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From Fence System to Sustainable Forest Management: Lessons from REDD+ Pilot Project in Masito-Ugalla Ecosystem, Western Tanzania

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Abstract

REDD+ mechanism is vital in fostering sustainable forest management particularly enhancing carbon storage, ecosystem integrity, and community livelihoods. This study aimed at investigating the relevance of lessons from REDD+ pilot projects on forest governance and future REDD+ implementation. The study examined key governance aspects considered during piloting REDD+, key lessons learned and their implications on future forest governance and REDD+ implementation. Findings show that community participation was considered during the piloting phase. Intra-village participation was collaborative and so did inter-institutional participation. The representative participation involved selected a few community members who linked local communities with governing institutions. The non-inclusion of local communities by district officials in deciding the utilization of forest benefits retarded the community willing to participate in future REDD+ implementation. However, these forms of stakeholders' participation in REDD+ piloting activities it did not guarantee forest integrity beyond the project period. This was partly attributed to a lack of transparency over benefits from SFM and competing interests over SFM benefits among forest management actors. If the same modes of stakeholders' participation and benefits sharing are not revisited, they render negative results in future REDD+ implementation. Therefore, community participation should be complemented with other pillars of governance to harmonize the interests of all actors involved in sustainable forest management and REDD+.

Keywords: Governance; Participation; Sustainable forest management; REDD+

Background Information

Climate change mitigation in the forestry sector has evolved since its adoption in the early 2000s [1,2] with a broad aim of curbing climate change and attaining sustainable development [3]. The framework for reducing emission from deforestation and forest degradation in the forest sector gained momentum since UNFCCC COP 13 held in Bali in 2007. During the conference, parties agreed to adopt Reduced Emission from Deforestation and forest Degradation (REDD) as a component of climate change mitigation in developing countries [3].The UNFCCC COP 17 in Durban in 2011 concretized advancement of objectives for climate change mitigation in forestry sector from the single objective (REDD) to multiple objectives (REDD +) that focus on mitigation agenda, carbon as a co-benefit and carbon as development issue [4]. Therefore, REDD+ was adopted with the primary goal of stabilizing greenhouse gas concentrations in the atmosphere, protection of biodiversity, and reducing poverty/ enhancing local livelihoods [5]. Specifically, major activities for REDD + implementation included reduction of emissions from deforestation; reduction of emissions from forest degradation; conservation of forest carbon stocks; pursuance of sustainable management of forests, and enhancement of forest carbon stocks (URT, 2013). Global negotiations on REDD+ in the forestry sector are still ongoing and recently, Paris agreement has set a framework for global commitment towards climate change mitigation. The forestry sector is seen as a viable solution for climate change mitigation partly due to its dual roles on carbon emissions, which can be released when burnt or cut and serves as a bank for carbon when forests remain intact [6]. In particular, more considerations on climate change mitigation through forest sector were directed to developing countries in which community livelihoods are directly linked to forest resources [6]. To protect natural forests, REDD + was expected to regulate the use of forest products by poor communities who are highly dependent on forests for their livelihoods. Tanzania, the major emphasis of REDD+ has been on reduction of emission attributable to deforestation and forest degradation, conserving forests in order to avoid emissions from decaying trees and below ground carbon as well as livelihoods improvement through co-benefits [7]. The essence is that deforestation and forest degradation occur largely due to weak legal enforcement, institutional failure, and market failure, and inherent poverty among forest adjacent communities [8-10]. These challenges are prevalent despite sustainable forest management interventions such as Participatory Forest Management approaches, mainly Community Based Forest Management (CBFM) and Joint Forest Management (JFM). CBFM occurs in village land and communities are major stakeholders. JFM is implemented between state and communities in state-owned forest reserves [11,12] Tanzania's piloting phase for REDD Readiness was officially launched in 2008 with nine (9) pilot projects both in mainland Tanzania and Zanzibar [8,13]. The pilot projects were designed to address different thematic areas in order to collate lessons that would enrich the implementation strategy and action plan that was finalized in March 2013. Participation, among other governance aspects, was addressed in project designs for REDD+ pilot projects implemented in various parts of Tanzania, including Masito-Ugalla ecosystem in Kigoma and Rukwa Regions [7]. Throughout the process, participation was considered a necessary ingredient for successful oriented community-based projects and activities [14,15]. Participation was the central theme in implementing the three years REDD+ pilot in Masito-Ugalla forest reserve in western Tanzania by

Jane Goodall Institute (JGI) [7]. The project aimed at countering deforestation and degradation rate of 1.7 percent that occurred from 2001 to 2007, a period that was overwhelmed by high population growth from natural growth and refugee influxes, weak legal enforcement, ineffective institutional framework and inadequate participation of communities in neighborhoods [16]. The project covered a total of 15 villages, with 7 villages along Lake Tanganyika shores in Kigoma district that aimed at protecting about 700-kilometer squares (km^2 (90,000 ha)) of native forests' General Lands [16]. After phasing out the REDD+ pilot project, Sustainable Forest Management (SFM) activities were handed to JUWAMA, an inter-village community-based forest management organization that developed a forest management plan with regulations on resource extraction [7,16]. Evaluation reports for the pilot project inform a lot about the effective engagement of communities in forest management during the REDD+ piloting phase compared to the situation prior to such interventions. However, it is still unclear whether or not lessons learned from the REDD+ pilots could be used as a basis for REDD+ implementation. The questions were: what were governance aspects and how were they addressed during the REDD+ pilot phase? Could lessons learned from the REDD+ pilot phase be used for REDD+ implementation in the Masito-Ugalla Ecosystem or elsewhere with similar governance and ecological conditions? Findings from this study have twofold implications, firstly, contribution to the knowledge body on post-REDD+ forest governance interventions, practitioners in natural resources management area who may be provided with updated information on what is or what is not the case with regard to forest governance. Secondly, decision and policy makers may be provided with the information necessary for the evidence-based decision-making process.

