

Socio-economic impacts of bamboo enterprises in the Mid-hills of Nepal: A case study on *Pahari* community at Badikhel Village, Lalitpur

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The present study investigates the associate enterprises involving bamboo-based weaving and handicraft making at Badikhel Village Development Committee, Lalitpur District, Central Nepal. It aims to assess the socio-economic importance of bamboo craft making on *Pahari* community at Badikhel. Forty households were randomly selected for questionnaire survey from the areas with higher density of bamboo entrepreneurship practiced. Perceived stakeholders were interviewed to examine their roles and to find out the contribution of bamboo enterprises to household income. Group discussions on issues of bamboo cultivation and management were conducted following RRA and PRA techniques. It was found that Badikhel impregnates four species of bamboo belonging to two genera viz. *Bambusa* and *Drepanostachyum* and are important and traditional source of livelihood for the *Paharis*, one of the ethnic groups in the study area. An average bamboo handicraft maker obtained NRs. 1000 to NRs. 5000 per month from the cash sales of assorted handicrafts. However, no significant bamboo management practices were carried out by the entrepreneurs. Three out of four community managed forests in the study area planted only *Bambusa nepalensis* as per local demand. Since stakeholders' involvement in actual promotion of bamboo handicraft industry and bamboo management is meager there is an urgent need for the formation of a larger association of bamboo users for the growth and development of the bamboo entrepreneurship in the area.

Key words: Socio-economics, bamboo entrepreneurship, *Paharis*, *Bambusa*, *Drepanostachyum*

Bamboo is one of the important non-timber forest products (NTFPs) cultivated widely in the world (FAO, 1978). It has intimately been associated with human beings since time unknown. In Nepal, bamboos are found in almost all its parts—natural or cultivated with twelve genera and more than fifty-three species (Stapleton, 1994; Karki *et al.*, 1995; Das, 1999; Joshi and Amatya 1999; Das, 2004). They are the important component of rural farming system and play a critical role in rural economy helping to sustain livelihoods of the many rural households that include socially and economically disadvantaged group (Das, 1992; Thapa *et al.*, 1998; Das, 1999). Cultivation of bamboos is a common practice on private farmlands. The multi-purpose species has been increasingly introduced in community forests (Das, 2002).

Bamboo entrepreneurship is one of the key instruments for the upliftment of socio-economic status of poor and under privileged people in Nepal. Bamboo craft makers design various bamboo architectures in assistance with simple basic tools prepared locally. An estimation of about 3.3 million farming families are somehow involved with bamboo sub-sector either as producers or as users of bamboo-based products (Pant, 2006). Development and encouragement of cottage industries based on bamboo thus have a very high potential of providing the locals with much needed cash income and making a very important contribution to their household economy (Poudyal, 1992; Karki *et al.*, 1995; Sherchan *et al.*, 1996). Further, it can contribute to the regional and national economy. However, due to the lack of conducive policy and government's

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support, disorganized market and limited skills, bamboo-based economy contributes only 1-2% to the national GDP (Karki *et al.*, 1998).

The present study attempts to investigate the relationship between the bamboo-based enterprises and the *Paharis*, the ethnic community at Badikhel Village Development Committee (VDC). The research thus brings out in light, the socio-economic impacts of traditional craftsmanship in improving the living standard of these people.

Materials and methods

Study area

Badikhel VDC lies in the northern part of Lalitpur district between 27°36'04.88"N latitude and 85°20'48.96"E longitude, occupying approximately 905.2 hectares with an elevation of 1290 – 1710m above sea level. It is bordered with Godavari in the east and the north, Jharuwarasi and Chapagaon in the west and Lele and Chapagaon in the south (Fig. 1). According to the CBS (2001), the total population of Badikhel VDC is 3212. It has a predominant of an ethnic group, the *Paharis* occupying approximately 55.22% (1774) of the total population. Besides, *Brahmins* and *Chettries* cover about 40% while the rest 10% of the population comprises of the minor caste groups like *Newar*, *Gurung*, *Rai*, *Magar*, *Kami*, *Damai* and others (CBS, 2001).

