



# CAMBODIA DEVELOPMENT REVIEW

A Publication of CDRI—  
Cambodia's leading independent  
development policy research institute

VOLUME 16, ISSUE 4

DECEMBER 2012

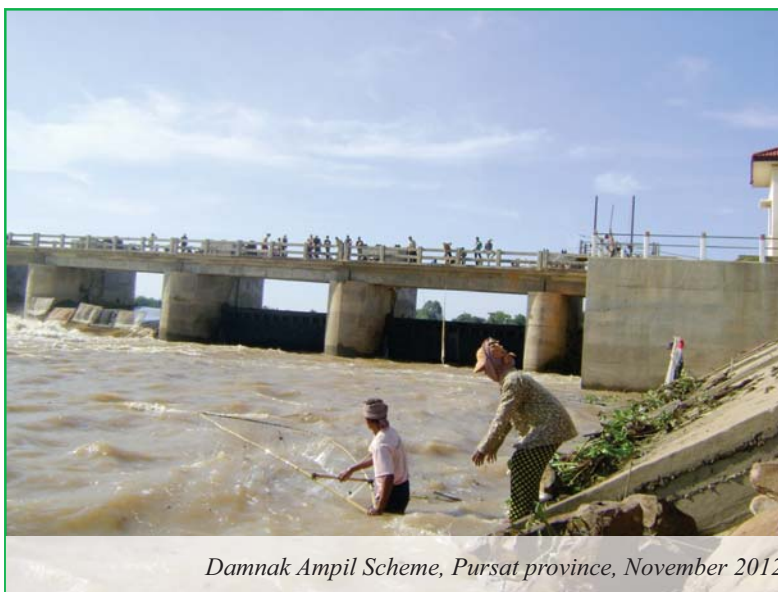
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## CLIMATE CHANGE AND WATER GOVERNANCE IN CAMBODIA<sup>1</sup>

### Climate Change Matters

Climate change is expected to result in modified weather patterns in the Lower Mekong Basin (LMB), in terms of both temperature, rainfall and wind and also the intensity, duration and frequency of extreme events, affecting ecosystems, agriculture and food production and livelihoods. Typical livelihoods in the LMB are reliant on natural resources and therefore likely to be adversely affected by the impacts of these shifts. Current predictions of how the climate is likely to have changed in the LMB by 2030 indicate mean temperature rise of 0.79°C, precipitation increase (mainly in the wet season) of 20 cm (13.5 percent), and Basin runoff rising by up to 21 percent (107,000 million cubic metres). Increased flooding will likely affect all parts of the LMB, but especially downstream areas (Eastham *et al.* 2008). Cambodia is no exception with regard to these climate change phenomenon.

Cambodia's Tonle Sap Lake is the largest freshwater lake in Southeast Asia. Part of the Mekong system, the Lake's resources directly or indirectly benefit the livelihoods of almost half of Cambodia's population, particularly fishers and farmers. While climate change will likely alter the lake-floodplain system over the next few decades, new hydropower developments could have immediate adverse consequences for local livelihoods and food security. The Lake is particularly vulnerable as climate change will affect



Damnak Ampil Scheme, Pursat province, November 2012

the Basin's unique flood pulse system, subsequently altering water regimes (Eastham *et al.* 2008).

Cambodia has experienced increasingly frequent flooding, drought and windstorms since 1989, such as the 2000 and 2011 floods. Indicative of the changing climate, disasters and climate-related hazards exact huge socio-economic costs on the country. The floods in 2000 and 2011 were perhaps the most devastating in recent history, displacing hundreds of thousands of people, causing hundreds of deaths and other losses. The extensive flooding in 2011 destroyed much of the past 10 years investment in infrastructure in both rural and urban

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areas of the Tonle Sap and Mekong Floodplains. Because of immediate daily dependence on natural resources availability and agricultural farming along with low adaptive capacities arising from low social economic status, rural Cambodian livelihoods are exceptionally vulnerable to climate change (Yusuf & Francisco 2009).

The urgent need for a proper study of adaptive capacity and vulnerability at national, regional and community levels is confirmed by many contemporary studies on hydrological changes resultant of climate change and economic infrastructure development. For example, a recent comprehensive assessment of human-induced change at catchment level highlights the vulnerability of local fishing and farming communities and reports that the Tonle Sap Basin (TSB) is undergoing worrying hydrological change (Chem & Someth 2011a). Many farmers face water excesses in the wet season and severe water shortages in the dry season, leading to mounting tension and conflicts over agricultural water supplies between upstream and downstream farmers. AusAID's "Exploring the Tonle Sap Futures" study reports similar hydrological changes in the TSB (Keskinen *et al.* 2011). Infrastructure development rather than climate change is more likely to cause changes in the Tonle Sap flood pulse and water regime over the next 30 years. There is an imperative therefore to model infrastructure developments as variables and to advance understanding of climate change (Keskinen *et al.* 2011).

During recent field reconnaissance to make a preliminary assessment of issues related to water governance, climate change and adaptive capacities in Kampong Chhnang, Pursat and Kompong Thom provinces, almost all the locals consulted believe that the climate is changing. For example, the timing of the monsoon seasons has shifted with the early dry season from November to February being less cool than usual, and the rainfall pattern has also changed in the last few years in that the rains start late and end late. These changes, however, may vary depending on location. The shift in the timing of the rainy season has implications for both wet and dry season farming. Wet season farmers have had to switch to short and medium maturing crop varieties to cope, whereas dry season farmers have had to delay rice cultivation because of continuing rain. Some dry season broadcasted rice has been lost to irregular and unpredictable weather. Local people's concerns

lay in the more frequent occurrence of flooding and lightning storms that affect their livelihoods, especially agricultural production, and which they view as part of their vulnerability to climate change. So far, there is no mechanism to cope with these anomalies.

Local people associate adaptation to natural system changes resultant of climate change and human activities with the hard and soft mechanisms already in place at provincial and community levels to address vulnerability to climate change, e.g., water scarcity and increasing irrigation demand in the dry season. These adaptation mechanisms include: government policy and intervention to encourage more water storage in the catchment; strengthening management by improving the capacity of local farmer water-user communities (FWUC); integrating adaptive capacity into local planning such as the adoption of drought-tolerant crop varieties, water-saving irrigation practices, and soil and water conservation techniques: increasing local incomes through intensifying and diversifying cropping; and migrating to work in urban and agricultural development areas.

### **The Research**

With funding support from the International Development Research Centre (IDRC), the Cambodia Development Resource Institute (CDRI) and several of its partners are undertaking a research project on the theme "Improving Water Governance and Climate Change Adaptation in Cambodia". Started in October 2012 with expected completion in September 2015, the project is taking place in three provinces around the Tonle Sap Lake: Kampong Chhnang, Pursat and Kampong Thom. The aim is to gain a better understanding of the livelihood implications of hydrological and ecosystem changes caused by climate change and human system change in the TSB and to improve methods of integrating these findings into Cambodia's policy and planning frameworks.

The research project consists of three studies. The first aims to identify (i) knowledge gaps by reviewing existing research on water-related impacts of climate change, and (ii) sound research methods to improve consistency, validity and reliability of future climate change adaptation studies through examining the qualitative and quantitative methods used in vulnerability studies. Drawing on the results of this

first study, the second will evaluate hydrological change in three sub-catchments to understand the livelihood implications of the interactions between climate change and human activity and economic development in the Basin. At the same time, the third study will assess the efficiency and effectiveness of existing policies and institutional arrangements for water governance at local and provincial levels, and formulate strategies to bridge identified gaps. The results of these three studies will be synthesised and recommendations will inform local and provincial adaptation planning and initiatives.

To ensure that the research findings are well integrated and inform Cambodia's water management and climate change adaptation policies, and to contribute to knowledge of climate change in the country and the region, CDRI is collaborating with three government ministries, two universities and one regional institution. They are the Ministry of Water Resources and Meteorology (MoWRAM), Tonle Sap Authority (TSA), Ministry of Environment (MoE), Royal University of Agriculture (RUA), Institute of Technology of Cambodia (ITC), and the Mekong Programme on Water, Environment and Resilience (M-POWER).

### Conceptual Framework

There is increasing concern about the possible damaging effects of climate change such as flood and drought. Cambodia contributes very little to the causes of climate change, yet stands to be disproportionately affected by the negative impacts of climate change due to low adaptive capacity and dependence on climate-sensitive livelihoods (MRC 2010; Yusuf & Francisco 2009; Keskinen *et al.* 2011). Climate change eventually affects water availability and, ultimately, livelihoods. It is therefore vital to link water availability and the need for sustainable livelihoods, i.e. water security, and especially to understand how water security relates to livelihoods, hazards and sustainability.

Water security is defined as access to adequate affordable safe water to maintain ecological health and meet human needs, which emphasises sufficient supplies of quality water for environmental flow requirements, human daily needs (drinking, hygiene, washing) and livelihoods. It covers the broad range of ecosystem protection, accessibility, affordability, food security, human health and development. Thus, ensuring sufficient quantity of adequate quality

water at an affordable price to meet both short- and long-term needs to protect the health, safety, welfare and productive capacity of the population is a valid basis for any further study of the climate (Cook & Bakker 2012: 97).

The issues of protecting water systems from hazards such as flood, drought and infrastructure development, and safeguarding access to water functions and services need to be further explored. It is also important to examine water security in relation to prevention and protection against contamination and terrorism. The key message is that water security relates to sustainability and combines the above two perspectives to assess water security at all levels – from household to global needs. That is because every person should have access to adequate safe and affordable water while ensuring that environmental needs are met and ecosystems are protected (Global Water Partnership 2000 cited in Cook & Bakker 2012: 97).

Another school of thought focuses on vulnerability to climate change, defined as the degree to which a system is susceptible to damage or adverse impacts from climate change (IPCC 2000 cited in Warrick 2000: 2). Vulnerability is shaped by the extent of exposure, sensitivity and adaptive capacity (Warrick 2000) to changes in human and natural systems. Such changes affect social and environmental conditions and lead to more frequent natural disasters. According to Lyalomhe (2011), vulnerability creates exposure to climate variability, climate change and associated hazards including socio-ecological hazards; the human system exacerbates susceptibility to these hazards. Lyalomhe (2011) further states that the interaction between climate and human systems implies that socio-ecological impacts vary spatially due to variability of the determinants of vulnerability (flood, drought, windstorm). Warrick (2000) reiterates that variations and changes in the climate system cannot be viewed in isolation from human systems, i.e., population growth and distribution, technological and economic development, and social and cultural organisation, which play a critical role in determining the degree of exposure and sensitivity to climate hazards and therefore vulnerability.

A concept that helps build resilience to vulnerability is adaptive capacity. Smit *et al.* (2001 cited in Engle 2011: 686) define adaptive capacity as the ability of a system to prepare for stresses and

changes in advance or adjust and respond to the effects caused by the stresses. Adaptive capacity, on the other hand, refers to the ability of those impacted to manage and influence their resilience to the changes (Walker *et al.* 2006 cited in Engle 2011: 649). Changes in the physical and social dimensions of human systems and changes in natural systems affect water availability and demand (Eastham *et al.* 2008; Phalla & Paradis 2011). Changes in water availability and demand shape the social conditions that make humans vulnerable such as socioeconomic, infrastructure and governance characteristics. Therefore, adaptation has become an important concept in climate change resilience.

The concept of water security brings to the fore an integrated approach to water management which includes agriculture, engineering, environmental science, policy and water resources (Cook & Bakker 2012) and is the single most important component for sustainable rice production in Cambodia. Supplying sufficient water to meet increasing demand for agriculture involves engineering to develop water infrastructure. Regulating the quantity and quality of water functions and services for human consumption and environmental services, and minimising climate and hydrological variability relate to environmental science. Moreover, the modelling approach can identify spatiotemporal water distribution, which is essential information for decision-makers to balance the demands of economic growth with environmental requirements in the context of climate change. The modelling approach involves different scales of analysis (empirical study at community level and modelling at catchment level) and different disciplines (physical and social sciences). By examining the changes and interactions in human and natural systems, greater knowledge can be gained about climate change exposure, hazards and coping capacity. This leads to the development of vulnerability indicators and indices that characterise baseline conditions for the monitoring of future changes. Assessment of changes in water availability and demand in relation to main water-users in the Basin and environmental flow requirements are based on downscaled hydrological and climatic modelling (for 20-year, 50-year and 100-year timescales) and participatory approaches adopted by CDRI (Chem *et al.* 2011b) and other organisations in Cambodia.

