Food Security and Nutrition in Cambodia: Patterns and Pathways
A Policy Discussion Paper[1]

Introduction

South and Southeast Asia have undergone rapid economic growth in recent years, fuelled by the miraculous rise of China and India. Thanks to this regional transformation, Cambodia's economic development has benefited from close links with its direct neighbours, Vietnam and Thailand, and other countries in the region such as China. Vietnam, Thailand and China are important trade partners for Cambodia, and Vietnam and Thailand have also provided employment opportunities for Cambodians through cross-border migration. Moreover, Cambodia has kept a close eye on the progress and development setbacks in both Vietnam – a rapidly emerging economy, and Thailand – a middle income country that experienced sustainable rapid growth over the four decades before the Asian crisis.

Against the background of regional economic integration and interaction, Cambodia's development and its associated effects on food security and nutrition improvement are better understood in comparison with those of other South and Southeast Asian countries. In addition, the experiences of other Asian countries in their earlier stages of development and the pathways they took to achieve contemporary success can provide relevant information to assess Cambodia's current stage of development and predict the opportunities and challenges the country may face in the future.

This paper provides an overview of Cambodia's food security and nutrition situation from a regional development perspective. It attempts to understand the current situation within the context of economic transformation and to identify common and different patterns between Cambodia and other countries in the region. Lessons learned from these countries might help to design effective development strategies and practical food security and nutrition interventions in Cambodia.

1 This paper is prepared by Olivier Ecker and Xinshen Diao, of the International Food Policy Research Institute. It is based on a policy discussion paper prepared for the Cambodia Food Security Roundtable Stocktaking on 4 November 2010.

The rest of the paper is organised into three parts. The next section presents a conceptual framework, which emphasises interactions and linkages of factors that affect food security and nutritional status at both macro and micro levels, for food and nutrition security analysis from a development strategy perspective. The second section analyses the current situation of Cambodia's food security and nutritional status relative to other South and Southeast Asian countries and development trends. Available data and various key development and nutrition indicators are used to highlight the role of economic growth as a driver of food security and better nutrition. The last section concludes.

Conceptual Framework and Drivers of Food Security

The contemporary concept of food security offers a useful and comprehensive framework for analysing people's food and nutritional status and understanding the key drivers. The present day common definition of food security was adopted at the World Food Summit of 1996: food security is achieved "when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (FAO 1996). To achieve such a situation requires concerted action at individual, household, national, regional, and global levels (FAO 1996). At the World Food Security Summit in 2009, the international community reaffirmed this concept and emphasised that "the nutritional dimension is integral to the concept" (FAO 2009). This multi-dimensional and integrated definition of food security underlines this paper.

Figure 1 presents a conceptual framework for analysing food security as a priority of a country's development strategy. Exploring effective strategies and policy instruments to achieve food security as defined by the World Food Summit requires a comprehensive and integrated approach that considers the cross-sector and multi-level nature of the food insecurity problem. Resultant from the

