

## Agricultural history and current rural life in Khaling, Trashigang, Bhutan

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**Abstract:** This paper aim to describe the village life, among many social-economic changes, especially focuses on agricultural activities, and recognizes the problem arising in rural area. Until the 1950s, shifting cultivation was the main food production system in Dawzor village. However, dryland cultivation near the village became a main agricultural activity instead of shifting cultivation for producing cash crop as well as food through flow of time. A lot of abandoned lands on the village are resulted in the shortage of labour force and unnecessary of food production. Ageing parents are concerned about their future because all of their children staying away from the village. On the other hand, parents who have young children don't want to keep their children in the village and expect them to receive the benefits of development through urban life. Villagers possess negative opinions about the village life by contrast with urban life surrounded by plenty of material and economic progress. Under the rapid material and economic development, it's about time to reconsider the significance of rural area's identity and role to play in the development philosophy of Bhutan, Gross National Happiness (GNH), which defines quality of life in more psychological terms than Gross National Product (GNP).

**Key words:** Shifting cultivation, Dryland cultivation, Out-migration, Rural development.

### Introduction

Since Bhutan started its development activities in 1961, the country has experienced considerable changes in its social, political and economic condition (Ueda, 2004). In recent years in particular, the pace of socio-economic changes seems to accelerate. According to Statistics, Bhutan's GDP per capita has risen to US\$ 1414 in 2006 from US\$ 835 in 2002 (RGoB, 2008) and trade value of imports and exports has risen approximately 2.3 times and 2.6 times, respectively, in six years from 2005 to 2010 (DoRC, 2010). Rapid urbanization has been occurred and major cities have started to experience some adverse effect such as water shortage, housing scarcity, deterioration of security, etc. On the other hand, rural areas are facing out-migration to urban areas. This paper aims to describe the rural life under the socio-economic changes, by focusing on agricultural activities, and recognizes the problem arising in rural area, such as out-migration.

### Materials and Methods

**Study area:** Khaling Gewog (Gewog is administrative block under the district) is located in western part of Trashigang Dzongkhag (Dzongkhag is administrative district and Bhutan consists of 20 Dzongkhags), Eastern Bhutan (Fig. 1).

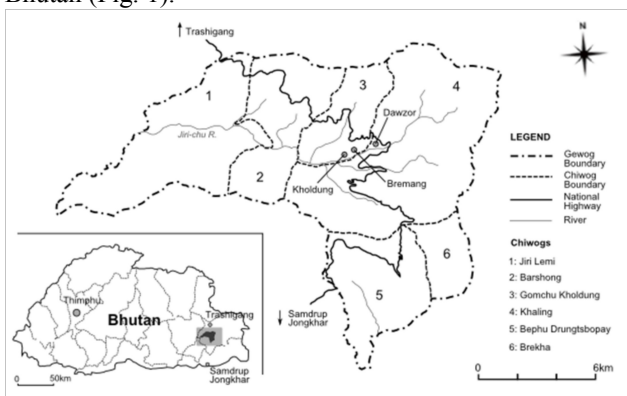


Fig. 1. Location of Study Area

The altitude of Khaling Gewog ranges from 1,240 m to 3,800 m above sea level and climatic condition vary with altitude and topographic condition. The lateral route of Trashigang-Samdrup Jongkhar Highway runs through the

Gewog from north to south and 126 km away from Samdrup Jongkhar, a town on the border between Bhutan and India and eastern trading center. The Gewog has 570 households with a population of 5,486 in 2010 and consists of six Chiwogs (Chiwogs are former third-level administrative divisions under the Gewog) with 28 villages. This study especially focused on Dawzor village, Khaling Chiwog out of 28 villages. Dawzor is located nearby the Highway and local market. Dawzor consists of 50 households and around a half of households' main occupation is farming. The residential area of Dawzor surrounded by dryland is located south facing gentle slope along *Jiri-chu* River. The first fieldwork was carried out in Gomchu-kholdung, Brekha and Khaling Chiwog, including Dawzor village from 13th to 26th of December, 2011. Structured questionnaire was used for collecting primary data about family structure, land holding and using, household economy, natural resource using etc. Unstructured interview and field observation was carried out in Dawzor and neighboring two villages, Bremang and Kholdung, to understand current rural life and problems from 11th to 18th of July, 2012.

