

# HOUSEHOLD FOOD SECURITY AND BUFFERING MECHANISMS IN THAI AND NON-THAI HOUSEHOLDS IN NONG LOO SUB-DISTRICT, SANGKHLA BURI, THAILAND

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**Abstract.** This was a cross sectional study to measure any difference between Thai and Non-Thai households in the prevalence of food security and the effect of state and local buffering mechanisms on household food security status in Nong Loo Sub-district in Kanchanaburi Province. Seventy-five point eight percent of 211 households (120 Thai and 91 non-Thai households) were food insecure. Non-Thai households were found to be significantly more food insecure than Thai households (95.6% compared with 60.8%; OR=21.4). Non-Thais tended to have less knowledge of and access to buffering mechanisms; however, this was not statistically significant. Of interest, however, was that no statistically significant association was found between household food insecurity and lack of access to buffering mechanisms. Qualitative interview results suggested that landownership, possession of a Thai card (Government registration card), increased food prices, and a dependence on imported food from other districts were important factors associated with household food insecurity in the sub-district. This survey underlines the importance of the food insecurity as a problem among Thai and, more severely, among non-Thai households and provides stake holders with information that can be used to intensify programs to address this problem. Thailand has a long border area with a high proportion of non-Thai households, and it is likely that similar food insecurity problems exist in other areas also. Further research on nutrition security (as distinct from food security) of this population is recommended in order to better assess the impact of the observed food insecurity.

**Key Words:** household food security, buffering mechanisms, Raedimer-Cornell food security items, migration, 30 Baht Health Care Program, access to food and health care programs

## INTRODUCTION

Changing farming pattern, high crude oil prices, increased fertilizer prices, global agreements on trade, and environmental effects such as extreme weather had led to the 2008 global food crisis (Nellemann *et al*, 2009). Although

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food prices have subsequently declined, they are still higher than pre-crisis levels (Holmes *et al*, 2009). Although there was a decrease in food prices in 2009 and 2010, current global food prices have continued to increase; the food price index for March 2011 was near to the 2008 food price index (World Bank, 2011). Increased food prices have the most striking impact on women and children (Holmes *et al*, 2009), especially for the populations who are already poor (Wodon *et al*, 2008; World Bank 2008), and can lead to changing consumption patterns resulting in poor health (Regmi *et al*, 2001).

Various coping mechanisms are employed in response to increased food prices. These mechanisms include: a reduction in quantity and quality of food at the household level, to the extent of skipping an entire meal (Hoddinott, 1999; Holmes *et al*, 2009); selling assets; involvement in crime; reduced expenditure on health and education; and working in risky and low-income environments (Maxwell, 1996). These coping mechanisms have significant consequences for the health and well-being of affected populations (Regmi *et al*, 2001). A report by the World Bank demonstrated a 5-25% increase in child mortality globally due to a reduction in expenditure on health during the global economic crisis in 2008 (Mariama, 2010).

In Thailand; rapid urbanization and industrialization has transformed many traditional farming areas and, together with increased food prices and soaring oil prices, farming patterns have been further changed to include growing cash crops for fuel instead of subsistence crops for food (Thepent, 2009). Agricultural productivity is one of the determinants of food availability and therefore, the trade and development aspects of agriculture are important to assure food security

(UNCTAD, 2008). Availability of food is, however, not mentioned as a major factor affecting food security in Thailand; as a nation it produces enough food for both its own population and for export, and is the world's leading exporter of rice. Other factors, such as affordability are to be major barriers to food security (Thanthida, 2010), especially among the rural poor who already spend around 80% of their income on food (Prachason, 2009).

A survey of household food security in urban poor households in Thailand in 2004 (Piaseu and Mitchell, 2004) found only 44.2% of households to be food secure. Most households reported that reduced income decreased their access to health services and food provision. There is evidence that the 2008 global economic crisis increased local food prices and led to further increases in food insecurity (Isvilanonda, 2011).

Thailand has a significant migrant population along its relatively long border with Myanmar, and it may be expected that this group would have less access to buffering mechanisms and be particularly vulnerable to food insecurity. There is, however, little information about how the food crisis and access to buffering mechanisms has affected food security among this group and whether they are more or less affected than the Thai population in the same area. Buffering mechanisms accessible to the population in this sub-district include: food aid in different forms and the Universal Healthcare Program that allows card holders access to minimal cost healthcare.

Migrants cannot own land in Thailand and land ownership is known to be an important factor in food security whereas urban migration, leading to reduced farm output, is a factor that contributes to food insecurity (Prachason, 2009).

The present study was conducted to define the problem more clearly and to provide data on related issues that can help inform policy-makers and local NGOs.