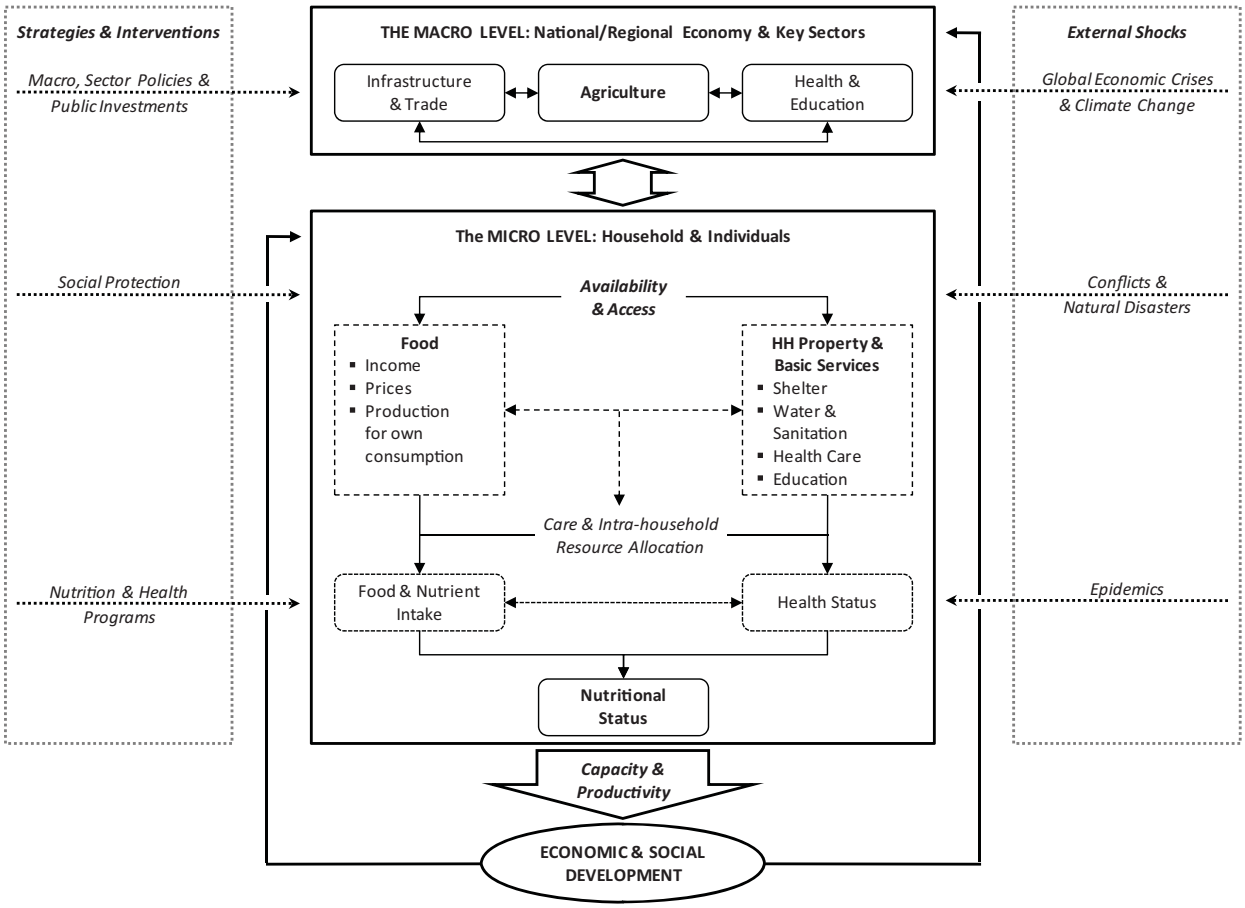
serious impacts of the recent global economic crises, we extend the existing frameworks – focused on the household and individual issues of food access and nutrition – by incorporating the macroeconomic dimension. The framework outlines pathways in the food security system through which policies and other interventions on the one hand and external shocks such as economic crises and climate-related disasters on the other are channelled to impact on people's nutritional status as well as the key factors determining nutrition outcomes. It also shows that changes in people's nutritional status affect not only individual and household well-being, but also economic development and the formation of societies at community and national levels.

The framework differentiates food security at the national and subnational levels – the macro level, and at the household and individual levels – the micro level. Macro-level food security should not be misunderstood as food self-sufficiency; rather, it refers to the balance of food supply and demand for a particular country or region where food needs in terms of both quantity and quality can be met through domestic production or available and affordable imports or both (as is usually the case).Thus, macro-level food security is determined by the structure and performance of the domestic economy and certain key sectors in particular. Micro-level food security is determined by household and all individual members of the household access to sufficient and nutritious food as well as the availability of household properties and access to basic (public) services affecting individual nutrition and health. Access is mostly constrained by economic means, i.e. (absolute) poverty.

