Division
Goye	14.1	Voi Division
Igho Mkundu	2000	Wundanyi Division
Kalangu	200	Mwambirwa Division
Kighala	200	Voi Division
Ighi Ikumu	100	Wundanyi Division
Kitobo	160	Taveta Sub-District
Salaita	40.5	Taveta Sub-District
Lotima	40.5	Taveta Sub-District
Mwambirwa	18.2	Mwambirwa Division
Rong'e	318	Mwambirwa Division
Mraru	200	Tausa Division
Mwaganini	14.6	Wundanyi Division
Mwarangu	200	Wundanyi Division
Bura Nursery	10	Mwatate Division
Ng'ambwa	1000	Mwatate Division
Sagalla	70	Voi Division
Sungululu	50	Wundanyi Division
Jayce	10	Voi Division
Irizi	476	Wundanyi Division
Wesu Rock	50	Wundanyi Division
Mwakinyambu	404.7	Wundanyi Division
Mwarungu	400	Wundanyi Division
Vuria	115	Wundanyi Division
Kasigau Nursery	3.0	Voi Division
	Total Area: 7591.6 Ha	

Presently, issues affecting forest management include:

- Gazettement: 28 forest patches are not gazetted
- Forest survey: 49 forest patches are not surveyed hence boundaries not clear
- Squatting: There is an estimated 500 squatters living in some forest patches

- Unauthorized extraction of forest products (including firewood, poles, and carving wood)
- Unauthorized and Uncontrolled grazing
- Encroachment for agriculture and settlement
- Colonization by exotic species (especially eucalypts in some forests such as Iyale, Wesu, Mwambirwa, and Mwandongo)
- Fires (especially during the dry season). Mwambirwa was in 2003 almost entirely wiped out by a forest fire.

3.2 The biodiversity and ecological value of Taita Hills

A Presentation By Dr. Mwangi Githiru: NMK and University of Antwerp

Dr. Mwangi's presentation focused on the biodiversity and ecological value of Taita Hills with special emphasis on birds that have formed the basis of extensive studies by various institutions and scholars.

The presentation was organized into introduction; biodiversity; research work summary of key findings and conclusions.

3.2.1 Introduction

Taita hills are the north-most part of the East Arc Mountains with unique biodiversity richness and characteristic endemism of various species of both flora and fauna. It is listed as an Important Bird Area (IBA) site and forms part of the East Arc Mountain and the Coastal Forest Biodiversity hotspot for the Critical Ecosystems partnership Fund.

The Forest his highly fragmented due to its occurrence within a heavily settled landscape characterized with a myriad of livelihood activities.

The single main threat to the forests is encroachment (for agriculture and settlement) leading to isolation.

3.2.2 Biodiversity

The biodiversity richness and endemism of the Taita Hills have been influenced by more than 100 years of isolation. Various studies indicate that:

- 13-plant and 9-animal taxa endemic;
- 22-plant and 3-animal species are characteristic of the East Arc Mountains;
- 37-plant species rare both nationally and globally;
- *Birds*: 3 endemic birds list in various threat categories;
- Endemic plants include: *Saintpaulia teitensis* (African Violet); *Zimmermania ovata; Coffea fadenii*
- There is also high endemism in invertebrates (both specific and related to Eastern Arc Mountain forests) at genus and species levels
- On reptiles and amphibians Taita Hills have the nationally endemic gecko and the Taita reed frog

3.2.3 Research work

Research work in Taita Hills has evolved from general surveys (occurrence and distribution – 1980s) to investigation of basic patterns of life to understanding mechanisms, processes and interactions.

The main goal of this work has been to apply the findings (both general patterns and detailed processes) into the conservation agenda.

In 1980's: Beentje and Ndiang'ui conducted inventories and surveyed the protection status. Inventoried. In 1990's the Taita Hills Biodiversity Programme (THBP) investigated the general occurrence (presence or absence of some species, and taxonomic). Studies so far undertaken can be summarized as follows:

- Distribution; and patterns and trends
- Birds: multiple species (community-level, typical of initial studies)
- Mammals: small mammals – rodents, shrews; monkeys, galagos etc with 1st records for Kenya and sub-species
- Invertebrates: Lepidoptera – butterflies and moths; Diptera – flies; molluscs – snails and slugs; Diplopoda – Millipedes – many endemic species, taxa, and even new species and genus!!
- Plants: ethnobotany (use and indicators of disturbance)
- Reptiles and amphibians: e.g. forest vine snake

Beginning 2000 studies that are offshoots of the previous work (on further details and mechanisms) have been conducted. These studies include:

- Birds: Taita Thrush, T. Apalis, T White-eye, and White-starred robin
- Interactions: seed dispersal
- Plants: health assessment; ethnobotanical knowledge and composition and structure of plant communities

Other studies and research initiatives include:

- Caecilians
- GIS spatial use maps (through the THBP)
- Photographic modelling
- Socio-economic studies

In general these studies have been able to elucidate species composition and bio-geographic affinities: showing a complex mix of Eastern Arc Mountains and Coastal Forests as well as some Central highlands aspects

3.2.4 Summary of findings

In general these studies have resulted into a better understanding of status of the habitat and biodiversity, which can be summarized as follows:

Various issues and challenges have been identified including:

- Land-uses and connectivity issues (isolation);
- Fragment level: reduced sizes and attrition;
- Declining populations; breeding problems, skewed sex-ratio, genetic pressure; potential sources-sinks;
- Dispersal and gene flow issues, among many more others.

3.2.5 Conclusions

- Importance for biodiversity unquestionable
- The extremely tiny indigenous patches remaining coupled with the hostile land uses pose grave problems for many species
- Urgency for finding solutions for these flora and fauna cannot be overemphasized
- Because problems are both within and outside the forest patches, solutions need to be focused both on the remnant patches and in the surrounding matrix
- Need to include people living in the matrix in finding workable solutions is obvious and this call for education and awareness creation.
- Scientists must engage other parties so that development projects incorporate their findings and represent best solutions for biodiversity – political and socio-economic marriage

3.3 EAWLS Work and Experience in the Conservation of the Taita Hills:
A Presentation By James Mwamg'ombe; East African Wildlife Society

The East African Wildlife Society has been working in the Taita hills Forests for more than 20 years. In over ten of these years EAWLS has partnered with several organization to undertake work in inventorying of the biodiversity of the forests, awareness creation and education to actual conservation programmes. Among the key projects done in the area are:

1. **Inventory of the Biodiversity of the Taita Hills**: The EAWLS partnered with the National Museums of Kenya in 1984 to conduct a biodiversity inventory of the Taita Hills Forests. This study, funded by the IUCN and WWF, identified a number of endemic, rare and endemic species of flora and fauna. The study also showed great fragmentation, encroachment and denudation among the indigenous forests. It established that only a small portion of this once extensive forest still remains and is mostly limited to the peaks of the hills and in difficult ridges.

