
Livelihood as a Part of Ecosystem

Laxmi Thapa

Lecturer of Sociology at Saraswati Multiple Campus, Tribhuvan University, Nepal, email –

laxmithapa457@gmail.com

Article History: Received 29 July 2023; Reviewed 22 Aug. 2023; Revised 8th Sep. 2023; Accepted 15 Sept. 2023

Abstract

The earning practices of rural residents have been transitioning from agricultural-based to a remittance-based economy. Data report that more than seventy five percent of population households in the study area are currently engaged in foreign employment. This phenomenon has had variety of impacts on both community and its ecological environment. However, academic discourse rarely delves into the changing dynamics of livelihood patterns and their interplay with the surrounding environment. This paper aims to examine the livelihood practices of people as a part of ecology. For the analysis of the objectives set here, mixed method has been deployed to collect and analyze the required data. Semi-structured interview is followed by observation as techniques to collect the information. The study reveals that the changing practice of the livelihood of the people has played a vital role to transform the operation modality of households in both the socio-economic and the physical, environmental dimensions. Moreover, from the analysis of collected data, it was found that the quantity of flora and fauna has increased significantly. The areas once utilized for grazing livestock and cultivation have been found to be rapidly transformed into overgrown and abandoned fields, as the lack of manpower has made it difficult to tend to the land used by the people. Thus, the study concludes livelihood as an integral part of ecology, continuously interacting with its surroundings and changes in its nature have also led to corresponding alterations in the size of components in ecosystem.

Key-words: Abiotic, Biotic, Ecology, Employment, Livelihood

Introduction:

The article, here, is based around the proposition that change in livelihood practices and ecology goes side by side. For the analysis, livelihood practice and ecology before and after the involvement of significant numbers of population households in employment abroad are focused on discussion. In addition to the fundamental aspects of sociology such as social structure, institutions, inequality and various forms of diversity, this paper has made an effort to explore the evolving pattern of livelihood as an important component within the ecosystem. The analysis is carried out with the help of simple statistics and in-depth interview. As a brief paper, it does not attempt to review considerable amount of literature. However, a review of the relevant literature reveals a noticeable lack of discussion regarding

the interaction between livelihood practices and their immediate surroundings, despite the enduring and intricate nature of this relationship.

Framework of Study

The fundamental principle of ecology is centered around the seven concepts; heterogeneity of organisms and environment, interaction of organisms with biotic and abiotic environment, finite and heterogeneous resources, mortality of all living being and evolutionary cause of ecological property. These principles are the necessities that sufficiently constitute the general theory of ecology. They have also provided a suitable framework to understand the ecological relation of biotic and abiotic substances at any time and space. However, concepts of Roy Rappaport have also reviewed to understand the livelihood practices as a part of ecological phenomenon. Rappaport (1984) in his scholarly article "Pigs for Ancestors" has described his concern not with the part ritual plays in relationship occurring within the congregation rather he has focused on the effects of relationships between congregation and entities external to it (p.1-2).

Ecosystem

Ecosystem is an ecological unit consisting of both the biotic and the abiotic factors of the environments (Vidyarthi, 1985, p. 724-725). Biotic substances in the ecosystem refer to the primary producers, consumers and decomposers while surrounding around them are abiotic substances. Abiotic substances includes all non-living things like air, temperature, water or moisture, land and soil etc. which are the main components of ecosystem. In ecosystem, both biotic and abiotic substances have functional relation. Producers are autotroph and able to synthesis their own food by photosynthesis but they are absolutely dependent upon the abiotic environment for the raw materials like water, light, carbon dioxide (CO₂) etc. All green plants are example of autotroph.

Animals are heterotroph and cannot synthesize their food from photosynthesis, therefore, they depend upon plants and animals directly or indirectly. When the animals die, their bodies undergo putrefaction and are ultimately converted into organic and inorganic matters. These matters replenish the organic and inorganic contents of the soil utilized by the plants. Thus, a delicate and dynamic balance exists between the biotic and the abiotic environment. This is called ecosystem (Vidyarthi, 1985). In this system, the change in population character of any component is directly proportional to remaining others. (Maciver, 1949, p. 512) states, "every change in a living creature involves some change in its relation to environment; and every change in the environment, some change in the response of the organic being".

