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Comprehensive Food Security: An Approach to Sustainably Address Food Insecurity

by Pau Khan Khup Hangzo



Food security has become one of this century's key global challenges. Given current population and consumption trends, as well as the factors of climate change and resource scarcity, the situation is set to worsen – unless drastic actions are taken. The multi-dimensional nature of the food problem requires a comprehensive approach, one that not only addresses food production and availability but also deals with access issues. Only then can sustainable food security be achieved.



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Executive Summary

Overview

The growing food problem has led to renewed interest in agriculture worldwide. In Southeast Asia, the focus is on increasing production through measures such as farmland expansion, stockpiling of essential food items and attracting foreign investment in agriculture through land lease. Although these measures are essential and timely, they are not enough to sustainably improve food security.

This paper argues that approaches to food security must be comprehensive because agricultural systems rely on interconnections and interactions among various elements – science and technology, social and environmental factors and environmental systems.

Comprehensive food security as discussed in this paper is concerned with the multiple dimensions of food security, only some of which are amenable to change through science, innovation, investments, etc. In other words, food security is not only about producing enough food. Questions of access need to run alongside those of availability in order to achieve sustainable food security. Comprehensive food security thus focuses on access as well as production.

Discussion

Food production has seen a remarkable increase over the past 50 years. Gross world food production (cereals, coarse grains, roots and tubers, pulses and oil crops) grew from 1.84 billion tonnes in 1961 to 4.38 billion tonnes in 2007, an increase of 138 per cent (The Royal Society, 2009:2). This was largely due to the Green Revolution which began in the 1950s and expanded through the 1960s. The Green Revolution encompassed change in crop varieties, agricultural practices and broader social, economic and political changes. However, despite the gains in food production, the world experienced a food crisis in 2007–08. Food prices worldwide have risen

since the beginning of this decade; by June 2008, it had increased 83 per cent. The price of maize had tripled and that of wheat and rice had increased by 127 and 170 per cent respectively (Mittal, 2009:1; see also Figure 1).

As a result of the food crisis, the number of people who suffer from chronic hunger reached a historic high of 1.02 billion in 2009 (FAO, 2009a). Chronic hunger or undernourishment occurs with persons whose food intake regularly provides less than their minimum energy requirements. The average minimum energy requirement per person is about 1,800 calories per day. The regional distribution of undernourishment is as follows (FAO, 2009a; Food: The Growing Problem, 2010; see also Figure 2):

- Far East and the Pacific – 642 million (63 per cent).
- Sub-Saharan Africa – 265 million (26 per cent).
- Latin America and the Caribbean – 53 million (5 per cent).
- Near East and North Africa – 42 million (4 per cent).
- Developed countries – 15 million (2 per cent).

Summary of Recommendations

The analysis in this paper of the ongoing efforts aimed at increasing food production as well as making food accessible to vulnerable groups in Southeast Asia yielded the following recommendations.

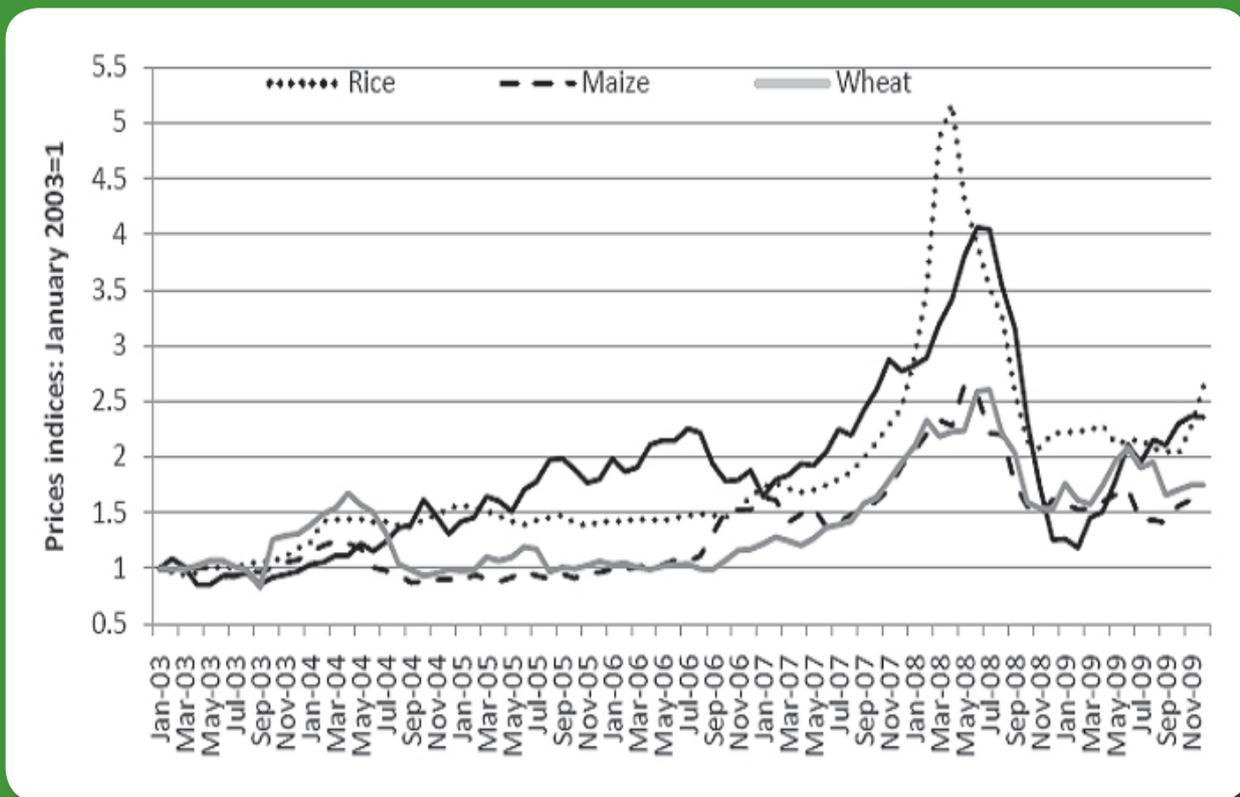
Short-term measures

- *Raise awareness on safety net programmes:* A significant number of beneficiaries lack awareness and understanding of the various food-based social safety net programmes which are in place in Southeast Asia. This affects their access to such resources. Improving awareness will thus lead to the increased effectiveness of the programmes.
- *Improve targeting mechanisms for social safety nets:* Targeting is one of the major concerns in most safety net programmes in the region. Targeting mechanisms will need to be improved, so that the relevant programmes are able to efficiently reach those most vulnerable to food insecurity.
- *Improve the public distribution system (PDS):* Reforming PDS will help reduce food wastage. It will also facilitate effective delivery of food to those who need it.
- *Establish a code of conduct for farmland acquisition:* Farmland acquisition is inevitable. The way forward then is to establish a code of conduct for foreign investors – to safeguard the interests of the local individuals and communities, and improve the terms of the agreements reached.

