Investment and Benefits Associated with Community Based Forest Enterprises in Nepal

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Abstract

Community forests in Nepal are operating various types of forest based enterprises. These enterprises are generating considerable amount of income and employment at the local level contributing to the local and national economy. Comprehensive assessment of these enterprises is needed to improve their condition in the future. There is lack of assessment on the investment and benefits associated with these enterprises. We collect the data from 195 community based enterprises of 23 districts of Nepal representing all geographic and development region. For the analysis purpose we categorized the enterprises into four categories *viz.* Non timber forest product (NTFP), Wood, Ecotourism and AgricultureEnterprise. We analyzed the investment, income, households benefitted and employment generation from these enterprises and compared with each other. Mean investment in ecotourism (US$ 22805.09) and wood (US$ 11252.42) based enterprises was found higher than the mean investment in NTFP (US$ 2628.03) and agriculture(US$ 3383.63) enterprises. Mean income from the enterprises was found US$ 1982.56/year and was significantly different between the types of enterprises ($P<0.05$). In an average 115 households have been found benefitting per enterprise. Employment generation from wood based(2527 man days) enterprises was found highest followed by ecotourism (1490 man days) enterprises. The mean employment generation from NTFP (1093 man days) and agriculture based enterprises (978 man-days) were found significantly lower ($P<0.05$) than timber and ecotourism based enterprises. Examination of community based forest enterprises contributionin local economy and household economy is recommended for future researchers.

Key words; Income, Employment, Ecotourism, Community Forestry

Introduction

Forestry sector has potential to contribute to the growth of local and national economy (Ludvig*et al.,* 2016). Nepal is rich in forest resources as the latest Forest Resource Assessment (FRA), 2015 showed that 44.74% area was occupied by the forest and other wooded land in Nepal (DFRS, 2015). High biodiversity, significant forest coverage, forest dependency, and access to larger transnational markets (such as China and India) are the opportunities of forestry sector of Nepal to contribute to the economic growth in both local and national level (Rai *et al.,* 2014). Forest sector in Nepal has less contribution to national economy in comparison to its potentiality as forestry sector is not harnessing its economic potential (Banjade, 2012). Frequently changing policy regarding the utilization of forest products (eg ban on tree felling, ban on collection of NTFPs) has discouraged the investors to invest in forestry related enterprises (Subedi*et al,* 2014).

Community forestry in Nepal has been initially started for meeting the people's basic needs and checking the rate of deforestation (Barlett, 1992; Malla, 2000 and Ojha*et al.,* 2009). Now community forestry is one of the dominant forest regimes in Nepal. Around 23% of the forest area has been handed over as community forest. It has been recognized as successful program for forest resource management especially in the mid-hill region of Nepal (Paudel, 2014; Paudel, 2015). The role of community forestry has been gradually widening. Issues ranging from governance to livelihood and climate change to enterprise development have to be addressed through community forestry. In respects of climate change community forests are implementing climate change adaptation activities (Acharya and Paudel, 2016) and contributing to carbon sequestration (Tripathi*et al.,* 2017) for mitigating climate change. In regard of the enterprise development community forests have been carrying out in small scale from the earlier time. Enterprise development has been raised as one of the issue of discussion in the Fifth Community Forestry National Workshop held in 2008. Various legislation and policies also emphasize to thedevelopment of forest based enterprises. Enterprise development in the community forest is highlighted in various forums but enterprise development has not been effective at the community forest level.

Forest products including non-timber forest products (NTFP) can contribute to the local livelihood and national economies (Shackleton and Pandey, 2013). This contribution can be increased through the enterprise development and value addition. NTFP farms have to pay certain level of royalty to the government while the other agricultural products have no royalty which the scholars recognized needs to be removed for developing the forest based enterprises (Subedi*et al.,* 2004).