## Conclusion

The review of the different concepts of climate change and human-induced change debated in the literature has compiled enough background material to identify the factors and methods appropriate for use in the research on water governance and climate change adaptation in the three catchment areas around the Tonle Sap Lake in Kampong Chhnang, Pursat, and Kampong Thom provinces. In addition, the local perceptions of the impacts of natural and human system changes on livelihoods and food security noted during field reconnaissance in the three provinces provide valuable inputs for the design and development of research framework and qualitative and quantitative methods and tools.

The review also informs decision-makers of the knowledge gaps in previous studies that remain to be explored, especially the need to build the adaptation capacity of local communities to address water security and vulnerability or negative impacts of climate and human changes on sustainable agriculture and livelihood development in the catchments. Participatory action research not only engages different local stakeholders in the research process, more importantly it can help local people, authorities and other stakeholders to mitigate the impacts of climate and human systems change on their livelihoods and take appropriate actions to build their adaptive capacity for sustainable livelihood development. By understanding the need for improving water governance and climate change adaptation at grass-roots level, policy-makers in return can provide better policy intervention and support to local people.

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*Continued on page 23*



# Fertiliser Value Chains in Cambodia: A Case Study in Takeo Province<sup>1</sup>

## Introduction

Compared with neighbouring countries Vietnam and Thailand, rice yield in Cambodia remains low. One major reason for this is the low use of fertiliser (Theng & Koy 2011), even though many demonstration trials have proved the high response of rice yield to fertiliser application. One key constraint to increased input use appears to be limited access to adequate stocks of affordable, good quality fertiliser. Much of the fertiliser used by farmers is imported from Vietnam and Thailand but there are important issues of dubious quality, incorrect and indecipherable labelling, unreliable supply, variable prices, and insufficient information about fertiliser and other input use. Empirical study by Schamel and Hongen (2003) shows that farmers choose to abstain from fertiliser markets altogether or apply fertiliser at rates below recommended levels because they have been sold bad quality products in the past, which deters buyers who are not willing to pay full market price for the average quality of fertiliser available. Identifying the constraints that

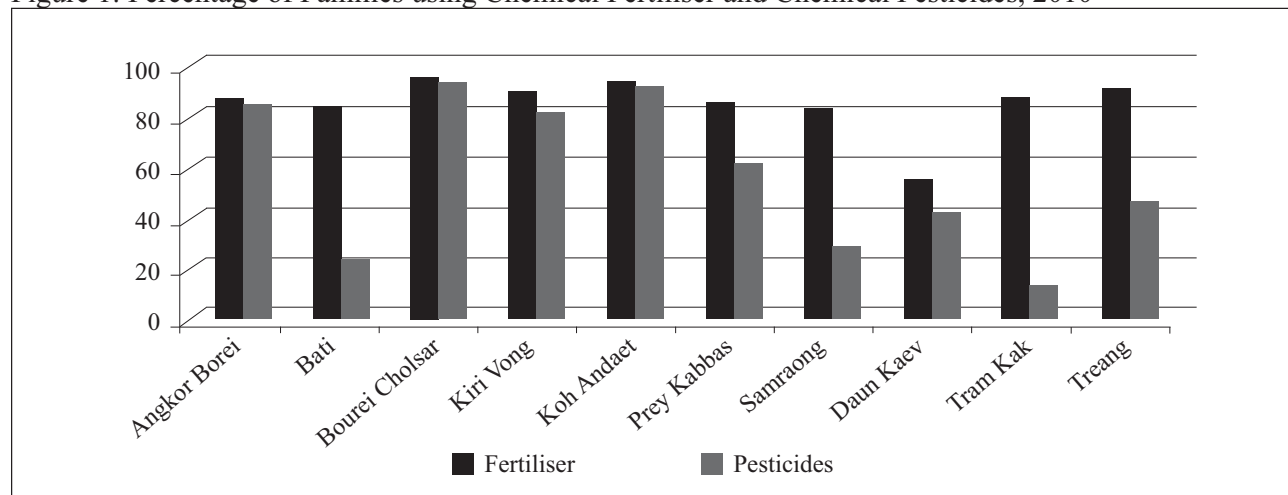
inhibit the use farm inputs will help to highlight possible policy interventions to improve farmers' access to and informed use of these inputs.

Fertiliser can intensify rice production, but issues surrounding quality discourage rice farmers from investing more in farm inputs. The hypothesis of the study is that limited access to good quality, affordable fertiliser is a constraint to improving rice yield. Policy changes to ease this issue could increase productivity and farm income, contributing to farmers' improved wellbeing and reduced vulnerability. The objectives of the study are: (1) to analyse the value chain of fertiliser farm inputs; (2) to identify the issues of low quality fertiliser and the channels through which it is distributed; (3) to review government policy to control fertiliser trade; and (4) to identify ways to improve the fertiliser market.

The case study employs a qualitative approach in analysing the fertiliser value chain in the study areas of Takeo province. Information was collected from different actors in the value chain via focus group discussions (FGDs) and key informant interviews (KIIs). Participants included farmers, fertiliser importers, distributors and retailers and other stakeholders such as provincial extension workers, provincial agronomists, and provincial agricultural legislators.

<sup>1</sup> Prepared by Theng Vuthy, Programme Coordinator, Poverty Agriculture and Rural Development Programme. This article is synthesised from a Fertiliser Value Chain Case Study of the ACIAR Project (ASEM/2009/023) "Developing Agriculture Policies for Rice-based Farming Systems in Laos and Cambodia" due to complete in May 2014.

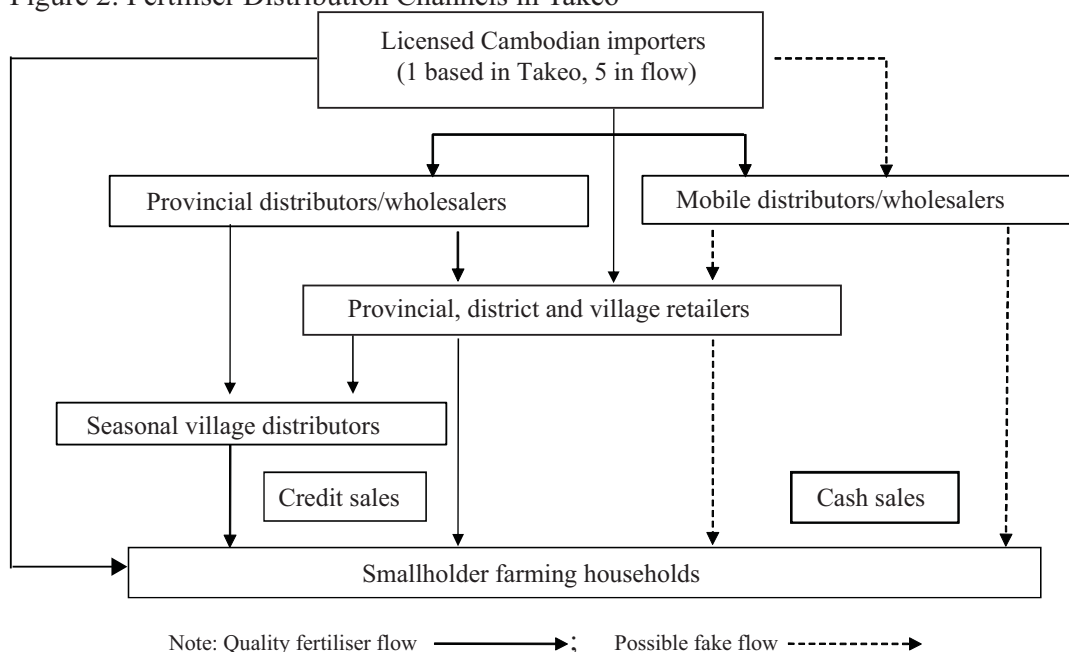
Figure 1: Percentage of Families using Chemical Fertiliser and Chemical Pesticides, 2010



Source: Commune Database (2010)

Note: Percentage is calculated as total households using agro-chemicals divided by village total households

Figure 2: Fertiliser Distribution Channels in Takeo



## Results and Discussion

### Fertiliser Market in Takeo

In the past decade Takeo province has shifted rapidly from subsistence production to market-oriented cash-crop farming, which has entailed a substantial increase in rice production. This fast transition is due to irrigation system development (improved irrigation and better water availability), quick uptake of high-yielding varieties, abundant use of fertilisers and pesticides, and increased mechanisation. Trans-border trade with Vietnam is an additional major factor in rice sector development in Takeo. The sale of rice to Vietnam is crucially important as a fundamental precondition for agricultural development and economic growth. Dry season rice is the province's main export, while the main imports are seeds, fertilisers and pesticides from Vietnam.

The rapid uptake of high-yielding rice varieties entails greater use of fertilisers and pesticides. Figure 1 shows that with the exception of Daun Kaev district, more than 80 percent of rice farmers in Takeo province use inorganic fertilisers. This implies there is no fertiliser supply constraint in the market place, a fact confirmed by farmers in all study villages who reported no problems accessing fertiliser.

There are six major fertiliser supply companies distributing agro-products in Takeo province, from provincial wholesale outlets to one-stop-retail shops

in local village markets. Heng Pich Chhay (HPC) Company has business headquarters and warehouses in Takeo, while the other five suppliers have business head offices in Phnom Penh or elsewhere but have their distribution points/shops (though no branch office) in Takeo. Two larger suppliers are YITAK Group and HPC Company; their products are widely available in most wholesale and retail outlets, even in small village one-stop-shops.

Many kinds of fertilisers, distributed by different importers and distributors, are available on the market. The single nutrient products are urea and muriate of potash (KCl). Compound nitrogen and potassium (NK) fertilisers are di-ammonium phosphate (DAP) (18-46-0) and ammonium phosphate sulphate (16-20-0). Compound nitrogen, phosphorus and potassium (NPK) products are available on the market in ratios of 15-15-15, 16-16-8-13s and 20-20-15. All fertilisers are sold in 50kg bags, though farmers can buy products by the kilogram depending on available cash or amount they need.

Most of the fertilisers sold on the market are labelled in Khmer with the exceptions of NPK 16-16-8-13s produced in the Philippines and urea from China and Vietnam, though these products are marked with small Khmer stickers. There is no official data available on the amount of fertiliser distributed or sold in Takeo province. Neither traders nor the Provincial Department of Agriculture (PDA)

had any records of the quantity of fertiliser imported or distributed in the province. It is believed that there is large scale smuggling of fertiliser from Vietnam into Cambodia, which is then sold on the market. Smuggled goods are readily identified because the bags are not labelled in Khmer or marked with Khmer stickers.

### *Fertiliser Distribution Channels and Value Chain Analysis*

**Fertiliser market structure** is evolving rapidly to meet farmers' demands and serve the growing rice sector in Takeo province. The market structure is well organised and led by the private sector operating a very competitive marketing strategy with prices set by market forces (Figure 2).

Licensed Cambodian importers store fertiliser in warehouses near the border and/or in Phnom Penh. The HPC Company has its business headquarters and warehouse in Kiri Vong district near the border, and has many trucks to transport imported fertiliser both within Takeo and to other provinces. The five other companies do not have fertiliser stockists in Takeo town, but they have appointed lead representatives/dealers to serve as distribution points throughout the province. Transport costs vary according to the distance from the main warehouse to the distribution points; haulage costs about USD0.25 per bag per 100km, and loading fertilisers on and off the trucks costs about USD0.05 per bag.

Most of the larger distributors have trucks to deliver to district and village retailers. District and village shops are smaller with limited storage, and usually fertilisers are ordered during the planting season (May to Sept for wet season, and Nov to Feb for dry season or recession rice) to save space for other merchandise.

Village retailers are typically a one-stop-shop selling a wide range of farm inputs including animal feed, pesticides, seeds and fuel in addition to fertilisers. In 2011/12, about 634 traders—mostly shop owners selling farm inputs—were called to attend training on farm inputs trade and safety in the province. Village retailers typically buy fertilisers from the representatives of the main provincial dealers; however, some also use different suppliers depending on prices and services offered and/or to meet specific demands of their customers/farmers. Retailers' transactions are done in cash or on credit. Field interviews revealed that about half of retail sales are made on credit, with an added mark-up of 15,000 to 20,000 riels per bag per planting season (3-6 months).

