

## Community forest, environment conservation and rural livelihood

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### Abstract

*The study analyses the economic benefit to rural people derived from the community forest and the role of community forest in the livelihood of the rural people. For this purpose, Khajure Community Forest of Dang district was selected. This article analyses interactions among economic development, the environment, and natural resource use pattern. Community forestry promotes sustainable management of forests by the local community for their collective benefits and promotes equal rights regardless of caste, ethnicity and gender. Community Forest Users' Group highly depend on CF for their basic households needs such as fuel wood, grass, fodder and timber. Community participation in managing forest has contributed to forest conservation, scientific utilization of forest products and social inclusion which ultimately fosters community ownership in management and use of natural resources. But there are problems in CF governance and benefit sharing. The main issues of community forest are elite dominance in decision-making, social exclusion, and unequal benefit sharing. Rural people go through the exploitation of forest resource haphazardly for their survival. Exploitation of natural resources, including forest resource, contribute to global environmental problems and climate change. Electric cook stoves could be a good, clean fuel source while also helping to reduce the trade deficit. Scheduled firewood collection has resulted to shortage of fuel wood and has increased dependency on cow dung cake for daily cooking. Socio-economic condition of community members has remained as the obstacle for fuel shifting towards modern and clean energy that produces no smoke and no indoor air pollution, and thus, reducing respiratory diseases. Fuel transition has great positive impact on forest conservation, too.*

*Keywords: community forest, environment, rural livelihood, afforestation, conservation*

## **Introduction**

Forests occupy roughly 44% of the Nepal's landmass and includes areas both within and outside protected areas and other wooded lands. Forest resources are important to ecosystem balance and people's livelihood. In Nepali context, community forest is directly linked to the livelihood of rural community. According to the U.N. FAO, 25.4% or about 3,636,000 ha of Nepal is forested. Of this 14.5% (526,000 ha) is classified as primary forest, the most bio-diverse form of forest. At present, planted forest of Nepal is 43,000 ha. Forest is pivotal to mankind from every era of human civilization to till date, from the source of oxygen to energy and medicines and herbs, from the source of agricultural inputs to industrial raw materials.

Between 1990 and 2010, Nepal lost an average of 59,050 ha, or 1.23 percent of its forest per year putting the Himalayan region at risk of desertification (MoFSC, 2015). Various discussions were held at the local levels regarding different modalities of sustainable forest management. It resulted to Forest Act 1993, which provided a clear legal basis for community forestry. Later, in the 1995, Forest Regulations, with detailed procedures, came up as Community Forestry Operational Guidelines, 1995. All these legislatives provisioned CFUGs as legal, autonomous and corporate bodies having full power, authority and responsibility to protect, manage and utilize forest resource. Empowering people with rights and ownership to control and make decisions motivates them to take active initiation to sustainable forest management. Nepal's Ministry of Forest and Soil Conservation (MoFSC) declared "Forestry for Prosperity" as the forestry sector's vision in 2012. It is built on four pillars: scientific forest management, resource sustainability, forestry sector governance, and an enabling environment. Following this initiative, the "Forestry Decade (2014-2024)" program was prioritized as a national campaign. (DoFRS, 2015; MoFSC, 2015).

Community forest is the combination of trees in its simplest term. It is about all the plants and trees they grow in an environment where people live. It is all about managing living green infrastructure for the betterment of all the people living around. Community forest is the source of knowledge for the local community about how human life is linked to the trees. The notion of the value of community forest is that trees work together and together they work more than any individual tree. Researches have shown that much of such resource pays back over time. Every member of the community finds value in community forest. It gives huge pay back in terms of investment for one, while the other may be benefitted to fight against climate change and further it can enhance the economy over time. Community forest helps the poor houses for their livelihood, purifies the air to breath, beautifies the surrounding, and provides natural habitat for the wild lives, helps to escalate the land value, more than these, the forest is correlated

with eco-system services. Forest ecosystem focuses on the interactions among living organisms and non-living factors.

