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# How Himalayan Dwellers Rely on Common-Pool Resources (CPRs) for Livelihood? Mustang, Trans-Himalayan Nepal

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**Abstract :** This article focuses on how a mountain community in Mustang of Trans-Himalayan Region of North-Western Nepal relies on availability of and accessibility to Common-Pool Resources (CPRs), such as forest water and pastureland for making a living. Most of the villagers' livelihoods earning sources directly or indirectly rely on the agricultural productions and the livestock rearing, which are not possible without extracting resources from CPRs. Analyzing through qualitative epistemological perspective of CPRs theories, required information has been collected during April - June 2007 and during October - November 2008. Household survey, Key Informant Interview, and Observation were the main techniques for data collection. It is impossible to produce crops in Mustang in such climatic (semi-arid) and geographic condition without using CPRs. Likewise, being an unavoidable component of livelihood pursuits, and to support the agriculture activities of the villagers, livestock also relies on the availability of and the accessibility to pastureland, fodder and water. Moreover, both activities also depend on each other. Some villagers' main source of cash income is from selling firewood, fodder and grass, which definitely need an access to the CPRs. Because of such necessity of CPRs for livelihood, villagers have well developed local institution to distribute the resources equitably since the historic past.

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**Classification:** *GJHSS-C Classification: FOR Code: 150305, 150601*



*Strictly as per the compliance and regulations of:*



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# How Himalayan Dwellers Rely on Common-Pool Resources (CPRs) for Livelihood? Mustang, Trans-Himalayan Nepal

Dilli Prasad Poudel <sup>α</sup>, Tor Halfdan Aase <sup>Ω</sup>

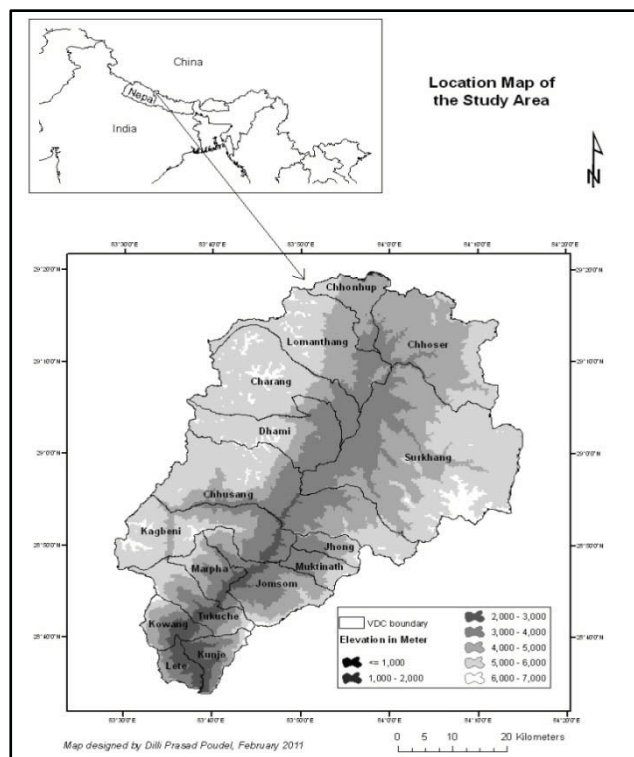
**Abstract:** This article focuses on how a mountain community in Mustang of Trans-Himalayan Region of North-Western Nepal relies on availability of and accessibility to Common-Pool Resources (CPRs), such as forest water and pastureland for making a living. Most of the villagers' livelihoods earning sources directly or indirectly rely on the agricultural productions and the livestock rearing, which are not possible without extracting resources from CPRs. Analyzing through qualitative epistemological perspective of CPRs theories, required information has been collected during April - June 2007 and during October - November 2008. Household survey, Key Informant Interview, and Observation were the main techniques for data collection. It is impossible to produce crops in Mustang in such climatic (semi-arid) and geographic condition without using CPRs. Likewise, being an unavoidable component of livelihood pursuits, and to support the agriculture activities of the villagers, livestock also relies on the availability of and the accessibility to pastureland, fodder and water. Moreover, both activities also depend on each other. Some villagers' main source of cash income is from selling firewood, fodder and grass, which definitely need an access to the CPRs. Because of such necessity of CPRs for livelihood, villagers have well developed local institution to distribute the resources equitably since the historic past.