Mobile distributors/ intermediaries form another farm input distribution channel, as reported during field study. They have no specific business office nor is it clear exactly where they come from, but they have phone contact details and deliver fertilisers as and when retailers need their services. They are well connected and have long-standing

Table 1: Urea and DAP Value Chain Analysis, February 2012

	Granular Urea		DAP (USA)	
	(USD/50 kg)	% of imported price	(USD/50 kg)	% of imported price
<b>Bag Cost Importer at Vietnam border</b>	-	-	<b>31.5</b>	<b>100</b>
Transport to Cambodia (<100km@\$0.25)	-	-	0.3	0.8
Into store	-	-	0.1	0.2
<b>Cost into Border Warehouse</b>	-	-	<b>31.8</b>	<b>101.0</b>
Label changes & importer's mark-up	-	-	1.7	5.3
<b>Importers Selling Price</b>	<b>24</b>	<b>100</b>	<b>33.5</b>	<b>106.3</b>
Transport to province (100 km @ \$0.25)	0.3	1.0	0.3	0.7
Distributor mark-up and handling	0.8	3.1	0.8	2.2
<b>Into store Provincial Distributor</b>	<b>25.0</b>	<b>104.1</b>	<b>34.5</b>	<b>109.3</b>
Provincial distributor mark-up	0.5	2.0	0.5	1.4
Distributor selling price	25.5	106.1	35.0	110.7
Transport to village dealer & handling	-	-	1.0	2.9
Into store at village dealer	-	-	36.0	113.6
Dealer mark-up for cash sale	3.3	12.7	0.5	1.4
<b>Retail Cash Price</b>	<b>28.8</b>	<b>118.9</b>	<b>36.5</b>	<b>115.0</b>

Source: Author calculation based on data from field interviews in February 2012

business relationships with some importers. They purchase fertiliser from importers and load it onto trucks for delivery and re-sale to provincial, district and village retail shops, and direct to farmers. It was reported that there is a very high opportunity for traders to adulterate fertiliser in this process, either by mixing low and high quality products and selling it on as higher quality fertiliser, re-bagging low quality fertilisers in bags labelled with a higher quality brand, and even selling short-weight bags. During our field study it was also reported that someone pays farmers for their empty high quality brand bags, i.e. YITAK and/or HPC, and uses them for malpractice in the fertiliser sector.

**Fertiliser value chain:** cost prices, selling prices, handling costs, transport costs, unofficial road haulage fees and mark-up by different actors in the fertiliser supply chain recorded during field visits, together with the annual and monthly retail prices of different fertiliser products from secondary data sources, were used for the fertiliser value chain analysis in Takeo.

Value chain analysis shows that the mark-up for traders beyond the importers is very low, at around 1.5 to 2 percent, whereas the mark-up of import companies is about 5 percent (Table 1). This indicates that the fertiliser market in Takeo is very competitive, particularly for the most common products, urea and DAP. When operating costs are taken into account, the margins for fertiliser traders at provincial, district and village level are very low. During our field visit in February 2012, the price of urea was about USD28 and that of DAP was USD36 per 50 kg bag.

The results suggest that the fertiliser market is very competitive among traders for marginal profits beyond the importers. The most value-added beyond the importers is the high transport cost from provincial distribution points to village shops, which is largely due to high unofficial fees paid to roadside police during transportation. Therefore, when operational and logistic costs are accounted for, the mark-up does not allow high marginal profits for most fertiliser traders in Takeo; the high value-added cost of fertiliser is composed of importers' mark-up (5 percent) and transport and logistics costs (3 percent). The finding is consistent with a study by the International Fertiliser Development Centre (IFDC 2010).

### *Problems of Fertiliser Markets – How are Fake Products Distributed?*

Fertiliser quality problems arose because the sudden price spike in 2008 created opportunity for malpractice in the sector in response to farmers' need for cheaper fertilisers. The IFDC (2010) found that the nutrition analyses of almost all compound NPK and NP (16-20-0 and DAP) fertilisers sold on the market were well below acceptable quality index values. However, the nutrient content of most of the single nutrition fertilisers (urea and some DAP) analysed was within an acceptable standard (IFDC 2010: 25-35).

The most common quality issue is that of "fake" fertilisers. The fake products reported by customers, importers, dealers and senior PDA officials during the field visits and interviews were almost universal. They are not new, but similar to those identified by the IFDC (2010). The most common practice is re-bagging less expensive fertilisers such as DAP and urea in sacks labelled with a high quality brand, for instance urea from Thailand and DAP produced in the USA, which are well known high quality products. Thus some traders re-bag low quality products and resell them as high quality trade brands to customers.

Dilution and adulteration of fertilisers was also reported by interviewed farmers. Farmers said that their crops were not responding as well to fertiliser compared to last year's crops, and blamed the low crop response on low quality fertiliser. Technical experts, however, argue that such claims are almost impossible to put down to poor quality fertiliser alone because other factors, such as different seasonal conditions, seed quality, and cropping practices also affect yield. Despite what the experts say, evidence from our interviews with farmers, fertiliser dealers and importers and fertiliser nutrient analysis by IFDC (2010) suggests that the low quality of fertilisers sold on the market is a critical problem affecting crop yield and resulting in financial loss for farmers in the study areas.

The selling of short-weight bags and coating low grade NPK fertilisers with oil to change the product's appearance were also reported by farmers and fertiliser dealers during field visits. However, these incidences happened during 2008; presently, such problems are not commonplace. Farmers stressed that the most common issues are re-bagging and adulteration. Senior PDA officers, dealers and



retailers reported a significant drop in fake products, but the problem still affects about 5 to 10 percent of fertilisers sold on the market.

Figure 2 depicts possible distribution channels for fake products. Senior agricultural legislation officials and importers were confident that most of the main dealerships and retailers do not distribute fake products to customers. However, they blame the distribution of problem fertilisers to small retailers and farmers at lower prices on intermediaries and mobile distributors. Because the latter are unidentified and unregulated, the concerted efforts by MAFF and PDA to crackdown on fertiliser problems have so far had little effect. These fertiliser operators need to be regulated. At the very least, they could be registered so that their business activities can be monitored and controlled and the problem of adulterated fertilisers minimised.

### ***Government Policy on Fertiliser Markets***

MAFF is the government authority responsible for controlling fertiliser trade in Cambodia. The import of agro-chemicals such as fertilisers and pesticides requires a licence, which importers have to renew annually. To apply for a licence, importers must provide details of the products and quantities to be imported, along with laboratory test results of the imported products to confirm quality. Each application, whether for single or multiple products, is restricted to a maximum of 30,000 tonnes.

An agro-business expert argued that the import licensing procedures are complex, out of touch with market demand, and restrict market competition. The procedure creates rent-seeking opportunities, and many unofficial fees are paid through the facilitator to ensure granting of the licence. Furthermore, the restrictive import tonnage per importer is contrary to all market principles, a considerable commercial drawback hindering economies of scale for importers. In all market economies, the private sector should be free to determine supply based on market and commercial risk assessments. The government's role should concentrate on monitoring quality based on truth-in-labelling legislation. The licensing and tonnage quota system also encourages illegal imports and prevents small firms from entering the market.

In response to the rash of fertiliser problems since 2008 and to crackdown on fake products, MAFF and the Department of Agricultural Legislation (DAL)

of PDA have put in place urgent policy measures. These include more certification for fertiliser dealers and retailers; training for wholesalers, retailers and farmers on how to spot signs of fertiliser fakery, adulteration and re-bagging; competition among major fertiliser importers for market share in a small total market; and adopting a new law in late 2011 to regulate the registration, trade and use of agrochemical products in Cambodia.

### **Policy Implications**

Based on the evidence from field study, the fertiliser market could be improved not only in Takeo province but also in Cambodia as a whole by addressing the following concerns:

1. Simplifying and easing fertiliser import licensing procedures and regulations would remove rent-seeking opportunities and reduce illegal imports.
2. It would be more appropriate for import licences to be approved based on the suitability of a product's use in Cambodia, and then importers could be allowed to import any quantity of registered fertiliser products based on market demand and risk assessment by the private sector.
3. Besides the certification of dealers and retailers, it is timely for MAFF and provincial DAL to take further steps to also certify third party traders (intermediaries, mobile distributors, seasonal village retailers) who purchase and deliver fertiliser to villages for re-sale to farmers.

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# Prosperity and Impoverishment: Bunong Livelihoods in Transition in Two Mondulhiri Communes<sup>1</sup>

## Introduction

In 2004, an article featured in the *Cambodia Development Review* delineated the changes taking place among Bunong indigenous people in two Mondulhiri communes as a result of increased market activity and diminished natural resources (McAndrew *et al.* 2004). Despite the destruction of forest resources through forest concessions, illegal logging and unregulated hunting, the Bunong villagers in Dak Dam and Srae Preah communes remained largely dependent on forest resources for their subsistence. Adaptation to the decline in natural resources had essentially been to subsist on less and to exploit the further limits of their diminished resource bases. Given the inward orientation of household subsistence strategies and the lack of viable short-term alternatives, access to and control over natural resources remained critical for household survival. This article, based on recent research, takes the earlier study as its baseline and compares how household livelihood strategies have changed in Dak Dam and Srae Preah communes over the last nine years. Specifically, the research asks how household reliance on forest resources has changed, how household incidence of poverty has changed, and whether households overall have attained a measure of prosperity or experienced further impoverishment. The research findings seek to inform government policy making and government and NGO development programming with indigenous people.

## Research Methods

The baseline study conducted in 2002/03 by the International Cooperation for Development and Solidarity (CIDSE) Cambodia (McAndrew *et al.* 2003) and the present research conducted in 2012 by the Analyzing Development Issues Centre (ADIC)

employed mixed methods approaches: household surveys, key informant interviews participatory rural assessments, and secondary data sources. The household surveys in each study were conducted in all villages of the two communes based on 25 percent random samples. In each instance, Bunong interviewers were recruited and trained to conduct the household surveys. The Bunong interviewers asked the survey questions primarily in the Bunong language and recorded the responses in Khmer. Cash values for wage earnings and for profit of goods made and sold and goods traded were provided directly by the respondents. Average cash values for other products were determined through focus group discussions with key informants conducted in the villages of both communes. With these average cash values it was possible to compute cash equivalents for the other household products delineated by the respondents and thus estimate annual household incomes. Fieldwork for the present research was conducted in Dak Dam and Srae Preah communes from January to May 2012.

## Livelihood Transitions in Dak Dam Commune

A comparison of cash values of household income in Dak Dam commune from 2003 to 2012 reveals important changes taking place within the local economy (Table 1). Of major significance, average annual household incomes of the sample groups increased 3.4 times from 1,871,631 riels (USD468) in 2003 to 6,312,832 riels (USD1578) in 2012. Economic growth in Dak Dam commune was due mainly to earnings derived from cash crop production of cassava on upland farms and from wage work principally as agricultural labourers. High inflation rates during the interim years likewise contributed to the high volume increase. Earnings from upland crops increased from 24.8 percent of overall household income in 2003 to 38.4 percent in 2012. Earnings from cassava production alone accounted for 22.9 percent of total household income in 2012. Similarly, earnings from wage work rose from 8.6 percent in 2003 to 20 percent in 2012. Meanwhile earnings from hunting and trapping as

<sup>1</sup> Prepared by So Dane, Hak Sochanny, Oeur II and John McAndrew, staff of the Analyzing Development Issues Centre (ADIC). This article is based on the ADIC study *Food Security and Land Use Change in Two Mondulhiri Communes* (forthcoming) supported by IDRC through the Learning Institute

a share of overall household income fell from 28.2 percent in 2003 to 9.1 percent in 2012.

The proportionate increase in the cash value of upland crops is particularly notable because it was accompanied by a proportionate decline in the cash value of upland rice. From 2003 to 2012, the cash value of upland rice production decreased from 10.3 percent to 5.9 percent of total household income. This resulted from the low productivity of upland rice cultivation and the proportionate decline in upland household rice cultivators. Moreover, the cash values of upland rice and upland crops (other than rice, cashew nut and cassava) were much lower than that of cassava. In 2012, in Dak Dam commune the average cash value of upland rice for the 65 upland rice cultivators surveyed was 485,500 riels, the average cash value of upland crops (other than rice, cashew nut and cassava) for the 77 upland cultivators of these crops surveyed was 669,681 riels, and the average cash value of cassava production for the 68 cassava cultivators surveyed was 1,805,221 riels. Clearly, Dak Dam households had an incentive to adopt and expand the cultivation of cassava on their upland farms. At the same time this strategy left households vulnerable to the exigencies of the cassava market.

