

Sustainable Forest Management for Local Livelihood Support, Biodiversity Conservation and Carbon Sequestration

Institutional Arrangements and Contextual Socioeconomic Conditions Associated with Sustainable Forest Social Ecological Systems: A Case Study of Kenya's Participatory Forest Management Model

Kasaon Stephanie
PhD Student, Sophia University
s-kasaon-3tf@eagle.sophia.ac.jp

The biggest questions in development today have to do with how to prevent climate and ecological collapse without increasing the crushing burdens on the poor. The Sustainable Development Goals (SDGs) are designed to address these questions. Sustainable Forest Management is one of the goals enshrined in SDG goal 15 and is also included in the Global Forest Goals and Targets of the UN strategic plan for forests 2030 that are aimed at contributing to progress on the SDGs and integrate the economic, social and environmental dimensions.

Forests are critical to livelihoods and essential to sustainable agriculture, biodiversity conservation and climate change response. They also contribute to water and air quality and energy needs. Forest management has seen alternating policies emphasize the state, user groups, or markets as essential for solving forest management problems. Each of these systems has had its successes and failures in varying contexts. Panaceas are therefore discouraged as solutions in natural resource management.

Community Forest Management (CFM) is more reflective of local conditions. It creates better incentives for people to comply with rules on their own accord, leading to better management of the forests. The objectives of CFM are closely correlated with those of REDD+, a climate change mitigation solution. They both aim to conserve forests, resulting in greater carbon sequestration and biodiversity conservation, and to support local livelihoods. It is, therefore, necessary to understand the extent to which the existing institutional arrangements and contextual socioeconomic conditions around community-managed forests are already associated with sustainable forest social-ecological systems for better management strategies as well as a critical step in the design and implementation of the REDD+ mechanism in these forests. This research operationalises the Social Ecological Systems (SES) Framework in community-managed forests in Kenya for this task.

PARTICIPATORY FOREST MANAGEMENT IN KENYA

Kenya passed the Forest Act in 2007 that allowed forest-dependent communities through Community Forest Associations (CFAs) to manage state forests in collaboration with the Kenya Forest Service. The main objectives were Sustainable Forest Management and livelihood improvement. PELIS scheme was started in 2008 through the CFAs. This scheme involved giving the forest adjacent communities pieces of forest land to grow crops while planting seedlings for three years, when the seedling would have formed a canopy. There are also considerations in using CFAs in the design and implementation of REDD+. Studies have shown that Community Forest Associations are vulnerable to elite capture, poor representation and downward accountability. They also increase burdens on the poorest households through membership fees and increased rule enforcement (Mutune, Hansen, Wahome, & Mungai, 2017). A task force report was released in 2018 that highlighted the ineffectiveness of the Kenya Forest Service in protecting the forests due to limited capacity of law enforcement and compliance. It also highlighted the rampant illegal logging of indigenous trees in crucial forests. It recommended removing illegal squatters and resettling forest-dwelling communities, progressive phasing out of the PELIS scheme, and removing harvesting of timber as a CFA user right (Forestry, 2018). These recommendations directly affect the forest-dependent communities, and it is crucial to get a clearer picture on the ground.

To this end, the research focussed on two main objectives:

- To analyse the effects that contextual biophysical, socioeconomic and institutional factors have on social and ecological outcomes
- To analyse their potential as implementers of climate change mitigation instruments such as REDD+

This translated into two main research questions:

- What are the factors affecting Participatory Forest Management and outcomes in Kenya?
- What is the potential of Participatory Forest Management in the design and implementation of REDD+?

METHODS

Empirical fieldwork was guided by the Social Ecological Systems (SES) framework (Ostrom, 2009) and data was obtained from 452 household surveys, 18 Community Forest Association surveys, 18 Forest Station surveys and 55 settlement surveys. Surveys were adapted from the International Forestry Resources and Institutions Research Program's instruments (IFRI, 2013). In household surveys, systematic random sampling was used where every fifth house was

selected. The fieldwork was conducted in the North Rift Conservancy in Kenya. It contains important catchment areas, is home to indigenous hunter-gatherer communities and contains one of the largest blocks of remaining indigenous forests.