Interaction of Different Components of Ecosystem

In ecosystem, human stands as a consumer that depends upon plants and animals for making their living. In the natural prevalent phenomenon, human beings conduct different activities in order to secure water, food, fodder, medicine, shelter, and clothing to fulfill their necessities in order to survive. However, due to the advancements in science and technologies, the individuals are no longer compelled to become like the aboriginal people

and solely rely on the interactions with their surroundings for survival. Instead, they can earn their living from distant places. Economic migrants are one of the best examples, as they earn income from afar while providing support to their family without being directly connected to their ecology at origin. In this background, following are the objectives set to conduct the research here.

Objectives of the Study:

To examine livelihood practice.

To study interactive relationship between changes in livelihood practices and ecology.

Study Location:

The field area to collect the required data is Syangja district, Biruwa Rural Municipality Ward No. three (3) Rang Bhang, (Rang Bhang V.D.C. old structure) which is partly adjacent with Putali Bazaar Municipality Syangja. It lies in the south western region of district consisting 601 (HHs) households and total population of 3,187 residents, where the male population is 1,474 and total number of female population is 1,713 according to HHs survey, 2075 B.S. The population composition by caste is ethnic dominant followed by occupational minority and small number of Bhujel and Brahmin. Majority of young men in this area are economic migrants in foreign country which seems vital for evident changes in society and ecology.

Methodology:

Mixed method is central here however qualitative research method is dominant and quantitative is complimentary to conduct research. The quantitative method is followed to collect the required data related to livelihood practices and the earning of sample households whereas qualitative approach is followed to collect and analyze the data related to ecological change in that rural area. The nature of research design is descriptive and accordingly it has been deployed. The required data were collected through observation and semi-structured interview techniques.

Population and Sample

Total population from 8 Gautole is 601 HHs from which 56 HHs seven (7) by each Gautole were selected purposively for sample. This sample is considered to be sufficient for the study as the characteristics of the study population is highly representative of the total population due to its homogeneous nature. Hence, the 56 households are sample unit for analysis from which, household heads or senior members were chosen for interview. However, for the analysis of income status both prior to and from the 1990s onwards, data was sourced from the total population households which were listed with the help of ward chair and key informants. Furthermore, in-depth interviews were conducted with four school teachers and two local leaders, who were taken as key informants.

Procedure to Collect Data

Households having a member of age above sixty five with pension or regular income are categorized as households with regular income before 1990 and the rest of the other

population households are taken as after 1990s. For this purpose, a survey was conducted through questionnaire which was assisted by Mr. Lok Thapa a retired teacher and a local intelligent. Observations were conducted to collect data related to changes in the physical environment, agricultural production, livestock and households setting. Additionally, semi-structured interviews were conducted with members of the sampled households who held the position of household headship. With the help of key informants, the detailed information was collected as they possess a deeper understanding of the community and prevailing phenomena.

Context

Before discussing about livelihood practice, it would be better to establish the two distinct segments of information; before and after 1990s. This is due to the fact that the change in livelihood practice is rapid after 1990s owing to access to labor market abroad. So the first segment is about the earlier practice and the latter is about the current practice. The source for analysis and description is based on field visit.

Livelihood is a means of gaining a living. It comprises people, their capabilities and their means of living including food, income and assets (Chambers, 1995, p. 174). So, it is a combination of the resources used and the activities undertaken in order to live. These all are required to secure necessities of life. Prior to the 1990s, inhabitants of the research area engaged in agriculture and animal domestication as their primary livelihood, attributing significant value to the land. The local residents cultivated all the accessible land resources, including even the previously unused barren land known as 'khorja' which was used annually for cultivating beans and as a nursery for millet production. This highlights the fact that the land, along with its plant (flora) and animal (fauna) components, constituted the foundation of their livelihood.

In addition, the key informants informed that all the land and forest were utilized and managed by themselves. They used to venture into the woods as a group to gather firewood, fodder and even fruits like underground tubers (yam). Children too were involved in these activities at the end of the school-day and also during school breaks. Through these rigorous efforts, they would be able to harvest food grains for a year. During that period, buying food grains was not considered prestigious as households with an ample supply of food grains were regarded as rich and prosperous. However, the number of such household was not significant. The shortfall of food for the remaining households were addressed by selling labor and animal products in the local market and purchasing rice from Syangja bazar. Among the animal products, items such as ghee, buffalo, goat and pigs were sold.

