



Food Security in Cambodia

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[Context](#)

[Executive Summary](#)

[Background](#)

[ASEAN](#)

[Cambodia](#)

[Food security in Cambodia – the status quo](#)

[Diet and nutrition](#)

[Rice – Cambodia's 'white gold'](#)

[Fish and the Tonlé Sap](#)

[Opportunities and challenges](#)

[Agricultural exports](#)

[Infrastructure](#)

[Sustainability of the Tonlé Sap ecosystem](#)

[Conclusion](#)

[References](#)

Context

This report was authored as a follow-up to the 2014 U21 Undergraduate Research Conference hosted at Shanghai Jiaotong University. The theme of the conference was 'Food Safety: From Farm to Table' and featured presentations by students from the U21 group of research universities, as well as keynote addresses by academics and a representative of the Food and Agriculture Organisation of the United Nations. This report draws on observations from that event, while applying them to Cambodia's current food security situation.

Executive Summary

The Food and Agriculture Organisation of the United Nations (FAO) defines food security as existing when 'all people, at all times, have physical and economic access to sufficient, safe and nutritious food.'¹ Food consumption in Cambodia is overwhelmingly based around the two staple foods of rice and fish. While the country has enjoyed sustained economic growth through the last decade, and is presented with a number of economic opportunities in the agricultural field, it remains one of the most food insecure countries in Asia. Malnutrition is an especially serious concern. Developing national infrastructure and the capacity of the government to deliver outcomes based on its priorities are crucial for achieving food security for the Cambodian people.

1. Background

The global population as it currently stands at seven billion is predicted to grow to 9.6 billion by 2050.² More than half of this growth is expected to occur in Africa, but a significant portion will also be in Asia, particularly South and South-East Asia.³ Achieving a food secure environment for the Asia-Pacific region will require an increase in food production by 77 percent in the interim.⁴

It is generally agreed that there are three ways to address food insecurity:

- Increasing the area under food production – i.e. by clearing new agricultural land
- Increasing productivity, through innovation and more efficient farming
- Reducing waste in the food production and transportation process, and through trade.⁵

1.1 ASEAN

Poverty and malnutrition rates have declined markedly in Asia over the past twenty years, including in the ASEAN bloc. This trend is forecast to continue.⁶ However, as of 2010 the Asia-Pacific region accounted for 62 percent, or 578 million, of the world's 925 million undernourished people.⁷

Conversely, the rise of the Asian middle class is changing eating habits across the region, and will exert a significant influence on world food demand. Within ASEAN, consumption of staple crops such as rice and wheat are predicted to rise by 34 and 40 percent, respectively, by 2050.⁸ The most dramatic change, however,

¹ *Rome Declaration on World Food Security and World Food Summit Plan of Action*, Food and Agriculture Organization of the United Nations (13-17 November 1996).

² *World Population Prospects: The 2012 Revision*, United Nations Department of Economic and Social Affairs – Population Division ST/ESA/SER.A/336 (2013) p xv.

³ *Ibid* p xvi.

⁴ Food and Agriculture Organization of the United Nations, 'Asia and the Pacific must increase food production to meet future demand' (10 March 2014) <<http://www.fao.org/news/story/en/item/216042/icode/>>, accessed 18 July 2014.

⁵ Craig Pearson, 'A fresh look at the roots of food insecurity,' appearing in Rosemary Rayfuse and Nicole Weisfelt (eds), *The Challenge of Food Security: International Policy and Regulatory Frameworks* (Edward Elgar, 2012) p13.

⁶ Food and Agriculture Organization of the United Nations, *World Agriculture: towards 2015/2030* (2002) p17.

⁷ Saidul Islam and Iris Carla de Jesus, 'Regional initiatives on food security,' appearing in Rayfuse and Weisfelt (eds), *The Challenge of Food Security*, p256.

