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Food Security Among Ethnic Minorities in Vietnam: A Case Study on Coping with Food Shortage among the Hmong people in Sa Phin and Ta Phin Communes, Dong Van District, Ha Giang Province, Vietnam

(February 2013)

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Abstract

Food shortage is a serious problem among the Hmong people of Vietnam and this issue has remained an important challenge among the Hmong for many years. This study investigated the problem, using households in the two communes of Ta Phin and Sa Phin, in Dong Van district, Ha Giang province, as a case study. The methods used for data and information gathering were household survey, direct observations, in-depth interviews, Participatory Rural Appraisal, and focus group discussion.

Among others, the study found that, over the years, Vietnam has implemented comprehensive policies at the national and local levels for poverty reduction and for mitigating food shortage. This has produced positive results, but the Hmong people continued to experience limited access to food. The study also found that the food shortage among the Hmong households is mainly due to land shortage. To earn money to buy food, the main strategy used by the Hmong people was to work (cultivate land) for others or shift to other jobs outside the village. The study further found that while government programs have helped the Hmong households, more importantly through the awarding of rice and provision of seeds, feeds and pesticides, the households have not fully benefited from government policies and programs as they continue to experience food shortage. Based on results and findings, the study put forward some recommendations for consideration of both the national government and the local governments in Hmong areas in their efforts to address the food shortage among Hmong people in particular and in similarly situated ethnic minorities and areas in Vietnam in general.

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ABBREVIATIONS

CPC	Commune People's Committee
GSO	Government Statistic Organization (Vietnam)
FAO	Food and Agriculture Organization (United Nations)
FGD	focus group discussion
HH	household
PRA	participatory rural appraisal
RMB	renminbi (currency of the People's Republic of China)
UN	United Nations
UNDP	United Nations Development Programme
US\$	United States dollar (US currency)
VASS	Vietnam Academy of Social Sciences
VND	Vietnam dong (Vietnam's currency)
WB	The World Bank
WHO	World Health Organization

1. Introduction

1.1. Research background

At present, food security is a major global issue. The United Nations (UN) in particular has passed some resolutions to promote sustainable agriculture and ensure food security especially among the poor in developing countries. The human rights manifesto of the UN in 1948 and the Rome Declaration in 1996 have also emphasized that “the right to have access to food and to be free from hunger is the fundamental right of everyone.”¹

Meanwhile, agricultural production worldwide is encountering difficulties as a consequence of climate change. The FAO (1994) asserted that agricultural land has contracted and is degraded in quality, which threatens global food security and negatively impacts on long-term efforts to stop the encroaching famine. The UN further warned that the contraction in areas being cultivated is having a serious impact on 2.3 billion people in over 100 mostly poor and developing countries. In many countries including Vietnam, agricultural production in the context of climate change has become a serious challenge.

Vietnam has issued guidelines and policies that reflected its concern over national food security. The 8th Congress of the Communist Party of Vietnam mandated the country to "develop comprehensive agriculture to ensure food security at all circumstances, increase the source of food and vegetable, improve meal quality and reduce malnutrition."² By 2020, the national strategic food security target of Vietnam is to “ensure sustainable food security for each household and each region of the country under every circumstance” and to “increase accessibility to food of each citizen at all circumstances.”

After 20 years of reform, the economy of Vietnam has achieved rapid development. Vietnam has become a medium-income country, exporting rice and many other commodities. The national poverty rate has also decreased from 22 percent in 2005 to 9.5 percent in 2010.³ In spite of these achievements, however, there remains a wide gap between the poor and the nonpoor, particularly among ethnic minority households and communities. Furthermore, food shortage has not been solved in a sustainable way, thus, food security will remain an important challenge to ethnic minority households and communities in the years to come.

Although there have been many studies on poverty reduction and food security in Vietnam in recent years, several questions about the issue of food shortage have remained. For instance, what is the nature of the food shortage problem experienced by the ethnic minorities of Vietnam? What are the causes of the food shortage and how do ethnic minorities cope with the problem? Has the government, through its

¹ <http://www.fao.org>

² <http://www.chinhphu.vn>

³ <http://www.chinhphu.vn>

policies, programs, and projects, been effective in reducing food shortage among the ethnic minorities? What else needs to be done to effectively address this problem?

1.2. Research objectives

The general objective of the study is to analyze the food shortage problem among the ethnic minorities in Vietnam, using the Hmong households in the two communes of Ta Phin and Sa Phin, in Dong Van district, Ha Giang province, as a case study. The results of the study are intended to help provide policymakers and local authorities a basis for ensuring sustainable food security and for addressing the food shortage problem among the Hmong and other similarly situated ethnic minorities.

The specific objectives of the study are to

- a) describe the economic, social, and demographic features of the Hmong households in Ta Phin and Sa Phin communes;
- b) discuss the farming practices among these households;
- c) analyze the food shortage problem and its causes and the coping strategies of the households; and
- d) make recommendations to address the food shortage problem and help ensure food security among the ethnic communities.

1.3. Research hypotheses

This study tests the following hypotheses:

- a) In the context of economic integration and reform policies of the government, the Hmong households and ethnic communities have not yet fully benefited from preferential policies on food security promotion and poverty reduction as they continue to face food shortage in their areas; and
- b) In spite of the numerous challenges and obstacles faced by the Hmong households and communities, they have continued to maintain a distinct cultural identity and a good measure of stability in their daily lives and have practiced coping strategies on their own to address their food shortage problem.

2. Methodology

2.1. Definitions

Food security

There are about 200 definitions of food security (Maxwell & Wiebe 1998, p. 155), depending on individuals and organizations. Food security was defined in its most basic form as the access of all people to the food needed for a health life at all times (Von Braun 1999). The World Food Summit of

1996 said that there is food security “when all people at all times have physical and economic access to sufficient, safe, nutritious food to maintain a healthy and active life.”⁴

Maxwell & Wiebe (1998, p.156) explained that over the past four decades, the perception of food security has shifted through three paradigms: (1) from global and national level to household and individual level; (2) from food security to livelihood perspective, or from food security to sustainable livelihood; and (3) from objective indicators to subjective perceptions (Vuong 2003). Furthermore, Tran (2012) suggested three major levels and approaches to food security: macro level (nationally); meso level (regionally); and micro level (individual household, village, and small-scale community).⁵

Food shortage

Food shortage is defined as “a period in which a family had to reduce the number of meals a day or had to reduce the intake of foods other than rice, like vegetables, fruits, meat or fish.”⁶ It is caused either by lack of food or by difficulties in food distribution; it may be worsened by natural climate fluctuations and by extreme political conditions related to oppressive government or warfare.⁷ Food shortage occurs when food supplies within a bounded region do not provide the energy and nutrients needed by that region's population. Food shortage is easily perceived as a production problem—not enough food is grown to meet regional needs—but constraints on importation and storage can also cause or contribute to food shortage. Food shortage can also be created when food is exported from areas where production is adequate or even abundant.⁸

There are two types of food shortage. One is chronic food shortage, which is a long-term problem caused at the household level by lack of income to buy food or lack of assets to produce food adequate for the household's need. The other type is transitory food shortage, which is a short-term problem caused by a shock in the food production or economic system and the incomes or resources needed to adjust to the shock are not available (Anderson, Gladwin, Peterson & Thomson 2001). In Vietnam, the seasonal food shortage lasts for 5–6 months, from May to October, every year.

Poverty

The Government of Vietnam does not define poverty based on income, nutrition, education, health care and other criteria. What it has are definitions of poor households and near-poor households based on income alone. On 30 January 2011, the government issued the Decision on poor and near-poor households standard to be applied for the period 2011–2015. Accordingly, poor households in the rural areas were defined as those with an average income of below VND400,000/person/month or below

⁴ See <http://www.who.int>

⁵ See Tran Hong Hanh (2012), a case study in Sa Pa district, Lao Cai province, Vietnam, page 29.

⁶ See <http://www.ncbi.nlm.nih.gov>

⁷ See <http://en.wikipedia.org>

⁸ See <http://archive.unu.edu>

VND4.8 million/person/year (US\$220/person/year). Poor households in the urban areas are those with an average income of below VND500,000/person/month or below VND6.0 million/person/year (US\$ 300/person/year). Near-poor households in the rural areas are those with an average income of VND401,000–VND520,000/person/month or VND4.8–6.2 million/person/year. Near-poor households in the urban areas are those with an average income of VND501,000–VND650,000/person/month or VND6.0 million to VND7.8 million a year. The above definitions were used by the government of Vietnam as a basis for implementing anti-poverty policies, programs, and projects.

2.2. Approaches and Methods

Household survey

A household survey was conducted in Sa Phin and Ta Phin communes in May and June of 2012 (see Appendix A for questionnaire used). In selecting the survey respondents, the “snowball” principle⁹ was used. Specifically, from the list of households provided by the Commune People’s Committee (CPC), the interviewers selected and visited the first household, interviewed the household head, and then, through the recommendation of this first household, moved to the next households in the neighborhood, resulting in a snowball effect as the survey continued. The reason why this method was used is because a Hmong household head is likely to be working in the farm while the women and children who may not know the Vietnamese language are left at home for the interview. This makes the interview communication process difficult, requiring the immediate help of another household to facilitate and translate the interview. During the two weeks of field work employing seven interviewers, a total of 155 households were covered, comprising 76 households in Sa Phin (13.6% of the total 559 households in the commune) and 79 households in Ta Phin (12.4% of the total 636 households in the commune). The number of households covered by the study was limited by the time and resources available, the distance of the households from the commune centers, and other constraining logistical factors.

Direct observation

Interviewers also used direct observation in data gathering. For example, when interviewing about food shortage, interviewers directly observed the food situation in the household, particularly the food stock, the types of food, the daily diet, and how food is processed. At the same time, interviewers went to the fields to directly observe planting, intercropping and care of maize, legumes, fruits, vegetables, and other crops grown in the farm.

⁹ A snowball sample is a non-probability sampling technique (<http://sociology.about.com>) that is appropriate to use in research when the members of a population are difficult to locate or access. A snowball sample is one in which the researcher collects data from the few members of the target population that he or she can access, then asks these individuals to provide information needed to access other members of that population whom they know. Snowball sampling is hardly likely to lead to a representative sample of the larger study population. However, the researcher can have a source of interviewees for further in-depth study later.

In-depth interview

During data gathering, the interviewers selected some individuals who have a deep understanding of the cultures, local knowledge, and application of science and technology in agricultural production for in-depth interviews. These interviews lasted from 45 to 90 minutes, depending on the amount of information generated from the interview. The topics covered were patterned after those in the survey and the responses were collected to further clarify and verify survey results. A total of 50 in-depth interviews in the two communes were conducted.

Participatory Rural Appraisal (PRA)

The PRA is an approach that incorporates the knowledge and opinions of rural people in the planning and management of development projects and programs intended for them. It is used generally to gather qualitative data and information. The study used some tools of PRA in data gathering, including the use of a matrix in discussions on food shortage, voting for classifying households in terms of their maize usage, and the Venn diagram for analyzing institutional and related issues within the community.

Focus group discussions (FGDs)

The study used FGDs to get the common stand of the households on various issues. Small groups of people representing poor and near-poor households were organized to let them share their opinions about food production, food shortage, and other concerns. A total of 92 people (43 from Sa Phin and 49 from Ta Phin) participated in the FGDs. The participants were selected such that different sexes and ages were appropriately represented. In each commune, the participants were divided into four groups, with 10–12 persons per group. A total of eight FGDs were conducted.

2.3. Background of the Hmong People and of the Case Study Sites

According to the Population and Housing General Survey (GSO) in 2009, the Hmong population all over Vietnam was 1,068,189, ranking eighth among ethnic groups. The Hmong population in Ha Giang province was 231,464, or 21.7 percent of total Hmong population in Vietnam, or 31.9 percent of the population in Ha Giang. They lived mainly in the rock mountain districts of Meo Vac, Dong Van, and Yen Ninh and in the upland mountainous districts of Xin Man and Hoang Su Phi.

Ha Giang has a land area of 7,884 km² and is located in the northern mountainous areas of Vietnam (Figure 1). It is one of the four poorest provinces in Vietnam.¹⁰ Six of its 11 districts, namely, Dong Van, Meo Vac, Yen Ninh, Hoang Su Phi, and Xin Man are among the poorest in the country. Ha Giang is one of the provinces with the highest poverty rate. In terms of income, according to statistics in 2011, 41.80 percent of the 63,461 households in Ha Giang are poor and experiencing food shortage. These

¹⁰ The Resolution 30a/2008/NQCP—cited from the Socialist Republic of Vietnam’s government web portal—see <http://www.chinhphu.vn>

