ORIGINAL RESEARCH ARTICLE

Differential in Utilization of Forest Products among the Users of Community Forest in Kaski District

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ABSTRACT

There is a different level of preference on the forest products such as timber, fuel wood, tree fodder/grass, non-timber forest products and leaf litter. Different people have different usage of forest products. In this context, this study has tried to analyze the differential in utilization of forest products among the users of community forest. For this purpose, the data were collected from 165 households out of 280 users' of Dangsimaryan community forest of Kaski district, using the structured questionnaire following the interview techniques. The multistage sampling technique was used to select the samples for the data collection. The data were collected from the members of the community forest. Pre-test was carried out before finalizing the questionnaire. A verbal informed consent was obtained from each participant. The Kruskal Wallis test was used to test the difference on the utilization of forest products among the respondents from different economic backgrounds. People prefer timber and fuelwood more than other forest products, so tree species is more meaningful to them. It is found that there is a significant difference on the preference of fuel wood, tree fodder/ grass and leaf litter among different economic classes of the respondents.

KEYWORDS: Community forest, economic classes, forest products, utilization

INTRODUCTION

Forest is one of the renewable resources. To save the forest, the community forest is one of the relative conservation approaches in which conservation and consumption of natural resource can be conducted together in an integrated way. It is considered a tool for decentralization, devolution and an efficient strategy to achieve the multiple goals of sustainable resource management and poverty alleviation. It is defined as a situation, which intimately involves local people in forestry activities (FAO, 1978). According to Gilmour and Fisher (1991), it is the control and management of forest

resources by rural people who use them primarily for domestic needs and as an integrated element of their farming systems.

There are different preferences on the forest products such as timber, fuel wood, tree fodder/grass, non-timber forest products (NTFPs) and leaf litter. People from different economic backgrounds such as high, medium, poor and very poor households have different preferences on forest products.

Lepetu (2007) in his dissertation found that the majority of the respondents of Kasane Forest Reserve (KFR) rely on the firewood collection. Logistic regression indicates that wealth assets and family size influence the household collection of forest products from KFR.

In his research, Michael Arnold (2004) states that timber and other non-industrial products have always dominated forestry in developing countries. Manufactured products provide direct input and income to many rural and urban households. In many countries, NTFP totals contribute to national products as much if not as much as industrial logs. However, their designation as "inferior" forest products reflect their relative negligence these days. Most of it is produced and consumed outside the money economy, so it has received limited attention and even less in terms of measurement and research.

According to a study by Belcher and Kusters (2004), NTFP plays an important role in the discussion of rural development and forest conservation. People in poor countries rely on a wide variety of plants, animals and fungi for their own direct use and sale. Some products have important commercial markets and generate sustainable revenues. In finding ways to promote development while protecting the environment, the environmental NGOs believe that forests can create valuable product streams without being exposed to the catastrophic deforestation often associated with the industrial forestry. It has become attractive to donors and development agencies.

In most cases, a forest can be used in multiple ways and someone must choose from among them. The trees might be cut down and utilized to make lumber, paper, or fuel wood. It may be left standing to sustain recreational and aesthetic qualities as well as environmental services, or it could be saved for future generations to exploit for industrial purposes. Often, a forest can provide two or more types of benefits at the same time or in sequence – such as industrial timber, recreation, livestock fodder, wild life habitat, flood control and carbon storage – in which case, someone must determine the best mix and pattern of uses. In all circumstances, decisions must be taken regarding how a forest will be maintained, what commodities and services will be created and how those goods and services will be distributed (Zhang & Peter, 2011).

Varying economic classes had different preferences for different forest products. Various factors such as the economics, livelihood strategy and landholding influence the desire. All of the aforementioned factors influence the fuelwood selection. The users in the higher economic classes have access to alternate energy sources such as Liquefied Petroleum Gas and a significant portion of their needs is met by private property. As a result, they have a lower taste for it whereas selling fuelwood is an essential source of income for the poor and very poor. Preferences for timber and NTFPs are also influenced by economic variables. The rich people choose timber because they can build new houses whilst the impoverished favor NTFPs since they have limited income sources and thus accept it (Baral et al., 2008).

The harvesting of forest products from the community forests is influenced by a variety of socioeconomic factors. In general, land and livestock holdings, caste, family education and household economic position tend to have a significant impact on appropriating advantages from the commons (Adhikari et al., 2004). Generally, the rich

people prefer more valuable forest products such as timber whereas the poor prefer subsistence and commercial forest products as they have a limited source of income (Paudel, 2003). The economic condition of the respondents influences their preferences for forest products. The preference for lumber increased as one's economic standing improved whereas the respondents from the very poor and poor economic backgrounds had a stronger preference for fuelwood (Baral et al., 2014).