⁸ 'What Asia Wants: Long-term food consumption trends in Asia' (Australian Bureau of Agricultural and Resource



will be in the uptake of protein-rich food consumption. Beef consumption is projected to increase by 120 percent over 2007 levels.⁹ The consumption of poultry, comprising 45 percent of ASEAN's total meat consumption, is expected to more than double within the same timeframe.¹⁰ Even the consumption of pork, which is in relative decline, will increase more than twofold by 2050.¹¹ Dairy is a further major growth area; real value of consumption is projected to more than double by 2050.¹²

Investment in agriculture in South-East Asia is generally declining as the region industrialises.¹³ While ASEAN member states are significant exporters of rice,¹⁴ demand for other food groups in the medium- to long-term will be met by an increasing reliance on imports.¹⁵

1.2 Cambodia

Cambodia's economy has grown significantly over the past decade, with substantial gains in the agricultural sector, which comprises 35 percent of GDP.¹⁶ However, benefits from economic growth have been confined in large part to the capital Phnom Penh.¹⁷ Severe food insecurity problems persist, particularly in rural areas. The Economist Global Food Security Index 2014 places Cambodia at number 96 in terms of its ability to achieve food security, out of 109 countries surveyed.¹⁸ This makes it the most food insecure country in the Asia-Pacific region, behind Myanmar and Bangladesh.¹⁹

However, Cambodia is on the cusp of a number of agricultural opportunities. Abundant arable land presents it with considerable potential to increase production, particularly advantageous in the context of growing ASEAN demand. The Cambodian government has set ambitious targets for rice exports.²⁰ In the longer-term, there is potential for diversification into other types of produce. Realisation of these opportunities will depend on continued development of capacity, and improved infrastructure throughout the country. Assuming these are seen through successfully, Cambodia's outlook for food security to 2050 is tentatively positive.

2. Food security in Cambodia – the status quo

2.1 Diet and nutrition

The Cambodian diet is overwhelmingly based around rice and fish. Ninety percent of the country's agricultural land is devoted to rice production.²¹ Rice consumption accounts for 70 percent of the rural population's daily calorie intake.²² A small range of other foods are produced, primarily corn, vegetables, cashews and cassava. Freshwater fish, meanwhile, comprises 80 percent of all animal protein consumed.²³ The overall urbanisation

Economics and Sciences, Research Report 13.12, October 2013) ppxvii-xxviii.

⁹ Ibid pxxx.

¹⁰ Ibid.

¹¹ Ibid.

¹² Ibid pxxxi.

¹³ Islam and de Jesus, 'Regional initiatives,' p257.

¹⁴ 'What Asia Wants,' pxxviii.

¹⁵ Islam and de Jesus, 'Regional initiatives,' p257.

¹⁶ The World Bank, 'Cambodia Data' <<http://data.worldbank.org/indicator/NV.AGR.TOTL.ZS/countries/KH?display=graph>> accessed 16 July 2014.

¹⁷ Islam and de Jesus, 'Regional initiatives,' p265.

¹⁸ The Economist Intelligence Unit, *Global food security index 2014: An annual measure of the state of global food security* (2014) p13. The criteria for the ranking are based on three categories: affordability, availability, and quality and safety of food. Cambodia measured no change overall when compared with 2013.

¹⁹ Ibid p16. Note that Laos and Mongolia, among others, were not surveyed for the study.

²⁰ Royal Government of Cambodia, 'Policy Document on the Promotion of Paddy Rice Production and Export of Milled Rice' (2010) ['The Rice Policy'] p3.

²¹ Australian Centre for International Agricultural Research (ACIAR), *ACIAR Annual Operational Plan 2013-14* (2013) p31, accessed at <<http://aciarc.gov.au/files/aop2013/east-asia-cambodia.html>>.

²² Denise Hruby, 'Cambodia tests 'super rice' to fortify its children,' *The Christian Science Monitor*, 24 July 2013 <<http://www.csmonitor.com/World/Asia-Pacific/2013/0724/Cambodia-tests-super-rice-to-fortify-its-children>>.