Dak Dam household income shares by source illuminate the major shifts taking place in commune livelihoods from 2003 to 2012. The share of

household income from cultivating crops rose from 25 percent in 2003 to 39 percent in 2012. Similarly, income from wage work and remittances increased from only 8 percent in 2003 to 22 percent in 2012. By contrast, income from forest products, hunting and trapping fell from 44 percent in 2003 to 26 percent in 2012, while earnings from pig and poultry raising dropped from 17 percent in 2003 to 8 percent in 2012 (Figure 1).

Overall, the expansion of the market economy in Dak Dam commune encouraged a shift away from subsistence upland agriculture to cash crop production of cassava. The labour demands in cassava cultivation likewise brought about increased agricultural labour opportunities. With greater access to cash from cassava production, households became less involved in pig and poultry raising. Stronger conservation measures enacted by the Forest Administration and diminished wildlife populations due to intensive hunting in earlier years also reduced household shares of income from hunting and trapping.

#### Livelihood Transitions in Srae Preah Commune

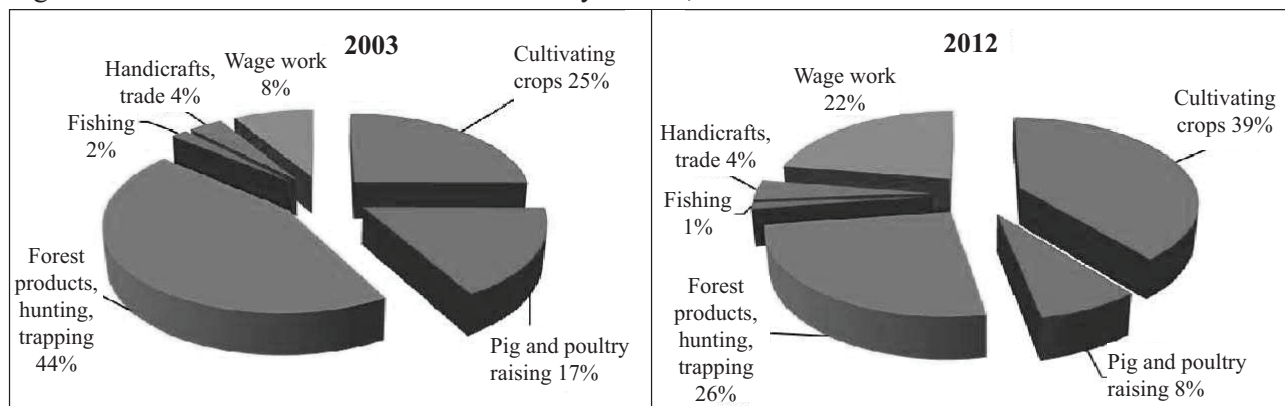
Cash values of household incomes in Srae Preah commune from 2003 to 2012 similarly point to major shifts within the local economy (Table 2). Strikingly, average annual household incomes of the sample groups increased 4.8 times from

Table 1: Average Cash Values of Household Income in Past Year, Dak Dam Commune, 2003 and in 2012 (in riels)\*

Strategy	2003		2012	
	Riels	Percent	Riels	Percent
Upland crops (total)	464877	24.8	2425270	38.4
Upland rice	(193292)	(10.3)	(371265)	(5.9)
Upland crops (other than rice)	(271585)	(14.5)	(2054005)	(32.5)
Cassava	**	**	(1444172)	(22.9)
Cashew nut	**	**	(3176)	(0.05)
Wet land (paddy) rice	4615	0.2	53235	0.8
Pigs raised	242308	12.9	377459	6.0
Chickens raised	65077	3.5	99247	1.6
Ducks raised	7692	0.4	12647	0.2
Food gathered from the forest	46769	2.5	190691	3.0
Other products gathered from the forest	252376	13.5	856175	13.6
Liquid resin	(34415)	(1.8)	( 635)	(0.0)
Animals hunted or trapped	527405	28.2	576486	9.1
Fish caught	32412	1.7	69494	1.1
Goods made and sold	40708	2.2	98082	1.6
Goods bought and sold	26069	1.4	141176	2.2
Wage work	161323	8.6	1265529	20.0
Remittances from children and relatives not considered as household members	**	**	147341	2.3
<b>Total</b>	<b>1871631</b>	<b>99.9</b>	<b>6312832</b>	<b>99.9</b>
	N=65		N=85	

\* 4000 riels equal one US dollar; \*\* data not available

Figure 1: Dak Dam Household Income Shares by Source, 2003 and 2012



2,114,125 riels (USD529) in 2003 to 10,169,218 riels (USD2542) in 2012. Economic growth in Srae Preah commune was due principally to earnings derived from cash crop production of cassava and cashew nut on upland farms. High inflation rates during the interval years also contributed to the high volume rise. Earnings from upland crops as a part of overall household income increased from 11.8 percent in 2003 to 34.9 percent in 2012. Earnings from cassava and cashew nut production alone accounted for 26.8 percent of total household income in 2012. While the cash value of upland rice as a proportion of total average income decreased from 2003 to 2012, the cash value of paddy rice as a proportion of total average earnings increased. This made paddy rice cultivators less vulnerable to the volatility of the cash crop markets.

In 2003, food and other products gathered from the forest accounted for 43.2 percent of total household income. This underscored the reliance of Srae Preah households on forest resources for their livelihoods. By contrast, in 2012 food and other products gathered from the forest accounted for only 24 percent of total household income. This diminished reliance

on forest resources resulted largely from the rapid decline of liquid resin tapping as a major source of household earnings. Resin trees in several Srae Preah villages were overtapped and unproductive in 2012. In one village alone, an estimated 2,000 resin trees were cut down in 2010 by a rubber company under an economic land concession. As a consequence, total household income from the collection of liquid resin plummeted from 28.4 percent in 2003 to only 4.0 percent in 2012.

Srae Preah household income shares by source highlight the major shifts taking place in commune livelihoods from 2003 to 2012. In 2003 households made one-half of their income from forest products and hunting and trapping. By 2012 the share realised from this source constituted less than one-third of their income. Conversely, in 2003 households earned less than one-fourth of their income from cultivating crops. By 2012 the share gained from this source made up more than one-half of their income. Less prominently, shares from pig and poultry raising dropped from 2003 to 2012, while shares from wage work and remittances rose slightly (Figure 2). Overall, the expansion of the market

Figure 2: Srae Preah Household Income Shares by Source, 2003 and 2012

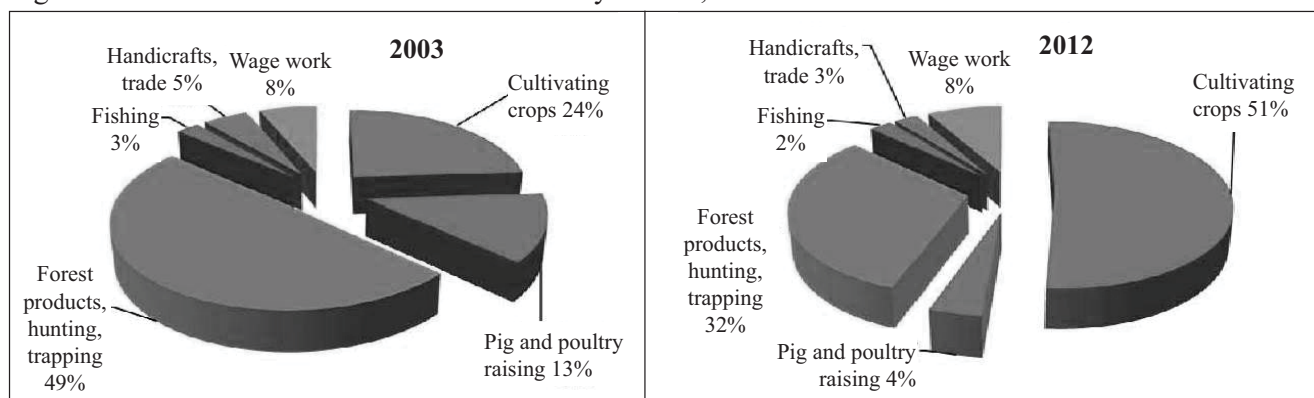




Table 2: Average Cash Values of Household Income in Past Year, Srae Preah Commune, 2003 and in 2012 (in riels)\*

Strategy	2003		2012	
	Riels	Percent	Riels	Percent
Upland crops (total)	248802	11.8	3550342	34.9
Upland rice	(87986)	(4.2)	(270632)	(2.7)
Upland crops (other than rice)	(160816)	(7.6)	(3279710)	(32.3)
Cassava	**	**	(1996226)	(19.6)
Cashew nut	**	**	(729764)	(7.2)
Wet land (paddy) rice	259297	12.3	1665759	16.4
Pigs raised	211149	10.0	285896	2.8
Chickens raised	58784	2.8	114547	1.1
Ducks raised	2567	0.1	13160	0.1
Food gathered from the forest	42239	2.0	130980	1.3
Other products gathered from the forest	870799	41.2	2303842	22.7
Liquid resin	(600845)	(28.4)	(411415)	(4.0)
Animals hunted or trapped	133755	6.3	774730	7.6
Fish caught	51342	2.4	247325	2.4
Goods made and sold	35270	1.7	28491	0.3
Goods bought and sold	67635	3.2	227146	2.2
Wage work	132486	6.3	814453	8.0
Remittances from children and relatives not considered as household members	**	**	12547	0.1
<b>Total</b>	2114125	100.1	10169218	99.9
	<b>N=74</b>		<b>N= 106</b>	

\* 4000 riels equal one US dollar for both periods; \*\* no data available

economy in Srae Preah commune precipitated a shift away from upland subsistence agriculture to increased wetland cultivation and the production of cash crops for the market. It likewise contributed to diminished household reliance on forest resources, particularly liquid resin, and pig and poultry raising. Albeit opportunities for wage work increased, jobs were generally seasonal, local and low-paying.

### Poverty and Inequality in Dak Dam and Srae Preah Communes

In Srae Preah commune, economic growth led to a decline in the number of sample households living in poverty, from 63 percent in 2003 to 43 percent in 2012. Economic growth in Dak Dam commune, by contrast, did not have the same mitigating effects on poverty as the proportion of sample households living in poverty increased from 54 percent in 2003 to 65 percent in 2012. Poverty levels in 2012 in both communes were much higher than the poverty level

of 24 percent calculated by the World Bank for rural households in Cambodia in 2011. Gini coefficients, which measure levels of overall income inequality, were also high in both communes. In 2012 the Gini coefficient for the Dak Dam household sample was 0.43, while that for the Srae Preah household sample was 0.38, both much higher than the Gini coefficient of 0.24 calculated by the World Bank for rural areas in Cambodia in 2011.<sup>2</sup>

Overall poverty decline in Srae Preah commune shows that proportionally higher numbers of Srae Preah households enjoyed a degree of prosperity in 2012 than in 2003. Conversely, overall poverty rise in Dak Dam commune indicates that proportionally higher numbers of Dak Dam households were impoverished in 2012 than in 2003. Moreover, high levels of overall household income inequality in 2012 suggest that economic well-being and deprivation co-existed among households in both communes.

Indigenous women likewise experienced economic change differently. In small women's focus groups some women recounted how they had enlarged upland household farms to benefit from cassava production. Other women lamented that they were no longer able to rely on diminished forest resources and thus undertook wage work as agricultural labourers to maintain household food security.

<sup>2</sup> Figures for 2003 are based on the poverty line for rural areas of 1036 riels per capita per day set by the Ministry of Planning, Royal Government of Cambodia and the United Nations World Food Programme (2003). Figures for 2011 are based on the poverty line for rural areas of 4422 riels per capita per day and the Gini coefficient for rural areas of 0.24 calculated by the World Bank based on the Cambodia Socio-Economic Survey (CSES) 2011. The World Bank provided these preliminary calculations to the authors for use in this article on 4 December 2012.

## Conclusion

The 2003 baseline study argued that despite the destruction of forest resources, indigenous Bunong inhabitants in Dak Dam and Srae Preah communes remained largely dependent on forest resources for their subsistence. Over the past nine years the inward directed reliance on forest resources began to change as households turned outward and began to produce cash crops for the market. The expansion of the market economy in the two communes generated economic growth with mixed outcomes for poverty reduction and high income inequality among sample households. This resulted in prosperity for some and impoverishment for others.