2. **The Taita Hills Biodiversity Conservation Project**: This project was conducted between 1995 and 1996 was funded by the Swedish Society for Nature Conservation and sought largely to review all information available on Taita hills share it with all stakeholders including the local community. The project was, among other achievements, able to successfully hold a workshop with focal leadership, government officials and NGO representatives to address the issues of management, research and community issues. From these workshop discussions the "Integrated Conservation and Management of selected Forests in Taita Hills Project" was designed to address some of the issues.

3. **Integrated Conservation and Management of Selected Forests in the Taita Hills**: beginning in 1997 and ending in 1999, this project focused on four forests of Mbololo, Vuria, Ngangao and Chawia. Its overall aim was information gathering, documentation, awareness raising and strengthening. On completion of this project, the communities adjacent to these forests became environmentally aware leading to formation of environment committees and CBOs. The Mwalui water project in Mbololo was rehabilitated and beehives provided in Vuria. The project also developed an Integrated Management Plan for the Taita Hills

4. **Enhancing Biodiversity Conservation through Alternative Livelihoods and Appropriate Technology Strategies in Kasigau and Mbololo forest areas in Taita Taveta District**: As a component of the GEF/UNDP East African Cross-border Biodiversity Project, and implemented between June 2002 and November 2004, addressed livelihood and technology issues according to Immediate Objective B of the EACBBP: balancing resource demand and supply through the development of management plans, alternative economic activities, alternative resources and management regimes. The project introduced bee and honey processing enterprises, energy saving and alternative energy source technologies (energy saving stoves, fire-less cookers, and low-cost bio-gas plants), developed ecotourism businesses, and Agroforestry/farm forestry. The project also developed Participatory Forest Management plans and is currently developing a documentary for the project activities and experiences. During the course of the project, EAWLS worked together with the Taita Taveta Agricultural Programme (TTAP), the Kenya Forest Working Group (KFWG) and the Forest Department. Such collaborations should be encouraged

3.3.1 Lessons Learnt
- The local community members are willing to participate in conservation activities, however, the poverty situation hinders them. Therefore, there is need to formulate conservation projects that would also promote livelihood generation.

- All the forest patches are surrounded by private farmland and there is nee to formulate strategies that encourage forest conservation/tree planting on private land.
- There is an emerging threat to conservation efforts related to the timber industry. The ban on timber harvesting in government forests has re-directed this pressure on trees on private land. The main problem here is the issue of pricing. Farmers are paid very little thus necessitating them to sell more trees in order to meet their financial needs than necessary if they priced appropriately.
- Conservation is an expensive undertaking both in time and resources. Therefore, long-term funding is necessary to ensure an interrupted programme unlike has been the case.

3.4 Land-Use Change Monitoring in Taita Hills Using GIS

A Presentation By Antero Keskinen, Helsinki University, Finland

Helsinki University has been studying land-use changes in Taita Hills since January 2003 under the project titled: "Development of land use change detection methodology applying geographic information systems in East African highlands". The Council of Development Studies of the Academy of Finland has funded this project. The overall objectives of the project are to develop a cost-effective and practical land use change detection methodology and to create a geographic database for the land use and its changes in the area. The aim of the multidisciplinary project is dvided in four main sub-objectives: studies in land use change, urban growth, spatio-temporal changes in land degradation, and development of the management systems of naturally protected forests. Methodological development is an essential part of the project. Existing and new change detection methods for remotely sensed data will be tested in mountainous and urban areas.

This presentation summarizes the project data, methods and preliminary results.

3.4.1 Specific Objectives of the Study

- To develop a land use change detection methodology
- To create geographic database for land use and land cover in the Taita Hills

3.4.2 Sub-objectives

- To study land use and its changes from 1950s to 2005
- To analyse the temporal changes in land degradation in the area and study the soil erosion risk
- To study the condition and change of indigenous forests
- To map roads and paths from digital camera imagery

3.4.3 Background Information on Taita Hills

- Located in SE-Kenya in Coast province, Taita Taveta district
- Part of the Eastern Arc mountain chain rising up to 2200 meters
- Endemic mountain rain forests and rich biodiversity
- Rainfall between 500 mm to 1500 mm per year
- Intensive agriculture and high population density, maximum 119 persons/km2
- Threats: population increase, loss of indigenous forest patches and plant and animal species, land degradation and soil erosion
- Need for land use mapping and planning in order to protect the environment

3.4.4 Data Types Used

- SPOT Satellite remote sensing data
- Black and White aerial photographs
- Multispectoral airborne digital camera

3.4.5 Material Used

- SPOT XS satellite data for 1987, 1992, 1999, 2002, 2003
- Aerial photography and digital camera imagery for 1955, 1986, 1993, 2003, 2004
- Survey of Kenya topographic map series 1:50 000
- Soil map

3.4.6 Preliminary Findings

Indigenous forests

- The Taita Hills were once forested, but nowadays only few patches of indigenous forests are left
- To date, less than 400 ha of original forest is retained
- Three larger remnants, Chawia (50 ha), Ngangao (92 ha) and Mbololo (220 ha)
- The patches are embedded in a mosaic of human settlements, small-holder cultivation plots and exotic plantations

Fieldwork

- The borders of Ngangao and Chawia were mapped with a GPS
- 20 FHM sample plots in Ngangao and 7 in Chawia were studied in 2004 and 2005
- Hemispherical upward photographs were taken in each core plot
- After digitisation of the photographs, parameters indicating forest condition, such as LAI and canopy cover % can be retrieved
- The analysis of hemispherical photographs will be compared with the results acquired by the FHM program

3.4.7 Development of geographic database – Map server

One of the objects of the TAITA project is to create a geographic database of the land use in the area. With modern geographic information systems (GIS), geographic databases can be created for land use issues. The database over the project area includes the basic information of the area and also the study material of the project and the results of the studies. The data includes aerial photography, satellite images, tabular data, raster maps and vector data. The database is file based and later, if needed, can be transformed into a relational database that can host spatial data. To share this data with different groups a map service is being set up.