Long-term measures

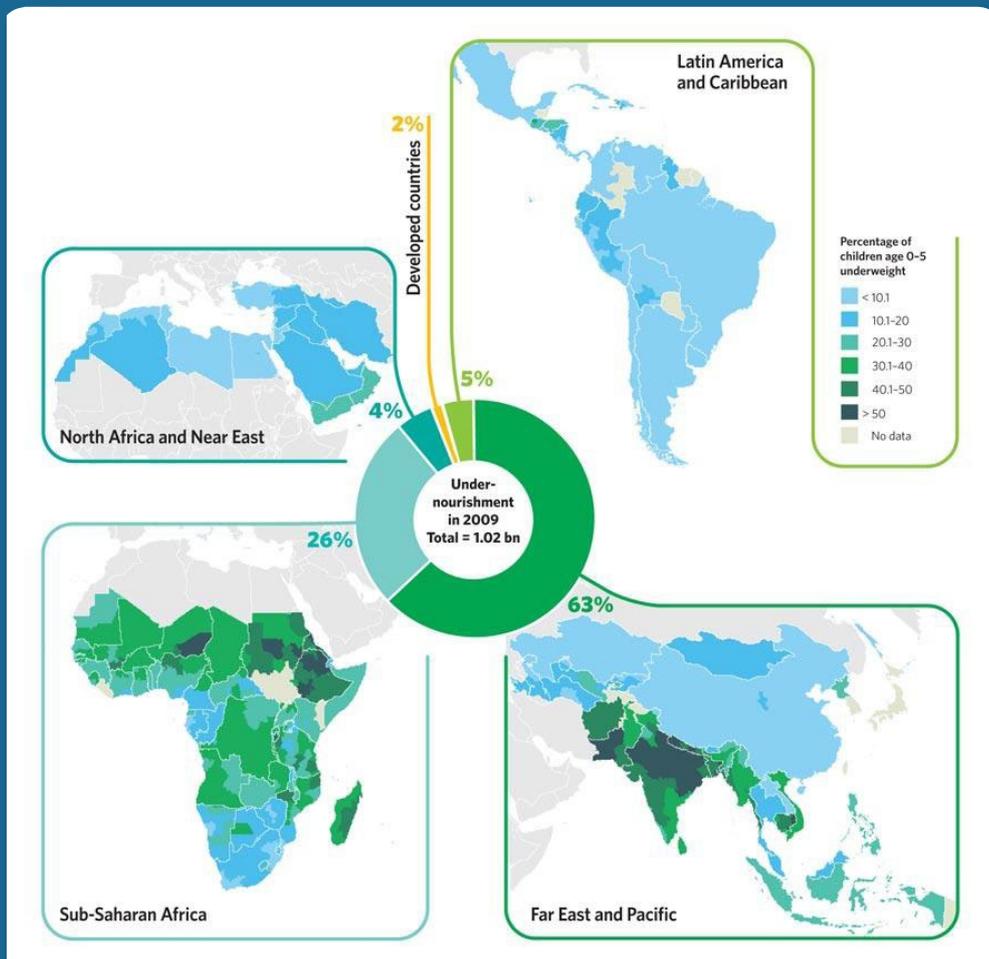
- *Implement sustainable agricultural practices:* Countries in Southeast Asia must approach agriculture with a clear sense of the long-term challenges and possibilities. Policymakers should take a sustainable development approach to crop production, intensification and water use.
- *Improve gender equality:* Empowering women is one of the most effective ways to improve nutrition, especially for children. Despite the increasing prominence of women in the agricultural sector, they do not have the same access to agricultural services and resources as men.
- *Develop early warning systems:* An effective early warning system for food prices as well as natural disasters will help detect potential disruptions to the food system, and thus enable governments and those likely to be affected by such disruptions to prepare for it.

Figure 1: Trends in the nominal prices of cereals and oil – January 2003 to May 2009



Source: Headey (2010).

Figure 2: Where are the world's hungry people?



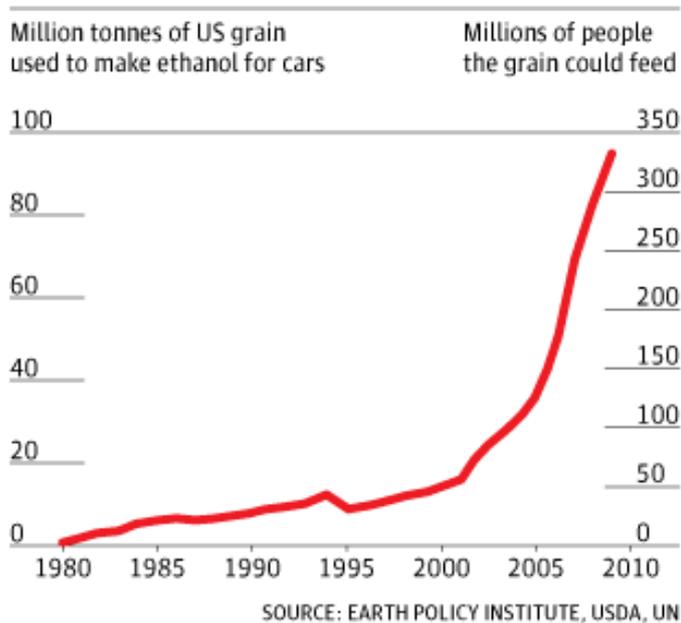
Source: Food: The Growing Problem (2010).

