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## UPPER SECONDARY SCHOOL IN CAMBODIA: LITERATURE GAPS

### Abstract

Reaching lower-middle-income country status represents a significant milestone in Cambodia's socioeconomic development. The shift in policy focus from poverty reduction to sustainable inclusive growth driven by higher value added enterprise means that education and skills training are more important than ever. With a larger slice of the budget allocated to education, high-level political commitment and ongoing financial and technical support from development partners, Cambodia is now halfway through its ambitious Education Strategic Plan 2014-18 to ensure inclusive, easily accessible and high-quality education for all.

Challenges remain, of course. From our review of empirical studies on upper secondary education, complemented by insights from Education Congress 2016, four critical research gaps stand out: education quality curriculum and teaching methods; private tutoring or shadow education; and students' personal development, health and morality.

### Introduction

Cambodia's general education system is divided into four stages: preschool, primary, secondary (lower and upper) and tertiary (higher) education. After completing lower secondary school, students have the option of continuing to study at upper secondary school (USS) or enrolling in a vocational training programme, offered by MOLVT and MOEYS in some provinces.

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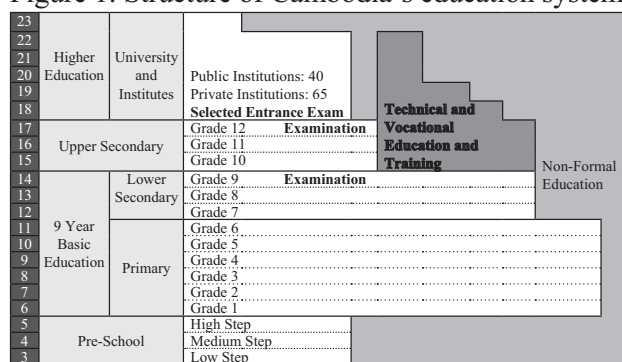
Education and skills training are now more important than ever.  
Prey Veng, February 2016

The long-term education vision is to ensure better education at all levels. The government has steadily increased the budget allocated to education from 16 percent of total public expenditure in 2012 to 17 percent in 2015 and almost 18.5 percent in 2016 (MOEYS 2016). Measured against the three objectives of the Education Strategic Plan (ESP) 2014-18 – equitable access to education, relevant and quality teaching and learning, and improved educational leadership and management – the 2016

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Figure 1: Structure of Cambodia's education system



Source: ADPC 2008

Education Congress reported some progress in the selected breakthrough indicators at secondary level, as illustrated in Table 1.

Despite government commitment and financial and technical support from development partners, critical obstacles remain. The 2016 Education Congress acknowledged 11 challenge areas, ranging from administration and personnel management to infrastructure, financing and planning, curriculum development and quality assurance. Moreover, the high percentages of students failing the national high school exams in 2014 and 2015 show that the quality of secondary education is seriously lacking. Indeed, the Ministry of Education (MOEYS 2016) reports only slight improvements in USS enrolment rates, learning quality and repetition rates, while dropout rates remain unchanged.

This article reviews empirical studies on upper secondary education in Cambodia and identifies critical gaps in the literature. These findings serve national education research agenda and priorities and can thus be applied to future education reform. First, we examine four areas of research in turn: education and teacher quality, curriculum content and teaching methods, shadow education, and school health programs. Then we suggest directions for future research as research questions that need further investigation.

Table 1: Core breakthrough indicators against ESP 2014-18 objectives

Core breakthrough indicators	Status 2013/14	Status 2015/16	Target 2017/18
<i>Policy Area 1: Ensure Equitable Access to Education</i>			
No. of provinces with a lower secondary education completion rate of at least 40%	7	8	17
<i>Policy Area 2: Promote Quality and Relevance</i>			
Youth literacy rate (15-24 year olds)	92.1% (2012)	90.1% (2014)	97.5%
National learning assessment of students at grades 3, 6 and 8 for Khmer and maths	Grade 3 assessment implemented	Grade 6 assessment results disseminated	Grade 8 assessment to be implemented

Source: Education Congress 2016

## Literature review

### *Education and teacher quality*

Better education and technical training geared towards employability create a more skilled and qualified workforce. Improving education quality has thus long been a central topic of education research. The very low pass rate of 26 percent in the 2014 national high school exam when strict measures to curb cheating and corruption were introduced is stark evidence of the poor quality of secondary education (Madhur 2015). Noting the need for further quality-improvement efforts, Khieng, Madhur and Chhem (2015) recommend that greater attention be paid to increasing enrolment rates, reducing dropout rates, attracting high-quality teachers, strengthening pedagogy and enhancing school management and governance.

The quality of the country's education system cannot be improved without also addressing teacher quality. Many studies on USS highlight the challenges of teacher shortages and deficiencies (Brehm and Silova 2014; Madhur 2014; MOEYS 2016; Nou 2015; Phin 2014; You 2010). Despite determined and significant efforts by MOEYS, USS teachers are likely to have low educational achievement and rural schools are more likely to have insufficient numbers of teachers than urban schools (Nou 2015). Furthermore, the shortage of well-trained teachers disproportionately affects poor students, produces students who are often ill-equipped to qualify for higher education, and ultimately contributes to a cycle of poor education over generations (Madhur 2014). As Un (2014) points out, poor education quality is not necessarily the result of teacher shortages but of poor teacher quality. Other scholars deflect the blame for poor teaching quality from teachers (Bray 2007; Dawson 2010), and emphasise the link between teacher quality and institutional support for teacher learning and professional development (Phin 2014).

MOEYS' (2013) vision for high-quality teachers speaks to teachers' knowledge, skills, competencies and character, and redefines teaching as a valued and respected career choice. New recruitment and retention strategies aim at attracting the best and brightest to teaching,

developing teacher training centres and redesigning teacher education. Similar policy recommendations are echoed by Tandon and Fukao (2015): make teaching attractive, prepare teachers more effectively and encourage better classroom performance.

Literature suggests that research is critical to improving the quality of technical education and ultimately reducing skills gaps. Indeed, the Master Plan for Technical Education at Upper Secondary Level 2015-19 (MOEYS 2015) sets out the need for research in its well thought out strategy for merging technical education into USS to help prepare students for employment. This builds on earlier study by Va (2012) who found that technical education options at USS reduce skills gaps, dropout rates and poverty, and promote social stability and inclusion. Both reports highlight the challenges of high-cost technical facilities and their maintenance, adding that MOEYS should invest in and expand many areas, especially inspections and assessments, to identify the best-performing schools and teachers and failing school systems.