- The purpose of a map service is to distribute the data among different people and organization in an easy and flexible way.
- The end user can access the data using an Internet browser, like Internet Explorer. They don't necessary need to have any other software to view and even make some analysis of the data.
- Map service would give access to both GIS content and GIS capabilities.
- The user can work with the set of normal map operating tools such as zoom, pan etc.
- Vector maps also include attributes of the features they contain and they can be accessed from the map service as well. This will allow the end user to access for more information than a plain map and also to perform some analysis functions.
- Using the map service the user can also download
- Data has been installed in a server machine in University of Helsinki
- Access to the service will be through the project homepage: http://www.helsinki.fi/science/taita

Examples of data and data structure in database and server

- Maps and GIS layers for analysis and visualisation
- Tabular data, documents, photographs

- Project data results, other study results and publications
- Data for other (non-scientific) purposes, such as tourist purposes
- Geographical (location) data, attribute data, metadata
- Various attribute data can be linked together with its geographical location and presented on a map view
- Users can view data, search data with some criteria or download data for their own workstations for their own needs and applications
- Tools: zooming, selecting, queries, downloading

3.4.8 Key Accomplishments To date

- Aerial photography and digital camera imagery are digitised and almost mosaicked
- Satellite image data is pre-processed and classification stage is underway, ready before June
- GIS layers are ready
- Map server is created and filled with data of the database
- Maintenance and updating of the database and map server in the future

3.4.9 Theses and papers coming

- Population development in the area
- Land use policy
- Urban growth of Voi
- Development of road infrastructure
- Traditionally protected forests
  - Their area and condition
  - Their importance for local people
  - Their potential for ecotourism
- Soil erosion in the area from 1950s
- Land use change in the area from 1987 (1950s)

3.4.10 Set Up Of Taita Hills Environmental Monitoring System (THEMS)

Aims:

- Monitoring on the field
- Database maintenance
- Compiling geographical data in map server at the University of Helsinki
- Delivery of data to research groups within the area
- Continuation of GIS work at the University of Helsinki

THEMS would allow for:

- Overseeing of environmental activities
- Cooperation among research groups
- Avoiding overlapping, duplicate work
- Application for funding from CEPF

Data Available through THEMS:

- TAITA project data of the University of Helsinki
- Data from other scientists studying environments (forests, flora and fauna, soils) in the area
- Accessible by listed THEMS partners

3.5 Instituting a standardised sustainable biodiversity monitoring system in the Eastern Arc/ Coastal Forests Hotspot: A *Presentation by Julius Arinaitwe, Birdlife International*

This presentation highlighted on the purpose and key features of the soon to be launched biodiversity monitoring system in the Eastern Arc and Coastal Forests hotspot.

- This project will be funded by CEPF
- It will be a build on to the work that Nature Kenya and Wildlife Conservation Society of Tanzania (affiliated to Birdlife International) have been doing and will also act synergistically with other established monitoring programmes/systems by other actors in this region.

3.5.1 Purpose
- To set up a sustainable monitoring system involving all key stakeholders in the EACF hotspot,
- Information is made widely available and accessible.

3.5.2 Objectives
- Standardised protocols for monitoring agreed with all stakeholders and instituted
- The status of key taxa, key sites and the ecosystem processes maintaining biodiversity are monitored
- Co-ordinated storage, handling and sharing of conservation data

3.5.3 Expected Outputs
- A baseline of monitoring knowledge, data and practitioners in the EACF and the current main gaps and needs established.
- A forest cover and change detection map for the coastal forest and the Eastern Arc Mountains is produced and distributed widely
- Protocols for biodiversity monitoring developed, agreed, standardised and implemented by all key stakeholders across the EACF hotspot.
- The trends in conservation status and threats to selected species, sites and habitats in the EACF hotspot after four years of CEPF investment assessed and documented.
- A database maintained where information on the Conservation Outcomes of EACF hotspot is stored and readily availed.

To start off the process, Birdlife International is presently seeking for information on:
- Who is monitoring where and with what methods?
- Which are the major institutions/people with monitoring data, for which sites and taxa.
- Taitas - who has done/is doing remote-sensing work and what data are available?
- Expect to be consulted about this; expect to contribute

3.6 Options for the Conservation of Taita Hills Forests – A Landscape Connectivity Approach
A Presentation By Prof. Luc Lens, Ghent University, Belgium

This was the keynote presentation for the workshop. The purpose was to illustrate the practicability and process of connecting the various forest patches in Taita Hills as a restoration and biodiversity conservation intervention. The presentation was based on finding from research work so far undertaken in Taita Hills.

Following is a summary of the features of the presentation:

3.6.1 Background

Ghent University has been involved in research work in Taita Hills since 1996, with close collaboration with National Museums of Kenya, Kenyatta University and nature Kenya. The main focus of this work has been to study biodiversity patterns and processes.

3.6.2 Landscape studies

- A survey of the remaining indigenous forest fragments has been conducted.
- The forest fragments can be divided into two main ranges: the Ngangao – Chawia range (with several patches in between and the Mbololo – Ronge range.
- The location of the indigenous remnants is strongly related to altitude with Mbololo, Ngangao and Chawai occur at 1501-2000 meters above sea level.

3.6.3 Studies of Birds

Extensive studies of birds have revealed that:

- Various threatened and endemic birds species are confirmed to the indigenous fragments
- Due to isolated populations the birds have:
    - Strongly skewed sex ratios
    - Reduced genetic variability
    - Increased level of inbreeding,
    - And all these factors combined have resulted to reduced survival.
- Reduced morbidity has been singled out as one major factor affecting the survival of these birds.

3.6.4 Possible Solutions/Interventions

- Increasing the connectivity between the various forest fragments is the only ultimate solution for the conservation of these birds and other wildlife dependant on the indigenous vegetation. This can be done in such a way that 'stepping-stones" or pockets of manmade indigenous vegetation are established between various forest fragments.
- Preliminary analysis indicates that it is possible to establish connectivity between Chawia, Ngangao and Mbololo through a process of selective reforestation of certain sites occurring in between.

3.6.5 Pre-Restoration/Connectivity Establishment Conditions

- Dealing with land-use barriers
- Collection of pre-restoration data
- Identification and selection of appropriate restoration tools (and plant species)

3.6.6 Activities of The Restoration/Connectivity Establishment Process

1. Conducting an inventory of existing plantation forests (survey and mapping work)
2. Development of a 3D-connectivity model for current state (GIS)
3. Characterisation of plantation forests (botanical, Physic-chemical)
4. Characterisation of plantation forests (socio-economic, legal)
5. 3D-simulation of different restoration scenarios (GIS)
6. Selection of priority target sites for habitat restoration based on 1-5
7. Optimisation/preparation of tools for habitat restoration
8. Collection of pre-restoration data for biological validation

Ghent University has the capacity to undertake 1, 2, 5, and 8 of the activities listed above. Collaboration with other stakeholders will be required in order to undertake this process wholesome.