Besides these, the process of joining as Gurkhas was a continuous annual effort for young men. Physically smart young men used to join in Indian and British army and men with weaker constitutions remained at home and engaged in the local economy. However, the number was not significant like today. While discussing with key informants regarding employment abroad and wildlife, the following quotes illustrates,

“We had never faced such unprecedented encroachment of the local wildlife into our farms, fields, pathways and settlement areas. Such events were very rare before the 1990s, before people began to migrate away from our village looking for jobs overseas. In the earlier times, we used to organize collective hunting activities involving the young men of the village which effectively kept such wildlife such as leopards, deer, porcupine, etc. at bay. However, in the present, majority of the younger generation depart from the village, either for further education or to work abroad, causing a shortage of manpower to carry out those group hunts.

(Dhadu Thapa, 76-year-old respondent, Rangbhang February, 2023).

The examination of this textural data highlights a shortage of dynamic and skilled labor within the rural community, alongside the encroachment of wildlife. This, in turn, indicates a growing presence of flora and fauna in the research area.

General Information about Existing practices

In order to know about the ongoing phenomenon, open ended interviews were conducted with two local leaders, and teachers. Data reports that, amongst the 56 sample household, all of them procured food grain from Syangja bazar, including items such as chicken, meat and eggs. In response to the queries about the purchase of meat, respondents stated that the price of mutton in the village is Rs 1500 per Dharni (equivalent to an effective price of Rs 600/kg), while the price in Syangja Bazar is Rs 1000 per kg. This discrepancy has prompted the livestock owners and producers to prefer selling their animal products in the more profitable and lucrative Syangja Market. Consequently, this has also compelled the individuals in the study area to have a higher disposable income in order to sustain their lifestyle. This increased expenditures has therefore nudged locals to seek employment, and of the options available, foreign employment often ends up being the most financially lucrative one. In the questions of insufficiency in food items, the following quotes illustrate,

“Local agriculture production has become very difficult and costly due to a shortage of energetic people, who are leaving the village for jobs abroad and/or to educate their children in the cities. This sharp decline in the supply of labor at the local level has led to the wages of the remaining workers to increase. For example, a plough man with his oxen would have to be paid NPR. 1,500 per day and a normal male worker would be paid NPR.800 per day. However, female workers would only get NPR. 250 only. Such increase in costs for labor had led to the local farmers to realize that there was no significant financial advantage to local production, as the cost to plant and harvest crops would almost be the same as the cost to purchase said crops from the market in Syngja. Therefore, it simply became more optimal for the villagers to become migrant workers so that they can earn money to afford for required basic needs. (Kala Thapa, Dhobadi, 3 Feb, 2023).”

The above information collected in text form shows difficulties for continuation of traditional agricultural practices in absence of energetic human resource resulting in higher local production costs. The cost of daily consumables they used to produce in the village and similar products available in Syangja bazar have almost the same price. Therefore, there is no economic incentive to produce the consumable agricultural produce locally. This new culture of earning from abroad, coupled with the rising labor costs without guarantees of successful production has discouraged people from being engaged in local agricultural production activities.

Likewise, electronic gazettes like Television and mobile phone have engaged new generation's time and they do not prefer to do hard work in the field. So the area of forest and barren land is increasing. This trend of changing cultivating land into forest has also increased the number of wild life. The following table shows the income status of population households before surge in employment abroad. Ecological change, encroachment of wild life, and change in the human population are the three main concepts which can be drawn from the above narrative. The statement that "going jungle alone is a threat to life" indicates both the ecological change and the encroachment of wild life. Because he has compared two different times in his story, before his departure for Mumbai and after he returned to the same ecological area. Increased population of flora and fauna shows the ecological change in that area, which also indicates the change in human population by gender. The occupancy of land area for cultivation has changed into forest and bushy forest. It is related to the event of mobility, in which not only a significant number of migrants leave their natal home, rather their left-behind have also become mobile as manpower for cultivation has decreased significantly, resulting in an increase in the area of barren land and forest, and thus wild life.