Food Security and Nutrition in Development

Historical evidence shows that economic growth generally leads to improvement in human nutrition, while the most obvious and direct pathway from economic growth to improved nutrition is via household income. If growth leads to higher income at household level, people should (other things being equal that is) be able to consume more food

Figure 1: Conceptual Framework of Food Security for Country Development Strategy Analysis



Source: compiled by the authors

with higher nutritional value. This results in the improvement of nutritional status for a majority of the population. However, this trickle-down effect can be interrupted at different levels and at different points. Another possibility by which growth can result in better nutrition outcomes is public policy interventions. Economic growth generates more government revenue and enables the government to design food and nutrition programmes or to expand public health and education services.

The vast differences in nutrition status and nutrition improvement over time among developing countries show that some countries' growth trickles down more than others', and that some governments have been more successful in leveraging economic growth for better nutrition outcomes, while others were less successful and a few even failed. Successful countries are those that have developed an effective policy package fostering high and stable income growth benefiting the poor, combined with interventions targeting the most vulnerable population groups. Although such a mix of policy options must be designed to fit country-specific conditions, successful countries that share similar initial conditions tend to have common patterns and follow similar pathways.

Cambodia's state of development and food security in the regional context

We first look at the current situation of development and food security in Cambodia and identify which years other South and Southeast Asian countries had achieved similar states. China, Lao People's Democratic Republic (PDR), Thailand, Vietnam, India, and Bangladesh are chosen for the comparison. The development indicator at macro level is gross domestic product (GDP) per capita, and micro-level indicators are those that are commonly used to identify poverty, hunger, child malnutrition, and child mortality. The data are compiled from various public sources, including the World Development Indicators (WDI 2010), the Food Security Statistics database of the Food and Agriculture Organisation (FSS 2010), and the Global Database of Child Growth and Malnutrition of the World Health Organisation (GDCGM 2010).

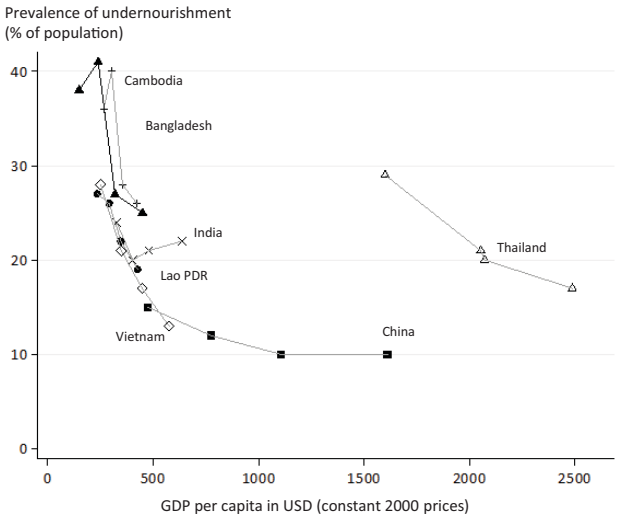
Cambodia has experienced rapid economic growth since 1993, especially since the turn of the millennium (Naron 2009). Between 1993 and 1998, GDP grew by 6.3 percent annually and by an average of 9.5 percent per year between 1999 and 2008. Nonetheless, Cambodia remains a low-income country with an average per capita income of USD500 in 2008 (Table 1, first panel). Among the countries compared in this study, only Lao PDR and Bangladesh have lower per capita income levels. While 2008 per capita income in Vietnam and India is modestly higher, per capita income in China is four times and that in Thailand five times higher than in Cambodia. India reached Cambodia's current income level just a few years earlier in 2003 with Vietnam close behind in 2004; China reached per capita income level of USD500 in 1993 and Thailand reached the same in 1970.

