

## Community Engagement and Forest Conservation in Sri Lanka

S.H.S.M.Siriwardana

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**Abstract:** Community engagement is essential for the conservation and sustainable management of forest ecosystems, especially in countries such as Sri Lanka, where rural populations depend significantly on forest resources. This study examines the relationship between community involvement and forest conservation efforts, emphasizing successful projects and obstacles encountered in Sri Lanka.

In order to manage forests sustainably in the face of mounting demand from deforestation, increased agricultural production, and development initiatives, local communities must be involved. Realizing that locals are important stakeholders in forest conservation initiatives as well as its stewards, Sri Lanka has implemented a number of initiatives to encourage this involvement. Forest areas are given ownership or management rights to local communities. It is suggested for communities to preserve the ecosystem while making sustainable use of forest resources for their livelihoods. It is now well acknowledged that local people's contributions to forest management are preferable to the conventional command-based control strategy. But after a few years of implementation, the majority of initiatives collapsed because the community did not participate, leaving community forestry with an uncertain future. This study looks at the intention of Sri Lankans to participate in community forestry programs. The results also showed that there is still much to learn about the goals of the policy-making process and the community participation and forest conservation program. Therefore, in order to increase awareness, require quick attention. Furthermore, if locals are not encouraged to participate in this duty, government initiatives may be insufficient or ineffectual. In order to guarantee that community-based forest management policies are uniformly applied at all administrative levels across the nation, the Department of Forest Conservation should take sensible steps and rigorously assess their appropriateness.

**Keywords:** Community, ecosystems, deforestation, initiatives

### INTRODUCTION

Early in the 1980s, Sri Lanka's community forestry program was established in response to a global movement to preserve forest resources while assisting the local populace. It has been discovered that the forest conservation program significantly lowers the incidence of invasive species and forest fires. An increasing number of academics worldwide confirm several reasons why forest management and conservation work well together. For example, compared to state-level management, community management typically uses less money and resources to preserve and protect forests. The local population has benefited from the forest protection effort by having access to subsistence supplies and a potential route out of poverty.

Even though forest conservation programs have benefits like increasing rural incomes, social stability, and forest condition, as well as gradually lowering deforestation rates compared to protected forests and assisting in the maintenance and restoration of forest resources, community-based approaches have had uneven results, with questions raised primarily about the benefits of enhanced income and livelihood in developing Asian nations. An area with a high tree density is called a forest. Large swaths of the planet's plant groups serve as habitat,

*Masters scholar, School of Humanities, Arts and Social Sciences, Murdoch University, Western Australia*

oxygenators, carbon sinks, and soil retainers. As a result, one of the most significant components of our ecosystem is Earth's forests. Developing nations worldwide are pushing for more decentralization of natural resource management as a reaction to growing worries about the state-managed forests' degradation. The tendency has changed away from the State-centric policies that were supported throughout the world and toward promoting local communities' participatory systems of government.

According to the studies, local communities' involvement in forest management improves the conditions of the forests since their traditional knowledge—particularly with regard to the environment—can help with the creation and use of proactive management plans. Additionally, because they can enter woods, they have an easier time keeping an eye out for and taking action against illicit and irresponsible usage of forests and resources. Studies have found both beneficial and negative effects of forest conservation on the environment and local socioeconomics, yet the evidence is conflicting [1, 2].

The fact that measuring the effects on the environment is far more difficult is a major contributing factor to this disparity [3]. A review of the literature revealed that enhancing forests and their resources can be achieved through forest conservation. Programs for forest conservation may be able to preserve and enhance the forest environment, according to studies. The

socioeconomic efficacy of community-based forest management at the individual and community levels has been thoroughly studied during the development of the CF program in Sri Lanka [4]. According to a number of field studies, the livelihood benefits offered by CF helped to improve rural communities' standards of living [5] maximize the use of available resources locally, and support financial transactions that were community-oriented.