NTFPs contribute moderately to all forest-dependent people's livelihoods in Vietnam. They are an important source of income for the poor households, which is more than for the middle and wealthy households (Le and Nguyen, 2020).

Food, fuel, timber, fodder, construction material, medicines, bedding for animals and leaves for composting are forest products, which are important for livelihoods and well-being (Thoms, 2008). Out of 86 percent of Nepal's households using fuel wood, more than 75% of them collect their fuel wood from forest. Timber is used in the construction of residential houses, commercial and industrial buildings, livestock sheds and furniture (NFA, 2012). An equal amount of forest products is allowed to harvest for each community forest users' group regardless of household size or income by collecting dues but those who do not need the product sell their surplus to other users or other people (Thoms, 2008). Fuel wood is also used for cooking food and preparation of animal feed and alcohol (Aryal et al., 2009). In Nepal, a demand of all the forest products is higher than supply. People harvest timber occasionally, dry firewood and fodder throughout the year and green wood once in a year during the winter season (KC, 2018). The majority of people depend upon forests as the agriculture is not only the sufficient means to survive on its own. Forest is, thus, an integral part of Nepali population's livelihood as it provides most of the requirements of the rural people such as timber, fuel wood, fodder, animal beddings, local medicines and so on, which are the ultimate needs of the rural people. It is one of a major revenue earners of the country. So, the study about the preference on the forest products is necessary for making plans and policies towards community forest. However, there is less attention towards finding the preference rating on the forest products among the users of the community forest from different economic backgrounds of Kaski District. In this context, this study has tried to analyze the differential in utilization of forest products among the users of community forest of Kaski, which will be beneficial for making plans and policies of community forest.

METHODOLOGY

This study has adopted the multistage sampling technique. At first, Rupa Rural Municipality was selected purposively for this research. At the second stage, Dangsimaryang Community Forest which was located in Ward Number 1 and two of previous Hansapur Village Development Committee was also selected purposively. There are 280 household members of this community forest; out of which, 165 members were taken as the sample for the study (at 5% level of significance and 5% margin of error). Then, from these 165 members, the data were collected using the structured questionnaire through systematic random sampling techniques. The data were collected from the members of community forest or household head. Pre-test was carried out before finalizing the questionnaire. A verbal informed consent was obtained from each participant. The purpose of data collection was explained to the respondents before interviewing. Privacy and confidentiality of all respondents were maintained regarding their information. The economic status of the respondents is based on their self-evaluation, which was categorized into rich, medium and poor. People were asked to give preference rating for the forest products (fuelwood, timber, tree fodder, NTFPs and

leaf litter). The preference for the forest products was rated as 1 if the preference given by the respondent to FPs was low, 2 if the preference given by the respondent to FPs was medium and 3 if the preference given by the respondent to the forest products was high. The Kruskal Wallis test was used to test the difference on the preference of forest products among the respondents from different economic backgrounds.

FINDINGS AND DISCUSSION

Based on the information collected from 165 respondents, this study has the following findings and discussions:

Background Characteristics

The study includes the general information of the respondents, which are categorized as age, sex of respondents and household head, marital status, caste/ethnicity and educational level. Majority of the respondents were male (78.2%), from the age group 40-60 years (52.7%), married (91. 5%) and Brahmin (44.8%). Similarly, almost two-third of the respondents (39.4%) had their study up to primary level, followed by literate (23.6%), secondary level (23.0%), higher level (7.3%) and uneducated (6.7%) respectively (Table 1).

Table 1
General Information of the Respondents

Variables	Frequency	Percent
Age of the respondents (years)		
Up to 20	1	0.6
20-40	34	20.6
40-60	87	52.7
60 and above	43	26.1
Mean = 51.72 years Minimum=20 years Maximum= 81 years		
Sex of the respondents		
Male	129	78.2
Female	36	21.8
Sex of household head		
Male	147	89.1
Female	18	10.9
Marital status of the respondents		
Married	151	91.5
Unmarried	6	3.6
Widowed/widower	7	4.3
Single	1	0.6
Caste/ethnicity of the respondents		
Brahmin	74	44.8
Chhetri	11	6.7
Janajati	41	24.8
Dalit	39	23.7

Education level of the respondents		
Literate	39	23.6
Primary level	65	39.4
Secondary level	38	23
Higher and above	12	7.3
Uneducated	11	6.7

Source: Field survey, 2019

Preference Rating on Forest Products

For fuelwood, the majority of the respondents (90.3%) rated as high, followed by medium (9.1%) and less than 1 percent (0.65%) of respondents rated as low respectively. Similarly, in the case of timber, more than two-third (68.5%) of respondents rated as high, followed by medium (24.8%) and low (6.7%) respectively. Similarly, in the case of tree fodder/ grass, more than half of the respondents (50.3%) rated as high, followed by medium (37%) and low (12.7%) respectively. Similarly, in the case of non-timber forest products (NTFPs), the majority of the respondents (87.9%) rated as low, followed by less than ten percent (9.7%) of respondents as medium and only high (2.4%) respectively. Finally, in the case of leaf litter, more than three quarter (75.8%) of respondents reported as low, followed by almost one-fifth (19.4%) as medium and high (4.8%) respectively.

