THE 'WATER TOWERS' OF EAST AFRICA: POLICIES AND PRACTICES FOR ENHANCING CO-BENEFITS FROM JOINT FOREST AND WATER CONSERVATION

INCEPTION WORKSHOP REPORT FOR MAU FOREST

Bontana Hotel, Nakuru Kenya

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ACRONYMS

CFA   Community Forest Association

CIFOR   Center for International Forestry Research

FMA   Forest Management Agreement

GBM   Green Belt Movement

ISLA   Initiative for Sustainable Landscapes

KEFRI   Kenya Forestry Research Institute

KWTA   Kenya Water Towers Agency

KFS   Kenya Forest Service

KFWG   Kenya Forest Working Group

NACOFA   National Alliance of Community Forest Associations

PAC   Project Advisory Committee

PES   Payment for Ecosystem Services

PFMP   Participatory Forest Management Plan

SCMP   Sub catchment Management Plan

SDGs   Sustainable Development Goals

WRMA   Water Resources Management Authority

WRUA   Water Resource Users Association

Inception Workshop Proceedings

This report captures the proceedings of the inception workshop for the project-The 'Water Towers' of East Africa: Policies and practices for enhancing co-benefits from joint forest and water conservation, held on April 25, 2017 at the Bontana Hotel, Nakuru Kenya. The project is funded by the Federal Ministry for Economic Cooperation (BMZ), and will run for three years (2017-2019). The overall aim of the project is to identify innovative practices and institutional strategies that strengthen forest and water resource governance regimes leading to equitable management of forest and water and minimizing forest degradation in Mau and Mt. Elgon forests. The workshop was organized by the Center for International Forestry Research (CIFOR), in collaboration with the implementing partners, who include community members through Community Forest Associations (CFAs) and Water Resource User Associations (WRUAs), Water Resources Management Authority (WRMA), Kenya Forest Service (KFS), Green Belt Movement, Kenya Forestry Research Institute (KEFRI), GIZ and Kenya Water Towers Agency (KWTA). The workshop brought together representatives of these institutions in the Mau complex. The national body of community forestry associations (NACOFA) was also represented.

The objectives of the inception workshop were to introduce the project to the stakeholders in the Mau forest complex; review partner activities in the project sites; identify the Project Advisory Committee members and develop their roles and responsibilities. The lead facilitator for the workshop was Dr. Esther Mwangi, the Principle scientist who is also the project leader. The CIFOR team also included Mariana Rufino, who is the CIFOR Associate Scientist, and Douglas Bwire and Leonie Gomm. The full list of workshop participants and agenda are attached in the annex of this report. This report highlights the proceedings of the workshop.

INTRODUCTION

Welcome Remarks-Dr. Esther Mwangi, CIFOR Principle Scientist and project Leader

Dr. Esther Mwangi, the Water Towers project leader and CIFOR principle scientist, welcomed participants to the workshop. She made reference to the first project, which was started in the Mau forest four years ago, under the leadership of Mariana Rufino, the CIFOR Associate Scientist. The project led by Mariana, was CIFOR's first project in Kenya and in the Mau forest complex and examined the effects of land use change and different forest conditions on water quality and volume. The current 'Water Towers' project builds on and extends on this previous project. She highlighted that the workshop was an opportunity for discussion about forests and water and the role of different actors and especially communities in producing quality water.

Remarks by Peter Mukira-Deputy Head of Conservancy, Mau Conservancy

Mr. Mukira welcomed participants to Mau area on behalf of the Head of Conservancy (HOC), Mau forest. He expounded on the current work by the Kenya Forest Service (KFS) in the region, the contribution of the forest sector in the country's economy and the challenges faced by KFS in forest management in the region. The Mau ecosystem is vast, covering about 400000 ha. Most of these (about ¾) is gazetted forest, while ¼ falls under private and county government. The forests that are not gazetted do not enjoy the protection of the Forest Act. The area of forest under KFS management lies within five Counties. These are Kericho, Narok, Baringo, Nakuru and Bomet. Furthermore, forest management is done in 20 forest blocks, 41 forest stations and 29 sub-counties. The main types of forests being managed by KFS are gazetted plantation forests, and gazetted natural forests.

Mr. Mukira further highlighted that there are three main sectors being supported by the Mau forest. Being a source to over 12 rivers, the forest ecosystem supports the energy (under the Sondu-Miriu hydropower), tourism and agriculture sectors. Despite its importance, the forest faces several challenges. These challenges include degradation of about 100000 ha mainly through irregular allocations within the excisions and encroachment of both the natural forests and plantation forests, especially in Eastern Mau.

He highlighted some of the achievements made by KFS in terms of rehabilitation of the Mau complex, with a total of about 80 000 ha rehabilitated. Among the key sites highlighted as model sites under the Mau conservancy include Sururu Enderet blocks, Likia extension, Olposimoru, Trans-Mara forest, Kiptunga Forest and South Western Mau. Other measures applied to enhance conservation were intensified patrols in all forest stations.

Community participation has been key since the launch of the Forest Act 2005, which has since been reviewed. Within the framework of the Forest Act, he expounded on the efforts achieved with communities through the CFAs in developing Participatory Forest Management Plans

(PFMPs) and Forest Management Agreements (FMAs). Within the 41 forest stations, which cover the 5 Counties in the Mau forest complex (Baringo, Nakuru, Kericho, Bomet and Narok), KFS has supported the development of 19 PFMPs and 19 FMAs. These agreements form a basis for engaging the communities in activities within the forest. Within Kericho County, only two PFMPs have been developed in Itare and Londiani areas. Engagement is ongoing with the County government to support development of PFMPs.

He also brought into attention the protection issues in the forest. These issues originate from several factors. These include poaching, illegal charcoal burning, forest fires, wrangles between CFAs over leadership, low level of awareness, socioeconomic pressure and hostility by community members around the forest. The wrangles within the CFAs revolve around unfulfilled expectations especially in enforcing the management agreements with the community.

In conclusion, Mr. Mukira underscored the efforts made by KFS to restore the forest including capacity building to address the existing challenges. He recognized the support from the community, partners, donors and the government to address the challenges in the Mau complex. He expressed optimism that despite the enormous challenges within the Mau, KFS will continue to execute its mandate. It will ensure that conservation and protection efforts are sustained in the Mau conservancy.