Between the years 2003 and 2012, Dak Dam and Srae Preah households experienced a transition in agricultural production as they moved from the cultivation of upland staple crops mainly for subsistence to the production of cash crops for the market. In these years, the number of upland rice cultivators and the value of upland rice production decreased proportionately in both communes. Moreover, in 2012 the value of cassava and cashew nut production in Dak Dam and Srae Preah communes was higher than the value of upland rice and other upland crops combined. In Srae Preah commune the expansion of paddy rice cultivation made paddy rice cultivators less vulnerable to the exigencies of the cash crop markets.

The cultivation of cash crops in the two communes was accompanied by a shift away from shifting agriculture to growing crops on permanent farms. Establishing permanent farms helped to expand hectareage for cash crops and to prevent encroachment on fallow lands. Still, the clearing of new lands which is a defining feature of shifting agriculture persisted. In 2012, 64 percent of the Dak Dam sample households and 58 percent of the Srae Preah sample had reportedly cleared land in the past five years. The opening up of lands for cash crop cultivation spurred economic growth, but at the cost of exacerbating the threat posed to forested areas.

As income shares from the cultivation of crops increased in the two communes, income shares from forest products, hunting and trapping decreased. Specifically, household earnings from hunting and trapping in Dak Dam commune, and from liquid resin tapping in Srae Preah commune, declined sharply from 2003 to 2012. Nonetheless, in 2012 forest products, hunting and trapping still

made up one-fourth of household incomes in Dak Dam and nearly one-third of household incomes in Srae Preah. Although forest resources no longer constituted the dominant share of household income it had in 2003, a large majority of Dak Dam and Srae Preah households continued to rely on gathering food and other products from the forest and hunting and trapping wildlife to supplement their household incomes and livelihoods. Access to and control over forest resources and the conservation of these resources remained as critical for household food security in 2012 as they were in 2003.

As policy makers encourage the adoption and expansion of cash crops to augment economic growth, they must likewise strengthen the participation of indigenous groups in natural resource governance. This requires the political will to crackdown on the endemic illegal timber trade, to enforce stricter legislation regulating economic land concessions and mining concessions, to implement communal land titling under the 2001 *Land Law*, and, crucially, to recognise indigenous peoples' rights to have free, prior, and informed consent over the development, use and exploitation of their lands, territories, and resources as provided in the *United Nations Declaration on the Rights of Indigenous Peoples* adopted by Cambodia and 142 other member states on 13 September 2007.

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## Economy Watch—External Environment<sup>1</sup>

This section describes economic indicators of major world economies and economies in Southeast and East Asia.

Global recovery was still uncertain and vulnerable in the third quarter of 2012, as signs of economic slowdown persisted in major economies, especially in Asia and Europe.

Real GDP growth in Indonesia decreased slightly in the third quarter, to 6.2 percent from 6.4 percent a quarter earlier and 6.5 year on year, and Malaysian GDP dropped to 5.2 percent from a year earlier. GDP growth in Singapore contracted to 0.3 percent, the lowest since 2010, from 5.9 percent a year earlier. Albeit slower, China's economy is still one of the fastest growing, with GDP growth at 7.4 percent in the third quarter, a slight drop from 7.5 percent a quarter earlier. China's exports performed relatively well, increasing by 20.3 percent in 2011 and accounting for 28.6 percent of GDP, according to statistics published by the Asian Development Bank. Although territorial disputes over a number of islets between China and Japan, and between China and several south-east Asian countries, have increased political tensions and, to some extent, military tensions, the conflicts have not significantly affected China's trade with and foreign investment from the disputing countries. Despite the fact that Japanese investors in China are eyeing opportunities elsewhere, the number of investors withdrawing has not been damaging, and the efforts to resolve the dispute peacefully and diplomatically may succeed. Real GDP growth in Hong Kong contracted to 1.3 percent from 3.6 percent a quarter earlier; in South Korea it declined to 1.5 percent from 2.4 percent.

Recovery efforts in the euro zone have not been so successful. Despite financial bail-out packages given to Greece, there has been speculation about a possible breakdown of the zone. GDP growth in the euro zone contracted to -0.6 percent in the third quarter. Japan's economy was also slow, having growth of 0.1 percent, compared to 3.5 percent a quarter earlier. The US continued to perform well

compared with other rich economies, growing at 2.5 percent after 2.2 percent in the previous quarter. The achievement came amid speculation that the United States might plunge back into a second recession because of the looming fiscal cliff, a combination of tax hikes and spending cuts.

### World Inflation and Exchange Rates

Prices were not a policy concern in the third quarter in nearly all economies, as inflation was reasonably well controlled. Japan even experienced deflation. In Cambodia, inflation dropped to 1.6 percent from 2.9 percent a quarter earlier and from 6.7 percent a year earlier. Inflation in Vietnam further decreased to 5.6 percent, the lowest point since the start of the financial crisis, from 22.5 percent a year earlier. Japan experienced a decrease in overall prices, putting upward pressure on real interest rates.

In the third quarter, the riel depreciated 0.1 percent against the dollar, but appreciated 0.9 percent year on year. The Indonesian rupiah depreciated 2.3 percent from a quarter earlier (10 percent year on year) and Malaysian ringgit 0.3 percent (3.3 percent year on year). The euro depreciated 3.9 percent against the dollar (12.7 percent year on year). The Japanese yen appreciated 1.8 percent against the dollar in the same period.

### Commodity Prices in World Markets

In the third quarter, prices of maize (US No. 2) increased 21 percent (8.0 percent year on year) to USD327.1/tonne, of soybeans (US No. 1) 18.8 percent (26.3 percent year on year) to USD649.4/tonne and of diesel (low sulphur No. 2) 4.2 percent (4.9 percent year on year) to USD0.82/litre. Prices of rubber (SMR 5) dropped by 16.7 percent (39.4 percent year on year) to USD2799.2/tonne, of crude oil (OPEC spot) by 0.1 percent (2.1 percent year on year) to USD106.6/barrel and of gasoline by 3.3 percent (4.1 percent year on year) to USD0.72/litre. Thai rice price (Thai 100% B) went down 0.8 percent in the third quarter from a quarter earlier to USD595.7/tonne, but increased 2.5 percent year on year.

<sup>1</sup> Prepared by Roth Vathana, research associate at CDRI.

# Economy Watch—External Environment

**Table 1. Real GDP Growth of Selected Trading Partners, 2006–2012** (percentage increase over previous year)

	2006	2007	2008	2009	2010	2011	2012					
					Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Selected ASEAN countries												
Cambodia	10.6	10.2	6.8	0.1	-	-	-	-	-	-	-	-
Indonesia	5.4	6.3	6.1	4.2	6.9	6.5	6.5	6.5	6.5	6.3	6.4	6.2
Malaysia	5.9	6.3	4.6	-2.4	4.8	4.6	4.0	5.8	5.2	4.7	5.4	5.2
Singapore	7.7	7.7	1.1	-4.5	12.0	8.3	0.9	5.9	3.6	1.6	1.9	0.3
Thailand	4.8	4.9	2.6	3.3	3.8	3.0	2.6	3.5	-9.0	0.0	4.2	3.3
Vietnam	8.1	8.5	6.2	4.7	7.3	5.4	5.7	7.2	6.1	-	-	-
Selected other Asian countries												
China	10.5	11.9	9.0	8.2	9.8	9.7	9.5	9.1	8.9	8.1	7.6	7.4
Hong Kong	6.6	6.4	2.4	-3.2	6.2	7.2	5.1	4.3	3.0	4.2	3.6	1.3
South Korea	5.0	4.9	2.2	-1.0	4.8	4.2	3.4	3.4	3.4	3.0	2.4	1.5
Taiwan	4.6	5.2	0.1	-3.6	6.9	6.5	4.9	3.4	1.9	0.4	-0.2	1.0
Selected industrial countries												
Euro-12	2.7	2.9	0.9	-3.8	2.0	2.5	1.6	1.4	0.7	0.0	-0.4	-0.6
Japan	2.1	2.0	-0.7	-5.4	2.2	-1.0	-1.0	0.0	-1.0	2.8	3.5	0.1
United States	3.3	2.2	1.1	-2.5	2.8	2.3	1.5	1.6	1.6	2.1	2.2	2.5

Sources: International Monetary Fund, Economist and countries' statistic offices

**Table 2. Inflation Rate of Selected Trading Partners, 2006–2012** (percentage price increase over previous year—period averages)

	2006	2007	2008	2009	2010	2011	2012					
					Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Selected ASEAN countries												
Cambodia	4.7	10.5	19.7		3.3	3.6	6.2	6.7	4.9	5.5	2.9	1.6
Indonesia	13.4	6.4	10.1	4.7	6.3	6.8	5.9	4.7	4.1	3.8	4.5	4.5
Malaysia	3.7	2.0	5.3	0.4	2.1	2.8	3.3	3.4	3.2	2.3	1.7	1.4
Singapore	1.0	2.1	6.5	0.5	4.0	5.2	4.7	5.5	5.5	4.9	5.2	4.2
Thailand	4.7	2.2	5.5	-0.9	2.0	3.0	4.1	4.1	4.0	3.4	2.6	2.9
Vietnam	7.7	8.3	23.3	7.3	10.9	12.8	19.4	22.5	19.8	16.0	8.6	5.6
Selected other Asian countries												
China	1.5	4.8	5.9	-0.8	4.7	5.1	5.7	6.3	4.6	3.8	2.9	1.9
Hong Kong	2.2	2.0	4.3	-0.3	2.9	4.0	5.1	6.5	5.7	5.2	4.2	3.1
South Korea	2.4	2.5	4.6	2.8	3.6	4.4	4.2	4.8	4.1	2.9	2.4	1.6
Taiwan	0.6	1.8	3.2	-1.1	1.1	1.3	1.6	1.3	1.4	1.3	1.6	3.0
Selected industrial countries												
Euro-12	2.1	2.1	3.3	0.4	2.0	2.5	2.7	2.7	2.9	2.7	2.5	2.5
Japan	0.5	0.1	1.4	-1.3	0.1	0.0	0.3	0.2	-0.3	0.3	0.2	-0.4
United States	3.2	2.9	3.8	-0.4	1.3	2.1	3.5	3.8	3.3	2.8	1.9	1.7

Sources: International Monetary Fund, Economist and National Institute of Statistics

**Table 3. Exchange Rates against US Dollar of Selected Trading Partners, 2007–2012** (period averages)

	2007	2008	2009	2010	2011	2012						
					Q1	Q2	Q3	Q4	Q1	Q2	Q3	
Selected ASEAN countries												
Cambodia (riel)	4062.70	4054.20	4140.48	4187.09	4041.90	4044.89	4095.66	4071.89	4045.98	4054.26	4060.21	
Indonesia (rupiah)	9419.00	9699.00	10413.83	9089.94	8902.02	8593.94	8625.83	8985.65	9078.63	9281.28	9490.25	
Malaysia (ringgit)	3.30	3.30	3.52	3.22	3.05	3.02	3.02	3.15	3.06	3.11	3.12	
Singapore (S\$)	1.51	1.42	1.45	1.36	1.28	1.24	1.23	1.29	1.26	1.26	1.25	
Thailand (baht)	32.22	33.36	34.34	31.73	30.56	30.28	30.15	30.98	31.00	31.28	31.34	
Vietnam (dong)	16,030.00	16,382.00	17,725.24	19,200.79	20,273.83	20,693.58	20,699.60	20,997.70	20,971.18	-	-	
Selected other Asian countries												
China (yuan)	8.03	6.94	6.83	6.76	6.58	6.50	6.42	6.36	6.31	6.33	6.35	
Hong Kong (HK\$)	7.80	7.78	7.75	7.77	7.79	7.78	7.79	7.78	7.76	7.76	7.76	
South Korea (won)	929.04	1137.23	1277.76	1156.32	1120.19	1084.27	1084.90	1144.87	1131.17	1152.59	1132.85	
Taiwan (NT\$)	32.85	31.54	33.04		29.30	28.86	29.19	30.26	29.68	29.62	29.82	
Selected industrial countries												
Euro-12 (euro)	0.70	0.84	0.72	0.76	0.73	0.70	0.71	0.74	0.76	0.77	0.80	
Japan (yen)	117.80	102.46	93.60	87.80	82.33	81.66	77.86	77.78	79.30	80.07	78.60	