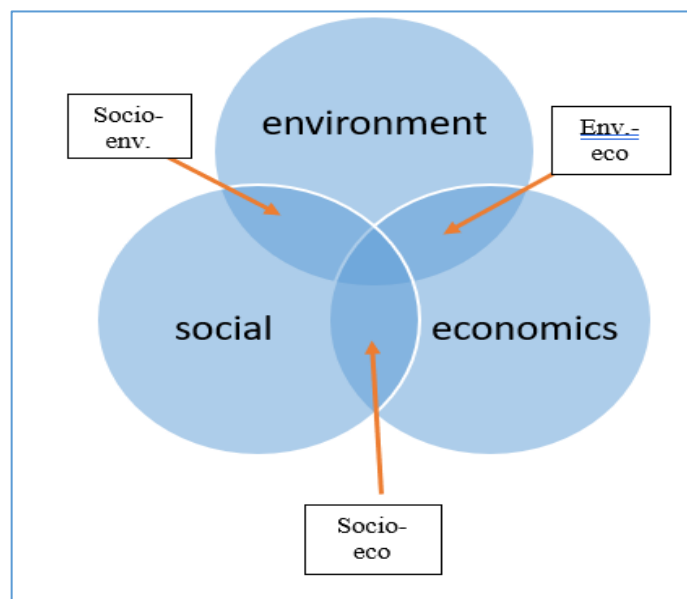
The history of human involvement with Sri Lanka's woods is extensive. Sri Lankan inhabitants have always had a strong bond with nature and have respected their forests. But deforestation has grown to be a serious worry as a result of industrialization, agricultural growth, and urbanization. Traditional practices-based community-based initiatives are currently being re-examined as forest conservation techniques.

The government of Sri Lanka has put in place a number of laws to protect forests, including the Fauna and Flora Protection Ordinance and the Forest Ordinance. However, due to a lack of funding and illicit operations like logging, enforcement frequently faces difficulties. By giving locals, the authority to manage forest resources, community involvement enhances conservation efforts.

## WORK FRAME

Various methods of community participation are employed to involve them in the preservation of forests.

- **Collaborative Management:** To manage protected areas and meet the requirements of both people and nature, local communities, governmental entities, and conservation organizations collaborate.



**Fig. 1** Collaborative management practice

- **Awareness Programs:** Spreading knowledge about the value of biodiversity and forest ecosystems among communities encourages a stewardship mentality.
- **Involving Women and Indigenous groups:** Sustainable resource management and conservation strategies heavily rely on women and indigenous groups, who frequently possess firsthand knowledge of forest ecosystems.

Figure-1 is showing collaborative management practice for community participation in Sri Lankan forests.

In Sri Lanka, co-management, often referred to as collaborative management, has shown to be a successful approach for protecting forests, particularly in locations where populations reside inside or close to forested areas. It entails local communities, governmental organizations,

and occasionally non-governmental organizations sharing management duties for forest resources. This strategy addresses community needs while ensuring sustainable forest usage by fusing scientific management techniques with indigenous knowledge. This has been especially important in Sri Lanka, where rural residents depend on forests for food, fuel, and other resources. The demands of these people have frequently been disregarded by traditional top-down forest management techniques, which has resulted in conflict, unauthorized resource exploitation, and degradation.

Further Sustainable management requires involving communities in forest conservation through awareness campaigns. Figure-2 is showing awareness programs/schemes that country has adopted.



**Fig.2 Awareness program of forest conservation with community participation**

Here are a few successful strategies that create awareness about forest conservation through community.