Photo: Peter Mukira giving his opening presentation

Remarks by Bernard Omuya, Regional Manager, Water Resources Management Authority (WRMA), Rift Valley Catchment Area

Mr. Omuya introduced the team from WRMA from the regional office, who were present in the workshop. The accompanying WRMA team included the Assistant Technical Coordination Manager (Community Development), Sub regional Manager, Kericho sub-region (Sondu-Mara sub region), and the Community Development Assistant, Kericho sub-region. On behalf of the WRMA Chief Executive Officer, he thanked all the partners present in the workshop (CIFOR, KFS, WRMA, Greenbelt Movement, and the community associations (WRUA, and CFAs).

In his remarks, Omuya made reference to a workshop held in November 2016, which was organized by WRMA and KFS to develop the capacity of forest station managers in the Mau conservancy area. He was happy that this inception workshop was a good follow-up. He emphasized the importance of Mau forest and highlighted the threats facing the forest, hence the need to work as a team to reverse the current degradation trends. WRMA has engaged various stakeholders to manage water resources in the region and the entire country, including WRUAs, to deal with conflicts and issues that may arise in water use. While referring to the previous workshop, he reiterated that KFS has to work with WRMA because any negative effects in the catchment will impact negatively on water. When there are fewer trees, then water quality and quantity will be affected, which will result into conflicts. For instance, several conflicts were reported from September 2016 and early 2017 because of drought. WRUAs have been established in several rivers such as the Rongai, Njoro, Nderit Molo, and Makalia rivers for the purpose of managing the catchment area. Furthermore, capacity building has been undertaken with five WRUAs together with partners. In addition to capacity building, Sub catchment Management Plans (SCMP) have been developed with these WRUAs. These efforts can only be sustainable and effective if the partners work as a team and pooling resources together towards capacity development of the WRUAs, CFAs and station managers within South East Mau and South West Mau. Capacity development of station managers is critical to ensure that accurate data can be obtained to support decision making for sustainable management of water resources. He appreciated the support from all the stakeholders present and on behalf of the WRMA Chief Executive Officer, Omuya made a call for greater collaboration among the stakeholders to achieve greater impact in protecting the Mau water tower. In conclusion, he reiterated that the workshop will also be a forum to draw lessons and best practices that can be adapted as we move forward towards sustainable management of the Mau ecosystem.

Photo: Mr. Bernard Omuya giving his opening remarks

Participants' introduction

Esther Mwangi, the project leader and the overall workshop facilitator, asked each participant to introduce him/herself and mention their expectations for the day. These were some of the expectations:

- The CFA members expected to learn from each other on protection activities for water and forests.
- To hear what the different stakeholders are doing concerning the Water Towers and learn about the project.
- To see how forest areas support water conservation and the interphase between forest blocks as they contribute to water conservation.
- What are the best practices from the project sites that can be replicated in non-project sites?
- Interactions on how to empower the CFAs and WRUAs to conserve the catchment.
- To understand the role of each stakeholder in the project.
- To understand the role of CIFOR in the WRUA activities. For instance will CIFOR support the development of a SCMP for the Itare WRUA? Will it support empowerment the WRUA on governance and gender?
- As a student, engaging the citizen scientists in water resources management Kericho sub region (Sondu-Mara river basin). To learn more from stakeholders on how they engage the community at all levels.
- That both stakeholders would see the connection between forests and water. How to make the science useful in decision making in the water and forestry sectors so that the plans developed are satisfactory to all actors.
- To learn more about the project and stakeholders to inform research.
- Interactions on how to empower the CFAs and the WRUAs to conserve the catchment
- To be equipped with information to help riparian communities engage in conservation of water resources.
- To come up with modalities to enhance collaboration between the CFAs and the WRUAs
- Developing partnership and synergy in the project.
- To know who is involved in capacity development of the WRUAs and the CFAs.
- How to address the issue of community benefits so that they can engage in conservation.
- Since all actors are in the same room, to have a production discussion on the importance of collaboration and co-management. What will be the roles and responsibilities?

Esther went through the agenda for the day highlighting the sessions and welcomed participants to provide their views. One of the key aspect for the workshop was to know what different actors were doing to enhance the synergy in forests and water management. Among the key questions that would be answered include: What are the issues in the community management plans that have implications for forests and water? What are the things that they were planning to do? And what is the state of implementation of the activities, challenges experienced and reflection on what needs to be done to encourage collaboration. Gender, capacity development, natural

resource management, policy and private sector engagement will be considered. The afternoon session would provide an in-depth discussion on activities, monitoring and evaluation and the Terms of Reference for the Project Advisory Committee (PAC).

Reflections from the participants

What does the community expect from their engagement with WRMA?

There was an agreement that the community is key, and there is a good engagement between the community and the management agencies. One of the key expectations mentioned from a CFA representative is the need to get benefits because the community associations (WRUAs and CFAs) play a role in helping the water and forest management agencies (WRMA and KFS) in protecting the resources. Therefore, benefit sharing was a key issue mentioned, which needed consideration by WRMA and KFS.

The focus is how the agencies work together as a team, and with communities towards improving the livelihood of the community. A key question is therefore: How should the communities be involved in managing the water and forest resources? It was agreed that an integrated management approach is key when engaging the communities.

Will there be another forum for engaging the WRUAs and CFAs?

Currently the WRUAs do not have a national body. However, some of the CFA members present are also members in WRUAs. In addition, there are instances where the same person can also be a member in an environmental committee. Therefore, the current concern should be addressing conservation aspects as a team, without focusing on sectorial approach.

Where should integration begin?

Communities usually manage water and forest resources on a daily basis, and therefore in terms of integration, it is important to learn from what the communities are doing, listen to their concerns then support their efforts for instance through policy intervention. Therefore, with the proposed research project on forests and water, the hypothesis is that communities still provide a good entry point. Other higher level partners need to offer support and play a strong role in supporting the community.