Community forestry promotes sustainable management of forests by the local community for their collective benefits. Sustainable forest management addresses social, economic and environmental issues of rural community and encourages them towards better management of resources as a vehicle for wider development. Similarly, community forestry promotes equal rights regardless of caste, ethnicity and gender. Community forest has also been helping to balance ecosystem and conserve bio-diversity. Bio-diversity has prime importance in human wellbeing in general and rural livelihood in particular as rural people highly depend on natural resources to meet their daily needs, income generation. Forest is the source of water, so, is community forest. Forest causes rain fall as well as maintains quality of local weather. It extracts carbon from the atmosphere and stores within and hence, contributes to maintain global climate.

Currently, in Lumbini Province, there are 3960 community forests. Ghorahi Sub-Metropolitan City covers total of 52033 ha land, out of which 26018 ha (50.0%) is covered by forest (DFRS, 2018). Khajure Community Forest lies in Ghorahi Sub-Metropolitan City, Ward No. 12, Hapur of Dang District. The forest covers 107 ha land. There are total of 1500 households within the community forest user group (CFUG). The largest proportion of the users are Chhetris followed by Tharus, Brahmins and Dalits. There are mixed type of vegetation including Sal, Sisam, Amla, Chilaune, Katus and Utisetc.

After the community participation, forest coverage has increased but problems arise in CF governance and benefit sharing. The main issues of community forest are elite dominance in decision-making, social exclusion, and unequal benefit sharing (Ghimire & Lamichhane, 2020). Three decades of practice of community forestry was focused on preservation and household use of forest only. The willingness of getting high share in the common property and taking least care has been the major problem and the cure of which is community participation.

More than 22,000 community forest user groups now manage 34% of Nepal's forests. About 2,831,707 hectares of forests of Nepal have been managed under the regime of community-based forest management (Ghimire & Lamichhane, 2020). Environment means all the natural surroundings such as land, air, water, plants, animals, solid material, wastes, sunlight, forest and other things. It is defined as the surrounding of an organism which directly and indirectly influences the growth and development of that organism. It consists of an inseparable whole system constituted by physical, chemical, biological, social and cultural elements, which are interlinked individually and collectively in a number of ways. Rural community depend on forests for their survival, from the air to

breathe to the wood they use. Besides providing habitats for animals and livelihoods for humans, community forests also offer watershed protection, prevent soil erosion and mitigate climate change (Dhungana *et al.*, 2020).

## Study objectives

This study is related to community forest, environment conservation and rural livelihood. The specific objectives are:

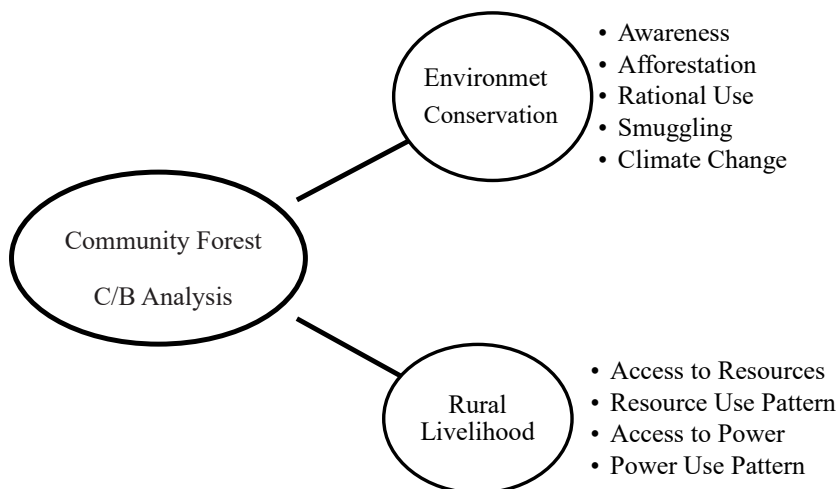
- to explore the role of community forest in the livelihood of the poor
- to assess forest conservation efforts at community level and climate change and community resilience
- to analyze the economic benefit derived from the community forest.