4.0 SUMMARY OF WORKSHOP OUTCOMES

4.1 Identification and analysis of the threats and challenges

Participants were divided into four groups based on the location of the forest patch they have worked or have an interest in and asked to identify various threats and challenges prevalent on a particular forest site.

The following table summarizes the various threats and challenges identified.

Threat/challenge	Prevalence (by forest patch mentioned)
Agriculture related (cultivation encroachment, clearing, grazing	
• Encroachment in Ngangao and surrounding	• Ngangao, Fururu, Susu, Macha, Lutima, Salaita
• Cattle/goat grazing	• Kasigau, Ngangao, Chawia
• Fire	• Kalangu, Mwandongo, Kasigau, Ngangao, Chawia, Mwambira, Mbololo
• Land clearance for farming	• Mbololo
• Over abstraction of water resources	• Mbololo
• Demand for land for settlement	• Ngangao
• Land degradation	• Ngangao, Kasigau, Sagalla, Goye
• Soil erosion	• Ngangao, Mbololo, Sagala
• Squatting	• Macha, Kighala, Mwandongo, Lotima, Salaita
Extraction/exploitation	
• Timber harvesting	• Kasigau
• Wood for curving	• Ngangao
• Charcoal production	• Kasigau
• Resin extraction	• Chawia, Mwandongo, Kasigau
• Loss of biodiversity	• Ngangao, Chawia
• Inadequacy of forest resources	• Ngangao
• Wrong species in the wrong places	• Ngangao, Chawia, Mwambirwa
• Tree poaching	• Kighala Kalangu, Mwandongo
• Genetic degradation / extinction	• Ngangao, Chawia
• Reduction of vegetation cover	• Chawia, Sagalla, Goye
Sanctioned/development	
• Invasive species (eucalyptus)	• Ngangao
• Poor infrastructure	• Mwambirwa
• Development projects (Telcom transmitter in Chawia)	• Chawia
• Exotic plantations	• Ngangao, Chawia, Mwambirwa
Governance/Policy legislation management	
• Forests not surveyed/gazetted	• Chawia, Kalungu
• No management committees	• Kalungu
• No management plans	• Kalangu
• Inventorying not done	• Mwandongo, Kalangu, Sagalla, Goye
• Inadequate tree planting	• Kighala
• Boundary conflicts	• Kighala
• Lack of enforcement	• Ngangao, Mwandongo
• Inadequate funding	• Mwambirwa, Mwandongo
• Inadequate personnel (forest guards)	• Mwambirwa

• Lack of proper forest policy (unfriendly) • Non participatory law/policy • Lack of incentives	• Mwambirwa • Mwandongo, Ngangao, Chawia, Mwambira • Mwandongo, Ngangao, Chawia, Mwambira • Chawia
Community awareness • Negative attitude towards forest • Retrogressive politics • Irresponsible journalism • Lack of marketing (skills) for Eco-products • Lack of proper communication methods/ channels	 • Ngangao, Mwambirwa, Mwandongo • Mwambirwa • Mbololo • Ngangao • Ngangao

Clustering and prioritisation of threats and challenges

Agriculture related (cultivation encroachment, clearing, grazing)	Extraction/exploitation	Sanctioned/development	Governance/Policy legislation management	Community awareness	Capacity Building
• Encroachment in Ngangao and surrounding • Cattle/goat grazing (Kasigau) • Fire • Land clearance for farming • Over abstraction of water resources • Demand for land for settlement • Land degradation • Soil erosion	• Pole harvesting • Firewood collection • Timber harvesting • Wood for curving • Charcoal production • Resin extraction • Loss of biodiversity • Inadequacy of forest resources • Wrong species in the wrong places • Tree poaching • Genetic degradation / extinction • Reduction of vegetation cover	• Invasive species (eucalyptus) • Poor infrastructure • Development projects (Telcom transmitter in Chawia) • Exotic plantations	• Forests not surveyed • No management committees • No management plans • Inventorying not done • Inadequate tree planting • Boundary conflicts • Lack of enforcement • Inadequate funding • Inadequate personnel (forest guards) • Lack of proper forest policy (unfriendly) • Non participatory law/policy	• Negative attitude towards forest • Retrogressive politics • Irresponsible journalism • Lack of marketing (skills) for eco-products • Lack of proper communication methods/ channels • Lack of incentives • School based education programmes	•

4.2 Prioritisation of conservation options and stakeholder analysis

The threats and challenges listed for the various forest sites were clustered and prioritised at the plenary based on the persistence and frequency of occurrence per forest site. Through the same groups for task one, participants were asked develop a list of interventions that would be undertaken to address these threats (or their root causes) and identify the best placed stakeholders to be involved in addressing these issues. The presentation by Prof. Luc Lens on the process of restoration and establishment of connectivity formed the basis of the group discussions.

The following table (overleaf) summarizes the threats, interventions and stakeholders to be involved per forest site

Forest Site	Threat/Issue/Challenge	Appropriate Interventions	Best Suited Stakeholders
All sites	• Reduction of vegetation cover, • Land degradation, • Encroachment (Agriculture & grazing) • Poverty	• Development of forest restoration programmes	FD, Forest User Grps; KEFRI, UoG, ICIPE
		• Community policing	FD, PA, Forest User Groups
		• Agro forestry/farm forestry	FD, Forest User Grps, KEFRI, EAWLS; MoA
		• Development of Participatory Forest Management Plans	FD, Forest User Grps EAWLS, KEFRI, ICIPE
		• Development of alternative livelihoods	FD, Forest User Grps, EAWLS, MoA, MoL, KEFRI, ICIPE
		• Education and awareness on bests practices in Natural resources use and management	PA , NEMA, FD, KCT, EAWLS, MoA, MoL, KEFRI, ICIPE, TTWF
All sites	• Over extraction - unauthorized removal of forest products(firewood, timber; herbs etc)	• Monitoring and evaluation	Birdlife International; Nature Kenya, UoG, UoH,
		• Encouraging farm/agro forestry	FD, Forest User Grps, KEFRI, EAWLS; MoA
		• Restoration (gradual replacement of exotic plantations)	FD; Forest user Grps; EAWLS: KEFRI, University of Ghent, NMK
		• Enforcement/Regulation of licensing	FD; Forest User Grps
		• Participatory law enforcement	PA, FD, NEMA, Forest User Grps
All sites	• Community's negative attitudes towards forests conservation • Lack of Awareness	• Awareness creation and development of livelihood incentives	FD, Forest User Grps, EAWLS, MoA, MoL, KEFRI, ICIPE
		• Improve communication among various stakeholders	FD; TTWF; EAWLS; WWF-EARPO
All sites	• Inadequate management capacity among the community groups	• Entrepreneurship training, Management skills training	Pact-Kenya, EAWLS, TTWF, ICIPE
		• Networking and Information Communication Technology	TTWF, UoH, THEN; FrankTech Computers
		• Community based forest monitoring/community scouting	Birdlife International; Nature Kenya, NMK, TTWF