PROJECT OVERVIEW

The 'Water Towers' Project Overview
Dr. Esther Mwangi, Principle Scientist and the Project Leader-CIFOR

Esther provided an overview of the work done by CIFOR and the rationale, outputs, and partnerships in the 'Water Towers' project in the Mau. She highlighted the expected transformations that the project anticipates to make. CIFOR has been producing science that impacts forests and people since 1993. Following the Paris Agreement in 2015 and its ratification

in 2016, and the global concord on the Sustainable Development Goals (SDGs), there were new targets and frameworks in forestry and people's livelihoods.

The Center has established partnerships in different parts of the world, and hence the phrase 'Centre without walls'. CIFOR envisions a more equitable world where forestry and landscapes enhance the environment and well-being for all, while the mission is to advance human well-being, equity and environmental integrity by conducting innovative research, developing partners' capacity and actively engaging in dialogue with all stakeholders to inform policies and practices that affect forests and people. Therefore, the key pathways to achieve the mission is capacity and dialogue with people, while the main outcomes are well-being, equity and environmental integrity.

CIFOR has a new strategy that was launched in 2016 with six thematic work areas are all aligned to the SDGs. These include:

1. Forests and Human Well Being: The theme covers all the livelihood issues around forests
2. Sustainable Landscapes and Food: A new theme that looks at food security from the forest angle
3. Equal Opportunities, Gender, Justice, and Tenure:

The current project falls within this theme. It involves work on gender and tenure aspects. Example of work done under this theme is a project implemented in Uganda and Nicaragua, on how to strengthen women's rights around forests and trees, and ongoing work on forest tenure reforms in six countries in the world.

4. Climate Change, Energy and Low-Carbon Development:

Work has been conducted on REDD, adaptation and current projects on energy which will include Kenya.

5. Value Chains, Finance and Investments

The theme answers questions such as; how do investments affect forests and people? For instance, large scale land acquisitions in mining and agriculture and how the resulting impacts can be mitigated. It also covers the work on zero deforestation and projects on palm oil in Latin America, Africa and Indonesia.

6. Forest Management and Restoration:

The theme covers forest restoration aspects of the forest such as natural regeneration among others.

In addition to the six themes, there is the Global Landscapes Forum, which provides a forum for dialogue and engagement.

CIFOR works through a model that integrates research, capacity development, outreach and engagement. The current project follows this model. The Center is part of an alliance of the 15 research centers who are focused primarily on issues of food security and poverty reduction in developing countries. CIFOR is headquartered in Bogor, Indonesia, and maintains hubs in Nairobi,

Kenya, Yaoundé, Cameroon, and Lima, Peru. It is the lead center of the CGIAR Research Program on Forests, Trees and Agroforestry.

On the water towers project, the key issue informing its rationale is the increasing recognition of the importance of forests and water all over the world as important ecosystems. The rationale for the current project is clear because as the world population continues to increase, scarcity of water is expected to increase. As highlighted in the earlier presentation by the KFS, forests are major contributors to the Kenyan economy. However, there are threats facing these forest ecosystems despite the existing measures to protect them. Therefore, the project will contribute to an understanding of the effectiveness of the existing measures, such as the policies in achieving sustainable forest and water management. It will also contribute to an understanding of how best to involve communities in forests and water management.

The project has three main aims, which are to:

1. Generate evidence that will be used to identify policy and practice options
2. Conduct local level workshops for sharing and validating knowledge
3. Develop and implement capacity strengthening programs in forest and water monitoring, cross-resource coordination, gender integration, community participation, negotiation and legal literacy

The goal is to identify the innovative practices and institutional strategies that strengthen local forest and water resource governance regimes leading to equitable management of forest and water and minimizing forest degradation. The evidence generated will be available to communities so that they are able to validate the options that will be generated.

The project, which has a duation of three years (2017-2019), will cover Mau (Kericho county, which has the largest forest area) and Mount Elgon forest (Sosio and Kimothon). Mau is the largest forest in Kenya, Mt Elgon forest is a crossborder resource, and therefore the project is intrested in coordinating with Uganda at a crossborder level.

The project approach is interdisciplinary involving four key steps. These are:

1. Initial identification of forest condition and mapping the different forest conditions to inform selection of sampling sites.

2. Identifying areas where degradation has (1) increased, (2) decreased and (3) remained similar over the last 10 years.

3. Selection of CFAs with approved management plans and legal agreements to manage state-owned forests. There are two in Kericho (Itare and Londiani CFAs). While the entry point is forests, WRUAs in these areas will be involved (Kipchorian in Londiani and Itare chemosit in Itare forest).

4. Conduct an assessment of institutional and governance regimes to understand their effect on forest degradation and water provisioning

The work is organized in three work packages. These are:

1. *Vulnerability analysis and exploration of measures to conserve forest and water as linked systems*

The package will explore the forest health change; drivers and impacts of forest/land-cover change; water supply and quality; indicators of ecosystem health and low cost implementation by KFS, WRMA, local institutions and value-chain analysis of major biomass fluxes and impacts on land-use types.

2. *Analysis of institutions for the governance of forest and water resources*

This package will explore the rights and responsibilities; mechanisms for coordination and joint action; incentives for coordination and joint action; constraints and enablers of joint coordination; leadership and gender.

3. *Capacity strengthening, outreach and dissemination*

The work in this package moves beyond the science and focuses on action. It involves training citizen scientists in assessing, monitoring, recording and analysing forest and water health. Also strengthening capacities in conflict resolution, participation, negotiation, and gender concepts, technical and managerial aspects, developing manuals and providing a forum for validating the findings.

The project has five main outputs, which are:

1. Assessments and analyses provide empirical evidence of the status of social-ecological systems
2. Enhanced understanding of effects of gender differentiation on functions of CFAs and WRUAs and implications for resource condition
3. Identified governance arrangements that are equitable and foster forest and water management
4. Knowledge and communication products for strengthening capacity of CFAs and WRUAs members, leaders in forest and water governance
5. Communications materials for local level awareness raising and dissemination of the research findings

In conclusion, the theory of change was highlighted showing that research should not just happen, but should lead to changes in the future. We are expecting that forests and water will be managed equitably and sustainably. This can be achieved when there is partnerships with all actors. The main pathway will be through sharing and use of knowledge generated through research.