According to the World Health Organization (2010), food security consists of three pillars:

1) Food availability: sufficient quantities of food available on a consistent basis; 2) Food access: having sufficient resources to obtain appropriate foods for a nutritious diet; 3) Food use: appropriate use based on knowledge of basic nutrition and care, as well as adequate water and sanitation.

#### **Choice of study site**

Sangkhla Buri District in Kanchanaburi Province is a major hub for migration to Thailand from Myanmar and therefore has a large population of migrants. To date, there apparently has been no assessment of the relative food security between Thais and the migrant population in this district.

#### **Study objectives**

The aims of this study were to describe i) the prevalence of food insecurity; ii) any differences in the prevalence of food insecurity between Thai and non-Thai populations; and iii) any association between access to buffering mechanisms that may mitigate the impact of rising food prices and improve household food security.

In addition, it is hoped that the findings of the study can be used to inform and influence policy makers about whether their programs are accessible to all food-insecure-households in both Thai and migrant populations, and to identify what more has to be done to reach all members of society to reduce high levels of food insecurity.

## **MATERIALS AND METHODS**

This was a cross sectional study of household food security and the impact of buffering mechanisms on food security among Thai and non-Thai households in Nong Loo Sub-district, Sangkhla Buri District, Kanchanaburi Province.

To achieve the stated aims of the study, the survey was designed with a sufficiently large sample size to provide reliable estimates for food insecurity among both population groups. Residents of migrant camps were not included in the study as the population distribution and access to food is potentially different to that among the rest of the population.

#### **Sample size estimation**

The sample size was calculated to provide estimates for each population group with 10% standard error within a 95% confidence interval. A presumed prevalence of 50% food insecurity and household response rate of 80% was assumed for both groups. The final sample size was 230 households.

Two villages were randomly selected using Probability Proportional to Size from a list of all villages in Nong Loo Sub-district. Selection of households in each village was then conducted using simple random sampling; every fifth household was chosen.

#### **Research instrument**

The main research instrument was a structured interview using Raedimer-Cornell food insecurity items for measuring food security at three different levels; household, individual, and child. A number of studies have validated the use of Raedimer-Cornell items for measuring food security (Frongillo *et al*, 1997; Molano *et al*, 2007; Leyna *et al*, 2008). Using this tool, a household was considered as

food insecure if the household member responsible for purchasing and handling household food answered “sometimes true” or “often true” to any one of the items included in the questionnaire. Questions were also asked concerning the householder’s knowledge of and accessibility to buffering mechanisms. The use “access” was validated by pre-defining it to the participants as “being aware that they are entitled to use the program when they need it.” The response to the question of ‘use’ of buffering mechanisms in the questionnaire was considered too difficult to confirm through cross checking of records and was dropped from analysis at the end.

Buffering mechanisms included in the questionnaire were those expected to reduce the impact of rising food prices in this province and comprised those provided by non-profit organizations and other donors: provision of community kitchens, food aid, specific food subsidies, loan programs, food for work programs and saving programs; as well as government programs: community shops, food stamp/food voucher programs and the Universal Healthcare Program which provides healthcare to all citizens carrying a Universal Healthcare Program card (Prachason, 2009; Sakunphanit, 2006).

The original questionnaire was in English and was translated into Myanmar and Thai before back-translation to English to detect and avoid translation errors prior to data collection.

**Ethical considerations (Approval number-MOE 0516.53/774, 26 April, 2012)**

Participation in this study was voluntary, and the participants gave oral consent after reading the consent form and having the survey explained. Written consent was avoided in response to the

sensitivity of the non-Thai population to being identified as illegal immigrants. The decision to participate was not revealed to any local authorities. This study was reviewed and approved by the IRB of the Faculty of Public Health, Thammasat University (approval number MOE 0516.53/774).

**Data analysis**

Chi-square and logistic regression were conducted using SPSS (version 16.0; SPSS, Chicago, IL). The null hypothesis was that the prevalence of food insecurity among Thai and non-Thai households was equal. Backward stepwise logistic regression was used to reduce the effect of the greater number of respondents from the Thai population. To maintain significance of the variables, the non-significant variables were removed at each step of the analysis so that only statistically significant variables were left in the final steps.

To obtain additional information about the likely scale and causes of food insecurity in this sub-district; semi-structured individual interviews were conducted with three key informants: a voluntary health worker from the health center, a representative running the local programs for the American Refugee Committee (ARC) and a representative of a local NGO, Pattanarak Foundation.

**RESULTS**

Out of the original sample of 230 households, 211 households returned completed questionnaires: 91 non-Thai households and 120 Thai households. The majority (14 out of 19 households) of non-respondent households were non-Thai who were unavailable at the time of interview.

Table 1  
Prevalence of food insecurity among Thai and non-Thai population in  
Nong Loo Sub-district.