Sources: International Monetary Fund, Economist and National Bank of Cambodia

**Table 4. Selected Commodity Prices on World Market, 2007–2017** (period averages)

	2007	2008	2009	2010	2011	2012					
					Q1	Q2	Q3	Q4	Q1	Q2	Q3
Maize (USNo.2)—USA (USD/tonne)	149.08	218.15	167.31	169.90	280.32	311.63	302.79	270.77	277.50	270.46	327.14
Palm oil—north-west Europe (USD/tonne)	707.68	912.23	686.84	834.75	1251.00	1147.00	1079.00	1024.67	1106.67	1133.0	-
Rubber SMR 5 (USD/tonne)	2202.30	2586.30	1884.84	3152.17	5278.03	4968.77	4617.57	3658.00	3701.17	3361.0	2799.23
Rice (Thai 100% B)—Bangkok (USD/tonne)	305.36	615.32	524.47	456.67	528.25	514.33	581.3	610.33	549.00	600.3	595.67
Soybeans (US No.1)—USA (USD/tonne)	294.59	460.41	414.03	375.38	537.24	525.66	513.98	454.83	490.79	546.5	649.36
Crude oil—OPEC spot (USD/barrel)	69.25	95.44	60.50	71.61	100.70	113.31	108.91	109.1	117.3	106.7	106.6
Gasoline—US Gulf Coast (cents/litre)	53.58	62.22	42.91	49.83	67.92	78.73	74.63	68.50	78.97	74.0	71.56
Diesel (low sulphur No.2)—US Gulf Coast (cents/litre)	55.51	76.20	43.05	51.62	72.47	75.72	77.27	77.31	83.75	77.8	81.09

Sources: Food and Agriculture Organisation and US Energy Information Administration



## Economy Watch—Domestic Performance<sup>1</sup>

### Main Economic Activities

Fluctuation and uncertainty in the global economy continued to affect Cambodia's growth and recovery, especially in major growth-driving sectors. The still struggling recovery in the euro zone, the looming fiscal cliff in the US and the slowdown in major economies in Asia might explain the relatively slow growth in main economic activities of the country in the third quarter of 2012.

Although the total value of private investment projects approved increased by 57.1 percent in the third quarter from a quarter earlier, it went down 84.4 percent year on year to USD428.8 m. Investment in agriculture rose by 105.8 percent from a quarter earlier (34.9 percent year on year). Investment in industry increased by 49.4 percent in the third quarter from the preceding quarter to USD259.9 m, but year on year dropped by 89 percent. In the same period, investment in services decreased by 88.3 percent (99.2 percent year on year) to USD2.1 m. No investment was made in hotels and tourism. Investment in garments—accounting for 41.3 percent of total investment approved in industry and one of the main export commodities—increased 9.9 percent from a quarter earlier, but declined by 2.3 percent year on year. Real estate has not fully recovered to its pre-crisis level, as construction value continued to fluctuate. In the third quarter, the value of villas and houses dropped 72.5 percent from a quarter earlier (82.8 percent year on year) to USD18.3 m and of flats by 71.9 percent (31.6 percent year on year) to USD61.6 m. The value of “other” rose by 98.5 percent from the preceding quarter (85.7 percent year on year). In the same period, the number of tourist arrival continued its upward trend, increasing 7.8 percent (17.3 percent year on year) to 821,000.

Total exports declined by 10.1 percent in the third quarter (9.6 percent rise year on year) to USD1596 m; garment exports dropped by 9.9 percent (3.4 percent increase year on year) to USD1329 m. Garment exports to the US (42.6 percent of all garment exports) decreased by 9.7 percent (8.5 percent year on year) to USD566.6 m, whereas exports to the EU (34.8 percent of garment exports) declined 8.2

percent, but year on year increased by 16.4 percent to USD462.7 m. Agricultural exports, accounting for 5.4 percent of total exports, went down 15 percent in the third quarter from the previous quarter (13 percent year on year) to USD86.1 m; exports of rubber declined by 0.6 percent (17.8 percent year on year), of wood by 66.9 percent (74.5 percent year on year) and of fish by 42.9 percent (71.4 percent year on year). Rice exports decreased by 15.5 percent to USD31.7 m, but year on year rose by 41.5 percent. In the same period, total imports increased by 6.9 percent (32.7 percent year on year) to USD2015 m; imports of gasoline went up 1.7 percent (5.7 percent year on year), of diesel 9.2 percent (16.3 percent year on year) and of construction materials 17 percent (42.2 percent year on year).

### Public Finance

Continued efforts to strengthen revenue collection and reduce wasteful government spending should remain on the agenda. Although the government budget fluctuated on a quarterly basis in the third quarter of 2012, year on year the trend was satisfactory. Total revenue declined 7.1 percent in the third quarter from a quarter earlier (25.9 percent increase year on year) to KHR1900.8 bn. Current revenue dropped by 6.9 percent (20 percent rise year on year); revenue from taxes decreased by 9.4 percent, but year on year increased by 18.8 percent to KHR1560.7 bn. In the same period, total expenditure went up 21.7 percent (27.7 percent year on year) to KHR2951.3 bn. Cambodia's ASEAN chairmanship partly explained the increased spending. Capital expenditure rose by 66.8 percent (49.1 percent year on year)—a sign that the government has increasingly spent on construction and rehabilitation of infrastructure. Current expenditure increased by 2.8 percent from a quarter earlier (16.4 percent year on year) to KHR1756.7 bn; expenditure on wages dropped 9.3 percent (4.4 percent increase year on year) and on subsidies and social assistance by 10.2 percent (42.9 percent year on year).

<sup>1</sup> Prepared by Roth Vathana, research associate, Sry Bopharath and Pon Dorina, research assistants, at CDRI.

### **Inflation and Foreign Exchange Rates**

Inflation was manageable. In the third quarter, overall prices in Phnom Penh increased by 1.6 percent from a year earlier; food and non-alcoholic beverages rose by 1.3 percent and transportation by 1.1 percent. The riel depreciated 0.2 percent against the dollar, but year on year appreciated 0.9 percent. In the third quarter the price of gold increased by 2.0 percent from a quarter earlier (3.1 percent decrease year on year) to USD198.3/chi and of diesel by 11.8 percent (1.2 percent rise year on year). The price of gasoline declined by 1.1 percent, but year on year increased 0.1 percent.

### **Monetary Developments**

In the second quarter, net foreign assets rose by 0.4 percent from a quarter earlier (3.5 percent year on year) to KHR18729.6 bn and net domestic assets by 27.5 percent (102.7 percent year on year) to KHR7922.3 bn. Total liquidity increased by 21.1 percent year on year, money by 9.4 percent and quasi-money by 23.4 percent.

### **Poverty Situation**

CDRI's regular quarterly survey of vulnerable workers, which was conducted November 6-21 2012, showed an increase in daily earnings for most vulnerable worker groups compared to the same period of the previous year. This included cyclo drivers, porters, small vegetable traders, waiters/waitresses, rice-field workers, garment workers, motor taxi drivers and construction workers. Among these, small vegetable traders' earnings rose the most.

The average real daily earnings of cyclo drivers rose 12.5 percent to KHR10,454 in November. Their average daily consumption was KHR5481.4. Ninety percent of interviewed cyclo drivers rented their cyclo, and only 11.4 percent were members of the cyclo association.

The average daily earnings of porters rose by 9.5 percent from the same period in 2011 to KHR12,574; their expenses dropped by 0.7 percent, from KHR7238.6 to KHR7184.8/day. Ninety-five percent said that they rented their house, which had an average of seven people. Among the interviewed porters, 97.5 percent were the main income earners in their family.

Motor taxi drivers' average daily incomes increased 1.0 percent, from KHR12,256 to KHR13,042. On average they had worked in this occupation for three years, for 8.4 hours per day. Of motor taxi drivers interviewed, 25 percent were in debt an average of KHR713,920. Ninety-five percent of them stated that increases in food prices had the most direct impact on them.

Unskilled construction workers' average real daily earnings increased 15.4 percent, from KHR9859 to KHR11,375, while skilled construction workers' incomes decreased 4.4 percent from KHR14,930. Only 5 percent of skilled construction workers knew about the construction workers association, and none of them were members.

Small vegetable traders' daily earnings increased 49 percent to KHR10,542 in November. All of the traders interviewed were the breadwinners for an average five people in their families.

Rice-field workers' daily incomes went up 9.9 percent to KHR5000. Among the interviewed workers, 35 percent didn't have their own land, 60 percent had one hectare and the other 5 percent had three hectares. Rice-field workers had the lowest daily total expenditure: KHR2388.

The average real daily earnings of scavengers dropped by 9.3 percent in November compared with the previous year. Their daily total expenditure was KHR5262, including KHR3846 for food. Twenty-five percent of interviewed scavengers migrated to Phnom Penh or Siem Reap alone; the other 75 percent came with their families.

The average real daily earnings of garment workers rose by 4.9 percent compared with November 2011. Before working in their current occupation, 7.5 percent went to private training, 11.7 percent received training at home and 52.5 percent were trained in the factory; the other 28.3 percent had no skill. They spent KHR4154 for their daily food and in the last three months had saved an average KHR161,797. Forty-eight percent were union members of the Free Workers, Khmer Youth and Kamkor Kampuchea. Eighty-five percent were optimistic about their current factory. If the factory closed, 65 percent would look for other jobs in Phnom Penh, while 31 percent would return home and 4 percent didn't know what they would do.

**Table 1. Private Investment Projects Approved, 2006–12\***

	2006	2007	2008	2009	2010	2011				2012		
						Q1	Q2	Q3	Q4	Q1	Q2	Q3
	Fixed Assets (USD m)											
Agriculture	498.0	135.6	92.0	615.0	530.68	4.1	156.4	123.9	440.6	154.7	81.2	167.1
Industry	365.3	709.1	724.9	818.5	403.66	67.1	257.1	2361.0	174.9	208.7	173.7	259.5
<i>. Garments</i>	89.4	170.7	142.8	90.1	122.81	57.1	108.4	109.7	118.7	139.4	97.5	107.2
Services	2939.1	1742.5	10,003.2	4432.0	1337.34	209.5	2229.2	264.1	722.6	50.9	18.0	2.1
<i>. Hotels and tourism</i>	345.0	1048.3	8758.1	3980.1	1105.14	107.9	2221.9	264.1	257.0	50.9	0.0	0.0
Total	3802.4	2587.2	10,570.9	5865.5	2271.7	280.72	2642.7	2748.9	1338.1	414.4	273.0	428.8
Total	-	-	-	-	-	-77	8.41	-4	-51.3	-69	-33.9	55.6
Total	246.6	-32	308.6	-44.5	-61.3	-24.8	643.2	753	9.6	48.4	-89.6	-84.4

\*Including expansion project approvals. Source: Cambodian Investment Board

**Table 2. Value of Construction Project Approvals in Phnom Penh, 2006–12**

	2006	2007	2008	2009	2010	2011				2012		
						Q1	Q2	Q3	Q4	Q1	Q2	Q3
	USD m											
Villas and houses	33.1	79.1	154.7	64.3	36.2	4.1	5.9	106.3	60.9	64.8	66.6	18.3
Flats	213.3	297.2	221.6	149.6	183.8	16.1	22.8	90.0	58.5	60.8	219.3	61.6
Other	76.8	259.6	740.9	227.3	269.7	23.6	48.7	51.1	29.3	197.2	47.8	94.9
Total	323.3	635.8	1117.0	441.2	489.8	43.8	77.4	247.4	148.7	322.8	333.6	174.9
Total	-	-	-	-	-	-	76.7	219.7	-39.9	117.1	3.3	-47.6
Total	-9.9	96.7	75.7	-60.5	11	-14.8	-61.7	215.6	40.29	637.1	331.1	-29.3

Source: Department of Cadastre and Geography of Phnom Penh municipality

**Table 3. Foreign Visitor Arrivals, 2005–12**

	2006	2007	2008	2009	2010	2011				2012		
						Q1	Q2	Q3	Q4	Q1	Q2	Q3
	Thousands											
By air	1029.0	1296.5	1239.4	1111.7	1304.3	427.4	286.9	335.3	430.7	513.6	317.1	370.5
By land and water	672.9	718.6	881.9	999.7	1094.6	351.0	319.6	364.5	366.3	481.5	424.3	450.3
Total	1701.9	2015.1	2121.3	2111.5	2398.9	778.4	606.5	699.8	797.1	995.2	761.4	820.9
Total	-	-	-	-	-	10.4	-22.1	15.4	13.9	24.9	-23.5	7.8
Total	19.7	28.4	5.3	0.5	13.6	13.9	12.8	20.2	13.0	27.8	25.5	17.3