Photo: Esther Mwangi presenting on CIFOR and the project overview

Questions and comments

Will the project work with all the WRUAs and all the CFAs in the selected sites?

The areas of operation will be limited due to limitations in available resources. The project will work with two CFAs (Londiani and Itare CFA) as entry points. The WRUAs are the Kipchorian and the Itare Chemosist. One of the criteria for their selection is availability of management plans and Forest Management Agreements, which gives them a legal basis for engaging in forest management. However, the project recognizes that there are other CFAs and WRUAs involved and will benefit from capacity building.

What about representation from the County government

The project will involve the county government at the level of management. The County Director of Environment office will be involved.

To what extent will the project go in developing the SCMP, considering that the Kipchorian plan needs to be reviewed?

The team has had previous discussions on the SCMP, and reviewing the plans presents an opportunity for creating an impact. The research can feed into the process of the review and development of a new SCMP. The county CEC in Kericho can also be engaged to determine to what extent the County can support the process of developing the SCMP.

To what extent will the project compare the intervention sites and the non-project areas to determine the emerging lessons?

This question is about evaluation. Monitoring and evaluation could be designed to capture the comparison. There is a provision for an independent evaluation, and therefore this comparison could be included in the evaluation.

In conclusion, Esther raised key questions for the participants to consider. These include: Is there value in reviewing a SCMP where it has expired and developing one where it was not existing. Secondly, Can the project be involved in the process? Third, since developing a SCMP has been the responsibility of WRMA, what is their thinking towards the process of developing a SCMP?

RELEVANT ACTIVITIES IN STUDY SITES

Status of Participatory Forest Management in Kericho County
Boniface Mulwa, Assistant Ecosystem Conservator Kericho County

Mr. Mulwa highlighted the status of participatory forest management in Kericho County. Londiani and Itare forest stations fall within Kericho County in the South West Mau. Londiani is about 9015 ha and Itare 16700 ha. Out of the 11 stations in the County, these are the only stations in the County with a PFMP and signed agreements with the chief conservator of forests. The two CFAs were registered in 2010, and have been actively engaging in conservation activities. Current activities in the PFMPs of the two CFAs include:

a) Natural forest conservation, which falls within the indigenous forests. Achievements include planting 150 ha in Londiani and Itare.
b) Catchment rehabilitation such as riverbank stabilization along the main rivers to lessen soil erosion.
c) Hillside tree planting for instance on the Kipsigis hill.
d) Together with partners, the CFAs have engaged in rehabilitation activities for the 18872ha of the degraded forest, with much degradation being in the Ndoinet area. About 100 ha have been rehabilitated annually.
e) Community empowerment programs through initiation of income generating activities to provide alternatives to forests and thus reduce pressure. These include bee keeping and fish rearing.

Despite these management activities, there are several challenges experienced. The CFAs are losing large forest areas due to fires. About 1000 ha of forest area was lost in Londiani (Mt. Blanket, a gazetted mountain by the Museums of Kenya) in 2016. Another challenge is weak institutions. The CFAs are at different levels of governance and therefore a need to enhance their capacity. Erratic weather patterns is also a leading to loss of species in the forest. One way of addressing the experienced challenges is to bridge the gap between the CFAs and WRUAs because misunderstandings have been experienced between these two associations. In conclusion, Mr. Mulwa proposed key interventions that are necessary to reduce pressure on the forests. These include bridging the gap between the CFAs and WRUAs by initiating joint activities. Secondly, capacity building is key to achieve management objectives and facilitating the CFAs to start income generating activities. Unless communities get alternative livelihood opportunities on their farms, the forests will be threatened.

Photo: Boniface Mulwa giving his presentation

Questions and Remarks

Who is funding the livelihood activities for the communities? How do communities access the funds?

It is the government through KFS, while communities implement the activities. It is a concerted effort to access the funds, where the communities are also involved in providing labor in the forest. KFS has a program, which supports tree planting. This is achieved through agreements with selected CFAs. The communities produce the seedlings, and also provide labour for tree planting.

There was an agreement among participants that WRUAs are supposed to work closely with CFAs, hence there is an urgent need for capacity building for the two associations.

Sub Catchment Management Plan (SCMP) Implementation in Itare Chemosit and Kipchorian, Chrispinus Wafula, WRMA regional manager, Mara-Sondu sub region

Wafula provided an overview of the SCMP implementation status in the two WRUAs. The SCMP is a document showing a set of environmental issues on water resources in a particular sub catchment, and highlights the interventions and resources needed. The sub-catchment in this case refers to the natural boundary of given rivers. The contents, as highlighted in the Water Act, include several themes, which are:

- Water Balance and Demand Management
- Catchment and Riparian Protection
- Monitoring and Information
- Climate Change
- Water Resource Allocation and Use
- Water Resource Protection

- Flood Management
- Infrastructure Development
- Alternative Livelihood
- Rights Based Approach
- Institutional Development
- Monitoring and Information
- Financial Management

He compared the two WRUAs on the various themes as indicated below.

Theme	Itare Chemosit	Kipchorian
Institutional Development	Registered, but SCMP not yet developed An active management committee in place, and WRUA Boundary delineated	Registered, SCMP developed in 2012 An active management committee in place, and WRUA boundary delineated
Catchment and Riparian Protection	Spring protection done at Impomos	Assessed status of riparian land and proposed modalities of conserving the same land.
Monitoring and Information	Operational River Gauging Station 1JB03 using the Citizen Science , Discharge measurements and Water Quality monitoring, which is done on monthly basis	Operational at stations RGSs 1GCO1, 1GCO3, 1GCO5, 1GCO6. Data generated on water quality and water quantity
Water Resource Allocation and Use	Not yet done	Water Abstraction Survey done
Catchment Protection	Not yet done	Pollution Survey done
Climate Change	Planted indigenous trees along river banks –Kusumek to stabilize river bank hence reducing flooding on site and downstream	Geo referencing of water storage facilities done during abstraction survey and those that need rehabilitation documented
Enhancing Livelihood at WRUA Level	Bee Keeping and indigenous sheep raring	Information not captured
Rights Based Approach (To ensure even the cost of getting water is reduced for the poor get) Classes of permits exist Class A- members only pay 1000 for registration	Members involved in decision making on Water Permit applications and water sources e.g. spring protection being done to improve access to safe water by the poor	Members involved in decision making on Water Permit applications and water sources e.g. spring protection being done to improve access to safe water by the poor

Class B,C,D- member apply for and given permit		

There are several challenges in implementing the activities. These include limitations in information flow between the WRMA office and the WRUAs, conflicts between the WRUA members and CFAs, and limited funds. Other challenges include high water turbidity, lack of understanding among some members on the benefits of catchment management.