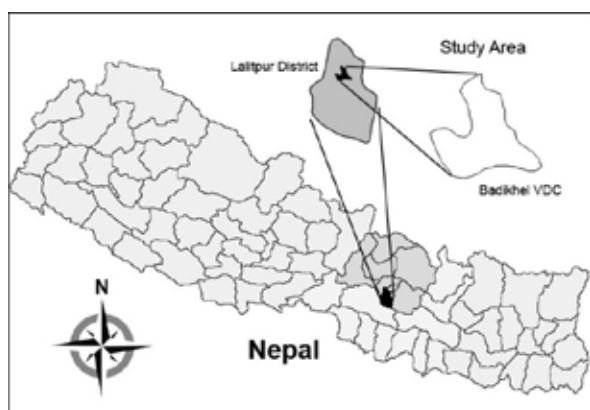


Fig. 1: Map showing the study area

Research methods

The socio-economic survey was conducted in the study area in the year 2006/2007 during summer and rainy seasons (April- August). The random sampling method was used as sampling frame. Out of 300 *Pahari* households (HHs), 40 HHs with

285 inhabitants were selected as sample units and interviewed. Each HH was considered as a sample unit. Selection of the areas was done on the basis of the high density of bamboo entrepreneurs as developed locally in a participatory way, which include bamboo craft makers, growers, traders and sellers (Table 1).

Table 1: Distribution of sampled households

S.N.	Ward no.	No. of HHs	Sampled HHs (%)
1.	4	10	25.0
2.	5	9	22.5
3.	6	8	20.0
4.	7	5	12.5
5.	8	8	20.0
Total		40	100

Source: Field survey, 2006/07

Participatory methods such as RRA/PRA, focus group discussion, semi-structured questionnaire and key informant interviews were used to obtain the qualitative and the quantitative data. The participatory assessment was done as a crosscheck by conducting group discussions in various wards asking different questions related to plant identification, their uses, habitat, distribution, local name, cultivation, harvesting period, products manufactured, methodology and technologies practiced, income generation and the existing bamboo conservation practices.

Bamboo specimens found in the area were collected in summer and rainy seasons from April to August in 2006. They were identified with the help of various standard literatures (Stapleton, 1994; Tiwari, 1992; Das, 2004) and with the guidance of bamboo experts. Preservation of these specimens was done using standard herbarium techniques of Stapleton (1994) and Poudyal (2006).

Results and discussion

Distribution of bamboo species

From the survey, it was found that *Bambusa nepalensis* and *Drepanostachyum annulatum* occurred in natural as well as in cultivated forms, whereas *Bambusa balcooa* and *Bambusa nutans* subsp. *nutans* existed only in cultivated stands (Table 2).

Table 2: Distribution of bamboos in Badikhel VDC and their local names

Latin name	Local name	Distribution
<i>Bambusa nepalensis</i>	Tama bans	WC
<i>Bambusa nutans</i> subsp. <i>nutans</i>	Taru bans	C
<i>Bambusa balcooa</i>	Dhanu bans	C
<i>Drepanostachyum annulatum</i>	Ban nigalo	WC

C: cultivated; W: Wild; WC: Wild as well as cultivated

Source: Field survey, 2006/07

To state the pattern of bamboo distribution in the study area, five categories of frequency class stated by Manandhar and Bhattarai (1998) were used, which are given below. It was also noticed that *Bambusa nepalensis* was the most commonly occurring species rating highest in abundance, followed by *D. annulatum*, *B. nutans* subsp. *nutans* and *B. balcooa* (Table 3).

Table 3: Distribution of bamboos in different wards of Badikhel VDC

Ward no.	<i>B. nepalensis</i>	<i>B. nutans</i> subsp. <i>nutans</i>	<i>B. balcooa</i>	<i>D. annulatum</i>
2	C	F	R	F
3	C	-	-	C
4	A	-	-	C
5	A	-	-	C
6	A	F	-	F
7	C	-	-	F
8	A	F	-	C
9	C	C	-	C

Source: Field survey, 2006/07

A: abundant with more than 20 clumps; C: common with 10–19 clumps; F: few having 3–9 clumps and R: rare with 1–2 clumps; - Absent

Utilization of bamboo species

Bamboos are one of the very important sources

of livelihood for the *Paharis*. The traditional craftsmen had used all the existing bamboo species in one or the other ways. But their dependency towards *B. nepalensis* was higher than other existing species as this species was the main raw material they used for their bamboo-based craft making (Table 4).

Table 4: Bamboo species preferred among the respondents

Items	<i>B. nepalensis</i>	<i>B. nutans</i> subsp. <i>nutans</i>	<i>B. balcooa</i>	<i>D. annulatum</i>
Weaving material	***	*	-	*
Racks	***	-	-	*
Edible shoots	***	-	-	-
Fodder	***	*	-	**
Construction	***	*	-	-
Fencing	***	*	-	-
Soil stabilization	**	*	*	**

Source: Field survey, 2006/07 Highest (***), Medium (**), Lowest (*), Nil (-)

Various bamboo artifacts like *Nanglo* (flat and rounded plate), *Chalno* (Sieve), *Doko* (Basket for carrying loads), *Dalo* (Basket for storage purpose), racks, dustbins, and few other products like photo frames, flower vase, hand bags, decorative items were made from *B. nepalensis*. Stapleton (1994) considers it as a multipurpose species used for weaving, construction and for edible shoots. Das (2004) has reported the use of this species for weaving different types of baskets and grain stores in the hills.