²³ Ibid p32.



rate of 20 percent is low;²⁴ nearly 60 percent of the population is engaged in agriculture, and 60 percent of that total are landless, or own less than a hectare of land.²⁵

A major concern for Cambodia is food affordability. Expenditure on food equals more than 70 percent of the average Cambodian income; quality and quantity are therefore downgraded in order to be able to afford other necessities.²⁶ Concurrently, the country has some of the highest malnutrition rates in Asia: 44 percent of children under five years are stunted, and 15 percent wasted.²⁷ An interrelated factor is lack of dietary diversity; rice provides energy, but lacks nutrients.²⁸ Fortified rice, created through a process of mixing rice flour with vitamins and minerals in micronutrient form, has been introduced in Cambodia as a potential solution to this problem.²⁹

2.2 Rice – Cambodia's 'white gold'

According to the Ministry of Agriculture, Forestry and Fisheries, Cambodia produces an annual surplus of 3.5 million tons of paddy rice, equivalent to two million tons of milled rice.³⁰ However, exports of milled rice were only 200,000 tons in 2012.³¹ The Cambodian government released a policy document on rice production and export in 2010, which sets the ambitious goal for Cambodia to become a 'rice basket,' exporting over one million tons of milled rice by 2015.³² The National Strategic Plan for 2014-2018 identifies increasing rice exports as a priority, and trade agreements signed in 2013 with Thailand and the Philippines are intended to bolster Cambodia's burgeoning rice export industry.³³

2.3 Fish and the Tonlé Sap

Cambodia's freshwater fish production exceeds 400,000 tons per year,³⁴ of which 300,000 is sourced from the Tonlé Sap.³⁵ The flow of the river system reverses twice a year, and flooding during the wet season expands the area of the lake from 2,600 to a maximum of 10,500 square kilometres.³⁶ This makes it a highly suitable breeding ground for fish, and one of the most productive freshwater ecosystems in the world.³⁷ It is also recognised by UNESCO as a Biosphere Reserve.

Over 1.2 million Cambodians depend on fishing in the Tonlé Sap for livelihood.³⁸ Fishing has been estimated to contribute up to 16 percent to Cambodia's GDP.³⁹ This economic value is domestically oriented; an indefinite ban on commercial fishing in the Tonlé Sap has been in place since 2012.⁴⁰ The stated rationale was to

²⁴ Eric Sidgwick and Hiroshi Izaki, 'Urbanisation and growth,' *The Phnom Penh Post*, 27 November 2013 <www.phnompenhpost.com/analysis-and-op-ed/urbanisation-and-growth>.

²⁵ Islam and de Jesus, 'Regional initiatives,' p265.

²⁶ Ibid p266.

²⁷ Ibid.

²⁸ Hruby, 'Super rice'.

²⁹ Ibid.

³⁰ 'The Rice Policy,' p13.

³¹ Khut Inserrey, 'Cambodia's Economic Opportunity,' *The Diplomat*, 9 May 2013 <<http://thediplomat.com/2013/05/cambodias-economic-opportunity>>.

³² 'The Rice Policy,' p3.

³³ Inserrey, 'Opportunity'.

³⁴ Nicolaas van Zalinge, 'Data Requirements for Fisheries Management in the Tonlé Sap,' appearing in *New Approaches for the Improvement of Inland Capture Fishery Statistics in the Mekong Basin*, FAO Regional Office for Asia and the Pacific 2003/01 (2003) <<http://www.fao.org/docrep/005/ad070e/ad070e0a.htm>>.

³⁵ Chris Berdik, 'Of Fish, Monsoons and the Future: A Push to Save Cambodia's Tonle Sap Lake,' *The New York Times*, 9 June 2014 <<http://www.nytimes.com/2014/06/10/science/of-fish-monsoons-and-the-future.html>>.

³⁶ Food and Agriculture Organization of the United Nations, *Irrigation in Southern and Eastern Asia in figures: AQUASTAT survey – 2011* (2012), p208 <http://www.fao.org/nr/water/aquastat/countries_regions/khm/index.stm>.

³⁷ Berdik, 'Fish.'

³⁸ van Zalinge, 'Data Requirements.'

³⁹ Ibid.

⁴⁰ Vong Sokheng and May Kunmakara, 'Hun Sen bans industry fishing at Tonle Sap lake permanently,' *The Phnom Penh Post*, 29 February 2012



'support ordinary people to catch fish,' and eradicate ongoing illegal fishing in the area.⁴¹

3. Opportunities and challenges

3.1 Agricultural exports

Cambodia is blessed with abundant arable land, much of which is underutilised.⁴² Accordingly, the government has committed to increasing the efficiency of agricultural production. For example, Cambodia presently harvests rice on an annual basis, compared to an average of 3.5 times per year in the adjacent Mekong Delta in Vietnam.⁴³ Cambodian agriculture is predominantly reliant on rainfall; more effective capture of rainwater could allow the expansion of irrigation.⁴⁴