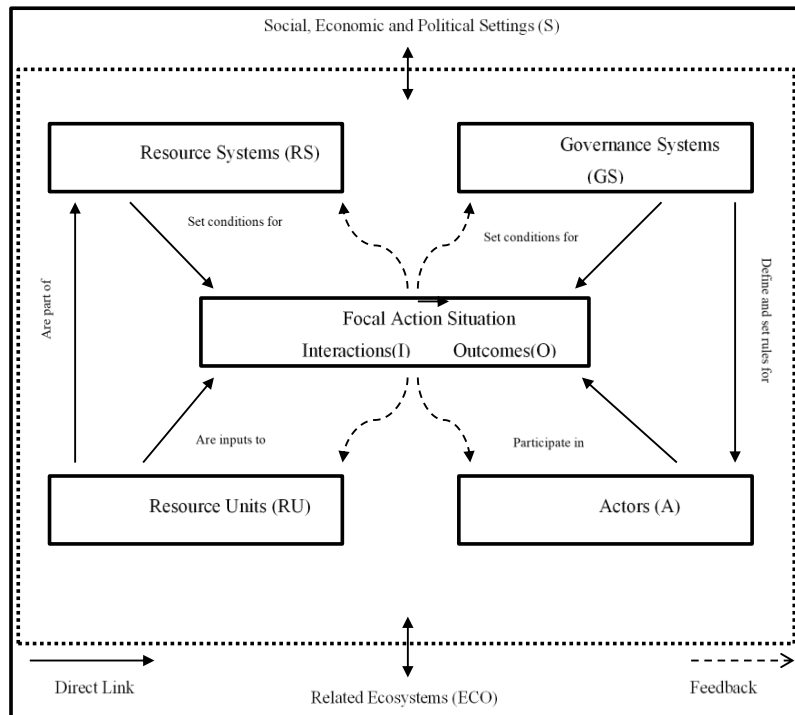


Figure 1: Social Ecological Systems (SES) Framework

The SES framework (Figure 1) is a diagnostic approach put forward by Elinor Ostrom, and other scholars that provides a list of generalisable variables argued to influence the sustainability of Social Ecological Systems. It contains six major components describing the characteristics of attributes involved in resource governance, namely: Resource Systems, Resource Units, Actors and Governance Systems. The Focal Action Situation consists of boundedly rational actors in various positions, having access to knowledge and interacting with one another to affect outcomes.