What causes the food crisis? The dramatic increase in the price of food in 2007–09 was the immediate cause of the crisis. The United States Department of Agriculture (USDA) in its analysis of food security in 70 developing countries between 2008 and 2009 observed that in most cases ‘the deterioration in food security reflected [the] limited purchasing power of the poor due to rising food inflation rather than a major food production shortfall’ (Shapouri, 2009:3). Underlying the food crisis however are systemic problems. Von Braun (2007), Conway (2009) and Headey (2010) highlight the following systemic causes: the growing demand for biofuels, changing consumption patterns, climate change, and declining agricultural investment and productivity.

Growing demand for biofuels: Topping the list is the emergence of biofuels as an ‘entirely new demand source’ (Headey, 2010:1). Demand for biofuel in the US and the European Union for example pushed food prices up by 75 per cent (Chakraborty, 2008). The grain grown to produce

Figure 3: Biofuel consumption in the US

US grain feeding cars



Source: Vidal (2010).

fuels in the US in 2009 is estimated to be enough to feed 330 million people for one year at average world consumption levels (Vidal, 2010).

The World Bank noted that ‘without the increase in biofuels, global wheat and maize stocks would not have declined appreciably and price increases due to other factors would have been moderate’ (Mitchell, 2008:12). Production of biofuels distorted food markets in three main ways: it diverted grain away from food; it encouraged farmers to set land aside for production of crops used for biofuels; and the demand for biofuel sparked financial speculation in grains, driving prices up higher.

Changing consumption patterns: Increasing urbanisation and income particularly in the emerging economies of Asia have a positive effect on the per capita consumption levels of animal products. With higher disposable incomes, people move away from diets based on indigenous staple grains or starchy roots, locally grown vegetables and fruits, and limited foods of animal origin towards more varied diets that include more pre-processed food and more foods of animal origin.

Livestock production also moved from extensive (pasture-based grazing) to intensive systems, placing even more demand on staple grains. The use of primary food crop products such as cereals and pulses for feed has increased rapidly over recent decades. In 2002, a total of 670 million tonnes of cereals were fed to livestock, representing roughly one-third of the global cereal harvest of that year. Another 350 million tonnes of protein-rich processing by-products (mainly brans, oilcakes and fishmeal) are used as feed (Steinfeld et al., 2006:12).

The increasing diversion of food grains for biofuel production as well as livestock feed resulted in a decline in per capita availability of cereals. From a peak of around 250 kilogrammes (kg) per person worldwide in 1995, per capita availability of cereal and roots available for direct food use has dropped back to the near 1960s levels of around 220 kg per person (The Royal Society, 2009:4).

Climate change: Agriculture is extremely vulnerable to climate change. It magnifies the effects on crops of stresses such as heat, drought, salinity and submergence in water. Existing weather patterns leading to river and coastal flooding have a dramatic effect on crop production. Particularly sensitive areas in this context are the deltas of Southeast Asia which provide much of the rice for local and regional consumption. Rising temperatures and changes in rainfall patterns have direct effects on crop yields, as well as indirect effects through changes in irrigation water availability.

Declining investment and productivity: The long period of low real food prices in the 1980s and 1990s led to under-investment in agricultural production (Headey, 2010). Globally, investment in agriculture makes up only 5 per cent of total research and development spending on science (Food: The Growing Problem, 2010). At the same time, the share of Official Development Assistance (ODA) allotted to agriculture has also fallen from a peak of 17 per cent in 1979 to a low of 3.5 per cent in 2004 (FAO, n.d.). The immediate consequence of declining investment

in agriculture is declining productivity. The annual rice yield growth rate, for example, has dropped to less than 1 per cent in recent years compared with 2–3 per cent during the Green Revolution period of 1967–90. Based on projected income and population growth, annual productivity growth of at least 1.5 per cent will be needed until 2020 (IRRI, 2008).

Increasing population: The United Nations (UN) projected that the world population will grow from 6.8 billion in 2009 to 9.1 billion in 2050 (World Population to Reach, 2005). Feeding this larger and more urban population requires agricultural production to grow by 70 per cent. Specifically, annual cereal production will need to rise to about 3 billion tonnes from 2.1 billion today and annual meat production will need to rise by over 200 million tonnes to reach 470 million tonnes (FAO, 2009b).

The global food situation improved in 2010 due to a more favourable economic environment and the fall in both international and domestic food prices. As a result, the number of undernourished people declined by 9.6 per



Rural farmers, such as these onion farmers in Yogyakarta, Indonesia, suffer from low farm holdings, low investments and low income.

cent in 2009 to 925 million people (FAO, 2010). Long-term food security however still remains uncertain. According to the annual joint report by the Organisation for Economic Co-operation and Development (OECD) and the Food and Agriculture Organization of the United Nations (FAO), agricultural commodity prices have fallen from their record peaks of 2007–08 but are unlikely to drop back to the average levels of the past decade (OECD/FAO, 2010). The report predicted that the average wheat and coarse grain prices over the next 10 years will increase 15–40 per cent in real terms compared to the average levels during 1997–2006. Real prices for vegetable oils are expected to be more than 40 per cent higher whereas dairy prices are projected to be on average 16–45 per cent higher.

Asia. In response, countries in the region have adopted policies aimed at increasing food production and availability. Specifically, there are ongoing efforts centred on the following: farmland expansion, increasing rice stockpiles and farmland acquisition.

