

**ANNUAL SUBSISTENCE CYCLE OF THE CHEPANGS IN
MID-HILLS OF NEPAL:
AN INTEGRATION OF FARMING AND GATHERING**

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INTRODUCTION

Along the Mahabharat range, in the remote and steep terrains bounded to the South of Trishuli River (Prithvi Highway), North and West of the Rapti River (East-West Highway and Tribhuvan Highway respectively), and East of the Narayani River (Mugling-Narayangarh Highway), lies the traditional area of the Chepangs: one of the indigenous nationalities¹ of Nepal. In the administrative division of the country, their traditional area falls in the West of Makawanpur district, Northeast of Chitwan district, and South of Dhading district. There are also quite significant population of Chepangs to the north of Trishuli River in the Southeast of Gorkha District, believed to have migrated from their traditional region (Rai, 1985). Although major highways of the country surround their traditional area, a large part of Chepang settlements are still untouched by motorable roads and feeder roads joining their settlements to the highways are almost absent. According to the population census 2001, the total Chepang population is 52,237 constituting 0.23% of the total population of Nepal (CBS, 2003). Of the total Chepang population, 40.67% lives in Chitwan district, 29.39% in Makwanpur district, 20.82% in Dhading district, and 5.25% in Gorkha district; the four districts thus form the home to more than 95% of the total Chepang population (CBS, 2008). Majority of the Chepangs live in the hilly Village Development Committees (VDCs) of these four districts namely Kabilas, Chandibhanjyang, Dahakhani, Darechowk, Kaule, Shaktikhor, Siddhi, Korak, Lothar, and Piple VDCs in Chitwan district; Manahari, Raksirang, Kankada, Khairang, Dadakharka, Bharta, Kalikataar, and Sarikhet-Palase VDCs in Makwanpur district; Jogimara, Gajuri, Mahadevsthan, Pida, Dhusa, and Benighat VDCs in Dhading district; and Taklung, Makaising, Tanlichowk, Bhumlichowk,

and Ghyalchowk VDCs in Gorkha district. Brian Hodgson was the first scholar to write about the Chepangs in 1848. In the last three decades, many anthropological and sociological studies have been done on the Chepangs (Riboli, 2000; Gurung 1995, 1994b, 1994a; Neis, 1989; Rai, 1985). Few quantitative studies have been done on the socio-economic aspects of the Chepangs (FORWARD, 2001a, 2001b; Gribnau et al., 1997).

The Chepangs were named as *Praja* (King's Subjects) by the late king Birendra during his tour to the Central Nepal in 1977. Thereafter, the Chepangs preferred to be called *Praja* as they regarded their ethnic name as derogatory, thinking it was often used by neighbouring Bahuns to tease them (Rai, 1985). However, over the last ten years especially after the formation of Nepal Chepang Association (NCA) in 1998 by few young and active Chepangs in Kathmandu, the younger generations in particular have steadily rejected the Praja name, which came to symbolize subservience (SNV, 2008; Bhattarai, 1999) and rather opt to be called Chepang, which maintains their ethnic identity and dignity. In 2004, the then His Majesty's Government of Nepal, agreed to apply the terms 'Chepang' instead of 'Praja' for citizenship certificates.

As an indigenous group, Chepangs have their own language *Chepang bhasa*, which is of Tibeto-Burman origin. They also have their own spiritual belief. According to the NCA, Chepangs are *Prakriti pujak* (worshippers of nature). The Chepangs worship all the elements of nature like trees, river, stones, land, and so on. However, in the past, a dominant and persistent Hindu ethos attempted to define their traditional beliefs as insignificant and counted them under Hindu religion (SNV, 2008). Also, when they were issued citizenship certificates, their religion was stated as Hindu without allowing them to correct it. After 1981, a significant population of Chepangs has converted to Christianity, which was first of all introduced by a linguist from New Zealand in 1981 in Maisirang village in Kankada VDC of Makawanpur, where he stayed 5 years to learn Chepang language (Bhattarai, 2004, 1999). Christianity among Chepangs is often viewed from two aspects. The Christian missionaries have successfully blended themselves within the Chepangs society by learning their language and living together in their houses. They

have motivated the Chepangs to quit irrational drinking and smoking habits. Besides, the Christian missionaries have also provided various opportunities for the education of the Chepang children, and health facilities to the community. As a result, many Chepangs have followed Christianity. However, the Chepang activists and members of NCA see this as a major challenge to preserve their traditional knowledge, especially the use of medicinal plants in local healing (Personal Communication with Yaman Chepang, Central Member of NCA, 27th February 2009). Due to the heavy influence of Hindu culture, they celebrate many Hindu festivals like *Dashain*, *Tihar*, *Maghe Sankranti*, and *Sawane Sankranti*. However, they also have their own festivals like *Nwagi* or *Chhonam* (celebration of new harvest), *Kulayan puja* (celebration of the clan), *Aitabare puja* (celebration performed to prevent natural disasters), and *Bhume puja* (Celebration of the mother earth). Among them *Nwagi* is the most important festival, which is basically the festival of new harvest. The NCA has declared *Nwagi* as the major festival of Chepangs. During this occasion, the harvest is offered to the dead ancestors of the clan. The Chepangs do not eat new harvest of rice, citrus fruits, and *Colocasia* until *Nwagi* is celebrated. The religious beliefs and practices of Chepang community have been studied in detail by Gurung (1995, 1994b). The Chepangs are believers of Shamanism as well. The Chepang shaman called *Pande* (or *Jhakri*) plays an important role in a number of religious and social activities of the Chepangs, such as the name-giving ceremony for a newborn baby, worship of a clan deity, funeral, and *Nwagi*. *Pande* is also a curer of illness. For all these purposes, the *Pande* invokes and propitiates various deities and the ancestors. During these occasions, *Pande* beats a one-sided drum with a crooked stick or recite some magical spells on some occasions. A new *Pande* can be trained by another expert or can be selected by the gods, in which case it is believed that the *Pande* receives *mantra* (spell) in his dreams. Riboli (2000) has conducted an in-depth study of Shamanism among the Chepangs.

Chepangs are categorized as highly marginalized² indigenous nationalities of Nepal. Poverty, illiteracy, lack of food self-sufficiency and food security, and lack of resource ownership are some of the common characteristics of the Chepangs (Piya et al., 2011a, 2011b). Ignorant of administrative requirements and official procedures many

Chepangs are still devoid of citizenship certificates. Chepangs dwell in marginal land, usually in the steep slopes. Chepangs have been the owners of their land since time immemorial. However, due to their practice of *khoriya* cultivation in olden days in place of organized agricultural methods, they do not have legal ownerships of lands they have been using. Even in cases where they have official title to their private lands, the little land that they have is poor and infertile. Farming is often practiced in marginal land, and is not enough to provide for them for the whole year. During the lean period, Chepangs depend on forests to gather wild edibles like tubers, yams, and fruits (Piya et al., 2011a; Bastakoti and Kattel, 2008; Aryal et al., 2009; Gribnau et al., 1997; Gurung, 1995). However, control over and access to forest resources has been severely restricted due to unfavourable state policies, which in turn threaten their traditional livelihoods (Upreti and Adhikari, 2006).