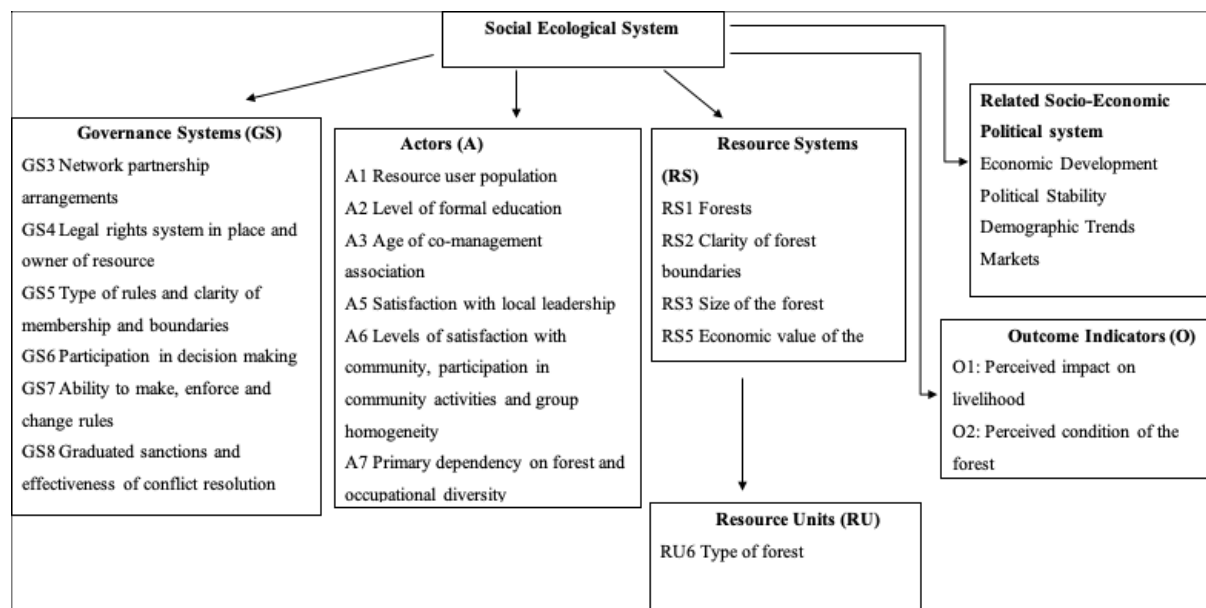


Figure 2: Second-tier variables of the SES framework

The second-tier variables (Figure 2) give more information about the main components.

RESULTS

The SES framework was adapted during data analysis in order to capture the relevant phenomenon in the case study.

Ecological Outcomes

A majority of households, as well as foresters, indicated that the condition of the forests had improved. However, most of the forest areas remained the same in the past five years (Figure 3, Figure 4, Figure 5, Figure 6).

