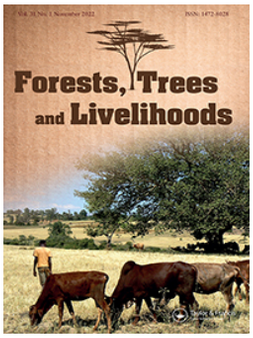

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Community participation in forest and water management planning in Kenya: challenges and opportunities

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ABSTRACT

Forest and water are linked resources that are important to community livelihoods in East Africa. Sectoral reforms in Kenya have decentralized forest and water management functions to local communities through forest and water Acts. It has been argued that problems are more likely to be understood as interconnected, and thus managed more holistically, at the local level. Through case studies on the processes of developing forest and water management plans in two Kenyan ecosystems, we explore the challenges and opportunities for resource management planning at the local level. The questions we addressed are: How is the content of the plans determined? How is gender integrated ? What are the barriers to implementation? How can content and implementation be improved to support joint forest and water management? Despite their close links, water and forest governance is separate, as sectoral approaches nationally trickle down locally. We argue that the process of developing the plans should take an integrated landscape approach. A practical way forward is to improve current processes, by ensuring local participation and generating local ownership through improved facilitation and engagement of community members, including women. This includes the integration of community participants from both spheres into both forest and water management planning.

KEYWORDS

East Africa; governance; Community Forest Associations (CFA); Water Resource User Association (WRUA)

Introduction

Governance of natural resources such as forests is recognized as a global priority, and natural resource planning processes are an important way to strengthen governance. One such process is the development of management plans for forests and for water (Kovacs et al. 2017). Evidence has shown that there is a direct link between forest health and water quality and quantity (Jacobs et al. 2017), hence it seems obvious that the governance and management of these resources should also be linked.

Nevertheless, experience in East African countries such as Kenya has shown that there is a gap in linking the governance of forests and water. A sectoral approach, where different resources such as forests and water are managed by their respective agencies, is mandated by relevant legislation. Government agencies such as the Kenya Forest Service (KFS) and Water Resources Authority (WRA) are mandated to perform management functions

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through distinct forest and water Acts (GoK 2016a, 2016b), respectively. Although these laws provide for decentralization of natural resource management, this sectoral approach is still reflected all the way to the community level, with surprisingly little coordination among the community institutions mandated to participate in co-management of these resources.

Scholars and practitioners have called on an integrated landscape approach as an alternative to address these interconnected challenges. This approach recognizes complex environmental, economic, social, and political challenges in the landscape and brings together multiple stakeholders from different sectors to achieve social, economic, and environmental objectives. The "landscape" may be demarcated by a watershed boundary, distinct land features, jurisdictional boundaries or a combination of these (Sayer et al. 2013; Reed et al. 2016).

But multiple barriers to implementation persist. One reason for this is the tendency among policy makers and practitioners to maintain disciplinary boundaries (Reed et al. 2016). Individuals and institutions operate in silos to meet their sectoral objectives under the provisions of the respective forest and water Acts and fail to develop strategic partnerships. Monitoring systems are often inadequate. There is also a failure to engage stakeholders in participatory, multistakeholder processes, which are seen as central to landscape approaches. Decades of research suggest that local "ownership" is key to success, with more recent attention to gender (Johnson et al. 2016). For example, Agarwal (2009) finds that greater participation of women in governance structures and processes in the landscape leads to better resource conservation. Hence the need for approaches that enhance inclusion and women's participation in planning processes (Mukasa et al. 2016).

In light of this interest in landscape approaches, what can we learn from the case of water and forest planning in Kenya? What opportunities for resource management planning exist at the local level to overcome sectoral barriers? This article examines these questions through the study of community forest and water planning in two Kenyan ecosystems. The Water Act provides for the establishment of Water Resource User Associations (WRUAs) to participate in collaborative water management at the sub-basin level. In parallel, community participation in forest management is provided under the Forest Conservation and Management Act, 2016 through the formation of Community Forest Associations (CFAs). The CFAs participate in developing Participatory Forest Management Plans (PFMPs), whereas the WRUAs develop Sub-Catchment Management Plans (SCMPs). The respective guidelines by KFS and WRA are included in box 1 and 2 in the annex (Supplemental file). The state agencies take the lead in developing these plans together with the respective community associations. While the management plans are important, this article focuses on the process by which they are developed.

Surprisingly few studies examining the integration of forests and water management have been published. One exception is Pant et al. (2005), which examined how communities co-manage forest and irrigation water in Nepal. In Kenya, prior studies have been conducted on forest and on water management, but they have failed to integrate the two topics. For example, studies on forests have focused on the impact and experiences in implementation of Participatory Forest Management for communities, with a focus on access to benefits, property rights, and factors that determine community participation (Mogoi et al. 2012; Thygesen et al. 2016; Mutune et al. 2017). Studies on water governance have focused on delivery of water services and sustainability of water projects. These include

Leclerta et al. (2016) on governance and management challenges of community-managed rural water supplies, and Kwena and Moronge (2017) on the determinants of rural water project sustainability on NGO supported projects.

In this article, we aim to understand and draw lessons from the study of the processes to develop community forest management plans and water management plans in Kenya. We build a case on the need for a process that is more inclusive and participatory and that considers the linkage between forest and water at the local level. We address the following questions: How is the content of the plans determined? How is gender integrated in the plans? What are the barriers to implementation of the plans? and How can the process be improved to address joint forest and water management?