### Results and Discussion

**1. Shifting Cultivation:** Bhutan is mountainous country and 70.5% of the country's total area is covered with forests (MoA, 2011). Shifting cultivation was a predominant form of land use and that was practiced over an extensive area, especially sub-tropical to warm temperate zone of eastern region (Upadhyay, 1995). According to Upadhyay (1995), shifting cultivation practiced in Bhutan can be divided into two types roughly based on the fallow vegetation. Shifting cultivation with bush or secondary forest fallow is called *tseri* and with grass fallow is called *pangzhing tseri* in Dzongkha (National language of Bhutan). *Tseri* can be observed in Trashigang, Mongar, Pemagatsel, Shemgang and Samdrup Jongkhar Dzongkhags and *pangzhing tseri* can be observed in Bumthang, Tongsa, Wangdiphordang and Thimphu district (Roder et al. 1992). However, farming methods, cropping varieties, cultivate and fallow rotation, etc. vary by region.

During the end of November and December, cultivation site was chosen by argument of group members and all trees and bushes were cut down and cleared completely

with axes and choppers. Villagers mentioned that huge trees with a diameter of over 100 cm also chopped down and male was main worker on clearing because of its hard physical labor. After cutting, chopped down trunks and branches were left in the site and dried for three months. After three months of drying, fallen trees and litter was burned from foot to ridge side. Land preparation before planting of crops was just leveling the ashes, and it requires no draught animals, ploughs, mature, fertilizer or any other external inputs. Main crops cultivated in shifting cultivation land were maize, finger millet, and a kind of millet, locally called *sharmo*. In Dawzor, there were two types of cropping system; intercropping type and monocropping type. In the case of intercropping type, the several crops were cultivated together in the same plot. Maize seeds were sown in whole plot in rows using wooden digging stick, called *phur*, two to three days after burning in the middle of March. Finger millet and *sharmo* were broadcasted on the corner in maize plot within one month after maize sowing. Two months later, seedlings of finger millet and *sharmo* were transplanted from the corner to extensive area among maize. Weeding was carried out once when maize grows up around 40 cm. Harvesting of maize started in the end of September. Finger millet and *sharmo* were harvested in the beginning of November. The harvested crops were distributed equally to each family in the field and families brought them back to house or kept temporary store hut built near the field. After all crops were harvested, the cultivation plot remained fallow, and cultivator moved to new site. In another case, monocropping system, the difference between intercropping system were that only one crop was cultivated in one site and finger millet was broadcasted in whole plot and not transplanted. One group had several cultivation plots in this case (Fig. 2).

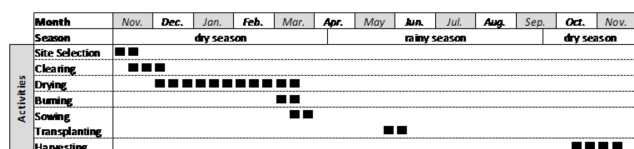


Fig. 2. Shifting cultivation schedule in Dawzor

The interesting facts were revealed through the interview that there were still trees with a diameter of over 100 cm in shifting cultivation site and lack of shifting cultivation land ownership. There were still pristine forests near the village despite of one year cultivation rotation. And generally, landowners possess an advantage for distribution of product when that land is cultivated by group. Villagers mentioned that villager could choose cultivation site everywhere without constrain of land ownership and products were distributed equally. With all these factors taken into account, it can be estimated that Dawzor and neighboring villages do not have an old history.