Primarily local people are benefitted from the Community Based Forest Enterprises (CBFEs) in terms of income and employment (Nurse *et al.,* 2004).Veneer, incense sticks, leaf plates, bio-

briquette, saw mill, Nepali papers, allo fabric products, bel juice, bamboo crafts and furniture are the major forest based products produced in Nepal from the forest based enterprises (Neupane, 2014).Study conducted by the Multi Stakeholder Forestry Programme (MSFP) estimated that around 41,062 forest based enterprises including timber, NTFPs, ecosystem services (ecotourism) and forest bioenergy are being operated in Nepal (Subedi*et al.,* 2014).

Enterprise development has significant potentiality in income generation and livelihood improvement but this opportunity has been missed (Nurse *et al.,* 2004) in Nepal. Forest based enterprises has role in securing food security, improving livelihood and poverty alleviation (Neupane, 2014). In Nepal forest based enterprises are operated especially in two ways, private enterprises and the community enterprises. CBFEs are the enterprises operated by either a single community forest or a group of community forests. In fact it is an organized activity for strengthening economic conditions, strengthening stakeholder's networks and creating employment opportunities at the local level through value addition (Acharya, 2005). Although community forests have various opportunities in terms of raw materials and resources, there are various challenges for the development of the CBFEs. For the development of the CBFE Pokharel*et al.* (2006) identified that the low capacity to use improved technologies and the inadequate access to market are the major problems. Forest product based enterprises especially NTFP based enterprises established by the communities are not competitive in this age of globalization as they cannot compete with the product of the market (Banjade and Paudel, 2008). Inherent uncertainty and risk has been remained as the limiting factor for increasing investment in the forest based enterprises in Nepal (Subedi*et al.,* 2014).

To remove the obstacles and the grab the opportunities of forest enterprise development Nepal has formulated and implemented various policy and legislative documents. Community forestry development guideline, 2014 has the explicit provisions on forest based enterprise development in the community forestry (DoF, 2014). Latest policy documents viz. Forest Policy, 2015 and Forest Sector Strategy (2016-2025) emphasize the forest product based enterprise development (GoN, 2015; GoN, 2016). Nepal's forestry sector policy has the provision of promoting the forest based enterprises. Gaps remain in translating these provisions into operation to achieve the desired targets. Little studies have been conducted regarding the investments and benefits of the community based forest enterprises. Research and studies on the different aspects of these enterprises is the pre-requisite for the development of these enterprises. Due to little studies of the CBFEs we have no idea on how to make them competitive in the age of globalization by removing weaknesses and grabbing opportunities.Therefore, this study was conducted with the objective of assessing the investment and benefits including income, households benefitted and employment generation from the community based forest enterprises in Nepal.

Methods and Materials

Study Area

The study was conducted in the 23 districts (Figure 1) of Nepal covering the entire physiographic regions and the development regions. A consultation meeting was done with the officials of the Department of Forests and Community Forest Federations representatives for the selection of the districts. The districts where the interventions for the development of enterprises were carried out in the past were selected. From that consultation we selected the 23 districtscovering all the physiographic and development region of Nepal.

Physiographic Region	Districts
Terai	Jhapa, Morang, Sunsari, Rauthat, Rupendehi, Banke
Middle Mountain	Dhankuta, Bhojpur, Khotang, Makwanpur, Kaverepalanchowk, Kathmandu, Bhaktapur, Palpa, Syanjha, Gulmi, Arghakhanchi, Pyuthan, Salyan, Surkhet, Dadeldhura
Himal	Taplejung, Sankhuwasabha

