Rural Household’s Coping Strategies and Food Insecurity in the Upland Areas, Sekong province, Lao PDR

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I Introduction

Food insecurity exists whenever the households are uncertain of having, or unable to acquire, enough food to meet basic need for all household members due to insufficient money and other resources for food (Edwards et al., 2006). At present, the prevalence of food insecurity is particularly devastating in the developing countries as a lot of resources are being directed towards programs for food insecurity eradication (Nimoh et al., 2012). The Lao People’s Democratic Republic (Lao PDR) is classified as a least developed country with an average GPD per capita 1,320 US$. Of a total of 1,021,000 households, approximately 24 % are living in poverty and 14 % were classified as food insecure (Nolintha et al., 2012). The majority of food insecure households were mainly found in the mountainous areas and among ethnic minority groups in Bokeo, Saravane, Xiengkhuang and Sekong provinces, accounting for 41 %, 30 %, 25 % and 24 % of total households, respectively (WFP, 2006). Previous studies have failed to address on the severity of food insecurity in the most food insecure areas, and also the question on how rural households cope or response during the period of food crisis is overlooked. Coping strategy is the actual response to mitigate the effect of insufficient food to meet the requirement of households and serve as a gateway to livelihood security (Regassa, 2011). Globally, the use of strategies to cope with food insecurity have been documented in the past two decades and the results revealed that reducing number of meals and the amount of food intake, use of buffer stock, seasonal migration, skipping meals, consumption of less preferred food, borrowing money and foods, selling assets, purchasing food on credit, and gathering wild foods were the common coping strategies (Mohapatra, 2012; Shariff and Khor, 2008; Quaye, 2008; Rashid et al., 2006; and Arun and Keshav, 2006). However, the type of coping strategies depends on several components such as household composition, human capital, and household’s asset. Thus, the aims of this study are to investigate the severity of food insecurity in the rural upland areas, to find out the coping strategies, and to analyse the relationship between socio-economic characteristics and number of coping strategies used.

II Methodology

This study was conducted in Tok Ong Keo village of Lamam district, a mountainous area of Sekong province, located about 37 Km from the provincial capital Sekong. Out of the 82 households (HHs) in the sample village, a total of 60 HHs were randomly surveyed through face-to-face interviews using structured
questionnaire during January 2013. In order to measure the severity of food insecurity, the United State’s Food Security/Hunger Survey Model (FSSM) was employed by asking eighteen questions relating to household food sufficiency over the past 12 months (Bickel et al., 2000). The types of coping strategies utilized by households were categorized into food consumption strategies and income/expenditure strategies. The concept of coping strategies used in this study refers to any actions related to dietary change, obtaining food or income during the lean season. These strategies were developed based on focus group discussion and literature review. The respondents were asked what kinds of strategies applied during the period of food deficit in the past year. The multiple linear regression analysis was employed to examine the association between the dependent variable (the number of food consumption strategies, and income/expenditure strategies used), and socio-economic characteristics (explanatory variables), including age of household head (year), education level (year), household size (person), farm size (hectare), annum per capita income (Kip), and number of relatives and friends (person).

III Results and discussion

On average, the household size, ranging from 2 to 29 members with the total average of 10 members, was really different from the country average household size (5.7 members). This can be explained due to the fact that more than 50% of sample households comprise more than 2 families who live in the same dwelling and share at food. About 35% of respondents were uneducated, and 30% had not completed primary school. All households belonged to the Alak ethnic minority group who rely on upland farming system by shifting cultivation practice. The average cultivated upland area was 1.06 hectare/HHs with an average fallow period 6-10 years. On average, the rice yield was very low 747 kg/ha compared with the average in country (1,900 kg/ha). This may be due to the pests and diseases injury (e.g. weeds, rodents, wild pigs, ants, and birds). In addition, the use of traditional rice varieties and poor soil fertility were reported as the major constraints of low productivity. Consequently, this study highlighted that 55% of households experienced a minimum of 1 to 3 months of rice deficiency, and 38% reported longer rice shortage periods of more than 3 months from July to October, while only 7% were rice sufficient. About 95% of sampled households lived under the national poverty line (180,000 Kip or 23.0 US$/capita/month). In contrast, only 5% (3 HHs) lived above. The result of the FSSM (Table 1) revealed that the severity of food insecurity was high prevalence. Sixty-two percent of households were categorized as food insecure with moderate hunger, while the food secure and food insecure accounted for only 5% of respondents.