### ***Curriculum content and teaching methods***

Appropriate curriculum and pedagogy are essential to a quality education, which, in turn, has positive effects on the quality of life (Un 2012). Policy for Curriculum Development 2005-09 details curriculum provision for both lower and upper secondary schools, the aim of which is “to develop fully the talents and capacities of all students in order that they become able people, with parallel and balanced intellectual, spiritual, mental and physical growth and development” (MOEYS 2004, 4). Specifically, the upper secondary curriculum aims to provide students with a strong grounding in Khmer literature and mathematics, an understanding of national identity, life skills that enable participation in community life, a foundation in basic and natural sciences and proficiency in foreign languages (UNESCO 2008, 11). MOEYS is currently developing new national curriculum frameworks for general and technical education which are expected to be released in late 2016.

While the literature highlights the importance of curriculum reform, significant gaps persist between curriculum policy aims and goals and what happens inside the classroom. Take the case of textbooks – the core resources for teaching and learning. Un’s (2014) analysis of USS textbook content, especially

in mathematics and sciences, raises several questions about the quality and relevance of teaching materials. Apart from physical shortages, textbooks are aimed at lower order thinking while teaching methods are not equipping students with adequate employability skills such as critical thinking, teamwork and problem solving. Consequently, students’ achievements continue to miss employers’ expectations, a finding confirmed by other studies on the mismatch between the skills high school graduates possess and those employers need (ADB and ILO 2015; Khieng et al. 2015). To reduce skills gaps and shortages, Davis (2005 cited in Nou 2015) stressed the need to standardise secondary education and rethink curriculum design.

Cognisant of these challenges, the Education Strategic Plan (ESP) 2014-18 details a robust teaching and learning materials development program which aims to improve secondary and technical education. The program includes curriculum development, development and distribution of core textbooks in all subjects to general schools, and a standardised assessment system by subject.

Two important aspects of education almost missed in the literature are making the shift from “teacher as knowledge owner” to “teacher as learning coach”, and taking advantage of free massive open online courses (MOOCs). Recent studies discuss the need for teachers to encourage students to go beyond textbooks and explore knowledge (Ros and Chhem 2015; Chong 2013). This stresses the need to design professional training for teachers, learning coaches and mentors that imparts the necessary skills to teach and engage students using MOOC platforms (Ros and Chhem 2015), a digital revolution that is rapidly transforming global education in the 21st century (Chhem 2016).

### ***Shadow education***

Research on private tutoring or shadow education provides useful insights into its scope and nature. Several studies (Bray 2007; Bray et al. 2016; Brehm and Silova 2014) describe the massive growth and demand for private classes, which sometimes replicate public school classes because they are delivered by the same teachers using the same content. Brehm and Silova (2014) report how private tutoring is seen as extra education to compensate for the perceived inadequacy of the curriculum in public schools: classes in public schools imparted

theoretical knowledge, whereas private tutoring offered practical application of theoretical concepts. Drawing on film and documentary evidence about Cambodia, India and Turkey, Kobakhidze (2015) emphasises how universal public education can mask the reality as low-income families struggle to afford private tutoring fees.

Scholarly opinions highlight the pros and cons of shadow education. On the one hand, private tutoring is believed to help slow learners catch up with their peers, enable bright students to excel, and keep students concentrated on their studies rather than hanging out and attracted by drugs or early sexual activity (Bray and Lykins 2012; Dawson 2011, 2010). On the other, shadow education can generate inequality in education because well-off families can afford better classes and teachers than poor families. In addition, private tutoring might undermine teacher performance and teaching quality in mainstream classes while attending private classes restricts students' leisure activities and reduces bonding time with their families (Bray and Lykins 2012; Kobakhidze 2015). Another consequence of private tutoring is financial burden for low-income families (Bray et al. 2016).

Comparison of patterns of shadow education in 30 countries across Asia reveals that private tutoring has a long history, with intercountry variations reflecting different economic and cultural factors (Bray and Lykins 2012). Overall, private tuition might contribute to academic performance but at the cost of sidelining other important aspects of education such as physical health, morality and responsible citizenship. Even though there is no clear evidence that private tuition increases academic achievement, some parents believe that it contributes to their children's school performance (Bray et al. 2016). Indeed, private lessons and additional educational activities appear to be expanding and have become legitimate practices in many countries (Mori and Baker 2010).

### ***School health program***

A modest body of work highlights the role of health research in various education-related disciplines, including physical and mental well-being, life skills and sexual health. Research into the effects of arsenic exposure among secondary school children in Kandal province found evidence of arsenic neurotoxicity (Vibol, Hashim and Sarmani 2015). A related study confirmed that the provision of safe

drinking water in schools reduced absenteeism and dropout rates (Hunter et al. 2014).

Sexual health research among high school students is rare. Yi et al. (2010) studied the role of risk and protective factors in risky sexual behaviour among secondary school students aged 14 to 20 years. Of 1049 students, 12 percent reported being sexually active in the previous three months, 30 percent of whom had more than one partner and 50 percent did not use a condom. Among male participants, the likelihood of risky sexual behaviour was associated with higher family income, peer pressure, substance use, witnessing community violence and low level of family support.

Research findings give a new sense of urgency to sex education, which is moving towards online learning. An E-learning initiative for teaching sex education to high school students piloted in 24 secondary schools has already been expanded (Tolson 2014). In addition, understanding of sexual orientation and the impact of prejudice and discrimination at school on students who identify as lesbian, gay, bisexual or transgender (LGBT) is seriously lacking, as revealed by a recent study which highlights the intense bullying endured by LGBT youth in Cambodia's schools (CCHR 2015).

Mental and emotional problems among young people are a serious concern. The mental health research projects we identified focus on the risk factors for suicide and the prevalence of suicidality. One study exploring the links between suicidal ideation and behaviour among youth and societal attitudes, media and religion notes how media and religious teachings provide ambiguous, non-specific information about psychosocial stress and suicidal thoughts (Jegannathan, Kullgren and Dahlblom 2015). In response, the study suggests developing school-based suicide prevention programs and training school counsellors to be aware of the larger social, gender-identity, religious and familial issues that influence students' academic and personal development. A similar study examining suicidal thoughts among 320 grade 10 and 11 students at two upper secondary schools in Takhmau found that although boys reported making suicidal plans more often than girls, more girls than boys admitted to suicide attempts (Jegannathan and Kullgren 2011).