It was observed that the core problem in 2012 was catchment degradation. There is deforestation of some hills and clearing of riparian vegetation and steep slopes for cultivation. The plans indicated that there was a need to rehabilitate the riparian and degraded forest areas. Emphasis was placed on the need to strengthen the WRUAs on financial management, governance and advocacy. A contemporary problem is that WRUAs work within the framework of the WRUA Development Cycle (WDC), a framework for capacity building. The initial plan had 14 chapters but currently it currently has 17 (addition of chapters on climate change, livelihood improvement and flood management). This means that the WRUAs have to adjust their SCMP. The development process of the plans is relatively expensive hence the reason why they have not been revised to align with the WDC.

Questions and remarks

- Who should build the capacity of WRUAs? How often does WRUA do monitoring and evaluation?
- The Trust Fund is not reaching communities
- There is lack of consultations in giving water allocation permits in some areas
- Upstream and downstream conflicts water abstraction
- Information flow to the grassroots level is a challenge

Despite the challenges, community involvement and participation in all levels of decision making has been emphasized. In addition, the role of WRUAs is being appreciated even outside the Country.

The Integrated Watershed Management Approach -The Green Belt Movement Experience-Wycliffe Matika, Resource Mobilization officer

In his presentation, Matika provided an overview of the Watershed approach to landscape restoration, which is used by Green Belt Movement (GBM) in Kenya. The approach has three main objectives. These are to rehabilitate degraded watersheds by replanting local species; to support and diversify sources of income of the neighbouring forest communities by promoting alternative energy and entrepreneurship opportunities; and to restore habitats for local biodiversity and promote ecologically sound community initiatives. Initiatives which have been

supported by GBM include establishment of restoration sites within the watersheds for riparian conservation, biomass energy, multipurpose agroforestry benefits and green business.

In Mau and Mt. Elgon ecosystems, GBM has been involved in rehabilitation initiatives such as the Sondu Miriu River Catchment, a critical ecosystem which sustains Sondu Miriu River. The project aims at rehabilitating 155.6 hectares by planting 248,960 seedlings. There is also piloting of payment for ecosystem (PES) model in the Upper Tana catchment. Other initiatives include supporting low-emission rural development with KFS under the REDD+ focal point (in Nakuru and Nandi). The focus of GBM in the Water Towers project will be on integrating gender and forestry, agriculture, energy and climate change. The key gender issues that will be interrogated include division of labour, access, resilience, control and decision making. The key question will be how to enable more women to participate in decision making in natural resource management issues. The focus will be at the watershed level, and currently GBM works in 30 watersheds.

A Training curriculum for TOTs has been developed on natural resources management, which has modules on conflict management and gender integration, training and advocacy on natural resource hotspots. Communities are used as the 'Social fence' to ensure rehabilitation activities are undertaken. Communities are also involved in establishing and managing tree nurseries, seedlings production, land use planning (for instance a 10 year plan on adaptation), rehabilitation of riparian areas and water quality monitoring in partnership with the Global Water Watch (GWW). Learning is promoted through exchange visits within the water towers. Bamboo is used as an alternative, and training is conducted on its propagation. Partnerships are involved in the activities. These include schools, where the natural resource conservation knowledge is inculcated to pupils. The Kenya Defense Forces also supports conservation activities by providing equipment.

There are several challenges associated with integrating natural resource management with gender. These include climate change, community involvement and participation, limited finance, lack of coordination at water basins. In conclusion, several opportunities were highlighted. These include awareness raising on water-related forest services among water managers, communication with the public and capacity building. Furthermore, there is a need to encourage participatory processes for solving problems, and analysing benefits and costs in specific management areas for the purpose of payment for Ecosystem Services (PES).

Questions and remarks

What are the lessons that motivate the communities to engage in the activities such as water monitoring?

Women are the target beneficiaries and are empowered through capacity building on water pollution. Alternative species, which are water conserving are also provided.

Is PES done in monetary terms?

The rewards are effort-based, and there is a criteria for rolling out the incentives, which is available and can be shared.

Apart from the technologies which are being promoted for instance in the Upper tana project, how was the project integrating institutional and governance aspects?

The focus is on upstream conservation, and therefore all the stakeholders are involved to work with the farmers.

How are addressing marketing aspects of Bamboo?

Bamboo is a new area with potential to providing alternatives to forest use. However, there is a need for information on propagation and addressing the end use of a particular bamboo species. Currently, this is an area that is being developed and there are opportunities for packaging information about the right bamboo species.

How are the finances done?

The main stakeholders who rely on the catchment, such as KENGEN give financial resources through the Nature Conservancy, which is a major partner and the GBM rolls out the conservation activities.

Is a database available on water quality monitoring by the community?

Monitoring is done on a quarterly basis using a GIS tool, and therefore data is available.

It was observed that community participation and making data available to the community provides the motivation to develop solutions to solve their own problems. A success case on the community monitoring was highlighted by the chairman of NACOFA. In this case, the CFAs and WRUAs were trained and groups selected (mainly women and CFAs). The rivers to monitor were selected and data collected by the community members. A meeting then followed to determine the extent of pollution in the rivers. It was found that chemical pollution due to cultivation inside the forest was one of the reasons for pollution. The community developed solutions including closure of 'shamba system' approaches in areas close to the rivers. In some cases, communities sourced for funds to rehabilitate the riparian areas. Therefore, if communities are provided with data, they will have an opportunity to come together to develop their own solutions. The results of the monitoring intervention under the GBM were therefore evident.