<table>
<thead>
<tr>
<th>Table 1: Poverty and the severity of food insecurity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristics</td>
</tr>
<tr>
<td>Number of rice shortage months</td>
</tr>
<tr>
<td>No experience</td>
</tr>
<tr>
<td>1-3 months</td>
</tr>
<tr>
<td>More than 3 months</td>
</tr>
<tr>
<td>Poverty line</td>
</tr>
<tr>
<td>Below poverty line</td>
</tr>
<tr>
<td>Above poverty line</td>
</tr>
<tr>
<td>Food security status of households</td>
</tr>
<tr>
<td>Food secure</td>
</tr>
<tr>
<td>Food insecure</td>
</tr>
<tr>
<td>Food insecure with moderate hunger</td>
</tr>
<tr>
<td>Food insecure with severe hunger</td>
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</tbody>
</table>

Source: Author’s calculation based on household survey 2013
This means that the majority of adults have experienced to cut and skip meals for whole days. Moreover, some children have relied on non-nutritious food, and reduced food intake. There are two possible reasons for the high severity of food insecurity; 1) most of the households are engaged in upland farming through shifting cultivation practice where productivity is very low and not enough rice for home consumption due to large household size; 2) The study area is located in mountainous area where there are a few traders. The possible reason can be described that there are not many agricultural products produced in the study area. In addition, the traders are constrained by poor road condition, especially in the wet season. Although there are some traders who bring products from the town for sell and exchange with livestock (pig and poultry), but those are mainly home use products (e.g., bowl, clothes, blanket, batteries, and etc), rather than selling food stuffs. Therefore, the opportunity to sell non-agricultural products or purchase foods during the lean season is limited, resulting in lack of additional sources of income and foods. In the survey, about 66 % of per capita income sources were derived from temporary workers, followed by selling livestock such as pig and poultry (16 %), off-farm income (6 %), Non-Timber Forest Products (5 %), while remittance, and sold rice/crops accounted only 4 % and 3 %.

Nearly all households experienced chronic food shortage. Getting food insecurity severer, the rural households adopted combination coping strategies (Table 2), ranging from 2 to 20 strategies to minimize their vulnerability and to cope with the food shortage problem. The most common food consumption strategy was gathering wild foods, employed by 97 % of households. The ordinary wild foods are bamboo shoots, wild tubers, mushroom, leafy vegetables, edible insects, wildlife (wild pigs, and small fishes) which are mainly used for home consumption rather than selling; due to lack of market places. This result is in line with the study conducted in the upland areas of Luang Prabang and Oudomxay provinces, northern Lao PDR (Linkham et al., 2006). The study conducted in the rural areas of Nepal also indicated that the collection of forest products was the common practice to cope with food deficit (Arun, and Keshav, 2006).

