

Persistent Change in Livelihoods in Bhirgaun, Eastern Nepal

Shambhu P Khatiwada

Associate Professor

Dhankuta M Campus, Dhankuta
shambhukhatiwada@yahoo.com

Abstract

This paper deals with persistent change in livelihood and investigates how local people adapt to changing environment in Bhirgaun of Dhankuta district, eastern Nepal. The area offers a lot of resources; here I refer to the general term inherited property of indigenous communities for their survival over centuries. Out of total 12 settlements of Bhirgaun representing upper, middle and lower hills were selected. Data were acquired from 207 households by utilizing purposive sampling. The survey result indicated that agriculture is a mainstay of livelihoods of the people. The livelihood activities under different environmental conditions have undergone change with varying level of changes. For example, high level of changes is indicated in the upper, medium level of changes in the lower and low level of changes in the middle hills. Recently, vertical and horizontal connection outside the region creates both opportunities and constraints. But, their dependence on market varies widely from one place to another and among different societies.

Background

Livelihood perspectives have been central to development practices since 1990s. However, environmental determinism insisted most of the geographic ideas in the nineteenth century and economic determinism in Polanyi's consideration. In the late 1990s, livelihood perspectives provided the impetus for many development agencies and seemed to adopt their own versions (Scoones 2009). Moreover, the environment and development movement of the 1980s and 1990s appear to have concern about poverty and development in Nepal, like other developing countries. Today, a livelihood perspective has been integrating the hybrid nature in different fields of development, for example, environmental degradation, poverty, and gender inequality (Ellis 2000; de Haan and Zoomers 2003).

Bhirgaun in the Tankhuwa Khola watershed is conceived as a place. The area provides the tangible heritage of microclimates and enriches property of indigenous communities. Their carrying capacity expresses ability to support multi-local survival ideas for hundreds of years. Their traditional livelihood seems to continue agro-pastoralism and labour related to the markets. This study of phenomena is found to be interconnected in hills and mountains of Asia and Africa (Benchfernia 1987; Jodha 1992).

Although their livelihood activities still serve as custodians of traditional knowledge that had not been able to complete its adaptation to the hill environment. With the passage of time the new adaptive strategies of diverse character began to break away from the variety of crops in different slopes. Wherever staple crops could not sustain it, but either urbanization or industrialization in neighbouring regions has altered this symbiotic relationship. In addition to changes of the physical settings other external influences may exert pressures of modernizations. The local people adequately impose their ways that can introduce new options without destroying old cultural foundations, such as crop-livestock-agroforestry. Indeed, its physical limitations are also being major constraints for rapid changes in comparison to other mountain regions as later seems to have demonstrated academic debates in this century (Jodha 1992; APROSC/Mellor 1995). This view is applicable more or less in Bhirgaun. There were some development planners who often insisted that hill inhabitants destroyed environmental resources in this area. In this context, present paper attempts to assess how local people adapt to persistent changes of their livelihoods in Bhirgaun of Dhankuta district.

Theoretical construct

Most of the livelihood issues seem to focus the problems of people’s day-to-day living (Scoones 2009; Ellis 2000; de Haan and Zoomers 2003). Their impetus has developed both theoretical and methodological insight in research and development practices. This paper suggests three levels of analysis for the livelihood study. They are theoretical level in the first which attempts to develop the concept of livelihoods. Historical level, which focuses on the comparative studies of livelihood strategies over generations, is in the second. And the policy level, which is made to yield answers to some persistent changes is in the third.

This paper addresses the persistent changes of livelihood that seem to avoid environmental determinism in so far as it concentrates on concrete relationships between people and their environmental resources, rather than looking for general laws (Figure 1).