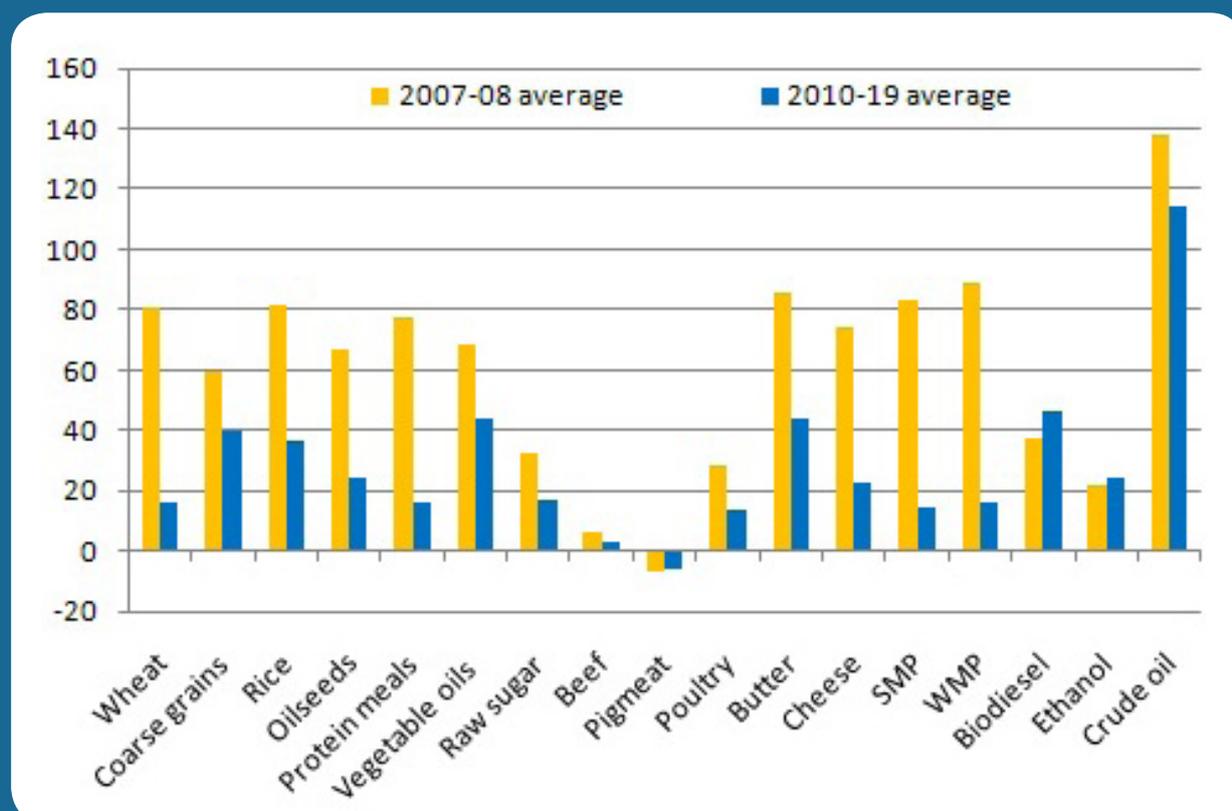
Farmland Expansion

Farmland expansion for the purpose of increasing food production both for local consumption as well as for exports has become one of the top priorities of most countries in Southeast Asia. Of the countries in Southeast Asia, Indonesia has the most ambitious plans – it aims to become one of the world’s net food producers (Maulia, 2010). The plan which was announced in early 2010 entails the fast-track development of vast agricultural estates in remote areas such as Papua and Kalimantan. The first such estate, the USD6 billion Merauke Integrated Food and Energy Estate (MIFEE), was launched in August 2010. The MIFEE will initially cover 1.6 million hectares (ha) but it will be expanded further to 2.5 million ha. Between now and 2030, Indonesia plans to become a major global food producer

Food Production and Availability in Southeast Asia

The dramatic increase in food prices and concerns about future food security have led to renewed interest in agriculture in Southeast

Figure 4: Average prices of food commodities



Source: OECD/FAO (2010).

in 15 key food commodities, namely, rice, corn, sugar, soybeans, palm oil, tea, coffee, cocoa, tuna, shrimp, beef, poultry, mangos, bananas and oranges.

Malaysia, which currently imports 30 per cent of its rice requirements annually, aims to become self-sufficient in rice production by 2015 through increased production in two major rice-growing areas – the Muda Agricultural Development Authority (Mada) and the Kemubu Agricultural Development Authority (Kada). It hopes to raise rice production by between 5 and 10 per cent. Plans are also underway to turn the state of Sarawak into a major rice producer through large-scale farming (Malaysia May Not, 2010).

The Philippines, which currently imports 7 per cent of its annual rice needs, aims to become self-sufficient by 2013. To do so, the country is eyeing about 1.9 million ha of unused land for agricultural development (Stephenson, 2009). Mindanao, considered the food basket of the Philippines, has more than 171,000 ha which can be prepared for agriculture.

Likewise, Cambodia has taken measures to expand the area planted with rice to 3.5 million ha from the current 2.6 million. It also plans to increase the average rice yield from the present 2.6 tonnes per ha to 3.5 tonnes by 2015 through increased investment in the country's irrigation systems. The kingdom plans to eventually produce up to 15 million tonnes of rice by 2015 compared to the current production levels of 7.3 million tonnes (Cambodia to Invest, 2010).

Increasing the Rice Stockpile

Maintaining a sufficient inventory of rice is important given the volatility of the global food market. Stocks act as a cushion against any increase in commercial rice prices and allow countries to respond to any increase in demand.

The Philippines revised its mandatory food security buffer stock requirements in 2009. As of 20 January 2010, the National Food Authority's (NFA) inventory of rice stands at about 20 million bags, sufficient for some 28 days of food requirements at a daily consumption rate

of 726,000 bags. This inventory level is almost double the mandatory 15 days of buffer stock (NFAB, 2010). Malaysia also announced, in June 2010, a plan to build up its rice stockpile by maintaining 45 days of consumption. This is equivalent to 292,000 metric tonnes of rice (Leow, 2010). The stockpile is aimed at buffering the effects of inflation and making rice accessible and affordable in times of emergencies such as natural disasters, displacements, etc.

Farmland Acquisition

Concerns over future food supply have led to the proliferation of large-scale farmland acquisition in developing countries. The International Food Policy Research Institute (IFPRI) estimated that between 15 million and 20 million ha of farmland in developing countries have been either identified or acquired by government-backed corporations since 2006 (Von Braun and Meinzen-Dick, 2009). Countries in Southeast Asia, notably, Cambodia, Lao PDR, the Philippines and Indonesia saw the phenomenon of farmland acquisition as an opportunity – the inflow of investments can help develop rural infrastructure, raise farm productivity and create a significant number of farm and off-farm jobs. Countries such as the United Arab Emirates (UAE), Qatar, Bahrain, Kuwait, Saudi Arabia, China and South Korea have acquired farmlands in the region to cultivate a wide range of crops including rice, bananas, pineapple, sugarcane, corn and palm oil.

