SIU Journal of Management, Vol.8, No.1 (June, 2018). ISSN: 2229-0044

Food Insecurity in Lao PDR

Nittana Southiseng

Abstract

This paper describes the country level report for Lao PDR for a research project conducted by the SIU Research Centre of Shinawatra University for GIZ on the subject of food insecurity. The project involves four countries in the Mekong Region (Lao PDR, Myanmar, Thailand and Vietnam) across which the East West Economic Corridor (EWEC) extends. It calls for the collection of 200 questionnaires from each country using the Food and Agriculture Organization's Food Insecurity Experience Survey. The research objectives include the investigation into actual experiences of food insecurity at various levels of severity and an attempt to analyse the role of EWEC in terms of living standards. More than 50% of respondents report food insecurity at the least severe level and this proportion declines to 10.1% for the most severe level. In general, the figures for food insecurity for Lao PDR are broadly in line with the four country mean scores recorded for the whole project. Rural food insecurity appears to continue to be more significant in rural settings than in urban settings. There are respondents in urban settings who have now moved beyond choosing food on the basis of availability and price only and now aspire to fresh, nutritious and even organic food, for which they might have to travel across the border to Thailand to find. Some recommendations are drawn from the research study and attempts are made to identify the most influential demographic factors.

Author: *Dr. Nittana Southiseng is SME Development Adviser, GIZ, Lao PDR.*

1. Introduction

Lao PDR is a landlocked country in mainland Southeast Asia. It is one of the world's least developed countries and one with a low population that is still struggling with the aftermath of the Second Indochinese War. Victory in that war led to independence under the Communist Pathet Lao party that continues in power to the current time. Although the country is still run by a monolithic political party, the end of support from the Soviet Union in 1989 caused the Pathet Lao to introduce the *Nae setthakit mai* (new economic mechanism) provides slow restructuring policy to encourage capitalist economic development within the country. This has had limited impact so far because of the lack of market development in a country still primarily dominated by subsistence agriculture. The lack of market development makes it difficult for subsistence farmers to diversify into market-based production because potential customers do not value the new products and shops, even when a distribution system can be established, do not profit from stocking them. This is some possibility that cross-border contract farming with multiple retail chains, probably based in Thailand, would represent a means of linking farmers with international markets on a reasonably equitable basis. In addition, a small industrial sector has been created thanks mostly to inward investment in low labour cost competitive intensive manufacturing in consumer goods, often associated with industrial estates in the vicinity of the capital Vientiane.

	Population (millions)	GDP/capita (US$)	Corruption (ranking)	Press Freedom (ranking)	Ease of Doing Business (ranking)	Food Insecurity
Lao PDR	7.0	5,300	139	173	134	3
Myanmar	56.9	5,500	147	143	167	1
Thailand	68.2	16,100	76	136	49	1
Vietnam	95.3	6,000	112	175	90	1

Table 1: *Indicative Statistics of Sample Countries;* **source:** *See Below*

Data sources:

Population: CIA World Factbook, various pages, available at: https://www.cia.gov/library/publications/the-world-factbook/. GDP per capita (PPP): CIA World Factbook, various pages, available at: https://www.cia.gov/library/publications/the-world-factbook/.

Corruption: Transparency International, various pages, www.transparency.org

Press freedom: Reporters without Borders, 2016 world Press Freedom Index, https://rsf.org/en/ranking

Ease of doing business: World Bank, www.doingbusiness.org/ranking.

Food insecurity: FAO (2015). 1 = WFS Goal and MDG 1c target achieved; 3 = MDG 1c target achieved.

Most recent estimates or figures have been use in all cases.

Having joined the Association of Southeast Asian Nations (ASEAN) in 1997 and the World Trade Organization (WTO) in 2013, Lao PDR has joined the region more thoroughly both through institutional cooperation and the building of transportation infrastructure. Friendship bridges cross the River Mekong have made it much more possible for cross-

border trade and leisure movement to take place. It is now a common sight in the northeastern Thai cities of Nong Khai and Udon Thani at weekends to see numerous Lao-registered cars that have brought people to take advantage of superior health, retail and leisure facilities. These movements will be further facilitated by the Asian Highway Network and by modernization of cross-border regulations to make it more convenient for vehicles to travel in different countries. In due course, then, there are some possibilities for economic growth. However, the country does now face the malaise of Dutch disease because of inflation linked to the flourishing extractive industry, with capital belonging almost entirely to overseas interests.

2. Methodology

Understanding of food insecurity in its various dimensions has developed strongly thanks to the efforts of the FAO and other institutions, as well as individual researchers and research teams. The FAO has developed a questionnaire (see Appendix 1 and the translated version in Appendix 2) that parsimoniously establishes the vulnerability of individual respondents and their households in the four dimensions of food insecurity, as previously described. This questionnaire has been extensively tested and validated and has been adopted as the principal instrument for this project.

Each country research team leader was instructed to interpret the original questionnaire into the appropriate local majority language (i.e. Lao, Myanmar, Thai and Vietnamese) and to collect responses according to the following criteria:

- 100 questionnaires should be completed in locations inside EWEC;

- 100 questionnaires should be completed in locations outside EWEC;
- Of the questionnaires collected within EWEC, 50 should be in urban locations and 50 in rural locations;
- Of the questionnaires collected outside EWEC, 50 should be in urban locations and 50 in rural locations.