Research on adolescents' exposure to violence found that students, especially girls, who had been

exposed to violence in their families and communities experienced more depressive symptoms (Yi et al. 2013). Thus strategies for creating safe, non-violent communities and preventing family violence would significantly reduce depression among young people (Yi et al. 2013). For instance, life-skills programs at two secondary schools in Takhmau were found to improve students' mental well-being and, in turn, decrease teenage boys' high-risk behaviours (Jegannathan, Dahlblom and Kullgren 2014).

### Discussion and future research directions

This article has highlighted critical gaps between education policy research and upper secondary education in practice. While many research needs are immediately apparent, four areas demand particular attention: quality improvement, curriculum and pedagogy, shadow education and students' social, emotional and academic development.

Research continues to confirm that lack of good quality education and trained teachers – the main stakeholders in education improvement – is the biggest challenge. Further in-depth analysis should consider the following key questions: What policy measures should be undertaken to improve the quality of secondary education? What are the social factors influencing students' academic performance and teachers' classroom practice?

Despite efforts, curriculum reform has been indeterminate at best, and the mismatch between what students have learned and the skills employers need remains a major concern. Further investigation could be framed around the following research questions: What are the policy options for continuous revision and update of the curriculum to keep it relevant? How best can the country strike a balance between standardisation and customisation of the curriculum? What is the status of TVET integration into upper secondary schools? What are the factors influencing the integration of TVET into schools? What is the scope for introducing more interactive teaching methods? How can ICT instruction be best anchored in MOOC? How much capacity building do Cambodian teachers need to be competent in interactive teaching methods?

To better understand the pros and cons of shadow education for both students and teachers, future research should address such questions as: What are the actual impacts of private tuition on teaching quality, curriculum, learning outcomes and equality

in education? What is the current situation and trend of shadow education in Cambodia? Research topics in this area include educational inequalities caused by private tutoring; perceptions of students, parents and teachers towards shadow tutoring; and the costs of shadow education. Also, future research on shadow education must pay attention to cross-national and cultural comparisons (Bray 2010).

School health programs are essential to academic achievement as well as students' physical, social, intellectual and mental health. The few studies that have been carried out were small scale and urban-centred. Thus future education-related health research should be expanded to rural areas. Action research would provide useful case studies.

In sum, research should be conducted regularly to provide evidence that can contribute to building capable human resources through effective curriculum, competent teachers and responsive education programs. National funding should therefore be allocated to support education research, especially at upper secondary school level.

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# Water Governance for Climate Resilience: Findings from Subnational and Local Levels

## Background

In response to the call for a better understanding of how communities need to act to improve adaptive capacity, the integration of local and scientific knowledge into informed decision making, and adaptive governance that serves local priorities, CDRI in 2013 embarked on a three-year participatory research program (Sam and Pech 2015). The subsequent series of linked mini-studies considered water governance and social-ecological resilience in three of the most vulnerable catchments in the Tonle Sap Basin: Stung Chinit, Stung Chrey Bak and Stung Pursat (Sam et al. 2015).

Water management in Cambodia is characterised by high spatial and temporal variations of abundant water resources. Too much or too little water is the common problem besetting rural communities and farmers in many parts of the country, especially in the Tonle Sap Basin. Finding a solution is stymied by a number of governance-related problems stemming from inequitable distribution of irrigation water, barriers to local people's participation in water management, overlapping roles and responsibilities among government institutions and under-resourced and under-developed institutional capacity. The situation is further complicated by the ability of human and natural systems to adapt quickly enough to climate change, making the need for robust, credible and dynamic local governance more vital than ever.

This article summarises the main findings of our water governance assessment in the three study catchments in the context of anticipated climate change risks at subnational and local levels (Sam et al. 2015). It concludes with a set of recommendations for enhanced water governance that can achieve water security and build climate resilience.

## Site selection and data collection

The study was carried out in 2015 in three catchments—Pursat, Chinit and Chrey Bak—

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within the Tonle Sap Basin. These catchments were selected because they are especially vulnerable to climate-related risks due to both climate change and development. Primary data was collected from six farmer water user communities (FWUCs) (two in each catchment), chosen because they face water shortages, seasonal floods and water conflicts. Key informant interviews were conducted with members and the head of each FWUC. Secondary data was obtained from policy documents, reports and existing publications.

The preliminary findings were validated at provincial and national workshops participated in by local people, local authorities and FWUC members, as well as provincial and national authorities and agencies.

## Key findings

The research adopted the framework used by the Earth System Governance Project for analysing the resilience of social-ecological systems, which organises the debate around five themes: architecture, accountability, allocation/access, adaptiveness and agency (Biermann et al. 2010). Likewise, the study findings are grouped under these themes.

### *Architecture*

Governance architecture is explored from an institutional perspective including the sets of rules and procedures articulated in law and policy, or social norms, with a focus on the arrangements for state and non-state actors, and informal organisations. At subnational level, the most relevant state institutions with a water governance mandate are the Provincial Departments of Water Resources and Meteorology (PDOWRAM), Provincial Departments of Agriculture (PDA) and Provincial Committees for Disaster Management (PCDM). In the context of climate change, Provincial Departments of Environment (PDE) also play a very important role. These provincial departments are under the jurisdiction of their respective ministries and national-level committees.

At local level, the creation of farmer water user communities (FWUCs) went hand-in-hand with decentralisation and deconcentration (D&D)

reform, aiming at sustainable local management of smallholder irrigation. FWUCs are mandated to share responsibility for irrigation management with PDOWRAM, and the two institutions are to cooperate in irrigation scheme operation and maintenance. FWUCs report their activities and progress to PDOWRAM, while PDOWRAM as the top manager provides technical support. Importantly, local people are invited to participate in decision making about water management. Commune authorities are also involved in water governance at the local level, as one or more commune councillors sit on the FWUC committee or engage in water-related matters. In turn, FWUCs must report on their progress and activities to the respective commune chiefs.