As discussed, countries in Southeast Asia have renewed efforts to increase food production and availability through such initiatives as farmland expansion. This has however resulted in large-scale displacement of people. A 2009 report by the Cambodian League for the Promotion and Defense of Human Rights (LICADHO) provide a picture of the scale of this phenomenon. It is estimated that in the 13 provinces where LICADHO has a presence, more than a quarter of a million people have been affected by land acquisition and forced evictions since 2003. In 2008 alone, 150,000 Cambodians were at risk of forced relocation nationwide. Then there is the welfare of farmers whose lands have been appropriated. It is reported that Cambodian farmers are offered meager compensation of

Table 1: Overview of foreign land investments in Southeast Asia from 2006–09

Target Country	Country of Origin of Investors	Nature of Deal	Status of Deal
Cambodia	Kuwait	Land leased for rice	Signed
Cambodia	Vietnam	100,000 ha secured for rubber	Unknown
Indonesia	Saudi Arabia	500,000 ha secured for rice (USD4.3 billion investment)	On hold
Lao PDR	Vietnam	100,000 ha secured for rubber	Unknown
Philippines	Bahrain	10,000 ha secured for agro-fishery	Signed
Philippines	China	1.24 million ha leased; deal put on hold	Discontinued
Vietnam	Qatar	USD1 billion joint fund for agriculture	Unknown

Source: Von Braun and Meinzen-Dick (2009).

between USD100 and USD200 for each hectare of land appropriated (Thul, 2010). In Indonesia, farmland expansion has caused concerns among small farmers and indigenous communities in Papua over the loss of customary lands, which leads to marginalisation and relocation.

Comprehensive Food Security

The term comprehensive food security, as used in this paper, refers to the concern with the multiple dimensions of food security. A comprehensive approach to food security takes into account the interconnectedness between and interactions among various elements of agricultural systems. These elements include scientific and technological improvements, and social, economic and the environmental systems. Most importantly, within a comprehensive food security framework, the question of access is given as much weight as production and availability.

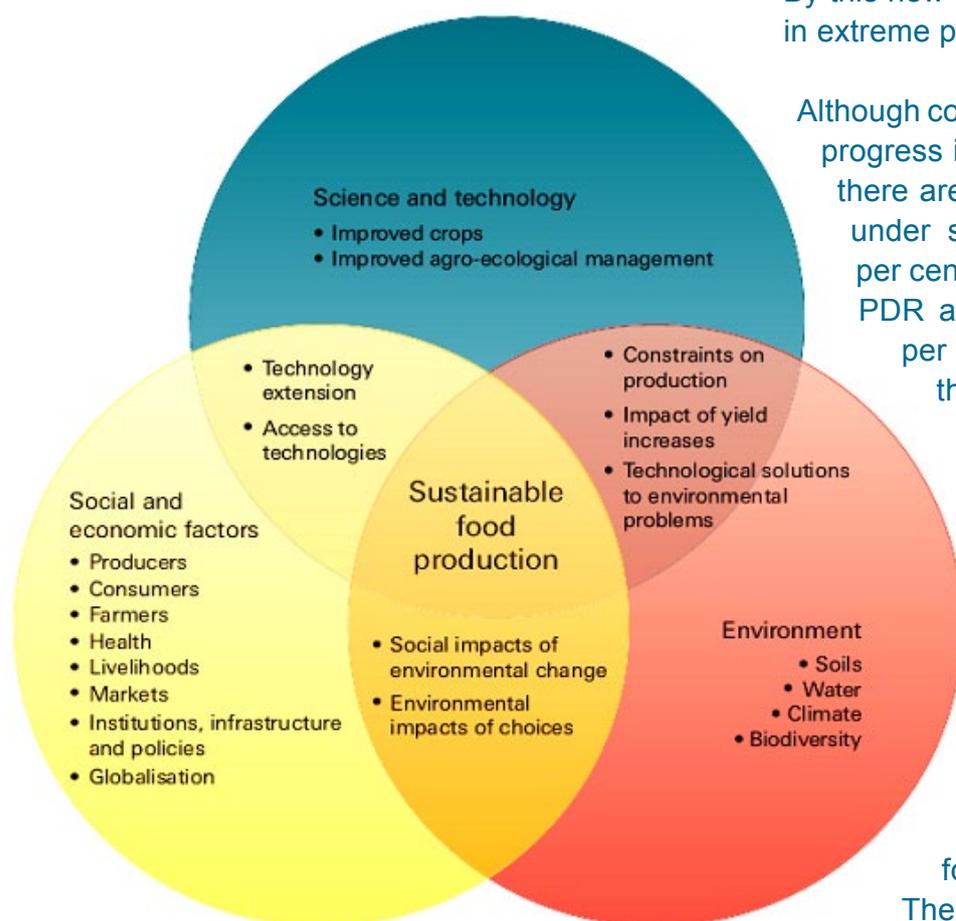
Improving Access to Food through Entitlements

According to Amartya Sen (1982:448), food is a social problem and not just a question of raising production. Using the ‘entitlement approach’ as a general framework for analysing famine (and food

insecurity), he argues that the food problem is due to entitlement failure. A person starves when he/she cannot establish entitlement to the food that he/she needs. Entitlement failure in turn is caused by a fall in ‘ownership bundles’ (e.g., through the alienation of land or the loss of grazing grounds for animals), or in the fall of ‘exchange entitlement’ (e.g., through unemployment or worsening of terms of trade). Sen suggests ‘social security’ as a way to generate entitlements. Social security in its present form is carried out through various types of safety net programmes.

Safety net programmes are ‘non-contributory transfer programs targeted in some manner to the poor or vulnerable’ (Grosh et al., 2008). They are meant as a substitute for income and to protect people against the adverse outcomes of poverty (Rogers and Coates, 2002). They involve policies and programmes that protect people against risk and vulnerability, mitigate the impacts of shocks and assist people who suffer from chronic incapacities to secure basic livelihoods, and are part of the broader social protection policy. This paper is concerned with food-based safety nets. Food-based safety nets differ from other safety net programmes in that they are tied to the provision of food. They provide food, either directly or through instruments (such as food stamps or coupons that may be used to purchase food).

Figure 5: The complexity of agricultural systems



Source: The Royal Society (2009).

Entitlements for Whom?

While everyone is vulnerable to economic and food insecurities, the poor are a great deal more vulnerable than others. As a result, the highest priority for food-based safety net programmes is to protect the food consumption levels of poor people through the expansion of food and cash transfers targeted at the poorest and most vulnerable segments of the population. Poverty, which is defined as ‘pronounced deprivation in wellbeing’ (The World Bank, 2000), encompasses not just low income and consumption (material deprivation) but also low achievement in other areas of human development such as education, health, nutrition, etc.