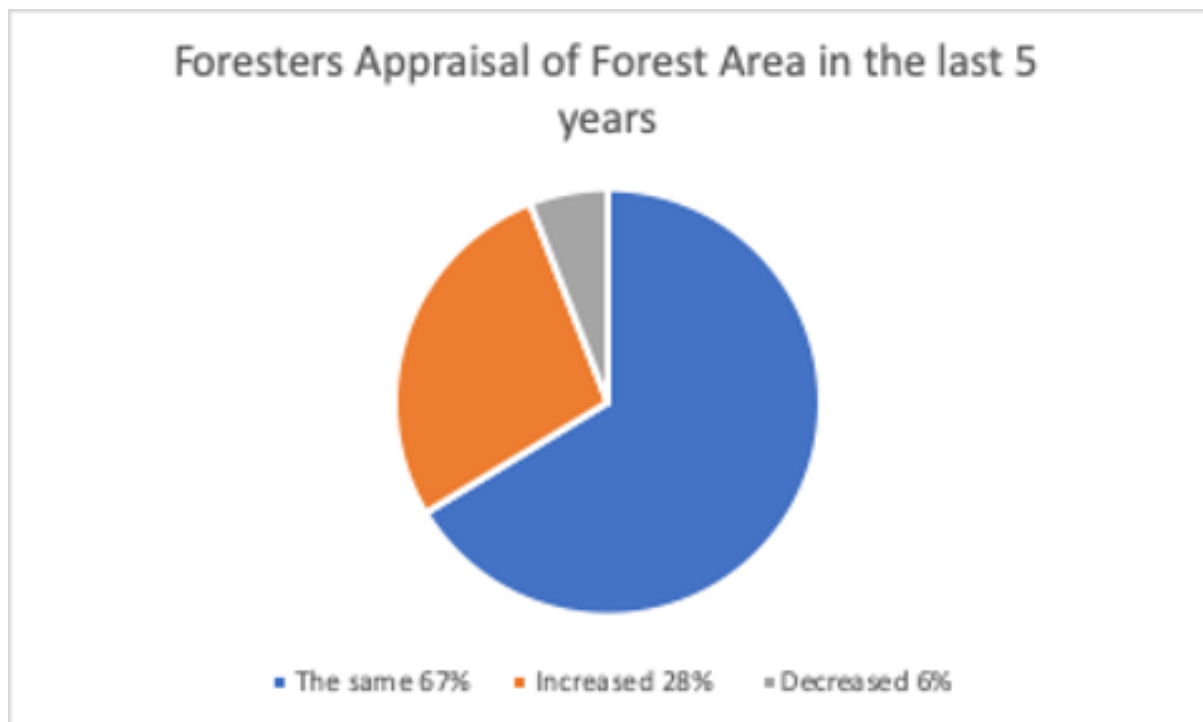


Figure 3: Foresters Appraisal of Forest Area in the last five years

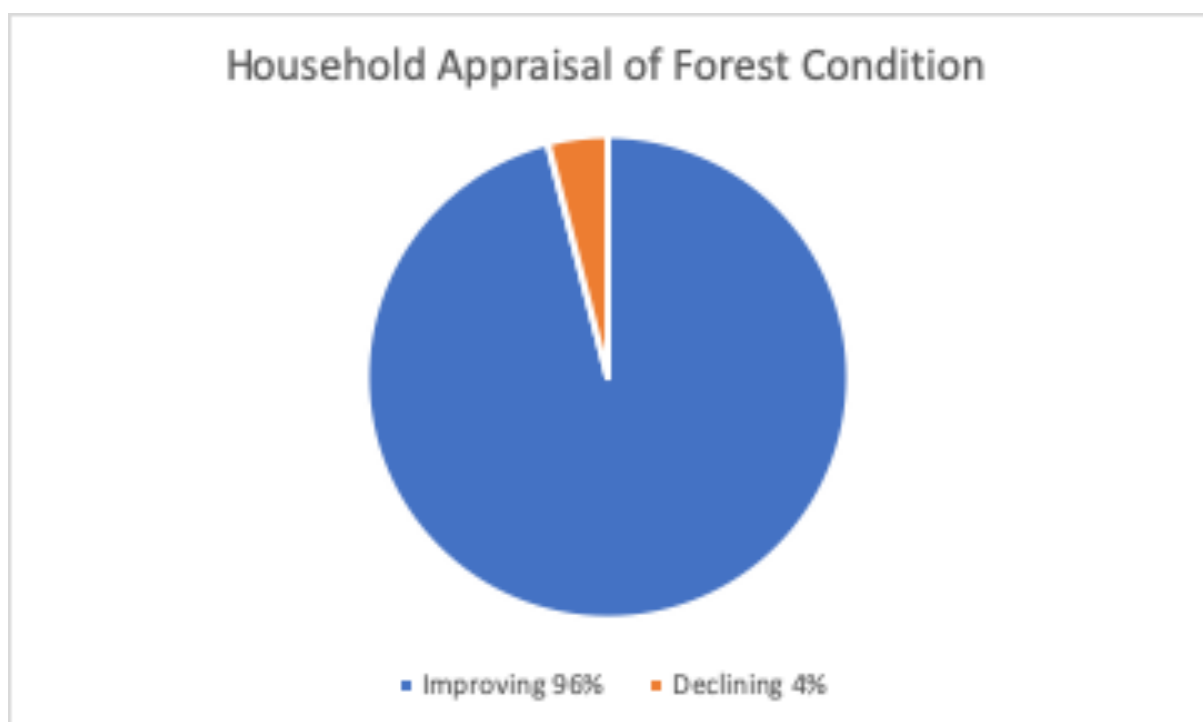


Figure 4: Household Appraisal of Forest Condition

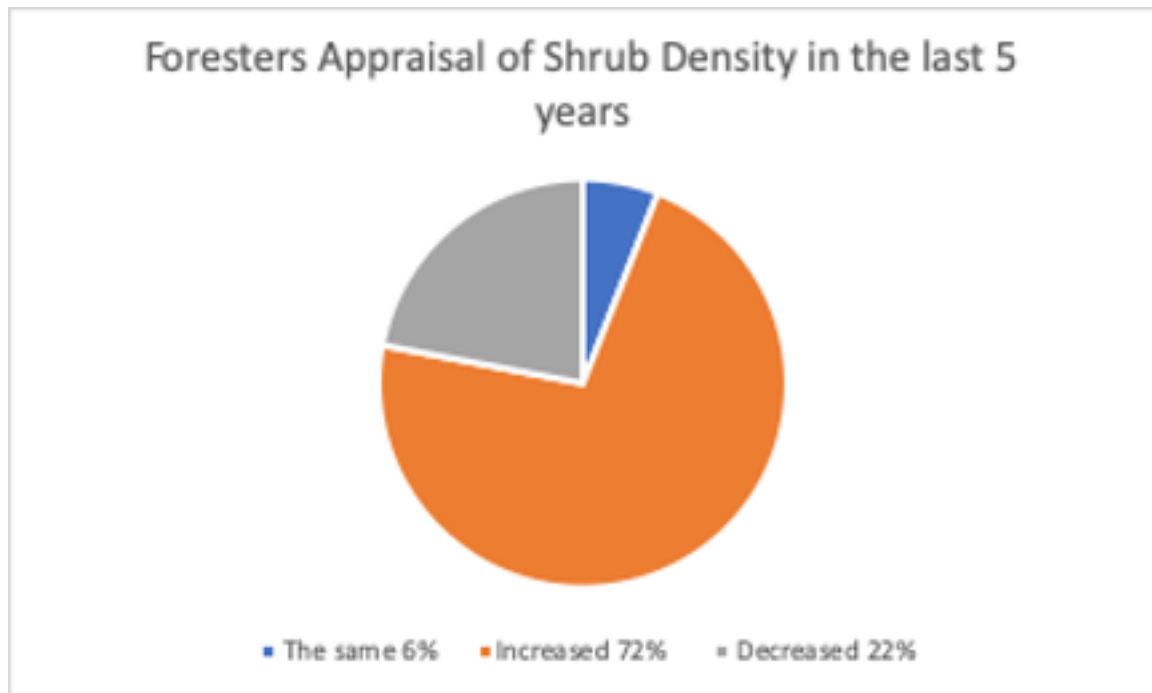


Figure 5: Foresters Appraisal of Shrub density in the last five years

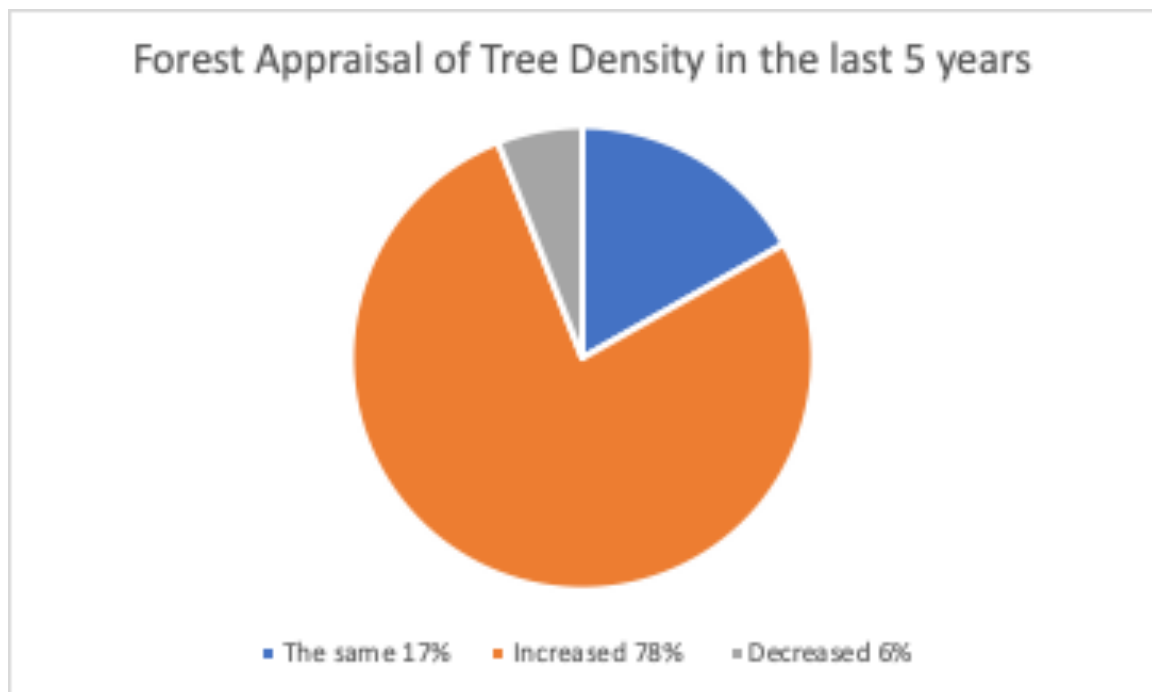


Figure 6: Foresters Appraisal of tree density in the last five years

The improved condition of the forests is attributed to the following contextual factors:

- The importance of the forests to the subsistence and commercial needs of the community.
- Knowledge of Participatory Forest Management rules.

- Frequent interactions and meetings where forest management information and strategies are shared.
- Existing rules and restrictions regarding harvesting, fire management, infrastructure changes, types of seedlings or seeds planted.
- Community monitoring.
- Investment in forest improvement, including afforestation and deforestation.
- Clarity and fairness of forest management rules.
- High compliance with operational rules.
- Major policy shifts including forest evictions, entrance restrictions, cancelling user and withdrawal rights, and harvesting bans.
- Fairly applied penalties and sanctioning mechanisms

Social Outcomes

A majority of the households indicated that Participatory Forest Management had had an overall positive impact on their livelihoods (Figure 7). Forest incomes also contribute an average of 11% of the total annual household income (Figure 8).