Besides craft making, the locals used bamboo resources for other benefits like in construction, soil stabilization, fencing, as fodder, vegetables and for many daily household purposes and field works. Similar utilization of *B. nepalensis* has been reported from the Mid-hills and the Terai of eastern Nepal and in central and western Nepal by Das (1999, 2004) and Poudyal (2006), whereas *B. nutans* subsp. *nutans* and *B. balcooa* in the

study area were scarcely used to their potency due to limited availability and little knowledge. In comparison, *D. annulatum* was found to be used a little more than sparingly yet its utility was secondary to *B. nepalensis*.

Socio-economic assessment of bamboo-based work in the study area

Bamboos had received high social and economical values for their role in the lives of the *Pahari* community of the study area. It was found that not a single household had one-man entrepreneurship, rather, 100% employees belonged to their own family with each family having in average, three members involved in the business. This showed that the bamboo enterprises in the study area played an important role in employment generation. Kattel *et al.* (2007) has also reported similar condition from eight Municipal towns (Biratnagar, Birgung, Dhading, Dhankuta, Dharan, Nepalgunj, Pohhara and Surkhet) and surrounding areas of Nepal.

Further, the study revealed that the literacy percentage of the bamboo entrepreneurs in the study area was 47.5% with the rest 52.5% illiterate whereas Kattel *et al.* (2007) reported 87% of literacy level in his study areas. Similar condition is reported from Phongam village in Thailand where nearly all the bamboo entrepreneurs are qualified with primary level education (Thammincha, 1988). Muraleedharan and Rugmini (1988) have reported similar educational status among 47-80% bamboo entrepreneurs in Kerala. Thus, the facts clear out that it is a right choice for the educationally underprivileged *Paharis* for self-interdependent and improving their living standard.

Despite the bamboo entrepreneurship owed and governed by males the working team involved both sexes in an equal ratio. As bamboo craft making can be done in harmony with domestic tasks, it is taken as an extension of household activities. The situation is similar in the eastern Nepal among many poor women (Das, 1999). FAO (1978, 1990) has reported the heavy involvement of women in forest-based small-scale enterprises (FBSSEs) in many developing countries. Thus, the traditional business has been providing a means for upgrading the living condition of *Pahari* women in male dominated society.

About 80% of the bamboo entrepreneurs in the study area were found operating the business since last 30 years and more. This showed their dependence on bamboo resource. Das (1999) reported similar condition in the people, especially the socially and economically disadvantaged group in the Terai and the Mid-hills of Nepal. Pun (2007) has reported the bamboo craft making business as life sustaining among the lower caste groups like *Dom*, *Dalit*, *Kami*, *Damai*, *Sarki*, etc. in Siraha district.

Availability of bamboo as the raw material

Like most of the traditional industries in the developing countries, the bamboo enterprises in the study area sufficient supply of raw materials. It was found the total annual production of the community managed forest ranged 200 – 405 culms whereas the annual consumption of the sampled 40 households reached only 6863–8850 culms. Furthermore, the small size of landholding put constraints in bamboo growing. The average size of landholding per bamboo entrepreneur in the study area was only 0.43 hectares, while some were landless. Karki *et al.* (1998) states that landholding is one of the main factors determining the household decision for bamboo cultivation. Thus, few clumps grown in private lands are insufficient to meet the demand.

With only 5% of the required raw material available in the area, the rest 95% was found to be fulfilled from the external sources. If only the raw material could be made available locally, the annual income of the bamboo entrepreneurs can improve tremendously because the maximum price per culm bought from the local village ranged from NRs.25–100 whereas that bought from outside ranged from NRs.150–200.

There exists the traditional method of bamboo propagation by planting culm offsets with rhizomes in the study area, the method being expensive and time consuming, Das (2004) has stated it to be unsuitable for large sized bamboo. Based on the demand, the villagers had given preference to the plantation and conservation of *B. nepalensis*. This is due to poor knowledge of bamboo characteristics, properties and proper information flow; the craft makers are unaware of high end use of locally available species (Das, 2001).

Production and contribution of bamboo-based enterprises

Majority of the entrepreneurs in the study area were found to deal with the traditional household appliances like *Nanglo*, *Chalno*, *Doko* and *Dalo*. Few modern products like racks and dustbins had helped them to raise their economical status (Table 5).