Design and methods

The location of case studies

In this article, we focus on sites from two forest ecosystems, the Mau and Mt. Elgon forests. The sites (Figure 1) were selected as part of a project- *The 'Water Towers' of East Africa: Policies and practices for enhancing co-benefits from joint forest and water conservation*- undertaken by the Center for International Forestry Research (CIFOR) from 2017 to 2019.

The two forest ecosystems are important sources of water and are referred to as "water towers" in East Africa. The Mau Forest is the largest natural forest in East Africa and the main catchment area for 12 rivers, which drain into four lakes including Lake Victoria, one of the world's largest freshwater lakes. Mt. Elgon forest is a transboundary ecosystem between Kenya and Uganda and an important water catchment for rivers that drain into Lakes Victoria and Turkana. It is also an important catchment for Lake Kyoga in Uganda and the Nile basin.

To select specific communities, the forest was used as an entry point. Hence, five CFAs with Participatory Forest Management plans were identified. These were Londiani and Itare CFAs in Mau Forest and Cheptais, Kimothon and Saboti Sosio CFAs in Mt. Elgon Forest. Four of the five CFAs had existing WRUAs in the lower catchment, with the exception of Kimothon CFA. The four existing WRUAs were Kipchorian WRUA in Londiani; Itare Chemosit WRUA in Itare; Chebombai WRUA in Cheptais; and Sosio WRUA in Sosio. Kipchorian and Chebombai were due for revision. Usually, the CFAs membership ranged between 1000 and 1500 members located within a forest block. The CFA members are organized into different user groups such as beekeeping, grazing, water harvesting, ecotourism, fuelwood collectors and tree nurseries. The WRUAs members are formed around a sub-catchment area, which covers from the upper catchment to downstream. The WRUA membership ranged between 100 and 400 members. In their management structure, WRUAs are organized into sub-committees, comprising procurement, floods and drought management, monitoring, livelihoods and finance. Not all areas have a CFA and a companion WRUA. Although there is usually a CFA formed upstream and WRUA downstream, this is not always the case.

One of the key activities under the Water Towers project was to review the forest and water management plans for these communities. The first forest plans in these sites were developed between 2009 and 2013, and the first water management plans for the two sites with existing plans (Chebombai and Kipchorian WRUAs) were developed in 2012. Reviews