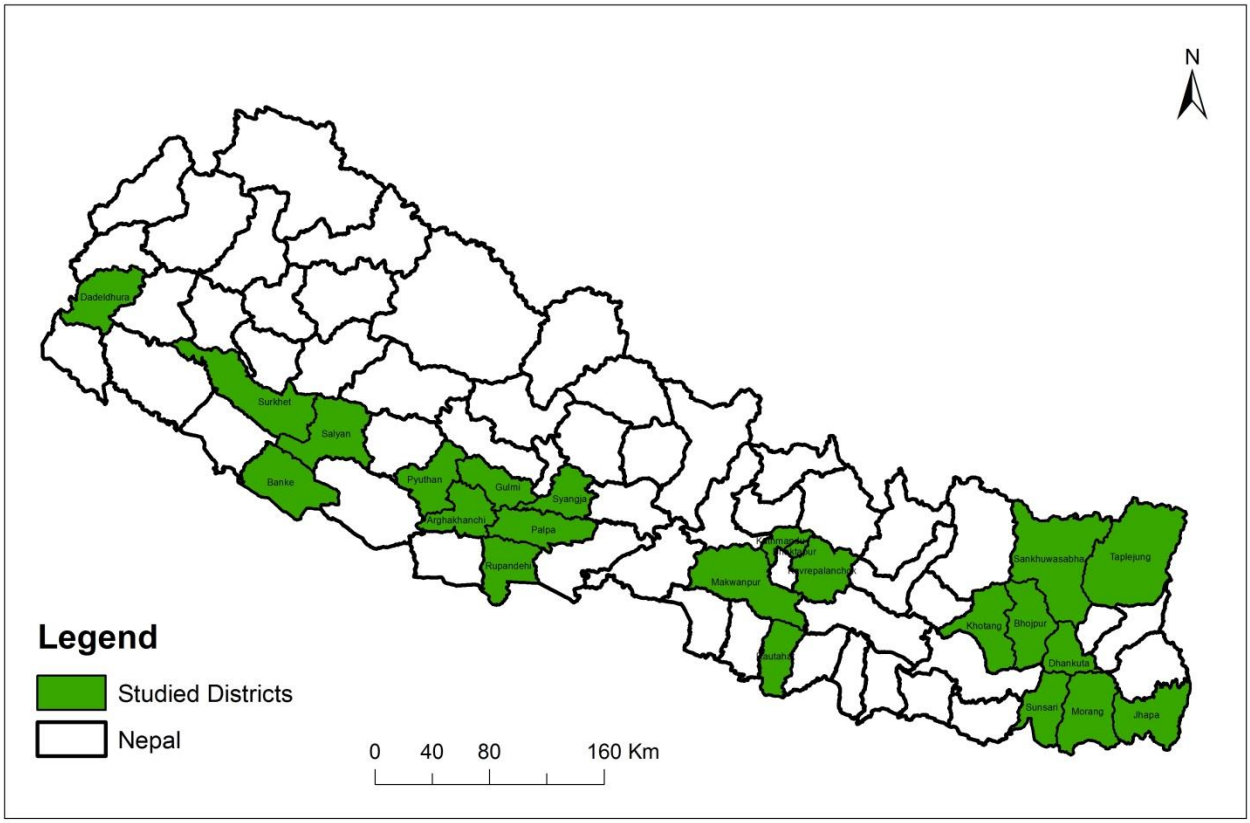

Figure 1: Location of Studied Districts

Data Collection

A data collection format was developed in the community forest division of the forest department of Nepal. Discussion was carried out with the officials of the Department of Forests and Ministry of Forests and Soil Conservation (MFSC), Nepal prior to the field work.Data collection format was designed to collect the data about the investment in the enterprises both installation and operation cost, annual income from the enterprises, households benefitted from the enterprises and the employment generation from the enterprises. Pre-test of the format was done in the two enterprises of the Kavre district and found satisfactory. Then format was finalized and data were collected about the different aspects of enterprises from the enterprises. Data were collected from the 195 community based forest enterprises operating at these 23 districts. Enterprises in most cases have the well maintained record of their investments and the sale of the products and in some enterprises there was no systematic record keeping. In the enterprises which maintained well records these records of the enterprises were reviewed and in cases of poor record keeping, other documents viz. bills, progress report, minutes and the old other documents were used to derive the required data. Data validation was done by reviewing the supporting documents and conducting the discussions with the executive members of the enterprise operating community forests.