Table 1: Comparison of Cambodia's Development and Food Security Status

	GDP per capita (constant 2000 USD)		**Poverty headcount ratio at USD1.25 a day (% of population)**		**Prevalence of undernourishment (% of population)**		**Prevalence of child stunting (% of children under 5)**		**Under-5 mortality rate (per 1,000)**	
	2008	*Comparable state in*	2005-07	*Comparable state in*	2005-07	*Comparable state in*	2006-08	*Comparable state in*	2008	*Comparable state in*
Cambodia	511		26		25		40		90	
Bangladesh	462	-	50	-	26	-	43	-	54	*2000*
Lao PDR	475	-	44*	-	19	*1997*	48	-	61	*1999*
Vietnam	647	*2004*	21	*2004*	13	*1994*	36	*2002*	14	*<1975*
India	718	*2003*	42	-	22	*1992*	48	-	69	*2001*
China	1,965	*1993*	16	*2002*	10	*<1992*	22*	*n.a.*	21	*1974*
Thailand	2,640	*1970*	2	*<1981*	17	*1994*	16	*<1987*	14	*1973*
East Asia & Pacific	1,760	*1991*	17	*2002*	12	*<1992*	27	*const.*	29	*1976*
World	6,007	*n.a.*	n.a.	*n.a.*	14	*n.a.*	35	*n.a.*	67	*1992*

*Note: * Estimates are from 2002; n.a. means not available*
Sources: WDI 2010, FSS 2010, GDCGM 2010.

Figure 2: Relationship between Prevalence of Undernourishment and per capita GDP



Note: The data are from 1992, 1997, 2002, and 2007.
Sources: WDI 2010, FSS 2010.

Income inequality in Cambodia, measured by the GINI coefficient, has been worsening during the country's period of rapid growth. In 1994, the GINI coefficient was 0.38, and in 2007, it was 0.44 – one of the highest coefficients among South and Southeast Asian countries. In spite of the rapid increase in income inequality, poverty declined tremendously but it still affects more than one fourth of Cambodians today. While progress has been made in both rural and urban areas, poverty rates in rural areas remain significantly higher. Fast economic growth in urban areas and relatively slow progress in rural poverty reduction might have contributed to increasing countrywide income inequality. Poverty in Cambodia is about half as prevalent as in Bangladesh and about two-thirds as prevalent as in India and Lao PDR (Table 1, second panel).

Despite setbacks during the Asian crisis, Cambodia managed to bring down the prevalence of undernourishment from 38 percent in 1992 to 25 percent in 2006 – a similar proportion as affected by poverty. However, unlike poverty, the prevalence of undernourishment (or hunger, as frequently referred to), i.e. the percentage of people consuming less than the minimum requirement of calories, is almost the same as in Bangladesh and only slightly higher than in India (Table 1, third panel). On the other hand, the prevalence of undernourishment is lower in Lao PDR than in Cambodia even though Lao PDR has a higher level of poverty and lower level of per capita income than Cambodia does.

Cambodia has also achieved notable success in reducing child malnutrition over the past two decades. While 59 percent of all children under five were stunted and 43 percent were underweight in 1996, the proportion declined to 40 percent for stunting and 29 percent for underweight in 2008.[2]

Consistent with the income level, child malnutrition in Cambodia is higher than in Vietnam, China and Thailand, but is less widespread than in Lao PDR, Bangladesh and India (Table 1, fourth panel).