## Conceptual framework

The conceptual framework provides two-fold vision of community forest. The first one is environmental conservation through community awareness, afforestation programmes, rational and sustainable use of forest products, smuggling control and hence mitigate climate change. The next is that community forest enhances rural livelihood as it is a stock of resources, systematizes resource use pattern, democratizes power access and fosters transparent power use.

**Figure 1**

*Conceptual framework of the study*



## **Review of literature**

Community forest is proved to be effective in improving sustainable forest resources for rural livelihoods. It generates income from forestry and non-forestry sources, which is invested in various activities as community development and forest management to improve rural people's livelihood and to enhance social development (Manandhar & Shin, 2013).

For the sustainability of community forest, it must guarantee the needed resources being utilized by the community in the long term (Dahal & Cao, 2015).

Improved access to forest products, the creation of green jobs, improved rural livelihood, the empowerment of women and other marginalised groups, the rehabilitation of degraded land and habitat, and an increase in biodiversity are all indicators of the success of the community-based forest management approach (Ghimire & Lamichhane, 2020).

Community forest member households are the victims of disparities in access to vital forest products and power disparities within community forest user groups. This situation of inequity, due to current community forestry policy and practice, has challenged development potential of community-controlled natural resources. So, it requires change in policy that boosts more inclusive local decision-making (Thoms, 2008).

Community forestry has not yet been successfully alleviated poverty at the household level, rather, only a few community members of Okongo forest areas, involved in community forestry activities are somehow benefitted. Similarly, a new community activity i.e. conservancy might need about 10 years to reach the level to provide benefit amongst the community members (Tuulikki, 2012). Successful conservation strategies require integration and use of local communities' institutional capital (Horning, 2005). Non-timber forest products can help to sustain forested landscapes by playing an important role in rural livelihood strategies (Berg, J; Wiersum, K. & Dijk, H., 2007).

Sustainable forests management as wood production and processing in rural areas, and maximizing use of wood products are effective tools to address two major interrelated global challenges as poverty reduction in rural forest landscapes and climate change mitigation (Sadanandan Nambiar, 2015).

The community forestry program makes an important contribution to social capacity building and rural infrastructure development (Acharya & Oli, 2004).

People's dependency on forests differs in conserved and open access forests as households consume 0.89 tons and 1.08 tons of fuel wood respectively and the forest conditions in

terms of tree diversity, canopy coverage, regeneration and above ground biomass are significantly better in the conserved forest. Community participation to efficient and effective forest management can be instrumental to promote local livelihoods as well as to strengthen forest condition. Community forestry can lead to enhanced income and revenue generation through fair and equitable distribution of benefits within the CFUGs which in turn reduces poverty and dependency on forests (Basnet *et al.*, 2018).

## **Methodology**

Majority of primary sources were used to write this article. The information are collected from field survey for quantitative and qualitative analysis. It has been prepared on the basis of descriptive and analytical method. Mixed method is employed and based primarily on quantitative analysis supported by qualitative information. Out of total 1500 households(Field Survey 2080) Khajure Community Forest Users' Group, survey questionnaire ( $n=100$ ), discussions with Working Committee Members ( $n=13$ ), observations, and a review of official documents and records, were used to collect and triangulate data.

## **Site selection**

This study was carried out in Khajure Community Forest site located in Ghorahi Sub-metropolitan City, Ward No. 12, Hapur of Dang District. People in the study area are dependent primarily on arable farming and livestock raising for livelihood. Forest products, they mainly harvest are firewood, timber/poles, fodder and leaf-litter. The Forest Users' Group is comprised of various castes and ethnic groups with different social, economic and cultural backgrounds. Khajure Community Forest is managed by a Forest Users' Committee (FUC) of 13 members elected from within the Forest Users' Group.