Conceptual Framework

The Conceptual Framework (Figure 1) for this study was adapted from work based on benefit sharing approaches and participatory forest management in REDD+ related projects. Sustainable Forest Management (SFM) is one of the components under REDD+ implementation and characterizes recent policy paradigms for forest management in most developing countries including Tanzania. Indicated that benefits emanating from SFM may be put in two broad categories, benefits flow, and benefit sharing.

Benefit flow is deduced from resource governance that comprises three aspects: property rights permit system, tax, and royalties, on one side and resource endowment, on the other side, considering size, condition, and productivity (ibid). Benefit sharing is governed by community condition, taking on board the influence of local governance particularly governance bodies and participation and community condition [(social rules and norms as well as internal different ion) (ibid)].

Scholars view community participation in conservation as a means to attain livelihood security. Livelihood security may be derived from goods and services they accrue from respective forest resources, such as fuel, woods, timber, and other environmental services. However, these goods and services are determined by the conservation level of particular forest resources.

Additionally, costs and benefits influence on nature of participation and their level of engagement among different groups in the community [17,18]. The socio-economic status also determines the nature of participation of community groups especially when costs are shouldered up to the lowest level of participating households. However, connote that motivation participation in sustainable forest management activities is subject to good governance, necessary for poverty reduction targets [11].

According to Arts B, Buizer M good forest governance comprises of aspects such as stakeholder participation, transparency of decision-making, accountability of actors and decision-makers, rule of law and predictability [19]. Furthermore "Good governance" is also associated with efficient and effective management of natural, human and financial resources, together with the fair and equitable allocation of resources as well as benefits [19]. The purpose of this study was to establish a link between governance issue and sustainable forest management together with implications for REDD+ implementation.

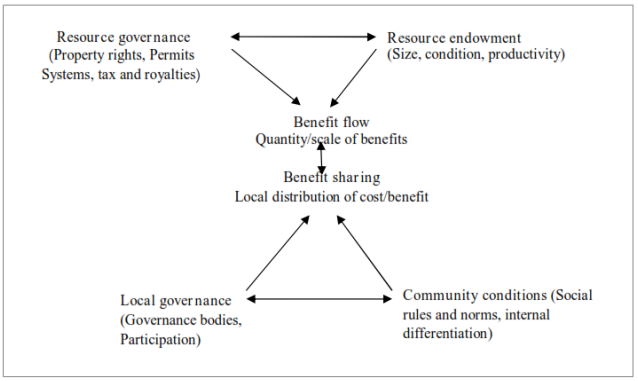

Figure 1: Conceptual framework linking governance and benefit sharing in SFM.

Methodology

Research design

This study employed a case study strategy. It employed descriptive and explanatory research methods were used in data collection including Focus Group Discussion, Key Informant Interview, Household Survey, and Comprehensive Literature Review.

Study area

This study was conducted in the REDD+ piloted Masito-Ugalla Ecosystem in Uvinza District in Kigoma region, western Tanzania (Figure 2). Masito-Ugalla ecosystem is an expansive forested landscape of approximately 10,827 km2 under varied management and ownership regimes [16]. The Masito-Ugalla Ecosystem is surrounded by 15 villages based in Kigoma and Katavi regions. Out of 7 villages covered by the REDD+ pilot project, two villages, Kajeje and Karago were selected. By 2018, Kajeje village had a population of 2865 people (1299 men and 1566 females) distributed in 1170 households within a village land size of 9619 hectares. On the other hand, by 2018 Karago village had a land size of 7568.392 hectares hosting a population of 5456 people. Majority of the population in the villages (Kajeje and Karago) depend on agriculture for livelihoods and they are relatively accessible during the dry season only. Mwakizega (not covered by REDD+ pilot project) was selected as a benchmark to this study. By 2018, the village had a population of 24,980 people with a total land size of 14624.153 hectares and hosting about 2060 households. The

selection was aimed at comparing and contrasting forest management under REDD+ pilot project and without REDD+ pilot interventions.