Forest Site	Threat/Issue/Challenge	Appropriate Interventions	Best Suited Stakeholders
All sites	• Poor governance • Incapacities of FD to manage • Outdated policies and legislation • Lack of Gazettement	• Surveys and Gazettement,	FD, TTWF, CCTT; EAWLS
		• Participatory Law Enforcement	FD; NEMA; PA; Forest User Grps
		• Formation and development of Forest User Groups	EAWLS, FD, Pact-Kenya, TTWF
		• Training of User Groups in environmental governance and management	FD, , NEMA, TTWF, EAWLS
		• Advocacy for the enactment of new Forest Bill • Lobby of Local Members of Parliament	EAWLS (KFWG), TTWF, and Forest User Grps
All Sites	• Lack inventory biodiversity, • Gaps in biological knowledge	• Biodiversity inventory and mapping	UoG, UoH; NMK; Nature Kenya; Birdlife International; EAWLS
All sites	• Gov't Sanctioned development	• Environmental impact assessment	NEMA; FD; Forest User Grps
Mwambirwa	• Forest fires and colonization by eucalyptus	• Forest Restoration	FD, Sigha Sigha Grp; KEFRI, UoG, EAWLS, ICIPE
		• Forest Surveillance and monitoring	PA., FD, Forest User Grps
Salaita, Lotima	• Squatter problem	• Alternative settlement land	GoK, MoL, CCTT, TTWF, FD
		• Law enforcement/Eviction	GoK, MoL; FD

5.0 WRAP UP AND WAY FORWARD

5.1 Restoration and Connectivity Establishment Process

Development of alternative livelihood options; forest restoration and connectivity enhancement; survey and gazettement of the few remaining forest blocks; development of participatory forest management plans and continued monitoring of forest cover as well as biodiversity changes were identified as the key interventions that would yield more positive results. Participants also identified organisations best placed to address these threats (on the basis of political goodwill; capacity; experiences and lessons from past efforts). The participants took note of and appreciated the efforts of the University of Ghent (UoG); University of Helsinki (UoH) and National Museums of Kenya (NMK) that have established long-term research and biodiversity monitoring programmes in Taita Hills. Birdlife International will also soon launch its monitoring process. Closer collaboration among these institutions was emphasized.

In implementing the restoration and connectivity enhancement process, the following steps would be followed:

Step I: Survey and mapping of various forest fragments (especially plantations and the minor fragments that have not been given any attention in the past) to ascertain the exact acreage;
Step II: Connectivity analysis and modelling;
Step III: Development and implementation of an integrated restoration and connectivity enhancement programme (that would involve a combination of the interventions identified above).

An integrated monitoring programme would also be developed to run parallel to the aforementioned restoration process. The entire restoration and connectivity enhancement process would involve a number of key stakeholders including: Forest User Groups from the various forest sites; the Forest Department (FD); Kenya Forest Research Institute (KEFRI); National Museums of Kenya (NMK); The University of Ghent (UoG); The University of Helsinki (UoH); Taita Taveta Wildlife Forum (TTWF); East African Wild Life Society (EAWLS); International Centre for Insect Physiology and Ecology (ICIPE); Birdlife International and Nature Kenya.

5.2 Review of LOIs sent to CEPF in light of outcomes of the workshop

The workshop also provided a good opportunity for the CEPF African Grants Officer (who participated at the workshop) to outline the CEPF funding opportunities and limitations. The officer explained the review process that the Letters of Inquiry (LOIs) undergo and outlined the criteria used. A few of the LOIs that have been taken through the process were used as examples to illustrate various aspects of the review process.

The Officer also had an opportunity to define the CEPF's immediate conservation priorities for the Taita Hills (which fall within the bigger restoration and connectivity process outlined above). He identified the following as the immediate activities and projects that CEPF would have an interest in funding:

- Restoration of Mwambirwa Forest that suffered a devastating fire in 2003 (whose LOI done by Sigha Sigha Group has gone through the initial and crucial stage of approval).
- Enrichment planting (and community policing to check overgrazing) of Chawia Forest (an isolated home of about 20 individuals of the critically endangered Taita Thrush). This would be done through an appropriate community group to be identified. FD and EAWLS were asked to identify an appropriate community group to implement this project.
- Undertaking Step I (Survey and mapping) and Step II (Connectivity analysis and modelling) of the wider restoration and connectivity enhancement process before end of 2005. The Forest Department (to take lead in the mapping and survey process), East African Wild Life Society (to deal with community issues) and the

University of Ghent (to undertake a connectivity analysis and modelling) were identified as the best suited stakeholders to kick-start this process.

- Development of EAWLS-Wundanyi Office as a resource centre for the coordination of all the CEPF activities in Taita Hills. This was based on the fact that the Office has for a long time been a reference centre mainly for community groups as well as research institutions and individuals working in Taita Hills.

6.0 WORKSHOP CONCLUSION

The workshop ended with a resolve by all stakeholders to work more collaboratively with each other and seek for synergies with other projects and programmes addressing the conservation of Taita Hills Forests.

ANNEXES

Annex 1: Opening Speech and Full Length Thematic Presentations [1]

1. Opening Speech By The District Commissioner, Taita Taveta

The organizers of this workshop, the facilitators, participants and other invited guests, Ladies and Gentlemen – Good Morning (Afternoon)!

First and foremost I would like to welcome all those visitors we are privileged to have here with us. Secondly, I would like to extend my sincere gratitude to the organizers of this workshop; The East African Wild Life Society, for honouring me with the privilege of participating and opening this important gathering.

As most of you are aware, the rate at which the forest cover and resources in this country are declining is alarming. Taita is one of the areas badly affected with this problem. The situation here is complex because; the Hills that are the forest areas also form the traditional human settlements for the Taita Community. It is up in the Hills that the Taita farm and raise livestock among other livelihood activities. Like in many other part of the county, we have witnessed an increase in human population in the last two decades. As a result more land is required for agriculture, settlement and all associated household needs. The pressure we now have on our forest resources in inconceivably high!

As a government we find this situation very complex top solve because of the intricate socio-economic implications of any measure that the government might want to put in place.