Data Analysis

Filled data collection formats were reviewed and then data were fed into Ms-Excel and Statistical Package for Social Sciences (SPSS). Enterprises were categorized into four types namely(1) Wood based enterprises, including timber, veneer, furniture enterprises, (2) NTFP based enterprises including storage, processing and value addition enterprises(3)Ecotourism based enterprises, including picnic spots, recreation site, treeking and hiking and (4) Agriculture based enterprises including bee hiving, fruit plantation, goat rearing. Investment in the enterprises was calculated by adding the installation and operating cost of the different type of enterprises and investment. In case of investment this study simply tried to add the installation and operating cost without converting them in the present value. Likewise mean annual income, households benefitted and the employment generation was also calculated for each type of enterprise. Analysis of Variance (ANOVA) was conducted to test the siginificane of mean difference in income, investment, number of benefitted households and employment generation from different types of enterprises. Further Least Siginificane Difference (LSD) test was conducted as post-hoc test to identify the significance on mean differences between these enterprises.

Results and Discussions

Investment in Enterprises

In the studied enterprises a total of US$ 1144177 has been invested since the establishment time at an average of US$ 5868 per enterprise. Mean investment was found higher in ecotourism based enterprises (US$ 22805) followed by timber based enterprises (US$ 11252). The mean investment to the NTFP based and agriculture based enterprises were found US$ 2686 and US$ 3384 respectively.

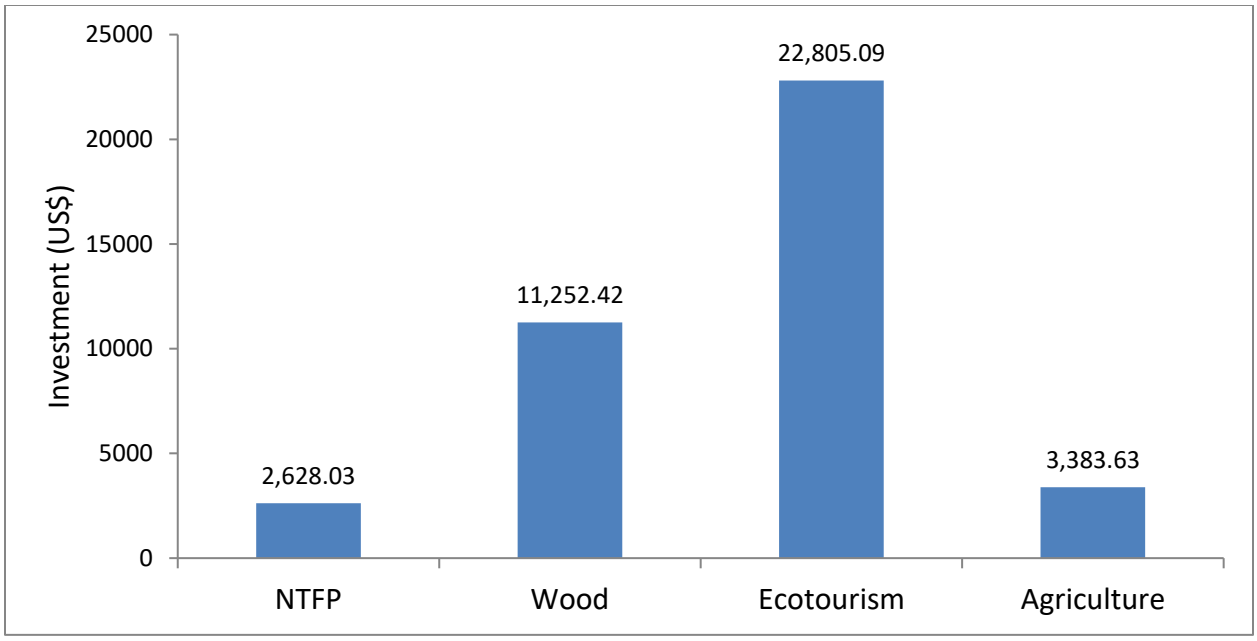

Figure 2: Average investment in enterprises

The one way ANOVA showed that mean investment in different types of enterprises wassignificantly different ($p<0.05$). LSD test showed that except the NTFP and agriculture based enterprises the mean investment was significantly different between enterprise types (Table 1).