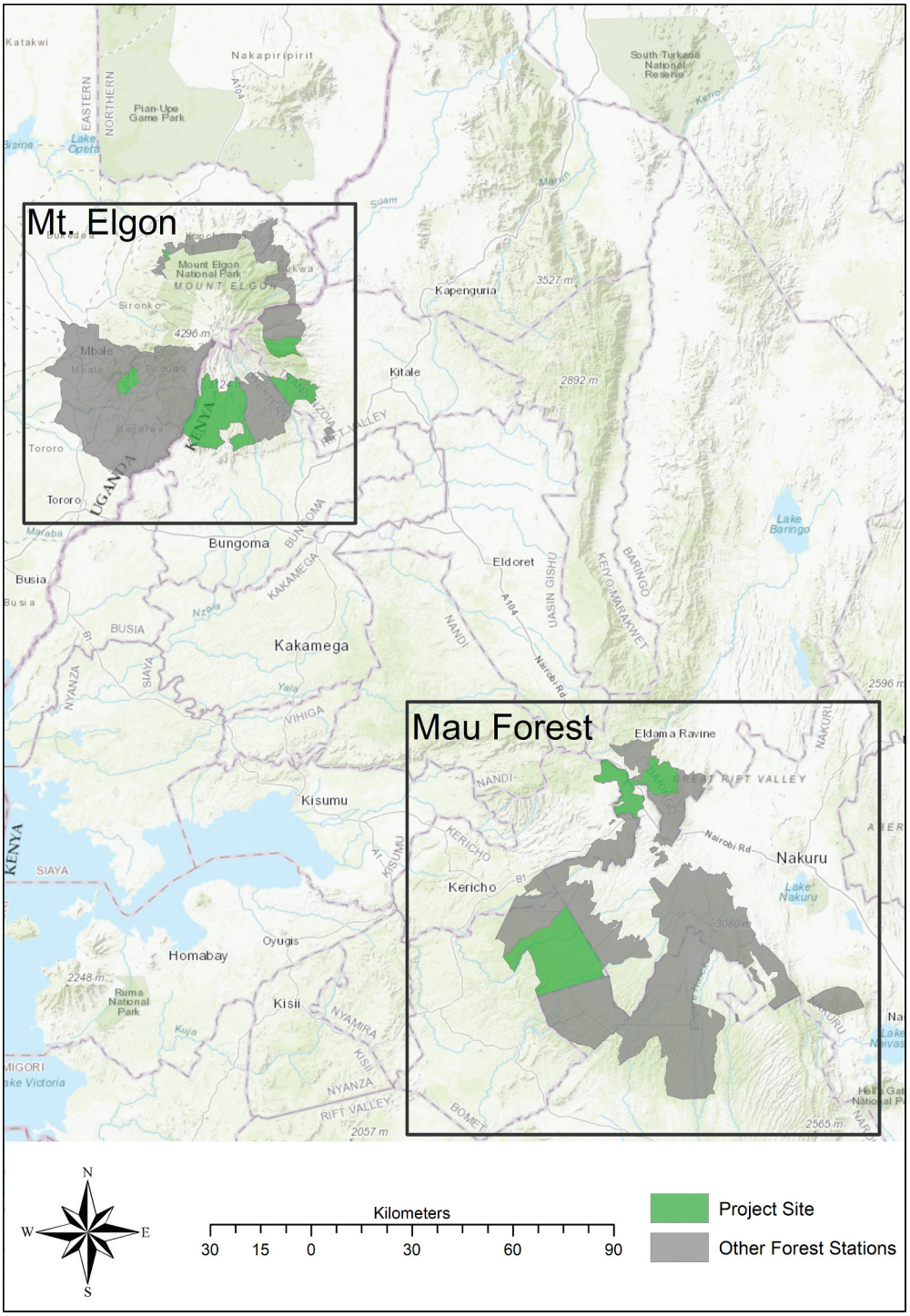

Figure 1. Location of study sites.

are usually done after the plan period to capture current changes and emerging issues and any new priorities for the community. All the plans covered a period of five years, and by 2017 all the plans were due for review.

Out of the five CFAs, we supported the review of four plans. The review of the fifth PFMP (Saboti CFA) was supported by KFS; still, the site remained part of the project site and we reviewed the content of the previous plan. Out of the four WRUAs, two (Chebombai and Kipchorian WRUAs) were supported to review their expired plans and one (Itare WRUA) to develop a new plan. The plan for one WRUA (Sosio) was not developed, since the water authority needed to review the boundaries of the WRUA coverage to meet the minimum threshold area required; this was not done within the project's duration. The project engaged with the communities between 2017 and 2019.

Methods

The study used mixed methods for data collection. We reviewed guidelines from KFS and WRA on developing the management plans. These are WRUA Development Cycle guidelines (WDC) for the water plans and Participatory Forest Management (PFM) Guidelines for the forest plans (WRA and WSTF 2014; KFS 2015). We conducted seven participatory workshops with members of the four CFAs and three WRUAs in the study sites to review the forest and water plans. We held one workshop for each forest and water plan. Each workshop was guided by the modules in the PFM and the WDC guidelines with lead facilitators from WRA and consultants approved by KFS.

The project team from CIFOR participated in the review process of the plans with the aim of learning from the process to identify and recommend areas of synergy and to enhance community participation and gender integration in the two planning processes. The participatory workshops for developing the water plans for the WRUAs took about eight days conducted in two phases. The first phase (three days) involved capacity building of community members on the WDC process and content of the water plans, and the next five days focused on data collection (through plenary discussions, transect walk, group discussions) and developing the content of the plan in accordance with the WDC.

The participatory process for reviewing the forest management plans took a relatively longer period and was led by experts in the PFM recommended by KFS. It involved initial planning meetings to select the Local Plan review team (LPT) in each site, data collection through a socio-economic survey and a forestry inventory, and a validation meeting. The process is outlined in a later section of this article.

Contrary to the past, when only CFAs were involved actively in developing the PFMPs, we involved members of WRUAs in the forest management plan processes, and, similarly, members of CFAs participated in reviewing the water management plans. The participants in each plan process involved local stakeholders from the devolved County government structure, such as officers from agriculture, environment, forestry, water and wildlife departments; local administrators (chiefs, assistant chiefs); and CFA and WRUA members. There were about 35 community members (both from WRUA and CFA in the site) involved in each of the workshops, with about 17 females, and 18 males.

The research team evaluated the process in each planning meeting and suggested areas for improvement in the subsequent plans. We wanted to examine whether the process considered joint governance of forest and water and find out if and how gender is integrated in the management programs. We obtained views from facilitators from the forest and water management agencies during the workshops. We also conducted 31 key informant interviews with CFA and WRUA leaders drawn from the five CFAs and four WRUAs. Even though one WRUA did not develop a water management plan, its leaders participated in the key informant interviews to identify potential areas of collaboration with CFAs. The key informant guide included questions on how CFAs and WRUAs work. However, for this article, we focus on questions regarding what activities in the previous forest and water management plans were implemented, factors that facilitated or hindered implementation of the activities defined in the plans, and which forest and water management activities could support collaboration between WRUA and CFA members.

Results

The results are divided into three sections. First, we focus on the processes previously used to develop the forest and water management plans, including how the content was determined and the extent to which gender considerations were integrated. Second, we present the enhanced review process facilitated by the project. Finally, we present barriers to implementation of both water and forest plans.

Processes of developing the 2012-2017 forest and water plans

The process of developing forest and water management plans in Kenya is subject to the guidelines established by the respective forest and water agencies (see Annex in Supplemental File). The development of the water management plans is normally led by facilitators from WRA. Similarly, development of forest plans is under KFS. Whereas KFS provides overall direction in the process, and its staff are involved in the forest zoning, KFS sometimes recommends qualified consultants to participate in the PFM process. The forest management plan is a way of involving communities, with the objective to conserve biodiversity while enhancing people's livelihoods and ensuring sustainable use of forests ((KFS) Kenya Forest Service 2015). The water plans are developed at the sub-catchment level delineated by the WRA and where a WRUA exists. The SCMP process enables the involvement of stakeholders in planning and sustainable management of their water as provided under the Water Act, 2016 ((GoK) Government of Kenya 2016a). Both the forest and water plans are developed for a period of 5 years, after which they are reviewed and updated.