Table-1

Ward-wise Distribution of Population Households, Based on Regular Income

S.N.	Wards	No. of HHs.	HHs with Salary	Percent	HHs without Salary	Percent
1	Rang bhang	764	14	22%	50	78%
2	Khang rang	77	36	47%	41	53%
3	Chiruwa	101	29	29%	72	71%
4	Jymere	78	15	19%	63	81%
5	Khali	65	8	12%	57	88%
6	Dhobadi	93	13	14%	80	86%
7	Bhaiseгада	56	16	29%	40	71%
8	Lower Khali	67	10	15%	57	85%
	Total	601	141	23.46 %	460	76.53%
	Average		17.6	23.37 %	58	77%

Source: Field Survey, 2023

Table 1 shows the general feature of livelihood earning pattern before 1990s. In this presentation, data reported, most of the households 460 (76.53%) had no regular income. Only 18 household with salary indicates the dearth of income in that community before 1990s. Household with salary were mostly belonged to Gurkhas who were retired or in-service man but was not significant in number. Only 4 member households were drawing salary from teaching profession. Information shows, substantial number of HHs ranging from 53 percent to 88 percent having no monthly salary income. It means they were involving in agriculture and animal husbandry.

Likewise, the number of total HHs having source of salary shows the very low percentage throughout the study area. However, ward no.4 Khangrang had relatively higher percentage (47%) of HHs having source of salary because there were large number of Gurkhas and even two soldiers from that village had involved and loss their life in World War-II and two soldiers were imprisoned in Malaysian by Japan when they were participated in war on behalf of Britain. Later on, the Government of UK compensated these soldiers by providing NPR.13 lakh each in 2060 (Field visit, 2023).

Moreover, the average number of HHs with salary is only 23 percent for each ward and rest of other 77 HHs had no salary. This data shows, people were heavily relied on traditional agriculture as a means of livelihood. This was mainly due to the lack of viable alternatives for earning a living, given the absence of industries and other service sectors for employment apart from agriculture and animal domestication. Currently, if we observe the same locality, the information was found very different which I have presented in the following table.

Table-2
Ward-wise Distribution of Households Based on Income in the year 2023

S.N.	Ward	Total HHs	HHs with Regular Income	Percentage	HHs without Regular Income	Percentage
1	Rang bhang	64	46	72%	18	28%
2	Khang rang	77	69	90%	8	10%
3	Chiruwa	101	65	64%	36	36%
4	Jymere	78	48	62%	30	38%
5	Khali upper	65	43	66%	22	34%
6	Dhobadi	93	71	76%	22	24%
7	Bhaisegauda	56	47	84%	9	16%
8	Lower Khali	67	41	61%	26	39%
	Total	601	430	71.87 %	171	28.12%
	Average		54	72%	21	28%

Source: Field Survey, 2023

Table 2 demonstrates the existing number of the household having monthly salary of both economic migrants and local employments. The number of household with salary has substantially increased from 28 percent to 72 percent. If we compare the data between before and after 1990s, it shows the completely reverse picture of the society in term of shifting livelihood from non-salary to salary.

Residing Status

With the change of livelihood practice, society has become dynamic and mobile. In this process they are leaving their natal home and migrated to urban area. The table below shows the residing status of household in the study area.

Table-3
Residing Status of Population Households

S.N.	Wards	Total No. of HHs.	Un-inhibited HHs.	Percent (%)	HHs Cared by Relatives	Percent (%)
1	Rang bhang	64	9	20%	5	11%
2	Khang rang	77	7	10%	29	42%
3	Chiruwa	101	10	15%	34	52%
4	Jymere	78	5	11%	15	32%
5	Khali	65	4	12%	6	18%
6	Dhobadi	93	8	11%	10	14%
7	Bhaisegauda	56	4	8%	7	15%
8	Lower Khali	67	2	5%	5	12%
	Total	601	49		111	
	Average		6	12%	14	25%

Source: Field visit 2023

Among 601 HHs considerable number of houses (160 HHs) are abandoned however some of them (111) are cared by relatives and maintaining the structure. The number of households cared by relative is greater than left alone. The following picture of house depicts the real status of household, the house is not that much old however abandoned and owner was migrated to abroad (UK).



Field Survey, 2023: Picture of Uninhabited house

Analysis

Based on the information collected from 56 sample households, status of cultivation, internal migration, abandoned houses and encroachment of wildlife are analyzed.

Cultivation Status

Land is most valued resource in human history throughout the world. However, with the availability of alternative means for livelihood, people are leaving to cultivate. The following table informed about the cultivation status of sample household, they are holding.