In 2008, the World Bank revised the estimates of global poverty. Using new data on purchasing power parities (PPPs), the international poverty line was recalibrated to USD1.25 a day measured in 2005 prices. This new measurement replaces the USD1.08 a day (or USD1 a day) poverty line

measured in 1993 prices (The World Bank, 2008). By this new measurement, 1.4 billion people live in extreme poverty.

Although countries in Southeast Asia have made progress in reducing the incidence of poverty, there are still large numbers of people living under such circumstances. More than 40 per cent of the population in Cambodia, Lao PDR and Timor-Leste, and more than 20 per cent of the population of Indonesia, the Philippines and Vietnam, live below the international poverty line (Table 2).

Over 70 per cent of the poor in Southeast Asia live in rural areas (Balisacan et al., 2005) and food accounts for about 60 per cent of their total expenditure (ADB, 2008:1). Food price inflation thus seriously erodes their purchasing power, increasing the severity of food deprivation and malnutrition.

The main objective of food-based programmes is therefore to provide adequate food consumption and help poor consumers achieve and maintain better nutritional status. In the absence of such intervention they would be likely to curtail their food consumption, resulting in malnutrition, disease, and possibly death. Specifically, safety nets may serve one or a combination of the following groups: the chronic poor, the transitory poor, vulnerable groups (people with disabilities, the elderly, orphans and refugees) and those disadvantaged by reforms (Grosh et al., 2008).

Safety Net Programmes in Southeast Asia

Most of the food-based safety net programmes in Southeast Asia came into being as a temporary response to a short-term crisis. Ideally, safety net programmes must be designed to include mechanisms for determining when the need no longer exists, whether at the national level or at the level of the beneficiary household, when food availability returns to normal after a price crisis,

Table 2: Poverty rates at international poverty lines

Country	Survey year	Population below USD1.25 a day	Population below USD2 a day
		%	%
Brunei
Cambodia	2004	40.2	68.2
Indonesia	2005	21.4	53.8
Lao PDR	2002–03	44.0	76.8
Malaysia	2004	<2	7.8
Philippines	2006	22.6	45.0
Singapore
Thailand	2004	<2	11.5
Timor-Leste	2001	52.9	77.5
Vietnam	2006	21.5	48.4

Key: .. No data

Source: The World Bank (2008).

or when a household becomes economically secure. However, determining the exit strategy for programmes depends on the nature of the beneficiaries. The chronically poor, for example, might require extended intervention as their situation takes a longer time to improve.

The safety net programmes reviewed in this paper include programmes that are expanded from existing ones as well as those created solely in response to the 1997 food crisis. Specifically, it examines the following: supplementary feeding programmes; food-for-work programmes; food stamps, vouchers, and coupons; and food price subsidies.

Supplementary Feeding Programmes

Supplementary feeding programmes distribute food for the purpose of supplementing energy and other nutrients missing from the diets of those who have special nutritional requirements (Rogers and Coates, 2002). School feeding, the provision of food to schoolchildren, is one of the most common types of supplementary feeding

programmes. School feeding programmes represent an important opportunity to assist poor families and feed hungry children. They can also be an incentive for poor families to send their children to school. Supplementary feeding programmes typically provide a benefit per household of more than 10 per cent of household expenditure (Bundy et al., 2009).

Healthy Start Feeding Program (HSFP), Philippines: The HSFP, launched by the Department of Social Welfare and Development (DSWD) in 2008, provided supplementary food to children aged 3 to 5 in day care centres. Food was distributed in the form of hot meals either as breakfast or as an afternoon snack five days a week. Covering 240 municipalities from the 10 poorest provinces, the programme served more than 156,846 children from 5,331 day care centres in 2009 (DSWD, 2010).

Food-for-School Program (FSP), Philippines: The Department of Education (DepEd) of the Philippines launched the FSP in early November 2004 to arrest the incidence of hunger and

malnutrition among schoolchildren in poor areas of the country. Under the programme, Grade 1 pupils received a daily ration of 1 kg of fortified rice every day for 95 school days from the National Food Authority (NFA). According to DepEd, FSP resulted in a significant drop in the incidence of malnutrition among public elementary schoolchildren – from 21 per cent to 17 per cent. School attendance also improved from 90 per cent in 2006 to 95 per cent in 2007 (Department of Education, 2008). From 2005 to early 2008, a total of over 268 million kg of rice have been distributed, with over 6.7 million schoolchildren as beneficiaries. The number of beneficiaries has further increased to 11.5 million as of January 2010 (Food For School, 2010). The programme was however criticised for poor targeting which resulted in high rates of leakages (Esguerra, 2010).

School Lunch Programme (SLP), Thailand:

The SLP aims to alleviate nutritional problems among schoolchildren. It targets children suffering from malnutrition and, to a lesser extent, children living in poverty in remote rural areas. The programme has been implemented in all public primary schools (approximately 30,000 schools), and serves an estimated 1.8 million primary schoolchildren and nearly 700,000 kindergarten children annually.

Food-for-Work Programmes

These are employment-generating programmes in which food is provided as a wage or a work incentive instead of cash. Food has also been used in programmes that compensate participants for their time while learning job-related technical skills or as group remuneration (to a community as a whole) for such tasks as digging a community pond, constructing schoolrooms or maintaining sections of public roads. Effective food-for-work programmes include the building of infrastructure that contributes to long-term food security.

In Southeast Asia, food-for-work programmes are used widely in a number of contexts. In the Philippines, one such programme helped residents make ends meet and also helped restore infrastructure in towns destroyed by a string of storms in 2009. Workers were typically

offered about 10 kg of rice per person (Food-for-Work Program Helps, 2010). In Lao PDR, World Vision's 40 Hour Famine gave rural households the opportunity to work on community development projects in return for 6.5 kg of sticky rice per person per day (Food-for-Work Programs Unite, 2009). The projects involved the construction of roads and bridges and the expansion of rice fields.



Children with sacks of rice earned by their parents through a World Vision food-for-work programme in rural Lao PDR.