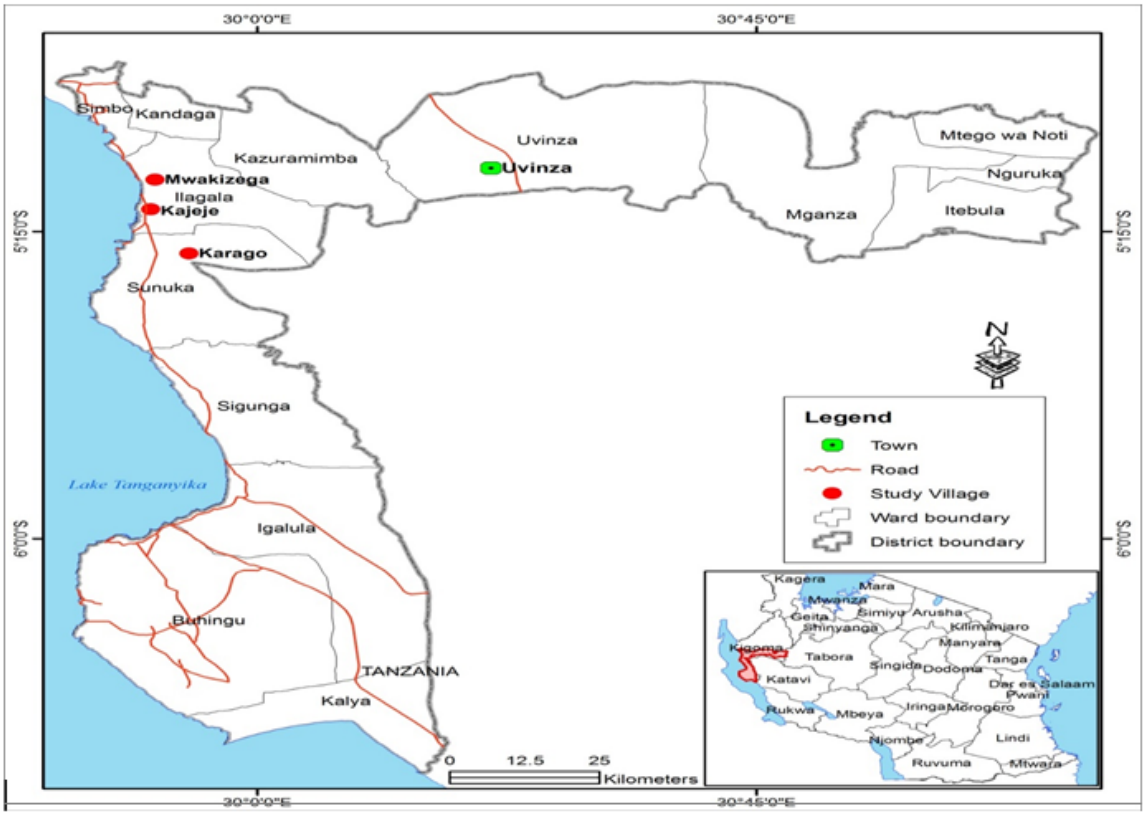

Figure 2: Study villages (IRA GIS, University of Dar es Salaam (2017).

Sample and sample size

A sample size of 5 percent and above is adequate and recommended to represent the study population. The study involved 248 households (Mwakizega=140, Kajeje=57 and Karago=51) equivalent to 5 percent from a sample frame of 4788 households (Mwakizega=2800, Kajeje=1141 and Karago=847) [16].

Sampling methods

The purposive sampling method was used to select key informants (District Forest Officer, village leaders, JUWAMA members, and Village Forests Monitors-FMs) for the study. These provided information on governance issues and sustainable forest management before, during and after the REDD+ pilot project. In addition, snowball two sampling procedure was used to identify actors involved in the implementation of REDD+ pilot including Village Land Use and Management Committees, JGI, JUWAMMA, Uvinza District Council, Caritas, mjumita and research institutions. Under the snowball sampling procedure, each consulted respondent was asked to identify another respondent considered to have an understanding of issues to be involved in this study. On the other hand, Focus Group Discussants comprised of 10 individuals (men and women) from the community. This was based on the idea from [20] that proposes a size group between 8 and 12 people as it is easy to handle and manage. Issues discussed included information relating to different actors involved in forest conservation and management, their role as well as position towards forest resources management and extent of their influence on community participation in forest conservation [20].

Data collection methods

Qualitative and quantitative data were collected from both primary and secondary sources. Quantitative primary data were collected using both open-ended and close-ended questionnaires from selected 248 households (Mwakizega=140, Kajeje=56, and Karago=52) equivalent to 5.17 percent from a sample frame of 4788 households (Mwakizega=2800, Kajeje=1141 and Karago=847). At the household level, the selection of households was a simple randomized process. Within the household, purposive sampling was used to select the household heads and/or any adult with an age of 18 years and above. The questionnaires were conducted face to face for researchers to capture the impression of the study. The household survey was conducted to validate information provided during key informant interviews and focus group discussions. Reviewed documents included journals, research papers, articles, accessed online and physical databases both published, unpublished and grey literature.

Data analysis

The collected data were analyzed separately depending on their nature. Qualitative data were sorted and arranged in themes and

entered in a matrix. Then they were subjected to content analysis. Quantitative data were sorted, arranged, coded and entered into Ms. Excel and Statistical Package for Social Sciences (SPSS) Version 22.0. Then they were analyzed using descriptive statistics and inferential statistics. SPSS was used for statistical tests, whereas Ms. Excel was used for the amenity of figures. Results are expressed in frequencies as well as percentages and they are presented using tables and histograms.