- **Training and Workshops:** Hold training sessions to inform local people on the value of forests, biodiversity, and ecosystem services. Incorporate instruction on sustainable methods like agroforestry and conscientious land management.
- **School Programs:** Through field trips, hands-on instruction, and tree-planting activities, include forest education into school curricula. This fosters in the next generation a sense of accountability.
- **Campaigns for Public Awareness:** Disseminate information on the value of forests and the dangers they face using posters, social media, and local radio. Emphasize regional achievements to spur action.
- **Participatory Mapping:** Map the resources and hazards to the area's forests with the help of the community. They get the ability to better comprehend the environment and take charge of conservation initiatives as a result.
- **Cultural Events:** Use storytelling, artwork, and performances to spread the word about forest

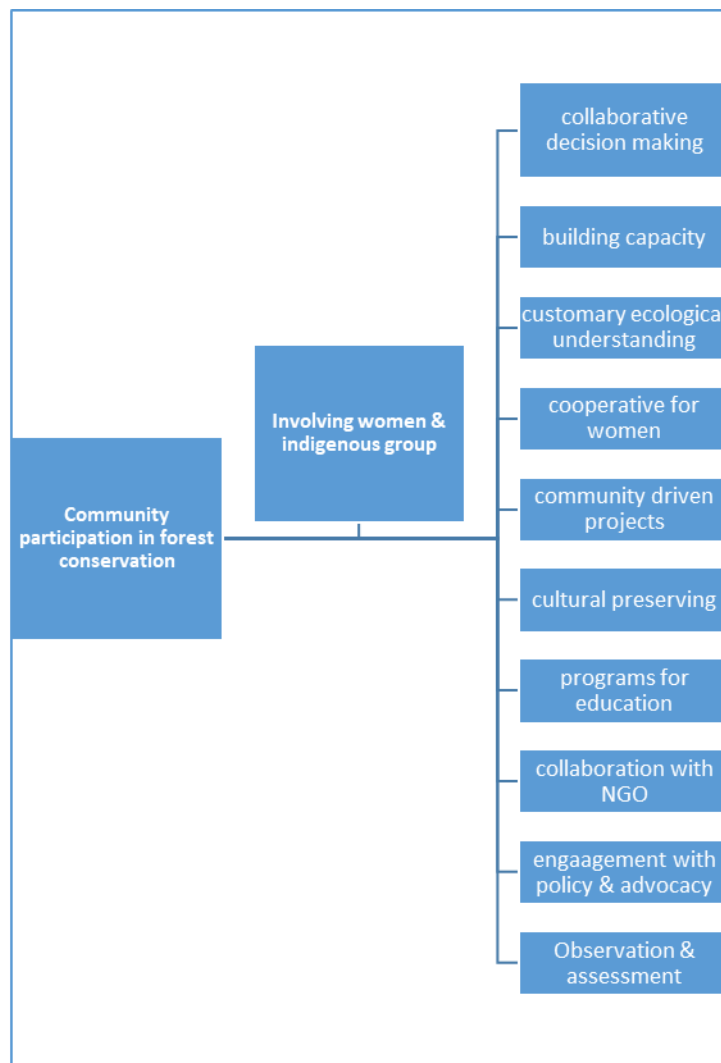
protection during regional festivals and cultural events.

- **Collaborations with non-governmental organizations:** Work together with non-profit organizations that focus on conservation education. They can offer the tools and knowledge you need to improve your programs.
- **Incentive Programs:** Establish initiatives that provide cash incentives for reforestation or other sustainable practices.

Encourage community members to get involved in citizen science projects by having them monitor the health of the forests and wildlife. This active participation raises funds and awareness for conservation.

The modern approach of community involvement in forest conservation also focusing on indigenous women and indigenous groups to encourage some goal-oriented activities to make fruitful results.

Figure-3 is showing chart of the activities that involved with women and indigenous groups to enhance forest conservation in Sri Lanka. Some strategies are described as below.



**Fig.3** Involving women & indigenous groups scheme

- **Collaborative Decision-Making**

**Goal:** Make sure the opinions of women and indigenous people are acknowledged when managing forests.

**Activities:** Arrange inclusive get-togethers and seminars where members of these communities can exchange ideas, concerns, and knowledge.

- **Building Capacity**

**Goal:** Give women and Native American leaders the information and abilities they need.

**Activities:** Offer instruction on biodiversity preservation, climate change adaptation, and sustainable land management.