The review of the guidelines and engagement with staff from the forest and water agencies revealed some similarities and differences in the planning processes for water and forest (Table 1). First, both processes involve a capacity-building component in the initial stages, which covers similar topics. These include leadership, financial management and conflict resolution. The PFM training includes the PFM policy and legal framework, CFA structure, and compliance of CFA activities with the law, for instance on CFA governance. In the SCMP process, capacity building is initially conducted for the WRUA

Table 1. Comparison between the forest and water management plans.

Topic	Forest management plans	Water management plans
Existence of guidelines	Guidelines developed by KFS	Guidelines developed by WRA
Facilitators in development process	KFS staff and/or consultants	WRA staff
Development duration	Relatively longer, varies between 3–6 months, no timelines on modules	Relatively shorter, 2 weeks, with detailed facilitation tips for modules
Plan duration	Reviewed and updated after 5 years	Reviewed and updated after 5 years
Capacity building topics	Legal framework for participatory forest management, CFA governance	Legal framework in water sector, WRUA governance
Data gathering methods	Includes socio-economic surveys	Includes group discussions and transect walks
Participatory approaches	Yes, required	Yes, required
Gender integration	Lacks gender integration in the data collection and analysis	Lacks gender integration in the data collection and analysis

to understand legislation and reforms in the water sector, compliance of WRUA governance with the WRUA Development Cycle (WDC) guidelines, funding of water activities and overview of all the 16 chapters in the SCMP.

Both processes have a data gathering component to understand the local context, with specific steps required for data collection and analysis. These include assessment of natural resource conditions and community livelihoods. However, different methods are used for each process: socio-economic surveys in forest planning and group discussions and transect walks in water planning. Hence, there are opportunities for the two processes to complement each other, because they provide different types of data gathered through different methods. One way to take advantage of this is by referring to both plans during the review process.

The time needed to develop the water management plans normally takes 2 weeks, whereas the forest plans usually take between 3 to 6 months from start to finish. Also, the guidelines for water plans, unlike the forest guidelines, provide detailed steps for facilitators to develop the content including suggestions on the duration of each module. Nevertheless, the extent to which these steps are followed usually depends on availability of financial resources. The process tends to be rushed, which compromises participation. Given the relatively short workshop duration, there is less opportunity for employing participatory approaches such as gender disaggregated group activities.

In contrast, the PFM guidelines do not provide timelines; hence, the process tends to be undertaken for an extended period depending on local dynamics. Also, the guidelines do not outline any specific facilitation approach.

In both cases, developing the plans require the engagement of communities in a participatory process, to identify challenges and develop interventions to address them. Despite the linkage between forest and water, however, each entity had developed their plans separately, reflecting a sectoral approach. This is a gap that we aimed to address by engaging members of both forest and water associations in the review process.

Both plans also failed to integrate gender in the data collection, analysis and reporting of results. For instance, none of the plans presented gender disaggregated information. Although men and women have different uses and perceptions of the forest, the forest plans did not consider these differences (e.g. providing only percentages of community members who ranked different forest uses high and low). Similarly, in the water

management plan process a gender perspective was missing in the prioritization of challenges, without gender disaggregated data on priorities, needs and roles regarding water management.

In addition, the forest plans did not include the selection process, or the composition of the local planning team involved in developing the plans. They provided only the total number of members without the gender composition. For their part, the water plans included the number and names of participants in the planning workshops but similarly did not include the selection criteria.

Enhancing the process: the review and updated plans

The project followed the WDC and PFM guidelines (see annex 1) to design the process for developing the new forest and water plans but substantially enhanced the facilitation process. This was aimed at improving participation, including women's participation, to build local ownership. The steps are outlined in Box 1 (SCMPs) and 2 (PFMPs). We increased the proportion of participants from both associations. About 25 WRUA members and 10 CFA were involved the water plans, and 25 CFA and 10 WRUA members in forest plans, and about 5–8 officials from forest and water authorities and local-level administrators. Previously, only a leader, usually a chairperson of WRUA or a CFA would be involved.

Box 1. Steps in developing SCMPS for *Itare, Chebombai* and *Kipchorian* WRUAs.

- Initial planning between the WRA staff and CIFOR project team.
- The team shared the WDC guidelines for the water plan review process with CIFOR project team, and suggestions incorporated in different modules on enhancing participation.
- Participants mobilized by WRUA leaders ensuring representation from the catchment, inclusion of CFA members and stakeholder representatives.
- A 3-day capacity-building workshop conducted. This involved about 35 community members (20–25 WRUA members representing upper, middle and lower catchment, 10–15 CFA members, with a 50% representation of men and women) and partner representatives from forest, water, wildlife, local administration.
- Topics covered include overview of the WDC, roles of institutions in water sector, role of WRUA in water allocation and use through permit system, conflict resolutions, collaboration, and financing of WRUA activities.
- SCMP review workshop conducted for 5-to-6-days. This involved Participatory workshop guided by the modules in WDC guidelines. For Itare WRUA this was a new plan.
- Lead facilitators lead the process through plenary and group activities to developing solutions to identified problems, key activities, budgets for activities.
- A one-day transect walk conducted between the participatory workshops. Participants divided into three groups to cover the upper, middle, and lower zones. A checklist developed to guide community to record information during the transect walk, followed by reporting from the transect walk.
- Lead facilitators collated information generated by the community into the different chapters to develop the draft plan.