The Initiative for Sustainable Landscapes (ISLA) Mr. Kipkirui Langat

Mr. Langat highlighted the work by ISLA. ISLA was established by the Initiative for Sustainable Trade, which works with exportable commodities around the world such as cocoa, tea among other crops. In Kenya, there was a tea program in Kericho, which involves smallholder farmers and the Kenya Tea Development Authority (KTDA). Several issues emerged as a result of the

project. Whereas the project focused on the farms to improve the quality of tea, sustainability issues emerged, such as reduced rainfall and changes in water flow due to destruction in the forest. A project was launched in the SW Mau in 2015, with principles of sustainability in place. The discussions involved willing stakeholders, leading to a coalition of stakeholders and thus the formation of ISLA Kenya. Eventually a board was formed involving stakeholders in national government institutions such as KFS, WRMA, private sector companies such as Unilever, Finlays, KENGEN and county government of Nakuru, Kericho and Bomet. CIFOR was also included on scientific aspects.

The upper catchment in the Mau was the main area of interest. Studies were conducted around Ndoinet, Kuresoi and Londiani to determine the drivers of deforestation. The main driver at that time was invasion of the forest with illegal settlements. Attention was directed towards working with the community (CFAs and WRUAs. Most of ISLA's resources are therefore spent on activities focusing on protecting the forest. For instance, creating barriers such as fencing to address resettlement and deforestation. While there has been some recovery in some areas, there are mainly grass and bush. There are no indigenous trees. A dairy program was proposed to encourage people to stay within the confines of their land. However, the challenge was that land was being used to grow crops with a high population of livestock, with a greater number grazing in the forest. The connection between the cattle which grazed in the forest and the ones intended for the program was missing. A study was therefore conducted, which found that 50 percent of the cattle grazing in the forest was from the neighbourhood, and the rest were resident cattle in the forest. The study also indicated intensive overgrazing in the forest.

Several initiatives have been achieved to reduce pressure on the forest. These include livelihood projects on dairy, beef, sheep and goats has been implemented. On water, ISLA is working with WRUAs, the County government, WRMA and other partners on specific themes. On challenges, it was observed that WRUAs and CFAs were at different stages and therefore a 21 day training program for capacity development of various CFAs has been planned in May. A similar program for the WRUAs will follow. The initiative has also done micro fencing in some areas, where communities can move in and engage in livelihood activities. The forestry activities involve indigenous forests only. In Itare Chemosit, the initiatives involve water, while in Londiani the initiative will partner with stakeholders in commercial forests to rehabilitate part of the forest. However, the missing link is the science, which is needed.

Questions and remarks

During the preparation of the management plan, zoning (such as areas for grazing and firewood collection), has been used as an approach to control the number of livestock can be used as an implementation tool to determine whether the zoned areas are adequate.

What will the training program involve?

KFS and stakeholders have approved programs for CFAs. ISLA uses the programs as a basis for looking for approved trainers. CFAs officials and members are trained in the CFAs. While this is done for CFAs, the same will be done with WRUAs.

Forest Health mapping and Citizens Science approach, Mariana Rufino, Professor Lancaster University, CIFOR Associate Scientist and Work package 1 leader

Mariana presented the work on Mau forest monitoring and the rationale for the project. The project was informed by the need to gather evidence on why water matters to people and to the government in order to support policy. The question was, how do we put numbers to actions in the landscape? This question was the basis for the forest health monitoring work in the Mau. South West Mau was selected because of the private sector presence. The private sector is dependent on the water and therefore presented opportunities for investment to protect the forest. Work package 1 of the current project aims to develop the indicators of forest health, determine the drivers of forest cover change and its impact on the landscape, work with WRMA and the WRUAs to combine information on water quality and volumes, and develop simple and low costs indicators of ecosystem health that can be implemented by the local institutions.

The land use change in the South West Mau forest between 1973 and 2013 was presented. The trends indicated that the expansion of population encroached into the forest. Between 1973 and 1984, smallholder agriculture and rangelands were the main factors leading to encroachment of the forest. Between 2003 and 2013 the forest showed indication of recovery. However, this did not include biodiversity and ecosystem services mapping. Forest degradation map in SW Mau indicated areas of degradation with factors such as charcoal burning, fires, and illegal logging. Due to these factors, negotiations on the way forward are required to conserve the forest. The role of the project is to provide the community with the tools to negotiate on the future of the forest.

The connection between the forest and water has not been done. Water monitoring is being conducted in the Sondu catchment in the SW Mau. It was estimated that smallholder farmers in Kuresoi sub catchment had about 9 percent of tree cover. The catchment is dominated by tea plantation with a tree cover of about 40 percent. One of the potential sites for water monitoring is Londiani. However, Londiani is outside the Sondu basin. Within the Sondu basin, there are monitoring stations in Kuresoi sub-catchment, which has smallholder farmers and tea plantations. The study sites within the Sondu catchment have already been selected.

The results indicate that the higher areas in the Sondu catchment are heavily deforested. The concentration of nitrate in the tea plantation is much higher than the concentration from smallholder agriculture and forests. Turbidity was also high from the smallholder agriculture. The water from the forest is clean. The greatest concern in the Sondu basin is the amount of soil

that is washed away resulting in loss of soil nutrients, and the effect on the hydropower plants. The low tree cover in the landscape also contributes to this effect.

The citizen science approach to water monitoring will be integrated in the project. Training was first provided to citizens in partnership with WRMA and later in 2016, 13 sites were installed with monitoring gauges. The gauges were installed in publicly accessible places. The project tested weather WRUAs could be engaged to collect data. Citizens could then send a text message on water levels, which could be stored to in a server. An automated station was used to check the quality of the data that citizens collected. The main question was: can citizens collect data? Yes, they did collect quality data. The data collected was compared with the automated stations and it was of good quality. The result of the approach showed that citizens can be engaged in collecting monitoring data. Furthermore, the citizen approach is useful for WRMA stations nationwide. There were challenges experienced in the citizen approach. These include poor quality gauges, which were not readable during base flow conditions, long-term motivation of participants' involvement of new observers, and data sharing. Some of the solutions to these challenges include testing different reward systems, on-site meetings with citizens and using the data for planning purposes. The best motivation for the community to collect data is that the data collected is used to make decisions.