Table 5: Major Products dealt by the respondents and their demand

Items	Demand rank
<i>Nanglo/ Chalno</i>	1
Racks	2
<i>Doko / Dalo</i>	3
Dustbin	4
Photo frame, decorative items, and others	5

Source: Field Survey, 2006/07

It was found that a profit of NRs.125 was made by selling a single piece of dustbin, which is equivalent to the profit made by selling 4-5 pieces of *Nanglo* or *Chalno*. Likewise, even more profit was obtained by 12.5% of the total surveyed entrepreneurs dealing with innovative value-added products like photo frame, bag, flower vase, etc (Table 6). However, these entrepreneurs too were not fully involved as they suffered from the problem of poor marketing channels and lack of information flow. However, limited knowledge on marketable craftsmanship skill and lack of modern scientific tools and techniques also hindered the growth and development of their business influencing the productivity both quantitatively and qualitatively.

The market of bamboo products and their sales were also linked to season. The highest sales were during October to December, the festive (*Tihar*) and marriage seasons. April to December was the moderate selling months and January to March the low selling months. Sales were also related to agricultural seasons. Cultural diversification imposed a considerable amount of effect on the bamboo product sale in the market.

The cash income generated from the sales of woven products and crafts was an important livelihood of the *Pahari* community, however

Table 6: Economical account of some bamboo products

Name of items	Average cost price (NRs/ piece)	Production rate (Piece/ person)	Average selling price (NRs/ piece)
Small <i>Nanglo</i> (20" diameter)	15	½ day	35
Big <i>Nanglo</i> (22" diameter)	25	1day	60
Rack	80	1day	100
Dustbin	100	2days	225
<i>Chalno</i>	20	½ day	40
Small <i>Doko</i>	50	1 ½ days	85
Big <i>Doko</i>	100	2days	150
Small <i>Dalo</i>	50	1 ½ days	85
Big <i>Dalo</i>	70	2 ½ days	115
Photo frame	50	¼ day	225
Handbag	65	1/2 day	135

Source: Field Survey, 2006/07

the monthly turnover being not more than NRs.5000/- per month. Maximum entrepreneurs (37%) had their monthly income ranging from NRs.2001–NRs.3000 (Fig. 2). On an average, bamboo crafts makers worked for 9 months in a year and earned NRs.27,000. However, this income was in contrast to the income of Terai crafts makers who earn an average of NRs.45,000 working for 9.9 months in a year (Pun, 2007). Likewise, the bamboo crafts makers of Dhankuta earn an average annual income of

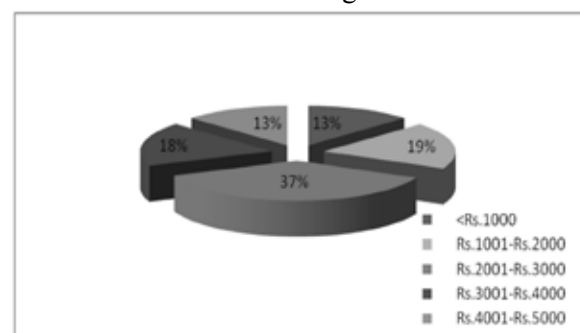


Fig. 2: Monthly turnover of bamboo entrepreneurs

NRs.5,500 working for 5.6 months in a year (Das, 2002). Further, Kattel *et al.* (2007) has stated that the average yearly income of the bamboo entrepreneurs is NRs. 1,000,00.

Conclusion

Bamboo enterprise has been a livelihood strategy for *Paharis*, one of the socially and economically disadvantaged groups of Nepal residing in Badikhel for decades. Beside contributing significantly to the livelihood security, bamboo handicraft making based on their traditional practices is also assisting in promotion of indigenous knowledge and technology, development of craft-based cottage industry and improvement in socio-economic condition of marginalized and poor *Paharis* especially women and landless families in the area studied. Such traditional utilization of bamboos for domestic as well as for commercial purpose is helpful in stimulation of indigenous entrepreneurship.

The bamboo enterprises of the area studied, however, suffer from many problems. No profound bamboo management is practiced in both handicraft making and bamboo cultivation. Consequently, the demand of raw material is unable to be fulfilled with its huge percentage (95%) found to have derived from the outer sources. Further, lack of introduction of modern tools and technology and poor market information is found as another hindrance in further progress and promotion of this traditional business in the area. Currently, except the community forest user groups, there are no other stakeholders working with the communities in sustainable management of bamboos. Nevertheless, in spite of these drawbacks, the business helps the local bamboo entrepreneurs to generate an additional earning. Under proper supervision and management of this traditional craftsmanship, the enterprises possess a tremendous potential in uplifting the socioeconomic condition of unprivileged rural lives of the *Paharis*. This “green gold” should be recognized and user groups should be made well aware of its sustainable management and utilization.

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