

## A study on rural income, migration and risk of losing indigenous agriculture practices: Case of Khaling Village, Bhutan

Ngawang Dendup, Jamyang Thinley and Kezang Gaden

Department of Economics, Sherubtse College, Royal University of Bhutan

E-mail: ngawangdendup@sherubtse.edu.bt

**Abstract:** The purpose of the study is to determine whether off farm income is greater than on-farm income. It also emphasizes on migration, likely future trend and its impacts on livelihood of the highlanders. The survey questionnaire was administered to a total of 210 people. The study on overall income distribution recorded that household is earning an average income of Nu 41,805 annually with the maximum household income of Nu 480,000 and minimum of Nu 1,000 per annum and income is unevenly distributed among the household. The study also found that in case of sources of income and household dependency for thirteen households, salary or wages (58%) are main source of income but the remittances (23%) have dominated in terms of the source of the income, followed by wages and sale of crops and vegetables (10%). However, minimum number of households depends on poultry products (9%) as a main source of income. The study reveals that only 38.6% of households in Khaling trade with highlanders out of total respondents. The results of the study suggest that the future looks bleak if the present trend is allowed to continue.

**Key words:** Income, migration, highlanders, livelihood.

### Introduction

Bhutan had performed quite well in economic development along with the conservation of environment and its GDP per capita had increased to USD 2287.71 (World Bank, 2012). However, there is need to study how well this increase in wealth is distributed between rural and urban dwellers. This study will focus on analysis of rural income with particular reference to on-farm and off-farm income.

In Bhutan the formal development planning only began in 1961 with the start of First Five Year Plan which focused on development of basic infrastructures such as roads, schools, health, public transports and a postal system and the current Department of Agriculture was formed in 1972 (Young, 1991). Area, which can be used for agriculture, is restricted by topography and climate to around 3% of the land surface (Young, 1991). Bhutan's agriculture is a small-scale and traditional subsistence orientated and the rural economy is based on barter system. The traditional farming system is labor intensive, which is integration of labor and crop husbandry. Among the agricultural lands in the nation, an estimated 21% are wetland (irrigated), approximately 43% are dry land (rain fed), nearly 27% are used for shifting cultivation, approximately 8% are used for orchards and 1% as kitchen gardens.

Bhutan had witnessed tremendous increase in the GDP per capita in last decades and no study had been done to understand how well such increase had contributed towards the wellbeing of rural dwellers. On contrary, rural dwellers had been confronting with human wildlife conflict (UNDP, 2012) resulting from the strong policy of environmental protection and conservation. This may result in income shock of farmers and may have strong influence on farmers' behaviors.

Farmers are vulnerable in consumption due to income shock resulting from price fluctuation, crop loss or damage, disasters, unexpected expenditure etc. (Teguh and Nurkholis, 2010). Since human wildlife conflict such as loss of crop and domesticated animals are prominent in this region, it is likely that future earnings of farmers will decrease gradually and this may trigger the problems of depopulation in the region.

Study conducted by Lei and Lu (2005) in China had found that farmers seek off-farm employment as farming tend to

be unprofitable and low status practices. Authors have concluded that though, wage level is higher in off-farm employment but they are forced to accept inferior works with poor living conditions.

Rural income or farmer's income also had strong impact on trade policy, particularly policy related to export and import. The evidence from China, a study conducted by Jizhi and Yantao (2010) showed that the improvement of farmers' income have greater contribution towards the growth of export and import. Therefore, it is evident that policy should support the growth of rural income in order to correct the imbalance of balance of payment of any nation.

It is also important to understand the land use pattern as rural incomes are directly related to agriculture animal products. Garedeew *et al.* (2012) had conducted study to understand the relationship between land use and income, if the current trend continues and establishes that population is likely to decline resulting from better family planning and indicate that landholding will increase which will result in increase in income. Recently, farmers in Bangladesh had shifted from rice cultivation to fish farming since the fish farming had become profitable compared to rice cultivation (Rahman *et al.*, 2011)

The average annual income in Bhutan was estimated by the World Bank to be USD 150 in 1986 (Munro, 1989). World Bank Country study argues that (1984, cited in Young, 1991) the low figure disguises both poverty and landlessness are rare in Bhutan. In 2000, agriculture accounted for 35.9% of GDP of the nation. The share of the agricultural sector in GDP declined from approximately 55% in 1985 to 23% in 2010.