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## I. INTRODUCTION: THEORY AND APPROACH

This article considers forest, water and pastureland as Common-Pool Resources (CPRs) of Thini Village of Mustang – Trans-Himalayan region of Nepal. These are essential resources for agriculture activities and livestock rearing in Mustang in particular and in the Trans-Himalayan regions in general. Most of the villagers' livelihoods earning sources directly or indirectly rely on the agricultural productions and the livestock rearing, which are not possible without extracting resources from CPRs (Poudel 2008; Poudel 2009, Poudel & Aase 2010). Ostrom et al (1994) define commons as the ability to exclude the users from its use. The most natural resources being consumed by the group of individuals or community can be classified as Common-Pool Resources (CPRs) (Ostrom 2002). The common does not imply any kind of ownership. The resources existing in a common location may be

claimed by an individual, or community, or the state. It is therefore possible of being overused or misuse of such resources as mentioned by Garret Hardin in his classic article "The Tragedy of the Commons" (Hardin 1968). Thus, careful and sustainable management of such resources is necessary because many households depend on them to maintain and sustain their livelihood (Agrawal 2001, Poudel 2008 & 2009, Poudel & Aase 2010). The common resources which are consumed by Thini villagers, has been managed and controlled by themselves since the historic past. At present, it is being managed by Conservation Area Management



Map 1: Location Map of Study Area

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<sup>3</sup> ACAP is the first and largest conservation area of Nepal, which is formed in 1986 and covers 7629 sq. km.

Committee (CAMC), formed by the Annapurna Conservation Area Project (ACAP)<sup>1</sup>. By any means, the resources of Thini belong to a form of property, and they are managed and controlled either by villagers themselves or by others (for instance CAMC).

### 1.1) *Local Norms and Common-Pool Resources:*

CPR theorists realize the role and importance of local *institutions in shaping human behaviour*. *Local norm* influences the managing and controlling of common resources since they facilitate and constrain their action and property rights (Agrawal 2003). Once peoples realize their dependability on the CPRs, they create their own institutional arrangement which helps them to allocate and distribute the resources and benefits equitably. They also manage it in a sustainable way over a long time period with only limited efficiency losses (Agrawal, 1999; McKean, 1992; Ostrom, 1992; cited in Agrawal, 2001). Ostrom et al. (1994) explicitly argue that, by devising their own rules-in-use, those who are depending on such CPRs overcome the "tragedy of the commons". Previous studies of the local people of Manang valley of Manang (Aase and Vetaas 2006) and Dolpo of Dolpa (Bauer 2004) of Nepal recognize that while using CPRs, villagers readily obey societal rules and regulations. It may be because of their own embedded rules and regulations that are being followed since time immemorial in managing, controlling and distributing such resources, which also "*established structure of power and authority*" (Sethi et al., 1996: 768; cited in Dasgupta and Somanatham 1996: 208) and the capacity to imply specific behavioural rules and paying for their enforcement (Ibid) within their society. For instance, in Manang valley (East of Mustang) of Nepal, farmers plant and harvest on dates fixed by village headman who gets consulted by a *lama* (Buddhist priest), instead of spreading risk by extending the planting and harvesting seasons in order to avoid all crops being damaged (Aase and Vetaas 2006). Likewise, in Dolpo of Dolpa district (West of Mustang) individuals agree with their neighbours upon a set of enforceable rules and regulations that control households' access to and use of community resources (Bauer 2004).

## II. STUDY LOCATION

### 2.1) *Methods and Materials:*

Mustang, covering 155.94 square kilometres of land, is situated within 28° 20' to 29°05' Northern latitudes and 83° 30' to 84° 15' Eastern longitudes on Nepal Himalaya. Mustang is divided into two broad regions; Upper Mustang (*Upallo Mustang*) and Lower Mustang (*Tallo Mustang*). The massive Himalayan Mountain has also divided Mustang into two distinct

geographical regions: the South facing Mustang and the North facing Mustang. Thini village lies in the North facing Mustang. Thini is one of the oldest Thakali<sup>2</sup> villages in Mustang, which is located at approximately 3100 meters above sea level (masl). Thini village is under Jomsom village development committee or VDC (smallest administrative and political unit of Nepal) which is divided into four wards for administrative purposes. According to the national census of 2001, a total of 112 households and 416 people reside in Thini village of which 220 are male and 196 are female (CBS2001; CBS2003). About 73 per cent of the villagers are Thakali. However, other communities such as *Kami, Gurung, Damai, Magar, Sherpa, Mahat* and *Lama* also live in the village. Thini has one primary school, one primary health post, and one local private club especially for youngsters. Essential infrastructure such as electricity and drinking water are available in Thini. Almost all the household have toilets and drinking water