- **Customary Ecological Understanding**

**Goal:** Integrate traditional methods into conservation plans.

**Activities:** Record and disseminate customary knowledge about the conservation of species and forest management.

- **Cooperatives for Women**

**Goal:** Give women more social and economic power.

**Activities:** Establish cooperatives specializing in handicrafts, ecotourism, or the sustainable collection of non-timber forest products.

- **Community-driven Projects**

**Goal:** Promote community-based conservation initiatives.

**Activities:** Provide support for forestry, animal monitoring, and habitat restoration initiatives started by women and indigenous organizations.

- **Cultural Preserving**

**Goal:** Preserve traditional forest-related behaviors among indigenous people.

**Activities:** Encourage cultural celebrations that honor customs and draw attention to how important they are to environmental preservation.

- **Programs for Education**

**Goal:** Increase knowledge and comprehension of forest conservation.

**Activities:** Put in place educational initiatives that

highlight the contributions that indigenous communities and women make to sustainable practices.

- **Collaborations with non-governmental organizations**

**Goal:** Make use of resources and experience.

**Activities:** To strengthen community participation initiatives, work with non-governmental organizations that focus on gender and indigenous rights.

- **Engagement with Policy and Advocacy**

**Goal:** Have an impact on laws pertaining to the preservation of forests.

**Activities:** Assist female and indigenous leaders in their lobbying for environmental and land rights.

- **Observation and Assessment**

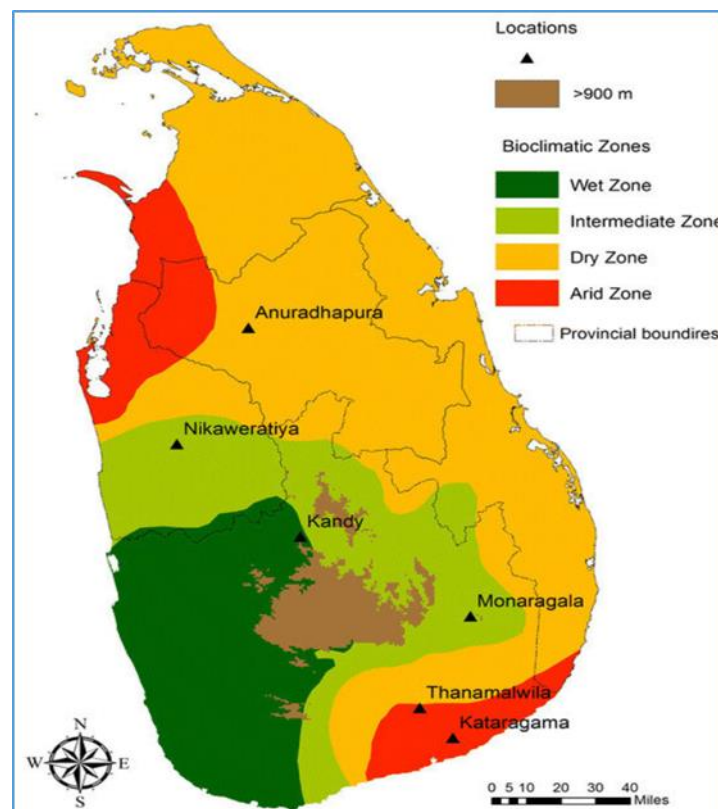
**Goal:** Evaluate the results of conservation initiatives.

**Activities:** Engage women and members of indigenous communities in the monitoring of biodiversity.

## CLIMATE STUDY OF COUNTRY

### ▪ Geographical study area

To study the forest conservation with community participation in Sri Lanka, it is necessary to study the climate study in the country based on different geographical areas. Based on seasonal rainfall, Sri Lanka is separated into three main climatic zones: dry, wet, and intermediate. In the IZ, there is a brief but less noticeable dry season between 1,750 and 2,500 mm of annual precipitation on average [6]. The IZ experiences high temperatures in July and August, with an average temperature of 30°C, with a range of 28°C to 32°C. The IZ is separated into three elevation-based zones due to topographic variation: low country (i.e., 0–300 m), mid-country (i.e., 300–900 m), and upcountry (i.e., over 900 m). The predominant soil types in the region are reddish-brown earth and reddish-brown latosols [6]. The IZ has a distinct vegetation distribution due to factors such as climate, topography, and geological conditions.