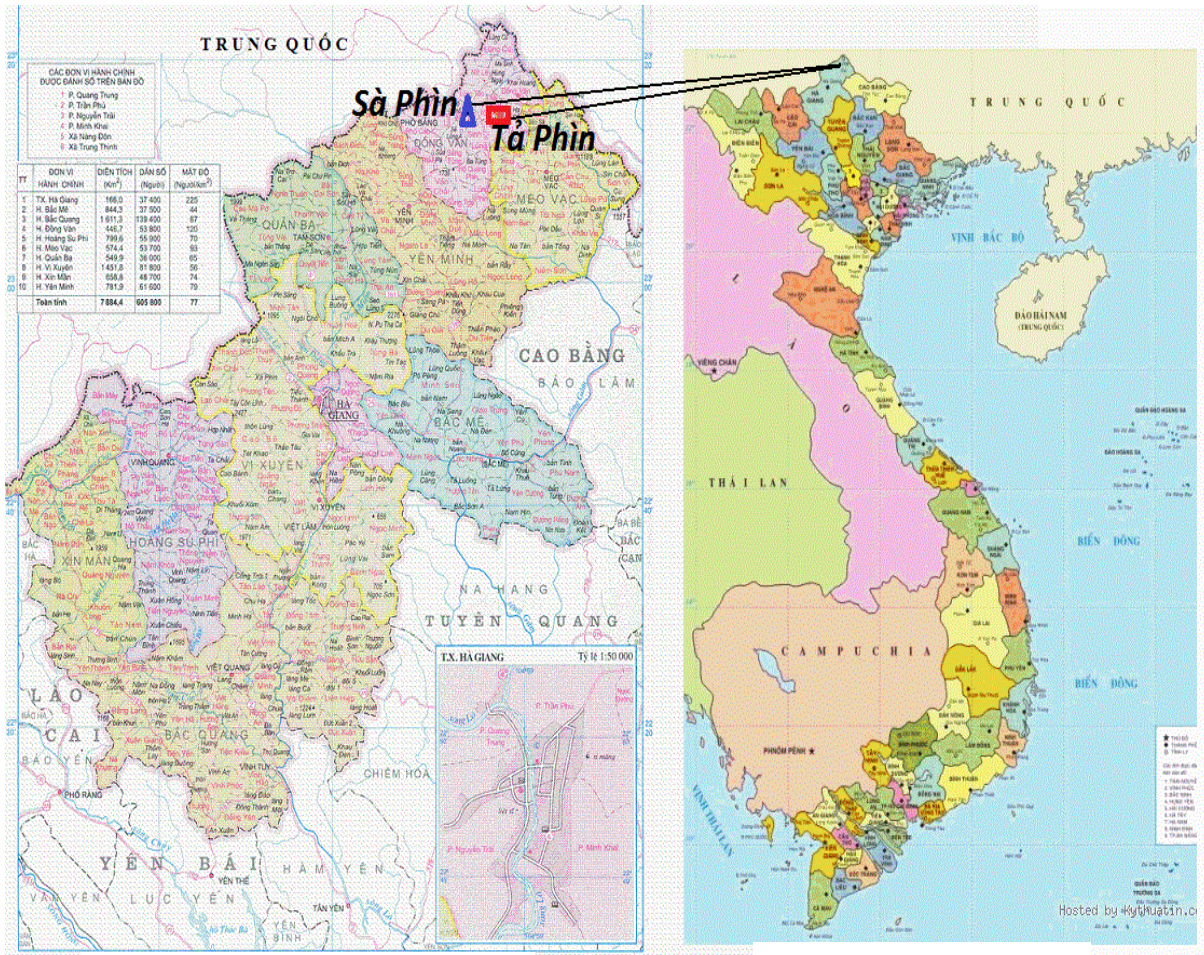
households comprise mostly ethnic minority people under the poverty classification standard of VND400,000/person/month (about US\$20/person/month). The income of the poorest group in Ha Giang in 2011 was VND259,000/person/month (about US\$11). Compared to the national average income of the country's lowest income group (poorest), which is VND369,300/person/month (about US\$18), the income of the poorest in Ha Giang is lower.

The sites surveyed by the study are located in the Dong Van Plateau.¹¹ Dong Van is a border district of Ha Giang and is 146 km from the provincial town. The People's Republic of China borders the north and west of Dong Van while the Yen Ninh district borders the south, and the Meo Vac district borders the east. The average elevation of Dong Van is 1,200 meters above sea level. The climate is dry, cold, and harsh. According to local statistics, the population of Dong Van in 2010 was 65,421 and the population density was 147 per km². In 2011, the district had a population of 66,810 individuals and 13,672 households (Table 1). Of the households, 63.25 percent were poor, 15.99 percent were near-poor, and 20.76 were nonpoor.

The Dong Van district comprises two towns (Pho Bang and Dong Van) and 17 communes (Lung Cu, Ma Le, Lung Tao, Pho La, Thai Phin Tung, Sung La, Sa Phin, Ta Phin, Ta Lung, Pho Cao, Sinh Lung, Sang Tung, Lung Thau, Ho Quang Phin, Van Chai, Lung Phin and Sung Trai). The district is inhabited by 16 ethnic groups, that include the Hmong, Lo Lo, Pu Peo, Co Lao, Dao, Giay, Tay, Kinh, Hoa, Pa Then, Phu La, La Chi, Nung, Bo Y, Thai, and Muong). The Hmong account for 88 percent of the district's population. In some communes they comprise 100 percent of the population. According to local statistics, both towns of Dong Van and Pho Bang have a poverty rate below 40 percent while the 17 communes have poverty rates of 61 percent or more. In particular, communes with residents composed only of Hmong have poverty rates of 72–74 percent.

¹¹ On October 3, 2010, in Lesvos (Greece), the Geological Park in Dong Van Highland was officially recognized by UNESCO as one of the 77 members of the Global Geopark Network (GGN). It thus became the first geological park of Vietnam and the second in East Asia.

Figure 1: Ha Giang Province of Vietnam and the Study Sites



Map of Ha Giang Province

Map of Vietnam

Source: Administrative map of Vietnam, 2011.

The Hmong in Dong Van live in houses made of rocks. Rocks are everywhere in the district. Many people have called the Hmong in Dong Van as “living on rocks and dead buried in rock.” In winter, the Dong Van Plateau has the gray color of rock and the Hmong had to stay inside their houses most of the time to endure the cold and the lack of food. In the spring, when the weather is warmer and more pleasant, the Hmong energetically return to their fields to take care of their maize and other crops.

The Sa Phin and Ta Phin communes were the specific communes in Dong Van surveyed by the study (Appendix B). The population of the two communes is 98 percent Hmong and 2 percent Kinh, Tay, and Dao. In 2011, there were more people and households in Ta Phin than in Sa Phin (Table 1). The percentage of the poor population was higher in Ta Phin than in Sa Phin. Furthermore, the percentage of the poor population in both Sa Phin and Ta Phin communes was higher than in the entire Dong Van district.

Table 1: Poor, Near Poor, and Nonpoor Households of Dong Van District, Sa Phin and Ta Phin Communes, as of 31 December 2011

	Total no. of people	Total no. of HH	Poor HH			Near-poor HH			Nonpoor HH		
			No. of people	No. of HH	% of HH	No. of people	No. of HH	% of HH	No. of people	No. of HH	% of HH
Dong Van District	66,810	13,672	42,932	8,648	63.25	11,444	2,186	15.99	12,434	2,838	20.76
Sa Phin commune	2,729	559	1,726	362	64.76	621	119	21.29	382	78	13.95
Ta Phin commune	2,944	636	2,014	441	69.34	383	78	12.26	547	117	18.40

HH = households

Source: Socioeconomic report of Dong Van District, April 2012.

There is more agricultural land in Sa Phin than in Ta Phin (Table 2). The former also has more types of crops planted. In both communes, farming is the main source of income. Both have the same number of educational and health infrastructure, and both have no market infrastructure.

Table 2: Other Socioeconomic Conditions of Sa Phin and Ta Phin Communes, 2011

Category	Sa Phin Commune	Ta Phin Commune
Agricultural land (ha)	775.9	398.6
Crops and areas planted	Maize on rocky mountain (412.9 ha), bean (79.6 ha), elephant grass (20 ha), fruits (33 ha)	Maize on rocky mountain (392.6 ha), rice (6 ha)
Main source of income	Cultivation	Cultivation
Educational infrastructure	1 kindergarten school, 1 elementary school, 1 secondary school	1 kindergarten school, 1 elementary school, 1 secondary school
Health infrastructure	1 commune health center	1 commune health center
Market infrastructure	None	None

Ha = hectare

Source: Annual Report 2011, Ta Phin and Sa Phin communes.

3. Review of Literature and Policies

3.1 Review of Related Literature

The issue of food security can be approached at different levels: household, regional, national and global. Food security at the household level is understood as "... sustainable ability to supply nutritious food to all individuals of the household, regardless of [gender] female or male, [age] adults or little ones, [physical condition] health or ill-health" (CARE 1998, as cited in ActionAid, 2000, pp. 21–22). Over the last four decades, food security awareness has shifted through three paradigms: (a) from the international and national levels to household and individual levels; (b) from a focus on food to a focus on livelihood, or from food security to sustainable livelihood; and (c) from outsider's indicators to insider's conceptions (Maxwell & Wiebe 1998, p. 156). Furthermore, Von Braun (1999) argues that food security at the household level may be measured through direct surveys of dietary intake (in comparison with appropriate nutritional norms).

Investigating the issue of food security at the household and individual levels is important (Rigg 2001) partly due to the paradox that although some countries, such as Brazil, may export a great amount of food, many of their people still suffer from food shortages (Hollist & Tullis 1987, p. 1). One reason behind this is that while a country may have sufficient food to meet the demands of all households, the unequal and irregular distribution of food can lead to some households and individuals having a surplus and others having a deficit. Therefore, it is important not only to obtain sufficient food for all citizens but also to distribute the food equally and regularly to all households and individuals.

In developing countries, food security and poverty are closely related because poverty in these countries is manifested primarily in the lack of food and in the lack of health, education, and other basic social needs. This link between food security and poverty is telling because adequate food, health, and basic education have all been consistently demonstrated to be important foundations for economic development (Calhoun 2002, pp. 376–377). Food security and nutrition are also closely related to income. People may be malnourished because they cannot afford to buy adequate food (Colwell, Le & Nguyen 2002). According to Von Braun (1999, p. 42), "increasing the incomes of households that have malnourished members can improve their access to food. Increases in income are strongly related to non-staple food consumption, particularly of meats."

Further, in developing countries, farming systems play a dominant role in the food security and nutrition of the people (Bedi & Shiva 2002, p. 24). Food security depends on ecologically resilient and economically efficient farming systems, which provide livelihood to farmers and sufficient food to the community, region and nation, and provide safe and nutritious food to consumers. Similarly, food chains (Rigg 2001), or food systems (Aziz & Shafi 1989) are considered essential to food security. Thus, when considering food security, it is important to know "what [people] eat, what crops they grow and how they sell and buy, and for whom," as seen in the context of integrated relations (Pottier 1999, p. 26).

Furthermore, due to the differences and diversity of food security factors, food security depends on entitlement and access to food not only through on-farm production and market exchange but also through donations. Therefore, the potential strategies for enhancing food security are differentiated by the realm of food entitlement and the role of each household's coping strategy within their budget (Young 1992, pp. 3–4). In Bangladesh, for instance, food security tends to involve sustainable multi-livelihoods (Akhter 2001).

Sustainable resource management, particularly of land, is very important to ensure sustainable livelihoods. Limited availability of land and the changing natural environment are constraints in this effort (Maxwell & Weibe 1998). One of the problems of undertaking agriculture in Vietnam, especially among the ethnic minorities, is the lack of cultivable land and the need to cope with natural calamities (VASS 2007). The northern mountainous area, in particular, has the highest poverty rate nationwide. Here, the seasonal food shortage among the Hmong and other ethnic minority groups could last from 3 to 6 months (Vuong 2002, 2009). The two main reasons for seasonal food scarcity are (a) war, insecurity, and armed conflict; and (b) natural disasters and epidemics (Young 1992, p. 3). The second reason is currently an important concern in Vietnam.

Some studies have looked into the ethnic minorities of Vietnam on issues related to food security. Some qualitative research confirmed the strong influence of the ethnic minorities' inability to speak the national language as reason for their lack of access to employment and government services and inability to participate in the market and receive social support (Oxfam 1998, VASS 2009). Another study (VASS 2009) showed that the inability of ethnic minorities to speak Vietnamese is the main factor that prevents them from integrating into the economy and taking advantage of opportunities from the policy reforms implemented. This study also argued that while land reform in Vietnam, which allocated land to households, is considered a huge success in the process of development and poverty reduction, knowledge and practices in land use are still a challenge among the ethnic population (VASS 2009). Another study (Vuong 2001) indicated that, historically, ethnic minorities are accustomed to living in land that is managed by the community and not privately owned.

From the above review of literature, it can be seen that food security is a complex issue affecting many aspects of society and life. An important result of the review is that even if the food security of a nation is safeguarded, it does not necessarily mean that each household is guaranteed food security as well. To ensure food security in each household, food supply must be sufficient in quantity, the household must have access to food, and food must be in conformity with people's cultural traditions.

Furthermore, the study team found during the review that while food security among the ethnic minorities has started to gain the interest of researchers and of Vietnam's authorities, food security so far has been viewed in terms of concepts and generalities in available literature. Thus, there is the need to study more deeply the issue of food security and food shortage, focusing on the Hmong people who are among the most vulnerable groups.

3.2 Review of Policies, Programs, and Projects

State government

In Vietnam, food security is a top priority. Vietnam has achieved great success since its implementation of economic reforms, including the promotion of agricultural development and food production. It has become the second highest rice exporting country in the world and poverty in particularly difficult areas has decreased significantly.

Over the years, the government has issued policies addressing the issues of food security and rice area protection. The aim was to ensure that the available 3.8 million hectares (ha) of arable land can produce 41–43 million tons of rice to meet domestic and export demands and to end food shortage by 2012. A related objective was to improve the people's access to food and promote sustainable livelihoods among the poor population, including the ethnic minorities, who are most affected by seasonal food shortages. The significant policies in Ha Giang province are the following:

- No. 167: Program of planning and protecting forest;
- No. 134: Program of supporting house building, expanding reclaimed area;
- No. 135: Program of supporting infrastructure building and production development;
- No. 120: Program of supporting ethnic minority households in especially difficult remote areas;
- No. 143: Program of tuition remission and supporting education; and
- No. 139: Program of supporting ethnic minority groups with free medical examination and treatment.

In addition to addressing food security and food shortage directly, the government has also focused on solving poverty, which is an issue related to food security. To reduce poverty, the government issued Resolution No. 80/NQ-CP dated May 19, 2011¹² setting the direction of sustainable poverty reduction for the period 2011–2020. The resolution clearly stated that sustainable poverty reduction is a focus of social and economic development strategies from 2011 to 2020 to (a) improve and gradually uphold the living conditions of the poor, especially in the mountainous areas; (b) make a vigorous, comprehensive change in poor areas; and (c) narrow the economic gap between urban and rural areas, between different regions, ethnic groups, and population groups. Policy priorities are the poor and poor households; while among the poor, the priority are the ethnic minorities, the elderly, the disabled, and the women and children. The policy was the government's attempt to create favorable conditions for the poor to access funds, along with instructions on how to do business, how to conduct agricultural extension, how to promote technology transfer in production, and how to effectively implement the credit preferential policy for poor households, especially households with disabled and female household heads.

¹² <http://www.chinhphu.vn>

The government also initiated several programs and projects for poverty reduction mainly in ethnic minority areas and in areas encountering extreme difficulty. Funding come mainly from the state's budget with additional support from nongovernment organizations (NGOs) and international sponsors.

Poverty reduction in Vietnam is generally very comprehensive, covering all areas and applying many approaches and interventions. Some projects are designed for a specific area. Others are designed to support specific ethnic groups that have not benefited much from economic prosperity. However, while the state has implemented a number of policies to support the poor, the poverty rate among ethnic minorities has remained high and has gone down only slowly. Furthermore, the income gap between ethnic groups and other social groups has tended to increase over time (Vuong 2009). In addition, ethnic minorities in upland areas like the Hmong continue to suffer lack of food for 3–6 months every year (Vuong 2003).