## **Results and discussions**

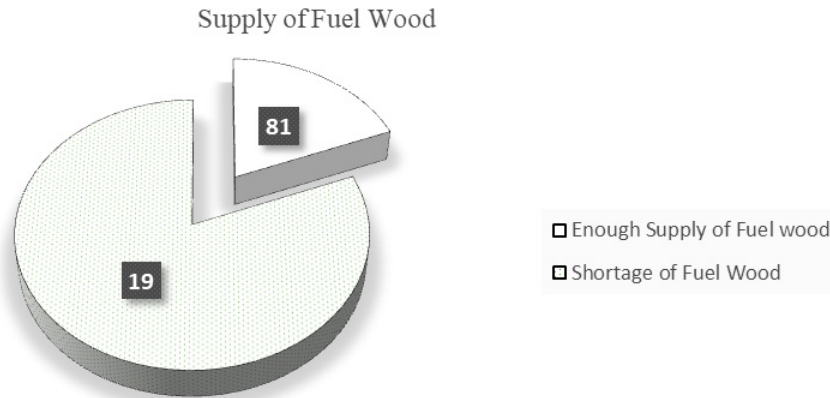
As agriculture and animal husbandry are the main economic activities of the study area, the people depend on forest for their livelihood.

Community members have defined the schedule for firewood collection which resulted to shortage of fuel wood and had to depend on cow dung cake for daily cooking, which is too much smoky, has negative health impacts and time consuming as well. Socio-economic condition of community members has remained as the obstacle for fuel shifting. So, use of fuel wood is most common and one of the important sources of household energy among poor and marginalized groups. Among the consumers' group member, 81% reported that modern and clean source of energy is out of their access. They were of the opinion that community forestry programme has been effective in

conservation aspect but is not practical for its use. On the other hand, 19% accepted that the programme has been boon to them for continuous supply of fire wood. They carry afforestation campaign every year but it takes longer time period to get the output.

**Figure 2**

*Respondents' View regarding Supply of Fuel Wood (%)*



The main source of fodder around the study area is agricultural lands and the community forest. People around the study area, depend on forest as the main source of fodder and bedding materials for their livestock. Forest grazing is strictly banned, and systematic and routine fodder collection contributed to conservation of the forest. 95% of the households agreed that the programme had taught them a lesson to systematically collect grass and fodder so that it can regenerate and conserve forest.

For agricultural inputs, the community forest users' group depend on forest. Community members are benefitted by collecting dried leaves from the forest to use as compost manure as it is available free of cost. They are in short of chemical fertilizer due to less supply and economic cost. Similarly, they collect dried branches of trees from the forest and use them fencing their cultivated areas and use to support their creeper type of vegetation as beans, cucumbers, bitter guards, pumpkins etc. Similarly, they use wooden plough as a digging equipment, and they require wood for making handles of sickles and spades. They use fodder to build dam on the rivers or streams for irrigation purpose. Forests are now a part of daily life for 70% of the user households, who are classified as "sukumbasi," or landless. Reserved Khajure Ban is always there to help the farmers.



Khajure Community Forest is the main source of timber for the users' group. When asked about the collection of timber from the forest, the respondents were of the opinion that it is not as easy as the collection of other forest products. Due to structural complexities, some community members are feeling the sense of partialities and isolation in terms of access to timber products. Policies, rules and regulations regarding this are neither scientific, practical, inclusive and transparent nor need based. Community members are demotivated towards the conservation and management of the community forest due to undue power exercise and corruption that dominates in this regard. Working committee of Community Forest Users' Group, forest officials, local political and economic elites have been making undue benefits from timber products on one hand, while on the other hand, the real users' group is less benefitted.

Thus, rural farmers depend upon forests for their daily needs which include fuel wood, fodder, leaf litter for compost and fertilizer and lumber for construction (Bijaya *et al.*, 2016).

Forest products, collected from community forest, for medicinal plants and herbal products are not systematically recorded. Cost-benefit analysis suggests that the richer class of users' group get more benefit from community forest than the poor. Forest situation is improving with Participatory Forest management because of increased ownership feeling and good forest management strategies and growing awareness among the rural communities.