Often described as guardians of the forest, Chepangs are believed to be until the last 100-150 years ago a semi-nomadic hunter / gatherer group ranging the forests of Nepal as described by Brian Hodgson in his 1848 article ‘On the Chepang and Kusunda Tribes of Nepal’ to be “living entirely upon wild fruit and the produce of the chase” (Hodgson, 1874; p. 45). It is supposed that agriculture is comparatively a newer phenomenon for them (Bhattarai et al., 2003; Gribnau et al., 1997; Gurung, 1995). Nearly a century after Hodgson, a comprehensive study about Chepangs by Rai (1985) reported that though Chepangs still practiced a good deal of hunting and gathering, agriculture formed the mainstay of their livelihood, and they practiced *khoriya* or shifting cultivation. Under this system, a patch of land was cleared in the forest and cultivated for three continuous years before the soil became exhausted. It was then left fallow for seven years; meanwhile they cleared and cultivated other patches of land. However, their access to forest was severely restricted due to the introduction of new government policies, most notably the enactment of Private Forest Nationalization Act in 1957, under which all the forests that had been used from the past under the traditional rights were included under the government ownership. This put a restriction in the hunting and gathering activities, thereby negatively affecting the traditional system of the Chepang livelihoods. Chepangs had no legal ownership

of land where they practiced *khoriya*, and most of them remained as uncultivated patches within the forest area, which was now under the government ownership. Cadastral survey conducted in the Chepang area in early 1970s only registered lands that were permanently cultivated as private properties, thereby failing to recognize *khoriya* patches as land suitable for registration. Enactment of Forest Act 1993 further strengthened the government ownership of forests, and introduction of community and leasehold forestry banned all the hunting and cultivation activities within the forest area. Restrictions on hunting, gathering, and clearing of forest patches for *khoriya* cultivation led to the transition of their livelihood to sedentary agriculture. They mostly grow maize, millet, buckwheat, black gram, soybean, and mustard in upland and *khoriya*; they also cultivate rice, wheat, and vegetables if they own lowland or irrigated upland. However, only a small percentage of Chepang households are fully food self-sufficient. Though agriculture forms the mainstay of their livelihood, Chepangs still depend upon forest resources to a large extent and the contribution of wild and uncultivated edible plants play an important role in their subsistence economy. In the following sections, this paper will discuss in detail how the Chepangs combine farming and gathering to sustain their subsistence livelihoods. Besides gathering, Chepangs also depend upon livestock, wage laboring, collection and sale of NTFPs, skilled and salaried jobs, handicrafts, and remittance for cash income. Most of their cash income is spent in procuring food. During the time of their food deficit, the Chepangs have to depend on the other communities like Bahuns, Chhetris, and Newars for loan, which they pay back by selling goats, black gram, soybean, or other forest products like NTFPs, and honey (FORWARD, 2001b; Gribanu et al., 1997).

THE STUDY SETTINGS

The study was conducted in Shaktikhor VDC in Chitwan district and Handikhola VDC in Makawanpur district (Figure 2 and 3). In Shaktikhor VDC, there are approximately 400 Chepang households with a total Chepang population of 2,575, which is 34.7% of total population in the VDC. Chepangs are the largest population among the ethnic groups in Shaktikhor VDC. In Handikhola VDC, there are approximately 230 Chepang households with total Chepang population of 1,420, which

is 7.3% of the total population in the VDC. Chepangs form the fourth largest population of the ethnic groups in Handikhola VDC. Elevation of Shaktikhor varies from approximately 275 – 1400 meters above sea level (masl) while that of Handikhola varied from 315 – 720 masl (NGIIP, 2006). The Chepang settlements in both these VDCs are in close proximity to forests. The Chepang settlements are situated up on hillsides and the households are scattered. The topography of the settlements is very rugged, and from a distance the settlements tend to be hidden by ridges and jungles. The settlements are connected by narrow trails running parallel to hillside ridges. During rainy season, the trails are covered with undergrowth and leeches are prevalent. Also, falling stones and landslides are a danger. During monsoon, the rivers that run along the ridges are flooded making it difficult to move across the settlements.

Shaktikhor VDC is linked to the East-West Highway by an all season earthen road but only up to the foothills of the VDC, where the main bazaar is located 13 kilometers northeast of Tandi Bazaar in the East-West Highway. Other Chepang VDCs surrounding Shaktikhor (i.e. Siddhi, Korak, Kaule and Lothar VDCs) are not connected by motorable roads. Thus Shaktikhor is the main market center for the inhabitants of the adjoining hilly VDCs. From Shaktikhor bazaar, one has to climb steep winding paths uphill to access the Chepang settlements. Most of the Chepang settlements in Shaktikhor are situated at an altitude of 800 to 1400 masl. These settlements are sparse, and are connected by narrow foot-trails that run all over the hillsides.

Handikhola VDC, on the other hand is separated from the East-West Highway by the Rapti River. Because of the absence of bridge over Rapti, transportation facilities to Handikhola VDC are available only during winter. Even during winter, transportation touches only a small portion of Handikhola VDC, thus a larger part of the VDC is untouched by transportation all the year round. Furthermore, Handikhola VDC is traversed by many rivulets, which are very difficult to cross through during the rainy season. Chepang settlements in Handikhola are situated on the ridges, and each ridge is separated from the other by a rivulet that flow in the grove between the ridges so that in order to go from one settlement to another, one has to climb down the grove, cross

the rivulet, and again climb up the ridge. During monsoon, the rivulets are flooded and the ridges are very slippery, so that movements across the settlements become very difficult. The nearest market located in the East-West Highway is Sannantaar, which can be reached only after crossing the Rapti River. During monsoon, when the level of water in Rapti rises, Handikhola VDC becomes disconnected from the Highway.



Figure 1. Map of Nepal showing Chitwan and Makawanpur districts

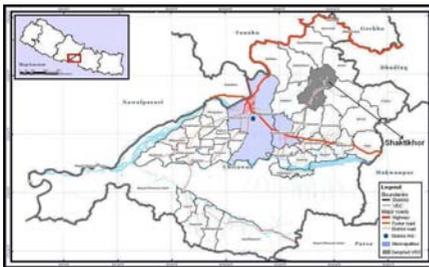


Figure 2. Map of Chitwan district showing Shaktikhor VDC



Figure 3. Map of Makawanpur district showing Handikhola VDC

Data on household characteristics were collected by a systematic household survey. The household survey was used to generate quantitative data in a structured form that could serve descriptive analysis. A semi-structured interview schedule was prepared containing both closed and open-ended questions. Questions were designed to obtain information on the demographic structure; socio-economic

characteristics like education, occupation, landholdings, and livelihood activities; and forest resource dependency for various purposes like food, fodder, litter, timber, fuel wood, housing, and so on. Before the selection of sample households, a reconnaissance survey of the study VDC was carried out to get general information about the location of settlements, availability of lodging facilities, and walking distances. A total of 120 households, 60 households from each VDC were selected as the sampling units. It accounts for 15% of total Chepang households in Shaktikhor VDC of Chitwan district, while it is 26.1% of total Chepang households in Handikhola VDC of Makawanpur district. The households were selected randomly taking into considerations factors like accessibility, security, and within the walking distances from the place of home-stay.