Table-4
Distribution of HHs based on Land Utilization

Cultivation Status of Study Population			
S.N.	Cultivated of Land	HHs	Percentage (%)
1	All cultivated	12	21.4 %
2	Half-cultivate	40	71.4 %
3	Very little nearby House	4	7.2 %
	Total	56	100%

Source: Field visit 2023

Table shows prevailing cultivation status of study area. Among 56 household, most of people (71.4 percent) have cultivated only half of their total land and remaining are left as barren. Number of households involved in all land cultivation is considerably low (21.4 percent) in number and they belong to that family whose family members are not economic migrants and 4 percent of household cultivating only nearby their residence belongs to that family whose owners are old and living by waiting their migrant children. It entails that most of productive field are changing in forest and barren land.

Internal Migration

Livelihood change and internal migration is growing phenomenon in the study area. When a member of household becomes employed in abroad either as Gurkha soldier or as labor migrant, the household get remittances as per the countries they employed. After the inflow of remittances, member from employed household starts to move for different purpose like; for private school, new house construction, land purchasing or to get vocational training etc. The following table presents the existing status of mobility of people from sample households.

Table-5
Distribution of Sample Household by Internal Migration

Mobility of Sample Population			
S.N.	Cultivated of Land	HHs	Percentage (%)
1	New house construction	18	32.14 %
2	For private schooling	31	55.35 %
3	Training purpose	7	12.5 %
	Total	56	100%

Source: Field visit 2023.

Table-5 above indicates that a significant portion i.e., 55.35 percent of member households were migrating for the purpose of better quality education. They are leaving

their natal home in the name of boarding school for children and following dual locality; natal at origin and rental at city area. Out of 56 sample households, 32 percent has reported, they have new houses in urban area however the destination is different city as per their income. In 18 household, 2 household was constructed in Rang khola, 3 in Syangja District Headquarter, 4 in Chitwan Bharatpur and the rest of other was in different area of Pokhara Metropolitan. It is also found that people are taking house for rent in Pokhara for training purpose like; to learn Korean language, Japanese language and other vocational training etc. This process of learning has reduced substantial number of labor force for local production and resulting cultivating land are leaving barren.

Encroachment of Wildlife

Wild life encroachment has increased substantially in the study area. The following table shows the encounter/attack of wild life on cultivating area and domesticated animals of study population.

Table-6
Distribution of sample households based on attacks by wild animals

S.N.	Different wildlife	No of HHs that encountered attacks	Percentage (%)
1	Leopard	14	25 %
2	Deer/Monkey	17	30.4 %
3	Porcupine	7	12.5%
4	None	18	32.1%
	Total	56	100%

Source: Field visit 2023

Table-6 represents the detailed information of the wild-life attacks encountered by the sample households. As represented above, more than 68 percent of the sampled households have encountered with different wild life. A larger proportion of the households have encountered with deer/ monkey. Furthermore, during a discussion with one of the key informants, he stated that it was rather a common phenomenon for the monkeys to be attacking on the cultivated fields. However, he emphasized that the appearance of deer and porcupines and their encroachment in cultivated bean plants and underground tuber plants like yam and colocasia was a novel development. The intrusion into cultivated plants represented an unprecedented occurrence – something he had not personally observed before.

Conclusions

Significant gap appeared between the goods and services accessible in the market and local economy, wherein the rapidly growing populations lack the means to satisfy even their fundamental needs. This shortfalls and deficits in income have encouraged people to seek employment in foreign countries where the wage rates are more favorable enabling them to generate greater income for equivalent labor input. This in turn resulted into the development of economic migrants. The changing practices of earning from abroad has played

an influential role to increase the population of flora and fauna along with the expansion in the area of barren land and overgrown forested areas in Nepal. The dearth of energetic men members for domestic responsibilities, the existence of dual localities and the role of migrants' wife being a de-facto head of household are the existing situation identified from the study. Moreover, the surroundings have now been abandoned and the human settlements have shrunk, reversing the environment to its natural state and reclaiming its space. It shows the changing pattern of livelihood as an important component of ecosystem. Furthermore, the examination of both qualitative and quantitative data collected from 56 sampled households, in conjunction with the observed phenomenon, elucidates the interconnected relationship between livelihood and ecology. Notably, shifts in livelihood patterns have been shown to result in corresponding changes in ecosystem components. In conclusion, this paper shows, beyond its social implications, the transition in livelihood pattern plays a crucial and interactive role within the ecosystem.

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