Results and Discussion

Types of community participation during piloting REDD+

The study analyzed community participation during piloting REDD + activities. Interview with key informants in the study area revealed that participation in piloting REDD+ activities was threefold. The first category was intra-village where communities made decisions with regard to resource utilization. In this category, villagers were participating in formal village meetings to discuss activities for piloting REDD+ and agree on governance mechanisms, including approval of by-laws and patrol of illegal activities for forest utilization. Patrol activities were imposed to JUWAMA to take care of the forests on the behalves of the villages covered by the project. They also participated in setting conditions for forest management in collaboration with other project proponents. A study [13] also revealed that villagers had the mandate to set conditions for forest utilization during the REDD+ pilot phase [13]. This study further revealed that conditions for acquiring forest products such permits acquisition for harvesting timber products and free zone for collection of non-timber products including firewood were also decided in general village meetings, especially in Kajeje and Karago REDD+ pilot villages. Conditions on forest utilization were also imposed on the extraction of Timber Forest Products (TFPs) regardless of whether extraction was sought from protection forests or production forests. Extraction of TFPs was not allowed in protection forests, unlike forests reserved for utilization. NTFPs include all non-wood forest products such as mushrooms, fruits, honey, maple syrup, cork, tree oils, tree resins and medicinal plants. No conditions were imposed on the extraction of Non-Timber Forest Products (NTFP) during the REDD+ pilot phase. Findings through FGD and key informants interviews indicated that most of the conditions for forest utilization that were imposed during the REDD+ pilot phase were influenced by previous SFM activities implemented by JGI. Thus, this partly implies that building on best practices for participatory forest management approaches in the study area and elsewhere in Tanzania can have a significant contribution to REDD+ implementation. Results through field survey show that there was a low percentage of community participation in piloting REDD+ activities. Accordingly, interviews with village leaders in Kajeje and Karago revealed that the percentage of community members who participated in the REDD+ pilot was below than the agreed attendance criteria for decision making on piloting REDD+ activities in the study area. Interviews with the village leaders indicated that the decision was to be made if attendance of the villagers could be 66-100%. Results also show that some villagers from Mwakizega had the opportunity to participate in the piloting of REDD+ activities, despite the fact that the village was not included in the piloting of REDD+ activities (Table 1). Interviews further revealed that community members in Mwakizega village who participated in piloting REDD+ activities claimed to have migrated from other villages with REDD+ pilot activities.

Village	Participation status	Frequency	Percentage
Mwakizega	Yes	23	9.3
Kajeje		20	8.1
Karago		27	10.9
Mwakizega	No	117	47
Kajeje		36	14.6
Karago		25	10,1
	Total	248	100

Table 1: Community participation in piloting REDD+ activities (Field survey, 2016).

Low participation in the decision making process through village assembly meetings had effects on community knowledge on REDD+ pilot activities. In this regard, about 66.1 percent of interviewed household members in the study villages were not aware of existing conditions for forest utilization (Table 2). Despite such low trend of communities participation, findings through household interviews and FGDs indicated a high level of awareness on the existence of village assemblies through which important decisions were made.

Village	Are there conditions for forest utilization?	Frequency	Percentage
Mwakizega	Yes	29	11.7
	No	72	29
	I don't know	30	12.1
Kajeje	Yes	13	5.2
	No	30	12.1
	I don't know	14	5.6
Karago	Yes	33	13.3
	No	10	4
	I don't know	17	6.9
	Total	248	100

Table 2: Awareness of conditions for different forest utilizations (Field survey, 2015).

The second category was inter-institutional participation, which involved the collaboration of project implementers both government and nongovernmental organization. The government actors included the Uvinza District Council and the Village Land Use and Management Committees (VLUMS) from the village governments. The nongovernmental actors included the JGI, the lead project proponent whereas the CBO encompassed JUWAMA. Both JUWAMA and VLUMs played different roles during REDD+ implementation and participated in seminars, workshops, and training with regard to alternative income generating activities to reduce dependence on forest products, which would lead to deforestation and forest degradation. The specific roles of different actors participated in the REDD+ pilot are illustrated in (Table 2).

S/No	Activities	Implementing Actor
1	Engaged communities in the formation of Community Based Forest Management (CBFM), a prerequisite condition prior to implementation of REDD+ in areas that had had no defined forest management regime. Trained JUWAMA on sustainable forest management Provided directives to the formation of village environmental committees considering gender representation. Coordinated and manage forest management plans and programs, Enforced bylaws related to forest management before and after phasing out the REDD+	Government Actor Uvinza District Council
2	Supported land use planning Trained local communities on guidelines, rules, and regulations regarding land use plans. Monitored the compliance to the land use plans at the village; level	Village Land Use and Management Committee (VLUM)
3	Advocated community forestry through Lake Tanganyika Catchment and Reforestation Education before REDD+ Trained villagers on tree planting, contour farming and benefits of conserving natural forests before REDD+. Conducted training on beekeeping, poultry keeping, and other alternative livelihood activities Established natural resources management committees Trained different cadres who had a stake in sustainable forest management activities Developed technical capacities to perform MRV certification and marketing of the carbon credits to JUWAMA [7].	Non State Actors Jane Goodall Institute (JGI) World Hole Research Centre (WHRC)
4	Engaged with local communities to integrate REDD+ into village land use planning process into 7 villages covered by the project. Supported activities aimed at enhancing village forests to acquire legal standards such as management plans Supported enactment of bi-laws that deemed compliance.	Confederation of Roman Catholic Relief Development and Social Services Organization (CARITAS)JGI
5	Monitored benefits sharing with communities. Conducted forest patrols. JUWAMA conducted monitoring operations using GPS through which they had the ability to locate, trace and catch illegally harvested forest products such as timber and charcoal. Disbursed revenues from post-REDD+ forest monitoring interventions e.g. fines from illegally harvested forest products	JUWAMA-Jumuiya ta Watunza misitu wa Masito (CBO) JGI District council authority
6	Involved in providing consultancies and conducted outreach programs. In this respect, communities participated in research as respondents Monitored and evaluated various stages of project implementation. Performed a watchdog role of monitoring forest activities whilst reporting the illegal ones	Academia and research institutions i.e. University of Dar es Salaam Forest adjacent communities

Table 3: Issues and practices during piloting REDD+ activities.