Five enumerators were hired for assisting the researchers in the household survey. The aim of the survey, and the purpose and use of the questionnaire were explained to the enumerators elaborately during the orientation. The researcher and the enumerators visited each of the selected households and all interviews took place on the selected household's premises. Each informant was first made aware of the objectives of the study. Probing was also done to further clarify the responses and triangulate the information given by the respondents. The time required to administer one questionnaire was nearly 2 hours. Household survey in Shaktikhor VDC was conducted in Chepang households lying at a walking distance of 30 minutes to 5 hours uphill after getting off the bus at the foothills of the VDC. The households covered lie in ward number 2, 3, 4, and 5 of Shaktikhor VDC. Ward number 2 and 5 lie nearer to the foothills while 3 and 4 lie farther away and is accessed only after a tough uphill climb. The household survey in Shaktikhor covered the Chepang settlements of Chinaraang, Kolar, Sherwas, Saaldanda, Kuwapaani, Samfaryang, Supaar, Gadhigaun, Darbetaar, and Bhyuraan. The household survey was conducted during the rainy season. Thus, Handikhola VDC was accessible only on foot. The study covered ward number 7 of Handikhola VDC, and covered the Chepangs settlements of Taarubans, Dolbaari, Lampakha, Chisapaani, Masiney, Narsingh Taandi Tol, and Barra Tandi. The households covered in Handikhola VDC lie at a walking distance of 2 to 6 hours from the East-West highway. Household survey was

conducted in August - September 2008 and follow-up field visits were done in February - March 2009 and February – March 2010.

Information was also collected through key informants' interview, group discussions, and researcher's observations. Focal group discussions with Chepang community were mostly carried out at local gathering places. Information on annual pattern of food gathering from the forests, locally available fodder species, plants used for domestic purposes like housing/ roofing, and plants of cultural / ritual importance were gathered from group discussions. These were supplemented with participant observations and informal discussions with local residents. To supplement the data from primary sources, various secondary sources were also reviewed.

FARMING

1. LANDHOLDING AND CROPS GROWN

Landholding among the Chepangs can be classified into three categories: *Khet* (irrigated land suitable for paddy transplantation), *Bari* (terraced upland, usually unirrigated), and *Khoriya* (sloppy unirrigated upland without terraces). *Khet* is the most fertile category of land, usually situated in the foothills nearby the streams. *Bari* and *Khoriya* are very stony, sloppy, and lacks irrigation facilities due to which they are less productive. *Khet* is considered an important asset for the households as it has the highest productivity, and three consecutive crops of Paddy (*Oryza sativa*), wheat (*Triticum vulgare*), and maize (*Zea mays*) can be cultivated thereby having higher contributions to the food self-sufficiency of the household. However, owing to the topography of the settlements, very few households own *Khet*, which is usually situated at lower elevations far from the houses. In this study, it was found that only around 37% of the sample households owned *Khet*, average area per household being 0.28 hectares (Table 1). Most of the households (more than 90%) owned *Bari*, the average area per household being 0.47 hectares, while around 43% households owned *Khoriya*, the average area being 0.46 hectares. The findings are similar to the study by Gribnau et al. (1997) who reports that 21% of Chepang HHs in four VDCs of Chitwan district owned *khet*, 98% owned *bari*, and 95% owned *khoriya*. Area per household is significantly higher in Shaktikhor than in Handikhola for all categories of land. Average

landholding is significantly higher in Shaktikhor (1.15 ha) compared to Handikhola (0.33 ha). The average landholding for Shaktikhor is higher than the national average for hills, which is 0.66 ha per household according to the 2001 census (CBS, 2006). The figure for Handikhola is much lower than the national average for hills.

Table 1. Average Landholding of the Sample Households by Land Category (in ha)

Land Category	Shaktikhor (n = 60)		Handikhola (n = 60)		Overall (n = 120)	
	No. of HHs	Area/HH	No. of HHs	Area/HH	No. of HHs	Area/HH
Khet	29 (48.3)	0.32	15 (25.0)	0.19	44 (36.7)	0.28
Bari	54 (90.0)	0.71	58 (96.7)	0.24	112 (93.3)	0.47
Khoriya	35 (58.3)	0.62	17 (28.3)	0.15	52 (43.3)	0.46
Total Landholding	60 (100.0)	1.15	59 (98.3)	0.33	119 (99.2)	0.74

Source: Field survey, 2008

Note: Figures in parenthesis indicate percentage

Those households which have no *Khet* rely mostly on *Bari* and *Khoriya* for grain production. Maize, and millet (*Eleusine corocana*), the two most important staple crops for the Chepangs, are grown in *Bari* and *Khoriya*. Besides these, Chepangs also cultivate buckwheat (*Fagopyrum esculentum*), and mustard (*Brassica campestris var. Toria*) in *Bari*, but in lesser quantities. Legumes like soybean (*Glycine max*), and blackgram (*Vigna mungo*) are planted along with paddy on the bunds of *Khet*, while cowpea (*makai bodi*³) (*Vigna spp*) is mixed-cropped with maize. Other legumes like a different variety of cowpea (*kattike bodi*⁴) (*Vigna spp*), *masyang* (*Phaseolus aconitifolius*), and horsegram (*Dolichos biflorus*) are usually cultivated in *Khoriya*. Cereals like *sama*, *kaguno* (*Setaria italica*), and *junelo* (*Sorghum vulgare*) which the Chepangs used to cultivate till some 35 years ago (see Rai, 1985), are no more cultivated. Chepang households maintain a small kitchen garden in their courtyard or in the field nearby their houses, where they plant limited varieties of vegetables and spice crops. Chepangs commonly plant broad leaf mustard (*Brassica juncea*), pumpkin (*Cucurbita maxima*), radish (*Raphanus sativus*), gourds [sponge gourd (*Luffa cylindrica*), snake gourd (*Trichosanthes anguina*),

bottle gourd (*Lageenaria siceraria*), and bitter melon (*Momordica charantia*), cucumber (*Cucumis sativus*), chayote (*Sechium edule*), and colocasia (*Colocasia antiquorum*). Other less commonly planted vegetables include *barela* (*Momordica balsamina*), brinjal (*Solanum melongena*), beans [snap bean (*Phaseolus lunatus*), four season bean, winter bean (*Dolichos lablab*)], okra (*Abelmoschus esculentus*), tomato (*Lycopersicon esculentum*), onion (*Allium cepa*), potato (*Solanum tuberosum*), cauliflower (*Brassica oleracea var. botrytis*) and cabbage (*Brassica oleracea var. capitata*); these vegetables are still very new to the Chepangs mostly introduced by the development agencies working in the area and are grown only by few households owning *Khet* or irrigated *Bari*. The most commonly planted spice crop is chilly (*Capsicum annum*) besides which they also plant garlic (*Allium sativum*), ginger (*Zingiber officinale*), and turmeric (*Curcuma domestica*). Chepangs cultivate very limited quantities of vegetables and spice crops due to the lack of irrigation facilities. Also, openly reared chicken and pigs are a problem as they run around the homestead in search of food, and destroy young vegetable seedlings in the kitchen garden.