Baulch and Nguyen (2007) explained that Vietnam's policies and programs for poverty reduction, aimed at ethnic minorities, used three approaches. First, Program No.135 provided price support and transportation. Program Nos. 68, 173, and 186 also used this approach but at a more general level. The second approach comprised of exemption programs in health and education, and targeted households classified as poor or hungry. Some programs, such as Nos.134 and 139, also added ethnicity as a criterion for poor households to be eligible for benefits and exemptions. The third approach comprised of assistance programs for ethnic minority households in especially difficult circumstances. Priority targets were specific ethnic groups that have low population and standards of living. Over time, when economic growth has raised the living standards in Vietnam, the programs tended to move away from giving support based directly on specific ethnic minorities and other poor groups.

For the high rocky areas in the northern mountainous provinces of Vietnam, the government has approved and issued investment-specific policies covering the period 2011–2015 to support the resettlement of people in villages and communes situated in steep rock mountains and frequently affected by natural disasters. In addition, the government has developed infrastructure, such as irrigation and roads and bridges, especially for rural and mountainous areas.

Overall, the reform policy and the comprehensive strategy for growth and development of the Government of Vietnam have resulted in significant gains. In terms of poverty reduction, the previously very high poverty incidence in Vietnam has decreased from 58.0 percent in 1993 to 37.4 percent in 1998, 28.9 percent in 2002, 24.1 percent in 2004, 22 percent in 2005, and 9.45 percent in 2010.¹³

Local governments

To implement the general program of the state and to achieve the specific objective of directly reducing poverty (and indirectly promoting food security) in the province, the provincial government of Ha

¹³ <http://chinhphu.vn>

Giang has set the target that by 2015, per capita income of people in the province will be VND2.5 million or more; no more households will be go hungry and the percentage of poor households narrowed down to less than 10 percent (15th Party Congress provincial document, 2010).¹⁴ In addition, Ha Giang has adopted specific measures such as "every poor family is supported with a house roof, a water tank, a cow, seeds, capital, materials, and fertilizer for crop and livestock farming. These measures were intended to enable the poor to have greater opportunity to access more government capital in order to increase production and stabilize their livelihoods.

In Dong Van district, the local authority saw the need to strengthen production support, increase the area of cultivation, and focus on intensive cultivation of rice, maize, and soybean, which are the main food crops of the district. The district government also promoted the development of industrial crops, medicinal plants and other crops; the use of intensive crop rotation and intercropping; and the application of scientific and technological advances in production. It also encouraged people to develop livestock and poultry and expand the exchange of goods within and with other districts. On top of this, Dong Van district has received from the state government, charitable organizations, individuals, and other sources a lot of support in cash and rice to relieve hunger among the people.

In summary, policies, programs, and projects that directly or indirectly address the food security and food shortage problems among the ethnic minorities in Vietnam have already been implemented at the state and district levels. It now remains to be seen if these measures have positively affected the intended beneficiaries, especially the Hmong people in the Sa Phin and Ta Phin communes of Dong Van district in Ha Giang province.

4. Results and Findings

4.1. Demographic, Economic, and Social Characteristics of Hmong Households

Of the Hmong households surveyed in Sa Phin and Ta Phin communes, 131 households have a male household head while 24 have a female household head (Table 3). The average number of household members in the two communes is 5.39. The average number of household members who are in the labor force is 2.76. The average number of household members who are not capable of working is 1.46, and the average age of children when they become members of the labor force is 12. The average household size and household members in the labor force were higher in Sa Phin than in Ta Phin, while the average number of household members who are incapable of working and the average age of children when they become members of the labor force were higher in Ta Phin than in Sa Phin.

¹⁴ Cited in Ha Giang province's web portal: <http://www.hangiang.gov.vn>.

**Table 3: Some Demographic Characteristics of Hmong Households
in Sa Phin and Ta Phin Communes, 2012**

Characteristics of households (HH)	Commune		Total/ Average
	Sa Phin	Ta Phin	
Gender of household head			
Male	64	67	131
Female	12	12	24
Average number of people in the HH	5.53	5.25	5.39
Average number of people in the HH who are members of the labor force	3.30	2.23	2.77
Average number of people in the HH who are incapable of working	1.23	1.70	1.47
Average age of children in the HH when they become members of the labor force	11	13	12

Source: Household survey, 2012.

All households surveyed in Sa Phin and Ta Phin communes indicated that they get income from planting, animal husbandry, forest protection, trading, and salary-generating activities (Table 4). More households derived income from planting, with income ranging from US\$250 to US\$500/year; only one household reported an income from planting of only under US\$250/year. More households generated income from animal husbandry, with income ranging from US\$1,001 to US\$2,000/year. Most households engaged in forest protection, trading and salary-generating activities earn only less than US\$250/year. In general, households in both communes are more likely to earn higher incomes from planting and husbandry than from forest protection, trading and salary-generating activities.

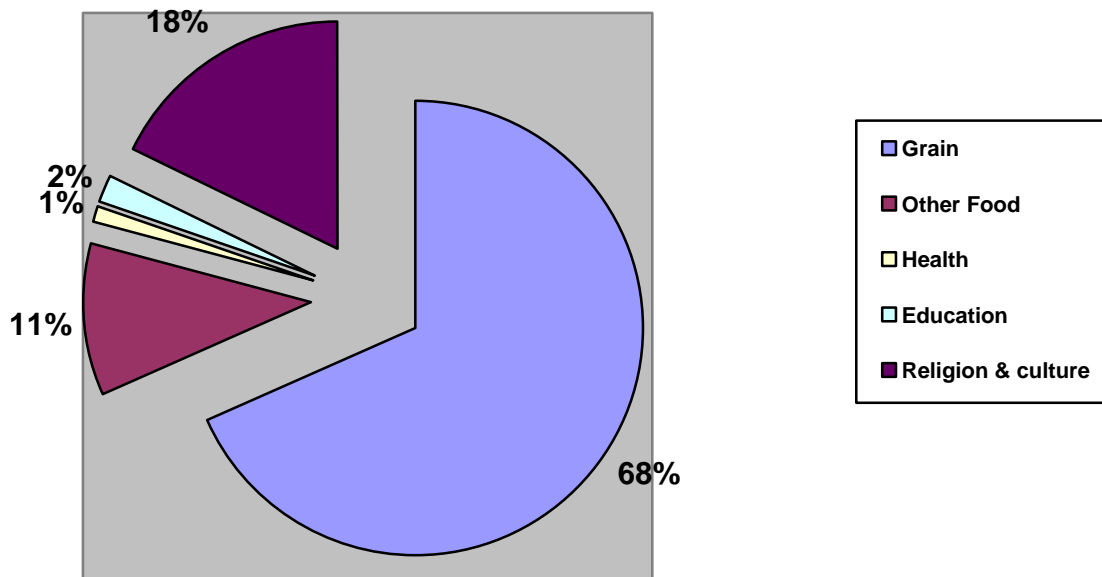
Table 4: Sources of Income of Hmong Households in Sa Phin and Ta Phin Communes, by Income, 2012

Sources of Income/Commune		Income/Year and No. of Households (HH)				No. of HH
		Under US\$250/year	US\$250–US\$500/year	US\$501–US\$1,000/year	US\$1,001–US\$2,000/year	
Planting	Sa Phin	0	30	31	15	76
	Ta Phin	1	52	24	2	79
Total		1	82	55	17	155
Husbandry	Sa Phin	5	25	19	27	76
	Ta Phin	10	21	21	27	79
Total		15	46	40	54	155
Forest protection	Sa Phin	71	2	3	0	76
	Ta Phin	64	14	0	1	79
Total		135	16	3	1	155
Trading	Sa Phin	46	22	5	3	76
	Ta Phin	72	6	1	0	79
Total		118	28	6	3	155
Salary	Sa Phin	65	11	0	0	76
	Ta Phin	54	20	5	0	79
Total		119	31	5	0	155

Source: Household survey, 2012

Most households in the two communes of Sa Phin and Ta Phin indicated that their greatest expenditures were on grain followed by other foodstuff (Figure 2). Other expenditures were on health, education, and religion and culture. Based on results of in-depth interviews through PRA and FGDs, the expenditures on food among Hmong households in Ta Phin and Sa Phin ranged from VND1 million–VND5 million per household per year.

Figure 2: Expenditure Items of Hmong Households in Sa Phin and Ta Phin Communes, 2012



Source of data: Household survey, 2012.

Results indicated that maize is the predominant source of grain among Hmong households in the two communes surveyed (Table 5). Rice is a far second as a source of grain. This clearly shows the great importance of maize as a crop and food source among the Hmong in the surveyed areas.

Table 5: Main Source of Grain of Hmong Households in Sa Phin and Ta Phin Communes, 2012

Main source of grain	Commune				Total	
	Sa Phin		Ta Phin			
	No. of HH	% of HH	No. of HH	% of HH	No. of HH	% of HH
Rice	9	11.8	14	17.7	23	14.8
Maize	67	88.2	65	82.3	132	85.2
Total	76	100	79	100	155	100.0

HH = households

Source: Household survey, 2012.

Using the poverty-related household classification by the government, only 2 households in Sa Phin and Ta Phin communes were found wealthy, 49 were average, 33 were near poor, and 71 were poor (Table 6). Therefore, more households in the two communes were poor or near poor. Ta Phin had more poor households than Sa Phin while the latter had more near poor households than the former.

**Table 6: Poverty-Related Categories of Hmong Households
in Sa Phin and Ta Phin Communes, 2012**

Household Category	Commune				Total	
	Sa Phin		Ta Phin			
	No. of HH	% of HH	No. of HH	% of HH	No. of HH	% of HH
Wealthy	1	50.00	1	50.00	2	1.3
Average	21	42.86	28	57.14	49	31.6
Near poor	23	69.70	10	30.30	33	21.3
Poor	31	43.66	40	56.34	71	45.8
Total	76	49.03	79	50.97	155	100.0

HH = households

Source: Household survey, 2012.

For a more specific description of the poverty status of the Hmong households, the PRA was used to gather data and information showing the relationship between different poverty assessment criteria and category of households based on the classification not of the government but by the Hmong community itself (Table 7). In particular, very poor households lived in low-quality houses made by connecting wood planks with thatched roof. These households did not own assets or livestock. They only owned a few poultry. They did not own land for maize production and had a low average annual income of only VND5 million.

**Table 7: Poverty-Related Assessment Criteria and Categories of Hmong Households
in Sa Phin and Ta Phin Communes, 2012**

Assessment criteria	Household Category			
	Wealthy	Average	Poor	Very Poor
State of houses	House with walls, tiled roof	House with walls, tiled roof	House made by connecting wood planks with tiled roof	House made by connecting wood planks with thatched roof
Number of livestock and poultry owned				
Cow/ buffalo	2–4	1–2	1	0
Pig, goat	15–20	5–15	1–5	1–2
Chicken, duck	30–50	20–30	10–20	1–5
Assets owned	TV, motorbike, maize grinding and drying machine	Motorbike	None	None
Land area for maize production (ha)	1.0– 3.0	0.5–1.0	0.4–0.2	0
Average household income/year	VND30 million = US\$1,500	VND20 million = US\$1,000	VND10–VND15 million = US\$500–US\$700	< VND5 million = US\$250

Source: Participatory rural appraisal, 2012.

4.2. Farming among Hmong Households

Based on direct observation, in-depth interviews, PRA, and FGD, the farming practices of the Hmong are as follow:

Land classification

The land that the Hmong cultivate is generally rocky, thus they have adapted a farming practice suitable to this type of terrain. The Hmong calls the land or field that they till “Tez” and classify it as follows:

- a) *Têz ðung*—A field on a mountain with few large rocks and a lot of soil that is less porous and suitable for some crops such as maize and cassava.
- b) *Têz ðu*—A field on a rocky mountain with soil that is black and humus and usually located on rocky slopes that are hard to plant and not very good for crop cultivation. To plant the land with maize, the Hmong may carry soil from the foot of the mountain and place it on the rocks. When the soil in the rocks is washed away, they add more soil to make the maize stand firm and grow.
- c) *Têz thâu*—A field on a rocky mountain with soil that has ash color and contains many small stones and shrubs.
- d) *Têz ðua*—A field that has lost all its fertility and nothing can be planted on it.

The Hmong believes that in “*Têz ðua*, whatever is planted will die and in *têz ðu* whatever is planted will grow.” The Hmong further classifies *têz ðu* into two subcategories:

- a) *Têz kraor zê*—An upland field composed of many small caves located on the slopes of high mountains. Each cave usually can only grow 1–3 maize seeds. The field has large rocks that cannot be plowed, so hands and hoe must be used. Cultivating this type of field requires the Hmong to frequently carry up and add soil to the field so the plants will grow. All stages of farming are done by hand, so it requires much labor force and the yield is not high.
- b) *Têz ðauf*—An upland field on a rocky mountain that has more soil. Each rock cave has a small square area from 4 to 10 square meters (m²) or larger. With this type of field, the Hmong only need to build an embankment of rocks to form a contour and keep the soil from eroding. In the process of cultivation, they can use plow or hoe. *Têz ðauf* is not very common so the Hmong have to share the field among households within the village. Families with more *têz ðauf* will enjoy more favorable cultivation and higher crop yields.

Aside from the above classifications, the Hmong also classify fields in terms of crop rotation as follows:

- a) Field for upland crop rotation—An upland field that is not used regularly and continuously. Only one of two upland fields is planted while the other is fallowed and the planted field is grown only with 2 or 3 crops, depending on whether the soil is good or bad. After harvest, the planted field is fallowed while the fallowed field is planted next. The length of the fallows depends on whether the family has much or little land. Previously, when the population was small, the length of fallow was often 7–10 years. Currently, due to population pressure, the fallow period is reduced to 3–4 years, and for some families, 1–2 years.

- b) Sedentary field—An upland field that has good soil and can be cultivated continuously for many years. This type of upland field has a low slope and is used for continuous intercropping. Fertilizers can be added to increase fertility.

To separate one field from another, the Hmong place rock walls along the boundary. The rock walls are arranged with small pieces of stone stacked around the fields, which are formed like a ladder or shaped into terraces from the foot of the mountain to the peak and are separated by stone walls. Aside from setting the demarcation, this approach also minimizes soil erosion within and between fields and distributes more or less equally the water flowing from above.