Among the sectors involved in water management, the PDA's mandate to increase irrigated agricultural production is inseparable from water security. The PCDM, which is responsible for the delivery of disaster relief and provision of technical support in commune disaster risk reduction planning, mainly engages in the management of water-related hazards and risks associated with flooding and drought. The PDE is in the loop of stakeholders given jurisdiction for managing the risks of climate change impacts. Specifically, the PDE implements local mitigation and adaptation activities. The various projects focused on water management in the context of climate change have induced coordinated efforts and strengthened the links between these institutions. Even so, their limited technical and institutional capacity and inability to respond quickly enough to local issues and needs present major challenges to water resources management.

Analysis of deconcentration and decentralisation (D&D) reforms, through which subnational authorities are to develop their respective development plans to feed into national planning, suggests that D&D has moved slower than expected (MOE 2012). This stilted progress has hindered the integration of climate change adaptation considerations into water resources development and management (MOE 2012). Meanwhile, concomitant limited financial independence, institutional fragmentation and human resource gaps have obstructed the fit between institutional settings and improved capacity to build resilience. Moreover, investment, resilience building and awareness raising initiatives are mainly concentrated at the national level, leaving

many capacity gaps at subnational levels including institutional capacity and awareness.

### *Accountability*

Accountability refers to the “responsibility of one party for their use of authority over another party” (Chheat et al. 2011, 13). Public accountability mechanisms are found to be weak at national and local government levels. Top-down communication remains dominant and this hinders access to reliable information and formal institutions. Greater attention therefore needs to be directed to improving horizontal interaction and communication (UNDP 2013). At subnational level, albeit with limitations, participation and accountability are evident through the way local authorities respond to local needs and involve local people in the planning processes for the commune development and investment plans.

Local people are asked for their ideas about local development priorities through village prioritisation meetings, which are nearly always related to physical infrastructure such as roads, irrigation canals and flood control structures. These are prioritised and listed in the commune development plan (CDP), but the decision about which of the proposed projects should be funded is made at the annual district integration workshop where the CDP is merged with line department plans (Rusten et al. 2004). Interested NGOs can then elect to support certain projects as well. Financial constraints mean that not all local requests are met. The same limited response serves the needs of FWUCs, though regular meetings ensure effective two-way communication between FWUC management committees and members.

A lack of inclusiveness and sticky information flows are found to hamper transparency. This mostly affects subnational and local actors, effectively marginalising their involvement in water governance and climate change mitigation and adaptation. Water and climate information, specifically on adaptation responses, water availability for each catchment, and observed and modelled water balance estimates, is either not readily available or easily accessible to all subnational and local authorities.

### *Allocation and access*

Allocation of and access to key resources (physical, natural, social, human and financial) for improving water management and coping with climate change are uneven, slowing down or stopping experimentation



and innovation needed to build adaptive capacity and resilience. Irrigation schemes, for instance, which can help mitigate both flood and drought, do not operate at optimal capacity because they are badly designed, coverage is low and access to irrigation water unequal. Natural resources, including water and agricultural inputs, are quite limited with uneven access. On a more positive side, local savings groups and networks help people to both cope with flood and drought and develop their own recovery plans. Although limited in scope, such local formal and informal institutions can contribute a lot to adaptation efforts. Human and financial resources are limited as well, but are improving due to growing interest in climate change issues.

### *Adaptiveness*

Analysis of the adaptiveness of water governance centres on the flexibility of institutional framework and institutional capacity for learning. Both architecture and agency are quite rigid in the face of abrupt climate change. Top-down approaches and lack of critical resources are the major causes of such institutional inflexibility. Monitoring and evaluation is perhaps a prime example of this dynamic. Although integrated in the commune disaster management plan, financial and technical constraints have limited monitoring and evaluation to national level, effectively locking national adaptation and resilience efforts in relatively inflexible institutional arrangements.

Ability to learn varies strongly among the diverse organisations: the greater the exposure to climate change mitigation work, the more familiar they become with problems of adaptation and develop skills to deal with them. Subnational governments as well as civil society organisations are quite well equipped with climate change awareness, while local authorities learn from the situations and disasters they have to contend with. Efforts to strengthen adaptive governance of social-ecological systems require many factors, not least accessible weather and climate information and sufficient human, technical and financial resources.

### *Agency*

Agency in this study refers to the non-state institutions working on water governance and climate change. Non-state actors include civil society, private sector, academia, research centres,

formal and informal associations. They are found to be effective in strengthening local resilience through such supports as agricultural extension services; awareness raising about climate adaptation measures and strategies, especially for agriculture and water sectors; rehabilitation and building of small-scale irrigation and water supply structures; livelihood diversification; and the formation of local informal organisations, notably savings groups, rice banks and vegetable and livestock producer groups. These groups play a very important role in helping people cope with and recover from disasters. Other humanitarian actors such as religious groups play a vital role in helping local communities cope with climate variability and stresses through organising disaster relief efforts and donating money and supplies. Private sector involvement in water management has also become increasingly important for irrigated agriculture.

Civil society plays a vital role in climate change adaptation and water governance, with many organisations supporting local innovations. The contributions of civil society to long-term resilience face many challenges, however. Chief among these, perhaps, is the transition to sustainability when support stops. Indeed, donors' agendas and short funding cycles can preclude effective, self-reinforcing adaptation responses. The sustainability challenge is amplified by the uncoordinated, piecemeal implementation of climate change interventions (UNDP 2013). Factors that enable local authorities, NGOs and communities to coordinate and sustain adaptive capacity and resilience efforts include local networks, informal and formal institutional arrangements, community empowerment, and disaster and risk reduction planning that takes into account the ground realities (e.g. institutional, financial and capacity constraints).

The governance of water and climate change adaptation requires strong and close collaboration between national and subnational governments. Yet, despite their parallel approaches, their programs are not synergised to the point that they can smooth the implementation of policy measures at local and subnational levels. Again, a root cause of the integration challenge is the slower-than-planned unfolding of D&D: reluctance to devolve budget and authority to subnational levels has left decision-making power concentrated at the national level.

### How to improve water governance for water security and climate resilience: Ways forward

This assessment has looked at water governance through the five-step adaptive management framework: institutional architecture, accountability and transparency, allocation and access to key resources, adaptiveness, and agency beyond the state. Each of the five steps has its own challenges and opportunities and yet they are interrelated. There is plenty of room for improvement to support better water governance and climate change adaptation. In spite of financial, technical and institutional constraints, opportunities and management solutions to advance water security and climate resilience that attract a lot of global technical and financial support exist. Taking these challenges and opportunities into account, the following recommendations set out some measures that could strengthen Cambodia's water management arrangements for adaptive water governance and climate resilience.