Food Stamps, Vouchers and Coupons

Food stamp programmes provide cash-like transfer of purchasing power to households, given in the form of a coupon or voucher that may be used for the purchase of food or, occasionally, to receive a discounted price. The retailer who accepts the stamp can redeem it for cash through the banking system, with the value of the stamp backed by the government's commitment to pay. Food stamps may be restricted to the purchase of specific foods or they may permit the purchase

of any food. Countries in Southeast Asia have implemented the programme to enable the poor to access food items.

Rice pass, Philippines: The Philippines introduced an unprecedented relief programme, known as the 'rice pass' or 'family access card', in 2008 to mitigate the effects of the global food crunch. Families with a monthly income of less than 5,000 pesos (about USD115) were entitled to buy government-subsidised rice (Conde, 2008). The card which holds a value of 1,400 pesos (about USD32) was expected to benefit about 300,000 families in the poorest provinces of the country. The cash subsidy was distributed by the government-owned Land Bank of the Philippines through automated teller machine (ATM)-like cards.

Subur, Malaysia: Malaysia launched Subur (*Subsidi Beras Untuk Rakyat* or Rice Subsidy Programme for the People) in December 2009. Under this programme, households with a monthly income of RM1,500 (about USD481) in urban areas and RM1,000 (about USD321) in rural areas were given cash vouchers which they could exchange for 30 kg of discounted rice each month (Najib: 200,000 Families, 2009). In December 2009, the government identified more than 200,000 people who were eligible for the programme.

Price Subsidies

Two types of price subsidies can be observed in Southeast Asia. They are general/universal subsidies and targeted subsidies.

Universal price subsidies and untargeted sales of subsidised commodities are general measures aimed at controlling the prices of food and other essential commodities. In Malaysia, subsidies account for 15.3 per cent of the federal government's spending in 2009 (Chance, 2010). Some 97 per cent of the subsidies were dispensed on a blanket basis without taking into account income levels. As a result, Malaysia has one of the lowest food and fuel prices in the world. However, subsidies contributed to an increasing budget deficit which hit a 20-year high of 7 per cent of gross domestic product

(GDP) in 2009. In an effort to cut government expenditure, widen the tax base and halve the budget deficit, Malaysia raised the prices of essential commodities on 15 July 2010. Through this measure, the government hoped to cut the budget deficit to 2.8 per cent of GDP by 2015.

Universal subsidies reduce the likelihood of excluding those who need them. But they are expensive and a considerable share of their benefits flow to people who do not need them. In terms of reaching the poor, targeted cash transfer programmes tend to perform better than untargeted subsidies.

Targeted subsidy programmes operate by lowering the price of certain food items. The lower food price effectively results in increased purchasing power that translates into an increase in the real income of beneficiaries. Most countries in Southeast Asia have implemented targeted subsidies in varying degrees.

Tindakan Natin Project (TNP), Philippines: The TNP is a national government initiative for job generation, and livelihood and food security, launched by the Philippine government in 2006. The project provides low-priced but good quality rice and noodles to low income families. The objectives of the TNP are: to ensure that families below a specified income threshold have access to low-priced basic food items, specifically rice and noodles; to create livelihood and job opportunities for the community; and to ensure availability/supply of rice in the community at any given time. Under the programme, each family is allocated 14 kg of rice each week. This allocation is based on an estimated consumption of 0.32 kg per day for each family member.

Raskin, Indonesia: Raskin (*Beras untuk Rumah Tangga Miskin*, or Rice for the Poor) was a national programme launched by Indonesia to help poor households fulfil their food needs and reduce their financial burden by providing subsidised rice. The programme was a continuation of the Special Market Operation (OPK) programme launched in July 1998. Under the programme, each targeted household received 10 kg of rice each month at the rate of Rp1,000 per kg. The State Logistics Agency (Bulog) is responsible

for disseminating rice to the distribution points, while local governments were responsible for eventually getting the rice to poor households (Weatherley, 2008).

The Raskin programme was however faced with targeting issues – some poor households were not listed as beneficiaries while a number of non-poor households were listed. The least prosperous, for example, accounted for only 53 per cent of all beneficiaries. In other words, there was 47 per cent leakage (Weatherley, 2008). On average, households received between 6 and 10 kg of rice rather than 20 kg in part because it was distributed to many non-poor households as well as to the poor. Moreover, beneficiaries did not receive the Raskin rice every month and some received it only once a year. Also, beneficiaries lacked an understanding of the programme and its mechanics. They were not aware of information such as what the programme was about, what the government-stipulated price of the rice was, how often or how many times a year they should receive the rice, etc.

Emergency Food Distribution

Emergency distribution of food includes direct provision of food, supplementary feeding for vulnerable groups as well as therapeutic feeding during crises, emergencies and situations in which people are displaced. Emergency food distribution is particularly important in Southeast Asia given the region's vulnerability to natural disasters and the continuing displacement of people due to internal conflicts. Efforts are underway to create an East Asia Emergency Rice Reserve (EAERR) to enable emergency food aid delivery among ASEAN countries, China, Japan and South Korea. The region's major producers such as Thailand and Vietnam will donate about 90,000 tonnes, while Japan, China and South Korea will contribute a combined 700,000 tonnes. The emergency reserve scheme, if approved, will create an 800,000-tonne strategic store by 2012, to be administered from Bangkok (Lewis, 2010).

In a move that could further enhance the delivery of food in emergency situations in Southeast Asia, the World Food Programme (WFP) and the government of Malaysia signed a landmark



These farmers in Central Java, Indonesia were using animal manure to fertilise their fields. The Indonesian government has decreased its subsidies. It now subsidises only 20 per cent of the market cost of fertilisers (compared with 60 per cent in 2009). This reduction affects small farmers who find the cost of fertilisers increasingly prohibitive.

agreement on 25 February 2010 to establish the first United Nations Humanitarian Response Depot (UNHRD) in Asia to be based in Subang, Malaysia (WFP, 2010a). The UNHRD is designed to deliver humanitarian relief items within 48 hours of a crisis occurring and will provide storage, logistics support and services to the UN and other humanitarian agencies within the Asian region.

Conclusion and Recommendations

Measures to improve food security and discussions on rising food insecurity in various countries have most often focused on food production and availability. This focus has resulted in increasing farmland expansion and acquisition, and also efforts to increase stockpiles of staples in recent years.

In this paper, it is argued that policies have to be designed within a comprehensive food security frame. To effectively address food and agricultural concerns, it is necessary to appreciate the systemic nature of food production and availability issues. The linkages among the various elements of agricultural systems are various and complex. Thus, it would be necessary to understand not just the discrete elements of the system but also the interactions among the various parts in order to design effective policies aimed at mitigating food insecurity.