#### Box 1: A Tale of Wood

*During previous visits to Mustang, It is heard households who keep more and more piles of firewood on the roof of their houses are considered a rich family and his or her family gains some merit (dhanipariwar or a rich family) in the society. This time, during the fieldwork it tried to find the possible logic behind this tradition. It has taken some photographs of various kinds of roofs such as roof with many piles of firewood, roof with a single pile of firewood and roof with no firewood. Photographs have shown to the respondents and requested them to consider the myth. After analysing all the answers collected during discussions with the respondents, six positive and two negative meanings of the myth have concluded. Six positive logics of keeping piles of firewood on the roof are: symbol of richness, useful in hardship, useful in old age, useful in severe winter or when heavy snowfall occur, to decorate flat and plain roof, and to protect the house from rain because Thakalis' have mud-stone roof which is water-soluble. If they do not keep firewood on the edge of the roof, there is the possibility of water leaking inside from the sides of the house. And two negative logics are: if someone does not keep firewood, it denotes someone die in his/her family and second is the symbol of bad luck. Whatever the logic they have behind the wood, it denotes social, economic and cultural relationship of villagers with the wood.*

<sup>4</sup>A type of mountain community, who are mainly residing in Lower Mustang region of Nepal, is also known as business acumen in Nepal.

tap inside the house. Very few household use public drinking water tap. Public taps are in a reachable distance from their house. It takes less than 10 minutes from their house. Most household own colour television, DVD player and Radio. A few household own all of them and some of them own at least one. In addition, owning a DVD player with a colour television is increasingly becoming popular and is becoming a sign of wealth. Required data have been collected during April - June 2007 and during October - November 2008. In the first visit, information was collected by designing semi-structured questionnaire (n = 50). Observation, photo elucidation and secondary information were other most important sources of data collection. During the second visit, previously collected information was updated after the information acquired from informally talking to the local people through re-confirmation of information, visiting other extremely remote villages of Mustang and talking with local people on similar topics.

### III. LIVELIHOOD AND CPRS

CPRs are the basis for agriculture and livestock rearing, which ultimately is the basis for making a living for the villagers. They use wooden materials, soil and stones to construct their houses. Villagers obtain all the construction materials from the CPRs. Fodder and grass for livestock, humus, litter and compost for agriculture, firewood as main source of fuel for households' use, entirely depend on the CPRs. They also use forest and its surrounding, and barren/abandoned land to graze their livestock, and common water for irrigation and drinking purpose, are also rely on CPRs. For some households of the village, selling firewood, fodder and grass is the main source of cash income. Villagers also use some special plants as medicine, and some to construct the roof of their house, which of course again rely on CPRs. Likewise, CPRs are not only a source for making a living but also are valued in the tradition and culture of the villagers. They respect forest as a goddess, since it is their source of livelihoods. Box 1 shows the value of wood in the village.

#### a) CPRs and Agriculture:

Almost all the interviewees of surveyed households have explicitly said that their agricultural activities absolutely rely on the availability of and the accessibility to the CPRs. The interviewees of *bhangdi*<sup>5</sup> and *ghyanga*<sup>6</sup> houses have stated more strongly about their absolute reliance of CPRs for their livelihood. Comparatively, rich households (those who own *pakka* or cemented houses) have more diversified earning strategies than the previous two groups. However, rich households also depend on firewood as source of cooking fuel, fodder for animals, and water for