**Fig.4** Climatic map of Sri Lanka (Ref. Map of Sri Lanka showing climatic zones and sample collection sites)

However, the southeastern and northwest regions of the IZ have more deciduous or semi-evergreen character in their forest canopy due to the prevalence of deciduous species there compared to the central and northern regions [7]. The three primary farming practices in the IZ are shifting (also known as Chena crop) agriculture, vegetable cultivation, and paddy farming. There is therefore a dichotomy between the utilization of forest resources and agricultural

productivity in the IZ as a result of agriculture being the primary cause of forest land invasion [8].

### CASE STUDY APPROACH

This research paper's part will examine how community involvement is essential to Sri Lankan Forest conservation initiatives using a qualitative case study methodology. For a thorough knowledge of the dynamics of community engagement and how many stakeholders, including local

communities, governmental organizations, and non-governmental organizations, work together to manage woodlands sustainably, a case study approach is indispensable. The goal of the qualitative case study method is to comprehend intricate phenomena in the context of actual occurrences. It entails obtaining comprehensive, rich data from a variety of sources, including observations, interviews, and document analysis. This method will enable us to learn about the unique experiences of communities involved in different forest management projects in the context of forest conservation. The qualitative case study approach will be used to examine the following significant forest conservation initiatives in Sri Lanka. Every case study will shed light on various facets of local participation in forest management.

### 1. Sinharaja Forest Reserve

Sinharaja Forest Reserve is located in South-western Sri Lanka side, and it is UNESCO World Heritage Site. The Sinharaja Forest's surrounding local populations engage in ecotourism, reforestation, and biodiversity preservation. The importance of indigenous knowledge in preserving forest ecosystems and threatened species. Communities' struggles to strike a balance between environmental preservation and financial gains.

### 2. Knuckles Mountain Range Conservation Area

Knuckles mountain range is located in central Sri Lanka which is famous for its diverse ecosystem. Agroforestry, forest restoration, and sustainable agriculture are practices carried out by local farmers and indigenous communities. This hilly area, sometimes called the "Knuckles Conservation Forest," is a shining example of how local populations' lives may be supported while the environment is successfully preserved through community-based conservation efforts and sustainable land management techniques. Environmental changes and human activity pose multiple risks to the Knuckles Mountain Range.

The main reasons of conservation challenges are deforestation & land degradation, illegal logging, unnecessary crop cultivation, and rising climate/temperature pattern. However, many forest conservation projects have targeted the Knuckles Mountain Range, with a focus on sustainable resource management and community involvement. These initiatives seek to enhance the quality of life for the nearby populations that depend on the forest for their livelihoods while preserving the region's biodiversity.

### 3. Kanneliya Forest Reserve

Kanneliya Forest Reserve is situated in southern Sri Lanka regions. In addition to community-based tourism, communities harvest non-timber forest products, such as spices and medicinal plants. NGOs' function in training and

capacity-building to improve community involvement. This reserve offers a priceless illustration of how government-NGO cooperation, sustainable resource use, and community involvement can all support successful forest conservation. Like the Sinharaja Forest, the Kanneliya Forest is a tropical lowland rainforest and one of the rare remnants of the island's original rainforest. Being home to a variety of habitats, the forest is recognized as a hotspot for biodiversity, especially for rare and endangered species.