Figure1: Determining factors of livelihoods



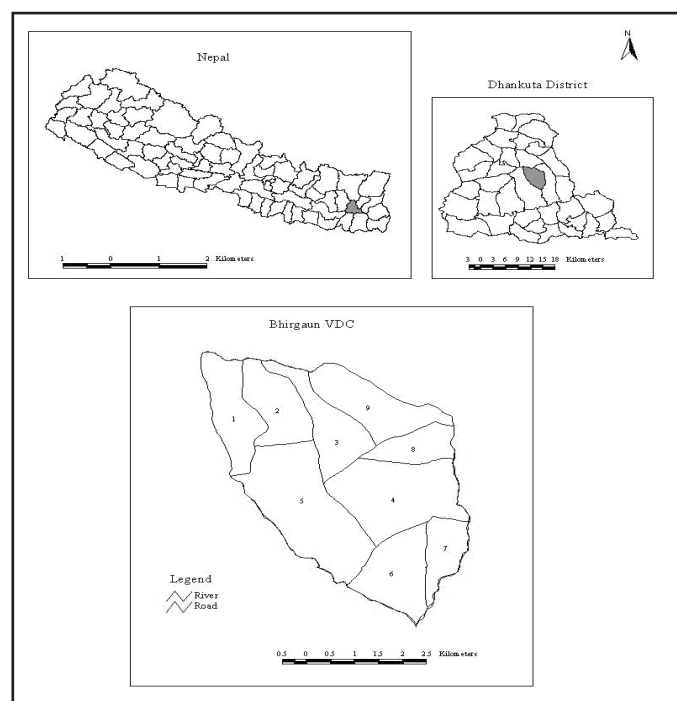
Figure 1 shows households’ livelihood strategies in the core. This paper conceptualizes the household livelihood outcomes having developed from long history of interaction between local people and their environmental resources. This view seems to integrate resource interaction model for emancipator rather than instrumental approach which justifies the access of assets

of the individual case. This framework sought a causal understanding of the relationships of local people to their different facets of environment. The livelihood outcome is dependent on content such as existing resources, activities, institutions and policies in the local area. They are also considered determining factors, such as: i) livelihood assets, ii) livelihood activities iii) vulnerability and coping strategies, iv) policies and institutional processes, and v) livelihood outcomes.

Methods and materials

Two criteria were used to select settlement for this consideration. They are geographical specificity of agricultural activities at different elevation zones, such as upper hill (*Lekh*), middle hill (*Kachhad*) and lower hill (*Aul*) and infrastructure facilities especially road-head link and irrigation, and institutional support services. Twelve settlements and their 207 sample households in Bhirgaun village development committee were covered (Figure 2). The primary data were collected from observation survey, key-informant survey and personal interview by using questionnaires. Household data were acquired through semi-structured questionnaire and from 15 key informants representing different elevation zones. Documents and reports available from the District Development Committee office (DDC), Village Development Committee (VDC) office, district Agricultural Office (DAO) and other concerning government offices and non-government organizations (NGOs) were also used as ancillary source. The gathered data and information were verified, stored out, and processed using SPSS (Statistical Package for Social Sciences) Program. Descriptive statistics, table, cross tabulation and indices are used wherever feasible.

Figure:2 Study area



Result and discussion

Livelihood assets

There are varieties of resources available in the study area. Most of these resources are derived from the environment and they are also known as natural resources. Arable land (74.4%), forest (23.1%), water (0.7%) and scenic resources are considered basic livelihood resources in this area. In addition, social, economic, human and physical capitals are also regarded as important assets.

Land: Most of the households stated that: 'land is a primary factor of production to be used with love and respect' as it is means for deriving their livelihood from lands followed by farmlands, rangelands and agroforestry. Their access over the ownership of land has not only signified livelihood statuses but has also symbolized both wealth and social position within their society'. The result indicates that average size of holding in the study area is 1.2 ha (0.2 ha per capita) in 2009 and it is higher than 0.8 ha for Nepal (CBS 2004).

Table: 1 Quintile distributions of landholding size by elevation zones

Elevation zones	Landholding size by percentage of household (in Ropani)				
	Poorest	Poor	Rich	Richer	Richest
Upper	28.8	15.3	15.3	22.0	18.6
Middle	28.6	21.4	20.2	11.9	17.9
Lower	10.9	18.8	25.0	21.9	23.4
Total	23.2	18.8	20.3	17.9	19.8

Source: Household survey

Table: 1 shows the quintile distribution of landholdings by elevation zones. The landholding size can be divided into five groups such as poorest of the poor, poor, rich, richer and richest. This classification is based on Nepal Living Standard Survey 2004. The result indicates that about 23.2 percent of the poorest of the poor households have owned only 20.0 percent of the landholdings. It is followed by 20.3 percent of the middle income households for 60.0 percent of the landholdings, 18.8 percent of the poor households for 40.0 percent of the landholdings and 19.8 percent of the richest households for more than 80.0 percent of the landholdings. The regional distribution of landholdings among elevation zones also indicated that 20.0 percent of the landholding was accounted by 28.8 percent poorest of the poor households in the upper hill, followed by 28.6 percent in the middle hill and 10.9 percent in the lower hill. This figure compares with 20 percent of the richest households which has access over 80.0 percent of landholding in the lower hill (23.0%), followed by the upper hill (18.6%) and lowest in the middle hill.