The third category of participation was representative oriented, involving the selected few and trained to train fellow community members and represent villages to a higher level of decision making such as district level. Although participation is an important feature in governance [21], in this study participation of this form was more of uneducated vs elitism. In this regard, the community-institutional interaction was largely consultative than interactive as reported in other places on natural resources management. Community participation in REDD+ initiative was important to ensure sustainability in forest management activities [22]. However, a low level of community participation had effects in future implementation of REDD+ activities in the study area and elsewhere with similar REDD+ pilot results. Therefore, if the implementation of REDD+ activities is envisioned as being successful, it is important to revisit how the piloting activities were designed and implemented as well as considering key lessons and best practices during the implementation phase.

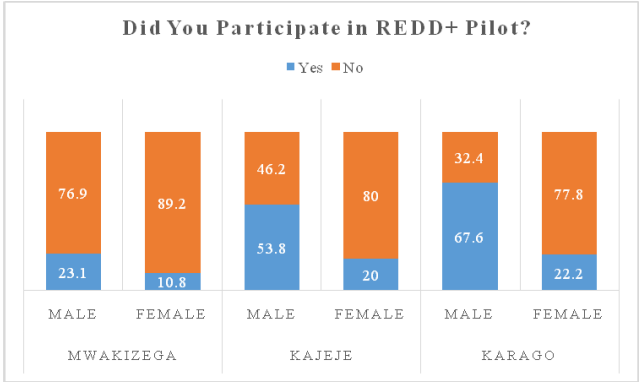

Figure 3: Participation in REDD+ according to gender.

Participation in REDD+ pilot according to gender

Women's participation in REDD+ pilot activities was relatively low compared to men (Figure 3). For those women who participated, they were involved in decision-making platforms particularly village government committees, VLUMs, JUWAMA, and village meetings. Majority of women did not participate due to social constructs that put them more dependency on men, thinking that participation of men would suffice their behalves.

Despite the low level of participation in REDD pilot activities, women were vibrant in alternative livelihood activities that are relevant for achieving Sustainable Forest Management (SFM). Some of the alternative livelihood activities for women included poultry keeping and beekeeping. Women were also active in the collection and use of non-timber forest products. (NTFP) (e.g. Mushroom) for subsistence and/or for sale. Other alternative livelihood activities performed by women included mat weaving and different forms of handcrafts. Some of these forms of alternative livelihood activities were reported elsewhere as of vital importance in income generation and forest

resources [23,24]. Women respondents in the study villages reported that by being involved in such alternative livelihood activities, they were engaged in forest conservation by default and diversified sources of income for their families. However, this study noted that those activities lasted when the project got to an end, partly due to lack of financial support that could sustain the benefits of alternative livelihoods in forest conservation. Therefore, this partly accounts that alternative livelihoods activities are important for motivating a behavioral change of communities and incentive for the achievement of sustainable forest management. On the other hand, the absence of environment-friendly and/or alternative livelihoods coupled with weak management strategies can pressurize forest adjacent communities to adopt unsustainable livelihoods that affect forest resources in their perimeters or in a medium range distance [25].

Forest governance in the study area

This study revealed various forms of forest governance challenges that would hinder the sustainability of best practices that were achieved during the piloting phase. Major governance concerns with significant effects on REDD+ implementation in the study villages included a lack of transparency and competing interests among the actors over forest utilization.

Lack of transparency: Lack of transparency in forest management and benefit sharing were largely magnified by people entrusted to manage forest resources, such as village leaders and key government officials for forest management. Some respondents claimed that sacks of charcoal were illegally transported to the Democratic Republic of Congo with backup from village leaders. Such pattern led to suspicion among some community members that REDD+ could be for village leaders and government officials as opposed to community benefits. Lack of transparency is also reported by MacDicken KG, Sola P, Hall JE, Sabogal C, Tadoum M, et al [23] in SULEDO forest that Village Executive Officers (VEOs) were authorizing illegal permits to harvest timber [23] also recommend that REDD+ implementation becomes successful when transparency and accountability are addressed. Therefore, the lack of transparency in the forest. Management in the study area had significant effects on achieving sustainable forest management and future REDD+ implementation.

Competing interests: Interviews with key informants showed that competing interests between Uvinza District Council and JUWAMA retards the local communities' willingness to participate in future REDD+ initiatives. Though the district is a custodian of the Masito-Ugalla Ecosystem (MUE) on behalf of the central government [7], the risk of violation of agreements reached before with communities on the REDD+ initiative is apparent. However, there was a silent conflict of interest largely due to benefits accruable from forest utilization. In this regard, the need to expand the revenue base prompted the district council to seize all revenues whilst disregarding the community interests. According to interview with district forest officers in Uvinza district and discussion with local communities, the district was more decisive to violate prior agreements on communities mandate to implement REDD+ related activities in MUE due to power it possesses over JUWAMA and other REDD+ pilot actors. This competition between powerful district council against weak JUWAMA rendered local communities feel as losers of the all post REDD+ pilot benefits. Elsewhere, Makata and others indicated that less power vested to communities over forest management has negative effects on their forest integrity. Whereas the impact of power imbalances between actors in forest management was described, [26-30] the study perceives a risk of magnification of sabotage tendencies by culprits over the forest.