In conclusion, Mariana highlighted the future plans of the approach. These include increasing validation of the data by installing water level monitoring devices next to several monitoring stations; designing and implementing a crowdsourced water quality monitoring network; testing other data collection methods such as ODK; using the data for hydrological modelling, upscaling and prediction; connecting water supply to forest health and using the data for water and forest management. Lastly, the citizens approach method will be transferred to Mt. Elgon site.

Photo: Mariana Rufino presenting the forest mapping

Questions and remarks

Is the leadership of CFAs and WRUAs involved in the citizens' approach?

The project did not consider the social part, and this will be considered in the current project.

A community representative commented that sharing information with the community and involving them is the best thing to do, since it will help change the mindset. Conflicting policies, for instance, the Water Act and the agriculture Act on the riparian zone was mentioned as an issue that needs to be addressed.

There was an agreement that it is everyone's responsibility to engage in integrated natural resource management, and no one agency should be blamed.

Was there a social capital assessment to determine existing dynamics in the community?

An assessment will be done in the current project. It is important to know what are the underlying dynamics and the motivation that would propel the citizens to participate. It would be important to know which specific dimensions of social capital will need to be considered such as trust, rules (for instance, which rules will apply in terms of taking the measurements). These dimensions will determine how long the approach will take.

PROJECT ACTIVITIES AND ROLES AND RESPONSIBILITIES OF PARTNERS

Project activities Roles and responsibilities of partners
Douglas Bwire, CIFOR

This session presented the activities that will be implemented under the project and get feedback from the stakeholders. Douglas provided an overview of the project activities that will be undertaken under the three work packages. The role of partners and the terms of reference of the Project Advisory Committee (PAC) were also discussed. The planned activities to achieve each of the five project outputs are shown below.

Output 1: Assessments and analyses provide empirical evidence of the status of social-ecological systems

- Literature Review
- Select study sites for both biophysical and social science research
- Train forest and water monitors
- Conduct monitoring of forest health and water supply
- Train enumerators in concepts and methods
- Conduct interviews at local and sub-national levels
- Hold feedback workshops with CFAs, WRUAs, and county governments
- Support university research
- Capacity building of CFAs, WRUAs, and local forest level officials of KFS, WRMA and county governments

Output 2: Enhanced understanding of the effects of gender differentiation on the functions of CFAs & WRUAs and the implications for resource condition

- Collect sex-disaggregated data

Output 3: Identified governance arrangements that are equitable and foster forest and water management

- Conduct institutional analysis and cross-site comparisons/syntheses
- value chain analysis

Output 4: Knowledge and communication products for developing capacity of CFAs & WRUAs members and leaders in forest and water governance

- Synthesize findings
- Hold community workshops to share findings and generate options

Output 5: Communications materials for local level awareness raising and dissemination of the research findings

- Extract and summarize information from key sources and reports
- Prepare scripts and messages for radio shows and video documentary

The roles of the different stakeholders in the Kenya sites were also presented. These are indicated below.

Stakeholder	Roles
Community (CFAs, WRUAs)	• Participate in research process as citizen scientists in participatory monitoring of water and forest resources • Capacity development and strengthening to enhance their technical and managerial capacities • Represented in the PAC • Through their meetings, disseminate project information and findings in CFAs and WRUAs
Kenya Forest Service (KFS)	• Input to WP1 on Forest health monitoring • Participate in developing of data gathering instruments for CFAs under WP2 • Capacity development programs on community participation and on gender in NRM in WP3 • Integrate capacity development programs with the research findings, and other capacity development tools developed by CIFOR • Policy engagement and knowledge sharing • Representation in the PAC • Convene PAC meeting in Kenya on rotational basis with WRMA

Water Resources Management Authority (WRMA)	• Estimate water supply and quality in the new research sites using existing water quality and volume data and the CIFOR citizen science approach in WP1 • Participate in developing and implementing low cost indicators of ecosystem health • Participate in developing data collection instruments for WRUAs in WP2 • Capacity development programs on community groups in WP3 • Representation in the PAC, and convene PAC meeting on rotational basis with KFS
Kenya Forestry Research Institute (KEFRI)	• Representation in the PAC • Facilitate information exchange and provide input into the project's capacity building effort • Link the project with the program on building capacity of county governments
Green Belt Movement (GBM)	• Implement capacity development programs among CFAs & WRUAs to strengthen gender integration, conflict resolution, community negotiation and participation • Generate and validate content for the radio programs and video documentaries together with groups and individuals • Serve as intermediaries between CFA & WRUA leadership and representatives of forestry and water agencies in Kenya
GIZ Water program	• Representation in the PAC to ensure cross-project synergies are maximized, for instance through GIZ's capacity building modules

Project Advisory Committee (PAC)

The project structure will include a Project Advisory Committee (PAC). The purpose of the PAC will be to review findings and provide direction on how the findings can be integrated into current practices and strategies, and serve as 'boundary partners' covering a dissemination function at a broader scale than the one covered by the consortium members. Members will be drawn from the project site. For the Kenya sites, members will include representation from CFAs and WRUAs, KFS, WRMA, KEFRI, GIZ, Green Belt Movement, and Kenya Water Towers Agency. Membership in PAC is voluntary.

The tasks of the committee will include:

Participation in annual project meetings in Kenya with consortium partners

- Providing advice on the strategic direction of the project, technical content, and collaboration and engagement with other initiatives and governance processes in the region
- Reviewing key project documents, such as annual reports, major work plans and tools, and provide comment on them to the consortium partners
- Participate in annual Skype meetings with CIFOR, and potentially other consortium partners, to follow up on project progress, provide feedback and updates relevant to the project
- Providing awareness about other projects and initiatives and outreach with key national and regional processes and facilitate links between them with the project
- Provide updates on project to policy makers and to the organizations they represent
- Define project priorities, monitor and guide project implementation, control quality and identify ways in which project findings can be integrated into policy and practice

It was proposed that PAC meetings would be once per year, and will be convened on a rotational basis between KFS and WRMA. Communication will be through email, Skype, and face-to-face depending on opportunities.