Livestock: The distribution patterns of livestock showed that goat accounted for the largest proportion (50.7%) followed by cow (28.4%), pig (12.4%) and buffalo (8.7%). 1600 chicken were found in the study area. The result showed that some households did not have any types of livestock, such as cow (10.1%), buffalo (49.8%), goat (15.5%), pig (43.0%) and chicken (12.1%). The result has given an idea that 20.8 percent of the poorest of the poor households have accounted for about 20 percent of the total livestock, followed by 22.7 percent of the poor

households accounting for 40.0 percent livestock, and compared with 19.3 percent of the richest households for more than 80 percent of the total livestock.

Labour: Labour force is also considered as an important human resource. More than 86 percent of the economically active population is engaged in agricultural works. They are busy from April to December. In agricultural peak seasons sometimes labourers from outside the household are also hired either in cash or kinds. Parma is also most prevailing reciprocal labour exchange system. Recently, increasing demand for agricultural labour force can be attributed to labour intensive agricultural activities, such as high-value crop and livestock.

Livelihood activities

Generally, households are involved in different types of livelihood activities in the study area. These activities can be divided into two groups: agricultural and non-agricultural. Here after the term agricultural and non-agricultural activities are interchangeably used for farm and non-farm activities unless stated otherwise. They are discussed as follows:

Agriculture: Agricultural activity is one of the most important survival strategies of the people in the study area. The largest proportions of the economically active population (80.7%) are directly or indirectly involved in agriculture and it is higher than 65.7 percent for Nepal in 2001. The regional distributions of agricultural population were also observed from one elevation zone to other and among different socio-economic groups. For example, the upper hill accounted for the largest proportion of the agricultural population (87.2%) and it is higher than 82.5 percent and 74.4 percent for the lower and middle hills respectively (Table 2).

Table: 2 Household livelihood activity (in percent)

Activity	Elevation zone			Total
	Upper hill	Middle hill	Lower hill	
Farm	87.2	74.4	82.5	80.7
Non-farm	12.8	25.6	17.5	19.3
Total	29.1	38.8	32.1	1156

Source: Field survey, 2009

Among the caste and ethnicity, the result revealed that the largest proportions of the Tamang (84.7%) are involved in this activity, followed by Magar (83.3%) in the second and the lowest for Dalits (52.1%). The largest proportions of Dalit population are involved in agricultural activities with apprenticeship enterprises.

Non-farm activities: The relative importance of non-farm sector in the household employment is considerably very low (19.3%) and it is lower than 34.3 percent for Nepal in 2001. Among the elevation zones, the largest proportion of the non-farm livelihood activities is bagged by the middle hill (25.6%), followed by the lower hill in the second (17.5%) and lowest in the upper hill (12.8%), while it was 23.0 percent in the rural Nepal in 2004. In the study area, household members are involved in five different non-farm activities such as agro-processing; cottage industry (such as art and crafts, bamboo baskets, weaving, agricultural implements); petty trading (small-business, marketing agro products), services, wage labourers and migration.

Risk and vulnerabilities

The majority of households reported that various factors makes them more vulnerable, such as natural disaster, environmental factors, crop failure, loss of livestock, inadequate infrastructure facilities, illiteracy, health risk (illness, disability, aged) and so on. These factors seem to affect the price of food, productivity and their opportunities. The result can be depicted as follows:

- More than 60 percent households suffered from the incidents of floods (in 1998), drought (in 1979), and earthquake (in September 1988);
- They are highly dependent on scarce natural resources for their survival. Over exploitation of land resources make them vulnerable to natural hazards.
- The steep terrain and usually harsh climatic conditions limit productivity of the areas which are rain-fed (63.0%). In the absence of an effective agricultural extension service, households resort to traditional farming practices for subsistence needs;
- Their accesses to governments' service centres and financial institutions are limited. As a result, low levels of technological inputs which generate a relatively low yield, decreasing levels of soil fertility, increased incidences of disease/pest attacks and a shortage of water for irrigation limit crop productivity;
- The literacy rate is relatively higher (79.9 %) compared to other parts of the country. But the low quality of education has contributed to job loss, remittance irregularities in incomes from markets, livestock and credits;
- The health status is very critical, because they depend on traditional healing or Dhami/Jhankri (more than 46%). The women, ethnic groups and Dalits' health status is relatively very poor so they are suffering from different diseases which sometimes leads to untimely death such as pregnancy/delivery problems, diarrhea and various kinds of life-long illness;
- Among the different livelihood assets, physical and financial assets are least available for the local people; at the same time the natural assets is degrading day-by-day. As a result, most of the households have no other option except to engage in agriculture and minor labour employment either within the country or aboard to enhance their livelihood assets.

Coping and adaptive strategies

Vidal de la Blache and other leading geographers formulated a historical method by which distinctive regional characteristics were shown as having developed through a long history of interaction between human and nature (Benchfernia 1987; Holt-Jensen 1996; de Haan and Zommers, 2009). This paper argues that, it can be unwise to give a general answer and deny the possibility of two specific explanations. Vertical connections and peoples' dependency upon local natural resources are the bases for the first types of persistent changes. The introduction of an innovation may be sufficient to upset traditional agro-pastoral activities and give it a new dynamism by the familiarity of some of the products brought to markets.

Bhirgaun takes advantages by the end of the twentieth century. The traditional agro-pastoral economy has given way to a liberal market economy and this type of livelihood is reduced. Horizontal connections among state and international policies and market forces became more

important for local development than local upstream-downstream resources interactions. These changes were of greater interest in horizontal spatial structures, by the end of the nineteenth century in Europe (Holt-Jensen 1996).

Among the people subjected to the pressure of a highly specialized hill environment more than 31.4 percent of the aboriginal Rais communities seem to have inhabited Bhirgaun. Their local livelihoods did not isolate peasantry economy and neither tied to the outside world completely. Their traditional survival strategies were balanced between internal food production through shifting cultivation (Khoriya), and outside wage labour as Lahur Jane, Arakatna Jane, and Kamgarna Jane. Other communities especially Chhetri, Bahun, Magar, Tamang and Dalits were considered immigrants. They brought new agricultural technologies, social structures and economic organizations like level-irrigated terraces and Kulo for wet-rice cultivation, plough, and introduction of maize and potatoes. However, their agro-pastoral way of life varies markedly according to climate, topography and differences in the quality and quantity of arable land. It is mainly due to combination of subsistence farming and pastoral practices which obey the seasonal rhythm of the vertical succession of ecological zones.

Recently, technological innovation, such as expansion of road transportation and market is having far-reaching effects in local livelihood strategies since 1990s. The introduction of markets was based on improved technology that permitted better use of natural and man-made resources. Two factors of this transformation were demographic growth and development activities that favored introduction of modernization.

With the progress in urbanization and industrialization, modes of livelihood are based solely on outside demand which cut their ties with traditional agriculture and were located according to their own needs. This change developed a unique livelihood basing on place-specific luxury crops for the outside markets. They are off-season vegetables, high-value commodities (large-cardamom, tea, and potatoes), meat, paddy and dairy. In this case, the livelihood strategies in hills and Tarai are being complementary and their continuation is tied to the mechanism of exchange. However, characteristics of these new modes of livelihood were also differing markedly from one elevation to another, for example, more complementary exchanges were practiced in the upper hill compared with the middle and lower hills. All these activities have been affected by the immense upheaval of physical infrastructure (especially roads, irrigation and markets); diffusion of innovation through GOs, NGOs. The examples given here are sufficient to clarify its general significances of Moroccan Mountains and Hindu-Kush Himalayas (Benchfernia 1987; Jodha 1992).

Most of the people derived cash income from large cardamom, tobacco, chilly, gingers, ground-nuts, tea, broom-grasses that were considered as high-value cash crops. Table 3 shows that the area produced about 476.2 quintals of high-value cash crops in 2008/09. Among the total high-value cash crop the largest proportion was constituted by tea (85.3%), followed by broom-grass (7.3%) and lowest for large cardamom (3.3%). More than 80 percent household grew potato that constituted 238 quintals which is worth Rs 285600 (2.3% of the total income).