I would like to at this juncture commend the efforts NGOs and other development agencies that have over the years tried to address this problem. However, we all need to appreciate the fact that most of their conservation efforts have been piecemeal and poorly coordinated amongst them. For example this District has the largest number and NGOs working in the conservation sector, however the level of coordination of their activities is very low. Also a lot of research has been conducted in the Taita Hills Forests, but the extent to which this has informed the management of these forests is questionable.

If I'm not wrong, the purpose of this workshop is to develop strategies to address the problems of loss of forest cover biodiversity in the Taita Hills. This is a very noble effort that deserves the support of very conservation-minded Kenyan. For your information, Ladies and Gentlemen, I'm a very strong believer of teamwork. For this effort to succeed there is need for various stakeholders to collaborate and work together. Looking around, I have noted one thing that is a clear manifestation of team spirit: Ladies and Gentlemen, this is one of the very few workshops that I have participated in where both community and top-notch scientists sit around one table and reason out a common problem together. This workshop marks an excellent beginning of a great team effort.

Ladies and gentlemen, allow me to at this juncture to also commend Conservation International (and in particular The Critical Ecosystem Partnership Fund) for having selected Taita Hills as one of the few sites to benefit from its conservation fund. I would like to, on behalf of the Government of Kenya, assure you of our support in making your conservation efforts in this region a success.

I would like to appeal to all the NGOs and community groups represented here today (and which might be privileged to draw from these funds) to also exercise great caution and accountability in expending these funds in order to maximize on expected results.

[1] Some presentations were largely PowerPoint graphical/pictorial presentations and could not be included here. Such presentations would be difficult to understand without in-person explanation by the speaker and would thus be meaningless in this report.

I also appeal to other donors (some of who might be represented at this workshop) to also come and work with us.

Ladies and Gentlemen, with those few remarks I would like to wish success in this workshop and all your plans for the conservation of the Taita Hills Forests.

Thank You

2. Overview of the Taita Hills Forests and the surrounding areas: *presentation by DFO*

(a) Status, size and ownership

The Taita Hills forests are located mainly on the Eastern Arc Mountains, which extend into Kenya territory from the Taita Hills. On account of human settlement and agriculture, the once continuous mist-forest is currently highly fragmented, and comprises of fifty tow (52) forest patches. The forests vary greatly in size; the smallest is Kulundu forest (0.08 ha) and the largest is Igho Mkundu (2000 ha). Of the 52 patches, only 24 are gazetted, and only three forests out of these gazetted ones are surveyed. The surveyed ones are Mbololo Juu, Mwambirwa and Ngangao Forests.

The table below shows the existing forest patches, sizes, distribution and ownership status

Gazetted forests (government forests)

Forest	Size (ha)	Distribution
Kasigau	202.3	Voi Division
Choke (Mnjonyi)	73.5	Wundanyi Division
Fururu	14.12	Mwatate Division
Figi	0.4	Wundanyi Division
Goye	8.23	Voi Division
Kilulunyi	0.25	Wundanyi Division
Kinyeshamvua	495	Wundanyi Division
Kulundu	0.08	Wundanyi Division
Mwandongo	688	Wundanyi Division
Mwachora	6.4	Wundanyi Division
Mwakamu	1.5	Mwatate Division
Mchungunyi	8	Wundanyi Division
Macha	14.57	Wundanyi Division
Mdengu	0.36	Mwatate Division
Mbili	10.23	Wundanyi Division
Ngomenyi	0.2	Wundanyi Division
Ndimenyi	5.6	Mwatate Division
Ngangao	123.4	Wundanyi Division
Susu	1.7	Mwatate Division
Weni Mbogho	2.0	Wundanyi Division
Weni Mwana	5.26	Wundanyi Division
Modangache (Weni Tole)	3.4	Wundanyi Division
Mtete	0.28	?
Mbololo Juu	68.8	Tausa Division

Iyale	22.33	Wundanyi Division
Total area	**1310.33 ha**	

County council forests (non-gazetted)

Forest	**Size (ha)**	**Distribution** (Division in District)
Chawia	86	Mwatate
Ngangao	139	Wundanyi
Fighi ya Mkumu	1000	Wundanyi
Goye	14.1	Voi
Igho Mkundu	2000	Wundanyi
Kalangu	200	Mwambirwa
Kighala	200	Voi
Ighi Ikumu	100	Wundanyi
Kitobo	160	Taveta
Lotima	40.5	Taveta
Mwambirwa	18.2	Mwambirwa
Rong'e	318	Mwambirwa
Mraru	200	Tausa
Mwaganini	14.6	Wundanyi
Mwarangu	200	Wundanyi
Bura Nursery	10	Mwatate
Ng'ambwa (Bura)	1000	Mwatate
Salaita	40.5	Taveta
Sagalla	70.0	Voi
Sungululu	50	Wundanyi
Jayce	10	Voi
Irizi	476	Wundanyi
Wesu Rock	50	Wundanyi
Mwakinyambu	404.7	Wundanyi
Mwarungu	400	Wundanyi
Vuria (Highest, 2200m)	115	Wundanyi
Kasigau Nursery	3.0	Voi
Total area	**7591.6 ha**	

Both gazetted and non-gazetted forests occupy 8902.01 ha, approximately 0.052% of the total Taita Taveta district area against an international requirement of at least 10%

(b) Life formations

A transect across contours from the low lying upwards will review Acacia commiphora woodland interspersed with *Balanitis aegyptica, Grewia spp, Melia Volkensii, Melia azedarach, Terminalia prunioides, Boswelia neglectus* among others.

Vegetation transforms gradually into *Albizias, Ficus Prunus africana, Maesopsis eminii, Newtonia spp, polyscias*, and camphor among others. In these forests also live endemic animal species. local community members have low awareness of the rich flora and fauna in the forest because they provide little if any tangible benefits

(c) Management of the forests

Taita Taveta Hills Forests are managed in pursuit of some policy objectives, namely:

(a) Wealth creation and improvement of livelihoods through sustainable forest management.
(b) Conservation of natural habitats and wildlife biological diversity.
(c) Contribute to sustainable land use through soil and water conservation, tree planting and appropriate forest management
(d) Manage the forest resources on a sustainable basis.
(e) Promote the participation of private sector, communities and other stakeholders in forest management.
(f) Promote farm forestry.
(g) Promote dry land forestry.

The Ministerial vision is to protect, conserve and manage the environment and natural resources for social economic development and be6tter standards of living. The Forest Department mission is to develop, protect, conserve and manage forests, trees and associated natural resources (water, wildlife etc) for sustainable provision of goods and services for social economic development.