<table>
<thead>
<tr>
<th>Food consumption strategies</th>
<th>Freq.</th>
<th>%</th>
<th>Income/expenditure strategies</th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gathering wild foods</td>
<td>58</td>
<td>96.7</td>
<td>Purchasing foods on credit</td>
<td>51</td>
<td>85.0</td>
</tr>
<tr>
<td>Reducing meals from 3 to 2 times a day</td>
<td>57</td>
<td>95.0</td>
<td>Using household savings</td>
<td>47</td>
<td>78.3</td>
</tr>
<tr>
<td>Relying on less preferred/inexpensive foods</td>
<td>51</td>
<td>85.0</td>
<td>Selling livestock</td>
<td>45</td>
<td>75.0</td>
</tr>
<tr>
<td>Limiting food intake of adults for children</td>
<td>50</td>
<td>83.3</td>
<td>Finding an alternative job</td>
<td>35</td>
<td>58.3</td>
</tr>
<tr>
<td>Reducing the portion/size of meals</td>
<td>49</td>
<td>81.7</td>
<td>Growing paddy rice</td>
<td>31</td>
<td>51.7</td>
</tr>
<tr>
<td>Borrowing rice from relatives and friends</td>
<td>43</td>
<td>71.7</td>
<td>Borrowing money from relative/friends</td>
<td>28</td>
<td>46.7</td>
</tr>
<tr>
<td>Consumption cassava and corn</td>
<td>36</td>
<td>60.0</td>
<td>Cultivating more crops</td>
<td>23</td>
<td>38.3</td>
</tr>
<tr>
<td>Sending members to beg for rice</td>
<td>34</td>
<td>56.7</td>
<td>Seasonal migration</td>
<td>18</td>
<td>30.0</td>
</tr>
<tr>
<td>Consumption rice seed for the next season</td>
<td>32</td>
<td>53.3</td>
<td>Reducing children’s education expenditure</td>
<td>12</td>
<td>20.0</td>
</tr>
<tr>
<td>Sending children to eat with relatives/friends</td>
<td>22</td>
<td>36.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skipping all meals for the whole day</td>
<td>14</td>
<td>23.3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: In this table, respondents were allowed to select more than one answer using multiple answer questions.
Source: Author’s calculation based on household survey 2013

Among the other food consumption strategies, it is important to note that a variety of high-risk coping strategies were commonly employed; such as reducing the meals served each day (95 %), relying on less preferred/inexpensive foods (85 %), limiting food intake of adults for children (83 %), reducing the portion/size
of meals (82%), consumption rice seed for next season (53%), and skipping all meals for a whole day (23%). It is evident that more than 80% of the sample households have reduced and adjusted their food consumption during the period of food shortage (July to October), the continuation of reduction in the amount of food intake and relying poor food consumption can lead to health problems, malnutrition, poor physical and cognitive development, and poor working performance in the further. Additionally, the prevalence of malnutrition may relate to non-food factors such as inadequate care practice for children, lacking of health service, and an unhealthy environment (FAO, 2008). It was observed that all households have no use of a toilet facility, and some households did not even boil their drinking water. Consequently, of the total sample households (HHs), forty experienced with Malaria, followed by Diarrhoea diseases (34 HHs) and fewer (23 HHs) over the past 12 months. About 69% and 62% of households, who experienced with Malaria and Diarrhoea diseases respectively, were food insecure with moderate hunger. These results indicate that rural households are forced to spend a lot of money for health care treatment rather than purchasing food for consumption during the food crisis. Thus, the consequences of food insecurity in the rural areas will have higher severity in the future.

In relation to income/expenditure coping strategies, purchasing food on credit, using household savings, and selling livestock were reported to be the most regular coping strategies, adopted by 85%, 78%, and 75% of households, respectively. Most of the households purchased rice on credit from grocery stores and their friends inside and outside the village, but this strategy could not control all the lean season due to limited amount of rice in the grocery stores and among their friends. Moreover, some of households failed to repay the loans because of the chronic food shortage, resulting in a risk of losing future access to credit. Although using savings to purchase rice is often used, this strategy often fails because the amount of savings is limited. It is important to recognize that selling livestock seems to be the most appropriated approach for coping during the food crisis in the study area. Pig and poultry rearing are the most important income generating activities in the study areas. A similar study (Nimoh et al., 2012) also indicated that the rearing and selling of livestock (poultry) was the important income generating to ensure food availability. The other strategies include finding an alternative job to get money, growing paddy rice, borrowing money from relatives/friends, cultivating more crops, seasonal migration, and reducing children’s education expenditure appear to be less common strategies to deal with food scarcity.