### Box 2: Indigenous Institution

*Villagers have locally formed institution called Gaun Samiti (GS or village committee). In the committee, they have two Thumis (headman of village or Mukhiya in Nepali), one Bahidar (village secretary, Sachib in Nepali, and Dhungyuwa in Tibetan) and four Chhowas (villagers' messenger and responsible for distribution of irrigation water and maintenance of the canal, Katuwal in Nepali). Among four Chhowas one is selected as a leader, called Khepen. All the villagers are considered to be general members of the Samiti (committee). All the households must work as Chhowa at least one time in their lifetime (often it would be more than one time). Villagers select four Chhowas at once. Each year, other four new Chhowas replace all the four old Chhowas. If any villager denies to work as Chhowa, he must pay to transfer his responsibilities of Chhowa for that particular year to another villager. It is expensive to transfer the responsibilities of Chhowa. It costs about 15,000-20,000 (1USD = 65 Nepali Rupees during fieldwork) Nepali Rupees per year. Especially those out-migrated households, whose land and house are still in Thini but none of their family members are living in Thini, transfer the responsibilities of Chhowa to another villager. It is because their assets are still in Thini. If one has such fixed and permanent assets in Thini, GS decides to bear such responsibilities accordingly (as per the turn fixed in the kuriya: it is a social, demographic and religious record of the village keeps by village bahidar). Chhowa decides that from which agricultural fields the distribution of irrigation water should. All the main cultivable fields of Thini have unique names such as tep, bhumcha, mori ... etc. Based on those names they regulate the irrigation water. For instance, if chhowa starts irrigation from the land named tep then all the villagers whose agriculture fields surround or near from tep come to their fields and share the water in their agricultural fields equitably. According to the village Kuriya they have four categories of dwellers in Thini. First, those households who reside in Thini since their ancestors, such as Thakali and some Kami and Damai (so called lower castes of the village) households belong to this category. This can be categorized as permanent dwellers of Thini. Second, the permanent Lama (Buddhist monk) of Thini who must bear religious responsibilities of the village can be categorized as permanent lamas of the village. Third, those in-migrated households who live in Thini as tenants. This group of dwellers can be categorized as temporary dwellers of Thini. Fourth category is the Karmacharis (Villagers term Karmachari to all kinds of government personals such as civil servant, and schoolteacher) and seasonal wage labourers. According to the GS rules, permanent villagers and permanent Lamas have full access to the Forest. Temporary dwellers those who have land in Thini as tenants and living in Thini have also access to the forest but Karmacharis and seasonal wage labourers should buy firewood and fodder from the villagers.*

<sup>5</sup>A house constructed with wood, stone and soil

<sup>6</sup>A house constructed with wood and soil



*Photo 1: Water storage*



agricultural purpose. Their degree of reliance on CPRs is lesser than other income sources, such as trades and small business, remittance from migrants' family members, *raksi* (locally produced alcohol) selling to the hoteliers and guesthouse runner of Jomsom (headquarter of Mustang). In addition, due to lack of land or insufficient land to support subsistence needs, many poor villagers depend more on natural resource use through access to the CPRs (Beck & Nesmith, 2001; cited in Ellis and Allison 2004). The following sections pinpoint the importance of CPRs for the agricultural activities;

*i. Humus and litter for the agriculture:*

It is observed that people and *jhopa*<sup>5</sup> carry dark earth made of organic material such as decayed leaves and plants from the forest to use as compost in their agriculture fields. The villagers have been using such compost to augment their agricultural production since the historic past, which of course depends on the availability of and accessibility to the CPRs. At present, many villagers use modern fertilizer for summer cultivation, but still the reliance of agriculture on compost and manure is still high. Some villagers say that the quality of compost for agriculture production is greater than the modern fertilizer (though there are some villagers who say that modern fertilizers help them to produce more crops than by using compost). On the other hand, some villagers believe that the compost maintain the quality of soil, in contrary, modern fertiliser decrease the soil quality. The intensity of using compost and modern fertilizer varies from household to household. Indeed, all villagers use such compost from the forest during cultivation.

Currently, the trend of apple plantation is growing very fast in the village. Although, apple plantation fields (*bhar*) need less irrigation than crop production fields (*le*), it requires more manure and litter, which is not possible without extracting from CPRs.

*ii. Agriculture and Irrigation :*

The agriculture fields of Thini have been irrigated by locally institutionalized (see box 2) irrigations system. Though all the agriculture fields are divided into two categories i.e. *le* and *bhar*, *le* needs more irrigation than *bhar*. The location of the village (Trans-Himalaya), its climatic fluctuations (semi-arid) and the quality of the soil do not permit villagers to produce crops as per their requirements. Even though they produce such small quantity of crops, they need ample water to irrigate their fields during cultivation. That is why they have well-organized irrigation management committee which works under the guidelines of local village committee called *gaun samiti* (see box2). Since the plantation of apple trees is expanding, it also needs some irrigation. Indeed, the quantity of the agricultural production depends on the availability of and the accessibility to the commonwater.