This discussion shows that the level of knowledge among the Hmong is unique in terms of the types of land they till and the way they organize their fields, which is appropriate to the land conditions prevalent in a mountainous terrain.

Farming tools

The tools for farming used by the Hmong are in accordance with farming conditions, particularly the type of soil they till. For plowing, they use wooden plows with metal blades. The plow of the Hmong often has short handles, paired with stems and blades contained in a wooden stick. The blades are high in steel content so the plow is reliable enough to be used in a rocky environment for a period of 3–5 years. The plows are produced by the Hmong themselves and are considered better than the plows made by other ethnic groups. The plow of the Hmong has the advantage of being especially effective in upland slopes and rocky ground.

The butterfly hoe is the typical hoe of the Hmong people. This hoe is very versatile, with a thin but broad triangular blade curved in the tail to get its pointed ends to easily sneak into the land being cultivated. It is well suited for digging and for raking grass in upland slopes (Cu and Hoang 1994). The hoe blade is made of iron 20 centimeters (cm) wide and over 12 cm high, with an iron pipe attached to the hoe blade. The pipe is around 4 cm in circumference and around 14 cm long. The hoe handle is a circular piece of wood about 60 cm long. Every Hmong household has a butterfly hoe and the number of hoes equals the number of farmers in the family. The hoe blades and the hoe itself are made by the Hmong themselves.

The Hmong use a common type of knife, called entropion knife, which is one of the farm instruments closely connected with the daily life of the Hmong. To make an entropion knife, a piece of steel is meticulously placed between pieces of iron or steel scrap and then heated in the oven to forge it. This way the knife is so hardened that it does not get detached when chopping trees or cutting hard materials. In general, the entropion knife and the other farm tools of the Hmong reflect their local knowledge in farming in difficult environments.

Cropping season

Traditionally, with the subtropical climate in their area, the Hmong in Sa Phin and Ta Phin communes grow crops from summer to autumn. Crops are generally not grown in cold times because the seedlings die or the growth of young trees is stunted. Also, if the cold comes early in summer and the crop has not flowered yet, the plants do not develop fully resulting in poor harvest or even crop failure. Thus, the Hmong take the seasons seriously when farming. Generally, they rely on the lunar calendar and on their long experience in predicting the weather to make decisions on when to plant and harvest.

Planting generally starts in January after the Lunar New Year; the grass is cut and the field is prepared. In February, manure is applied on the field. Hay is also placed on the field and is set on fire to add a large amount of humus into the soil. The result is a field fertilized with a mixture of manure and ashes that will provide nutrients to the crop. After preparing the land, seeding is done in March. Finally, July and August are harvest months.

Crops grown

Traditionally, the Hmong in Sa Phin and Ta Phin communes grow one maize crop a year. In the past, the Hmong used only the following local maize varieties:

- a) Normal maize—over 2 meters (m) high, yellow seeds, cropping season is from February to August. Planting distance is about 60 cm with seeding rate of 4–5 seeds per maize/hole; and
- b) Glutinous maize—about 1.8 m high, shorter than normal maize, white glutinous seeds, elastic, often used for making cakes for traditional festivals like the Lunar New Year.

These two maize varieties planted by ethnic minority groups on the rocky plateau for centuries, are cold-resistant and drought-tolerant, less vulnerable to pests and diseases, easy to store, and suit people's taste. However, the productivity of these two varieties is low. Also, their seeds have become adulterated due to poor storage and constant use from crop to crop year after year.

The Hmong generally select the big and sturdy-looking maize from the harvested crop to take their seeds, which are stored separately in the upstairs kitchen of the house. Hmong households usually store 10–50 kilograms (kg) of maize seeds for planting in the next cropping season.

In recent years, various development projects of the government have introduced to the Hmong new maize varieties to increase yield. A few varieties were found to be suitable with the climate in Dong Van, but the Hmong are unable to reproduce and preserve the seeds of these varieties for the next cropping seasons. Therefore, in general, the Hmong were hardly able to continue using the new maize varieties and have been using the local varieties instead.

Intercropping

Due to the climate, the Hmong can only grow one major crop—maize. However, they can do intercropping to take advantage of the weather conditions from summer to autumn and increase the use of limited arable land. The Hmong usually intercrop horse-tooth beans, peas, soybeans, pumpkins, onions, garlic, and other vegetables with maize. When the maize has 3–5 leaves, the beans are sown between the maize roots. The distance between 2 maize roots is about 80 cm and between these 2 roots, 2 rows of beans are planted. The beans can be harvested 2–3 months before harvesting maize. After the maize is harvested, the Hmong can also grow cabbage and other vegetables. Sweet potato is never intercropped with maize because it stunts the growth of the latter.

When intercropping, the Hmong conduct weeding and cultivation of the roots twice. The first time is during spring, about one month after seeding, when the soil is cool and when the intercropped plants are already growing. The purpose is to provide enough warmth for the plants to grow well. The second time is around May when the intercropped plants are near blooming and the maize already have flowers. After this, they add a small amount of manure into the soil to enhance the growth of the maize and make their grains bigger and firmer. When weeding and cultivating, they usually check the plants to remove insects or pests to prevent these from spreading to other plants.

Intercropping has become customary among the Hmong not only to make more food for both people and livestock but also to improve the land, which often lacked nutrients. The remains of the intercropped plants after harvest, usually legumes, are used as fertilizer. Intercropped plants like sweet potato, arrowroot, and cassava are fed to livestock and poultry. Aside from intercropping food crops, the Hmong also grow medicinal plants such as gutta-percha trees (Chinese rubber trees), panax pseudo ginseng, legendary ginseng, chuanxiong and similar plants, as well as fruit trees such as purple plum, peach, pear, and apple, which are planted in the home garden or in the field. Additional benefits from intercropping in a steep upland environment are the control of flood and prevention of soil erosion.

The more effective intercropping technique used by the Hmong to prevent soil erosion is to dig a "snake" ditch to drain water-carrying soil from the more elevated area or to restrict water from flowing out specially during the rainy season. The Hmong keep the soil in place by building embankments using rocks. They put a ledge between large rocks or small cliffs in the mountain to keep the soil. Depending on the terrain, laying the stone can be different for each type of situation. In the rock cave with little soil, small stones are used to construct a small wall to keep the soil in place for each rock cave and small piece of land. When the land is larger, a rock embankment holds the soil and prevents erosion.

Fertilizer use

By themselves, the Hmong seldom use fertilizer when farming. However, when their arable land area shrank, they learned through government development projects how to make composts from plants and

used them as fertilizer. The Hmong now know how to apply organic fertilizer for plant care. First, they chop weeds and other plant remains into small pieces, place them in holes dug near the field and mix them with cattle manure to compost, and then use the compost as organic fertilizer. In addition to compost, they also use inorganic fertilizer to further increase productivity. The Hmong fertilize their fields every 1–2 years on average.

Harvest and storage

The harvest season is from July to August. The Hmong harvest maize when the maize kernels are already ripe and yellow in color and the plant is old and dried. First, they take off the top of the maize containing the kernels, peel off the kernels, and then dry them in the field. Then the maize plants that were left in the field trunk are chopped down and left to dry. The harvest is usually done when the weather is sunny. The maize is quickly harvested and stored in a smoked shelf in the kitchen for gradual consumption. According to the Hmong experience, when maize is smoked by placing it near the cooking area, moisture and attack by termites and other pests are prevented. Only local maize varieties, however, can be preserved for a long time as new varieties are usually susceptible to termites and other pests and their taste gets bitter and stale over time.

Maize products and uses

Cooked maize starch called *men men* is a traditional and favorite food among the Hmong in Ha Giang province. To make *men men*, maize is ground by mortar into powder and mixed with water until it gets evenly porous, and then it is steamed. After steaming, the ground maize is placed on a bamboo plate and evenly pressed to form dough. The dough is allowed to cool down and then placed back in the steamer for further cooking. When eating, the Hmong often serve maize dough with vegetable broth such as summer vegetable soup; winter-squash vegetable soup, bean soup, and others. The Hmong usually have three meals a day but the main meals are breakfast and dinner. If their farming fields are far from home, the Hmong usually bring with them their food for lunch.

The Hmong also make tortillas from maize and eat these during the Lunar New Year holiday and other festivals. Maize tortillas are made from young glutinous sticky maize or rice. The Hmong are also known for their special maize wine, which has high alcohol content and which they enjoy drinking particularly during winter. Maize trunks after harvest can also be used as fuel or firewood for the household and as materials for building a fence around the household garden to prevent livestock from damaging it.

Animal husbandry

Animal husbandry is an important source of income among the Hmong (Figure 2). Livestock also provides animal labor for farm work and transportation, dung for organic fertilizer, and meat for food. Poultry is mainly used for food. The Hmong breed a variety of livestock and poultry, such as

cows, horses, pigs, chickens, and goats. Livestock and poultry are a particularly important source of money and food. During times of food shortage, they can be slaughtered or sold in the market to buy food.

Of the variety of livestock, the cow is used mainly for pulling the plow, for ghost rituals, and for food. Where the land conditions allow, each family raises a number of cows that it can effectively shepherd. Sheds and barns are built near the house to shelter the animals. The barns are carefully built with soil floor; sometimes they are paved with planks. Each cage has a trough for the cattle to eat grass at night. The usual foods for the cows, goats, and horses are elephant grass, maize leaves, and maize bran mixed with some vegetables, spinach, potatoes, and other plants. Elephant grass, in particular, is grown around the house or on the rocky slopes.

Horses are mainly used to transport people and goods. For instance, when going to the farm, the Hmong may pack at the back of the horse the seedlings, fertilizer, and other farm inputs and materials. During harvest, the animal is loaded with the maize to carry back home. Previously, when there were no motorized vehicles yet, the Hmong used the horse to cart salt and other things from the district or provincial market to their village. Today, people use the motorbike to travel from place to place. Aside from using the pigs and chicken as food, the Hmong has a custom of using them in worship rituals. In particular, a pig colored black and weighing over 100 kg is used. Goats are also used in worships and funerals, but since they can destroy crops, they are not raised much by the Hmong.

Weather forecasting

The Hmong have gained indigenous knowledge in weather forecasting, which is valuable in farming, particularly in predicting weather for timely planting and harvesting. For instance, when they see cherry flowers in bloom, they know it is time to start preparing the field. When they hear the sound of birds *Da Po Cho Tau* or see Gao flowers in bloom, it is time to plant maize seeds. When they see the pear flowers in full bloom, it is time to finish planting the maize. If the Hmong households are not likely to complete preparing and planting the land based on the abovementioned natural signals, they quickly ask labor assistance from other households in the clan to finish the activities on time.

Sùng Nhìa, a 53-year-old male Hmong farmer explained that “The Hmong in Dong Van can tell whether their annual crop is going to be good or bad by looking at the flowers and fruits of the peach trees. If the peach trees are in bloom with many flowers but with few fruits, then there will be a good harvest.”

The Hmong also rely on animals to predict the weather. For instance, they may predict that it will rain when the toad croaks, the sky will be gloomy when dragonflies fly near the ground, a storm will occur when black ants march in rows out of their nest, and a storm will occur in a few days when the chickens

return to their cages late. Sung Cha Khe, a 21-year-old male Hmong farmer in Ta Phin says another common belief is that "when they see a cat playing with the water bowl using its claws, it is going to rain." In general, the Hmong tend to trust supernatural powers in their farming practice. It has been argued that "in underdeveloped socio-economic conditions, crop yield depends heavily on nature, on the conduct of crop rituals, on praying for rain, " (Phan 1992, pp. 5–6).

Results of the survey indicated that in the last five years, drought was experienced by more people in Sa Phin and Ta Phin communes (Table 8). The other unusual natural phenomena often observed were ice and snow, flash flood, and flood in that order. Survey results further showed that among the effects of these natural phenomena, the most often cited was low plant productivity followed by inability of crops to grow, inability to plant, inability to harvest, and occurrence of diseases in crops and animals, in that order (Table 9). In response to the bad effects of natural phenomena, results showed that households often used the remedy of applying advanced science and technology, followed by doing nothing, applying local knowledge, and doing traditional rituals and worship ceremonies, in that order (Table 10). Results of FGD and PRA further indicated that in response to long winter and very low temperature, in particular, the Hmong households applied advanced technology in the raising of livestock, such as growing elephant grass to feed animals and building breeding facilities to protect them from the cold.

Table 8: Unusual Natural Phenomena in the Past 5 Years Experienced by Hmong Households in Sa Phin and Ta Phin Communes, 2012

	Commune				Total	
	Sa Phin		Ta Phin			
	No. of HH	% of HH	No. of HH	% of HH	No. of HH	% of HH
Drought	42	55.3	50	63.3	92	59.4
Flood	3	3.9	0	0	3	1.9
Flash flood	23	30.3	1	1.3	24	15.5
Ice and snow	20	26.3	12	15.2	32	20.6

Source: Household survey, 2012

Table 9: Effects of Unusual Natural Phenomena on Cultivation by Hmong Households in Sa Phin and Ta Phin Communes, 2012

Effects	Commune				Total	
	Sa Phin		Ta Phin			
	No. of HH	% of HH	No. of HH	% of HH	No. of HH	% of HH
Inability to plant	27	35.5	18	22.8	45	29.0
Inability to harvest	19	25.0	17	21.5	36	23.2
Inability of crops to grow	36	47.4	30	38.0	66	42.6
Low plant productivity	32	42.1	42	53.2	74	47.7
Occurrence of diseases in crops and animals	18	23.7	6	7.6	24	15.5

Source: Household survey, 2012

Table 10: Responses to Unusual Natural Phenomenon by Hmong Households in Sa Phin and Ta Phin Communes, 2012

Responses	Commune				Total	
	Sa Phin		Ta Phin			
	No. of HH	% of HH	No. of HH	% of HH	No. of HH	% of HH
Apply advanced science and technology	32	42.1	25	31.6	57	36.8
Apply local knowledge	15	19.7	27	34.2	42	27.1
Do traditional rituals/worship ceremony	12	15.8	1	1.3	13	8.4
Do nothing	33	43.4	21	26.6	64	41.3

Source: Household survey, 2012

Some religion-related beliefs, taboos, and practices

Maize has been a crop of the Hmong for many generations and they have developed some religion-related beliefs and taboos in the farming of this crop. Among these are that a) maize plants also have souls and thus should be respected; b) the first day of sowing should not occur on the day the first sound of thunder occurs; c) according to older people in particular, sowing should not happen on dates that coincide with the dragon or monkey as the seeds will surely rot or fail to germinate; and d) sowing should not happen on parents' memorial days. Maize seedlings were selected and set aside in a place far

from the previous maize harvest. The Hmong also believe that women should be the ones to sow the seeds as flowering time and growth of the plant will take a long time if men do the job instead. Sung Sua Po, a 52-year-old male Hmong farmer in Sa Phin commune added that “Maize seedlings should not smell alcohol when sown. Thus, people who just finished drinking are not allowed to sow seeds as the plant will not grow well. Also, maize seeds should not be stored close to wine containers.”