2. THE ANNUAL CROPPING CYCLE

Maize and millet, the two important staple crops for the Chepangs are cultivated by all the households. After the harvest of winter crops, the field is ploughed and manured for the cultivation of maize. During *Falgun – Chaitra* (for conversion of Nepali months into English calendar, see Annex 1), after the intermittent spring rains, maize seed is broadcasted. If the onset of spring rain is late, broadcasting of maize seeds may be delayed until *Baisakh*. Immature cobs are consumed from *Asadh*, the mature cobs are harvested from late *Shrawan* till *Bhadra* depending on the sowing time. Cowpea (*makai Bodi*) is sown together with maize seeds. Green cowpea pods are eaten as vegetables during *Jestha – Asadh*, while mature seeds are harvested together with maize in *Shrawan – Bhadra*, and used as *daal*.

After maize, millet is transplanted in *Bari* and *Khoriya*. Millet is sown

in seed-beds on dry land in *Asadh* and transplanted about a month later. If the previous crop of maize is sown late, then this disturbs the transplantation of millet seedling. Under such circumstances, seedling transplantation of millet is delayed until *Bhadra*. Some households transplant the seedling while the maize is still standing in the field. Many Chepang households simply broadcast the millet seedlings on ploughed fields. Millet is harvested from late *Kartik* till early *Poush*. Besides millet, Chepangs also sow legumes like cowpea (*Kattike Bodi*), *masyang*, and horsegram after maize harvest. These legumes are usually sown in *Khoriya*. Green pods of cowpea is sometimes consumed as fresh vegetables, however these legumes are mostly grown for the purpose of pulses. Mature legume seeds are harvested in *Mangsir – Poush*. After the harvest of millet/legumes, the land remains fallow for 2-3 months. In *Falgun*, before the onset of spring rains, the crops stubbles are burned and the land is ploughed to prepare for sowing maize. In *Asoj – Kartik*, Buckwheat is sown in *Bari* in higher altitudes, where millet is not sown. Because Handikhola VDC is situated in comparatively lower altitude, buckwheat is not sown there. Chepangs in Shaktikhor barter buckwheat for unprocessed salt (*dheeka noon*⁵) with tradesmen who visit the villages from plain areas. Another winter crop less commonly cultivated is mustard, which is also sown in *Bari* where millet is not cultivated. Buckwheat is harvested during *Poush – Magh* and mustard is harvested during *Magh – Falgun*.

The few households who own *Khet* plant paddy after harvesting maize. As irrigation is available in *Khet*, maize is usually planted early in *Falgun*, and is thus harvested earlier in late *Asadh* till early *Shrawan*. Paddy seedling sown in seedbeds in *Jestha* is ready to be transplanted by the time maize is harvested in *Asadh – Shrawan*. Land is thoroughly ploughed, puddled, and leveled before paddy seedlings are transplanted. Paddy is ready for harvesting in *Kartik – Mangsir*. Soybean and Blackgram are planted in the bunds of *Khet* during rice transplantation and mature seeds are harvested in *Mangsir – Poush*. Soybean and blackgram are usually sold in the road-head markets for cash income, or to pay back the loans taken

from road-head moneylenders. After paddy harvest in *Kartik* – *Mangsir*, wheat seeds are sown in *Khet*. Some households may also sow wheat in *Bari* after millet is harvested. However, wheat is not commonly sown in *Bari* as it needs heavy manuring, whereas *Baris* are manured only once prior to maize seed broadcasting. Wheat can be harvested from late *Falgun* till *Chaitra*. The annual cropping cycles followed by the Chepangs can be summarized as follows:

<i>Bari</i>	<i>Khoriya</i>	<i>Khet</i>
Maize – Millet / Buckwheat / Mustard	Maize – Millet / Legumes (Cowpea/ <i>Masyang</i> /Horsegram)	Maize – Paddy – Wheat
<p>Note: <i>Maize is mixed cropped with Cowpea (Makai Bodi). Paddy is intercropped with Soybean and Blackgram. Buckwheat is not cultivated in Handikhola.</i></p>		

Chepangs don't give much emphasis on the cultivation of vegetables and spice crops. Of the few plants sown in the kitchen garden, fewer survive due to destruction by chickens, pigs, drought, disease, and pest infestation. Among the spice crops, chilly is an indispensable part of the Chepang diet. They plant chilly seedlings during summer months, which can be harvested from *Jestha* till *Poush* depending on the planting date. They dry the surplus for future use, and buy the insufficient amount when they visit the roadside markets. Most of the vegetables grown by Chepangs are summer vegetables, pumpkin being the most important one, as the young shoot can be used as green vegetables, the fruits can also be eaten as vegetables, and surplus mature ones can be stored for future use. The seeds of pumpkin are sown from *Falgun* to *Baisakh* along the bunds of the fields when maize is sown. Young shoots can be consumed from *Chaitra* till *Bhadra*. Young pumpkin fruits can be consumed from *Asadh* till *Bhadra*, while mature fruits are harvested in *Asoj* and stored for future use. Gourds (sponge gourd, snake gourd, bottle gourd, and bitter gourd) are planted from *Falgun* till *Baisakh* and are consumed throughout summer from *Jestha* till *Asoj*. Chepangs also plant cucumber during *Falgun* – *Chaitra* which can be eaten from *Asadh* to *Bhadra*. Indigenous varieties of cucumber can be left to mature in the plant, and can be stored for few months. However, these days, indigenous varieties of cucumber are becoming rare, mostly replaced by hybrid seeds. Increasing disease and pest infestation has been reported in the cucurbitaceous vegetables (pumpkin, gourds, and cucumber) after the introduction of hybrid seeds. Colocasia is planted

during *Falgun – Chaitra*, and leaves are used as green vegetables during *Shrawan – Bhadra*, while the tubers are dug from *Mangsir to Magh*. During the winter, the only green vegetables planted by Chepangs are broad-leaved mustard, and radish. Broad leaved mustard are planted during *Bhadra – Asoj*, and consumed from *Asoj* throughout the winter till *Magh*. Surplus leaves are fermented to make *gundruk* and stored to be used as vegetables for dry months. Radish is planted from *Shrawan* to *Kartik* and is consumed from *Asoj* to *Poush*. Chayote, a perennial climber, is another common vegetable among the Chepangs. Fruits of Chayote can be harvested from *Asoj* till *Poush*. Chayote can also be bartered with unhusked paddy. The cropping calendar for the major crops grown by the Chepangs is given in Annex 2.