It is nearly 50 years ago that shifting cultivation was disappeared from Dawzor. The National Highway construction during 1960s and implementation of government policies had the strong relations with the disappearance of shifting cultivation in Dawzor. Trashigang-Samdrup Jongkhar National Highway that connects Khaling to south border town Samdrup Jongkhar

was built in the early 1960s (MoWHS, 2010) and this highway runs through the slope used for shifting cultivation. In 1969, Bhutan government promulgated the Forest Act (MoA, 1969) and this act states that: “ *Nothing shall be deemed to prohibit the practice of shifting cultivation in the areas where it was practiced prior to issue of this Act. His Majesty’s Government reserves the right to withdraw this concession if such land endangers the safety of the highways and public property. Fresh clearance for shifting cultivation is strictly prohibited and the offender shall be punished...Nothing shall be done to fell or damage trees or clean forests upon a distance of 600 ft. uphill and downhill of the National Highways. Offenders shall be punished with imprisonment which may extend to one month or with fine which may extend to Nu.150 per tree...*”

The villager lost the land to practice shifting cultivation around the National Highway by this act, and prohibition of new reclamation for shifting cultivation accelerated further reduction of shifting cultivation because of land shortage for appropriate rotation. However, the strongest trigger for the disappearance of shifting cultivation was the infiltration of money and material economy. Increasing opportunities for earning money with public works, expansion of potato cultivation as cash source and inflow of cheaper foods and goods from India reduced the necessity of practicing shifting cultivation in mountain slopes.

**2. Dryland Cultivation:** When shifting cultivation was the main agricultural activity, dryland cultivation was the side practice during shifting cultivation work. However, improved accessibility to large market in Samdrup Jongkhar after the construction of National Highway, economic value of cultivating potato was increased and dryland near the village was gradually expanded. In exchange, labor input for shifting cultivation was diminished. After Forest Act in 1969, the place of main agricultural activity was shifted from forests to permanent dryland near the village.

The main crops cultivated in dryland are maize and potato. Maize is versatile crop that can be cultivated as a summer crop especially in the eastern region and high altitudes above 1,800m. Maize in the form of grits called *Kharang*, is consumed by mixed with rice, and the snack called *Tengma* is offered with tea. Traditional alcohols, *Ara* and *Bangchang*, are brewed from maize and the by-products such as grain, flour and solid residues left after processing and distillation are used for feeding cattle. The cobs removed maize grains used as fuel material. Among these usages, alcohol purpose seems to be very important in eastern region because their cultures are strongly linked with alcohol in many ways. In Bhutan there are many local varieties of maize which characterized by different growth duration, amount of production, height, color, etc. In Dawzor, local varieties, called *bebe ashum* and *tshalu-ashum*, are cultivated mainly and improved variety introduced by government was cultivated only one household out of 19 households. Villagers mentioned that improved variety was too hard to eat as *Kharang* and production was less than local one. Improved varieties require much chemical fertilizer compared with local one,

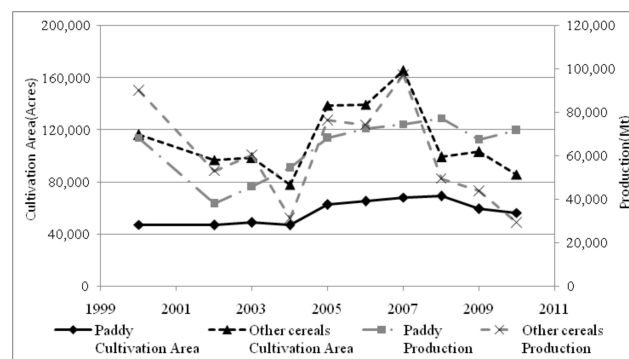
but villagers are reluctant to use chemical fertilizer because they think chemical fertilizer spoils their lands. Villagers prefer to use organic manure such as cow dung, fallen oak leaves and dry ferns.