Interviews with district officials revealed that the key informants considered benefits accruable from forest resources as important for district revenues. The revenues included fines from illegal forest activities which would be directed to the local communities under Community Based Forest Management (CBFM). Discussion with FGD participants in the study villages indicated that decisions to seize such revenue sources were reached without consulting local communities who were primary custodians of such forests. asserted similar issues that Elsewhere, other studies [25,26] have reported that decentralization of forest management has not been actualized in most adjacent communities [26] argue that government has remained with all the powers to manage forest resources despite strategies to devolve powers to local communities to manage forests [30-34].

Post REDD+ SFM benefits in the Masito-Ugalla ecosystem

This study found that there were relatively few respondents (Mean=1.86, Standard Deviation=0.35, skewness=-2.07) who were still getting shared benefits from the forest compared to when the project was operational (Table 3).

Village	Do you still benefit from the forest?	Frequency	Percent
Mwakizega	Yes	12	4.8
Kajeje		16	6.4
Karago		8	3.2
Mwakizega	No	128	51.4
Kajeje		40	16.5
Karago		44	17.7
	Total	248	100

Table 4: Consistency in receiving forest benefits.

Through interviews and discussions with FGD participants in the study area, it was noted that efforts that there was no continuation of support that led to the generation of those benefits during REDD+ piloting phase. However, household survey findings indicated that some NTFPs which were still accruable by villagers included firewood (71%) medicinal plants (7.3%), mushrooms (9.3%), wild vegetables (4.0%), and provision of water sources (8.5%). Interview with key informants revealed that piloting activities, including alternative livelihoods activities were fully funded during the piloting phase compared to the period after the piloting phase. According to the interview findings, during the REDD+ pilot project, JGI provided technicalities and resources, including financial and human necessary for communities to pursue conservation activities successfully [35-39]. Uvinza District Council as a state actor offered technical back-up. Respondents noted that after phasing out REDD+ pilot project, conservation activities were left to communities and the benefits accruable were to cover, among other aspects, operational costs for actors who have stake in forest patrols and surveillance, including JUWAMA were responsible to monitor illegal forest activities through patrols in the forest on behalf of seven villages covered by the REDD+ project. Results from discussion with FGD participants showed that inadequate funds to facilitate actors, including JUWAMA to patrol was

one of the reasons that hampered effective monitoring of illegal activities after REDD+ piloting phase. Inadequate funds was largely associated with the absence of a reliable source of revenues for smooth forest monitoring. Interview with key informants indicated that initially, it was agreed that sources of revenues to JUWAMA would be fines collected from illegally harvested forest products. As a result, this would be a stance to allow degradation at the expense of maximizing revenues to run JUWAMA activities. Other factors that affected the effective monitoring of forest resources included lack of transport facilities, lack of necessary equipment and insufficient manpower. The study found that forest orientation bears difficulty for forest monitors to reach every point of the forest. Discussion with FGD participants indicated that the farthest points in the forest where degradation massively occurs were seldom reached due to transport facilities required. Matilya cautioned on possible forest management risks, had benefits brought with REDD+ been not sufficient to off-set the opportunity costs of conserving the forests. Ineffective mechanisms for monitoring of illegal forest utilization activities had significant effects on achieving sustainable management of forest resources. About 33.1% (n=82) of the household respondents reported the re-emergence of unsustainable forest utilization as a result of a decrease in forest patrols (Plate 1) [40-42].

Plate 1: Illegal forest activities in the Masito-Ugalla ecosystem.

Re-emergence of unsustainable practices for forest management was largely associated with inadequate funds which hampered JUWAMA to get reliable transport and communication facilities which were provided during the piloting phase. This concurs with [27] on the grounds that overdependence on donor funding particularly in rolling out participatory forest management renders unsustainable forest activities. This study noted that during the REDD+ pilot, forest patrols were done regularly (weekly), whereas there was often none during the time of the study. As summarized in Table 4, these included fire (13.3%, n=33), shifting cultivation (10.1%, n=25), timbering and illegal logging (9.7%, n=24).

Unsustainable forest utilizations	Frequency	%	Kajeje Frequency	%	Karago Frequency	%	Total Frequency
Fire	29	11.7	2	0.8	2	0.8	33
Shifting cultivation	15	6	4	1.6	6	2.4	25
Timbering and logging	6	2.4	11	4.4	7	2.8	24
N/A	90	36.3	40	16.1	36	15	166
Total	140	56.5	57	23	51	21	248

Table 5: Re-emerging unsustainable forest utilization practices in the MUE.

In addition, an interview with key informants indicated that the district is facing an acute shortage of natural resources officers and finances to effectively manage forests. Elsewhere [27,28] indicated that provision of incentives to conservationists under REDD+ is crucial and its inadequacy can accelerate unsustainable practices for forest degradation especially in deprived adjacent communities who require immediate livelihoods options regardless the consequences [29].

Implications of REDD+ pilot project lessons on future REDD + implementation

The need to pursue REDD+ implementation in future was widely acknowledged by respondents in Kajeje (41.1%), Karago (18.1%) and Mwakizega (17.7%) villages (Table 5).

Village	Need to conserve forests?	Frequency	Percentage
Mwakizega	Yes	102	41.1

	No	0	0
	I don't know	37	14.4
Kajeje	Yes	45	18.1
	No	1	0.4
	I don't know	11	4.4
Karago	Yes	44	17.7
	No	0	0
	I don't know	8	3.2
Total		248	100

Table 6: Respondents perceptions on the need to undertake REDD+.