The profit of off farming and income from farming is one of the major economic factors that favor the migration. According to Fall and Magnac (2004), the main determinants which influence the off farming and on farming income depends on the occupation of father and mother of the child and as well as land acreage. When the father of the husband is or was a farmer, it positively affects male on farm hours and negatively female on farm hours. It is just the opposite when the father of the wife is or was a farmer, since the female is likely to work more on farm hours (and the husband less). Land acreage also

affects male on-farm hours positively but female hours negatively.

Bhandari (2004) stated that individuals from households with relatively less access to cultivated land are more likely to migrate in search of work compared to those from a relatively well-off household with more land holdings. The results clearly indicate that relative land deprivation is a consideration in household migration decision-making. This study has also found that individuals from a large household are more likely to move. However, the number of male members was a stronger determinant than the number of females in migration decisions. Besides, it was found that even at the lower level of the relative deprivation hierarchy, individuals with relatively better socio-economic conditions are more likely to move. The study has also found that the access to cultivated land is diminishing over time as a result of rapid population growth as well as land fragmentation due to the land inheritance system. Farmland is divided among sons during household division. Once a son wishes to separate from his parents, the property is sub-divided. This practice increases land fragmentation and reduces the sons' access to cultivated land, which can lead to transformation to a relatively deprived household over time. Young (1991) favors that native plant varieties, the results of farmer selection and an example of indigenous technology, are a natural resource which should not be lost because of a massive adoption of the new high-yielding varieties whereas the local species and local identity may be at risk in future.

The objective of this study is to assess the current on-farm and off-farm income and also to assess and understand the risk of losing indigenous agriculture practices and the likely future trend.

### Materials and Methods

Data were collected using structured questionnaire at two levels viz. household and individual levels. Individual data related to qualification, employment status, current place of work etc. was collected primarily to relate with the problem of depopulation and migration in Khaling. The second stage of data collection focused on household data relating to asset ownership, household income, use of timber and non timber forest products, land use pattern etc. Data were collected from 210 households out of 544 households under Khaling gewog (block). The block is further divided into 6 chiwogs (sub-blocks) and data were collected from only three chiwogs (sub-blocks) viz. Khaling chiwog, Gomchu and Brekha.

Before enumerators were sent for data collection, researchers and advisory team of this research went for preliminary investigation for understanding the overall setup and to choose the most representative sample for this study. It was found that these three chiwogs (sub-blocks) were more representative. Enumerators were deployed to collect data from these three chiwogs.

### Results and Discussion

The study on overall income distribution had found that household is earning an average income of Nu 41,805 (about USD 761) annually with the maximum household

income of Nu 480,000 (USD 8,727) and minimum of Nu 1,000 (USD 19) per annum. Study also reveals that income is unevenly distributed among the household since the standard deviation of annual income is as high as Nu 50,000 per annum.

To further understand the economic status at household level, households were categorized into poor, medium and rich based on the World Bank standard (Table 1). This categorization reveals that about 50 percent of the household falls under the category of poor, which is indicating that households are earning less than USD 1.25 per day. Those household earning between USD 1.25 and USD 5 per day are categorized as medium while those earning more than USD 5.1 per day are categorized as rich.

**Table 1.** Economic Categorization of Household

Economic Status	Frequency	Percent
Poor	101	48.1
Medium	48	22.9
Rich	61	29.0
Total	210	100.0

It is important to understand the main sources of income for the farmers and to evaluate likely future trends (Table 2). For thirteen households, salary or wages are main source of income but the remittances have dominated in terms of the source of the income, followed by wages and sale of crops and vegetables. Salaries and wages are earned mostly through off-farming activities like providing labour services in construction sectors. On other hand remittances are sent by the relatives living in urban areas. However, minimum number of households depends on poultry products as a main source of income. It is very interesting to observe that salary or wages provide the highest income of Nu 480,000 (USD 8727) per annum. Therefore, it is clear that there will be shift from agriculture sector to other sectors as gross income from other sectors are as less compared to income from wage or salary. This also shows that it will further deteriorate the problems of internal migration and contribute towards the problems of depopulation. Since, off-farming income are larger than the on-farm income and it will encourage the farmers to take up other forms of job than agriculture and may result in losing of indigenous agriculture practices and may endanger the local species.

The shift of the Khaling villagers from agriculture to other sector would have a chain effect particularly to those living in north, commonly known as Brokpas (highlanders). They are believed to be true origin of people of eastern Bhutan. This shift would have a greater impact on the livelihood of the highlanders as highlanders depend on Khaling village for grain and other food cereals for their daily consumption.