In addition to these principal criteria research teams were instructed to try to ensure heterogeneity within the sample with respect to the demographic variables of gender, age, education, access to land and income levels. The research teams did the best they could to try to meet these guidelines, although the results were not perfect (but were within the bounds of reasonable practice). Sample results and comparison between sample and population are included in the next section.

Fieldwork was conducted in June and July of 2016 and research teams then completed country level reports in conjunction with the principal researcher. It is not possible to be certain about non-response bias. Research in other projects (e.g. Zin, forthcoming) has suggested that some respondents (e.g. women with low levels of education) will be reluctant to participate in research because of lack of confidence and, throughout the region in rural areas, there is the issue of household members, particularly but not always men, having migrated to cities or overseas in search of better paid work. These issues are difficult to overcome the methodology employed and the constraints of time and space imposed. Nevertheless, limitations to the research exist.

Previous research also demonstrates (e.g. Walsh, 2015) that some respondents will believe that an interviewer or research team will be representing official agencies with the ability to offer or withhold important services or resources and are likely, therefore, to adjust their attitudes and answers

accordingly. Research teams in this project were encouraged to make it clear they were part of an academic research project and had no ability directly to affect their lives in the future. Even so, opinion polling in recent high profile elections in western countries has highlighted the gap between opinion and response that may or may not take place on a systematic basis.

As mentioned above, the state language was employed for interviewing and the research team leaders were fluent both in their own language and in English. However, it was not possible to deal with ethnic minority languages for potential respondents who might have been found in the research sites. Research teams were not instructed to seek out people who could not communicate in the national language or dialect and focused on locations where communications was more convenient.

The fieldwork took place before the monsoon season could interrupt transportation and communications and no intense harvesting operations were taking place. Notwithstanding human error, it is adjudged that data collection adhered to as rigorous an approach as might be reasonably expected.

Once collected, the questionnaires were checked and then the data entered into the PSPP statistical programme. PSPP is a free, open-source programme that emulates the widely-known but prohibitively expensive SPSS programme that is used in many research projects, whether or not properly licensed. PSPP enabled the researchers to process and analyse the data in the same way that SPSS (or similar programmes) would but in the knowledge that no ethical standards were being compromised.

As described below, various statistical techniques were employed to try to achieve the research objectives outlined

previously and to understand the responses given by respondents. Since the research instrument has been widely used and accepted, it was not considered necessary to try to establish validity or reliability through statistical means.

2.1. Sample and Population

According to the CIA World Factbook (2016), Lao PDR has a population of 7.0 million people, of whom 54.6% are ethnic Lao people speaking the national language. Lao PDR is a very ethnically diverse nation and a number of the ethnic minority groups who live there have Lao as either a first or second language.

In terms of age, 33.4% are aged between 0-14, 21.3% from 15-24, 36.1% from 25-54, 5.4% from 55-64 and 3.9% from 65 and over. Lao PDR is, in other words, quite a young country. The sample shows 38.9% of respondents are male and 61.1% female, meaning that males are slightly under-represented. Meanwhile 5.1% of respondents were classified as having primary or lower levels of education and the remainder secondary or higher levels of education. According to UNICEF (2016), using figures from 2008-2012, 44.7% of males and 44.6% of females represented the net attendance ratio. It is likely that at least some of the variance between the sample and the population is derived from the increased proportion of respondents obtained from urban settings, while Lao PDR remains a predominantly rural country and population.

3. Findings

3.1. The Food Insecurity Index

The Food Insecurity Index is built from the eight questions used in the questionnaire asking whether respondents had

witnessed any of these components of potential food insecurity over the preceding twelve months:

Q1. You or others in your household worried about not having enough food to eat because of a lack of money or other resources?

Q2. Still thinking about the last 12 MONTHS, was there a time when you or others in your household were unable to eat healthy and nutritious food because of a lack of money or other resources?

Q3. Was there a time when you or others in your household ate only a few kinds of foods because of a lack of money or other resources?

Q4. Was there a time when you or others in your household had to skip a meal because there was not enough money or other resources to get food?

Q5. Still thinking about the last 12 MONTHS, was there a time when you or others in your household ate less than you thought you should because of a lack of money or other resources?

Q6. Was there a time when your household ran out of food because of a lack of money or other resources?

Q7. Was there a time when you or others in your household were hungry but did not eat because there was not enough money or other resources for food?

Q8. Was there a time when you or others in your household went without eating for a whole day because of a lack of money or other resources?

These questions, which explore the various facets of food security described previously, appear in the tables below as B1-B8, respectively. The first table displays the breakdown of results by country.

%age saying "yes"	B1	B2	B3	B4	B5	B6	B7	B8
Lao PDR	55.3	29.6	40.9	14.4	33.1	14.0	13.2	10.1
Overall	42.8	29.5	34.1	14.4	27.3	13.6	15.0	9.7
N	1057	1057	1057	1057	1057	1057	1057	1057
P	0.000**	0.000**	0.000**	0.000**	0.000**	0.000**	0.000**	0.000**

Table 2: *FIES Index by Country***; source:** *Original Research*

These results show that food insecurity experiences in Lao PDR are broadly in line with the four country overall mean scores. There are higher levels of experience for B1, B3 and B5 in Lao PDR but the other scores are very similar. Since B1 is part of the food insecurity index, it is apparent that more than half (55.3%) of Lao respondents have experienced food insecurity in the past twelve months.

In addition to answering yes or no, respondents were also offered the opportunity to answer 'don't know' or 'refused to respond,' which is the method employed in previous usages of the FIES. It is thought that some respondents might be reluctant to give an answer if they feel it is too revealing or embarrassing an answer or for some other personal reason. The following table indicates the number of people taking advantage of these non-responses.