Source: Ministry of Tourism

**Table 4. Exports and Imports, 2006–12**

	2006	2007	2008	2009	2010	2011				2012		
						Q1	Q2	Q3	Q4	Q1	Q2	Q3
	USD m											
Total exports	2810.9	3050.3	3097.8	2901.6	3630.2	1017.7	1132	1455.6	1324.2	1280.1	1775.9	1595.8
Of which: Garments	2698.8	2938.9	2986.2	2565.3	3223.4	880.48	964.15	1285.71	1129.23	1070.8	1474.7	1329.1
<i>. To U S</i>	1847.2	1956.5	1908.3	1512.6	1853.9	464.47	466.7	619.38	504.71	493.3	627.3	566.6
<i>. To EU</i>	601.0	654.3	689.0	644.7	809.5	232.0	301.4	397.5	391.3	328.4	504.1	462.7
<i>. To ASEAN</i>	2.6	3.2	10.76	6.9	9.9	3.77	4.18	4.73	4.95	6.4	11.7	11.4
<i>. To Japan</i>	29.4	28.5	25.2	44.5	86.5	34.3	28	43.4	41.25	50.1	48.9	47.1
<i>. To rest of the world</i>	218.7	296.4	352.9	356.5	463.6	145.9	163.89	220.68	187.03	192.5	282.7	241.3
Agriculture	59.7	55.7	44.5	73.1	164.9	74.01	97.07	98.91	92.06	80.5	101.3	86.1
<i>. Rubber</i>	41.5	41.0	35.8	51.6	89.1	49.86	48.6	56.11	43.06	40.3	46.4	46.1
<i>. Wood</i>	8.6	8.7	3.4	3.5	34.1	6.2	16.8	16.1	9.7	8.9	12.4	4.1
<i>. Fish</i>	6.0	3.2	2.3	3.9	2.8	0.6	0.4	1.4	0.7	0.5	0.7	0.4
<i>. Rice</i>	2.5	1.5	2.6	10.9	34.7	16.9	30.3	22.4	37.0	27.1	37.5	31.7
<i>. Other agriculture</i>	1.2	1.2	0.5	3.0	4.1	0.5	1.0	2.9	1.6	3.9	4.4	3.9
Others	52.33	55.8	67.1	263.22	242.0	63.2	70.8	71.0	102.9	128.8	199.9	180.6
Total imports	3047.9	3770.2	4272.5	4331.5	5190.6	1454.9	1690.1	1519.1	1711.9	1609.2	1885.4	2015.2
Of which: Gasoline	49.4	73.6	84.8	91.13	108.6	62.2	76.7	73.8	81.8	70.7	76.7	78.0
<i>Diesel</i>	121.6	133.7	119.5	180.67	203.8	92.7	129.9	118.9	105.5	139.4	126.6	138.3
<i>Construction materials</i>	33.8	44.31	56.3	49.74	57.6	11.8	12.7	11.6	12.0	13.5	14.1	16.5
<i>Other</i>	2843.1	3518.5	4011.8	4010	4820.6	1288	1471	1315	1513	1386	1668.0	1782.4
Trade balance	-237.0	-719.9	-1174.7	-1429.9	-1560.5	-437.2	-558.1	-63.5	-387.6	-329.1	-642.2	-419.4
Total garment exports	-	-	-	-	-	-6.6	9.5	33.4	-12.2	-5.2	-37.7	-9.9
Total exports	-	-	-	-	-	-4.9	11.2	28.6	-9.0	-3.3	38.7	-10.1
Total imports	-	-	-	-	-	8.9	16.2	-10.1	12.7	-6.0	17.2	6.9
Total garment exports	19.8	8.9	1.6	-14.1	25.7	40.8	34.5	37.0	19.8	21.6	53.0	3.4
Total exports	19.5	8.5	1.6	-6.3	25.1	46.7	37.9	39.3	23.7	25.8	56.9	9.6
Total imports	21.5	23.7	13.3	1.4	19.8	30.1	33.7	3.2	28.1	10.6	11.6	32.7

Import data include tax-exempt imports. Sources: Department of Trade Preference Systems, MOC, and Customs and Excise Department, MEF (web site)

**Table 5. National Budget Operations on Cash Basis, 2006–12** (billion riels)

	2006	2007	2008	2009	2010	2011				2012		
						Q1	Q2	Q3	Q4	Q1	Q2	Q3
Total revenue	3259.2	1146.1	5290.0	5988.99	2805.83	1400.46	1564.25	1510.1	1776.61	1728.9	2045.1	1900.8
Current revenue	2881.8	1141.6	5210.7	5859.08	2786.12	1378.61	1563.01	1497.59	1740.12	1725.8	1928.6	1796.4
Tax revenue	2270.9	965.2	4409.9	4692.96	2457.02	1142.29	1367.52	1313.35	1454.33	1403.82	1721.8	1560.7
Domestic tax	-	661.8	3248.4	3533.57	1727.10	875.569	1095.26	996.642	1104.12	1092.27	1403.4	1230.0
Taxes on international trade	-	303.5	1161.5	1159.39	639.00	266.719	272.27	316.709	350.207	311.253	318.4	330.7
Non-tax revenue	610.9	176.4	800.8	1166.13	507.13	236.329	195.48	184.23	285.8	330.98	206.9	235.7
Property income	-	13.6	78.0	291.13	4.87	10.6426	18.64	15.19	19.35	91.28	13.1	22.5
Sale of goods and services	-	124.3	424.7	460.07	268.08	129.982	138.92	144.192	175.627	166.899	171.4	132.8
Other non-tax revenue	-	38.5	298.2	408.91	391.70	95.7053	37.9	24.856	90.815	63.8	22.4	80.5
Capital revenue	377.4	4.5	79.3	129.92	2019.39	21.8524	1.25	12.513	36.486	3.148	116.4	104.4
Total expenditure	4174.7	1689.7	6297.8	8784.65	4259.67	1581.62	2025.15	2310.61	3115.05	1688.33	2425.6	2951.3
Capital expenditure	1638.1	807.4	2574.4	2853.23	1495.19	579.818	721.01	801.167	1444.89	699.937	716.2	1194.5
Current expenditure	2536.8	882.3	3809.0	4773.07	2848.81	857.492	1304.13	1509.44	1670.15	988.398	1709.4	1756.7
Wages	822.0	362.6	1397.0	2048.81	1208.81	401.0	531.6	629.697	608.253	508.919	725.2	657.5
Subsidies and social assistance	-	194.2	927.1	1099.42	613.31	257.356	450.85	323.282	487.345	189.594	514.6	462.1
Other current expenditure	-	325.5	1384.9	1624.84	1067.07	199.1	321.7	556.5	574.6	289.9	469.7	637.1
Overall balance	-915.5	-543.6	-1007.8	-2795.66	-1453.83	-181.2	-460.9	-800.5	-1,338.4	196.5	-380.6	-1050.5
Foreign financing	1360.7	741.5	2055.10	1845.21	772.81	544.4	576.9	272.9	985.0	577.8	491.5	959.3
Domestic financing	-445.1	-185.8	-127.00	938.64	567.96	-1,745.2	238.7	312.5	105.6	-565.7	148.4	22.1

Source: MEF web site.

**Table 6. Consumer Price Index, Exchange Rates and Gold Prices** (period averages), 2006–12

	2006	2007	2008	2009	2010	2011				2012		
						Q1	Q2	Q3	Q4	Q1	Q2	Q3
(October-December 2006:100)	Consumer price index (percentage change over previous year)											
Phnom Penh												
- All Items	4.7	5.8	19.7	-0.7	4.1	3.6	6.3	6.7	4.9	2.9	2.9	1.6
- Food & non-alcoholic bev.	6.4	9.9	33.1	-0.3	4.4	3.9	7.6	8.2	6.2	3.4	3.4	1.3
- Transportation	9.1	5.8	19.4	-10.7	7.0	5.0	7.3	8.8	6.3	3.0	3.0	1.1
	Exchange rates, gold and oil prices (Phnom Penh market rates)											
Riels per US dollar	4119.0	4062.7	4058.2	4140.5	4187.1	4041.9	4044.9	4095.7	4071.9	4046.0	4054.3	4060.7
Riels per Thai baht	108.7	122.8	123.5	121.1	133.13	132.7	133.8	135.2	131.1	130.2	129.0	129.3
Riels per 100 Vietnamese dong	25.1	25.0	24.8	23.4	21.725	19.9	19.6	19.8	19.4	19.3	19.4	19.5
Gold (US dollars per chi)	70.6	83.2	105.9	113.1	147.58	147.9	181.5	204.6	203.8	204.1	194.5	198.3
Diesel (riels/litre)	3140.0	3262.3	4555.2	3170.9	3859.3	4427.2	4784.6	4924.5	4908.3	5193.9	4458.3	4983.9
Gasoline (riels/litre)	4004.0	4005.0	4750.8	3593.1	4368.1	4750.1	5065.5	5248.4	5113.8	5395.8	5308.3	5251.3

Sources: NIS, NBC and CDRI

**Table 7. Monetary Survey, 2006–12** (end of period)

	2006	2007	2008	2009	2010	2011				2012			
						Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
	Billion riels												
Net foreign assets	7224.0	10,735.0	10,345.0	14,655.0	16,903.0	16,697.9	17,079.1	18,099.9	17,695.2	17,893.9	18,652.3	18,729.6	
Net domestic assets	-282.0	576.0	1513.3	1573.0	1984.8	2778.9	3199.2	3907.7	4961.6	5760.8	6211.2	7922.3	
Net claims on government	-953.0	-1816.0	-2987.0	-2252.0	-2120.4	-2126.6	-2252.7	-2184.2	-1925.8	-2123.1	-2542.4	-2399.9	
Credit to private sector	3630.0	6386.0	9894.0	10,532.0	12,479.8	13,331.2	13,909.0	15,290.6	16,385.7	17,552.8	18,789.0	20,081.4	
Total liquidity	6942.0	11,311.0	11,858.0	16,228.0	18,887.8	19,476.8	20,278.3	22,007.6	22,656.8	23,654.7	24,863.5	26,651.9	
Money	1658.0	2052.0	2399.0	3120.0	3061.7	3220.9	3497.2	3539.8	3681.3	3956.2	3984.6	3871.8	
Quasi-money	5285.0	9259.0	9459.0	13,108.0	15,826.1	16,255.9	16,781.1	18,467.8	18,975.5	19,698.5	20,878.9	22,780.1	
	Percentage change from previous year												
Total liquidity	38.1	62.9	4.8	36.9	26.7	20.0	17.7	20.5	20.0	21.5	20.2	21.1	
Money	25.3	23.8	16.9	30.1	10.4	3.2	11.1	13.6	20.2	22.8	11.4	9.4	
Quasi-money	42.8	75.2	2.2	38.6	30.4	24.0	19.1	21.9	19.9	21.2	22.0	23.4	

Source: National Bank of Cambodia

**Table 8. Real Average Daily Earnings of Vulnerable Workers** (base November 2000)

	Daily earnings (riels)										Percentage change from previous year		
	2007	2008	2009	2010	2011	2012				2012			
						Nov	Feb	May	Aug	Nov	May	Aug	Nov
Cyclo drivers	8075	12,628	8091	9055	9348	10,686	10,686	10,690	10,454	10,454	29.9	8.6	12.5
Porters	8588	9005	9549	9964	11,554	10,804	12,713	12,479	12,574	12,574	27.9	18.5	9.4
Small vegetable sellers	8220	9926	8273	8266	7116	12,292	9,901	10,347	10,542	10,542	14.2	22.4	49.0
Scavengers	5422	4652	5857	6698	10,347	7986	8266	9139	9328	9328	-5.3	20.2	-9.3
Waitresses*	4482	4327	4646	5607	6271	6179	6261	5569	6436	6436	2.4	2.3	3.2
Rice-field workers	5516	8697	6197	5691	4577	4690	6431	8483	5000	5000	6.6	14.8	9.9
Garment workers	7568	6554	7085	7746	8620	8555	8391	9599	8989	8989	4.7	9.8	4.9
Motorcycle-taxi drivers	10,634	15,691	10,685	10,623	12,971	12,256	13,616	12,807	13,042	13,042	27.1	14.2	1.1
Unskilled construction workers	6155	8779	8343	8790	9914	10,658	11,589	10,690	11,375	11,375	22.1	1.0	15.4
Skilled construction workers	11,154	12,710	12,487	11,952	15,013	13,824	12,847	14,029	14,270	14,270	3.1	10.0	-4.4

\* Waitresses' earnings do not include meals and accommodation provided by shop owners. Surveys on the revenue of waitresses, rice-field workers, garment workers, unskilled workers, motorcycle taxi drivers and construction workers began in February 2000. Source: CDRI



*Continued from page 24* **CDRI Update**

on the theme *Securing Cambodia's Future: Food, Energy and Natural Resources*. Prime Minister Hun Sen will again deliver the keynote opening address. Leaders from government, the private sector, international agencies and the research community will address issues of Cambodia's current economic and development indicators and policy priorities, energy and infrastructure, food security and agricultural development.