The Forest Department has the mandate to develop forests, Agroforestry and catchments conservation in accordance with the policy objectives. Participatory management has particularly been emphasized, and will continue to be upheld in Taita Taveta

(d) Forest Management Issues

i. **Gazettement: -** 28 hills not gazetted**.**
ii. **Forest Survey**: - 49 hills not surveyed: encroachment difficult to detect early enough.
iii. **Squatting:**

- In Macha forest: one squatter
- Mwandongo forest: 16 families
- Iyale forest, 2families
- Trust land forests (Fighi juu, Igho Mkundu, Mwarungu, Lotima) estimated 500 squatters.

iv. **Unauthorized removal of forest products: firewood, poles and carving wood**
v. **Unauthorized/Uncontrolled grazing:** causing devegetation and erosion, creating denuded sites
vi. **Encroachment**: thus shrinking the forest cover
vii. **Species choice**: In the past, eucalyptus and other exotics were used to enrich hills such as Iyale, Wesu, Mwambirwa, Mwandongo
viii. **Fires:** Are a major threat to the forests during the dry season
ix. **Demand for food crops**: So farmers would wish to have the remaining forest areas converted to agricultural land

(e) Conclusion

In conclusion, it must be stated that threat to our existing forest areas derives mainly from poverty among the local communities neighbouring the forests.

The challenge to our partners and us as forest managers is to make forest communities value our flora and fauna. This can happen if tangible benefits are derived from the forest to benefit the locals. Provision of significant livelihood would be a stride towards a conserved forest environment. Any development partner with a similar agenda is welcome in the spirit of participatory forest resource management as provided for in the policy objectives.

3. EAWLS Work and experience in the conservation of the Taita Hills forests: *James Mwang'ombe*

(a) Introduction

The EAWLS has been involved in a number of conservation projects in the Taita hills for quite some time. The projects varied from fact-finding missions to awareness creation to actual conservation work. The projects are as follows;

1. An inventory of biodiversity of the Taita hills forests in 1984,
2. The Taita hills biodiversity conservation project,
3. Integrated forest management and conservation of selected forests in Taita hills, and
4. Enhancing biodiversity conservation through alternative livelihood and appropriate technology strategies in Kasigau and Mbololo forest areas in Taita Taveta District.

The objectives of each of the above projects and achievements are presented below;

(b) Inventory of biodiversity of the Taita hills forests

EAWLS and the National Museums of Kenya carried out this study in 1984 with financial support from IUCN and WWF. The had the following findings;

- It established the existence of 13 taxa of plants and 9 taxa of animals endemic to the forests,
- 22 species of plants and 3 of animals represented the rare eastern arc type of flora and fauna,
- 37 species of plants in Taita hills are rare in Kenya and also globally,
- Also established that, the once extensive indigenous forests have been encroached upon leaving small remnants on the peaks of the hills and ridges.
- There were denuded hillsides that were once covered by indigenous vegetation.

(c) Taita Hills Biodiversity Conservation Project

This project was implemented in 1995/96 for 15 months. The Swedish Society for Nature Conservation funded it.

Objectives

- To create awareness among local community members and institutions on the uniqueness an endemism of the forests,
- To carry out a literature review of all information on the Taita hills,
- To hold a workshop for opinion leaders and all stakeholders to discuss the findings established, and
- To strengthen the capacity of EAWLS to undertake field projects.

Achievements

- Compilation of literature on the region,
- General awareness at district and location level particularly among the local leaders,
- Successful workshop with focal leadership, government officials and local NGO representatives with recommendations on management, research and community issues being represented.
- Based on information gathered and the recommendations of the workshop, a project "Integrated Conservation and Management of Selected Forests in Taita Hills" was formulated to address some of the issues.

(d) Integrated Conservation and Management of Selected Forests in Taita Hills

The project was implemented from February 1997 to August 1999. It was developed out the recommendations of a workshop held under an earlier project and experiences. The project focussed on four forests, namely; Mbololo, Vuria, Ngangao and Chawia. The Netherlands committee for the World Conservation Union (IUCN) funded it.

Objectives

- To enhance the conservation of forest resources through raising environmental awareness and strengthening the capacity of local institutions,
- To document non-timber product activities being carried out in the area by the local community and other institutions,
- To gather information that will be used in drawing up an integrated management and conservation plan of the Taita hills forests.

Achievements

- Environmental awareness created among the community living adjacent these forests. The community is much more aware of the biological importance of the forest such as the existence of endemic species and the need to conserve them.
- Integration of the community living adjacent the forests through the formation of forest/environment committees.
- Several CBOs have been formed targeting environmental conservation – a by-product of the project.
- Rehabilitation of Mwalui water project in Mbololo as a conservation incentive.
- Provision of beehives to the Vuria environment committee.
- Information gathered for the preparation of an integrated conservation and management plan "PEOPLE and PLANT USE: Recommendations for integrated conservation and management in Taita hills".

(e) Enhancing Biodiversity Conservation through Alternative Livelihood and Appropriate Technology Strategies in Kasigau and Mbololo Forest areas in Taita Taveta District.

This is a component of the GEF/UNDP East African Cross-Border Biodiversity Project implemented by EAWLS in the Taita project site. The implementation was undertaken from June 2002 to November 2004. The project component was formulated along the recommendations of the participatory site planning process with the aim of putting in place interventions to mitigate factors causing biodiversity loss and in improving forest management in Mbololo and Kasigau forests.

The alternative livelihoods and appropriate technology strategies were identified as being crucial for meeting the immediate objective B of the EACBBP: balancing resource demand and supply through the development of resource management plans, alternative economic activities, alternative resources and management regimes.

Description of Strategy (Activities and Processes)

1. Awareness creation and awareness raising.
   - Improve knowledge among members of the community on available alternative livelihood and technology practices that on one hand enhance biodiversity conservation while improving livelihood generation.
   - Focus is to show the strong linkage between the alternative livelihood and technology practices and the conservation and management of forests.
2. Capacity building and appropriate training.
   - Inadequate technical and sometimes technological know-how on the available alternative livelihood systems and technologies has been identified as a contributing factor to the reluctance and slow pace of adoption of alternative technologies.
3. Information and experience sharing.
   - Some of the alternative livelihood activities that the community members have shown interest in undertaking have been practiced in other areas or regions in isolated cases or in organized arrangements with varying degrees of success. Success stories will provide a positive basis for enhancing the adoption of the alternative livelihood systems by members of the community.
4. Joint Forestry Management.

- Role played by the local communities in the management of adjacent forests cannot be over-emphasized,
- During the implementation of the component, all the mechanism and strategies for the involvement of the local communities and other stakeholders in the management of the two forests will be explored and implemented.