%	B1	B2	B3	B4	B5	B6	B7	B8
No	34.6	61.5	51.4	78.2	57.6	78.2	78.2	80.2
Yes	55.3	29.6	40.9	14.4	33.1	13.2	13.2	10.1
Don't Know	6.2	3.5	4.3	2.7	3.5	2.7	2.3	3.1
Refused	3.9	5.5	3.5	4.7	5.8	5.1	6.2	6.6
N	257	257	257	257	257	257	257	257

Table 3: *FIES Index in Full;* **source:** *Original Research*

It is evident that several respondents have taken the opportunity to decline to give answers to all of the FIES items, although the proportion doing so remains more or less the same in all cases. It is also noteworthy that more than 10% of all respondents have had experience of the most severe form of food insecurity (B8), which involves going without food for a whole day. It is important to try to discover which factors are most influential in predicting food insecurity experiences and this will be the focus of the following analysis.

3.2. FIES and the EWEC

Respondents were divided by the research sample design into two categories, which were those within the EWEC region and those without. The impact of this variable on food insecurity is shown in the following table.

%age saying "yes"	B1	B2	B3	B4	B5	B6	B7	B8
Lao PDR - inside	62.8	29.8	46.3	14.1	39.7	10.7	16.5	9.9
Outside	48.5	29.4	36.0	14.7	27.2	16.9	10.3	10.3
Overall	55.3	29.6	40.9	14.4	33.1	14.0	13.2	10.1
N	257	257	257	257	257	257	257	257
P	0.061	0.886	0.040*	0.221	0.052	0.113	0.238	0.738

Table 4: *FIES Index by EWEC and Country;* **source:** *Original Research*

There is only one statistically significant result in this table and this suggests that EWEC presence is not a very powerful means of predicting food insecurity experiences. Where there are notable differences in the results, for example B1 and B3 at the less severe end of the scale, there is more food insecurity among respondents within the region than outside it. However, these differences seem to have disappeared at the more severe end of the scale. It is possible that there had been more poverty in the region than outside it but the effect of the corridor has been to start to reduce the more severe forms of poverty, as would be represented by the more severe forms of food insecurity.

3.3. Gender and the FIES

Respondents were next divided into two genders, male and female, to see if this demographic characteristic could be used to predict the presence of food insecurity experiences, with the following results:

%age	**B1 - Male**	**B1 - Female**	**B2 - Male**	**B2 - Female**	**B3 - Male**	**B3 - Female**	**B4 - Male**	**B4 - Female**
No	34.0	35.0	62.0	61.1	54.0	49.7	80.0	77.1
Yes	57.0	59.1	28.0	30.6	40.0	41.4	13.0	15.3
Don't Know	7.0	5.7	3.0	3.8	4.0	4.5	1.0	3.8
Refused	2.0	5.1	7.0	4.5	2.0	4.5	6.0	3.8
N	100	157	100	157	100	157	100	157
P		0.621		0.805		0.721		0.441

%age	**B5 - Male**	**B5 - Female**	**B6 - Male**	**B6 - Female**	**B7 - Male**	**B7 - Female**	**B8 - Male**	**B8 - Female**
No	57.0	58.0	81.0	76.4	80.0	77.1	81.0	79.6
Yes	31.0	34.4	8.0	17.8	12.0	14.0	7.0	12.1
Don't Know	1.0	5.1	3.0	2.6	0	3.8	2.0	3.8
Refused	11.0	2.6	8.0	3.2	8.0	5.1	10.0	4.5
N	100	157	100	157	100	157	100	157
P		0.014*		0.065		0.179		0.166

Table 5: *Gender and the FIES Insecurity Index;* **source:** *Original Research*

Again, there is only one statistically significant distribution in these results, which suggests that gender is not a very powerful means of predicting food insecurity experiences. However, it is notable that for all of the indicators it is evident that women report consistently higher levels of food insecurity than men, although not to the extent of generating statistically significant results. Women's traditional roles in food production and preparation seem likely to give them somewhat better experience of knowing when choices relating to food have been voluntary and when involuntary.

3.4. Education

The next demographic characteristic to be considered is that of education. It is well-established that the level of education that an individual has received can go a long way to predicting subsequent life chances and standard of living. In this case, respondents were divided into two categories: those with primary or lower levels of education and those with secondary or higher levels of education. The results are shown in the table below.

%age	**B1 – Primary**	**B1 - Secondary**	**B2 - Primary**	**B2 – Secondary**	**B3 - Primary**	**B3 - Secondary**	**B4 - Primary**	**B4 - Secondary**
No	46.2	34.2	53.9	62.1	30.8	52.7	69.2	79.0
Yes	46.2	56.0	38.5	29.2	61.5	39.9	15.4	14.4
Don't Know	7.7	6.2	0	3.7	7.7	4.1	7.7	2.5
Refused	0	3.7	7.7	4.9	0	3.3	7.7	4.1
N	13	243	13	243	13	243	13	243
P		0.741		0.763		0.341		0.624

%age	**B5 - Primary**	**B5 - Secondary**	**B6 - Primary**	**B6 - secondary**	**B7 - Primary**	**B7 - Secondary**	**B8 - Primary**	**B8 - Secondary**
No	23.1	59.7	46.2	80.3	38.5	80.7	46.2	82.3
Yes	53.9	32.1	30.8	13.2	38.5	11.9	30.8	9.1
Don't Know	7.7	3.3	7.7	2.5	0	2.5	7.7	2.9
Refused	15.4	4.9	15.4	4.1	23.1	4.9	15.4	5.8
N	13	243	13	243	13	243	13	243
P		0.051		0.028*		0.001**		0.015*

Table 6: *Gender and the FIES Insecurity Index;* **source:** *Original Research*

There are three statistically significant distributions in these results and one of these is highly statistically significant. These distributions are all located at the more severe end of the scale (B6-8). It is notable that, apart from B1, respondents with the lower level of education consistently report higher levels of food insecurity experiences, as might be expected.