Table 1: Results of LSD test of mean difference in investment (*p*-value)

	NTFP	Wood	Ecotourism	Agriculture
NTFP		.000*	.000*	.725
Wood	.000*		0.001*	.003*
Ecotourism	.000*	0.001*		0.000*

*Difference is significant at 0.05 level of significance

Ecotourism is regarded as a tool to provide local economic benefits to the community people while also maintaining ecological integrity especially through the low-impact, non- consumptive use of local resources (Stem *et al.,* 2003).Investors including community forests are motivated to invest in the tourism sector considering tourism as one of the successful business in Nepal. Community forests wereinterested to provide the tourism facilities like picnic spot, bird watching, hiking etc. Wood based enterprises require the machinery and equipment for their establishment, operation and maintenance therefore investment in these enterprises was higher than that of the NTFP and agriculture based enterprises.

Income from Enterprises

This study revealed that the studied enterprises have an annual income of a total of US$ 386599.21 with US$ 1982.56 per enterprises. The mean income of timber based enterpriseswas higher (US$ 6378.57) followed by ecotourism based enterprises (US$ 2247.70). The mean income of the NTFP based and agriculture based enterprises was found US$ 828.94 and US$ 1091.08 respectively.

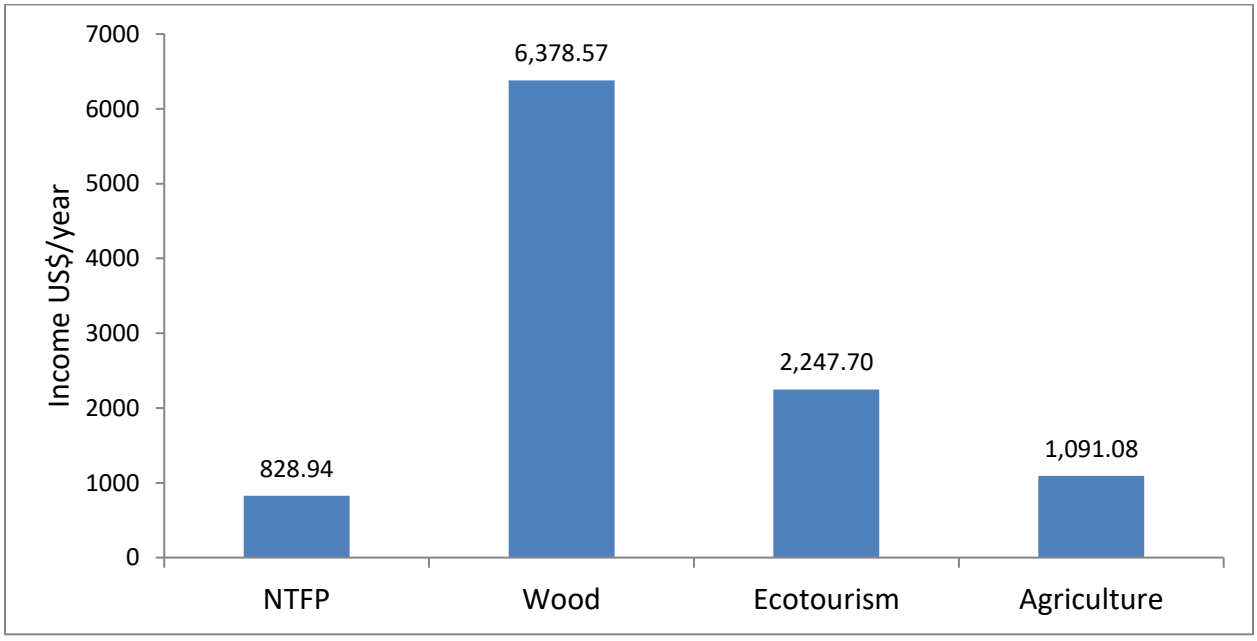

Figure 3: Average income from different types of enterprises

The ANOVA results revealed that the mean income of different types of enterprises was significantly different ($p<0.05$). LSD test showed that mean income was significantly different between NTFP and wood, wood and ecotourism and wood and agriculture based enterprises (Table 2).

Table 2: Results of LSD test to test mean income of enterprises (p value)

	NTFP	Wood	Ecotourism	Agriculture
NTFP		.000*	.409	.827
Wood	.000*		0.033*	.000*
Ecotourism	0.409	0.33		0.546

*Difference is significant at 0.05 level of significance