Potato is considered to be introduced in most part of Bhutan in the 17th and 18th century (Joshi and Gurung, 2009) and over the last three decades potato has become an important cash crop in Bhutan (Roder *et al.*, 1992). In Dawzor, potato has been cultivated near the house since early days when shifting cultivation was practiced actively. Before the highway construction, potato had already sold at a market in addition to domestic consumption. The men or horses carried potatoes on their back to Samdrup Jongkhar through mountain path and exchanged for salts and clothes from India. The trade between Dawzor and Samdrup Jongkhar was less frequently, but cornerstone for trade has already built up before the highway construction. Improved accessibility to the markets explosively accelerated the expansion of dryland and potato cultivation. Khaling is famous for one of the first major areas initiating potato production (Roder *et al.*, 1992). Dryland cultivation schedule in Dawzor is very simple due to a few crop varieties and no double cropping. Vegetables such as chili, cabbage, cauliflower, radish, etc. are also cultivated for self-consumption and local markets in a small scale.

Farmers used intercropping systems combining maize with potato in Dawzor. This intercropping systems of maize and potato, is widely observed in the mountainous region of the country (Roder *et al.*, 1992). Shortage of cultivation land is the actual reason for intercropping, but the main reason is labor efficiency for the management of land such as ploughing, weeding and watching against wild animals by cultivating the same fields. Before planting potato in the middle of January, organic manure is put on the fields and then ploughed by a pair of oxen. In recent years, power tiller is introduced in the village, but most villagers are still using oxen. The ox used for ploughing is either bovid-hybrids called Jassam or Yankhu. The household which does not own Jassam or Yankhu for ploughing borrow the oxen and they need to pay Nu 250-300 (US\$ 4.5-5.5) per ox to the ox owner. For the driver of oxen and handler of plough, they pay Nu 200 (US\$ 3.7) a head and serve three meals and Ara. Maize is intercropped on a furrow two to three weeks after potato planting. The weeding is carried out two times or more depending on the growth situation of crops and weeds. Potatoes are harvested in July, and harvested potatoes are classified according to the size and packed 50 kg bags separately. When they found a truck going down to Samdrup Jongkhar, they negotiate the transportation charge and load it. In the middle of July 2012, quoting rate of transportation charge to Samdrup Jongkhar is Nu 30 (US\$ 0.6) per bag and selling price is around Nu 1,300 (US\$ 23.7) per 2 bags (100 kg). Until the harvest of maize, weeding is not necessary in the fields intercropped with potato. Maize is harvested in October and then, fields are left fallow or some landowners graze their cattle until next potato planting. Nowadays, some villagers start to harvest maize in the end of September to avoid wild animal damages.

### 3. Current Rural Life

**3-1. Increasing abandoned agricultural land:** The worldwide food price crisis in 2007-08 revealed the risk of heavy reliance of food imports in Bhutan. Bhutan government has addressed to raise self-sufficient rate by introducing improved varieties, chemical fertilizer, investing in expanding irrigated rice area. According to statistics, however, paddy cultivated area and other cereals cultivated area has been in decline since its peak at in 2008 and in 2007, respectively (Fig. 3). In the case of rice self-sufficiency, government estimated 64 % of self-sufficient rate in 1997 (RGoB, 1997), but it went down to 48% in 2010 (MoLHR, 2011).



**Fig. 3.** Cultivated area and production of rice and other cereal crops (Note: Other cereals include maize, wheat, barley, buckwheat and millets. Sources: Bhutan RNR Statistics 2011, RNR Statistics 2002, Selected RNR Statistics 2003)

Field work in 2011 in Dawzor revealed that wetland and dryland abandonment rate were 33.4 % and 31.5 %, respectively. Neighboring villages such as Bremang and Kholdung also showed high abandonment rate. In 2012, wet rice cultivation was not practiced in these three villages. Main three reasons for such high rate of abandon fields are explained as follows.