The Hmong practice a field opening ceremony, conducted after the Lunar New Year holiday, before preparing the field for a new maize crop. This ceremony is intended to thank the ancestors for finding and creating the field for their children. A tree or big rock in the field is chosen for the ritual. Ritual items usually include a bottle of wine, a bowl of *men men*, and boiled chicken but some households use a knife, a butterfly hoe, a boiled egg, a bowl of rice, and a bottle of wine. In the ceremony, the household head who leads the ritual offering kneels down and calls the gods who rule the fields to inform them that the cropping season is going to start. The household head then calls the names of three generations of family ancestors and those of the present generation but who died young, to ask them to help the household chase the birds, mice, animals, ants, insects, and other pests to prevent them from destroying the crops. In order to have a good harvest, the people attending the ceremony should not stumble on the way to their fields or kick the bucket.

It is not required that the field opening day ceremony be done on a fixed date, only that it be conducted on a good day after the Lunar New Year holiday. In the past, households had to conduct this ceremony very carefully and in accordance with family customs. If this is not done, it was believed that the crop will fail and family matters will not go smoothly. At present, these rituals have been lessened due to the application of new maize varieties and the technical guidance in farm management provided by the government, which helped households to get higher maize yields. However, among some families, traditional opening field rituals especially in cultivating the local maize varieties are still practiced.

New maize offerings

Results of FGD and PRA indicated that before the start of the maize harvest in July and August, the Hmong often conduct new maize offerings. To do these, young maize are collected and boiled. The boiled maize are then put into a tray and placed in the middle of the house. Three incense/perfume sticks are lit to worship the house ghost, ancestors, and the gods who come to eat the maize. New maize offerings show the Hmong’s respect for their ancestors. This is also a form of achievement report of the family head for a successful crop year. According to the Hmong custom, the consequence of not performing this ritual is that the family will not have enough maize for food, especially the elderly, because they have not set a good example for their descendants.

Giang Thi May, a 45-year-old female Hmong farmer in Ta Phin said: “If he does wrong, the eater’s eyes will go blind and next year, his family will certainly lose its crop. New maize offerings are mainly for ancestors and the family should only invite their relatives in the clan, not people from other families.”

A particular religion-related farming practice among the Hmong households in Dong Van is the hanging of maize next to their altars. People often choose to hang a plant with 2–3 big kernels of maize to show that the family is doing well and that it looks forward to a harvest next season of more and big maize like those they hang near their ancestors’ place of worship. After each harvest, the household head burns perfume stick and puts new maize to replace the previous season’s offerings on the altar (Nguyen 2012, p. 90).

Local knowledge in farming

Local knowledge and its application have always played important roles in the practice of agriculture among the Hmong people. Results of the survey indicated that most Hmong households have local knowledge of various aspects of agricultural production and have actually applied local knowledge (Table 11). These include weather prediction, land protection and soil-erosion prevention, water source protection and insurance, crop and harvest scheduling, intercropping, burning and removal of weeds, protection of seed and variety and prevention of plant diseases, harvest and storage of agricultural products, and search for other resources in the forest. Hmong households have the highest local knowledge and application of crop and harvest scheduling. On the other hand, they have less local knowledge and application of searching for other resources in the forest.

Table 11: Local Knowledge and Their Application in Agricultural Production among Hmong Households in Sa Phin and Ta Phin Communes, 2012

Question/ Local knowledge	Commune				Total	
	Sa Phin		Ta Phin			
	No. of HH responding yes	% of HH	No. of HH responding yes	% of HH	No. of HH responding yes	% of HH
<i>a. Do you have local knowledge about your agricultural production?</i>						
Weather prediction	41	53.9	48	60.8	89	57.4
Land protection and anti-erosion of land	63	82.9	65	82.3	128	82.6

Water source protection and insurance	58	76.3	44	55.7	102	65.8
Crop and harvest scheduling	70	92.1	75	94.9	145	93.5
Intercropping	62	81.6	68	86.1	130	83.9
Burning and removal weeds	64	84.2	70	88.6	134	86.5
Protection of seed and variety and prevention of plant diseases	56	73.7	60	75.9	116	74.8
Harvest and storage of agricultural products	59	77.6	61	77.2	120	77.4
Search for other resources in the forest	27	35.5	20	25.3	47	30.3
<i>b. Do you apply local knowledge in your agriculture production?</i>						
Weather prediction	37	48.7	45	57.0	82	52.9
Land protection, anti-erosion of land	63	82.9	61	77.2	124	80.0
Water source protection and insurances	57	75.0	43	54.4	100	64.5
Crop and harvest scheduling	69	90.8	73	92.4	142	91.6
Intercropping	61	80.3	67	84.8	128	82.6
Burning and removal of weeds	64	84.2	68	86.1	132	85.2
Protection of seed and variety and prevention of plant diseases	55	72.4	56	70.9	111	71.6
Harvest and storage of agricultural products	58	76.3	58	73.4	116	74.8
Search for other resources in the forest	25	32.9	19	24.1	44	28.4

Source: Household survey, 2012.

4.3. Food Shortage among Hmong Households

Of the households surveyed in Sa Phin and Ta Phin communes, 64 percent indicated that they experienced transitional shortage, 3.8 percent said they underwent chronic shortage, 2.6 percent said they experienced shortage due to natural disasters and epidemics, and 32.2 percent said they did not experience food shortage (Table 12). Therefore, there were more households in the two communes that experienced food shortage than those which did not, and this shortage was usually transitional in nature.

Table 12: Types of Food Shortage Experienced by Hmong Households in Sa Phin and Ta Phin communes, 2012

Type of food shortage	Commune				Total	
	Sa Phin		Ta Phin			
	No. of HH	% of HH	No. of HH	% of HH	No. of HH	% of HH
Transitional shortage	51	67.1	48	60.8	99	64.0
Chronic shortage	5	6.6	1	1.3	6	3.8
Shortage due to natural disasters and epidemics	3	3.9	1	1.3	4	2.6
No shortage	20	26.3	30	37.9	50	32.2

Source: Household survey, 2012

Of the households in Sa Phin and Ta Phin communes, transitional shortage occurred more in households composed of 3–5 persons, chronic shortage occurred most in households with 5–7 persons, shortage due to natural disasters occurred more in households with 5–7 persons, and there was no shortage in households with 3–5 persons (Table 13). Thus, in general, food shortage occurred more in medium-sized households than in very small and very large households.

Table 13: Relationship between Food Shortage and the Number of Persons in Hmong Households in Sa Phin and Ta Phin Communes, 2012

	Number and % of persons in the household (HH)										Total no. of HH	%
	1-3 persons	%	3-5 persons	%	5-7 persons	%	7-10 persons	%	Over 10 persons	%		
Transitional shortage	13	8.4	54	34.8	20	12.9	11	7.1	1	0.6	99	64.0
Chronic shortage	0	0.0	1	0.6	4	2.6	1	0.6	0	0.0	6	3.8
Shortage due to natural disasters and epidemics	0	0.0	0	0.0	3	1.9	1	0.6	0	0.0	4	2.6
No shortage	12	7.7	22	14.2	10	6.5	6	3.9	0	0.0	50	32.2

Source: Household survey, 2012

There were more households in Sa Phin and Ta Phin communes that experienced food shortage for a period of 2–4 months than any other number of months in a year (Table 14). This result indicated that the food shortage among the Hmong households in Ta Phin and Sa Phin, while mainly transitory, could last for some months in a year.

Table 14: Number of Months Annually that Hmong Households Experience Food Shortage in Sa Phin and Ta Phin Communes, 2012

No. of Months	Commune				Total	
	Sa Phin		Ta Phin			
	No. of HH	% of HH	No. of HH	% of HH	No. of HH	% of HH
0	20	26.3	30	38.0	50	32.3
1	5	6.6	7	8.9	12	7.7
2	17	22.4	14	17.7	31	20.0
3	17	22.4	16	20.2	33	21.3
4	15	19.7	9	11.4	24	15.5
5	1	1.3	1	1.3	2	1.3
6	1	1.3	2	2.5	3	1.9
Total	76	100.0	79	100.0	155	100.0

Source: Household survey, 2012

Because of the food shortage, the Hmong households in Sa Phin and Ta Phin have poor nutrition. Results from the in-depth interviews, PRA, and FGD, their daily food consisted mainly of maize powder and vegetable soup with salt or meat. Vegetables were sourced from intercropping with maize. Based on the survey, most households in Sa Phin and Ta Phin had vegetable soup with salt in addition to maize/rice as part of the daily meal (Table 15). Few households had vegetable soup with meat as part of their daily meal.

Table 15: Dishes besides Maize/Rice in the Daily Meal of Hmong Households in Sa Phin and Ta Phin Communes, 2012

Dish	Number of HH	%
Meat+ vegetable soup	21	13.5
Salt+ vegetable soup	134	86.5
Total	155	100.0

Source: Household survey, 2012

"Traditionally, the main meal of the Hmong household in Ta Phin consists only of maize and vegetable soup. It rarely has money to buy pork or beef. Only if a [family member] has employment outside the household, he can earn more money to buy meat for the household. Only during the Lunar New Year that the household may have meat to eat for a few days. The Hmong people have a variety of vegetables grown in the farm such as cabbages, squash, legumes, and others. So they have enough vegetable soup to eat, together with maize, throughout the year."

Quoted from a 35-year-old woman Hmong farmer living in the Ta Phin commune.

4.4. Reasons behind the Food Shortage among Hmong Households

Results of the household survey indicated that the main cause of food shortage as perceived by the Hmong households was land shortage (Table 16). Compounding this problem is soil erosion, which makes the land less productive. Results of the survey also indicated that in addition to land shortage and soil erosion, there are several other causes of food shortage among Hmong households. These are presented in Table 16.

**Table 16: Reasons for the Food Shortage among Hmong Households
in Sa Phin and Ta Phin Communes, 2012**

Reasons	Commune				Total	
	Sa Phin		Ta Phin			
	No. of HH	% of HH	No. of HH	% of HH	No. of HH	% of HH
Contracted land area for production, lack of land for production	61	80.3	65	82.3	126	81.3
Rocky soil, poor nutrition, land erosion	63	82.9	44	55.7	107	69.0
Natural disasters and epidemics	29	38.2	20	25.3	49	31.6
Scarce water resources	48	63.2	23	29.1	71	45.8
Production based on local knowledge	21	27.6	11	13.9	32	20.6
No new seeds or modern technology to use	11	14.5	5	6.3	16	10.3
Not able to benefit from government support policies	11	14.5	4	5.1	15	9.7
Difficult means of transport	34	44.7	19	24.1	53	34.2
Lack of capital	38	50.0	44	55.7	82	52.9
Lack of labor	18	23.7	18	22.8	36	23.2
Too many dependents	19	25.0	7	8.9	26	16.8

Source of data: Household survey, 2012

Land shortage and soil erosion

Based on the survey, 80.3 percent of households in Sa Phin and 82.3 percent in Ta Phin indicated that land shortage is the main reason for the food shortage in their areas (Table 16). On the other hand, 82.9 percent of households in Sa Phin and 55.7 percent in Ta Phin said that soil erosion is another factor causing the food shortage. Living in harsh environments, the Hmong people hardly have good land for farming. Agricultural land accounts for only 7 percent of the total land area, according to the local Commune People’s Committee (CPC) report. Not only is there very little good land for cultivation but the available land is also located in steep cliffs, which make it difficult to grow plants and easy for the soil to get eroded and the soil nutrients to be washed down the slopes. During FGD and PRA, participants said that the majority of the poor in Sa Phin and Ta Phin are the ones with little land to cultivate.

Natural disasters and calamities

Based on the survey, 38.2 percent of households in Sa Phin and 25.3 percent in Ta Phin indicated that natural disasters and calamities are also reasons behind the food shortage in their areas (Table 16). The

climate in Ha Giang has also significantly changed over time, resulting in increased incidence of natural disasters and calamities. An analysis of meteorological data for Ha Giang showed that the annual average air temperature has increased by 0.6°C–0.8°C over the period 1960–2008. The rise in temperature was different between the seasons, with summer temperature rising by 0.6°C–1°C. In-depth interviews and FGDs further indicated that the air temperature in the two communes, the air has become hotter in summer and the heat has lasted longer; while in winter, the air has become colder and the cold has lasted longer. There was also a change in rainfall patterns in Ha Giang over time, with heavy rains occurring more frequently, causing serious flooding, but in general, the volume of rainfall has decreased to 300 millimeters (mm) and rainfall distribution also tended to decrease.

A number of unusual climate-related events have occurred in Dong Van district in the last few years. Specifically, in 2008 and 2010, ice appeared in the rocky upland. Flash floods and droughts have also occurred often. The increased occurrence of such events has reduced the cultivated area, productivity, and total agricultural production among the Hmong people in Ha Giang province where total damage caused by natural disasters in 2010 was estimated at VND150 billion while damage due to severe cold was estimated at nearly VND100 billion, mainly losses in livestock, crops, and rubber.¹⁵ Poor households were particularly vulnerable as their ability to cope with natural disasters and calamities and the other effects of climate change was much weaker than that of other households (Mai et al. 2011).

The natural resources in Ha Giang has seriously declined over time, particularly in terms of forest cover and forest quality, based on in-depth interviews, PRA, and FGD. From 1943 to 1990, the percentage of forested area in Ha Giang has decreased from 98 percent to 17 percent. At present, the forest cover is down to about 10 percent.¹⁶ This means that the ability of the forests to help control the occurrence of natural calamities and disasters, such as regular floods, flashfloods, droughts, and severe cold has been seriously impaired.