5. Monitoring and Evaluation.

Achievements

1. Bee keeping and honey processing enterprises were set up in Mbololo and Kasigau;
2. Energy-saving and alternative energy-source technologies promoted/introduced in Mbololo;
   - Energy-saving stoves "maendeleo-liners", fireless cooker and tea cosy promoted. Beneficiaries have reported up to 50% reduction in firewood use.
   - Demonstration/pilot units of low-cost biogas plants set-up. The beneficiaries have reported massive reductions in firewood use e.g. from 24 head loads to 5 head loads per month, better crop yields from use of sludge from the bio-digester.
3. Supported the development of an eco-tourism enterprise in Mbololo.
   - Nature trails and attraction view points identified,
   - Tour guides identified and given an introductory training,
   - Homes to be developed into "homestays" identified and owners given an introductory training on hospitality and house keeping.
4. Promote sustainable farm forestry/agro-forestry.
   - Training farmers in appropriate farming techniques and systems e.g. organic farming, integrated pest management, water harvesting, etc.
   - Tree and fruit-tree raising and planting.
   - Village-based field demonstration days on the alternative livelihood strategies and technologies for information sharing and dissemination.
5. Participatory Forestry Management.
   - Awareness raised on PFM
   - PFM plans prepared for Mbololo/Mwambirwa and Kasigau forests. TTAP provided financial assistance for the inclusion of Mwambirwa forest. The Forest Department also provided financial assistance to complete the drafts.
   - Also PFM plans prepared for Ngangao and Kitobo forests through collaboration with The Kenya Forests Working Group.
   - Local institutions to implement the plans are in advanced stages of being set up, e.g. NGACOFA of Ngangao has formally applied for registration by the Registrar of Societies as a Forest Association.
   - Gazettement of forests – Ngangao gazetted through a gazette notice in 2002, Mbololo and Mwambirwa forests in the process. It is important that the EACBBP and EAWLS played an important role in the passing of a resolution by the County Council of Taita/Taveta to gazette the forests, through awareness creation, sensitisation and education on conservation.
6. Project experience documented for wider dissemination and uptake.
   - A documentary on project activities and experiences currently under production,
   - Reports on processes and experiences on each of the themes being prepared.

(f) Lessons learnt

- The local community members are willing to participate in conservation activities, however, the poverty situation hinders them. Therefore, there is need to formulate conservation projects that would also promote livelihood generation.
- All the forest patches are surrounded by private farmland and there is nee to formulate strategies that encourage forest conservation/tree planting on private land.

- There is an emerging threat to conservation efforts related to the timber industry. The ban on timber harvesting in government forests has re-directed this pressure on trees on private land. The main problem here is the issue of pricing. Farmers are paid very little thus necessitating them to sell more trees in order to meet their financial needs than necessary if they priced appropriately.
- Conservation is an expensive undertaking both in time and resources. Therefore, long-term funding is necessary to ensure an interrupted programme unlike has been the case.

Annex 2: List of LoI Received and Reviewed By CEPF (up to February 2005)

Frantech Computers
Frantech School of Professional Studies - (CEPF Taita Hills)(A Natural Resource Management Training Center & Business School)
suezein82@hotmail.com

Zoological Museum and Centre for Social Evolution and Symbiosis, University of Copenhagen, Denmark
Army ants in the fragmented forests of Taita Hills and Lower Tana River
caspar@zedat.fu-berlin.de

Nature Kenya
Sustainable Nature-based Businesses and Capacity Development to Conserve Globally Threatened Biodiversity in the Taita Hills Forests Hotspot, Kenya.
director_naturekenya@mitsuminet.com; office@naturekenya.org; crossborder@wananchi.com

National Museums of Kenya
Strengthening biodiversity conservation through increasing connectivity among the fragmented forests of Taita Hills, Kenya: A conservation research and community participatory approach.
ronaldmulwa@yahoo.co.uk; Nzavi2001@yahoo.com

Mbololo Environment Forest Community
Enhancing forest and biodiversity conservation with increased benefits through eco-tourism in Mbololo, Taita Hills
crossborder@wananchi.com

International Centre of Insect Physiology and Ecology
Promotion of nature-based, sustainable businesses for forest-adjacent communities in the East-Usambara-Tanga, Taita Hills and Lower Tana River Forests.
igordon@icipe.org

Wetland and Marine Resources Programme
Wetlands Biodiversity Conservation Initiatives as tools to Poverty alleviation and improved livelihoods in Taita Hills Wetlands
cbd@museums.or.ke

Taita Taveta Wildlife Forum
Promoting relevant cultural practices among the Taita community for forest and biodiversity conservation in Taita hills
crossborder@wananchi.com

Frantech Computers
Enhancing the communication technology strategy for community-based organizations situated in the Taita Hills.
francisagoya@yahoo.com

IUCN/SSC Global Amphibian Specialist Group
Biodiversity and Monitoring of Amphibians in Kenya's Eastern Arc Mountain Components: the Taita Hills
John.Measey@bondy.ird.fr

Ghent University, Terrestrial Ecology Unit (Department of Biology)
Restoration and Increase of Connectivity Among Fragmented Forest Patches in the Taita Hills, Southeast Kenya

Luc.Lens@UGent.be

East Africa Natural History Society
The Taita Hills Primate Monitoring Project: Using Changes in Primate Populations to Evaluate and Guide Conservation Action
yvonne@wildsolutions.nl

East African Wild Life Society
Enhancing the participation and capacity of the local community in the Taita hills in biodiversity conservation through farm forestry and alternative nature-based livelihood generation strategies.
crossborder@wananchi.com

East African Wild Life Society
Capacity building for Community-Based Organisations in the Taita hills for advocacy in support of biodiversity conservation.
crossborder@wananchi.com

East Africa Natural History Society
A SURVEY OF TWO MAMMALIAN SPECIES OF CONSERVATION CONCERN IN TAITA HILLS FORESTS, KENYA: The 4-toed elephant shrew Petrodromus tetradactylus sangi Heller 1912 & Mountain dwarf galago, Galagoides cf orinus
Ben_risky@yahoo.co.uk

Pwani Development International
Towards building strong and socially sustainable institutions for biodiversity conservation in Taita Hill Forest and its Environs.
pwanikenya@swiftmalindi.com

Annex 3: List of Participants

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24	Hildah Soko	Shalom Women Group	Box 1294 Wundanyi
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34	Ian Gordon	ICIPE	Box 30772 NBI igordon@icipe.org
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Yes __v_____
No _____

If yes, please also complete the following:

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