- Copies of the draft plan shared with WRUA, CFA and stakeholders for comments and corrections.
- A 2-day validation meeting conducted with community representatives and partners. The content of the draft plan is presented by the lead team and corrections integrated.
- Final plan completed and shared with community and stakeholders.

Box 2. Steps in developing the four PFMPs for *Londiani, Itare, Kimothon* and *Cheptais*.

- Planning meeting between the lead review team and CIFOR project team on the review of the workplan, detailed steps, selection criteria for participants and the steps that will be involved, and how gender will be integrated in each step. The project team provided suggestions to the review team which were tested in the process.
- Consultative meetings between the lead facilitator and the KFS officers in charge of the respective forest conservation areas.
- First Inception meeting for sensitization with the community to create awareness of the PFM process, held through *barazas* (local meetings organized by the local administrators).
- Communities appoint representatives of the Local Plan Review Team (LPRT) that will be involved in data collection. Criteria for selection included gender representation, geographical representation, awareness of the forest area.
- A 21-member LPRT with 12 CFA members, 2 local chiefs, 4 WRUA members, 3 representatives from other Community Organizations (7 women, 14 men). In Kimothon, a 26-member LPRT was selected (9 women, 17 men), and 4 members from Sirgoi WRUA were involved. In Londiani, LPRT had 16 members (4 women, 12 men), and in Itare, 19 (7 women, 12 men).

- Review meetings with community to review achievements in the previous plan; to identify what was implemented; barriers to implementation; problem analysis. These were held on different days depending on community dynamics. Review of the previous plan was conducted in small groups of 5–7.
- 1–2 days training of LPRT on socio economic data collection process.
- Assessment of the forest and socio-economic data collection. A team of 7 community members participated in resource survey teams (4 from CFA and 3 from WRUA). About 7 days.
- Analysis of socio economic and resource assessment survey, and report generated by the lead review team. This information forms the chapters in the forest plan on Bio-physical description of the Forest, and on the Socio-Economic situation.
- Meeting to present and discuss results of the socio-economic survey to community and stakeholders. Results validated.
- Forest zoning and digital mapping led by KFS team.
- Visioning workshop to develop forest management objectives and targets for the next 5 years. This was held for 2–3 days.
- A one-day feedback meeting to present the socio economic and resource survey.
- Review team collated information into the Draft plan.

- A validation meeting with stakeholder and community representatives, with about 30 members (including CFA, WRUA and representatives from the forest, water, local government). Validation meetings facilitated by the review team and KFS.
- Comments integrated by review team and final draft sent back to the community and stakeholders for final comments. Final plan forwarded to KFS for approval.

During the planning process, facilitators adopted mixed approaches to ensure representation of WRUA and CFA and to enhance participation in the workshops. Communities worked in small groups, which enabled them to express their opinions more freely. For instance, women were free to express their views on issues such as the challenges they face on resource access, ownership and benefits. Women and men were free to follow their own priorities about proposing conservation measures to address the challenges.

The review of the water management plan for Kipchorian WRUA provides a good example. In this first workshop, validation of the water plan was done in a plenary session, whereby facilitators presented an overview of the draft plan through power point presentations. Since there was limited time for participants to familiarize themselves with the content, their contribution was also limited. The outcome from this validation exercise was then to inform the subsequent plans.

In the subsequent validation meetings for Kipchorian water plan, we adopted the small group approach. Copies of the plan were distributed to participants, and the validation meeting was extended from 1 to 2 days. This provided adequate time for participants to review the content. Different sections of the plan were reviewed by men and women in separate groups. This approach provided much more room for discussion, and participants were free to ask questions on specific sections. The comments of one participant during the meeting show the importance of applying participatory approaches in ranking and prioritization, which was one of the sessions in developing the water plans.

> We think encroachment of water resources should be ranked first, followed by deforestation, and not eucalyptus along rivers. Women felt that the source of water is important. We have had meetings and we have agreed that the pairwise ranking done did not capture the issues well. I think there should be a different way of doing the ranking. Member, Kipchorian WRUA.

In the first workshop, problems were ranked in a plenary session with both men and women using a pairwise ranking method. The results showed that the main challenge was "eucalyptus along rivers". However, during the later validation meeting, women expressed this different opinion and felt that the ranking had not captured their views. Hence, the new ranking process was done with the WRA facilitators leading the exercise.

Facilitators from WRA embraced the approaches taken during this validation meeting, which made them more likely to be applied in subsequent validation meetings. The officials remarked during the process that they were enthusiastic about the new approaches, and that they were willing to involve CFAs and WRUAs in future planning. A comment from a WRA official during the validation meeting affirmed both interest in the cross-fertilization of forest and water management planning and the importance of gender inclusivity.

> The innovation in this SCMP process is involving the CFA to manage the water resources, and the WRUAs in forest management plans. This has not been the case with other SCMPS. [Also,] gender is an important element in natural resource management. Women must be involved in water management. They are the greatest users of water. WRA subregional Manager, Kericho.

Discussions on the previous planning process and implementation were also key to our new approach and had not been done before. Previously, for Kipchorian WRUA, some members explained that they had felt sidelined in the process. The leaders did not provide direction after development of the first water plan and were not readily available. WRUA members were concentrated in one area of the sub-catchment. This was evident during the development of the first water plan for Kipchorian WRUA as reflected from the views of a key informant.