Scarce water resources

Based on the survey, 63.2 percent of households in Sa Phin and 29.1 percent in Ta Phin indicated that scarce water resources is another reason for the food shortage (Table 16). Sa Phin has absolutely no water for daily use and for production. Water supply totally depends on natural rainfall. To have water, people collect rainfall from the roof and save it in containers. During the dry season, people travel some 10 km to fetch water from the cave deep in the mountains. Because of the distance, the Hmong women have to get up as early as 3–4 a.m. everyday, walk for hours through several mountains, fetch water using bamboo pipes and plastic cans, and then carry them back home. In recent years, some people have acquired motorcycles, enabling them to go as far as 40–50 km to fetch water in plastic cans for drinking and farming. Among fairly wealthy households, they build concrete tanks to hold and store rainwater.

¹⁵ Cited in <http://www.hagiang.gov.vn>.

¹⁶ Cited in <http://www.hagiang.gov.vn>.

However, rainfall comes only in 4–6 months a year. Because of lack of water, people have to spend so much time and effort to get it, reducing their time to work in the field.

To address the water supply problem in Dong Van district, the state built a reservoir in the 1970s, but it did not store much water as it was not solidly built. In 2001, a new reservoir of concrete cement was constructed by the state on cat's ear cliff. Completed in 2005, this reservoir had a capacity of about 3,000 cubic meters (m³) of rainwater, which can supply the needs of the two communes with more than 3,000 people. When the reservoir is fully filled, it can meet 80 percent of the needs of the local population.

Production based on local knowledge

Based on the survey, 27.6 percent of households in Sa Phin and 13.9 percent in Ta Phin indicated that production based on local knowledge is a reason behind the food shortage in their areas (Table 16). The Hmong people are not too receptive to new agricultural practices and would rather follow their usual farming methods. They also lack confidence in themselves and would rather deal with their fellow Hmong whom they trust more than the outsiders. Some Hmong people are also prone to get depressed when their farming efforts fail; they would not to take government-offered loans for fear they would not be able to repay. Thus, government development projects that promote modern farming techniques or provide assistance to alleviate food shortage and poverty are generally hard to implement in Hmong communities.

No new seeds or modern technology

As presented in Table 16, 27.6 percent of households in Sa Phin and 13.9 percent in Ta Phin indicated that no new seeds or modern technology is also a reason behind the food shortage. Despite the fact that Hmong households have been supported with seeds, fertilizer, and modern technology training, a minority of the Hmong households hardly access and apply modern technology in agricultural production. A reason for this is the language barrier. Many trainers speak Vietnamese that the Hmong farmer has difficulty understanding, thus, their inability to apply modern technology in their agricultural production.

Unable to benefit from government support policies

Based on the survey, 14.5 percent of households in Sa Phin and 5.1 percent in Ta Phin indicated that not being able to benefit from government support policies is a reason behind the food shortage in their areas (Table 16). Despite exposure of the Hmong households to government policies, a minority of them mentioned that they are not benefiting from government support policies. For them, this is a reason behind the food shortage. This problem, in turn, is due to illiteracy, which makes some Hmong households unable to understand the importance of government support policies and programs and the benefits that these can bring to their households. Another reason is that some Hmong households live in

remote and distant areas, which reduced their chance to participate in government programs and to benefit from government support policies.

Poor mobility and difficulty in transportation

Based on the survey, 44.7 percent of households in Sa Phin and 24.1 percent in Ta Phin indicated that difficult transport is a reason behind the food shortage in their areas (Table 16). As earlier mentioned, Ha Giang is an upland, mountainous province and its terrain is characterized by very steep mountains and deep valleys. Local transport infrastructure in the province is also wanting in investment. Thus, the Hmong people have great difficulty in transportation and their mobility seriously hampered. The distance from village to commune and back is generally very far and is traveled mainly by foot. For some villages, it takes 3–4 hours to transport goods, including food items, from village to commune, resulting in transitory food shortage.

Lack of capital

Based on the survey, 50 percent of households in Sa Phin and 55.7 percent in Ta Phin indicated that lack of capital is a reason behind the food shortage problem (Table 16). As earlier mentioned, most Hmong households are poor and therefore have limited capital to invest in agricultural production. Poor households can borrow capital with preferential interest from the bank to buy buffalo, cow, pig, or fertilizer. However, long-lasting drought or cold may lead to failure of harvest and of animals freezing to death. Thus, the loan that cannot be repaid becomes a debt burden to poor households. Hence, many Hmong households dare not borrow money from the bank and hardly have financial capital to invest in farming.

Lack of labor

Survey results indicated that 23.7 percent of households in Sa Phin and 22.8 percent in Ta Phin said that lack of labor is another reason behind their food shortage problem (Table 16). Cultivation in rocky field requires much manual labor but the average number of persons in the household who are in the household labor force is only 2.77 while the average number of people in the household is 1.47 (Table 3). To have more labor for agriculture, households have to mobilize even children. Often, this is not enough, leading to lower production and food shortage.

Too many dependents

Based on the survey, 25.0 percent of households in Sa Phin and 8.9 percent in Ta Phin indicated that too many dependents is one reason behind their food shortage problem (Table 16). Due to the manual method of cultivation in rocky fields, the Hmong must mobilize as many people as possible in the household to participate in farming. The more people there are in the household, the more people there are to participate in farming. However, this means more people to feed. Since the farm can only produce

so much even though more people are working, food shortage is more likely to occur in households with more members.

Among poor Hmong households with many children, the children are not sent to school. The parents allow their sons to get married as soon as possible so that the available farm labor of the household will increase. Early marriage is common in the Hmong community in Dong Van district. The increase in number of household members due to early marriages means that there is more demand for food in the household that farm production can hardly meet.

Other reasons

Based on FGD and PRA, some cultural, social, and ethical factors may also have contributed to food shortage among Hmong households. One is the language barrier or the inability of most Hmong in Ta Phin and Sa Phin to speak Vietnamese fluently since they mainly speak their own language. This barrier has resulted in the slow progress of the Hmong scientifically and technically, and in their failure to benefit from government development projects. Another is the secondary role that women play in the Hmong household. Traditional Hmong practice gives the men the responsibility to go out and do the external activities while the woman stays at home to do domestic work. Among the Hmong people, women are mainly for household chores and for assisting in farming while the men serve as household representative in social and community work. Because of this, the Hmong women have less access to new knowledge in farming than men, which could have enabled them to help better in farm work and increase the availability of food in the household.

4.5 Mechanisms for Coping with Food Shortage among Hmong Households

Among the households in Sa Phin and Ta Phin communes, working for others or shifting to other jobs to earn money for food are most often mentioned as mechanisms for coping with the food shortage (Table 17). There are also several other coping mechanisms mentioned, as discussed below.

Table 17: Plans on How to Address Food Shortage among Hmong Households in Sa Phin and Ta Phin Communes, 2012

Plans	Commune				Total	
	Sa Phin		Ta Phin			
	No. of HH	% of HH	No. of HH	% of HH	No. of HH	% of HH
Work for others or shift to other jobs to earn money for food	57	75.0	50	63.3	107	69.0
Apply new seeds and modern production techniques	31	40.8	30	38.0	61	39.4
Enhance the application of local production knowledge	23	30.3	9	11.4	32	20.6

Combine local production knowledge and modern production techniques	33	43.4	18	22.8	51	32.9
Expand food production area	16	21.1	3	3.8	19	12.3
Access government support policies and programs	24	31.6	12	15.2	36	23.2
Take loan to be invested in farming	25	32.9	30	38.0	55	35.5
Link with other households to expand production and other activities	20	26.3	18	22.8	38	24.5
Enhance mutual support among relatives	23	30.3	26	32.9	49	31.6

Source: Household survey, 2012.

Work for others or shift to other jobs to earn money for food

In the past few years, some Hmong people, especially the men, have worked outside their households as laborers, or found new full-time or part-time jobs to earn additional money for food. Others are in constant search for part-time employment, usually after the planting and harvest seasons. Results of in-depth interviews and FGD in Lung Hoa, a village in Sa Phin, showed that the proportion of Hmong people who worked outside the household has tended to increase in recent years, with men accounting for the majority. They either find work in surrounding communes, in Dong Van district, or outside the border, mainly in China. Some of them work for a whole year, for instance in a factory, or they work seasonally such as between planting and harvest periods.

The income generated from outside employment is said to be significant in contributing to household income. For those who worked outside for a whole year, wages averaged VND40 million–VND50 million per year. For those who worked seasonally, the average wage was VND150,000 per day, roughly equivalent to 2 kg of maize per day. Thus, income earned from outside employment plays an important role in buying maize and other food in times of crop transition and food shortage.

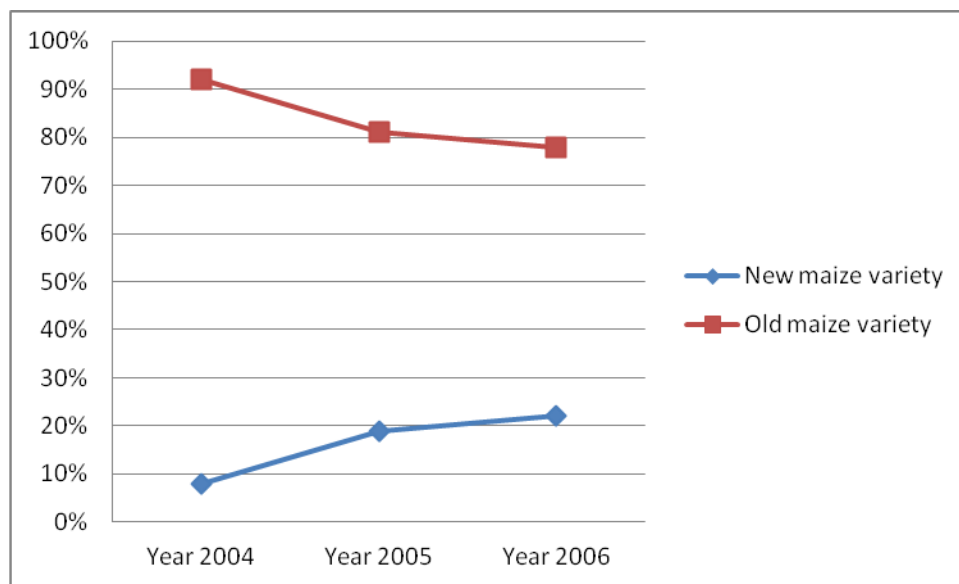
Sung Sinh Vu, a 45-year-old male Hmong farmer in Sa Phin commune said: "About 40–50 people, nearly one-third of the population of my village, are already working outside the village. Most of them are men since women work less outside due to housework. Some 2–3 people have been working outside for two years and have not visited their home yet. They have gone to work in the factory. Some people go far away, to work in China and go home yearly, once every 6 months. Other people work outside occasionally, from July to August and then return home on Lunar New Year holiday. They leave after the holiday and then return home again in April and May. They work in China—planting and weeding trees and get paid CNY50 a day. In fact, working outside their village does not always improve their economic lot. Sometimes, people get scammed. Their employers may pay them enough money but the middleman keeps most or all of it while they get little or no money at all."

Applying new seeds and modern production techniques

Based on the survey, 40.8 percent of households in Sa Phin and 38.0 percent in Ta Phin indicated that they plan to apply new seeds and modern production techniques to address the food shortage problem (Table 17). Over the years, several training courses have been conducted in Ha Giang with hundreds of million of dong used in funding. Among the knowledge taught were advanced farming techniques such as use of new crop varieties, seed care, prevention of crop diseases, and other farming concerns. These trainings were participated in by many farmers. Aside from trainings, agriculture extension was actively done in the province to help farmers with their farming problems.

One advanced farming technique used to increase food production and address food shortage is the use new hybrid maize varieties. From in-depth interviews, new maize varieties have appeared in Dong Van as early as 15 years ago but these did not attract the attention of people and were generally not used in farming. In recent years, however, the government has become more determined to bring in new varieties to increase productivity and farm output and persuade the ethnic people of Dong Van district to use them. Demonstration models for new varieties were established in the communal centers, where people were able to witness how the new varieties produced more and bigger maize kernels than the local maize varieties. These new varieties include CP99, NK66, NK430, and SSC557 and have the following characteristics: plant height of 1.7 m, long kernels and colored yellow, with short growing period from February to July of the lunar calendar. The introduction of new varieties in Dong Van had positive results with Hmong farmers voluntarily planting more often the new maize varieties over time (Figure 3).

Figure 3: Percentage Use of New and Old Maize Varieties in Dong Van District, 2004–2006



Source: Annual report of Dong Van District.

In Sa Phin and Ta Phin communes, specifically, nongovernment organizations (NGOs) have organized trainings in 2004 on how to use and preserve the new maize varieties. However, local farmers found it difficult to apply the knowledge because these new varieties require large investment in infrastructure including dryers, which cost around VND20 million each, and which they could not afford.

In FGD, the Hmong households in Sa Phin and Ta Phin said that hybrid maize seeds are plentiful in their communes, and until three years ago, some of the popular varieties were the CP99 and CP88. Currently, those who plant hybrid maize use the NK430, NK66, and SSC31 varieties. Hybrids are allocated by the District Agriculture Department to the farmers who register. After that, the local government also supports the growing of the new maize varieties. Usually, 15 kg of new hybrid seeds are used per hectare while only 13 kg of seed is used per hectare for the old maize variety.

The Hmong households in Sa Phin and Ta Phin pointed out the advantages and disadvantages between the new hybrid and the old local maize varieties (Table 18). One major disadvantage of the new varieties is that they are prone to molds and thus cannot be stored for a long period. When affected by molds, they become animal food, instead of food for people. The new maize varieties also have poor tolerance to cold weather. Thus, they are less suitable for Sa Phin and Ta Phin, which have subtropical climate. During winter of 2011, which was especially cold, the entire field of new maize could not ripen. Neither Sa Phin nor Ta Phin commune was able to harvest two maize crops for that year. The price of new varieties is always lower than that of the traditional variety. At 2012 prices, the local maize price was VND75,000/kg while the new hybrid maize was only VND65,000/kg. Due to price

difference and the other advantages of the old maize variety, it was more popularly used by Hmong farmers although some farmers also grew the new varieties, along with the old variety.