## V. DATA ANALYSIS

The elements of the forest condition were summarized using basic descriptive statistics, such as average and percentage. The Shannon diversity index was used to determine the diversity of woody species. The impact of the CF program was evaluated using a difference in differences (DID) coefficient by calculating the mean of the forest condition indicators. By comparing the changes in outcomes over time between a population that entered the program, the DID model was able to ascertain the impact of a particular therapy (such as the deployment of a large-scale program) [9].

$$H = -\sum_{i=1}^s (P_i * \ln * P_i) \dots (1)$$

H= Shannon diversity value

$P_i$  = fraction of the entire population made up of species "i"

s = number of species encountered

ln = natural log

DID creates an acceptable counterfactual by analysing longitudinal data from control and treatment groups in order to analyse a causal effect [10]. In many developing nations, such as Sri Lanka, inadequate infrastructure and resource scarcity have led to ineffective governmental forest management. According to our findings, giving locals management rights and responsibilities motivates them to actively manage the forest, which has positive effects on the environment and the local economy.

Comprehending the shifts in the state of natural and community-managed forests, in particular, is crucial for rural development as well as for the preservation and sustainable use of these forests.

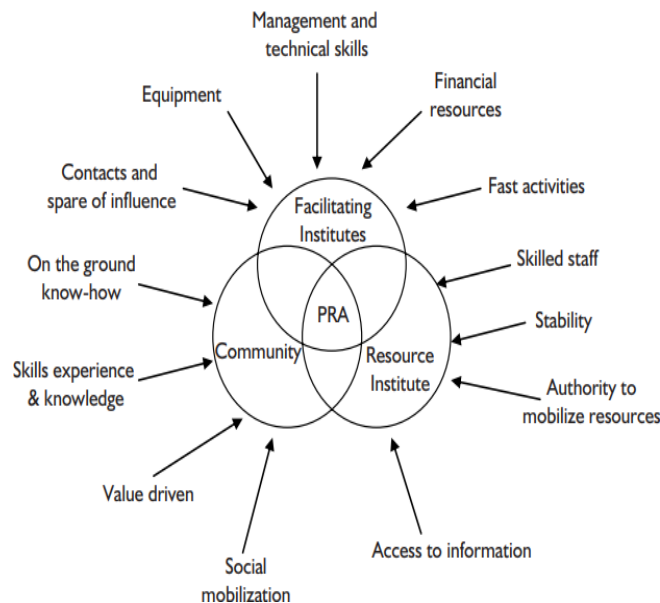
## VI. PARTICIPATORY RURAL APPRAISAL (PRA)

Powerful knowledge, a number of prerequisites, and development process strategies are all necessary for effective involvement. PRA is an essential technique for an effective participation that satisfies all of the above-mentioned objectives. It is a method used in conjunction with the institutions and resource agency, with community involvement. Figure 5 illustrates how each sector contributes to a successful PRA exercise. Figure 5 shows how the community, resource and research institutes, and



facilitating institutes interact to form the PRA. In order to carry out the PRA program effectively, the resource or research institute should have qualified staff, and the institute may be able to mobilize resource professionals in accordance with the need. However, in order to organize this kind of event, the enabling institute should be able to provide the equipment, managerial, technical, and financial

resources as well as make connections with the appropriate organizations. The community members or participants need to be well-fed with knowledge, expertise, and ongoing training in the field in which they are engaged. An efficient, successful, and productive PRA exercise can be shown when all of these conditions are met.



**Fig.5** The key components and their strengths in PRA

A popular technique for including communities in development processes is participatory rural appraisal, or PRA. This is especially true in rural areas. PRA has the potential to be a useful instrument in Sri Lanka for encouraging community participation in forest conservation initiatives.

The following is how PRA techniques could be used in the nation to promote community involvement and forest conservation:

**1. Recognizing the Local Context:** In order to understand local communities' perspectives, knowledge, and behaviours surrounding the forest and its resources, PRA entails gathering data through direct involvement with these groups. This could consist of Maps of local natural resources, such as forests, water sources, and agricultural areas, are created by communities. This aids in the understanding of the forest's current condition and human interactions with it by communities and environmentalists alike. Transect Walks for address topics like deforestation, wildlife, and possible hazards, community members stroll through the forest and its environs accompanied by facilitators.