The Cambodian government harbours ambitious goals, outlined in the Rice Policy, to eventually produce 10-11 million tons of paddy rice per year, with 3-4 million tons for export.⁴⁵ This would place it among major world suppliers. Cambodia currently has around 11.3 million hectares of arable land in use, one of the largest areas in the ASEAN bloc, behind only the Philippines and Thailand.⁴⁶ Unlike its neighbours, however, there is significant potential to expand on this area up to 30 percent by 2050.⁴⁷ Thailand, currently the 'rice bowl' of Asia,⁴⁸ is projected to see a gradual decline in arable land area to 2050;⁴⁹ the Philippines, though it has the largest arable land area of any ASEAN country, is the world's largest rice importer.⁵⁰ Other developing economies in the region, such as Myanmar and Laos, face significant geographical constraints that limit arable land available. Cambodia's land, on the other hand, is well-suited to irrigated agriculture.⁵¹

However, the Australian Centre for International Agricultural Research (ACIAR) has warned that Cambodia faces a number of environmental challenges to realising its production goals. Specifically, soils are generally 'poor' and 'infertile,' and become waterlogged during the rainy season.⁵² The Centre identifies this as a key factor for relatively low productivity when compared to its neighbours. Owing to the centrality of the wet season in the country's agriculture, Cambodia is also particularly vulnerable to climate variability and change.⁵³

A further challenge for Cambodia is in meeting strict international quality and safety standards. Presently, rice produced for domestic markets is not subject to quality and safety testing.⁵⁴ Whether the country has capacity to meet export standards is a concern. Weak institutional support and a diffusion of testing responsibilities between various ministries may further hamper this situation;⁵⁵ a priority is to enhance cooperation within government, to create a policy environment favourable to exports.

Over the longer term, diversification of agriculture in Cambodia, into non-rice field and horticultural crops, and ruminant livestock, is feasible.⁵⁶ The government has labelled its Rice Policy a strategy for creating a foothold in

<<http://www.phnompenhpost.com/business/hun-sen-bans-industry-fishing-tonle-sap-lake-permanently>>.

⁴¹ Ibid.

⁴² Insey, 'Opportunity'.

⁴³ Ibid.

⁴⁴ Australian Centre for International Agricultural Research (ACIAR), 'Improved rice establishment and productivity in Cambodia and Australia' (2014) <<http://aciarc.gov.au/project/cse/2009/037>>, accessed 17 July 2014; 'The Rice Policy' p6.

⁴⁵ 'The Rice Policy,' p4.

⁴⁶ 'What Asia Wants', p16.

⁴⁷ Ibid.

⁴⁸ Islam and de Jesus, 'Regional initiatives,' p258.

⁴⁹ 'What Asia Wants,' p16.

⁵⁰ Ibid.

⁵¹ Ibid.

⁵² ACIAR, *Plan 2013-14*, p30.

⁵³ Ibid.

⁵⁴ 'The Rice Policy,' p16.

⁵⁵ Ibid.

⁵⁶ ACIAR, *Plan 2013-14*, p30.



international markets, serving as a 'catalyst' for branching into other exports.⁵⁷

3.2 Infrastructure

Cambodia's export competitiveness is bolstered by a substantially lower rice price than in Thailand or Vietnam.⁵⁸ However, this advantage is diluted by inadequate infrastructure. Distribution of rice domestically is 'uneven';⁵⁹ in some cases, lack of milling infrastructure for rice means that farmers are obliged to first sell rice for Thailand, buying it back for consumption at a markedly higher price.⁶⁰ Insufficient infrastructure contributes to high transport costs: transporting a ton of rice 100 kilometres by road costs US\$15 in Cambodia, in contrast to US\$4 and US\$7.50 in Thailand and Vietnam, respectively.⁶¹

Food security must be paired with infrastructure networks, in order to facilitate food supply and reduce waste from excess produce. Driving down the twin factors of high logistical and energy costs would also have an impact on raising Cambodia's regional competitiveness.⁶² The Rice Policy commits to improvement of roads, railways and seaports as priorities.⁶³ Specifically, it stipulates that rehabilitation of the country's railway network is to be 'accelerated,'⁶⁴ and that the shallow Sihanoukville port, capable of handling vessels only with depths of less than 8.5 metres, should have its equipment and facilities upgraded.⁶⁵