Table 18: Advantages (+) and Disadvantages (-) of New and Old Maize Varieties According to Hmong Households in Sa Phin and Ta Phin Communes, 2012

New hybrid maize varieties	Old local maize variety
(+) More types of seeds available	(-) Only one type of seed available
(-) Supply of seeds depends and government or organizations, or seedling needs to be bought	(+) Household preserve the seeds harvested from previous season for use in the current season.
(+) High productivity	(-) Low productivity
(+) Shorter plants, which do not easily fall down in times of rain and storm	(-) Taller plants, which easily fall down in times of rain and storm
(+) Low tolerance to cold weather	(-) Higher tolerance to cold weather
(-) Prone to molds, cannot be stored for long	(+) Less prone to mold, can be stored longer
(-) Requires much care and more fertilizers	(+) Requires less care and may need no fertilizer
(-) Requires good soil quality	(+) Can be planted in all soil conditions
(-) Poor taste when cooked, <i>men men</i> gets hard when cool, not palatable to eat	(+) Rich taste when cooked, cooked <i>men men</i> is better, more palatable to eat
(-) Agriculture calendar guided by state	(-) Uses traditional Hmong crop calendar
(-) Lower price of VND65,000/kg	(+) Higher price of VND75,000/kg

Source: Focus group discussion (FGD), 2012.

Sùng Thị Chở, a 32-year-old female Hmong farmer in Ta Phin explained: "Although the new maize seed can lead to higher harvest, the difficult part is preservation. The new maize can develop molds in the field, if they are exposed to rain or farmers do not harvest them on time. So, people here are still engaged mostly in local maize cultivation. "

In the past two years, a few Hmong households in Sa Phin and Ta Phin have started planting soybeans in addition to the vegetables they traditionally raise. In 2012, the total soybean crop area in Sa Phin was 102 ha, yielding 4.9 kg/ha and a total yield of 39 tons in two cropping seasons. The majority of the people, however, have not been growing soybeans. This is because it is perceived by many farmers that

the soybean plant is too dependent on the weather condition and products made out of soybeans are mostly tofu and cattle food.

Enhancing the application of local production knowledge

Based on the survey, 30.3 percent of households in Sa Phin and 11.4 percent in Ta Phin indicated that their plan is to enhance the application of local production knowledge to address the food shortage problem (Table 17). Some households believe that enhancing the use of local knowledge is a better option than using new knowledge because of their difficulty in learning the latter due to language barrier and illiteracy. They also think that modern knowledge can be expensive and can be harmful to the natural environment due to the use of pesticides. Therefore, for these households, enhancing the application of local knowledge instead of new knowledge is a more practical option in addressing their food shortage problem.

Combining local production knowledge and modern production techniques

Based on the survey, 48.4 percent of households in Sa Phin and 22.8 percent in Ta Phin indicated that they plan to combine local production knowledge and modern production techniques to address their food shortage problem (Table 17). Some households view the use of new varieties as a means to increase farm productivity but also think that new varieties are not resistant to changes in the weather like frost and drought. On the other hand, they see local varieties as adaptable to weather and climate changes but have lower productivity. Because of these positive and negative traits, the households think that combining the use of new and old, local varieties is the better option to increase production given the varying weather and climate conditions.

Expanding the food production area

Based on the survey, 21.1 percent of households in Sa Phin and 3.8 percent in Ta Phin indicated that they plan to expand the food production area to address their food shortage problem (Table 17). Some households see that availing themselves of additional land is an option to increase agricultural production and address food shortage. Others see that intercropping maize with soya beans, peanuts, and other crops on the same land or on additional land would put to maximum advantage the use of their farmland.

Accessing government support policies and programs

Since 2005, the state has implemented a forest transfer and protection policy to households and communities (Decision 304/2005/QD-TTg). This policy came into effect in Sa Phin and Ta Phin communes since 2007. With this policy, hundreds of Hmong households were allocated forest areas instead of production lands. In these allocated areas, they are allowed to plant in vacant land and protect the forest. At the same time, households were entitled to collect hunger-relief rice from government's support program, at an average of 5 kg/person, at pre-harvest season. This policy, although intended primarily for forest protection and regeneration, also provide the Hmong with additional vacant land to till. In 2011, Sa Phin was allocated 459.3 ha for forest regeneration and protection. On the other hand, Ta Phin received rice and money for the regeneration and protection of forests, including 17,517 kg of rice and VND195.24 million distributed among 636 households.

Survey results indicated that 21.1 percent of households in Sa Phin and 3.8 percent in Ta Phin plan to access government support policies and programs to address their food shortage problem (Table 17). Also based on the survey, the level of knowledge of Hmong households in the two communes on production support programs of the government is high (Table 19). Furthermore, the programs have helped the Hmong households in various aspects of their daily life and in farming, more importantly through the awarding of rice and the provision of seeds, feeds, and pesticides (Table 20).

Table 19: Knowledge of Production Support Programs among Hmong Households in Sa Phin and Ta Phin Communes, 2012

Program	Commune				Total	
	Sa Phin		Ta Phin			
	No. of HH who said they have knowledge	Percent of households	No. of HH who said they have knowledge	Percent of Households	No. of HH who said they have knowledge	% of HH
Program 135: Socioeconomic development for extremely poor communes	65	85.5	48	60.8	113	72.9
Program 134: Support of production land, residential land, and running water	43	56.6	45	57.0	88	56.8
Credit policy for the poor to take out loans	64	84.2	51	64.6	115	74.2
Transferring the right to use forest lands	29	38.2	29	36.7	58	37.4
Program 30A: Poverty reduction assistance	47	61.8	43	54.4	90	58.1

Agriculture-forest expansion program for the poor	38	50.0	29	36.7	67	43.2
Vocational training program for farmers	39	51.3	28	35.4	67	43.2

Source: Household survey, 2012

Table 20: How Programs Help Households in Food Production in Sa Phin and Ta Phin Communes, 2012

Help Provided	Commune				Total	
	Sa Phin		Ta Phin			
	No. of HH that said programs and policies helped	% of HH	No. of HH that said programs and policies helped	% of HH	No. of HH that said programs and policies helped	% of HH
Awarding of rice	70	92.1	64	81.0	134	86.5
Consolidation of irrigation works	27	35.5	4	5.1	31	20.0
Provision of capital for production	22	28.9	31	39.2	53	34.2
Provision of feeds, pesticides, and fertilizers	51	67.1	66	83.5	117	75.5
Provision of more land for production	4	5.3	2	2.5	6	3.9
Provision of knowledge in new production techniques	34	44.7	37	46.8	71	45.8
No help provided	6	7.9	1	1.3	7	4.5

Source: Household survey, 2012

In recent years, the Hmong community in Dong Van district has been receiving rice and cash support from the government. In addition, the Hmong are taught new techniques on plant care and provided with new plant varieties to increase farm production. As a result, the lives of the Hmong people have gradually improved. Prior to 2005, the Hmong people in Dong Van only ate maize. In recent years, maize accounted for 85 percent of their daily staple food while rice from government support programs comprised 15 percent. A few Hmong households had additional staple food sources with 11 percent of households having sweet potatoes and 4.5 percent having cassava as food supplement.

In Ta Phin commune, the government supported the building in 2011 of one hanging reservoir on a cliff for water storage, enough to provide water for two Hmong villages composed of 200 households. The government has also provided loans to 144 of 382 poor Hmong households amounting to nearly VND1.48 billion (approximately US\$72,200) at the preferential zero interest rate. Poverty relief projects

that gave rice support during the pre-harvest period (Program 30a) and cash support for forest protection have been provided by the government as well.

Also in Ta Phin commune in 2011, the government distributed 17 tons of rice and VND195 million to 636 Hmong households who are in charge of forest regeneration and protection. The commune also received 35 tons of rice for hunger relief, more than 300 gift items to the poor during Lunar New Year festival, and 100 kg of salt from various business organizations and individuals.

In 2011, in the Ta Phin B village of Ta Phin commune, nine households were provided with house building materials worth VND13 million and 2.7 tons of rice (each household received 44 kg of rice/person/year) and VND48 million were given to 63 households (each household received VND650,000/year) involved in forest protection.

In the first six months of 2012, Ta Phin commune received 1,000 kg of rice from the Vietnam Petroleum Corporation to support 100 poor households; the Linh Ung Pagoda Youth (Cau Dien, Hanoi) provided 2,500 kg of rice and gifts for 250 poor households in extreme difficulty; the Provincial Party Committee Office provided 300 kg of rice, VND5 million, and 3 (three) gift set for 20 extremely poor households; and the Justice Academy provided 1,000 kg of rice, 100 kg of salt, 100 gift items and clothing for the extremely poor households.

In Sa Phin commune in 2011, the government provided VND519 million (approximately US\$24,700) worth of projects to support the poor. The commune cooperative also received 27,345 kg of rice, which was divided among 55 households. Also in 2011, Sa Phin was supported with hunger-relief rice, including 26,345 kg of rice (average per person is 10 kg of rice) and the Petroleum Corporation donated 1,000 kg of rice to support 55 poor households for the celebration of Lunar New Year holiday (Sa Phin CPC and Ta Phin CPC 2011).

Another government initiative that may have indirectly mitigated the food shortage in the Hmong communities is the Global Geological Park of Dong Van Plateau, the first-ever park model for Vietnam and the world. Its goal is to promote geological heritage, cultural heritage, landscape restoration and preservation, environmental protection, science-based public awareness; development based on exploitation of local resources; restructuring of the local economy, creation of jobs for local people; sustainable tourism; poverty reduction in localities; and other related objectives. After nearly two years, the Geopark has contributed to creating jobs through employment in park maintenance and tourism-related activities, among others. Thus, the park to some extent may have helped alleviate poverty and consequently food shortage. At present, given its potential, strong determination of the government and of ethnic groups in Ha Giang, and the help and cooperation of domestic and international friends and

partners, the Dong Van Plateau Geopark is expected to contribute to the progress of Ha Giang Province and its integration with the rest of Vietnam and the world.¹⁷

Taking loan to invest in farming

Based on the survey, 21.1 percent of households in Sa Phin and 3.8 percent in Ta Phin indicated that they plan to take loan to invest in farming to address their food shortage problem (Table 17). In Ha Giang, loans have been granted to poor ethnic households in upland areas. Most Hmong households are in the poor category so they are eligible for the loan. In totality, 30 percent of the ethnic minorities in the province are eligible for loan.

Providing loans to poor households has improved markedly in recent years. With simple and flexible loan and capital recovery procedures, the loan process has become generally convenient and quick. Despite improvements in loan management, however, problems remain in implementing this state policy of providing loans to ethnic minorities. Some of these problems are as follows;

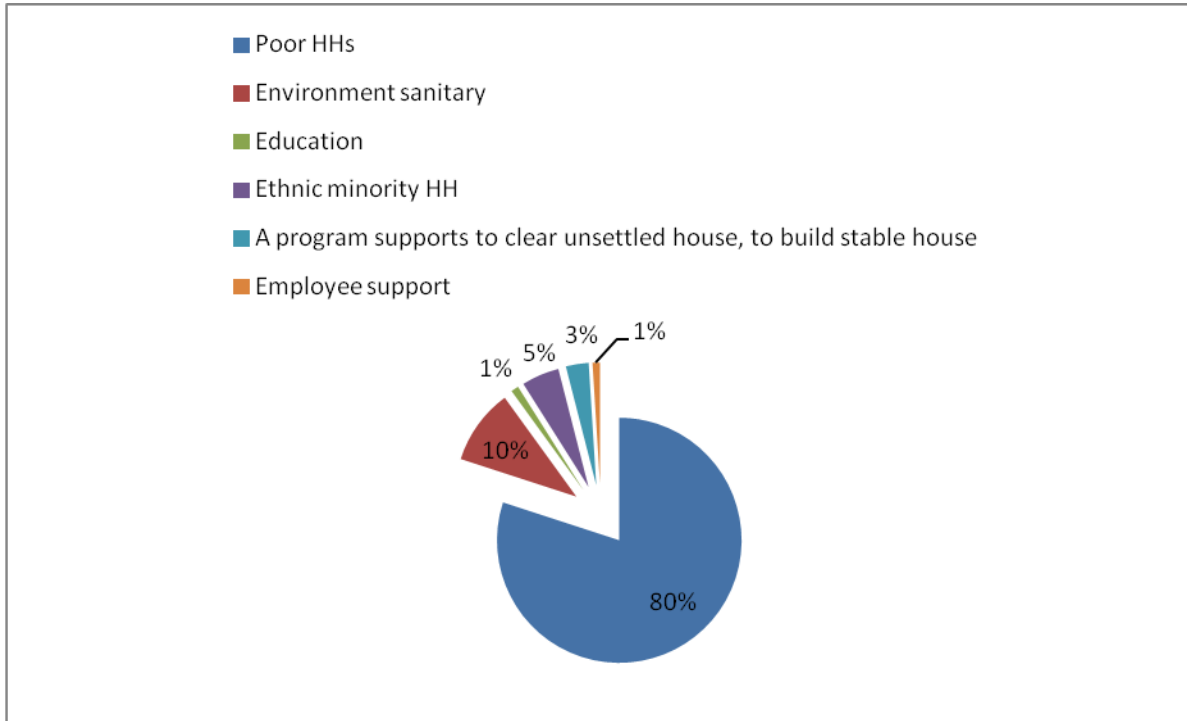
- a) Due to the low level of literacy among the Hmong, doing paperwork is difficult even though the administrative procedure has already been made simple.
- b) Some local officials have not really been coordinating with the public and are not enthusiastic about making them understand the importance of the government's loan program in improving their lives.
- c) Coordination between the departments and organizations implementing the loan program needs improvement as sometimes the resolutions of the People's Council and the CPC directives are not complied with.
- d) Evaluation of how the loan is actually used is not always timely.

In addition, the ethnic minorities, particularly the Hmong, are not inclined to apply for a loan. Thus, as a means to reduce poverty and food shortage among ethnic minorities, the loan program of the government only has limited success.

Most of the government's loan program caters to households in the poor category. In Ta Phin commune, for instance, 80 percent of the loan program of the Policy Bank is directed to poor households. Other loans provided are specifically designed for education, environment, ethnic minority, and other concerns. Many households in Sa Phin and Ta Phin communes, however, remain hesitant to take a loan because they fear they can not repay it, and this greatly hinders the implementation of the loan program in the communes.

¹⁷ See <http://www.dongvangeopark.vn>

Figure 4: Loan Program Coverage of the Policy Bank in Ta Phin Commune, 2011



Source: Ta Phin CPC Annual Report 2011.

Linking with other households to expand production and other activities

Survey results indicate that 26.3 percent of households in Sa Phin and 22.8 percent in Ta Phin plan to link with other households to expand their production and other activities to address their food shortage problem (Table 17). Hmong households often share their available labor to meet the labor requirement in their farms. By exchanging labor, they increase the total available manpower for their farm activities. Close linkage among households to expand farm and other activities has significantly helped the households in Sa Phin and Ta Phin communes to overcome food shortage.