The accrued benefits at Kajeje and Karago villages as a result of REDD+ pilot project and the earlier SFM interventions in the area could have been a reason for Mwakizega village to realize such benefits and need of engaging in REDD+ activities in future [28]. Also, observe that direct benefits had positive feedback for communities to continue engaging in REDD+ business in Madagascar. In this study, benefits accrued through the REDD+ were either benefit flowed or benefits shared. Benefits flowed were accrued at an individual level, through harvest and sale of the non-timber forest products such as honey, mushrooms, fruits, and medicine (Table 5). Benefits shared involved those received as a reward for demonstrating outstanding forest conservation efforts. These included funds received as part of piloting financing mechanism, whereas Karago villagers acquired the highest share of money and motivated communities in Mwakizega to have future plans of engaging in REDD+ activities. Some of the funds were used for the construction of infrastructure for social services delivery in Kajeje and Karago villages. Both benefits flowed and benefits shared were a reason for villagers' willingness to future REDD+ implementation. Benefits flowed and those shared were described as well for future REDD+ project implementation. Short-term benefits accrued during REDD+ such as allowances from attending training and seminars were acknowledged to be important and an incentive for engaging in REDD+ in the future. Largely, a willingness by communities on REDD+ was due to project achievements in terms of ecosystem conservation, livelihoods improvement including infrastructure construction for social services provision. Despite a considerable number of people expressed interest to participate in future REDD+ project implementation (Table 5), communities contend the need for addressing conflicting interests between key players such as JUWAMA and the district council. Communities observe that sustainability of REDD+ activities will largely depend on efforts to address participation inadequacies and power differences between actors. Participation inadequacies include issues of fairness, transparency, and attentiveness to stakeholder concerns which would erode trust among community members. Whereas transparency and fairness raised concerns on SFM initiatives at the community level, issues of power created an inferiority complex among actors who feel weak (JUWAMA in this case). With regard to lack of transparency, it was apparently described to 'demoralize' participation in future REDD + initiatives to ordinary community members. As a result, these will magnify existing environmental problems in local communities and eventually lead to marginalization less powerful groups in forest, women and the poor to the general [28].

Conclusion and Recommendations

This study attempted to link forest governance and sustainable forest management in order to draw lessons necessary for the future implementation of REDD+ activities. As discussed in previous sections, communities' participation in REDD+ pilot project was three fold, intra village, inter-institutional and representative. Intra-village participation was collaborative and it was appreciated by community members. The third, representative participation involved the selected few community members who linked the governing institutions and local communities. This was described as being more of uneducated vs. elitism. Women participation was less than that of men although they were vibrant in SFM activities. On the other hand, top-down decision-making approaches were evident, whereby decisions on utilization of forest benefits were made at district level without effective consultation with local communities who are principal custodians of the forest at the local level. Other considerations were lack of clarity in roles and responsibilities as well as clarity in the definition of actors according to their importance on forest management costs or benefits sharing, including lack of a clear framework for the sustainability of achieved milestones during REDD pilot phase. We argue that sustainable forest management requires the effective engagement of multi-stakeholders and smooth exit strategy to ensure smooth transfer and sustenance of key achievements. The study recommends that pillars of governance (e.g., transparency, participation, responsibility, accountability, efficiency and the like) should guide visions and approaches for sustainable forest management, including effective engagement of stakeholders in forest management.

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References

1. Corfee MJ, Kamal-Chaoui L, Donovan MG, Cochran I, Robert A, et al. (2009) Cities, climate change and multilevel governance. OECD Environmental Working Papers.
2. Burgess ND, Bahane B, Clairs T, Danielsen F, Dalsgaard S, et al. (2010) Getting ready for REDD+ in Tanzania: A case study of progress and challenges. ORYX 44: 339-351.
3. Jong WDE, Galloway G, Katila P, Pacheco P, Protocol K, et al. (2017) Forestry discourses and forest-based development-an introduction to the Special Issue. Int forest Rev 19: 1-9.
4. Bodansky D, Diringer E (2014) Alternative Models for the 2015 Climate Change Agreement. FNI Climate Policy Perspectives.