- Reorient capacity building and institution strengthening to reflect the priorities of subnational governments and local communities with consideration for local knowledge and skills and including people from diverse backgrounds.
- Recognise the role of local NGOs, informal institutions, groups and networks (i.e. agents beyond the state) in climate risk mitigation to improve the effectiveness of planned water and adaptation interventions.
- Hasten D&D processes, specifically the transfer of functions and resources, to support and empower subnational governments and FWUCs.
- Integrate climate change adaptation and disaster risk reduction measures with the strengthening of integrated water resource management to enhance adaptive capacity and reduce vulnerability.
- Smooth the free exchange and flow of information, and revise institutional structures for adaptive learning that can inform policy, planning, risk reduction and emergency preparedness.
- Promote two-way dialogue to advance accountability and transparency as well as vertical and horizontal communication for better coordination between government departments involved with water, climate change and disaster management.
- Enhance equal access to key resources with special attention to marginalised people.

- Ease access to key information on water availability and adaptation responses for local people, communities and authorities.

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# Social and Environmental Safeguards: Lessons from Cambodia REDD+ Pilot Projects

## Introduction

According to the United Nations Framework Convention on Climate Change (UNFCCC 2013), REDD+ refers to policies and measures that aim at reducing emissions from deforestation and forest degradation (REDD+) and promoting the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries. Since the initiative's inception in 2010, one of the most researched topics on REDD+ has been the potential impacts and benefits of its development and implementation for the environment and people (Angelsen 2010; Nguon and Kulakowski 2013; Peskett and Todd 2013). These potential risks and benefits are discussed with a view to providing adequate social and environmental safeguards. The UN-REDD Programme (2015) defines safeguards as processes or policies designed to avoid or mitigate potential risks of negative environmental and social impacts and to ensure that the social and environmental benefits of implementing REDD+ are realised.

Safeguards can be categorised into two groups. The first consists of decision texts adopted by the UNFCCC which include the Cancun Agreements, Durban Guidance, Warsaw Framework for REDD+ and the recent Paris Agreement. The second group includes those requirements developed outside of the UNFCCC process by proponents of voluntary carbon markets such as the Verified Carbon Standard (VCS) and the Climate, Community and Biodiversity Standard (CCBS) (Nguon and Chhun 2015).

Following the 2007 meeting of UNFCCC, the Royal Government of Cambodia decided to implement REDD+ pilot projects, with approval in 2008 of Oddar Meanchey Community Forestry, followed in 2009 by the Seima Protection Forest in Mondolkiri. Both projects have applied certain

sets of social and environmental safeguards towards meeting VCS and CCBS requirements. The objective of this paper is not to assess the application of UNFCCC safeguards in Cambodia, but rather to examine and compare the experiences of the two projects in applying VCS and CCBS requirements. To illuminate how these measures help to reduce different risks, this paper adopts a method developed by Roe et al. (2013), who divided REDD+ safeguards into three categories: social, environmental and procedural.

## Method

This study used qualitative comparative analysis. Information was gathered from key informant interviews, focus group discussions and archival research (e.g. government reports, newspapers, policy briefs and feasibility studies). Empirical data on the two pilot projects was collected on two occasions, from October to December 2013 and from January to July 2015. This fieldwork was supported by a grant from the Stockholm Environment Institute's Sustainable Mekong Research Network (SUMERNET) Phase 3.

In total, 50 semi-structured interviews were conducted with key informants representing government institutions, civil society organisations, development partners and local communities. Focus group discussions were conducted with 13 community forestry (CF) representatives in Oddar Meanchey and 20 representatives from indigenous communities in Mondolkiri. Data analyses were done with the aid of data analysis software, NVivo 10. A combination of functions was used to perform broad-brush coding and specific explorations of the coded data, which was organised under three themes: social, environmental and procedural (Roe et al. 2013).

## Definition of key terms

Some of the terms used in this paper are specific to REDD+ context;<sup>1</sup> they are defined by UNFCCC (2014) as follows:

<sup>1</sup> For a complete list of REDD+ terminologies, refer to UNFCCC 2014.

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- **Displacement:** drivers of deforestation and forest degradation are displaced from REDD+ project areas to other, non-project areas.
- **Leakage:** any increase in emissions of greenhouse gases outside the REDD+ project area as a result of project activities.
- **Permanence:** carbon is only temporarily stored and will be re-released later into the atmosphere.
- **Reversal:** lack of reliable guarantees that the original land use activities will not return after the project concludes.

### Safeguarding Oddar Meanchey Community Forestry

The Oddar Meanchey Community Forestry REDD+ pilot project is located in north-western Cambodia. It covers 13 CF sites with a total area of 64,318 hectares, and 58 villages with a total number of about 10,000 households. Since 2009, Pact Cambodia has served as an implementing partner in collaboration with the Forestry Administration, all 13 CF groups, Terra Global Capital, Children's Development Association, Monks Community Forestry and local authorities (Nguon 2014).

The project has secured tenure rights for the 13 CF sites with a 15-year agreement between the Forestry Administration and CF groups. This required intensive efforts to assemble stakeholders, provide training and coach communities through the processes and requirements for CF legalisation. In accordance with the CF Agreement, communities' rights for the subsistence use of timber and non-timber forest products (NTFP) are recognised. Villagers are also allowed to continue to use existing agricultural land inside CF boundaries as long as they do not expand the areas.

Many consultation meetings were held to ensure that stakeholders were sufficiently informed and willing to participate in the project. The project proponents designed their consultation process based on the principle of free, prior and informed consent (FPIC). For instance, the project facilitated numerous workshops in some 50 villages and at district and provincial levels to raise communities' awareness about REDD+ and the project activities, and provided them with ample time and space to decide whether or not to join the project. Consequently, all 13 CF groups verbally agreed to participate in the project.

One notable aspect of the consultation process was that the project proponents informed the communities that they would receive significant payments from the project. This may have been one of the main reasons behind communities' decision to participate. Informing communities about significant REDD+ payments has leveraged expectations of monetary benefits. However, delay in REDD+ payments has created challenges in assuring CF members' continuous support for and participation in project activities.