*b) CPRs and Livestock :*

In Thini, livestock cannot survive without pastureland. The pastureland of Thini is located in the forested areas and its periphery, and barren or abandoned land (photo 2). Villagers have access to the forest to graze their livestock. Besides grazing, livestock also need fodder from the forest. In addition, before sowing and after harvesting the crops, villagers also

<sup>5</sup> Cross of yak and cow or *nak* (female yak) and *ox*

graze their livestock in their fields, though villagers prefer to graze them in the pastureland. Villagers need water not only for agricultural purposes, but also for feeding their livestock. Though at present many villagers use pipe water to feed animals, during busy working season such as summer and winter cultivation period, they need to feed them either in the irrigation canal or in the locally constructed water storage (Photo 1). Villagers also have

constructed such water storage, which they use to store the water for the animal and for the village during hardship. The livestock rearing, to some extent, fulfil the insufficiency of agricultural production. Thus, being an important component of agrarian households' livelihood pursuits, livestock rearing also relies on the availability of and accessibility to the CPRs



*Photo 2: Livestock are grazing in open access grazing land*

*c) CPRs and Firewood*

Villagers consume firewood as a main source of fuel for their household. They use firewood for different purposes, such as fuel for cooking, to keep their house warm, to protect their flat roof from rainfall and wind, and to place large pile of firewood on their roof to gain social merit (see more on Box 1). Therefore, they need to use the CPRs extensively to maintain their various requirements. A man of 71 years old highlighted the use and value of firewood in Thini village. He says;

*"I am now 71 years old. Since my childhood, I have been watching the various uses of forest products in our village. I have been collecting firewood since my childhood. My parents also used to collect firewood. A house needs at least 7-10 bharis (1bhari = 20-25 kg.) of firewood per month. In addition, those households who make raksi (locally produced alcohol) require a*

*larger quantity of firewood. I need more than seven bharis in a month. Because of my old age, I need to use firewood to keep my house warm even during summer. Thus, there is only way to survive in Thini- either I should collect the firewood from the forest or I should buy it from the sellers."*

Even though electricity exists in the village and the Annapurna Conservation Area Project (ACAP) is trying to create awareness about the alternative energy such as solar power in the village, villagers still prefer to use firewood for their various requirements as stated above.

*d) CPRs: Fodder and Firewood Sellers*

There are some households in the village, whose main source of cash income is the sales of



fodder, grass and firewood (these villagers also work as wage labourer in the village). These villagers also lease some agriculture fields in *ku*<sup>6</sup>. Moreover, they take care of the fields of the migrant villagers. Such villagers say that they must sell fodder, grass and firewood to fulfil their requirement of cash. One adult female respondent says;

*"Originally, I am from Dolpa district. We had own cultivable lands in Dolpa but it was difficult to produce enough crops in such climatic condition, therefore, we migrated down hoping prosperous life. Presently, my husband is in Kathmandu to work. He earns very little money, which is not sufficient for our family (three children and parents), so, I must find some ways to generate income. Now, I have three fields in kut. I harvest the crops (mostly karu and buckwheat) that only sustain my family about 3-5 months, thus, for the rest of the year I earn by selling firewood, grass and fodder from the forest. During summer, my husband and I try to earn cash income as much as possible that will be used during severe winter season. During winter, it is very difficult to go to forest to collect the firewood and fodder. Instead, I work in the other villagers' house, such as to clean the utensils and clothes, to clean the goth (animal shed), to work in their fields, to take care of small babies and sometime to help in the kitchen. Sometimes villagers pay me by grain, sometimes by money and sometimes by both. However, my main source of income is the sales of firewood, fodder and grass. I can use the earnings from those sales as I desire."*

The main source of cash income of migrated dwellers and labourers' not only depend on the CPRs, some local dwellers of the village also believe that it is almost impossible to survive in Thini without using CPRs. An adult Thakali male respondent says;

*"I have four fields. Three are le and one is bhar. I have converted le into bhar two year ago. My neighbour says that we will earn very good cash income from the bhar in the*

*near future. The productions of les support only 6/7 months to my entire family. Until now, I am not earning anything from bhar. I*

*have two children, my wife and my mother to feed. Therefore, either I have to go outside the village to earn money or I have to find some alternatives here in the village. Thus, I sell firewood and fodder. I work as a labourer. My wife also goes with me to collect firewood and fodder in the forest, and to work in others' agriculture field. If there were no forest or wood, we poor would die."*

Likewise a male member of a rich Thakali household, who sells firewood in big quantity to a troop of Nepal Army at Jomsom, says;

*"I am earning about Rs. 40,000 to 50,000<sup>7</sup> per annum from the sale of firewood alone. I use jhopas to carry the bharis from the forest and sell them to the Nepal Army, who camp at Jomsom. Through the sale of the firewood, I am able to send my children outside Thini for their education. I have one son and one daughter. Both are studying in Bachelor degree in Kathmandu. I must send money for their accommodation and education. Thus, firewood selling is the main source of cash income of my entire family."*

Thus, there are some households (rich and poor) whose main source of cash income is from the sale of firewood and fodder. In addition, since most villagers' livelihood depends on the income from agriculture and livestock; they need a large quantity of fodder for their livestock. Moreover, some villagers use tree leaves and vegetation to construct the roof of their house. Therefore, villagers must either buy these from the sellers or collect from the forest by themselves. None of these activities are possible without using CPRs.