Other studies (eg Acharya, 2005; Pokharel*et al.,* 2006 and Pun and Shrestha, 2008) also found that enterprises operated by community are generatingsignificant income at the community level. Acharya (2005) reported the 11% increment in the household level income from the CBFE of the Dolakha district. The average income of the NTFPs based enterprises in this study was significantly lower than other enterprises. Different types of technologies are needed to obtain the desired product from different NTFP species rather than the similar technology as in case of wood based enterprises. The Micro-enterprise Development Program (MEDEP) experience showed that per-capita income has been increased by 26.6% after the involvement in the forest based micro-enterprises and at the same time the per-family income increased by 46% (Pun and Shrestha, 2008).In this study the average income from the NTFP based enterprises was found lower than other enterprises. Technology development for the NTFPs collection and processing is not adequate (Pokharel*et al.,* 2006) which is remained as the cost for NTFP enterprises.

This study revealed that wood based enterprises especially timber are theforest product of comparative advantage. Wood based enterprises operated by the community forests are found significantly contributing to the poverty reduction (Acharya and Acharya, 2007). Banjade (2012) pointed out that; although the timber has the significant contribution to the national and local economy than other products it gets lower priority in policy discourses. NTFP has dominated the policy discussion while at the same time researches suggest that timber have higher potentiality to contribute to the economy. Therefore emphasis should be given to the timber and wood based forest products while designing the forest policies and programs. If we can use the timber of the community forests of Nepal in sustainable way according to its potentiality it can generate the considerable income at the community level.

Households Benefitted from Enterprises

The mean number of households benefitted from the enterprises was found to be 115 households per enterprise. The number of households benefitted from ecotourism enterprises was higher (335 households per enterprise) followed by the wood based enterprise (121 households per enterprise). Average number of households benefitted from NTFPs and agriculture based enterprises were 93 and 84 respectively.