- (1) Labor shortage: In the daytime, students attend school and after graduation, almost all of them migrate to urban areas for seeking job opportunities. Almost all of agricultural works depend on human power and losses of human power directly affect agricultural production. Farm labor shortage caused by rural-urban migration is already quite pronounced throughout the country.
- (2) Increasing wild animal damage: Restriction of hunting and contiguity of habitat of wild animals because of returning fallow and abandoned lands into forests is causing severe feeding damage. The villager builds a small hut in the field and stay whole day to watch against wild animals, like monkeys in the daytime and wild boars in the night time. Isolated fields were created due to the equal land inheritance among siblings, but labor shortage makes it difficult to protect the remote fields against wild animals. Most of those fields have turned into abandoned fields.
- (3) Reduction of the necessity of food production: After graduation of school, children migrate into urban areas to live without depending on parents. 20 out of 26 households in Dawzor received remittances from children or siblings, and remittance was the second important income source next to farm products. Nowadays majority of the Bhutanese prefer to eat rice, and maize has the

connotation of being a poor man's food (Katwal *et al.* 2007). Cheaper rice from India is purchasable in local market and they don't need to cultivate rice with putting a lot of labors. There is no necessity and encouragement of keeping or increasing cultivation fields in terms of food production in the village.

**3-2. Perspective for the future of village:** 7 out of 26 households consisted of only aged parents. Aged parents concerned about the person who look after them and manage their properties in the village. Some of them have requested their children to come back to the village, and one villager insisted that children must come back to the village and manage the properties. On the other hand, some aged parents said children will not come back to the village even if they requested. There was the old man who mentioned that he cannot ask his daughter to come back to the village because the daughter has the life of her own. Young villagers having small children or students mentioned that they don't want to keep their children in the village in the future. Agricultural work is heavy physical labor, tiresome and drudgery, they said. Parents hope their children to get good education and get civil service or business job and live in urban area to receive maximum benefit of material and economic development. Rural to urban migration of Bhutan are frequently mentioned in the context of young generation tendency (MoA 2005), but it is the problem of entire village society including their parents, and the village community heading down the path of self-destruction.

**Loss of traditional knowledge and a few records:** Villagers who experienced shifting cultivation were over the age of 70 years. Most of the persons who have immense knowledge and experience have already passed away, and the memories for shifting cultivation are fading. The crop called "*sharmo*" has disappeared from the village and was not able to identify the species. Various climatic and geographic conditions, ethnic background, propagation of new crops, etc. influenced farming systems in a particular location, and it created huge agri-cultural diversity of Bhutan. However, there are little documents about shifting cultivation practiced common in Bhutan (Roder *et al.*, 1992), and it is urgent task to create records of "old" village life, including farming systems before its memories are gone.

**Rural development and out-migration:** To counter rural-urban migration, Ministry of Agriculture has promoted to support rural communities through improved production, access and marketing (MoA, 2005). There are accessibility to markets, electrified houses, water lines and income producing crop in Dawzor. However, exodus from the village has already started. This case study indicated that development strategy depends on infrastructure construction and introduction of cash crops does not become the basic solution for explosive out-migration. Only material and economic progress following urban development cannot counteract the magnetism of urban life, and urban areas will continue to attract people. On the other hand, relative poverty consciousness which made up by villager themselves through comparing rural life to glamorized urban life will spread in rural areas and this

trend can undermine the nation's goal of Gross National Happiness (GNH) philosophy which defines quality of life in more holistic and psychological terms than Gross National Product (GNP). Village life is the primary source and repository of the Bhutanese culture, and there is community safety net through close relationship, fresh, safety and organic foods and peaceful environment. There are many advantages and merits which cannot receive through urban life. Redefine and reevaluate the village life itself and promote instilling appreciation of the meaning "living in village" through ongoing material and economic progress will contribute to stem rural-urban migration and achieve the true goal of the development in Bhutan, GNH.

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