#### IV. CONCLUSION

This article discussed how mountain dwellers of Trans-Himalayan. Nepal – focusing on Thini village of Mustang - rely on availability of and accessibility to the CPRs for their livelihoods. CPRs are the basis for agriculture and livestock rearing, which ultimately is the basis for making a living for the villagers. They use wooden materials, soil and stones to construct their houses. Villagers obtain all the construction materials from the CPRs. Fodder and grass for livestock, humus, litter and compost for agriculture, firewood as main source of fuel for households' use, entirely depend on the CPRs. They also use forest and its surrounding, and barren/abandoned land to graze their livestock, and common water for irrigation and drinking purpose, are also rely on CPRs.

<sup>6</sup> Leased agricultural fields where leaser pays either by money or by grains each year depending upon the number of fields he/she has leased. However, there is no such fix rules and regulation for kut. Sometime, leaser need to pay as mana (approximately half kg, however, its measurement varies in Nepal) or pathi (equivalent to 3.4-4.0 kg, depends on things, such as grain, flour or others) grain sow in the agriculture fields or sometime they pay a few hundred rupees to a few thousands rupees to the owner.

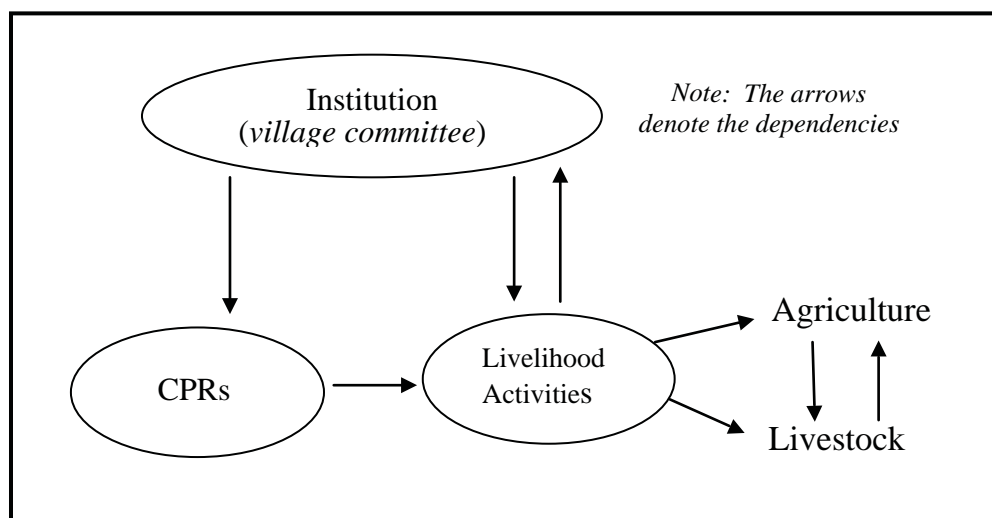
<sup>7</sup> A Beardless or naked type of grain, which is longer than wheat (*Triticum vulgare*), and similar to barley (*Hordeum vulgare*), locally known as karu (*Hordeum vulgare* subspecies)

<sup>10</sup> 1 USD = Approximately 65 Nepali Rupees during the fieldwork

It is impossible to produce crops in Thini in such climatic (semi-arid) and geographic condition. s(Trans-Himalaya) without using CPRs, such as forest, water and pastureland. Likewise, being an unavoidable component of livelihood pursuits of the villagers, and to support the agriculture activities, livestock also relies on the availability of and the accessibility to pastureland, fodder and water. Moreover, both activities also depend on each other (figure 1). Some villagers' main source of cash income is from selling firewood, fodder and grass, which definitely needs an access to the

CPRs. Because of such necessity of CPRs for livelihood, villagers have well developed local institution (also see in Poudel & Aase 2010) to distribute the resources equitably since the historic past.

Figure 1: Mountain Livelihood and Common-Pool Resources (CPRs)



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