3.5. Setting

The next factor to consider is the setting of the household of the respondent, which could be either urban or rural. It is often assumed that food insecurity is principally a rural phenomenon and this is examined in the next table.

%age	**B1 – Urban**	**B1 - Rural**	**B2 - Urban**	**B2 – Rural**	**B3 - Urban**	**B3 - Rural**	**B4 - Urban**	**B4 - Rural**
No	34.7	34.4	67.9	41.0	54.6	41.0	83.2	62.3
Yes	55.1	55.7	25.0	44.3	38.8	47.5	11.7	23.0
Don't Know	6.6	4.9	2.0	8.2	4.6	3.3	3.1	1.6
Refused	3.6	4.9	5.1	6.6	2.0	8.2	2.0	13.1
N	196	61	196	61	196	61	196	61
P		0.932		0.001**		0.051		0.000**

%age	**B5 - Urban**	**B5 - Rural**	**B6 - Urban**	**B6 - Rural**	**B7 - Urban**	**B7 - Rural**	**B8 - Urban**	**B8 - Rural**
No	62.8	41.0	85.7	57.4	84.7	57.4	86.2	60.7
Yes	30.6	41.0	9.7	27.9	10.2	23.0	7.1	19.7
Don't Know	2.0	8.2	2.6	3.3	2.0	3.3	2.0	6.6
Refused	4.6	9.8	3.1	11.5	3.1	16.4	4.6	13.1
N	196	61	196	61	196	61	196	61
P		0.006**		0.000**		0.000**		0.000**

Table 7: *Setting and the FIES Insecurity Index;* **source:** *Original Research*

It is notable in this table that there are six highly statistically significant results and, in these cases, there are much greater levels of food insecurity in rural areas compared to urban ones. Even in the distributions without statistical significance, the trend in the data remains the same. Apparently, therefore, rural food insecurity in Lao PDR is more severe than urban food insecurity.

3.6. Land Access

Respondents were next divided into two categories depending on whether they had hindered or unhindered access to land, with the following results.

%age	B1 – Unhindered	B1 - Hindered	B2 - Unhindered	B2 – Hindered	B3 - Unhindered	B3 - Hindered	B4 - Unhindered	B4 - Hindered
No	35.6	34.0	71.2	54.9	61.5	44.4	83.7	74.5
Yes	53.9	56.2	21.2	35.3	31.7	47.1	11.5	16.3
Don't Know	6.7	5.9	2.9	3.9	2.9	5.2	1.0	3.9
Refused	3.9	3.9	4.8	5.9	3.9	3.3	3.9	5.2
N	104	153	104	153	104	153	104	153
P		0.981		0.067		0.047*		0.273

%age	B5 - Unhindered	B5 – Hindered	B6 - Unhindered	B6 - Hindered	B7 - Unhindered	B7 - Hindered	B8 - Unhindered	B8 - Hindered
No	65.4	52.3	85.6	73.2	86.5	72.6	86.5	75.8
Yes	26.9	37.3	7.7	18.3	7.7	17.0	6.7	12.4
Don't Know	1.9	4.6	3.9	2.0	1.0	3.3	1.9	3.9
Refused	5.8	5.9	2.9	6.5	4.8	7.2	4.8	7.8
N	104	153	104	153	104	153	104	153
P		0.166		0.035*		0.056		0.210

Table 8: *Land Access and the FIES Insecurity Index;* **source:** *Original Research*

There are two statistically significant results in this distribution and a general tendency for higher levels of food insecurity to be associated with hindered access to land rather than unhindered, as might be expected.

3.7. Income

Income is dealt with differently than other variables because the exact amount (measured in the equivalent of US$ per month) varies so much from country to country (see Table 1 for GDP per capita figures). To introduce comparability, respondents are divided into three categories, broadly defined as low, middle and high incomes, as shown in the table below.

Country	Lao PDR	Myanmar	Thailand	Vietnam
Low Income (n)	0-1,000 (204)	0-100 (160)	0-1,000 (149)	0-300 (37)
Medium Income (n)	1,001-3,000 (38)	101-200 (121)	1,001-2,000 (36)	301-600 (86)
High Income (n)	3,001+ (14)	201+ (19)	2,001+ (14)	601+ (77)

Table 9: *Income Level Categories;* **source:** *Original Research*

Using these income levels to determine the interaction between income levels and food insecurity experiences leads to the following results.