	Prevalence (%)			<i>p</i> -value <sup>a</sup>
	Total	Thai	Non-Thai	
Household food insecurity	75.8	60.8	95.6	<0.001
Individual food insecurity	75.3	60.0	95.6	<0.001
Child food insecurity	75.3	65.3	88.3	<0.001

<sup>a</sup>Chi-square test for difference in food insecurity between Thai and non-Thai population.

Table 2  
Percent of Thai and non-Thai citizens with access to different buffering mechanisms.

	Percent of study population with access to different buffering mechanisms (number)			<i>p</i> -value <sup>a</sup>
	Total	Thai	Non-Thai	
Access to community kitchen	0	0 (0)	0 (0)	0.000
Access to food aid	10.9 (23)	10 (12)	12.1 (11)	0.630
Access to specific food subsidies	1.9 (4)	3.3 (4)	0 (0)	0.079
Access to loan program	5.7 (12)	5.8 (7)	5.5 (5)	0.916
Access to food stamp/voucher	0 (0)	0 (0)	0 (0)	0.000
Access to food for work	3.8 (8)	4.2 (5)	3.3 (3)	0.743
Access to saving program	6.6 (14)	7.5 (9)	5.5 (5)	0.562
Access to community shop	3.3 (7)	5 (6)	1.1 (1)	0.117
Access to Universal Healthcare	46.4 (98)	54.2 (65)	36.3 (33)	0.010

<sup>a</sup>*p*-value - chi-square test for the difference in access to buffering mechanisms between Thai and non-Thai (*p*<0.05).

### Prevalence of food insecurity in Thai and non-Thai populations

The overall prevalence of household food insecurity in both Thai and non-Thai households in Nong Loo Sub-district was significantly high at 75.8% (*p*<0.001), that of individual food insecurity was 75.3% (*p*<0.001), and the prevalence of child food insecurity was 75.3% (*p*<0.001).

There was a large difference of 34.8% in the prevalence of household food insecurity between the two comparison

populations: 60.8% for Thai and 95.6% for non-Thai population (Table 1). This difference in food insecurity between the two population groups was 35.6% for individual adult food insecurity, and 23% for child food insecurity.

### Knowledge of and access to food and health care buffering mechanisms

Both population groups in Nong Loo Sub-district had greater knowledge about the presence of the universal health care program (which is widely available in this

Table 3

Association between household food insecurity and Universal Healthcare, the number of children in the households and nationality, for Thai and non-Thai households, in Nong Loo Sub-district, Sangkhla Buri District, Kanchanaburi Province.

	OR	<i>p</i> -value	95% CI for OR
Lack of access to Universal Healthcare	0.499	0.077	0.231-1.079
Number of children			
<3	3.023	0.032	1.101-8.303
3-5	4.676	0.008	1.505-14.531
>5	1.806	0.999	0.000
Nationality	21.403	0.000	6.895-66.437

area) than of any of the food programs. However, non-Thai respondents had less knowledge about both the universal healthcare program (67.0%) and the food programs (22.0%) than the Thai population did (80.0% and 31.7%, respectively).

Table 2 shows that, within the study population, a strikingly low percentage of both Thais and non-Thais had access to any of the different buffering mechanisms available, with the exception of Universal Healthcare. There was no significant difference between population groups in access to the programs of the non-healthcare buffering mechanisms.

#### The correlates of food insecurity

Further disaggregation of household's food insecurity shows that the households with three to five children are more likely to have household food insecurity than households with less than three children, but the difference was not statistically significant. There was no significant difference in food insecurity between households with more than five children, and households with three to five children, and households with less than three children, possibly because of the low number of households (9 house-

holds) with more than five children.

Access to the different food-based buffering mechanisms and to the Universal Healthcare Program showed no significant association with food insecurity.

Table 3 shows the odds ratio for household food insecurity for factors found to be most highly associated with food insecurity in this study when compared with buffering mechanisms. It reflects results from Table 1 where it was found that the non-Thai population had a much higher risk of household food insecurity (OR = 21.4) than the Thai population did.

Table 3 reflects results from Table 1 showing that the non-Thai population had a much higher risk of household food insecurity (OR = 21.4) than the Thai population did.

Logistic regression using backward stepwise analysis to maintain significance of the variables, the non-significant variables were removed at each step of analysis and the only the most statistically significant variables were left in the final step. No individual buffering mechanism showed a significant association with household food insecurity.

Table 4  
Perception of key-informants about household food security.

Key-informant	Factors perceived to influence food security					
	Thai card <sup>a</sup>	Land ownership	Protection of the forest	Migration pattern and migration-related work choices	Lack locally sourced foods	Lack of food and agriculture policy for non-Thai
Health volunteer	Very important	Important	-	-	-	Important
American Refugee Committee representative	Very important	Important	-	Important	-	Important
Pattanakarn representative	Very important	Very important	Important	Important	Very important	Important

<sup>a</sup>Thai card (used as an identity card for migrated people from nearby countries)

### Results of key informant interviews

All three interviewees mentioned that they expected the survey to reveal a high rate of household food insecurity, because food security was not recognized or addressed as a priority by the local authorities.