The result of multiple linear regressions is evident that education and per capita income were negatively significant with food consumption coping strategies. However, education was positively insignificant on income/expenditure coping strategies (Table 3). It means that household’s head who have higher education are more likely to use income/expenditure strategies than food consumption because income/expenditure strategies have a positive effect in the long run such as growing paddy rice and cash crops. A number of relative and friends was significant, implying that households, who have a large number of relatives and friends, are more likely to use a wide range of food consumption strategies, in particular borrowing rice and money. Age had negatively significant on income/expenditure strategies, indicating that older household’s head are less likely to use coping strategies than younger one because older people has less capacity to work hard such as growing more crops, migration, and etc. Although household size was not significant for both coping strategies, but it had a positive correlation, meaning that larger household size are more likely to use a number of coping strategies.
Table 3: The relationship between socio-economic characteristics and the number of coping strategies used

<table>
<thead>
<tr>
<th>Socio-economic characteristics</th>
<th>Food consumption strategies</th>
<th>Income/expenditure strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>S.E</td>
</tr>
<tr>
<td>(Constant)</td>
<td>7.865</td>
<td>1.385</td>
</tr>
<tr>
<td>Age of household head (year)</td>
<td>-0.016</td>
<td>0.024</td>
</tr>
<tr>
<td>Educational level of HH head (year)</td>
<td>-0.370</td>
<td>0.155</td>
</tr>
<tr>
<td>Household size (person)</td>
<td>0.081</td>
<td>0.068</td>
</tr>
<tr>
<td>Farm size (ha)</td>
<td>-0.284</td>
<td>0.767</td>
</tr>
<tr>
<td>Per capita income (Kip)</td>
<td>-0.117</td>
<td>0.045</td>
</tr>
<tr>
<td>Number of relatives</td>
<td>-0.054</td>
<td>0.021</td>
</tr>
</tbody>
</table>

N = 60; R² (Food consumption) = 0.301; R² (Income/expenditure strategies) = 0.135; ** and * Sig. at 5% and 10%, respectively.
Source: Author’s calculation based on household survey 2013

IV Conclusion and recommendations

In conclusion, it seems that rural upland households in the southern Lao PDR were extremely poor because about 95% of households lived in poverty, and 62% were food insecure with moderate hunger. To minimize and cope with food deficit situation, roughly 11 food consumption and 9 income/expenditure coping strategies were employed. The high-risk coping strategies, reducing meals from 3 to 2 times, relying on less preferred/inexpensive foods, limiting food intake of adults for children, reducing the size of meals, consuming rice seeds, skipping all meals for whole day, reducing children’s education expenditure, were reported. The use of these strategies could relate to poor working performance, malnutrition, low production and state of illiteracy, resulting in severe food insecurity in the future (Figure 1). The findings also highlighted that the use of food consumption coping strategies are negatively related with income and educational level of household’s head.

"State of illiteracy" refers to the ability to read and write an official language. This study raises the issue of illiteracy due to most of the respondents are often communicate in ethic language “Alak”. Thus, if the parents reduce the education expense, the possibility of children to quit from study may happen, resulting in illiteracy and less economic opportunities when they grow up in the future.
Therefore, based on the key findings, both short and long term policy interventions are called to reduce the high level of food insecurity and hunger. Firstly, we suggest that food aid programs from national and international organizations should take into account in this study area to avoid the incidence of malnutrition in the future. Secondly, family planning program is required to reduce the household members, especially among the low income households to deal with the use of high-risk coping strategies. Educational level of household’s head also needs to address through vocational training to have an opportunity on non-farm income. Thirdly, policy makers should address the need for additional food sources during times of food shortage. This can be done by adoption the rice/seed bank program, the program has been initially carried out by Oxfam organization in Vientiane province, to assist food insecure households in access to rice for home consumption as well as the rice seed for the next transplanting. Lastly, expanding the budget for the agricultural sector to increase the rice productivity for both in upland and lowland fields is still required.

References