%age	B1 – Low	B1 – Middle	B1 – High	B2 – Low	B2 – Middle	B2 – High	B3 – Low	B3 – Middle	B3 – High	B4 – Low	B4 – Middle	B4 – High
No	28.8	52.6	76.9	58.5	68.4	92.3	47.8	65.8	69.2	76.6	84.2	92.3
Yes	62.4	34.2	7.7	32.7	23.7	0	44.9	26.3	23.1	16.1	10.5	0
Don't Know	5.9	7.9	7.7	4.4	0	0	4.9	2.6	0	3.4	0	0
Refused	2.9	5.3	7.7	4.4	7.9	7.7	2.4	5.3	7.7	3.9	5.3	7.7
N	205	38	13	205	38	13	205	38	13	205	38	13
P		0.001**			0.097			0.157			0.483	

%age	B5 – Low	B5 – Middle	B5 – High	B6 – Low	B6 – Middle	B6 – High	B7 – Low	B7 – Middle	B7 – High	B8 – Low	B8 – Middle	B8 – High
No	52.7	79.0	76.9	75.1	92.1	92.3	75.6	89.5	92.3	78.5	86.6	92.3
Yes	38.1	13.2	15.4	16.6	5.3	0	16.1	2.6	0	12.2	2.6	0
Don't Know	4.4	0	0	3.4	0	0	2.0	5.3	0	2.9	5.3	0
Refused	4.9	7.9	7.7	4.9	2.6	7.7	6.3	2.6	7.7	6.3	5.3	7.7
N	205	38	13	205	38	13	205	38	13	205	38	13
P		0.021*			0.191			0.126			0.436	

Table 10: *Income Level and the FIES Insecurity Index;* **source:** *Original Research*

It is somewhat surprising that there are only statistically significant results shown here, one of which is highly statistically significant. However, it is evident in looking at the results for all scale items that people with low levels of income are more likely to report food insecurity experiences than those with higher levels of income. Nevertheless, the trend is not as strongly expressed as might have been expected.

3.8. Logistic Regression Analysis

It has been shown that several of the demographic characteristics about which information has been collected appear to be influential in predicting the levels of food insecurity experienced by respondents in different categories. This is shown by the presence of a number of statistically significant and highly statistically significant distributions being created that indicate results that are intuitive in nature: i.e., that lower levels of income and education and a rural location all indicate a greater propensity to have experienced food insecurity in the household as compared with having higher levels of income and education and an urban location.

It is possible that some demographic factors are positively correlated with each other and this is adding noise to the data. The table below displays the correlation matrix for this survey (n = 257).

Pearson's R (Significance)	Gender	Education	Setting	EWEC	Income Level	Land Access
Gender	*	0.10 (0.107)	-0.08 (0.201)	0.19 (0.002**)	0.16 (0.009**)	-0.01 (0.954)
Education	0.10 (0.101)	*	-0.13 (0.044*)	0.03 (0.641)	0.05 (0.420)	-0.03 (0.589)
Setting	-0.08 (0.201)	-0.13 (0.044*)	*	0.05 (0.426)	-0.24 (0.000**)	0.05 (0.425)
EWEC	0.19 (0.002**)	0.03 (0.641)	0.05 (0.426)	*	0.24 (0.000**)	0.08 (0.201)
Income Level	0.16 (0.009**)	0.05 (0.420)	-0.24 (0.000**)	0.24 (0.000**)	*	-0.03 (0.638)
Land Access	-0.01 (0.954)	-0.03 (0.589)	0.05 (0.425)	0.08 (0.201)	-0.03 (0.638)	

Table 11: *Correlation Matrix of Demographic Variables;* **source:** *Original Research*

It is important to use some caution when interpreting these results as the Pearson correlation does not always work intuitively with the categorical variables that are being used here. However, it does appear that there is a grouping of linked variables which are EWEC, setting and income level. It is not clear whether one of these factors is influencing the others and, to try to get a better understanding of which demographic factors are more influential in determining the experience of food insecurity, logistic regression is used. This approach requires a dichotomous dependent variable (B1-8) which means sample size is reduced by those cases which provided 'don't know' or 'refused' answers. In the table that follows, the test statistic (B) is provided, together with its significance level and exponentiated version of B, which provides a measure of influence which is more intuitively accessible. Finally, the overall percentage figure is provided for each test. There are several methods of estimating the accuracy (i.e. goodness-of-fit) of the logistic regression

method. The classification method is selected here, since it is intuitively understandable. The figure gives the percentage of observations correctly predicted by the model. Consequently, the higher the number (to a maximum of 1000), the more accurate is the model.

%age	**B1 – B**	**B1 – Sig**	**B1 – Exp(B)**	**B2 – B**	**B2 – Sig**	**B2 – Exp(B)**	**B3 – B**	**B3 – Sig**	**B3 – Exp(B)**
Gender	0.09	0.762	1.10	-0.36	0.250	1.44	0.42	0.150	1.52
Education	0.55	0.376	1.74	-0.24	0.711	0.79	-1.01	0.126	0.36
Setting	-0.39	0.254	0.68	0.94	0.006	2.56	0.34	0.308	1.41
EWEC	-0.13	0.666	0.88	-0.01	0.972	0.99	-0.52	0.072	0.59
Income Level	-1.41	0.000	0.24	-0.71	0.052	0.49	-0.50	0.090	0.61
Land Access	0.07	0.805	1.08	0.78	0.012	2.19	0.79	0.006	2.20
Constant	1.57	0.304	4.78	-2.44	0.127	0.09	0.81	0.600	2.24
Overall %age		68.83			70.51			64.14	
n		231			234			237	