The project applied measures to protect and monitor biodiversity and dry deciduous and evergreen forest ecosystems, with special attention to high conservation value areas important for rare wildlife species. The strategy entailed creating greater awareness among local communities of the value of biodiversity, as well as improving patrolling and habitat restoration skills to protect the forests against illegal logging, hunting and burning and, to prevent the degradation of critical habitats. However, this project does not have explicit measures to manage the risks of reversal and displacement. The project consequently faces imminent risk of reversal with some communities being intimidated by armed loggers. There is also a lack of clarity about who is responsible for protecting the forest in the leakage belt—the buffer zone surrounding the community forests.

Although the project has involved various groups of stakeholders, further work is needed to promote gender equality and enhance women's participation. Community representatives are predominantly men: among the 13 CF representatives, there was only one woman. This suggests that further investigation is needed to explore how gender equality has been adopted and respected in practice when making decisions on important aspects of the project.

Finally, the CF representatives reported that various complaints and grievances have been submitted to the project proponents. However, complainants have been dissatisfied with their limited abilities to resolve the challenges local people face. The representatives also disclosed that due to their own budgetary and knowledge constraints they did not pursue support from third parties to help them articulate their grievances. This finding highlights the need to further investigate this issue.

### **Safeguarding Seima Protection Forest**

The Seima Protection Forest REDD+ pilot project aims to engender public support for and participation in the protection of ecologically significant old-growth forest within a core area of 180,515 hectares in the eastern province of Mondolkiri. The area is renowned for an abundance of globally important species. According to the project document (FA and WCS 2011), within the project area are 20 villages, home to some 10,000 Bunong. As of May 2016, Seima REDD+ project has passed the validation phase required by VCS and CCBA and is currently being verified (CCBS 2016). To be able to sell carbon credits, voluntary REDD+ projects must pass both validation and verification. Although the crediting period continues for 60 years, it is estimated that the project will generate carbon dioxide (CO<sub>2</sub>) emission reductions of some 58 million tonnes over its first ten years (FA and WCS 2011).

The project document explicitly states that communities have usufructuary rights to timber and NTFP and are allowed to continue their subsistence farming practices on legally occupied land. The project has also secured their tenure rights on agricultural, fallow and residential lands. This process entailed mapping communal lands with communities and developing legal documents to request communal land titles from the government. This means there should be no involuntary relocation of legitimate occupants from either residential land or farmland. Even so, informants reported a concern that local landowners and residents may inadvertently be considered under the law as informal settlers or land grabbers. They therefore fear being arrested by the authorities on grounds of occupying state or community land illegally, removed from their lands without compensation, and possibly prosecuted or even imprisoned.

Despite recognition of local communities' right to manage their lands and preserve their traditional agricultural practices, shifting cultivation has been identified as a major deforestation and degradation threat that the project aims to eliminate. Informants reported that a huge influx of migrants has created confusion as to whether local (indigenous) people or outsiders (non-indigenous) are practicing shifting cultivation. Therefore, there is a need to empirically investigate the composition of local communities to ensure that project implementation does not infringe upon customary shifting cultivation activities.

This project also applied the principle of FPIC. Our field investigation revealed generally limited knowledge about the content of the CF Agreement among communities, including among individuals who had given their consent to REDD+ implementation through a thumbprint and/or a signature. For example, when asked about key elements of the agreement (e.g. consent provisions, duration, grievance mechanism should any party not uphold their responsibilities), the CF representatives could not provide the information. A simple explanation for this might be that they had forgotten about these important aspects or that the team did not ask the right questions. Even so, this finding points to a need for further work on the FPIC process before consent is sought and given.

The project seeks to maintain a variety of forest cover types and to increase wildlife populations of conservation importance. To that end, the project aims to reduce environmental threats such as habitat loss, hunting in all its forms, selective logging and NTFP overharvesting. According to the project document, the project intends to achieve this partly through agricultural intensification and partly through including all anthropogenic non-forest land use located within the project zone in a leakage management area. This leakage area includes all forestland converted to non-forest use or deforested as of 2010 within a 3 km radius of a settlement. The project conducted several leakage management activities such as ecotourism and NTFP management within forested parts of the project area and leakage belt. Yet interviewees suggested that illegal logging, mainly by outsiders, continues at an alarming rate within their villages. It is therefore critical that the project proponents investigate and respond to these concerns because failure to stop illegal logging may result in leakage and non-permanence and reversal risks.

The project proponents have constantly engaged multi-stakeholders, especially those at the project sites, in extensive consultation processes covering various REDD+ and non-REDD+ topics. Yet communities raised two issues during focus group discussions. First, they pointed out that further stakeholder consultations should focus on the activities or any restrictions that would come with the implementation of REDD+. For example, informants would like to know if their current shifting cultivation practices will eventually be

restricted. Second, they emphasised the importance of increasing women's participation in consultation processes.

The project proponents introduced a grievance mechanism that allows local people to submit complaints directly to the project implementation team for assessment and resolution. In addition, commune councillors in the project zone have a legal mandate to receive complaints from their constituents on issues of any kind and either direct them to the appropriate place or seek to resolve them directly, often by mediating between the affected parties. However, similarly to the communities in Oddar Meanchey, when asked about the issues they currently face regarding forest management in their villages, communities in Seima described at length how outsiders have been illegally logging their forests. Although they have submitted complaints to the authorities responsible for forestry, these illegal logging activities have not been, to quote an informant, "addressed satisfactorily". This issue has raised a lot of doubt among the communities about the effectiveness of REDD+ for ending deforestation caused by external actors. Unless this threat is properly dealt with, the project will be at risk of leakage, non-permanence and reversal.

### Conclusion

The UNFCCC (2013) mandates REDD+ participating countries including Cambodia to establish a national safeguard system to periodically provide a summary of information on how safeguards are addressed and respected throughout the implementation of REDD+. This assessment reveals several practical lessons that warrant incorporation into the design of the national safeguards information system currently being developed by the Cambodia REDD+ Taskforce Secretariat (2015).

First, it is important to ensure indigenous peoples and local communities' customary tenure rights to forests and existing farmland. Community forestry and land titling are practical ways to deal with these important issues as they are less demanding of time and resources. REDD+ implementers may need to look into shifting cultivation to examine whether it is actually detrimental to forest ecosystems. If so, alternatives to shifting cultivation will need to be identified and piloted.