Although none of the key informants could describe what defined eligibility for the Thai card, they all emphasized the importance of possessing this card to improve household food security.

Other factors perceived by the key informants as leading to high household food insecurity for the non-Thai population were: the lack of land ownership of and access to land, and protection of the forest area.

Migration pattern and dependence on foods from outside the immediate area are important factors, and the reasons why these factors were considered important are given in the discussion.

### DISCUSSION

This study has shown that household, individual, and child food insecurity are all very high in both Thai and non-Thai populations of Nong Loo Sub-district. Within this, food insecurity at all three levels was significantly higher among non-Thai households when compared with Thai households.

Surprisingly, access to different government or NGO-provided buffering mechanisms did not appear to protect households from food insecurity; however, this could be due to the fact that use of these programs among the study population was very low. The main factor determining likely food insecurity was nationality. When considering Thai and non-Thai populations together, the number of children in a household could be the potential factor associated with household food insecurity.

The "Thai card" is a local term used

in Sangkhla Buri for the registration of migrant workers from neighboring countries. With a Thai card, migrants can apply for menial and labor-intensive work as it represents a temporary work permit that can be extended depending upon the Thai economy and requirements for labor. Undocumented migrants can register if they have their national travel documents (Archavanitkul, 2010). The card allows migrants to travel within a district as well as to request travel document for other districts in Thailand. It also grants access to food and health care programs. Without this card, migrants avoid service-providing places because they are afraid of identification by the authorities as a non-documented migrant. Therefore, possession of the Thai card could be one of the major buffering mechanisms for food security, which was emphasized by all three key informants interviewed. Unfortunately, we did not include this in our study as we only learned about it during the course of the key-informant interviews. However, we recommend that any further research includes an assessment of whether the Thai card is potential buffering mechanism for food security as well as health care.

Another factor perceived by the key informants as leading to high household food insecurity for non-Thai population was the lack of land ownership of and access to land. Non-Thais cannot buy land in Nong Loo Sub-district. They are required to rent land from a landlord for cultivation as well as for housing. The protection of the forest area was another factor that affected the non-Thai population's household food insecurity. In the past, the Karen, the major migrant group from Myanmar, relied on the nearby forest for food. However, the forest area was declared to be protected by the Royal Thai

Forestry, and, as a result, access to forest food has become progressively more difficult over the last twenty years and is now no longer accessible.

The migration pattern in Sangkhla Buri was also mentioned as a major influence on household food insecurity. Non-Thais were compelled to take random jobs to earn money to pay for basic services. This took precedence over learning skills for agriculture, which would have been a long-term investment. Therefore, those programs that could help the non-Thai to be food secure were not accessed because of the need of the migrating population for short-term random jobs with fast financial return. Because members of non-Thai households cannot own land, they were not inclined to invest in agricultural skills.

Moreover, according to the Pattanak Foundation representative, about 70% of the food in this district is imported from nearby districts. Instead of focusing on local and self-subsistence food production, households in this area depend on imported food from other districts that requires cash to buy and is more vulnerable to fluctuations in food prices. In this way, dependence on imported food could be an important contributor to the high level of food insecurity. Further study and more data on these practices in the agricultural sector are needed to further explore these as causes of high food insecurity in this area.

Although there was no proven association between the lack of access to food, and healthcare buffering mechanisms and household food insecurity, the low access to buffering mechanisms by both Thai and non-Thai households within an environment of such high levels of food insecurity warrants further investigation

to find out what is inhibiting access and whether higher access would make a difference to food security.

Access to all buffering mechanisms was lower than knowledge about these systems; for example, 80% of the Thai population knew about the Universal Healthcare Program; however, only 54.2% reported having access. A possible explanation for this difference may be that a household would only apply for the Universal Healthcare Program card when they have a need to access the system.

Household food insecurity in this area is a complicated issue and collaboration between the Royal Thai Governmental and NGOs will be important to implement food and healthcare programs to alleviate it. At the time of this study, technical assistance for food and health related issues, especially for non-Thais, was provided almost exclusively by the NGO, Pattanarak Foundation. There was also another organization called Thai-Burma Border Consortium (TBBC) that provided food but only for people in the camps. Since the study population did not include people in the camps, Pattanarak Foundation was the only known organization in this area for providing food programs. The informants also described other occasional donors who provided food.

This survey has underlined clearly the size of the problem of food insecurity in this region for both Thai and non-Thai households and provides the key stakeholders with additional information needed to intensify their programs to address this problem. Whether other parts of these border areas with high migrant populations have the same problem is an additional important question that requires further study.

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