%age	**B4 – B**	**B4 – Sig**	**B4 – Exp(B)**	**B5 – B**	**B5 – Sig**	**B5 – Exp(B)**	**B6 – B**	**B6 – Sig**	**B6 – Exp(B)**
Gender	0.42	0.286	1.52	0.52	0.094	1.68	1.42	0.004	4.13
Education	-0.07	0.930	0.93	-1.46	0.055	0.23	-1.76	0.031	0.17
Setting	0.83	0.037	2.30	0.58	0.094	1.79	1.29	0.003	3.62
EWEC	0.04	0.914	1.04	-0.66	0.033	0.52	0.37	0.387	1.44
Income Level	-0.72	0.155	0.49	-0.84	0.023	0.43	-1.42	0.046	0.24
Land Access	0.45	0.243	1.57	0.62	0.040	1.86	1.16	0.014	3.17
Constant	-3.24	0.118	0.04	1.74	0.326	5.72	-3.27	0.128	0.04
Overall %age		84.45			66.95			87.34	
n		238			233			237	

%age	**B7 – B**	**B7 – Sig**	**B7 – Exp(B)**	**B8 – B**	**B8 – Sig**	**B8 – Exp(B)**
Gender	0.81	0.068	2.25	0.97	0.058	2.64
Education	-2.32	0.004	0.10	-2.02	0.010	0.13
Setting	1.10	0.013	3.01	1.19	0.012	3.28
EWEC	-0.68	0.113	0.51	0.14	0.759	1.15
Income Level	-1.72	0.087	0.18	-1.51	0.126	0.22
Land Access	1.14	0.015	3.12	0.78	0.118	2.19
Constant	0.99	0.656	2.69	-1.16	0.616	0.31
Overall %age		85.53			88.79	
n		235			232	

Table 12: *Logistic Regression Testing of Demographic Characteristics and the FIES Insecurity Index;* **source:** *Original Research*

The first thing to note here is the level of overall confidence in the models proposed by the analysis. These are revealed in the overall percentage rows, which consider the proportion of correct identifications of a particular case proposed by the model. These scores vary between 64.14% to 88.79%, which is quite a wide range which suggests not all solutions can be fully trusted. The next thing to consider is the role of the constant in individual models. The constant is quite influential in B1, B3, B5 and B7. Analysis of the results indicates that gender, setting and land access appear to be most influential variables in terms of predicting food insecurity experiences. Setting and land access, as previously mentioned, are strongly correlated with each other.

3.9. Research Note

The following comments were derived from the fieldwork process:

- It is interesting that people now report that they had insufficient food over the past twelve months not because there is no food at all available (at least in

some cases) but because they now have a much higher expectation of being able to have safe, hygienic and nutritious food when before they would have chosen merely based on availability and low prices. Some respondents talked about lacking access to seafood (since Lao PDR is a landlocked country) or organic food that was not available in the local markets. Instead, they anticipate having to travel to Thailand in order to find the kind of high quality fresh food to which they now aspire;

- Some respondents had additional comments that they would have liked to add but the interviewers did not have the ability to add them to their questionnaire sheets. It might be better in the future to supplement that quantitative research with some qualitative interviewing. More information could have been collected in this survey if a slightly different method had been adopted;
- Rural food insecurity now seems to be a persistent phenomenon that has largely been eradicated in urban settings. More emphasis on nutrition issues in urban settings in the future might be appropriate.

4. Recommendations

Based on the analysis reported on in this report, it is possible to make the following recommendations:

- More study should be made of the nature of the areas contained within the EWEC area and the ways by which individuals, communities and organizations within it would be able take advantage of opportunities provided by it. There is the potential for the benefits of the corridor to bypass people over which it passes;

- There continues to be a division between life chances and standards of living involving rural and urban settings which will need to be addressed. As Lao PDR continues to undergo economic development and modernization, the areas which are likely the ones to grow most quickly will be those connected with urban centres in Thailand and Vietnam and, hence, there is the danger of increasing inequality;
- Market development (that is, demonstrating and convincing local consumers of the value of previously unknown products and explaining how to use them) is of great importance in helping local producers, particularly in the agricultural sector, to engage with regional and international markets on a more or less equitable basis. Where market development has taken place, as for example in Vietnam in the case of Vinamilk (Walsh, 2012), producers can diversify the marketing and distribution of their production to include both local and international consumers only when local consumers understand and value the products involved can this diversification take place and there is a role for both public and private sector organizations to promote this development for their own ends. Government agencies can do this at very low cost by making announcements in regularly scheduled media announcements and, with some additional cost, by encouraging popular mass media content providers to use product or category placement;
- More research is, as ever, required to determine the extent to which these results extend across other parts of the countries involved and what other variations exist with respect to demographic characteristics. It has been shown that statistically significant distributions exist with respect to demographic

characteristics. It has also been shown that statistically significant distributions exist with respect to demographic characteristics and some interpretation has been provided but additional research might help to determine the validity of such interpretations.

5. Conclusion

This paper details the country report for Lao PDR for the food insecurity experience project conducted by the SIU Research Centre at Shinawatra University for GIZ. The project uses the FAO's externally validated FIES instrument and has been designed to collect 200 questionnaires in each of four countries of the Mekong region over which the EWEC extends. The research objectives include the need to identify actually existing levels of food insecurity in the four countries studied and to try to determine the impact of the EWEC on living standards.

More than 50% of respondents report experiences of food insecurity at the least severe level and this level declines to 10.1% for the most severe form of insecurity. In general, the results for Lao PDR are comparable to the overall four country mean scores, which also include data from Myanmar, Thailand and Vietnam. There is a division between urban and rural settings, with the former experiencing lower levels of food insecurity than the latter. The impact of the EWEC is difficult to interpret at the country level of analysis.

6. References

Asian Development Bank (ADB) (2010). *Strategy and action plan for the Greater Mekong Subregion East-West Economic Corridor*, Manila: ADB, available at:

http://www.adb.org/sites/default/files/publication/27496/gms-action-plan-east-west.pdf.