3. LIVESTOCKS

Owing to the difficult topography, goat is the most important livestock for the Chepangs as the goats can graze in any difficult topography. Trade of goat is important source of cash income in Shaktikhor and the surrounding VDCs. As depicted in Table 2, most households in Shaktikhor rear goats and the average number of goats per household is much higher in Shaktikhor compared to Handikhola. Gribnau et al. (1997) also reported that 33% of cash income is from goats for Chepangs of Shaktikhor, Siddhi, Kaule, and Korak VDCs in Chitwan districts. Market for goat in Shaktikhor is very well developed and buyers from many adjoining districts and major market centers like Narayanghat, Hetauda, and Mugling come to the village to buy goats. Income from goats is used to buy insufficient grains, other domestic consumables like kerosense, salt, clothes, and to repay the loans taken from moneylenders during food shortages and emergencies.

Table 2. Average Number of Livestock Holding by Different Livestock Categories

Livestock	Shaktikhor (n = 60)		Handikhola (n = 60)		Overall (n = 120)	
	No. of HHs	Mean No. owned	No. of HHs	Mean No. owned	No. of HHs	Mean No. owned
Goat	57 (95.0)	13.2	49 (81.7)	5.4	106 (88.3)	9.7
Cow/Bullock	56 (93.3)	5.7	51 (85.0)	3.6	107 (89.2)	4.7
Buffalo	10 (16.7)	3.1	23 (38.3)	1.4	33 (27.5)	1.9
Pig	25 (41.7)	2.6	4 (6.7)	1	29 (24.2)	2.4
Chicken	52 (35.7)	8.6	54 (90.0)	7.4	106 (88.3)	7.9

Source: Field Survey, 2008, Figures in parenthesis indicate percentage

Cattles cannot graze on steep slopes, thus have to be fed by carrying loads of fodder from the forest. After goat, bullock is considered important for ploughing the fields. Bullocks are usually hired on the basis of labour exchange by other households who do not own bullocks. The cows reared in the Chepang area are usually small sized local breed, and are not very productive. Cows are thus reared for manure, rather than for milk. Buffalo is owned by very few households, as raising buffalo in such steep hills is very difficult. Buffaloes are harder to take care of, and are too heavy to be allowed out to pasture or to get water in the rugged terrain. He-buffaloes and she-buffaloes are often slaughtered during festivals; the meat and the price are shared equally by all the households, an extra share is given to the one who slaughters the animal. Chicken and pig are reared openly, and can be found running around the homesteads and even inside the house all the time. Chicken and pigs are mostly reared for own consumption, mostly slaughtered during festivals, and marriages; and are also sold sometimes. Many Chepangs rent in livestock from Bahuns, Chhetris, and Newars from the nearest road-head markets on *adhiya* basis. In this system, the Chepangs take all the responsibilities of rearing the livestock, in return of which they get half the share on the offsprings. So, if the goat gives birth to two kids, one of them will belong to the Chepang households, while another kid and the mother goat still belong to the non-Chepang owner. In the case of cows, the owners usually pay half the amount of the calf's worth to the Chepang household. Goat is the major livestock reared under the *adhiya* system. In this study, nearly 32% households in Shaktikhor and 40% households in Handikhola rear goats under the *adhiya* system. Besides goat, few households also rear cows and pigs under this system.

4. GATHERING WILD AND UNCULTIVATED FOOD PLANTS

Wild and uncultivated plants collected from the forests, field bunds, and bushes nearby *Bari* and *Khoriya* are important source of food for the Chepangs. All the Chepang households covered by the study are involved in collection of such wild edibles. The study identified 55 wild edible plant species collected by the Chepangs. Out of them, 21 (38.2%) are trees, 6 (10.9%) are shrubs, 6 (10.9%) are herbs, 12 (21.9%) are vines, 7 (12.8%) are mushrooms, 2 (3.6%) are ferns, and 1 (1.8%)

is bamboo. The details of wild edible plants along with the parts used and food category are given in Annex 4. Food plants are categorized according to their indication for specific utility as vegetable, staple food, fruit, spice, pickle, oil, and liquor. It was found that the wild plants were mostly used as vegetables (22 plants), followed by fruit (18 plants), staple food (9 plants), spice (5 plants), pickle (4 plants), oil, and liquor (1 plant each). According to plant parts used, the wild species used as food by the Chepangs can be categorized into 11 types. It was found that the most frequently used plant part was fruit (25 plants), followed by young shoot (10 plants), tuber (9 plants), whole plant (7 plants), aerial yam, flower and leaf (3 plants each), seed (2 plants) and bark, stem, and rhizome (1 plant each).

In this study, 9 different wild tubers were identified, which form the major staple diet for the Chepangs during the lean periods after their agricultural harvest is depleted. The most commonly consumed tubers are *gittha* (*Dioscorea bulbifera*), *bhyakur* (*Dioscorea pentaphylla*), and *tarul* (*Dioscorea alata*). These tubers form the staple diet for most of the Chepang households from *Falgun* to *Asadh* (see Annex 3). *Gittha-Bhyakur* taste bitter when uncooked and the tubers are boiled in ash water to remove the bitterness. *Ban tarul* is the most delicious of all tubers, however its tubers are thin and long that extend deep into the soil because of which digging of *tarul* is more difficult. *Bharlang*, the most poisonous tuber, is a spiny shrub. *Bharlang* is consumed only when the household faces extreme food shortage. Uncooked *Bharlang* has a bitter smell, and causes headache, nausea, and vomiting if exposed for too long. *Bharlang* needs very careful precautions while preparing. The skin is first peeled, sliced and boiled in ash water for about an hour. The boiled slices are then soaked in running water in the river for about twenty-four hours. The next day, the slices are boiled seven times, changing the water each time, after which the tubers are rendered edible. If the poison remains, it causes nausea-vomiting, sometimes causing death by vomiting blood.