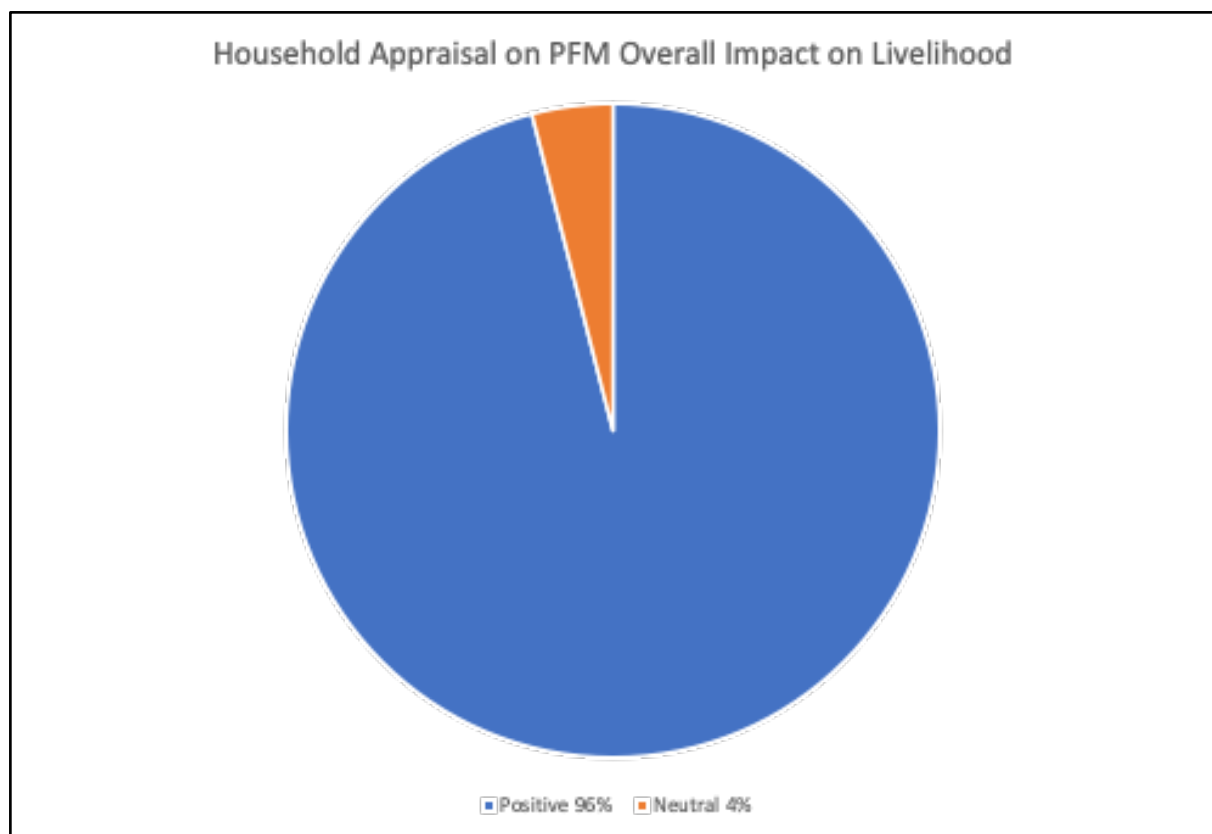


Figure 7: Household appraisal on PFM overall impact on Livelihood

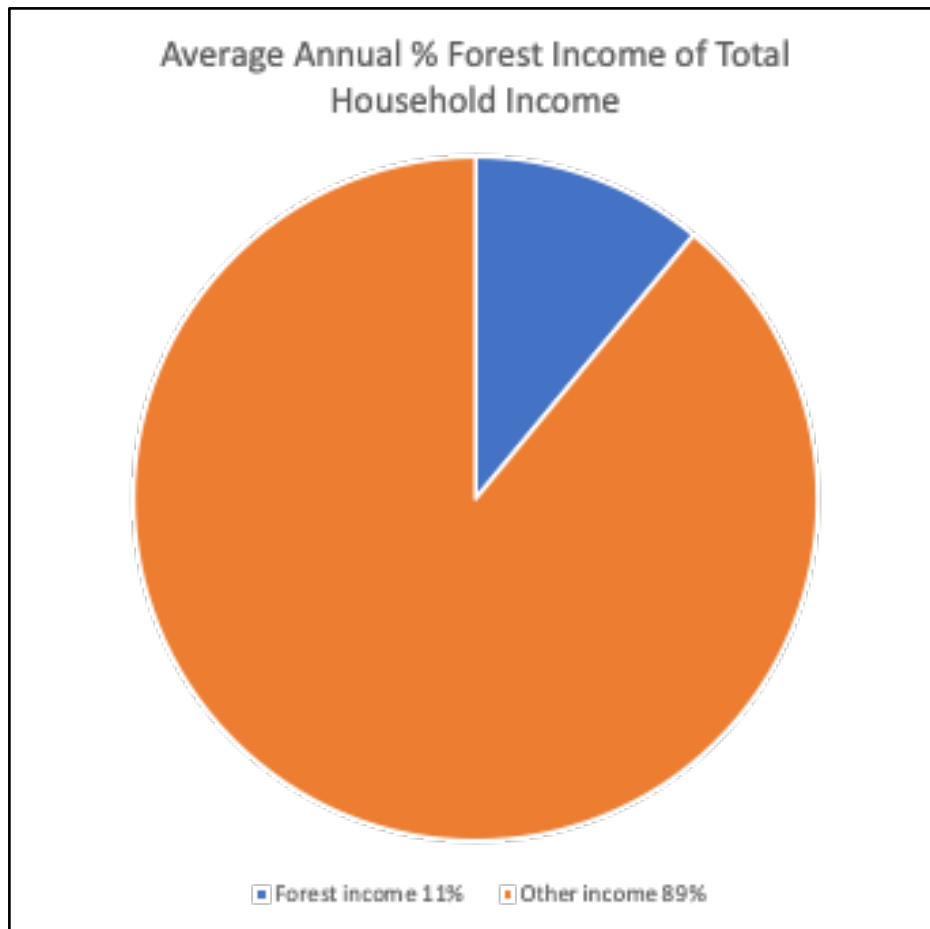


Figure 8: Forest contribution to annual household income

The social outcomes are attributed to the following contextual factors:

- Increased food security through the PELIS scheme
- A reduction in conflicts in the area attributed to the community's conflict resolution mechanism connected with CFAs
- Increased human capital through training by the Kenya Forest Service in forest management
- Increased social capital through forming local rules and sanctions
- Including women and indigenous communities in CFA activities and leadership positions
- Equal access and withdrawal rights
- High levels of satisfaction with community members in forest management activities

There are however, several factors to note:

- There is no legally defined benefit-sharing mechanism between the Kenya Forest Service and the CFAs. The Kenya Forest Service benefits disproportionately from forest revenues, with the CFAs benefitting mostly from subsistence use. The community stands to benefit more from the forests.
- There has been a logging ban in the forests since 2018. Prior to the ban, the bidding system for logging concessions marginalised forest-dependent communities and favoured connected wealthy businessmen.

DISCUSSION AND CONCLUSION

From the research, it seems that ecological outcomes are prioritized above social outcomes. This is evident from the tough forest harvest restrictions as well as cancellation of the user and withdrawal rights, arbitrarily applied by the Kenya Forest Service without consulting the CFAs. There has also been minimal devolution of forest management rights as CFAs can only negotiate for basic forest management rights such as making decisions on access and forest product fees. The CFAs also have limited autonomy in entering into partnerships with other entities- the Kenya Forest Service has to approve. A step forward would include complete devolution of forest management rights to the communities through the CFAs through various phases to give room for training and capacity building. The community should also be able to enjoy their legal user rights as per the Forest Act. This could be done by giving CFAs autonomy in forest management while enforcing minimal environmental standards. This way, both the ecological and social dimensions are put on equal footing.

Potential for REDD+

To evaluate the potential of existing PFM arrangements, their effectiveness, efficiency and equity were considered.

Effectiveness

- There was a high level of rule compliance in the area
- There were practical measures of reducing deforestation and forest degradation: investment activities, afforestation and reforestation

Efficiency

- The CFAs were responsible for their starting and running costs

Equity

- There was no legally defined benefit-sharing mechanism between the Kenya Forest Service and the CFAs

The community through the CFAs were involved in activities that aimed to improve the forest condition. This is important in REDD+ projects to ensure actual emissions reduction. They however receive little or no external funds and the CFA is responsible for its starting and running costs. This could impose a burden on the CFAs during REDD+ implementation if funds are not availed to them during the span of the program. Implementing REDD+ projects in these areas with the existing institutional arrangements also raises some concerns:

- Introduction of stricter forest harvest restrictions to maintain the carbon sequestration potential of the forests
- Re-centralisation of forest management to make it easy for the state to take control of the projects
- State capture of benefits and revenue accruing from the projects in the absence of a legally defined benefit sharing mechanism

Existing institutional gaps should be addressed before designing and implementing REDD+ projects in the area.

References

- Forestry, M. o. E. a. (2018). *Taskforce Report on Forest Resources Management and Logging Activities in Kenya*. Retrieved from Kenya:
- IFRI. (2013). *International Forestry Resources and Institutions (IFRI) network: research methods*. .
- Mutune, J. M., Hansen, C. P., Wahome, R. G., & Mungai, D. N. (2017). What rights and benefits? The implementation of participatory forest management in Kenya: The case of Eastern Mau Forest Reserve. *Journal of sustainable forestry*, 36(3), 230-249.
- Ostrom, E. (2009). A general framework for analyzing sustainability of social-ecological systems. *science*, 325(5939), 419-422.