CIA World Factbook (2016). People and society, available at: https://www.cia.gov/library/publications/the-world-factbook/geos/la.html.

FAO, International Fund for Agricultural Development (IFAD) and the World Food Programme (WFP) (2015a). *The State of Food Insecurity in the World 2015: Meeting the 2015 International Hunger Targets: Taking Stock of Uneven Progress*, Rome: FAO).

FAO (n.d.). Germany and FAO: Partnering to build global food security, available at: http://www.fao.org/3/a-au077e.pdf.

FAO (2015b). The food insecurity experience scale, available at: http://www.fao.org/economic/ess/ess-fs/voices/fiesscale/en/.

General Statistics Office of Vietnam (2016). Socio-economic situation in nine months of 2016, available at: http://www.gso.gov.vn/default_en.aspx?tabid=622&ItemID=16071/.

Unicef (2016), Statistics, available at: https://www.unicef.org/infobycountry/laopdr_statistics.html.

Walsh, J. (2012). Vinamilk: from local cooperatives to international corporation, *Emerald Emerging Economies Case Studies*, available at: http://www.emeraldinsight.com/case_studies.htm?articleid=17026868&show=abstract, doi: 10.1108/20450621211228400.

Walsh, J. (2015). Gendered decision-making in rural households in Cambodia and Thailand, *International Journal*

of Agricultural Resources, Governance and Ecology, 11(3/4), 209-27.

Zin, K.K. (2016, forthcoming). Paw San rice marketing in Shwebo, *Nepalese Journal of Management Science and Research*, 1(2).

Appendix: Additional Variables

Additional variables were collected in the Lao PDR survey which were not collected elsewhere. These included occupation (which was collected in Vietnam), household size and position of the respondent in the household. This appendix provides details on these additional variables.

The first additional variable collected was occupation and that produced the following results:

	n	**%age**
Government Employees	81	31.5
Others	46	17.9
Company Employees	31	12.1
NGO/INGO Employees	30	11.7
Merchants	24	9.3
Workers/Labourers	19	7.4
Unemployed	14	5.5
Business Owners	12	4.7
Total	256	100

Table 13: *Frequency Distribution of Occupations;* **source:** *Original Research*

There is, as these results indicate, a large public sector in Lao PDR and a significant role for (international) non-governmental organizations (NGOs/INGOs). To try to determine the impact of occupation on the likelihood of having food insecurity experiences, the number of occupations was reduced to three categories: employees (62.3%); business owners and merchants (14.4%) and others (23.4%). Doing this yields the following results (code: E = employees; B = business owners and merchants and O = others) (n = 257):

%age	B1 – E	B1 – B	B1 – O	B2 – E	B2 – B	B2 – O	B3 – E	B3 – B	B3 – O	B4 – E	B4 – B	B4 – O
No	31.9	29.7	45.0	64.4	64.9	51.7	50.0	51.4	55.0	81.9	83.8	65.0
Yes	61.3	51.4	41.7	31.3	18.9	31.7	46.3	35.1	30.0	13.8	8.1	20.0
Don't Know	6.9	5.4	5.0	3.8	5.4	1.7	3.1	5.4	6.7	2.5	2.7	3.3
Refused	0	13.5	8.3	0.6	10.8	15.0	0.6	8.1	8.3	1.9	5.4	11.7
P		0.001**			0.001**			0.022*			0.039*	

%age	B5 – E	B5 – B	B5 – O	B6 – E	B6 – B	B6 – O	B7 – E	B7 – B	B7 – O	B8 – E	B8 – B	B8 – O
No	58.1	59.5	55.0	80.6	83.8	68.3	81.3	86.5	65.0	86.3	86.5	60.0
Yes	37.5	27.0	25.0	15.0	5.4	16.7	14.4	2.7	16.7	8.1	8.1	16.7
Don't Know	1.9	8.1	5.0	2.5	5.4	1.7	0.6	8.1	3.3	2.5	2.7	5.0
Refused	2.5	5.4	15.0	1.9	5.4	13.3	3.8	2.7	15.0	3.1	2.7	18.3
P		0.006**			0.014*			0.001**			0.000**	

Table 14: *Income Level and the FIES Insecurity Index;* **source:** *Original Research*

Since all of these results have produced statistically significant distributions, it is clear that this occupation variable is a powerful predictor of food insecurity experiences. In seven cases (B1-7), employees have much more experience of food insecurity than business owners, with the others category broadly the same as the employees category. For the most severe category, B8, employees and business owners seem to have the same experiences of food insecurity but twice as many (16.7%) have experience that level of food insecurity and a further 18.3% refused to give an answer.