Second, while FPIC is an important tool to ensure that participants are free to give their informed

consent before the implementation of project activities, it is imperative for FPIC implementers to guarantee that information is fully—not selectively—provided to communities before consent is requested. Opportunities that could result from REDD+ should not be overemphasised nor potential risks downplayed. As the Seima case study indicates, general levels of awareness about REDD+ and project activities seemed low. In both cases, villagers need further information about the scope of REDD+ activities, particularly the content of the agreements for which they have given their consent. This is to ensure that they fully understand the potential benefits and risks of REDD+. It is important to take into account the level of understanding and the social context of the stakeholders that are involved in the consultation process to ensure their full and effective participation.

Third, REDD+ project proponents must ensure that grievance mechanisms are respected by all parties involved so that issues arising from the implementation of the project or resulting from the activities of external actors are properly dealt with. Ineffective handling of grievances has cast doubt among communities in both pilot projects on the effectiveness of REDD+.

Fourth, the threats of reversal and natural forest conversion driven by external pressures including illegal logging done by actors within and outside the project areas still exist. This finding has two main implications. First, it suggests that the project proponents should re-evaluate the drivers of deforestation and forest degradation that they are trying to address. Second, for REDD+ to be successful, there is an immediate need to ensure that regulations and law are strictly enforced to stop illegal logging. This, among others, requires effective cooperation from other key sectors such as energy, agriculture and trade, as well as the creation of links with other land-based economic development activities.

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## Economy Watch—External Environment

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

In the first quarter of 2016, real GDP growth in Indonesia was 4.9 percent, compared to 5.0 percent in the previous quarter. Indonesia was able to stabilise inflation and changed monetary policy by lowering the interest rate to 6.5 percent in this quarter. Annual growth in Malaysia slowed from 4.5 percent in the previous quarter to 4.2 percent and domestic demand, which accounted for 85 percent of total economic growth, mainly contributed to the growth. The Singapore economy grew by 1.8 percent, the same pace as in the preceding quarter. Thailand's economy expanded by 3.2 percent year-on-year, up from 2.8 percent in the preceding quarter, while growth in Vietnam rose to 5.5 percent, lower than the 7.0 percent of the preceding quarter because Vietnam's income from crude oil and agriculture contracted.

Growth in China lifted to 6.7 percent year-on-year, and a major contribution in the first quarter came from industry. The economy in Hong Kong grew by 0.8 percent, against expectation of between 1.0 to 2.0 percent. Growth was lower than the 1.9 percent of the preceding quarter due to a drop in retail sales and lower property prices. In the first quarter, South Korean growth was weaker than expected. Growth was 2.7 percent—less than the 3.0 percent of a quarter earlier. GDP growth in Taiwan contracted by 0.8 percent year-on-year because of low exports. Imports also contracted, but less than exports.

The EU 12's real growth in the first quarter remained stable at 1.5 percent year on year. Japan's economy expanded by 0.2 percent in this quarter. Domestic consumption in Japan increased, but exports struggled because of the appreciation of the yen. The annual growth rate in the United States was 2.1 percent due to an improvement in trade and business investment.

### World inflation and exchange rates

Inflation rates in some Asian and ASEAN countries rose, but some countries faced deflation. Inflation in Cambodia was 2.4 percent. In Indonesia inflation was 4.3 percent. In Singapore deflation was 0.8 percent after deflation of 0.7 percent in the fourth quarter of 2015. Singapore has faced negative inflation for five consecutive quarters. Deflation in Thailand was 0.5 percent, an improvement from the previous quarter's 0.9 percent. Decreased unemployment, increased gold exports, high tourism income and lower merchandise imports contributed to the lower deflation. Vietnam's inflation was 1.3 percent because of the increased world price of oil and a decreased food supply in the market.

Inflation in China was 2.1 percent, higher than in the previous quarter. Food prices accounted for one fourth of the Chinese CPI rise. Inflation in Hong Kong was 2.9 percent, and in South Korea 0.2 percent. Taiwan's inflation was 1.7 percent. Inflation in the euro area was 0.1 percent, in Japan 0.2 percent and in the United States 1.1 percent.

In the first quarter of 2016, against the dollar the riel depreciated by 0.8 percent from a quarter earlier and 0.3 percent from the previous year, to KHR4056.3. The Thai baht appreciated 1.1 percent from the preceding quarter and the Vietnamese dong 2.7 percent. The Chinese yuan appreciated 0.16 percent, and the Japanese yen 6.4 percent from the previous quarter.

### Commodity prices in world markets

Prices of major commodities in world markets shrank in the first quarter compared with the preceding quarter. Maize dropped by 8.2 percent to USD160.0/tonne, palm oil 6.5 percent to USD586.9/tonne and rubber 17.9 percent to USD1190.0/tonne. Prices of rice declined 9.5 percent to USD385.3/tonne and of soybeans 24.1 percent to USD328.0/tonne. The price of crude oil dropped 38.7 percent to USD31.2/barrel, and as a result prices of gasoline and diesel fuel contracted by 30.3 percent and 39.1 percent, respectively.

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Table 1: Real GDP growth of selected trading partners, 2008–16 (percentage increase over previous year)

	2008	2009	2010	2011	2012	2013	2014	2015				2016
								Q1	Q2	Q3	Q4	Q1
<b>Selected ASEAN countries</b>												
Cambodia	6.7	0.1	6.0	7.1	7.3	7.4		-	-	-	-	-
Indonesia	6.1	4.2	6.2	6.5	6.3	5.8	5.2	4.7	4.7	4.7	5.0	4.9
Malaysia	4.6	-2.4	9.0	4.9	5.4	4.6	6.0	5.6	4.9	4.7	4.5	4.2
Singapore	1.1	-4.5	14.7	4.7	1.3	3.8	3.0	2.6	1.8	1.9	1.8	1.8
Thailand	2.6	3.3	7.9	0.0	6.7	2.8	1.6	3.3	2.2	2.9	2.8	3.2
Vietnam	5.7	5.4	6.4	6.2	5.2	5.4	5.9	6.1	6.5	6.8	7.0	5.5
<b>Selected other Asian countries</b>												
China	9.0	8.2	10.4	9.3	7.7	7.7	7.3	7.1	7.0	6.9	6.8	6.7
Hong Kong	2.4	-3.2	6.9	4.9	2.9	3.0	2.3	2.1	2.8	2.3	1.9	0.8
South Korea	2.2	-1.0	6.1	3.6	2.1	2.8	3.4	2.4	2.2	2.7	3.0	2.7
Taiwan	0.1	-3.6	11.1	4.2	1.2	2.2	3.5	3.4	0.5	-1.0	-0.5	-0.8
<b>Selected industrial countries</b>												
Euro-12	0.9	-3.8	1.6	1.6	-0.5	0.1	0.7	1.0	1.2	1.6	1.5	1.5
Japan	-0.7	-5.4	4.1	-0.8	1.7	1.7	0.6	-0.9	0.7	1.0	0.5	0.2
United States	1.1	-2.5	2.7	1.8	2.1	1.8	2.4	2.7	2.3	2.2	1.8	2.1