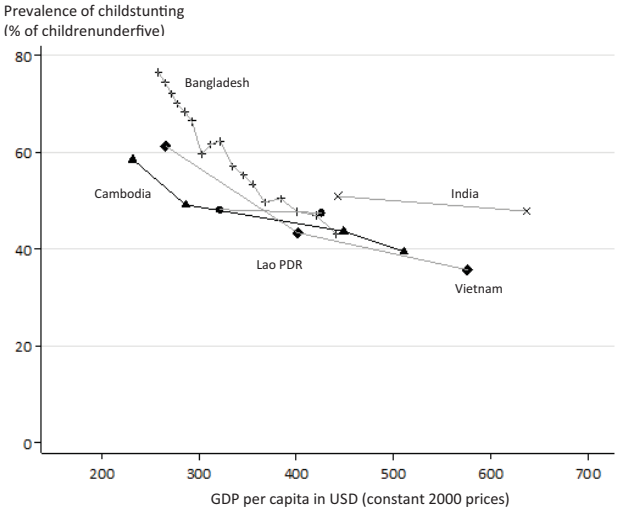
However, the mortality rate among Cambodian children under five is the highest among the comparison countries (Table 1, fifth panel). Although progress in reducing child mortality has gathered pace, particularly since 2000, 90 out of 1,000 Cambodian children died from malnutrition, poor health or other preventable causes in 2008. In 1990, 117 out of 1,000 children did not reach their fifth birthday. Hence, Cambodia seems unlikely to meet the fourth Millennium Development Goal of reducing the under-five mortality rate by two thirds between 1990 and 2015.

Economic growth as driver of food security and nutrition

We now compare Cambodia's development with the development of other countries and discuss which direction Cambodia is likely to take in the future. As per capita GDP and household income increase, poverty decreases, and human development indicators generally improve. However, the progress of growth and nutrition improvement can be different, as country comparisons reveal. Given that the stage of development matters for comparing countries' success in leveraging economic growth for improving nutrition, we relate nutrition outcome indicators to GDP levels at different points in time.

2 Three anthropometric indicators are commonly used to identify child malnutrition. These indicators are height-for-age, weight-for-age, and weight-for-height. Children are considered as moderately and severely stunted, underweight, or wasted, if their height-for-age z-scores, weight-for-age z-scores, or weight-for-height z-scores are below certain critical values. These three indicators have different implications for child nutrition and cannot be used interchangeably (WHO 1995). In the following, we focus on stunting, because the height-for-age indicator is most appropriate to capture persistent malnutrition and to account for the interaction between health and nutrition.

Figure 3: Relationship between Prevalence of Child Malnutrition and per capita GDP



Note: The data are from different years between 1987 and 2008.
Sources: WDI 2010, GDCGM 2010.

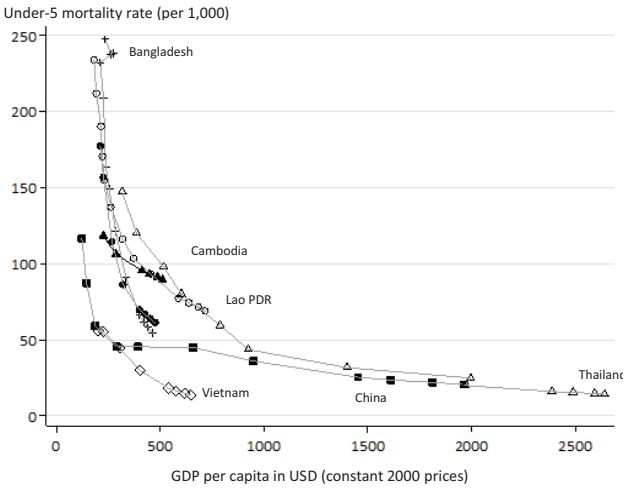
Figure 2 presents changes in the prevalence of undernourishment relative to economic growth for Cambodia and other South and Southeast Asian countries over time. It shows that, in general, undernourishment declines with increased income level. Moreover, the speed of such decline is relatively rapid at the income level where per capita GDP is below USD500. This is true over the entire time period for Cambodia, Bangladesh, Lao PDR, and Vietnam; it is only partially true during an early growth period for India. India is the only country in which the prevalence of undernourishment rose against more rapid income growth in the recent period. Although Cambodia managed to significantly reduce hunger during the early growth period, progress in reducing hunger has started to slow down recently.[3]

In China and Vietnam, the relationship between undernourishment and income level is very similar, as the curves representing the two countries perfectly form a single trend. Thus, it seems that Vietnam's future in terms of the relationship between hunger reduction and income growth can be closely predicted from China's past. While for Thailand per capita income at the starting point of the curve is the highest among the selected countries, the prevalence of undernourishment in Thailand is much higher than it was in China when China reached a similar per capita income level at the end point of the curve. Although the pace of hunger reduction in Thailand is faster than in China relative to the pace of income growth, at a much higher income level, Thailand's prevalence of undernourishment is surprisingly higher than in China.