Beyond issues of production and availability, a comprehensive food security approach would also mean looking at the issues of access – the degree to which the poor and the vulnerable are able to access available food – either through the food supply chain or through government programmes. Countries in Southeast Asia have established a number of safety net programmes to help poor and vulnerable communities access food in times of emergencies. However, more needs to be done to improve the effectiveness of the existing safety net programmes. The following recommendations are aimed at improving food security in ways that are sustainable by addressing issues related to both production and access.

Short-term Measures

One of the areas which should be improved is the dissemination of information to beneficiaries. As shown by the experience of the Raskin programme discussed earlier, there is a decided knowledge gap among beneficiaries, thus limiting their ability to access those programmes. Beneficiaries need to be made aware of the safety net programmes available. They also need to understand what the programmes do, how to apply for the programmes and how they can benefit from such programmes.

Targeting is the process of identifying who is eligible to receive programme benefits based on a programme's specific objectives. Although targeting is only one aspect of programme design, better targeting is often promoted as the key means by which to increase a programme's cost-effectiveness. A poorly targeted programme results in leakage of food transfers and does not benefit the most vulnerable. Indonesia's rice subsidy programme, Raskin, which was discussed earlier, is a case in point. As a result of poor targeting, beneficiaries receive less rice because of the high rate of leakage to non-poor households (Weatherley, 2008).

Most of the interventions discussed in this paper require adequate stocks of food in the public distribution system (PDS). In most countries, PDS is the means through which essential commodities are distributed to a large number of people and is a major instrument of a government's economic policy aimed at ensuring availability of essential food items to the public at affordable prices. However, countries often have inadequate storage facilities, resulting in large quantities of foods rotting every year. This problem has affected countries such as the Philippines. It was reported in July 2010 that tonnes of imported rice stored in government warehouses across the country rotted due to poor storage capacity, forcing the government to reduce imports (Porcalla, 2010). Reforming PDS will help reduce food wastage and will facilitate effective delivery of food to those who need it.

The current practice of land acquisition in Southeast Asia by foreign investors has marginalised small farmers and rural communities. While land under foreign control usually remains a relatively limited proportion of the total farmland area in host countries, such foreign acquisitions are more likely to target good land and water resources and their local impacts can be significant. Von Braun and Meinzen-Dick (2009) argue that the best way to create a win-win situation is for foreign investors to sign a code of conduct to improve the terms of deals for locals. Key elements of a code of conduct for foreign land acquisition include: transparency in negotiations; respect for existing land rights, including customary and common property rights; sharing of benefits; environmental sustainability; and adherence to national trade policies. A national and regional code of conduct on farmland acquisition is long overdue.

Long-term Measures

Producing enough food for a growing population must be done in the face of changing consumption patterns, the impacts of climate change and the growing scarcity of water and land. Southeast Asia must approach agriculture with a clear sense of the long-term challenges and possibilities. There is a need to pay attention to sustainable crop production and intensification, and more efficient use of water. There is also a need for greater investment in agriculture.

- *Sustainable crop production:* Crop production methods must sustain the environment and preserve natural resources because many poor communities in the region rely on fisheries, wetlands and forests for a significant proportion of their food and livelihoods. This requires innovative farming methods and technology.
- *Sustainable intensification:* Even as countries in the region turn to farmland expansion, there is a need for sustainable intensification of existing farmlands in which yields are increased without adverse environmental impact. The Royal Society (2010) argues for a 'revolution in crop science' and calls for the wider application of biological sciences.
- *Efficient use of water:* Johnston et al. (2010)

argue that efficient use of water is the key to future food security in Southeast Asia. Around 75 per cent of crops in the region are rain-fed, and irrigation is not technically or economically feasible in many areas. Improving water management is thus essential. The use of conservation farming techniques and the harvesting and storing of run-off water on farms are methods which should be explored. Improving the performance of public irrigation schemes and undertaking a comprehensive assessment of groundwater potential and use must be a priority.

- *Increasing investment in agriculture:* The FAO (2009c) calculates that the investment required to support the expansion of agricultural output in developing countries amount to an average annual net investment of USD83 billion. The requirement for East and Southeast Asia (excluding China) is USD24 billion.

There is also a need to pay more attention to the role of women. It has been observed that empowering women is one of the most effective ways to improve nutrition, especially for children; the IFPRI argues that 'reducing gender inequality is an important part of the solution to global hunger' (Von Grebmer et al., 2009) while the WFP (2010b) states that women are 'the most effective solution to combating and preventing hunger'. In many countries worldwide, women are the foundation of the agricultural sectors, making up the bulk of agricultural labourers whether as independent producers, as unremunerated family workers or as agricultural wage workers. Out of the total number of employed women in 2008, 37.1 per cent worked in the agricultural sector, compared to a figure of 33.1 per cent for men (International Labour Office, 2010). Despite their prominence in the agricultural sector, women do not have the same access to agricultural services and resources as men. Improving women's access to key resources and enhancing their participation in decision-making are important in addressing food insecurity.

An effective early warning system which is able to detect potential disruptions to the food system is also important. Timely information on fluctuating prices of essential food items will

enable governments to design appropriate social safety net programmes. Existing database and early warning systems, such as the ASEAN Food Security Information System (AFSIS), contribute immensely to strengthening food security in the Southeast Asia through the systematic collection, analysis and dissemination of food security related information. The effectiveness of AFSIS can be further increased through the collective efforts of ASEAN member states. Also, given that Southeast Asia is highly vulnerable to natural disasters, an effective early warning system for natural disasters is essential. Natural disasters such as floods, drought, typhoons, etc., exacerbate food insecurities. Timely warning to coastal fishers, rural farmers, the urban poor, etc., will enable them to better prepare themselves to cope with such events.

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About the Author

Pau Khan Khup Hangzo is Associate Research Fellow at the Centre for Non-Traditional Security (NTS) Studies of the S. Rajaratnam School of International Studies (RSIS), Nanyang Technological University. He holds a Master of Science in Strategic Studies from RSIS. He has been involved in research for the Centre's Food Security Programme and currently leads the NTS-Plus research theme which encompasses issues such as transnational crime, human trafficking and migration.

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