**RESEARCH****Democratic Governance and Public Sector Reform Programme**

The team is working on eight research projects, mainly funded by the Swedish International Development Cooperation Agency (Sida), most of which are approaching their final phases. The report on *Transformed Society in the Face of D&D: Implications of State-Society Reciprocal Relations in Cambodia* has been finalised; an article summarising the study is to be published in the *Annual Development Review 2012-13*. Fieldwork for the project *Urban Governance in Decentralised Cambodia* was conducted in four provinces, but work in two other provinces was delayed. This was due to an unexpected project, *Phnom Penh Baseline Survey*, commissioned by the District Support Team/One Window Service Office (DST/OWSO) of the National Committee for Sub-National Democratic Development (NCDD). The first draft of the report has been sent to the DST/OWSO team for review and should be finalised at the end of December. For *Nested Governance of Water for Agriculture: Decentralisation, Multi-level Government and Local Community in the Tonle Sap Basin*, a study partially supported by the Asian Institute of Technology's M-Power-CPWF Research Fellowship Programme, the mid-term report was submitted. The report for the project *Gendered and Democratic Decentralisation: Analysis of Gender in Political Parties in Cambodia* is being drafted and discussed among the authors. The manuscript for *20 Years after UNTAC: Cambodian Civil Society Strengthened?* was presented to development practitioners and partners, and researchers. The project *Decentralisation Reform in the Education Sector* is in the early stages of implementation.

An article drawing on the project '*All Good Things do Not Go Together*' – *Analysing Contradictions between Peace-building and Democratisation*, a project being undertaken in partnership with the University of Gothenburg to identify how and why conflicts emerge in the wake of, and possibly triggered by, peace-building interventions, has been submitted to an international journal for publication.

**Economy, Trade and Regional Cooperation Programme**

The quarterly *Vulnerable Worker Survey* and monthly *Provincial Price Survey* are in good progress. The programme also published eight Policy Briefs, in both English and Khmer, derived from the *Global Financial Crisis and Vulnerability in Cambodia* project supported by the International Development Research Centre (IDRC). The dissemination workshop, with participation from government officers, representatives of international organisations such as the Asian Development Bank, the World Bank, the United Nations Development Fund, local and international NGOs, researchers and academics, was organised on 19 October. Eight analytical project papers are being finalised for publishing as CDRI working papers.

The final report of *ASEAN 2030 Phase I: Growing Together for Economic Prosperity – the Challenges: Cambodia Background Paper* was submitted to the Asian Development Bank Institute (ADB); Phase II of the project starts in early 2013. The report on *Assessing Economic Inclusiveness in Cambodia: Income and Non-income Pro-poor Approach* is being finalised and its key findings will be presented at the next GMS-DAN workshop in late January 2013. The reports on *What are the Constraints to Inclusive Growth in Cambodia?* and *Industrial Clusters, Business Associations and SME's productivity: Evidence from Enterprise Survey of Cambodia* are being revised upon comments received from ARTNet. The key findings of the latter paper were presented at a regional workshop held in Colombo, Sri Lanka, in August. The preliminary results of the project *Levels and Sources of Household Income in Rural Cambodia 2012* have been submitted to the World Bank for further comments.

The Sida-supported five-year research project on *Inclusive Growth* focusing on High and Sustainable Economic Growth; Economic Growth, Inequality

and Poverty Reduction; Assessing the Pro-Poorness of Fiscal Policy; Economic Growth, Trade and Poverty Reduction; and How to Achieve Inclusive Growth is on-going. The report on *High and Sustainable Economic Growth* has been drafted and reviewed.

### **Natural Resources and The Environment Programme**

The programme recently completed the project *Strengthening Aquatic Resources Governance (STARGO)*, which entailed conducting a national dialogue on local innovations to support the reforms in aquatic resources governance on the Tonle Sap Lake. The team finalised the Tonle Sap case study working paper, and the key issues will be summarised in an article for publication in the *Cambodia Development Review*.

Four research projects are in progress. The findings for *Climate Change Adaptation and Livelihoods in Cambodia*, a Sida-supported project (September 2011-December 2012), have been published in a working paper. For *Gender and Water Governance: Irrigation Management and Development in the Context of Climate Change*, a Sida-funded project (January 2012-June 2013), fieldwork has been completed and the findings are being analysed and written up in a working paper. The team for *China Goes Global: A Comparative Study of Chinese Hydropower Dams in Africa and Asia*, funded by the Economic and Social Research Council (October 2012-October 2015), has done a preliminary literature review and presented the findings at the first workshop in London. For the IDRC-supported project *Improving Water Governance and Climate Change Adaptation in Cambodia*, (October 2012-September 2015), field reconnaissance was conducted in November, five mini studies are being developed and an inception workshop is being organised for January 2013.

AusAID is collaborating with NRE researchers to evaluate the Water Resources Management Research Capacity Development Programme (WRMRCDP). The purpose of this independent impact assessment, taking place from December to January 2013, is to assess how and to what extent the WRMRCDP has informed and influenced government policy and improved water management practices in Cambodia. The Overseas Development Institute (ODI) has recently engaged the NRE Programme

to implement the project *Practical Approach to Supporting Competitiveness of Low/Lower-middle Income Countries in a Carbon Constrained World*. In addition, the team is awaiting the result of a proposal submitted to CARF/AusAID on *Small-scale Fish Farming*.

In the spirit of cross-programme support and collaboration, the NRE team helped the Governance Programme to prepare for a dissemination workshop in Kratie, helped the DRF committee to organise the 2012 DRF Symposium, and is participating in the planning for the 2013 Outlook Conference.

### **Poverty, Agriculture and Rural Development Programme**

Two projects were completed. The final report on the project *Promoting Gender Equality for the Labour Market for more Inclusive Growth*, supported by ADB was accepted. The final report for the *Arbitration Council Mid-line Follow-up Study* has been completed and results presented to the Arbitration Council Foundation.

The Programme team is undertaking five projects. For the *Study on the Contribution of Arbitration Council Services in Improving Industrial Relations in Cambodia: The Case of Garment Factories*, a summary report of key findings drawn from the qualitative data is being drafted. Four case studies have been drafted for the project on *Developing Agricultural Policies for Rice-based Farming Systems in Cambodia and Laos*. These will be published as individual chapters in an ACIAR monograph entitled *Policy in Practice: Using Evidence from Field Studies to Inform Rice Policy in the Mekong Region*, for release in mid-2013. The study on the *Impact of Contract Farming on Smallholder Livelihoods*, with financial support from Sida, is in the design phase; the conceptual framework and research instrument are being designed. Data collection for the project *Impact Assessment of CAVAC-funded CARF Projects* has been completed and the draft report is in progress. For the *Baseline Assessment Study of USAID-HARVEST Programme*, data collection and data entry have been completed, and data analysis and the baseline report are in progress.

### **Social Development Programme**

The Social Development Programme has five ongoing projects. The three studies of the six-

year research programme consortium on Building Pro-poor Health Systems during Recovery from Conflict “ReBUILD”, supported by UK-DFID, are making substantive progress. Data collection and fieldwork preparations are underway for the first two, *The Impact of Health Financing Policy Change on Patterns of Poor Household Expenditure for Healthcare in Cambodia* and *Policies to Attract and Retain Health Workers in Rural Areas*. The first and second draft synthesis reports for the third study, *The Change Process in Contracting Arrangements within the Cambodian Health Sector*, have been submitted to the UK coordinator. The study team has also conducted preliminary testing on the main indicators and written an article for the *Annual Development Review 2012-13*.

The GIZ-supported project *Critical Incident Inquiry: Cambodians Negotiating Gender Norms* was completed. The research team is awaiting the

schedule for the presentation of its findings to the National Working Group and the Technical Working Group on Gender.

Towards fulfilling an objective of its strategic plan, the Programme has started to conduct research on education. With support from Sida, two studies are in progress. The first, *Higher Education Governance in Cambodia: Its Structure and Core Issues*, is nearing completion and the paper has been revised based on comments from peer reviewers. The second, *Matching Labour Supply and Market Demand*, is at the literature review stage and the team is consulting key stakeholders on the project design.

The study *Verification of Sanitation Outcomes in Cambodia* is a partnership with the Bill and Melinda Gates Foundation. The project team is addressing comments received on the inception report.

## Continued from page 4 **CLIMATE CHANGE AND ...**

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## CDRI UPDATE

## MAJOR EVENTS

CDRI achieved a positive financial result for 2012, generating a modest operating surplus. The appointment of a new Director of Research in early 2012, the successful completion of some major projects, and the securing of significant new collaborative project opportunities have strengthened CDRI financially and positioned it well for 2013 and the remainder of its 2011-15 Strategic Plan. However CDRI will still need to focus on achieving more long term programme-based resource partnerships to strengthen sustainability.

Consistent with the priority of climate change impact and mitigation in its 2020 Country Research Strategy and 2011-15 Strategic Plan, CDRI has successfully applied for the funding of a major new research partnership with IDRC on *Improving Water Governance and Climate Change Adaptation in Cambodia*. The overall goal of the project, which will run from October 2012 to September 2015, is to develop an interdisciplinary approach to understanding how the interplay between climate change and development in the Tonle Sap Basin will affect livelihoods, and to use research findings to inform future policy and planning on climate change adaptation in Cambodia.

CDRI has established a new partnership with the Swiss Agency for Development and Cooperation (SDC), a relative newcomer to the Cambodian development scene. In December CDRI signed an agreement with SDC for a contribution to CDRI's institutional costs and a range of development policy

research issues over 2012-13. During the first half of 2013, CDRI and SDC will explore opportunities for a deeper longer term partnership.

On 10-12 December CDRI management and staff held their 2012 retreat in Kep on the southeast coast of Cambodia. The retreat included a review of major achievements in 2012 and lessons learned, planning priorities and organisational issues for 2013, and a discussion on leadership succession management with the Chair of CDRI's Board of Directors, HE Dr Sok Siphana. Priorities agreed for 2013 include the appointment of technical advisers for each of CDRI's five research programmes; the development of a staff satisfaction policy to further build an environment and system of rewards to promote professional satisfaction; an improved project performance monitoring system; criteria for selection of research opportunities to achieve a better balance of CDRI programme research and income generating commissioned work; a focus for CDRI's in-house research capacity building programme in 2013 on project design, management, monitoring and evaluation, research methodologies, gender, and communicating research results to a variety of audiences; and the development of a new multi-disciplinary CDRI initiative on Asian regionalism, regional integration and policy implications for Cambodia's future development.

The 2013 Cambodia Outlook Conference, a partnership of CDRI and ANZ Royal Bank, will be held in Phnom Penh on Tuesday 20 February 2013

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A Publication of CDRI—  
Cambodia's leading independent  
development policy research institute

**CAMBODIA  
DEVELOPMENT REVIEW**

Volume 16, Issue 4 (DECEMBER 2012)

Cambodia Development Review is published four times a year in simultaneous English- and Khmer-language editions by the Cambodia Development Resource Institute in Phnom Penh.

Cambodia Development Review provides a forum for the discussion of development issues affecting Cambodia. Economy Watch offers an independent assessment of Cambodia's economic performance.

Cambodia Development Review welcomes correspondence and submissions. Letters must be signed and verifiable and must include a return address and telephone number. Prospective authors are advised to contact CDRI before submitting articles, though unsolicited material will be considered. All submissions are subject to editing. CDRI reserves the right to refuse publication without explanation.

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Publisher: CDRI  
Managing Editor: YOU Sethirith,  
Production Editor: OUM Chantha  
Cover Photograph: CDRI's staff courtesy

Printing: Don Bosco Technical School, Phnom Penh

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ISSN 1560-7607 / ISBN 978-99950-52-05-8