Figure 3 presents the prevalence of child malnutrition against the level of per capita income for Cambodia and four other countries over time. Starting from different initial levels for both per capita income and prevalence of child malnutrition, almost all countries managed to reduce child malnutrition during growth, with the exception of Lao PDR where child malnutrition barely changed when per capita income increased from USD300 to more than USD400. The comparison shows that, at a similar level of income, the prevalence of child malnutrition differs significantly across the five countries. When per capita income was below USD300, the prevalence of child malnutrition in Cambodia was the lowest, lower than both Bangladesh and Vietnam at similar income levels. However, when per capita income increased from USD300 to more than USD400, Vietnam significantly lowered its prevalence of child malnutrition, while the curve for Cambodia is much flatter than that for Vietnam in this period, indicating that similar growth of per capita income from USD300 to USD400 has had a smaller impact on child malnutrition in Cambodia than in Vietnam.

When per capita income was low, the prevalence of child malnutrition was highest in Bangladesh.

Figure 4: Relationship between Child Mortality Rate and per capita GDP



Note: The data are from the same years between 1960 and 2008.
Sources: WDI 2010, GDCGM 2010.

3 The spikes in the curves for Cambodia and Bangladesh mark the effects of the Asian crises in 1997.

However, with modest income growth, raising per capita income from USD250 to USD400, Bangladesh rapidly reduced its prevalence of child malnutrition. Bangladesh's success in reducing child malnutrition is a result of major investments in target programmes. On the other hand, at the per capita income level close to USD500, India had the poorest nutrition status for younger children. Moreover, when per capita income increased to more than USD600 at the end period of the curve for India, its prevalence of child malnutrition declined only modestly.

Finally, Figure 4 plots the child mortality rate on per capita GDP over time. Similarly to the result shown in Figure 1, the child mortality rate declines rapidly with growth when per capita income level is below USD500. After the mortality rate falls to 50 per 1,000 children and income rises to more than USD500 per capita, the reduction in child mortality slows. The only exception is Vietnam where child mortality continued to fall rapidly when the 50-per-1,000 mortality rate was reached and per capita income reached more than USD500. At the income level below USD500, the curve for Cambodia is flattest among the selected countries. This suggests slow progress is being made towards improving well-being among the weakest children in Cambodia.

Conclusion

Despite high economic growth and remarkable progress in reducing poverty, hunger and malnutrition in recent years, Cambodia remains one of the poorest countries in South and Southeast Asia, with one of the highest prevalence rates of undernourishment and child malnutrition. This paper's country comparison suggests that Cambodia's stage of development and food security is similar to that of Lao PDR and Bangladesh today, Vietnam in the early 2000s, and Thailand in the late 1970s. The trends show that Cambodia has largely followed the pathways of Vietnam and China, where high economic growth has trickled down and substantially reduced hunger and child malnutrition, in contrast to India, where development has bypassed the malnourished population. However, in recent years, Cambodia has departed from the successful pathway of Vietnam and China – a pathway in which growth and better nutrition outcomes have occurred simultaneously. In addition, income inequality has increased along with growth and the population growth rate is still high. These factors challenge Cambodia's progress towards food security and improved nutrition, especially when economic growth slows down as a consequence of the recent global recession.

Therefore, more efforts are required to bring Cambodia back to the effective pathway of Vietnam and China and to better leverage growth for universal food security and improved nutrition outcomes in the future. While growth in Bangladesh is more modest than in Cambodia, Bangladesh's experiences suggest helpful models for Cambodia, as in Bangladesh more targeted actions have resulted in major improvements in child malnutrition.

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