Highlanders commonly called as Brokpas in eastern part of Bhutan constitute very minor section of population in Bhutan. Their day to day survival are supported by selling

the dairy products such as milk, cheese, butter, meat etc. They have two homes commonly known as summer home and winter home. They move towards north in summer and south in winter with their cattle such as yaks, sheep, cow and horses. They do not work on agricultural fields and depend on Khaling village for agricultural products in

exchange for the animal products. Recently, it has been observed that Brokpas sell their product directly into market and exchange for other commodities. However, this study does not capture the volume and shift of their market for the Brokpas.

**Table 2.** Sources of Income and Household Dependency

Sources of Income	Maximum Number of Household	Mean (Nu)	Minimum (Nu)	Maximum (Nu)
Salary/Wages	13	17,432	0	480,000
Sale of Crops	9	11,239	0	100,000
Sale of dairy products	7	1,428	0	36,000
Sale of Poultry products	3	1,074	0	36,000
Sale of vegetables	9	1,851	0	70,000
Remittances (Cash only)	24	8,778	0	100,000

From above table, it is clear that only 38.6 percent household in Khaling trade with highlanders (Table 3), however, given the total population of highlanders; it would have huge impact on the livelihood of highlanders. The trade between the Khaling villagers and Brokpas community constitutes agriculture products such as grains, wheat, maize, vegetables etc. from Khaling villagers in exchange of animal products such as milk, cheese, butter, meat etc. from Brokpas.

**Table 3.** Trade with Brokpa

	Frequency	Percent
Yes	81	38.6
No	129	61.4
Total	210	100.00

**Conclusion and Recommendation:** Rural-urban migration can be attributed to excessive urbanization and the growth of cities, as well as employment opportunity in urban areas. Migration from rural areas is expected to reduce pressure on agricultural land, but impose a severe strain on the already inadequate urban services and pose serious developmental and environmental problems. This paper has attempted to show rural income, migration and risk of losing indigenous agriculture practices. Bhutan's agriculture is restricted by topography and climate which affects the income of the farmers. The study on overall income distribution in Khaling had found that household earns more income from off-farm than on-farm works. The profit of off farming and income from farming is one of the major economic factors that favor the

migration. Therefore, it is clear that there will be shift from agriculture sector to other sectors as gross income from other sectors are as less compared to income from wage or salary.

The traditional Bhutanese farming system is labor intensive integration of labor and crop husbandry. Bhutan's agricultural-economic structures suggest the need for a pattern of technological change that is labor saving yet not intensive in the use of capital or skilled labor, and that is revenue generating and import substituting and export oriented. Moreover, government can also focus on enhancing income and employment generation from the forestry sector through well-drawn up plans that could encourage export of forestry. Nevertheless development of small and medium sized cottage industries (such as weaving) can also be established.

#### References

- Fall, M. and Magnac, T. 2004. How Valuable is On-farm Work to Farmers. *American Agricultural Economics Association* 86(1): 267-281.
- Garedew, E., Sandewall, M. and Soderberg, U. 2012. A Dynamic Simulation Model of Land-Use, Population, and Rural Livelihoods in the Central Rift Valley of Ethiopia. *Environmental Management* 49(1): 151-162.
- Jizhi, W. and Yantao, W. 2010. Study on Interactive Relationship between Farm Products Trade and Farmers' Income Growth in China - Empirical Analysis Based on VAR Model. *Asian Social Science* 6(2): 73-82.
- Lei, G. and Lu, Z. 2005. Migration as the Second-best Option: Local Power and Off-farm Employment. *The China Quarterly* 181: 22-45.
- Syed M. A. Rahman., A. Hoque and Syed M. A. Rahman. 2011. Impact of Fish Farming on Household Income: A Case Study from Mymensingh District. *Journal of Social Sciences* 7(2): 127-131.
- Teguh, D. and Nurkholis. 2010. Income Shocks and Consumption Smoothing Strategies: An Empirical

- Investigation of Maize Farmer's Behavior in Kebumen, Central Java, Indonesia. *Modern Economy* 1(3): 149-155.
- UNDP. 2012. Implementation of human wildlife conflict management strategy. from <http://www.undp.org.bt/Human-Wildlife-Conflict-Management-Project.htm>
- World Bank. 2012. *World Development Index*. <http://data.worldbank.org/indicator/SI.POV.NAHC/countries/BT?display>.
- Young, L. J. 1991. Agricultural Changes in Bhutan: Some Environmental Questions. *The Geographical Journal* 157(2): 172-172.