Besides these tubers, forest is the main source of green vegetables for this community. *Sisnoo* (*Urtica dioica*) is the most commonly consumed wild green vegetables, which can be consumed almost all the year round from *Bhadra* till *Baisakh*. It was found that Chepangs consumed the

young shoot of *tanki* (*Bauhinia purpurea*) as green vegetables for eight month in a year from *Falgun* till *Asoj* (Annex 3). Other green vegetables commonly consumed include edible ferns (*niuro*), *jaluko* (*Remusatia vivipora*), and *latte* (*Amaranthus spp.*). These green vegetables can also be collected from *Falgun* throughout the summer, sometimes till *Asoj* – *Kartik*. Wild green vegetables, especially *sisnoo*, *tanki*, and *latte* are very prolific in nature and can be found abundantly in the bushes nearby forests, and on the bunds of *Bari* and *Khoriya*. Young bamboo shoots are also commonly used as vegetables. These are collected during the summer months from *Jestha* till *Bhadra* and are sometimes stored by pickling to be used during the dry season as well. Chepangs also collect many wild varieties of mushrooms which sprout in the forest after the monsoon rains (from *Asadh* till *Bhadra*). The Chepangs claim to know the differences between poisonous and non-poisonous mushrooms, as well as prayers to cure illness if a mistake is made. The annual gathering calendar for the major wild vegetables is given in Annex 3. *Chiuri* (*Bassia butyracea*), commonly known as butter tree for its rich oily seeds, is another important plant for the Chepangs in Shaktikhor. *Chiuri* trees are found abundantly in the forests around Shakikhor; few are also planted in *Khoriyas*. The pulp of *Chiuri* fruit often forms the major supplementary diet for the Chepangs from *Jestha* to *Bhadra*. The seeds are collected from the forests from *Asadh* till *Asoj*, and these are used to expel butter. *Chiuri* butter is the main source of cooking oil for the Chepangs. It is also used as hair oil, and as medicines for dry skin. Besides domestic uses, *Chiuri* butter also has commercial importance. It makes excellent raw materials for making quality soaps, and is bought by cosmetic companies. It is also used to light lamps in temples and monasteries in Kathmandu. Chepangs usually sell the *Chiuri* butter or seeds to the road-head traders during *Asoj* to make cash income for celebrating Dashain. In Shaktikhor, where *Chiuri* trees are in abundance, the Chepangs can identify 30 different varieties of *Chiuri* based on various biological features like flowering time, color, size, shape, texture, taste, smell, and productivity of leaf, plant, fruit, and seeds (Bhattarai et al., 2003). In Handikhola however, the trees of *Bassia butyracea* are not found because of lower elevations. It grows at an elevation of 700-1500 masl; whereas elevation of Handikhola is 350-700 masl. Thus, *Bassia butyracea* is not a part of the livelihood for

the Chepang community there.

Many plants have multiple edible uses as well. For instance, young shoots and seeds of *tanki* and *koiralo* (*Bauhinia variegata*) are used as vegetables, and their flowers are used as pickles. The aerial yam of *gittha*, *tarul*, and *kukkur tarul* (*Dioscorea deltoidea*) is powdered and used as pickle. Wild varieties of *timur* (*Xanthoxylum spp*) and *tejpaat* (*Cinnamomum tamala*) are used as spices. Also, Chepangs consume fruits of many types of wild figs like *dumri* (*Ficus racemosa*), *badahar* (*Artocarpus lakoocha*), *khanayo* (*Ficus semichordata*), and *pipal* (*Ficus religiosa*). Wild fruits are often gathered and consumed when they visit the forest for grazing goats, and collecting fodders and firewood. However, these wild fruits are rarely brought home.

The amount of knowledge accumulated by Chepangs about food gathering is astounding. They collect, prepare and eat deadly poisonous roots. The Chepangs can distinguish the edible mushrooms from the poisonous ones. Chepangs can remove poison from poisonous tuber, *bharlang*, and from the seed of poisonous legume *pangra* (*Entada phaseoloides*) to render them edible. Except for *Chiuri*, edible wild plants used in the two study sites is almost the same.

5. COMPLEMENTARITY BETWEEN FARMING AND GATHERING

Although farming forms the mainstay of the Chepang livelihood, the rugged topography, steep slopes, stony lands, inadequate manure and irrigation facilities lead to a productive capacity too small to support the population. The average food self-sufficiency of the Chepang households covered by the study is around 7 months, and only 7.5% of the total households covered by the study are food self-sufficient. Similar findings were also reported by Aryal et al. (2009) and Bhattarai et al. (2003). Gurung (2006) and FORWARD (2001b) report even lower average food self-sufficiency of 5 months and that only 1% of total Chepang households is food self-sufficient. Gribnau et al. (1997) reports that only 4% Chepang households were found to be self-sufficient. Gurung (2006) reports even lower figure of only 1 percent of total Chepang households being food self-sufficient. They face grain deficit from *Falgun* to *Asar*, the most chronic deficit being *Chaitra* to

Jestha. The reason for food deficit during this period is because this is the dry season; the land basically remains fallow during the dry months due to lack of irrigation facilities. Also, due to infertile and stony nature of the land, crop productivity is low, and whatever is harvested earlier gets depleted by this time of the year while the new crop is not yet ready to be harvested.

Chepangs gather wild tubers as staple food during these grain-deficit months. As shown in Annex 3, the most commonly used tubers are *gittha*, *bhyakur*, and *tarul*, and these are collected during the months of *Falgun* to *Jestha*, the period exactly coinciding with the months reported to be the most grain-deficit. During these months, the little millet and other winter cereals harvested in *Mangsir* – *Poush* are already depleted, while the new crop of maize is not yet ready to be consumed. Thus Chepangs are compelled to depend on wild tubers during these months. *Chiuri* fruits that mature in *Jestha* – *Asadh* also form a major supplementary diet during these months.

Gathering complements not only the staple diet of the Chepangs, but also complements the green vegetables. As already stated, since Chepangs grow very few vegetables, they mostly depend on various kinds of wild and uncultivated green vegetables such as *sisnoo*, *tanki*, *jaluko*, *niuro*, and *latte*. During the dry months of *Falgun* to *Jestha*, there is shortage not only of grains, but also of green vegetables in the field of Chepangs (see Annex 2). Thus, during these months, the shortage of green vegetables is complemented from the wild sources. Wild green vegetables like *sisnoo*, *tanki*, *jaluko*, *niuro*, and *latte* can be gathered even during these dry months when there are no vegetables in the field. The vegetable deficit during winter months (*Poush* – *Magh*) is fulfilled by *sisnoo*, which can be gathered almost all the year round. Thus gathering complements not only the grain shortage, but also the vegetable shortage in the Chepang community. Thanks to these wild sources, green vegetables form a component of the Chepang diet all the year round (see also Bhattarai, 2004 and Gribnau et al, 1997). This complementary function of wild sources can be easily understood by comparing the cropping calendar in Annex 2 and gathering calendar in Annex 3.

Chiuri seed is another important component of wild edibles collected by the Chepangs in Shaktikhor. Butter is extracted from these seeds during *Bhadra – Kartik*, and is used as cooking oil, which is barely sufficient until the little amount of mustard that is grown by very few households is harvested in *Magh – Falgun*. Once the stock of *Chiuri* butter and mustard oil is over, vegetables are simply boiled in salt-water and eaten. Chepangs buy oil from the market only during festivals when they have to cook meat.