Enhancing mutual support among relatives

Based on the survey, 30.3 percent of households in Sa Phin and 32.9 percent in Ta Phin planned to enhance mutual support among relatives to address their food shortage problem (Table 17). A Hmong village is typically composed of many families related by blood or by marriage. Thus, within a village, the people often have close kinship and may even reside together. Results of in-depth interviews and FGD showed that the majority of households get help from outside when they have serious problems. Sources of help include family members, relatives, neighbors, and friends. This shows that mutual assistance in the Hmong community is strong and this has provided a reliable support network.

In general, a Hmong household that is materially blessed is likely to share its blessings with those who have less. This support extends to funerals, weddings, and other activities where assistance is needed. The traditional custom of providing assistance in the Hmong community can be divided into three levels:

- a) Family level—Assistance is provided by immediate family members. If a member has rice, the other needy member can borrow without any condition set on when to pay back. If a long-term loan is borrowed, no interest is imposed. When help in house building and farming is provided by a family member, no payment is required. A man can give away cows and pigs to a brother or help raise newly born animals of his brother, which they then equally divide between them. In times of need, therefore, ready assistance is available to family members without having to worry about future payment.
- b) Relatives level—Assistance is provided by relatives usually within three generations. In addition, among the Hmong, people who share the same religious beliefs are considered brothers and relatives. Thus, assistance involving people of the same faith is considered brotherly even if the giver is situated far away or is a stranger to the receiver.
- c) Community level—Some family activities, such as farming or building a new house, requires much labor. In addition to its own labor force, a household can ask help from other households in the conduct of these activities. A household can also borrow money or grain from other households but to a more limited extent compared to borrowing from family members and relatives. The borrower also has to pay the debt according to terms agreed upon. In special cases, people in the village often donate rice or money to help others who are very poor or with disabilities and are therefore in dire need of assistance.

Other plans

Based on FGD and PRA results, households in Sa Phin and Ta Phin plan to address the food shortage problem by broadening their trading activities. Trading is a significant source of income among Hmong households in the two communes (Table 4). Some households trade crops and livestock, others make and sell handicrafts. Although it may seem minor, trading actually contributes significantly to household and community income in general and allows households to make good use of free time in between planting and harveting.

The market is an important place in the conduct of trading by the Hmong. In regions with Hmong population, markets are operated periodically depending on the characteristics of socioeconomic development in the area. In the market, it is common to see items produced by the Hmong themselves such as plow, hoe, maize, beans and other vegetables, peaches and other fruits, and other items being traded. Other products bought and sold are medicinal herbs and items whose basic ingredients were gathered by the Hmong from forests.

There is no market in Sa Phin and Ta Phin communes so trading is done in a cooperative market located 5–10 km or 10 minutes away by walking. Currently, the market has four shops where people can buy rice and maize on credit. The owners of the two shops are Hmong people from Sa Phin, and the other two are owned by Kinh who came from elsewhere. People can buy rice or maize on credit and pay the original price without interest if payment is made within 1–2 weeks. Buyers who take longer to pay are charged interest.

5. Summary and Conclusions

This study investigated the food shortage problem among the ethnic minorities in Vietnam using the Hmong households in two communes—Ta Phin and Sa Phin in Dong Van district, Ha Giang province—as a case study. The methods used for data and information gathering are household survey, direct observations, in-depth interviews, participatory rural appraisal (PRA) and focus group discussion (FGD).

In summary, the major findings are as follows:

- a) Vietnam has implemented comprehensive policies for poverty reduction and for addressing food shortage at the national, state, and commune levels. This has produced positive results. The rate of poverty and food shortage among ethnic minority households in the country and in specific areas has decreased sharply over time.
- b) While the above is true, the Hmong people in Ha Giang province in general and those in the two communes covered by the study still suffer from very high incidence of poverty and food shortage. Many Hmong households lack or have very limited access to the daily essentials of life, such as medical care, education, and nutrition (food).
- c) The food shortage among the Hmong households is mainly transitional, although a few households experience chronic food shortage. While the food shortage is mainly transitory in nature, it lasts for several months per year.
- d) The main reason for the food shortage problem of the Hmong households is land shortage. Compounding the land shortage is soil erosion, which makes the land less productive.
- e) The most common coping mechanism of the households against food shortage is for household members to work for others or shift to other jobs to earn money for food. Other plans mentioned to solve the food shortage include access to government policies and programs.
- f) Local knowledge and its application have played an important role in the farming practice of the Hmong. The Hmong households have local knowledge of various concerns related to agricultural

production and they plan to enhance the application of local knowledge in agriculture to address food shortage.

- g) The level of knowledge of the Hmong households on the different production support programs of the government is high. Moreover, the government programs have helped the Hmong households cope with the food shortage through the awarding of rice and the provision of seeds, feeds, and pesticides.
- h) Despite the high level of awareness of the Hmong households about the production support programs of the government, the study results indicate that they have not yet fully benefited from these programs because they continue to live in poverty and still experience food shortage in their area.
- i) Lastly, results of this study show that despite the numerous challenges and obstacles faced by the Hmong households, they continue to maintain a distinct cultural identity and a good measure of stability in their daily lives and have practiced coping strategies on their own to address the food shortage.

6. Recommendations

Based on the results and findings of this research, the research team puts forward the following recommendations to help the Hmong households and similarly situated ethnic minorities in Vietnam to stabilize their agricultural production, reduce the food shortage, and help ensure food security over the long term.

Policies of the Government of Vietnam

- a) Investment in infrastructure such as in transportation, schools, medical stations, irrigation facilities, and hanging water tank particularly in remote areas occupied by ethnic minorities should be continued to improve the lives of the Hmong people.
- b) Poverty reduction and food production programs should be tailor-made for each highland area. These programs should suit the educational level, custom and living conditions, poverty level, and food security situation of each ethnic group because in each eco-region, each ethnic group has its own characteristics that require specific policies.
- c) The implementation period of support programs, such as the rice and money support programs for ethnic minorities, which have been effective and have brought about many benefits (both to the environment and the local economy) should be expanded, including the loan program for improving agricultural production, especially livestock breeding and planting of specialty plants.

- d) Priority should be given to the training of children in ethnic minority areas, particularly in science and technology, in order to develop a team of technically capable people that would help improve agriculture and related activities and help reduce food shortage in their areas.

Policies of the Ha Giang Province (local level)

- a) Government programs and projects should be explained clearly to the Hmong people in their own language and through the mass media to make them fully understand and to encourage them to widely participate in the implementation of these programs and projects.
- b) Training courses on “Direct guidance” should be increased in order to help the Hmong people overcome the language barrier, improve their awareness and literacy, and raise their chances to master science and technology for application in their farming activities and in their daily life.
- c) Combining local knowledge with the application of science and technology should be promoted in the development of farming, livestock breeding, and other food production techniques for increased agricultural productivity since local Hmong knowledge are also useful in addressing the food shortage.
- d) Since natural disasters and calamities are one of the reasons behind the food shortage problem in Hmong areas, programs and projects on disaster management and disaster relief should be developed and implemented for the Hmong in disaster-prone areas.
- e) Programs and projects that provide rice and money support for the Hmong households should be continued but should specifically target the poorest groups as these are the people who can barely afford their dietary needs and thus are in dire need of immediate food assistance.
- f) Livelihood projects that promote the practice of other income-generating activities outside of agriculture should be developed and implemented for the Hmong people to reduce their dependence on agriculture as a source of food and develop their skills in other types of work.
- g) The loan program should be promoted since one serious problem faced by the Hmong people is lack of capital. This program should be extended not only to support agricultural activities but also other income-generating and livelihood activities that can be developed for the Hmong.
- h) Implementation of programs and projects for the Hmong people should be regularly monitored and periodically reviewed for overall efficient implementation, particularly for threshing out problems and issues, and then immediately finding solutions to address them.

- i) Lastly, the government should continue to promote the highly desirable traditional community and family values among the Hmong, particularly on mutual assistance in times of crisis, as these values will greatly help them address food shortage at least on a temporary basis.

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Appendices

A: FOOD SECURITY QUESTIONNAIRE FOR THE HMONG PEOPLE

HOUSEHOLDS' BASIC INFORMATION

1. Name of household's head:

.....

1. Male 2. Female

Address:

2. Total number of people in the household:

3. How many people in the household are members of the labor force and contribute to the household's economy?

4. How many people in the household are incapable of working?

5. At what age do the children in your household participate in the labor of the household?

EVALUATION OF FOOD STATUS

6. According to current government classification, your household is categorized as:

- 1. Wealthy household
- 2. Middle household
- 3. Near-poor household
- 4. Poor household

7. What is the status of food shortage in your household in the past year?

- 1. Seasonal shortage
- 2. Shortage due to calamities and diseases
- 3. Permanent shortage
- 4. No shortage (enough food)

8. How many months of the year do your household experience food shortage? ____ month(s)/year

9. When food shortage occurs, your solution is:

- 1. To borrow food from relatives.
- 2. To borrow money to buy food.
- 3. To be a hired worker for other households.
- 4. To buy from food store (pay later).
- 5. To look for fruits/vegetables in the forest.
- 6. To wait for government's assistance/help.

10. Average annual expenditure in the household:

<i>No</i>	<i>Spending needs</i>	<i>Amount (VND)</i>
1	Grain (rice, corn, ...)	
2	Other foods (fish, meat, vegetables, ...)	
3	Production activities	
4	Education and schooling	
5	Health treatment	

6	Other needs (clothes, maintenance, travel, purchase of assets)	
7	Religious ceremonies	
8	Community activities (festival fund, communal fund, others)	
9	Funeral, wedding, sickness, giving birth, others	
10	Others (provide details)	

11. Average Annual Income:

No	Source of income	Amount (VND)
1	Farming (grain, vegetables, fruits)	
2	Livestock breeding	
3	Forest protection and maintenance	
4	Harvest from forest	
5	Trading	
6	Salary, allowance	
7	Others (provide details)	

POLICY FACTORS

12. Do you know any production-support program and policies implemented in the region?

1. Yes
2. No

13. If “Yes,” what are those programs and policies?

1. Program 135: Socioeconomic development for extremely poor communes
2. Program 134: Support to have production land, residential land and running water
3. Credit policy for the poor to take out loans
4. Allocation of forest lands and transferring to them the right of use
5. Vocational training program for farmers
6. Agriculture and forest extension programs for the poor
7. Program 30A: Poverty-reduction assistance

14. How do these programs and policies help you in food production?

1. Provision of rice allowance
2. Support in the consolidation of irrigation works
3. More capital for production expansion
4. No help
5. Support through provision of new seeds, pesticides, and fertilizer
6. More land for production
7. Knowledge in production techniques to increase productivity

15. If you find these programs and policies not helpful, what is the reason?

1. Not in the targeted group to benefit from these policies
2. Inappropriate support policies
3. No legal assistance
4. Little or inconsiderable suitable support policies

ENVIRONMENT CHANGE FACTOR

16. In the past 5 years, is there any unusual natural phenomena in the region?

1. Drought
2. Flood
3. Flash flood
4. Frost
5. Others

17. Do these unusual natural phenomena affect your cultivation process?

1. Seeds could not germinate
2. Cannot harvest
3. Plants cannot grow
4. Plants are infected with disease
5. Low productivity

18. What are the ways to remedy the impacts of unusual natural phenomena?

1. Use local knowledge
2. Undertake worship ceremony as part of custom and tradition
3. Apply modern technology
4. Do nothing

CUSTOM FACTORS

19. The main grain used in a household's daily meal is:

1. Rice
2. Maize
3. Sweet potatoes
4. Cassava

20. In case that grain is insufficient, the substitute is:

1. Rice
2. Maize
3. Sweet potatoes
4. Cassava

21. Main dishes in your household's meal are: (*components of meals*)

1. Meat+Veg+broth
2. Veg+Salt + Broth
3. Water+ Salt

22. When there is food shortage, the main dishes in your household's meal are:

1. Meat + Veg + broth
2. Veg+ Salt + Broth
3. Water + Salt

23. In order to have a good harvest, what worship ceremonies do you do?

1. Crop ritual ceremony
2. Rain ritual ceremony
3. None
4. New harvest ritual ceremony
5. Rituals for natural disaster and diseases

LOCAL KNOWLEDGE FACTORS

24. Do you know and apply local knowledge in your agriculture production?

1. Yes
2. No

<i>No</i>	<i>Local knowledge</i>	<i>Know?</i>	<i>Apply?</i>
1	Weather prediction		
2	Land protection, anti-erosion of land		
3	Water source protection and insurances		
4	Crop and harvest scheduling		
5	Intercropping		
6	Burn farm land, remove weeds		
7	Protect seeds and variety, prevent disease epidemic for plants		
8	Store, harvest agricultural products		
9	Search for other resources in the forest		

REASONS FOR FOOD SHORTAGE AND RECOMMENDATIONS

25. In your opinion, the reason for food shortage in your household/village is:

1. Contracted area of production land, lack of land for production
2. Rocky soil, poor nutrition, land erosion
3. Regular calamities, epidemic plant diseases
4. Scarce water resources
5. Production based on local knowledge
6. No new seeds or modern technology to be used
7. Not entitled to access or benefit from government support policies
8. Difficulty in transport
9. Lack of capital
10. Inadequate of labor
11. Too many dependents
12. Others (state clearly)

26. What do you plan to resolve food shortage?

1. Apply new seeds and modern production techniques.
2. Enhance the application of local production knowledge.
3. Combine local production knowledge and modern production techniques.
4. Expand food production areas.
5. Access government support policies.
6. Take loan to be invested in farming.
7. Link with other households to expand production and other activities.
8. Enhance mutual support among relatives.
9. Work for others or shift to other jobs to earn money for food.

Photographs taken at the site by the research team



1. Sa Phin commune



2. Ta Phin commune



3. The traditional house of the Hmong people



4. Hmong people



5. Dong Van Karst Plateau Geopark



6. Living in the rocky mountains



7. Cultivation on rocky fields



8. Intercropping



9. Cultivation on rocky areas



10. Cultivation method to prevent erosion



11. Inside the house of a Hmong household



12. Storing the maize



13. Collecting rainwater from roofs



14. An artificial reservoir

Researchers conduct interviews, surveys, and focus group discussions at field sites