The next variable to be collected was household size. This had four categories: 1; 2-5; 6-10 and 11+. The frequency of results was as follows:

	n	%age
1	48	18.8
2-5	119	46.5
6-10	75	29.3
11+	14	5.5
Total	256	100

Table 15: *Frequency Distribution of Size of Household;* **source:** *Original Research*

The size of the household is affected by the setting of the home, with larger households tending to be in rural areas and urban areas offering more opportunities for couples or individuals to set up smaller households in apartments and condominiums. These figures are next used to investigate the extent to which they are influential in predicting food insecurity experiences, with the following results (n = 256):

%age	**B1 – 1**	**B1 – 2-5**	**B1 – 6-10**	**B1 – 11+**	**B2 – 1**	**B2 – 2-5**	**B2 – 6-10**	**B2 – 11+**	**B3 – 1**	**B3 – 2-5**	**B3 – 6-10**	**B3 – 11+**
No	41.7	33.6	32.0	35.7	56.3	68.1	57.3	50.0	41.7	59.7	44.0	57.1
Yes	52.1	56.3	58.7	42.9	35.4	24.4	32.0	42.9	50.0	33.6	48.0	35.7
Don't Know	2.1	9.2	4.0	7.1	4.2	2.5	5.3	0	4.2	5.0	2.7	7.1
Refused	4.2	0.8	5.3	0.8	4.2	5.0	5.3	7.1	4.2	1.7	5.3	0
P		0.163				0.743				0.325		

%age	**B4 – 1**	**B4 – 2-5**	**B4 – 6-10**	**B4 – 11+**	**B5 – 1**	**B5 – 2-5**	**B5 – 6-10**	**B5 – 11+**	**B6 – 1**	**B6 – 2-5**	**B6 – 6-10**	**B6 – 11+**
No	60.4	84.9	80.0	78.6	54.2	62.2	52.0	64.3	68.8	84.0	76.0	78.6
Yes	31.3	8.4	13.3	14.3	37.5	29.4	37.3	28.6	20.8	10.9	16.0	7.1
Don't Know	2.1	4.2	1.3	0	4.2	4.2	2.7	0	4.2	3.4	1.3	0
Refused	6.3	2.5	5.3	7.1	4.2	4.2	8.0	7.1	6.3	1.7	6.7	14.3
P		0.027*				0.867				0.240		

%age	B7–1	B7 – 2-5	B7 – 6-10	B7 – 11+	B8 – 1	B8 – 2-5	B8 – 6-10	B8 – 11+
No	66.7	83.2	78.7	78.6	68.8	87.4	78.7	71.4
Yes	16.7	11.8	14.7	2.9	16.7	6.7	13.3	0
Don't Know	8.3	1.7	0	0	8.3	1.7	1.3	7.1
Refused	8.3	3.4	6.7	14.3	6.3	4.2	6.7	21.4
P		0.078				0.020*		

Table 16: *Household Size and the FIES Insecurity Index;* **source:** *Original Research*

There are only two statistically significant results here, which suggests that this is not a very strong predictor of food insecurity experiences. However, looking throughout the results it is apparent that there is a trend for more insecurity at most levels for single person households. Further analysis of single person households reveals that they are highly statistically significantly likely to be inside the EWEC area rather than outside it (sig = 0.000**), which suggests the presence of some location-specific effects. The quite large proportions of people in the 11+ household size category refusing to answer the more severe scale items is also worthy of comment.

The third and final variable to be collected is that of position within the household, which had the following results:

	n	%age
Children	105	41.2
Mothers	68	26.7
Fathers	50	19.6
Others	13	5.1
Cousins	10	3.9
Grandchildren	9	3.5
Total	255	100

Table 17: *Frequency Distribution of Position within the Household;* **source:** *Original Research*

In order to investigate the influence of household position on food insecurity experiences, these results were collapsed into a smaller number of categories, for ease of analysis. Recoding the variable provides three categories, which are parents (46.3%), children and grandchildren (44.7%) and others (9.0%). Using this recoded variable to investigate food insecurity produces the following results (code: p = parents; c = (grand)children and o = others) (n = 255):

%age	**B1 – P**	**B1 – C**	**B1 – O**	**B2 – P**	**B2 – C**	**B2 – O**	**B3 – P**	**B3 – C**	**B3 – O**	**B4 – P**	**B4 – C**	**B4 – O**
No	28.0	43.0	26.1	62.7	64.9	39.1	53.4	54.4	26.1	84.8	79.0	43.5
Yes	64.4	48.3	47.8	28.8	26.3	52.2	42.4	37.7	52.2	11.9	14.9	26.1
Don't Know	5.1	6.1	13.0	4.2	3.5	0	2.5	4.4	13.0	0.9	2.6	13.0
Refused	2.5	2.6	13.0	4.2	5.3	8.7	1.7	3.5	8.7	2.5	3.5	17.4
P		0.015*			0.222			0.057			0.000**	

%age	**B5 – P**	**B5 – C**	**B5 – O**	**B6 – P**	**B6 – C**	**B6 – O**	**B7 – P**	**B7 – C**	**B7 – O**	**B8 – P**	**B8 – C**	**B8 – O**
No	57.6	59.7	47.8	83.9	78.1	52.2	80.5	81.6	52.2	85.6	80.7	52.2
Yes	38.1	28.1	34.8	8.5	16.7	30.4	13.6	12.3	17.4	7.6	11.4	17.4
Don't Know	0.9	6.1	4.4	3.4	1.8	4.4	1.7	1.8	8.7	1.7	3.5	8.7
Refused	3.4	6.1	13.0	4.2	3.5	13.0	4.2	4.4	21.7	5.1	4.4	21.7
P		0.112			0.024*			0.007**			0.007**	

Table 18: *Income Level and the FIES Insecurity Index;* **source:** *Original Research*

There are five statistically significant distributions in these results and three of these (B4, B7-8) are highly statistically significant. It is notable that parents are more likely to experience food insecurity in the lower levels of severity, especially B1, than their children, which is intuitively likely. However, this trend does not extend to the more severe right hand scale of the survey, which might perhaps be associated with children supporting elderly dependents. There is also a

tendency for people in the others category to be generally more likely to experience food insecurity, which also seems intuitively correct in that, in the event of food stress, members of the nuclear family are likely to be prioritized.