Monitoring and Evaluation

Monitoring will include progress on planned activities and outputs and the timeframes for the activities. Other aspects will include research and knowledge output and engagement with community and partners. The process will involve tracking progress and annual reporting of knowledge products, collecting of significant change stories from capacity strengthening, collaboration and engagement with communities, practitioners and the research team. The PAC will play a key role in monitoring implementation. Furthermore, evaluation of feedback workshops, and finally, there will be mid and end term project evaluation. On knowledge management, the project team will develop a repository of knowledge products. Knowledge products will include brochures, policy briefs and reports.

Participant's feedback

The following were key recommendations from participants:

There is need to recognize the role of the County government and inclusion of a representative of the department of environment (the CECs Environment for Kericho and Nakuru Counties were seen as potential to be included). It was further indicated that the CEC representation be included in the relevant counties. However, the CEC can nominate a representative. The CEC for Environment sits in the Forests conservation board of KFS, and therefore it was felt that the office needs to be represented in the PAC.

- Consideration of using other forms of communication such as arts (music and role plays) under the output five
- Having joint PAC meetings with the Uganda site. A key consideration that the team would need to consider would be the role of such meetings
- Allowing room for membership in the PAC
- Inclusion of the Kenya Forest Working Group (KFWG) in the PAC. It is made up of different stakeholders who work in the forestry sector. KFWG has previously conducted trainings in the Mau on participatory Forest Management.
- Inclusion of official designations for the PAC members in the TOR document

CONCLUSION AND WAY FORWARD

Esther recapped the key points of agreement and the next steps after the inception workshop. There was an agreement on the activities, roles and responsibility of the partners, the composition and tasks of the PAC. It was agreed that the PAC that will be constituted will be for the Mau project site.

The following were the key steps as a way forward

1. Finalizing the Terms of reference and composition of the PAC. It was agreed that the draft TORs would be shared with participants for feedback so that these could be finalized by the project team.
2. The team would consult with their respective organizations to agree on specific individuals who will sit in the PAC and provide feedback to the project team.
3. CIFOR will approach and formalize the roles and responsibilities with implementing partners (KFS, WRMA, Green Belt Movement, community representatives) and attach a work plan on specific deliverables.
4. A plan of activity for the work packages.
5. Facilitating student research (by Leonie Gomm) on the gender study. The work plan for the study would be discussed by KFS and WRMA in Londiani.
6. Developing instruments for the governance work in work package 2 to capture other governance aspects such as leadership, rights and responsibilities, leadership among others
7. Planning the mapping work for Mt. Elgon site under work package 1, which will connect forest and water and how the condition of the forest affects water.
8. On site selection, the PAC will decide whether to include Londiani site. If Londiani is included, then it would mean taking two basins (including Nyando basin). However, there would be logistical and financial implications to this selection considering that there are no monitoring sites from the previous project in Londiani. Londiani is a key site, with most

of the drainage going to Nyando basin, and therefore KFS and WRMA (involving Kisumu sub region) to provide advice to inform its selection. Two options are available. First, a consideration of what data is available from WRMA on Nyando, and secondly moving to Kericho forest station.

9. Mariana to prepare the forest degradation maps (areas of increase, decrease, and where there is no change). This would be overplayed with governance aspects.
10. The national launch of the project scheduled for May.

Esther re-capped the expectations for the day, highlighting that most of the expectations had been covered. Participants were then asked whether their expectations were met. The expectations were grouped into the following.

- Made interactions with various stakeholders and knowing their roles
- Happy to see the stakeholders in the water and forestry sector interacting
- Happy that the linkage between the WRUAs and CFAs was made clears and their capacity will be developed
- WRMA will work with partners to ensure management objectives are achieved, and will also provide data required
- Happy that CIFOR will strengthen the relationship among partners
- Commended the working relations of KFS and WRMA
- You cannot separate water and the trees
- Learnt about the natural and ecological boundaries and the hydrological aspects of the region
- Constitution of the PAC is key in rolling out the project activities
- Learning about the project and the role of stakeholders in the project
- It was an interactive session, and a starting point for more collaboration
- Forests and water are related
- It has been an opportunity to identify the existing problems which has strengthened the working relationship among the partners

Closing Remarks
Mr. Bernard Omuya, the Regional manager, WRMA Rift Valley Catchment Area

The workshop was officially closed by Mr. Omuya, the regional manager, WRMA Rift Valley Catchment Area. He appreciated CIFOR for convening the workshop and commended on the input provided by the partners present (CFAs, WRUAs, KFS, WRMA, GIZ, GBM, ISLA, and NACOFA). He reiterated that the forum was a great opportunity for the partners to share their roles and responsibilities, and to understand the project. This should be the beginning of more interactions to share lessons in order to have sustainable projects that will benefit the Mau

region. He assured the project team and the partners that WRMA will provide support the project by providing the information required to achieve the project objectives. WRMA will work closely with the community, including the CFAs. He requested a forum that would bring the CFAs and the WRUAs in the Mau area together so that they can interact and work together as a team.

ANNEX 1: MAU INCEPTION WORKSHOP PROGRAM

Purpose:

1. Introduce the project to stakeholders
2. Review partner activities in the project sites
3. Identify project advisory committee members
4. Outline ToRs for the PAC

Time	Activity description	Responsible	Comments/resources
0900 - 0915	Opening remarks	CEC HOC-Mau & Regional Manager-WRMA	
0920 - 0935	Introductions	CIFOR, KFS, WRMA	
0940-1010	Project overview	CIFOR	
	BREAK		
1030-1230	Relevant activities in study sites • KFS: PFMP implementation in Itare and Londiani • WRMA: SCMP implementation in Kipchorian and Itare-Chemosit • Green Belt Movement: natural resource management & gender • ISLA: project activities • CIFOR: forest-water interface and monitoring and citizen science • GiZ: 15 minutes present & 5 min Q & A (2 hrs)	EC-Londiani Regional Water Management Officer	
	LUNCH		
1330 - 1530	Plenary session: • Confirm project activities • Roles and responsibilities of partners • Project time frame • PAC—confirm composition, ToR, frequency of meetings • M & E, communication strategy • Way forward	CIFOR	Flip chart, marker pen
1540	Closing remarks		

ANNEX 2: WORKSHOP PARTICIPANTS

Name	Organization	Email
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