**2. Improving Local Expertise and Ability Seasonal Calendars:** These calendars assist communities in recording and comprehending the connection between the health of their forests and seasonal activities (such farming

and fishing). It facilitates the coordination of forest conservation initiatives with local livelihood cycles.

**3. Learning and Sharing of Knowledge:** PRA promotes the exchange of traditional forest management knowledge across communities, which can be integrated with contemporary conservation methods.

**4. Collaborative Decision-Making:** PRA places a strong emphasis on collaborative decision-making, in which people of the community actively plan and carry out measures for forest conservation. This frequently consists of:

- **Action Plans:** Through reforestation initiatives, agroforestry, or the establishment of forest reserves, facilitators assist communities in developing workable plans for the conservation of forests.
- **Resolution of Conflicts:** PRA can assist in mediating disputes pertaining to the usage of forests, such as those between farmers and forest inhabitants or between communities and local government.

Encouraging Conservation via Enhancements to Livelihoods

PRA may be very helpful in assisting communities in identifying non-timber forest products (NTFP) like medicinal plants, eco-tourism, or sustainable agriculture

methods like agroforestry that are in line with forest protection.

Sri Lankan examples include:

**Forest Reserve of Sinha raja:** One of Sri Lanka's most well-known initiatives for forest protection is this UNESCO World Heritage Site. Here, PRA techniques can be applied to discover sustainable practices that benefit the nearby communities as well as the forest, and to involve the communities in buffer zones for conservation initiatives.

**Knuckles Mountain Range:** In this region, PRA has been utilized to acknowledge and incorporate indigenous people's knowledge of the forest into larger conservation initiatives, thereby involving them in conservation efforts.

Through PRA, communities are actively engaged in forest conservation, giving the locals a sense of ownership and accountability for the sustainable use of their natural resources. The success of Sri Lanka's long-term forest protection depends on this strategy.

## VII. CHALLENGES

Some challenges those arrived in study and practical implementation are noticeable. Hence, it is necessary to overcome challenges that can interrupt the data collection work towards community engagement and forest conservation.

- **Conflict over source availability:** It can be difficult to strike a balance between conservation objectives and the demands of nearby populations that depend on forest resources for their livelihood.
- **Illicit activities:** Encroachment, poaching, and illicit logging are still hazards, particularly in places where poverty is widespread and communities rely on forest resources to survive.
- **Climate uncertainty:** As temperatures rise and weather patterns alter, forest ecosystems are more severely degraded, necessitating the development of community-based resilience and adaptation techniques.
- **Sustainability:** Establishing local governance mechanisms and securing continuous financial support—which isn't always guaranteed—are necessary to make sure that cooperative initiatives are long-term viable.

In general, community management is less expensive and resource-intensive than state-level management when it comes to forest protection and conservation [11]. The forest conservation program has improved the quality of life for the local population by meeting their basic requirements and providing a potential route out of poverty [12-14]. The use of parameters in the collection and

organization of data can help in the conceptualization, assessment, and application of best forest practices.

## VIII. CONCLUSION

In many developing nations, such as Sri Lanka, inadequate infrastructure and resource scarcity have led to ineffective governmental forest management. According to our findings, giving locals management rights and responsibilities motivates them to actively manage the forest, which has positive effects on the environment and the local economy. Comprehending the shifts in the state of natural and community-managed forests, in particular, is crucial for rural development as well as for the preservation and sustainable use of these forests. The effects of the CF program on rural livelihood and the environment have been the subject of a large portion of study to date on the program.

This study adds to the conversation by analyzing how the forest conservation program has affected semi-mixed evergreen forests, which are found all over the world in tropics and subtropics. According to this data, the conservation program significantly lessens human disturbance, invasive species, and enhances forest regeneration. The condition of the forest may be positively impacted by expanding access to community engagement-based invasive species management, according to the findings. The long-term viability of Sri Lanka's forest conservation depends on increasing community involvement. Goals for conservation and human development can coexist if governance structures are strengthened, equitable benefit-sharing arrangements are maintained, and local populations are given training and capacity-building opportunities.

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