Table 2
Preference Rating on Forest Products

Forest products	Preference					
	Low		Medium		High	
	N	%	N	%	N	%
Fuelwood	1	0.6	15	9.1	149	90.3
Timber	11	6.7	41	24.8	113	68.5
Tree fodder/Grass	21	12.7	61	37	83	50.3
NTFPs	145	87.9	16	9.7	4	2.4
Leaf litter	125	75.8	32	19.4	8	4.8

Source: Field survey, 2019

Preference Rating on Forest Products with Economic Classes

The economic status of the respondents is based on their self-evaluation, which was categorized into rich, medium and poor. More than two-third of the respondents self-evaluated as medium economy classes, followed by poor (23.6%) and rich (6.6%) respectively. The people from middle economic class family have high preference (63.6%) on fuelwood. Similarly, for timber, there is also high preference (47.3%) by the middle class people. There is an increase in the preference level for the people from all economic classes for the forest products like fuel wood, timber and tree fodder whereas there is a decrease in the preference level for the forest products like NTFPs and leaf litter. The study of Poudel (2003) found that the rich people prefer more valuable forest products like timber, which is similar to our study whereas the poor people prefer the subsistence and commercial forest product, which is in contradiction to the present study (Poudel, 2003). The preference rating for timber has been increased for all the economic classes of the people. This result is similar to the findings of the previous study done in community forest of Nepal (Baral et al., 2014). In the case of tree fodder/grass, there is also high preference (30.9%) by middle class people. But in the case of NTFPs and leaf

litter, the majority of the respondents from all types of economic classes have low preference. Thus, this study found that fuelwood, timber and tree fodder have high preference to the majority of the local people from all economic classes.

Table 3
Preference Rating on Forest Products with Economic Classes

Preference on the variables	Economic Classes							
	Rich		Medium		Poor		Total	
	N	%	N	%	N	%	N	%
Fuel wood								
Low	0	0.0	0	0.0	1	0.6	1	0.6
Medium	4	2.4	10	6.1	1	0.6	15	9.1
High	7	4.2	105	63.6	37	22.4	149	90.3
Timber								
Low	0	0	5	3	6	3.6	11	6.7
Medium	4	2.4	32	19.4	5	3	41	24.8
High	7	4.2	78	47.3	28	17	113	68.5
Tree fodder/grass								
Low	3	1.8	14	8.5	4	2.4	21	12.7
Medium	6	3.6	50	30.3	5	3	61	37
High	2	1.2	51	30.9	30	18.2	83	50.3
NTFPs								
Low	10	6.1	102	61.8	33	20	145	87.9
Medium	1	0.6	12	7.3	3	1.8	16	9.7
High	0	0	1	0.6	3	1.8	4	2.4
Leaf litter								
Low	10	6.1	93	56.4	22	13.3	125	75.8
Medium	1	0.6	21	12.7	10	6.1	32	19.4
High	0	0	1	0.6	7	4.2	8	4.8

Source: Field survey, 2019

Test Inference on the Preference of Forest Products

The Kruskal Wallis test was run to test the difference on the preference of forest product among the different economic classes of the respondents. It is found that there is a significant difference on the preference of fuel wood and tree fodder/ grass among different economic classes. This result is similar to the findings of the study done by Baral (2008). Similarly, there is also a significant difference on the preference of leaf litter among different economic classes at 1 percent level of significance ($p<0.01$). However, this result is in contrast of the findings from Baral (2008). There is no significant difference on the preference of timber among different economic classes. This result is in contradiction to the study of Baral (2008), which states that there is a significance difference on the preference in timber among different economic classes. Further, there is no significant difference on the preference in NTFPs among these economic classes ($p>0.05$), which is in contradiction of the findings from the study done by Adhikari et al. (2004).

Table 4

Preference of Forest Products for Different Economic Classes

	Fuel wood	Timber	Tree fodder/grass	NTFPs(fruits, medicinal herbs)	leaf litter
Chi-Square	9.710	0.032	14.469	0.743	13.232
Df	2	2	2	2	2
P-value	0.008*	0.984	0.001*	0.690	0.001*

*Significant at 1% level of significance

CONCLUSION

People prefer fuelwood, timber and tree fodder rather than other forest products, so these tree species are more meaningful to them. Fuelwood, timber and tree fodder have high preference to the majority of the local people from all economic classes whereas the NTFPs and leaf litter have low preference to any economic classes of people. It is also concluded that that there is a significant difference on the preference of fuel wood, tree fodder/grass and leaf litter among different economic classes of the respondents.

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