5. Jacob T, Brockington D (2017) Learning from the other: Benefit sharing lessons for REDD+ implementation based on CBFM experience in Northern Tanzania. Land Use Policy.
6. Bodansky D, Diringer E (2014) Building Flexibility and Ambition into a 2015 Climate Agreement. Center for Climate and Energy Solutions.
7. Caplow S, Jagger P, Lawlor K, Sills E (2011) Evaluating land use and livelihood impacts of early forest carbon projects: Lessons for learning about REDD+. Environ Sci Policy 14: 152-167.
8. Chiesa F, Dere M, Saltarelli E, Sandbank H (2009) UN-REDD in Tanzania. Project on reducing emissions from deforestation and forest degradation in developing countries. Johns Hopkins School of Environmental International Studies.
9. Asfaw A, Lemenih M, Kassa H, Ewnetu Z (2013) Importance, determinants and gender dimensions of forest income in eastern highlands of Ethiopia: The case of communities around Jelo Afromontane forest. For Policy Econ 28: 1-7.
10. Kimaro J, Lulandala L (2013) Contribution of non-timber forest products to poverty alleviation and forest conservation in Rufiji District-Tanzania. Livestock Res Rural Dev 25: 1-4.
11. Anthony B, Treue T, Salim SS, Manjusha U (2014) Benefit-sharing and community participation dynamics in forest management Antony. Discovery Nature 7: 15-26.
12. Corbera E, Martin A, Springate-Baginski O, Villasenor A (2017) Sowing the seeds of sustainable rural livelihoods? An assessment of Participatory Forest Management through REDD+ in Tanzania. Land Use Policy.
13. Lund JF, Sungusia E, Mabele MB, Scheba A (2017) Promising change, delivering continuity: REDD+ as conservation fad. World Development 89: 124-139.
14. Cronkleton P, Bray DB, Medina G (2011) Community forest management and the emergence of multi-scale governance institutions: Lessons for REDD+ development from Mexico, Brazil and Bolivia. Forests 2: 451-473.
15. Lawlor K, Madeira EM, Blockhus J, Ganz DJ (2013) Community participation and benefits in REDD+: A review of initial outcomes and lessons. Forests 4: 296-318.
16. Global Forest Coalition (2009) REDD Realities: How strategies to reduce emissions from deforestation and forest degradation could impact on biodiversity and indigenous peoples in developing countries.
17. Adhikari S, Kingi T, Ganesh S (2014) Incentives for community participation in the governance and management of common property resources: The case of community forest management in Nepal. For Policy Econ 44: 1-9.
18. Gaventa J, Valderrama C (1999) Participation, citizenship and local governance. Strengthening Participation in Local Governance. Institute of Development Studies 21: 1-16.
19. Arts B, Buizer M (2009) Forests, discourses, institutions. A discursive-institutional analysis of global forest governance. For Policy Econ 11: 340-347.
20. Caroline TA, Drayton JL (1988) Conducting focus groups–A guide for first-time users. Marketing Intelligence and Planning 6: 5-9.
21. Arts B (2014) Assessing forest governance from a "Triple G" perspective: Government, governance, governmentality. For Policy Econ 49: 17-22.
22. Bohringer A, Ayuk ET (2003) Farmer nurseries as a catalyst for developing sustainable land use systems in southern Africa. Part B: Support systems early impact and policy issues. Agricultural Systems 77: 203-217.
23. MacDicken KG, Sola P, Hall JE, Sabogal C, Tadoum M, et al. (2015) Global progress toward sustainable forest management. Forest Ecol Manag 352: 47-56.
24. Asher K, Shattuck A (2017) Forests and Food Security: What's Gender Got to Do with It. Soc Sci 6: 34-35.
25. Chinangwa L, Sinclair F, Pullin AS, Hockley N (2016) Can co-management of government forest reserves achieve devolution? Evidence from Malawi. Forests Trees and Livelihoods 25: 41-58.
26. Blomley T, Iddi S (2009) Does participatory forest management promote sustainable forest utilisation in Tanzania. Int Forest Rev 16: 23-38.
27. Albert A, Monga E (2014) Forest Justice in Tanzania, are district officials okaying their part in providing forest justice un Tanzania? A report on survey on forest governance at district level. Forest Justice in Tanzania.
28. Holmes I, Potvin C, Coomes OT (2017) Early REDD+ implementation: The journey of an indigenous community in Eastern Panama. Forests 8: 67-68.
29. Agrawal A, Cashore B, Hardin R, Shepherd G, Benson C, et al. (2013) Economic contributions of forests. Background paper prepared for the United Nations Forum on Forests.
30. Akida A, Mnangwone I, Lyimo L (2012) Financing for sustainable forest management in Tanzania, United Nations.
31. Awono A, Somorin OA, Eba'a Atyi R, Levang P (2014) Tenure and participation in local REDD+ projects: Insights from southern Cameroon. Environ Sci Policy 35: 76-86.
32. Bohringer A, Ayuk ET (2003) Farmer nurseries as a catalyst for developing sustainable land use systems in southern Africa. Part B: Support systems early impact and policy issues. Agricultural Systems 77: 203-217.
33. Boscolo M, Dijk VK, Savenije H (2010) Financing sustainable small-scale forestry: Lessons from developing national forest financing strategies in Latin America. Forests 1: 230-249.
34. Chandler W, Schaefer R, Dadi Z, Shukla PR, Tudela F, et al. (2010) Climate change mitigation in developing countries Brazil, China, Mexico, South Africa, and Turkey. Adventure Tourism Management.
35. Cronkleton P, Saigal S, Pulhin J (2012) Co-management in community forestry: How the partial devolution of management rights creates challenges for forest communities. Conserv Soc 10: 91-102.
36. Haites E, Yamin F, Hohne N (2013) Possible elements of a 2015 legal agreement on climate change the need to know where we are going.
37. Jaesoo B, Cheolmin K, Yeonsu K, Latifah S, Afifi M, et al. (2014) Opportunities for implementing REDD+ to enhance sustainable forest management and improve livelihoods in Lombok, NTB, Indonesia.
38. Kweka DK (2009) Building REDD Readiness In the Masito Ugalla ecosystem pilot area in support of Tanzania's National REDD Strategy.
39. Kahyarara G, Mbowe W, Kimweri O (2002) Poverty and deforestation around the gazetted forests of the coastal belt of Tanzania. REPOA.
40. Matricardi EAT, Skole DL, Pedlowski MA, Chomentowski W, Fernandes LC (2012) Assessment of tropical forest degradation by selective logging and fire using Landsat imagery. Remote Sensing of Environment 114: 1117-1129.
41. Rashid SH, Biswas SR, Bocker R, Krused K (2009) Mangrove community recovery potential after catastrophic disturbances in Bangladesh. Forest Ecol Manag 257: 923-930.
42. Makatta AA, Maganga FP, Majule AE (2015) A hidden pitfall for REDD: Analysis of power relation in participatory forest management on whether it is an obstacle or a reliever on REDD pathway. Inte J For Res 15: 1-12.