Community Forestry Program in Nepal addresses the twin goals of forest conservation on one hand and livelihood improvement on the other.

Forests are critical to sustainable development. They regulate the world's climate, sequester carbon from the atmosphere, harbor biodiversity and contribute to the local livelihoods of millions of people (University of Michigan School for Environment and Sustainability, 2019)

Direct dependency of local people on forest resources for livelihood activities has been one of the key adhesive factors for collective efforts in forest management. The result showed an increasing switch to non-forest dependent livelihood strategies, characterized by the emergence of non-agriculture (remittance, business, service) sectors. While there is no change in the number of CF meetings attended, and the average time spent per meeting by user households. This decreasing dependence on forests, and increasing willingness to participate in forest management presents positive trend to forest conservation at community level Shahi *et al.*, 2022).



Participatory Forest management is vital to lessen the existing burden on forest for household cooking fuel. The respondents viewed that forest resource harvesting schedule has systematized the consumption pattern of the forest products. According to accessibility and afford ability, the members have started to adopt improved cookstoves, bio-gas, LPG or electric cook tops, hence minimizing the fuel dependency on forest for household cooking. This counts threefold benefits: on one hand, it can lessen the dependency on forest as source of cooking fuel; on the other hand, it can promote the most viable clean cooking solution, that is electric cooking technology and minimize carbon emission.

Exploitation of natural resources, including forest resource, contribute to global environmental problems. Climate change has emerged as the severe global challenge with multiple results as draught, loss of ice-mass, degrading watershed, water crisis and extreme weather condition. So, conservation of forest is vital step to protect the environment. Participatory forest management offers ownership among the community members towards forest resource and has become a tool to protect forest. Community managed forest promotes sustainability of resource extraction within the community itself. It offers hopeful ways of approaching climate solutions.

## **Conclusion**

Forest is vital to humankind from every era of human civilization to till date, from the source of oxygen to energy and medicines and herbs, from the source of agricultural inputs to industrial raw materials. Though, the study site is Chhetri dominated, the mixed ethnic composition of forest users promotes ethnic and cultural harmony. Fuel wood is most common and one of the important sources of household energy among poor and marginalized groups. Majority consumers reported that they are unable to afford modern source of energy and are facing the shortage of fuel wood for daily cooking, which is too much smoky, has negative health impacts and time consuming as well. The community forestry programme has been effective in conservation aspect but is not practical for its use. Agricultural lands and community forest are the main source of fodder, grass and bedding materials for rural people to their cattle. Forest grazing is strictly banned, and systematic and routine fodder collection contributed to conservation of the forest. The people depend on forest for compost manure as it is free of cost and to bridge the shortage of chemical fertilizer. They collect dried branches of trees from the forest and use them fencing their cultivated areas and use to support their creeper type of vegetation as beans, cucumbers, bitter guards, pumpkins etc. They use wooden digging equipment and use wood for making handles of sickles and spades. Likewise, they use fodder to build dam on the rivers or streams for irrigation purpose. Thus, forest has become the part of their daily lives and reserved Khajure Ban is always there to provide

the farmers with agricultural inputs. Community Forest is the main source of timber for the local community but it is not as easy as the collection of other forest products for them; it is due to structural complexities. Some members are feeling the sense of partialities and isolation in terms of access to timber products. CF policies, rules and regulations regarding timber are neither scientific, practical, inclusive and transparent nor need-based. So, they are demotivated towards the conservation and management of the community forest. Undue power exercise and corruption among working committee of CFUSG, forest officials, local political and economic elites have been making undue benefits from community forest. Rural people go through the exploitation of forest resource haphazardly for their survival. There is an urgent need to strengthen environmental governance and management capacity of the country to conserve forest as natural capital. Rural livelihood can only be sustained through effective forest conservation. Climate change has emerged as the severe global challenge with multiple of results as draught, loss of ice-mass, degrading watershed, water crisis and extreme weather condition. So, conservation of forest is vital step to protect the environment.

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