Wild and uncultivated foods are important not only from the aspect of food security, but also from the aspects of food diversity and they undoubtedly contribute to the nutritional requirements for the Chepang community. A study showed that *gittha* and *bhyakur*, the major wild tuber consumed by Chepangs, contain five times more protein and fiber than potato and sweet potato (Bhandari, 1995). The study further showed that important elements like iron, calcium, and phosphorous are also available in these wild foods. Many wild foods consumed by Chepangs also perform dual role of food as well as medicine. For instance, *Chiuri* butter also has medicinal values for treating rheumatism, wounds, and dry skin.

CONCLUSION AND RECOMMENDATIONS

The Chepang subsistence agriculture economy lies between scarcity and bare sufficiency. Rugged topography, stone lands, limited manures, and lack of irrigation facilities lead to lower productivity of the crops cultivated. Maize and millet are the two most important staple crops cultivated by the Chepangs. However, millet has received very little attention in the mainstream researches. Varietal improvement of millet to increase the yield even under limited fertilizer and water input would contribute to the food self-sufficiency of the Chepangs. The wild and uncultivated plant species strongly contribute to the subsistence livelihoods of the Chepangs. Wild tubers complement the grain-deficit during the dry periods when the stored food supply is dwindling and the new harvests are not yet obtained. Besides staple foods, wild sources also contributed to the supply of green vegetables for the Chepang community. Chepangs cultivate very limited green vegetables, and rather rely on wild sources such as *sisnoo*, *tanki*, *latte*,

jaluko, and *niuro* which are hardier, and regenerate easily throughout the year, even during the dry seasons. Conservation and sustainable use of uncultivated foods have, however, received relatively little attention in development activities. Development agencies working with this community have put their effort only in promoting hybrid varieties of vegetables which are more prone to pest and disease infestation, and do not give optimum yield in the absence of adequate inputs like chemical fertilizers, pesticides, and water. Chepangs on the other hand are not in a position to supply all the necessary inputs, as a result of which the hybrid vegetables are, on the one hand, giving lesser production, while on the other hand displacing the more resistant local varieties, especially in the case of gourds and cucumber. Little emphasis has been made for the promotion of uncultivated species that are of importance to the Chepangs. Uncultivated plants remain important resources, therefore, updated inventories and information of these resources in terms of availability and use is essential. Some of these wild plants might have the potential to become valuable staple crops and important alternatives to the usual food crops cultivated by the Chepangs. There is a need to undertake action research based projects in order to exploit the potential of these wild foods and examine the possibilities of domestication. Without the understanding of the importance of both staple crop foods and uncultivated foods, agricultural planning will continue to focus on a few major crops and exclude the diverse and important uncultivated food resources. For Chepang people, who are subsisting their livelihoods by the combination of farming and gathering wild foods, losing one of the key components of their food i.e. wild edible plants would mean a major threat to their food security. It is thus important to understand how staple food crops and wild uncultivated food crops complement each other so as to maximize the food security of the Chepang community. This paper has its limitations in that it does not explore the dependence of Chepang community on hunting and fishing. Future studies focusing on the contribution of wild fauna to the subsistence livelihoods of these people is highly recommended.

END NOTES

¹ According to National Foundation for Development of Indigenous Nationalities Act 2002, indigenous nationalities means tribes or

communities having their own mother language and traditional rites and customs, distinct cultural identity, distinct social structure and written or unwritten history. Based on the same Act, Nepal Government has identified 59 Indigenous Nationalities (NIRS, 2006).

² The 59 indigenous nationalities in Nepal are classified into five groups comprising of endangered, highly marginalized, marginalized, disadvantaged, and advanced group. This classification is based on a composite index comprising of variables like literacy rate, housing, land holdings, occupation, language, graduates, residence, and population size. The indigenous nationalities are further classified into mountains, hills and tarai based on the geographical location where they form a majority. Chepangs fall under hilly and highly marginalized indigenous nationalities, together with Baramu, and Thami.

³ *Makai* means maize and *bodi* means cowpea; *makai bodi* is a variety of cowpea that is mixed cropped together with maize.

⁴ This variety of cowpea is ready to be consumed during the month of Kartik.

⁵ *Dheeka* means lumps and *noon* means salt in Nepali; referring to the unprocessed salt in crystal form.

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Annex 1. Conversion Table for Nepali Months to English Months

Nepali months	English months	Nepali months	English months
1. Baisakh	Mid April to Mid May	7. Kartik	Mid October to Mid November
2. Jestha	Mid May to Mid June	8. Mangsir	Mid November to Mid December
3. Asadh	Mid June to Mid July	9. Poush	Mid December to Mid January
4. Shrawan	Mid July to Mid August	10. Magh	Mid January to Mid February
5. Bhadra	Mid August to Mid September	11. Falgun	Mid February to Mid March
6. Ashwin	Mid September to Mid October	12. Chaitra	Mid March to Mid April

Annex 2. Annual Crop Calendar

Crop	Baisakh	Jestha	Asadh	Shrawan	Bhadra	Asoj	Kartik	Mangsir	Poush	Magh	Falgun	Chaitra
Cereals, Legumes, and Oilseed												
Maize	P		H	H	H						P	P
Millet				P	P		H	H	H			
Buckwheat						P	P		H	H		
Wheat							P	P			H	H
Paddy			P	P			H	H				
Soybean			P	P				H	H			
Blackgram			P	P				H	H			
Cowpea (<i>Makai</i>)	P	H	H	H	H						P	P
Cowpea (<i>Kattike</i>)				P	P	H	H	H				
<i>Masyang</i>				P	P			H	H			
Horsegram				P	P			H	H			
Mustard					P	P				H	H	
Spice and Vegetables												
Chilly	P	P	P	P								P
		H	H	H	H	H	H	H	H			
Broad leaved mustard				P	P	P						
Radish				P	P	P						
						H	H	H	H			
Pumpkin fruit	P	P	H	H	H	H					P	P
Pumpkin shoot	P	P									P	P
	H	H	H	H	H							H
Gourds	P	H	H	H	H	H					P	P
Cucumber			H	H	H						P	P
Chayote						H	H	H	H		P	P
Colocasia leaf				H	H						P	P
Colocasia tuber								H	H	H	P	P

Source: Field Survey, 2008/09
 Note: P: Planting, H: Harvesting

Annex 3: Annual Gathering Calendar of Major Wild Food Plants

Product	Baisakh	Jestha	Asadh	Shrawan	Bhadra	Asoj	Kartik	Mangsir	Poush	Magh	Falgun	Chaitra
Vegetables												
Sisnoo												
Jaluko												
Tanki												
Niuro												
Latte												
Bamboo												
Mushroom												
Tubers/Staple food												
Gittha												
Bhyakur												
Tarul												
Chiuri												
Chiuri fruit												
Chiuri seed												
Chiuri butter												