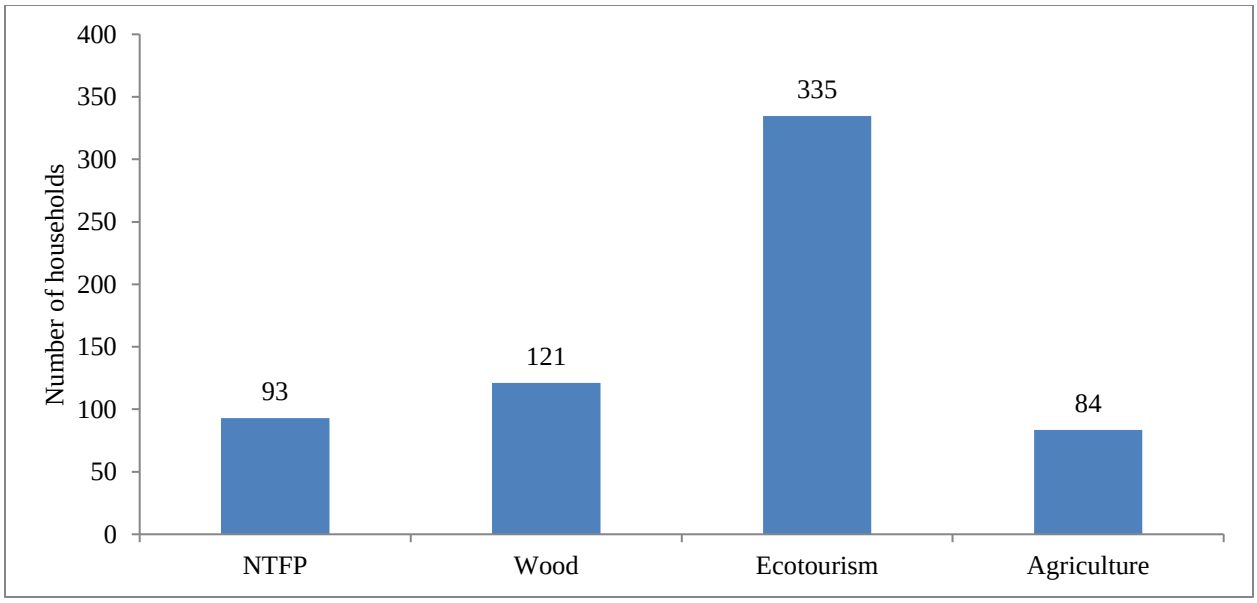

Figure 4: Average number of households benefitted from enterprises

The ANOVA results revealed that the mean number of households benefitted from different types of enterprises was significantly different ($p<0.05$). LSD test showed that mean number of households benefitted from the ecotourism based enterprises was found significantly higher than other enterprises (Table 3).

Table 3: Results of LSD test to test mean number of households benefitted from enterprises (p-value)

	NTFP	Wood	Ecotourism	Agriculture
NTFP		.439	.000*	.604
Wood	.439		0.008*	.239
Ecotourism	.000*	0.008*		0.001*

*Difference is significant at 0.05 level of significance

This study revealed that the community forests which have large number of households as members were interested in ecotourism based enterprises. In urban area member households of the community forests are usually higher than in the community forests of the rural area. The higher number of households benefitted from the ecotourism enterprises is due to the fact the community forests of urban area are operating ecotourism enterprises which involves higher number of households as users. NTFP and agriculture enterprises can be operated by even the small community forest with smaller number of benefitted households. This was the logic behind being lower number of households benefitted from the NTFP and agriculture based enterprises.

Employment Generation from enterprises

The employment generation from the enterprises was found to be 1362 man days per year per enterprise. Higher employment was generated from the wood based enterprises (2527) while the lowest was that of agriculture based enterprises (978) (Figure 5). Employment generated from ecotourism and NTFP based enterprises was found 1490 and 1093 respectively.