> Most of the activities were not implemented, because the WRUA did not own the SCMP at the time. The government and the WRA owned it. The WRUA got a copy when the SCMP was expiring. Key informant interview, Chairperson, Kipchorian WRUA

As indicated by the Chairperson, some members felt that they were not involved, and viewed the plan as belonging to water authority. Also, other members felt that most of the participants in the initial planning were mostly the youth, who went to seek job opportunities elsewhere. This problem of lack of community ownership also led to problems with implementation, discussed further below.

In contrast, the chairperson of Chebombai WRUA attributed implementation of some activities such as on farm tree planting to the positive attitude from the community after the WRUA sensitization. Implemented activities included rehabilitation along river Tisi, construction of gabions and check dams, terracing, protection of 8 springs, establishment of two tree nursery beds with 40,000 tree seedlings and planting about 60000 trees on farms. Whereas external support played a great role, community members' attitude also played a role. Community members were receptive to interventions promoted by the WRUA such as on farm tree planting. Capacity-building programs such as soil conservation practices from the Ministry of Agriculture provided the necessary skills and scouts assisted in monitoring activities.

Regarding forest plans, ownership of the plan was an issue in Cheptais CFA. There was low participation of members in the activities, which was attributed to lack of a Forest Management Agreement between KFS and the CFA, and tense relations between the CFA leaders and the local forest station manager. Some activities included in the plans were not embraced by the community as demonstrated by an example in Kimothon CFA, where, contrary to other forest sites, bee keeping was not taken up. As indicated by the statement below from the CFA official, it was not perceived as beneficial.

> The members have not seen the importance of bee keeping and they are not very interested because most of the time they do farming on the PELIS [programme for plantation establishment and livelihood support] land. Lack of funds to initiate project has the challenge to start projects. projects implemented were made possible because of the funds raised by the CFA members through the annual CFA membership subscriptions. Secretary, Kimothon CFA, Mt. Elgon Forest.

Management plan implementation and barriers

Prior to the community workshops, key informant interviews with leaders of the CFAs and WRUAs provided information on which activities were implemented and which were not, and reasons for lack of implementation. The research found that activities in most of the plans were only partially implemented. Just one plan, the Kimothon forest plan, had about 60% of its activities initiated in comparison to the other forest and water plans with about 40% or less of activities initiated. Even implemented activities, however, were not documented or monitored. Table 2 summarizes the implementation status ascertained from the workshops and from the key informant interviews, as well as barriers to implementation. Activities implemented across the sites included establishment of plantation areas, rehabilitation of degraded forest areas, establishment of tree nurseries for both indigenous and exotic trees, and livelihood activities in the forest land such as bee keeping and farming.

Table 2. Implementation status and barriers to implementation.

Plan	Status of implementation	Perceived barriers to implementation
Kimothon PFMP	56 activities planned, about 34 (60%) initiated and implemented to some level	*Financial*: Funding through revenue from members annual subscriptions and KFS. *Monitoring*: CFA did not keep records. Programme achievements was done through recalling. -Limited CFA capacity to follow up implementation.
Itare PFMP	14 out of 47 activities (29%) were implemented	*Financial*: Activities such as seedlings production and beekeeping supported by partners such as KTDA, KFS, ISLA, and by members contribution. *Capacity*: Activities such as ecotourism were costly and needed expertise, which was not available.
Londiani PFMP	22 out of 54 (41%) of activities in the previous plan had started	*Financial*: Limited funds; Implementation supported by members subscription in the PELIS system, partners such as Greenbelt Movement, and donor projects such as *Miti Mingi Maisha Bora*. *Capacity*: Limited skills to implement some activities
Cheptais PFMP	75 activities planned, 6 (8%) implemented	*Financial*: Funded by partners (such as Kenya Power company, KFS, Greenbelt movement, PACT Kenya). Activities that were not costly were funded by members subscriptions. *Capacity*: Limited knowledge in tree establishment such as on-farm tree growing. *Governance*: Some community members were not involved in initial planning of conservation activities. -Strained working relationship between the local forestry official and the CFA - Low community participation attributed to lack of a Forest Management Agreement between KFS and the CFA. Financial constraints and limited partners.
Kipchorian SCMP	21 activities planned, 5 (24%) implemented	*Financial*: Some activities funded by government project (Lake Victoria Environmental Management Programme (LVEMP). *Governance*: WRUA was concentrated on one location, hence limited membership. -Lack of adequate representation during the training and development of the initial plan. -Participants argued that many who participated were the youth, who later went away to seek other ventures. -Perceived lack of transparency among the WRUA leaders. *Financial*: Inability for WRUA to mobilizing resources due to limited skills in resource mobilization.
Chebombai SCMP	32 activities planned, 21(63%) implemented	Financial: WRUA developed proposal to secure about Kshs 10 million from the World Bank through WRA. -Limited financial resources constrained implementation of other activities.

Typical barriers included the inability to mobilize funding, which was attributed to limited partnerships with other community groups and external agencies (WRUAs, CFAs), hence the reliance on donor projects. There was also low participation and representation in the planning process, leadership challenges and inadequate skills. The challenges are synthesized into the three main areas identified and discussed in turn: monitoring; finance; and skills and governance.