Source: Field Survey, 2008/09

Annex 4. Wild (Uncultivated) Plants Used as Food by Chepangs in Shaktikhor and Handikhola

S.N.	Scientific Name	Nepali Name	Chepang Name	Plant Type	Parts used	Food category	Location
1	<i>Bambus nepalensis</i>	Bans		Bamboo	Young shoot	Vegetable	Both
2	<i>Canna evdilis</i>	Besare tarul		Shrub	Rhizome	Vegetable	Both
3	<i>Chemopodium album</i>	Bethe		Herb	Leaf, young shoots	Vegetable	Both
4	<i>Bauhinia vahlii</i>	Bhogan	Chingui	Shrub	Flower	Vegetable	Shaktikhor
5	<i>Bauhinia vivipora</i>	Bhorla	Maklo	Woody vine	Fruit	Vegetable	Both
6	<i>Remusatia vivipora</i>	Jaluko		Herb	Leaf, Stem	Vegetable	Both
7	<i>Tectaria macrodonta</i>	Kali niuro		Fern	Shoot	Vegetable	Shaktikhor

S.N.	Scientific Name	Nepali Name	Chepang Name	Plant Type	Parts used	Food category	Location
8	<i>Bauhinia purpurea</i>	Koiralo	Rimsi	Tree	Flower, Fruit, Young shoots	Vegetable, Pickle	Both
9	<i>Asparagus racemosus</i>	Kurilo	Gaidung, Jhyordung	Herb	Tender shoots	Vegetable	Both
10	<i>Veronica baccabunga</i>	Kholessaag	Simsaag	Herb	Shoot	Vegetable	Both
11	<i>Amaranthus spp</i>	Latte		Herb	Tender shoots	Vegetable	Both
12	<i>Dryopteris cochleata</i>	Niuro	Ningure	Fern	Tender shoot	Vegetable	Both
13	<i>Entada phaseoloides</i>	Pangra		Vine	Mature seeds	Vegetable	Shaktikhor
14	<i>Urtica dioica</i>	Sisnoo	Nelau	Shrub	Tender shoot	Vegetable	Both
15	<i>Bauhinia purpurea</i>	Tanki	Gochchihi	Tree	Flower, Fruit, Tender shoot	Vegetable, Pickle	Both
16		Andre chyau		Mushroom	Whole plant	Vegetable	Shaktikhor
17		Chamre chyau		Mushroom	Whole plant	Vegetable	Shaktikhor
18		Dudhe chyau		Mushroom	Whole plant	Vegetable	Shaktikhor
19	<i>Agaricus bisporus</i>	Gobre chyau	Gobre musa	Mushroom	Whole plant	Vegetable	Both
20		Kanye chyau		Mushroom	Whole plant	Vegetable	Both
21		Khukhure phool chyau		Mushroom	Whole plant	Vegetable	Shaktikhor
22		Lamre chyau		Mushroom	Whole plant	Vegetable	Shaktikhor
23		Indremi gano		Vine	Aerial yam	Pickle	Shaktikhor
24	<i>Dioscorea hamiltonii</i>	Ban tarul	Ban goi	Vine	Tuber	Staple food	Both
25	<i>Dioscorea hispide</i>	Bharlang	Hung	Vine	Tuber	Staple food, Liquor	Both
26	<i>Dioscorea pentaphylla</i>	Bhyakur	Pas	Vine	Tuber	Staple food	Both
27		Lahare gano	Tomarke gano	Vine	Tuber	Staple food	Shaktikhor
28	<i>Dioscorea bulbifera</i>	Githa	Lak	Vine	Tuber, Aerial Yam	Staple food	Both
29	<i>Dioscorea pubera</i>	Panglang	Panglang goi	Vine	Tuber	Staple food	Both
30	<i>Dioscorea alata</i>	Tarul	Goi	Vine	Tuber	Staple food	Both
31	<i>Dioscorea deltoidea</i>	Kukkur Tarul	Goi	Vine	Tuber, Aerial Yam	Staple food	Both

S.N.	Scientific Name	Nepali Name	Chepang Name	Plant Type	Parts used	Food category	Location
32	<i>Dioscorea kamoomensis</i>	Tyaguna	Gilhi	Vine	Tuber	Staple food	Shaktikhori
33	<i>Rhus javanica</i>	Bhakimlo	Rusi	Tree	Fruit	Spice	Both
34	<i>Zanthoxylum spp</i>	Boke timur		Tree	Fruit	Spice	Shaktikhori
35	<i>Lindera neesiana</i>	Siltimur		Tree	Fruit	Spice	Shaktikhori
36	<i>Cinnamomum tamala</i>	Tejpat	Sinkauli	Tree	Leaf, Bark	Spice	Both
37	<i>Zanthoxylum armatum</i>	Timur		Tree	Fruit	Spice	Shaktikhori
38	<i>Rubus ellipticus</i>	Aeselu	Lyangasai	Shrub	Fruit	Fruit	Both
39	<i>Phyllanthus emblica</i>	Amala	Tausai	Tree	Fruit	Fruit, Pickle	Both
40	<i>Spondias cytheria</i>	Amaro	Hambala	Tree	Fruit	Fruit	Both
41	<i>Artocarpus lakoocha</i>	Badahar	Dhausi	Tree	Fruit	Fruit	Both
42	<i>Zizyphus Mauritania</i>	Bayer		Shrub	Fruit	Fruit	Both
43	<i>Ficus benghalensis</i>	Bar		Tree	Fruit	Fruit	Both
44	<i>Fragaria dalteniana</i>	Bhui kafal		Herb	Fruit	Fruit	Both
45	<i>Bassia butyracea</i>	Chiuri	Yosai	Tree	Fruit Seed	Fruit Oil	Shaktikhori
46	<i>Callicarpa macrophylla</i>	Dahi kamala	Tichangs	Shrub	Fruit	Fruit	Both
47	<i>Ficus racemosa</i>	Dumri		Tree	Fruit	Fruit	Both
48	<i>Myrica esculenta</i>	Hade kafal		Tree	Fruit	Fruit	Both
49	<i>Syzygium cumini</i>	Jamuna	Phanrid	Tree	Fruit	Fruit	Both
50	<i>Castanopsis indica</i>	Katus		Tree	Fruit	Fruit	Shaktikhori
51	<i>Ficus semicordata</i>	Khanayo	Koksi	Tree	Fruit	Fruit	Both
52	<i>Schleichra oleara</i>	Kussum		Tree	Fruit	Fruit	Both
53	<i>Eugenia operculata</i>	Kyamuna		Tree	Fruit	Fruit	Both
54	<i>Juglans regia</i>	Okkhar		Tree	Fruit	Fruit	Shaktikhori
55	<i>Ficus religiosa</i>	Pipal		Tree	Fruit	Fruit	Both

Source: Field survey, 2008/09