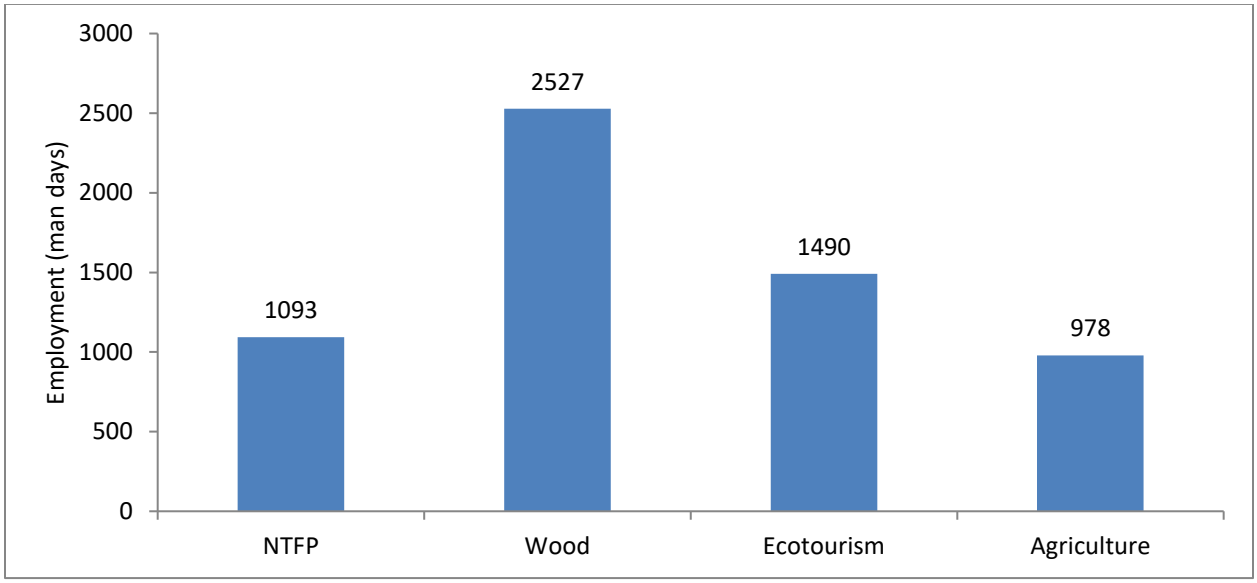

Figure 5: Average employment generated from enterprises

ANOVA result showed that the mean employment generation from different types of enterprises was found significantly different (p=0.000). Further, the LSD test showed that mean employment generation from wood based enterprises was significantly higher than that of NTFP and agriculture based enterprises.

Table 4: Results of LSD test to test mean employment generation from enterprises (p-value)

	NTFP	Wood	Ecotourism	Agriculture
NTFP		.008*	.600	.829
Wood	.008*		0.223	.019*
Ecotourism	.600	0.223		0.545

This study revealed that different types of enterprises are generating employment in the community level. It showed that operationalization of CBFE at the community level can create the considerable employment. Raw material collection, fuel wood collection and value addition/processing were the main activities for the employment generation in the CBFE (Acharya, 2005). Employment has been generated in the two ways from the forest based

enterprises in the rural area such as through work in processing factories and self-employment is being generated through collection or production and sale of raw materials (Nurse *et al.,* 2004). Employment generated at the local level can help to raise the income of the local people and thereby reducing poverty at the sustainable way. CBFEs are playing vital role in poverty reduction through generation of employment opportunities for the poor (Pandit*et al.,* 2015). In this research wood based enterprises are found generating more income than other types of enterprises. Promoting wood based enterprise through simplification of the timber extraction process would be helpful in employment generation at the community level which ultimately helps to achieve the goal of poverty reduction. While giving priority to the wood based enterprises at the same time emphasis should be given to the establishment and operationalization of enterprises according to the potentiality of availability of the raw materials for operating enterprise. This could be the pathway to achieve prosperity through utilization of forest resources in Nepal.

Conclusion

This study analyzed the investment and various benefits of the community based forest enterprises of Nepal. Study revealed that the highest investment per enterprise was done in ecotourism based enterprises followed by the wood based enterprises.The mean annual income of wood based enterprises was found significantly higher than other enterprises.The average number of households benefitted from ecotourism enterprises was higher.Large community forests wereoperating ecotourism based enterprises whereas NTFP and agricultureenterprises werebeing operated by even small community forests.Wood based enterprises are generating more employment than other enterprises. It can be concluded that the wood based enterprises are comparative more advantageous and emphasis should be given to the promotion of suchenterprises. The raw material availability and market access are the determining factors in enterprise development. The study provides the synopsis that the contribution of the CBFEs at the community level is significant through the employment opportunities and income generation, though in national level is nominal. For the nationwide promotion of the CBFEs we should be able to show the value of these enterprises, their contribution in national and local economies should be explored. Detail analysis of CBFEs contribution to the local economy and household income is recommended for further research.

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