Monitoring progress

Respondents were not always clear who was responsible for monitoring plan implementation. During the key informant interviews, CFA leaders in all the 5 CFA mentioned that KFS, CFA scouts, the leadership committees, or external partners were responsible for monitoring. The WRUA leaders mentioned that monitoring committees within the WRUA were responsible for monitoring implementation. For their part, the CFA leaders were not aware of the monitoring structure under the forest plan. In fact, a Local-Level Management committee, consisting of representatives of key stakeholders, is responsible for monitoring implementation of the forest plans. And despite all the plans having outlined institutional structures for implementation and monitoring, none of these were operational.

Learning from implementation of previous activities is needed to develop current interventions to address emerging challenges. During the review of the plans, it was clear that there was no systematic record keeping nor reference to the plans, making follow up a challenge. For instance, this was the case in Kimothon where detailed records on the number of households adopting alternative energy technologies and livelihood activities adopted by men and women were missing. There were, however, records for plantation areas established in two sites: Kimothon (915 ha established between 2013 and 2018) and in Londiani (735 ha established between 2012 and 2017, KFS 2018). For most activities, assessing achievement was done by recall in consultation with community members.

The main records available for the WRUAs were narrative reports on quarterly activities submitted to WRA and meeting minutes, such as the annual general meetings. There was no section on the implementation status of the previous plan. Where monitoring was done, it was mainly initiated by KFS or WRA focusing on a specific activity such as the acreage of trees planted. For monitoring to succeed, it needed coordination by leaders and other stakeholders fulfilling their responsibilities. Hence, both forest and water plans demonstrate shortcomings for monitoring and continuity.

Financing conservation activities

A key constraint for the implementation of activities was inadequate financial resources. The CFAs and WRUAs are required to mobilize their own financing for implementation, but they were not able to obtain the amount required. Some activities were implemented through donor funds, support from forest and water authorities, or NGOs. In Cheptais, 70,000 tree seedlings were planted in 2013 with the support of a private firm. Chebombai WRUA undertook rehabilitation of riparian zones, spring protection, construction of terraces and gabions for soil erosion control and installation of water tanks to harvest rainwater, supported by the World Bank and the water agency. Key informant interviews of leaders provided insight into the funding mechanisms.

> We implemented the following activities: tree planting funded by KPLC [Kenya Power and Lighting Company]; grazing, farming through the PELIS [Plantation Establishment and Livelihood Support Program]; firewood collection, herbs collection and bee keeping. These activities were carried out because they do not require high financial obligations and members could use their own money to conduct them. Key informant interview, Secretary, Cheptais CFA.

A few activities were implemented through the community's own contributions through annual subscriptions. These include tree nursery establishment and bee keeping. Communities valued activities that supported livelihoods such as the PELIS, which they use to establish plantations and cultivate crops.

Limited skills and governance gap

Sometimes community members lacked the skills to implement planned activities. This was evident in two forest plans as mentioned by the key informant interviews.

> Ecotourism, water abstraction, and carbon trading were not implemented because there is no funding, and these activities need a lot of professionalism. Key Informant interview, Chairperson Itare CFA.

> Fish farming, eco-tourism and herbal medicine extraction were not implemented. This is because of the shortage of finances to launch these activities and lack of the necessary skills required in carrying out some of these activities such as fish farming. Key Informant interview, Chairperson Saboti sosio CFA.

Catchment management in the water plans also demonstrated some limited knowledge and skills and governance challenges. For instance, one of the roles of WRUAs in catchment management is to control water abstraction for commercial uses through the water permit system. This process requires data on water users or abstractors within the sub catchment, but this data was not always available. And though the WRA should conduct a survey to obtain the data, this was often delayed. Also, it was noted during the capacity-building workshops that the WRUA members were not adequately informed about their role in the water permit process. Hence, this was one of the topics addressed during capacity-building activities to equip the members with knowledge regarding the requirements and process to be followed before a permit is issued. A key governance gap was limited representation and participation of community members in the CFA/WRUA activities, as was the case for Kipchorian WRUA and Cheptais CFA.

Discussion

We aimed to draw lessons from the forest and water management planning process in Kenya and to understand how better to support the integration of both water and forest planning processes. We considered how the content of the plans is determined; how gender is integrated and the status of implementation and draw lessons to improve this planning process. We argue that, while integrated landscape management may be the ideal, an important first step is to improve and integrate the current sectoral processes. We build a case on the need for a more inclusive and participatory process that moves toward a landscape approach with better linkages between forest and water.

There are opportunities and challenges in the current plan development processes. The lead forest and water agencies have developed guidelines on the processes of developing the forest and water plans, which also highlight the content that should be included. A landscape approach would entail a common planning process, with a single management plan for integrated water and forest resource management. Under the existing sectoral nature of resource policy and management in Kenya, this change will take time. But there are opportunities to move towards a more integrated and participatory process now.

Importantly, although the processes can be improved and some cases lack local ownership, the content of the plans is determined by community priorities. Though developed separately by forest and water associations led by the respective lead agencies, communities perceive challenges in the landscape and develop activities for managing forests and water. In developing these plans, communities also prioritize activities that generate income such as extraction of resources such as firewood, medicinal herbs, tree seedlings establishment, infrastructure developments, and trainings, among others. These activities have been undertaken in other areas in Kenya (Agevi et al. 2014; Mutune et al. 2017). Such perceived benefits are incentives for community participation in natural resource management (Musyoki et al. 2016).