3.3 Sustainability of the Tonlé Sap ecosystem

The Tonlé Sap ecosystem faces a number of threats. These include overfishing,⁶⁶ upstream damming,⁶⁷ destruction of mangrove forests which are habitats for young fish,⁶⁸ pollution,⁶⁹ climate change,⁷⁰ and large-scale migration to the area from farmers displaced by land grants in other regions of the country.⁷¹ This is a food security concern because of the predominance of fish in the Cambodian diet; there are no viable alternatives to replace fish as a protein source for the population.⁷² The Fisheries Law, promulgated in 2006, has attempted to address these concerns by stipulating that the 'conservation of fishery resources' and 'sustainable management and utilisation' are considerations when designing policy.⁷³

4. Conclusion

The UN Special Rapporteur on the Right to Food, Olivier De Schutter, has noted that 'hunger and malnutrition are generally not the result of the lack of food availability, but rather of the inability for the poorest segments of the population to have access to food at an affordable price.'⁷⁴ For a country such as Cambodia, which is highly

⁵⁷ 'The Rice Policy', p5.

⁵⁸ Ibid, p4.

⁵⁹ Food and Agricultural Organization of the United Nations, 'FAO Initiative on Soaring Food Prices: Cambodia' <<http://www.fao.org/isfp/country-information/cambodia/en/>>, accessed 17 July 2014.

⁶⁰ Ibid.

⁶¹ Insey, 'Opportunity.'

⁶² Don Weiland, 'ASEAN Infrastructure Fund could be within Cambodia's reach,' *The Phnom Penh Post*, 10 July 2012 <<http://www.phnompenhpost.com/business/asean-infrastructure-fund-could-be-within-cambodias-reach>>, accessed 17 July 2014.

⁶³ 'The Rice Policy' p3.

⁶⁴ Ibid pp9-10.

⁶⁵ Ibid p16.

⁶⁶ Berdik, 'Fish'.

⁶⁷ Laignee Barron, 'Tonle Sap fisheries a concern for dam project,' *The Phnom Penh Post*, 20 March 2014 <<http://www.phnompenhpost.com/national/tonle-sap-lake-fisheries-concern-dam-project>>, accessed 17 July 2014.

⁶⁸ Berdik, 'Fish'.

⁶⁹ Ibid.

⁷⁰ Ibid.

⁷¹ Ibid.

⁷² Barron, 'Tonle Sap'.

⁷³ *Fisheries Law 2006* s15.

⁷⁴ Olivier De Schutter, *International Trade in Agriculture and the Right to Food* (Occasional papers, number 46,



dependent on international institutions for food and agricultural aid,⁷⁵ this would appear especially true.

Malnourishment, arising from poverty and unequal distribution of food, remains a pressing problem in Cambodia. Nonetheless, this report has demonstrated a number of promising opportunities for remediation. A strategy for food security in Cambodia is necessarily two-pronged. The first is based on continual improvement of infrastructure and building of capacity, allowing the fulfilment of government commitments. This will contribute towards gradual self-sufficiency in food and agriculture. The second revolves around promoting education and awareness among local communities of dietary nutrition and food safety. This will introduce individual empowerment as a factor for food security in Cambodia. NGOs and aid organisations have a constructive role to play in managing programs that improve food security overall, through rural development and education, implementing new technology so as to gain the acceptance of local populations,⁷⁶ health, and law and justice.⁷⁷

Strong economic growth is forecast to continue in Cambodia. Food security, then, rests not only on the expansion of Cambodia's export program, but also on the channelling of economic gains into creating an integrated, inclusive approach to securing the availability, affordability and safety of food for all.

Friedrich-Ebert-Stiftung, November 2009) p10.

⁷⁵ Islam and de Jesus, 'Regional initiatives,' p266.

⁷⁶ Inserey, 'Opportunity.'

⁷⁷ ACIAR, *Plan 2013-14*, p30. The work of the Cambodia Agricultural Value Chain Program (CAVAC)

[<http://www.cavackh.org>] is an example of this, bringing together stakeholders across the value chain to 'stimulate innovation' within existing systems.



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