The vegetables production area has covered about 15.8 percent in contrast to 0.4 percent for fruits. The total production of fruits in 2008/09 was 257.1 quintals and it was worth Rs 514200

(4.2%) income. The total production of the vegetable crops constituted 2684 quintals which is worth Rs 4311000 (35.0% of the total income). These calculations are figured out on the basis of sold amount in the market.

Table: 3 Cash crop production

Crop	Production by Elevation zone (Quintals)				Total	Percent
	Upper hill	Middle hill	Lower hill			
Tea	406	-	-	406	85.3	
L cardamom	11.8	3.9	-	15.7	3.3	
Broom	21.5	12.3	1	34.8	7.3	
Others	5.0	10.2	4.5	19.7	4.1	
Total	444.3	26.4	5.5	476.2		
Percent	93.3	5.5	1.2	100		

Source: Field survey, 2009

The highest proportion of vegetables accounted for (52.7%) by cabbage, followed by green-leaf (30.3%), cauliflower (6.2%) and least by garlic and onion. But these indices revealed steady and comparable growth across the elevation zones. For example, the highest proportion of vegetables were accounted for (86.8 %) in the upper hill, followed by the middle hill (7.2%) and lowest in the lower hill (6.2%).

Policies and institutions

Generally, existing policies and institutions seem to have solved different type of livelihood problems. These policies offered a participatory methodology that seemed to avoid their difficulties. So far it is concentrated on tangible relations between local people and their livelihood opportunities. These efforts led to greater interest in general laws governing the legitimacy of institutions for local development through agriculture. Finally, the assessment of market seems to change the way to relate people with outside the regions.

A livelihood strategy has become a localized phenomenon in the study area. However, there were very little policies and institutions that seemed to understand livelihood problems of everyday life. And if these understanding were not difficult, it appears that there has been a parallel subscription in the character of existing policies and institutions. Their identities and interconnections have been dramatically altered by combinations of participations, coordination and networking among different stakeholders since Local Self-governance Act (LSGA). They contained different developmental activities which influenced most of the households' livelihood strategies through natural resource management, infrastructure development, human resource development, and strengthen livelihood strategies.

The local communities in the study area considered that local organization is comprised by the technological and physical infrastructural development to change their social, economic and political activities. The following local organizations seem to have involved in the general sequence of these developmental activities in order to improve standards of living. They are government line agencies, local government, (I) NGOs, social organizations and private business organizations. They are involved in different levels such as national, regional, and local level for

agricultural research and development and implementing public policies. For example, land tenure arrangements, legal rights to natural capital, marketing institutions, input packages and prices control. These policies influence differently to take advantage of technologies, economic opportunities and gender participation in developmental activities. It had positive impacts on yields, but failure through damage from fertilizers during drought periods led to defaults.

Conclusions

To understand the complexity of livelihood strategies in the hill environment, it provides the foundations for people existences, by adding some alternative examples to these vertical and horizontal connections. The area is extremely rich because it embraces most, if not all, of the activities of groups and even of individuals over centuries. It is necessary to appreciate at an advance stage of livings to find evidence of emancipation from its bound. The vertical and horizontal connections of resources are techniques in the largest sense of the world.

However, there is no origination of innovative ideas to manipulate with changing environment. But the increasing access of road transportation, liberal markets and adoption of innovations seem to solve hill's livelihood problems. Thus, household's status quo that takes place as a result of new opportunities in all directions. As a bearer of promises, it facilitates the escape from hill areas to all who dream of an easier and more prosperous life. The road and markets have been active agents in the acceleration of hilly exodus. However, the livelihood of many hilly people is still based on the traditional practices.

In this case, policies and institutional mechanisms would upset the demographic balance in the hilly setting, and contribute, therefore, to the drastic alternation of local livelihoods. This paper concludes that the improvement of transportation facilitates the disposal of hill products in a wider market and stimulates expansion of commercial crops in the areas about 4 km distance from the road headlink. Thus, the government and development agencies should bridge knowledge gaps and provide linkages to the locality into global space. But it needs various preparations such as upgrading existing production skills, encouraging investment in entrepreneurship development, and patent-rights for local products, infrastructure development and subsidies.

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