Although gender was mentioned as a key component in the plans, we found that it was not adequately integrated in previous plans. Women are especially affected when the process is not well designed to support participation. Being present in decision-making forums is not enough. Studies have shown that women especially face challenges in public forums. Their participation declines as the arena moves from the private to the local group to the public sphere, where they may be silenced or influenced by male leaders (Evans et al. 2017). In the study sites, women's participation was influenced by cultural beliefs and norms, hence inequality persists despite various policy measures. A gender perspective in planning creates an environment where different capabilities and roles are explored, and opportunities are available to both men and women (Evans et al. 2014; UNDP and GWA 2016; Speranza and Bikketi 2018).

Both water and forest plans also demonstrated problems with implementation. Other studies in Kenya have found similar weaknesses, focusing on issues such as rights and benefits (Mutune et al. 2017), factors influencing participation (Musyoki et al. 2016), and distribution of powers before and after the implementation of participatory forest management (Thygesen et al. 2016). These studies alluded to issues highlighted here such as weaknesses in participation and inclusiveness in the planning process (Mutune et al. 2017; Thygesen et al. 2016). However, there are scant studies on implementation of water management plans. One such study by Nyanchaga and Owiti (2017) assessed the implementation of the water plan of Awach Kano WRUA in western Kenya. The study showed poor implementation due to inadequate participation during development, poor leadership, limited funding, limited knowledge and uncooperative members during implementation. Despite these weaknesses, communities are responding well to planning processes in Kenya. However, a participatory landscape approach will help address some of the weaknesses, contributing to efficiency in the process and resources and enhancing participation of community groups.

It is clear from literature that participation contributes to more effective conservation management (Musyoki et al. 2016). Mechanisms include providing people with opportunities to learn new skills, bringing together multiple stakeholders to discuss the issues at stake, their values and goals, and helping to bring consensus. Ultimately, this improves implementation.

The first step is to ensure adequate representation of the variety of community members in the planning process. This requires appropriate ways to ensure various community groups are represented (Dyer et al. 2014). This should be considered as early in the process as possible (Reed 2008). To ensure representation in our review of water plans, the first criteria was to ensure that participants in the workshops represented the catchment area, from upper, middle and lower zones. Participants were then drawn from each zone.

Representation was also considered in the forest management plan review. This involved the formation of a team known as the local planning team (LPT) from the community ((KFS) Kenya Forest Service 2015). Participation at this stage was achieved by ensuring that both men and women were represented and that roles of members were distributed equally between men and women in the LPT teams. Based on research findings about the importance of women's knowledge and engagement, we needed women in particular during the forest resource assessment, which involved documentation of biodiversity in the forest, and during the transect walk to identify key resources in the catchment in the water management planning.

Another key factor was the application of various participatory methods in the planning process. A small group approach was effective in enhancing the contribution from community members. Variation of the approach from plenary presentations to group activities segregated by gender resulted in greater contributions from women and the youth in the process. Several opportunities emerged from this joint processes. It provided an opportunity for CFAs and WRUAs to discuss and understand common challenges affecting them and resolve to work together. Joint communication forums were developed, as evident in Itare where a WhatsApp group was started to share information and opportunities to implement the management plans. It also fostered cross-learning between the two associations on strengths and weaknesses, for instance on successful resource mobilization efforts, and exploring locally available funding opportunities.

The research also identified problems with implementation. In addition to that which could be solved through greater local ownership, other problems include finance, skills and monitoring. For the first two, ongoing capacity building of community groups is needed. For monitoring, both capacity building and the development of clear monitoring plans and a clear division of responsibilities are key. Whereas financial resources were needed, monitoring could be achieved if there was commitment to report on the progress by the different stakeholders in the respective monitoring teams. There is also a need to involve different actors such as the local community associations involved in natural resource management to enhance coordination and efficiency in implementing management activities through a landscape approach. Greater attention to monitoring will also allow for better evaluations and thus better planning, as well as potentially supporting the identification of water-forest synergies and making them more visible.

These experiences suggest wide application in natural resource management and lessons for practitioners involved in water and forest planning. Greater participation, capacity building and more attention to monitoring will contribute to implementation. Engaging people across water and forest activities provides opportunities for learning as well as synergies, and eventually a more integrated process. There are opportunities for the two processes to complement each other, because they provide different types of data gathered through different methods. One way to take advantage of this is by referring to both plans during initial development and in the review processes. A fully integrated process, however,

will require legal and institutional changes at the national level that allow field practitioners to break out of sectoral silos. Although the officials in the study sites were enthusiastic about the linked approach, they expressed the need for broader changes to provide incentives to make this happen – particularly a time in the future without separate legislation for forests and water.

Conclusions

The planning processes for forest and water management in Kenya present opportunities and challenges for enhancing community participation, which is one of the key factors to support local-level resource governance. The planning guidelines developed by the forest and water authorities are a first step, but there are opportunities for enhancing the process and thus the content of the plans.

We identified gaps in the planning process and provided recommendations for addressing them. The linkage between forest and water was missing in the initial forest and water management plans. Solutions to these barriers include increasing the will, capacity and incentive for actors to work across disciplines and sectoral silos. Effective facilitation processes are needed to ensure stakeholder engagement, including specific expertise on gender and social inclusion (Evans et al. 2014). Effective monitoring needs financial, institutional and human resource commitments (Sayer et al. 2013; Reed et al. 2016). Negotiation processes require a shared concern and common objective as an entry point. These processes should focus on intermediate targets that provide a basis for stakeholders to start working together (Sayer et al. 2013). These management planning processes should therefore provide an opportunity to move toward a landscape approach.

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