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

Table 2: Inflation rate of selected trading partners, 2008–16 (percentage price increase over previous year—period averages)

	2008	2009	2010	2011	2012	2013	2014	2015				2016
								Q1	Q2	Q3	Q4	Q1
<b>Selected ASEAN countries</b>												
Cambodia	19.7		4.1	5.5	3.0	3.0	3.9	1.0	1.0	0.8	2.0	2.4
Indonesia	10.1	4.7	5.1	5.4	4.3	7.0	6.4	6.6	7.1	7.1	4.8	4.3
Malaysia	5.3	0.4	1.7	3.2	1.7	2.1	3.2	0.7	2.1	3.0	2.6	3.4
Singapore	6.5	0.5	2.9	5.2	4.6	2.3	1.0	-0.3	-0.4	-0.6	-0.7	-0.8
Thailand	5.5	-0.9	3.1	3.8	3.0	2.2	1.9	-0.5	-1.1	-1.1	-0.9	-0.5
Vietnam	23.3	7.3	9.0	18.6	9.3	6.6	4.8	0.7	1.0	0.5	0.3	1.3
<b>Selected other Asian countries</b>												
China	5.9	-0.8	3.2	5.4	2.7	2.6	2.0	1.2	1.4	1.7	1.5	2.1
Hong Kong	4.3	-0.3	2.4	5.3	4.1	4.0	4.4	4.4	3.1	2.3	2.4	2.9
South Korea	4.6	2.8	3.0	4.4	2.1	1.1	1.3	0.6	0.5	0.6	1.1	0.2
Taiwan	3.2	-1.1	1.0	1.4	1.9	0.8	1.5	2.9	-0.7	0.0	0.3	1.7
<b>Selected industrial countries</b>												
Euro-12	3.3	0.4	1.6	2.7	2.5	1.4	0.4	-0.3	0.2	0.0	0.3	0.1
Japan	1.4	-1.3	-0.7	0.1	-0.03	0.4	2.8	2.3	0.5	0.2	0.7	0.2
United States	3.8	-0.4	1.7	3.2	2.1	1.5	1.6	-0.4	0.0	0.1	0.4	1.1

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

Table 3: Exchange rates against US dollar of selected trading partners, 2008–16 (period averages)

	2008	2009	2010	2011	2012	2013	2014	2015				2016
								Q1	Q2	Q3	Q4	Q1
<b>Selected ASEAN countries</b>												
Cambodia (riel)	4054.2	4140.48	4187.1	4063.6	4037.8	4027.2	4037.6	4042.2	4056.7	4091.8	4022.4	4056.3
Indonesia (rupiah)	9699	10413.83	9089.9	8748.0	9363.0	10419.2	11850.2	12809.9	13125.2	13858.0	13627.3	13324.1
Malaysia (ringgit)	3.3	3.52	3.2	3.1	3.1	3.1	3.3	3.6	3.7	4.1	4.2	4.0
Singapore (S\$)	1.42	1.45	1.4	1.3	1.2	1.3	1.3	1.4	1.3	1.4	1.4	1.4
Thailand (baht)	33.36	34.34	31.7	30.5	31.1	30.7	32.5	32.6	33.2	35.2	35.6	35.3
Vietnam (dong)	16382	17725.24	19200.8	20574.3	20856.9	20990.3	21138.2	21372.9	21712.7	22164.6	22929.4	22314.5
<b>Selected other Asian countries</b>												
China (yuan)	6.94	6.83	6.8	6.5	6.3	6.1	6.2	6.2	6.2	6.3	6.4	6.5
Hong Kong (HK\$)	7.78	7.75	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
South Korea (won)	1137.23	1277.76	1156.3	1108.6	1126.6	1095.0	1053.6	1101.7	1097.4	1170.0	1200.8	1163.4
Taiwan (NT\$)	31.54	33.04	31.5	29.4	29.6	29.7	30.3	31.6	30.8	32.0	33.1	32.4
<b>Selected industrial countries</b>												
Euro-12 (euro)	0.84	0.72	0.8	0.7	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9
Japan (yen)	102.46	93.6	87.8	79.9	79.8	97.6	105.9	119.2	121.4	122.2	115.3	107.9

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

Table 4: Selected commodity prices on world market, 2008–16 (period averages)

	2008	2009	2010	2011	2012	2013	2014	2015				2016
								Q1	Q2	Q3	Q4	Q1
Maize (USNo.2)—USA (USD/tonne)	218.2	167.3	185.9	291.7	298.4	259.4	192.9	174.2	168.4	169.5	167.1	160.0
Palm oil—north-west Europe (USD/tonne)	912.2	686.8	900.8	1125.4	999.3	856.9	821.4	627.9	664.0	514.6	518.0	586.9
Rubber SMR 5 (USD/tonne)	2586.3	1884.8	3405.7	4630.6	3200.7	2575.3	1755.6	1450.2	1525.9	1365.5	1229.1	1190.0
Rice (Thai 100% B)—Bangkok (USD/tonne)	615.3	524.5	506.6	558.5	594.8	533.8	434.9	426.0	396.3	383.3	376.3	385.3
Soybeans (US No.1)—USA (USD/tonne)	460.4	414.0	449.8	540.7	591.4	538.4	491.8	363.9	393.7	347.6	358.0	328.0
Crude oil—OPEC spot (USD/barrel)	95.4	60.5	76.8	106.2	109.5	105.9	96.2	50.9	60.5	48.2	38.0	31.2
Gasoline—US Gulf Coast (cents/litre)	62.2	42.9	53.3	71.9	74.6	71.2	65.6	40.1	49.0	42.2	32.9	27.9
Diesel (low sulphur No.2)—US Gulf Coast (cents/litre)	76.2	43.1	56.1	75.7	80.7	78.4	71.5	44.6	48.4	39.9	34.0	27.2

Sources: Food and Agriculture Organisation and US Energy Information Administration

## Economy Watch—Domestic Performance

### Main economic activities

Fixed asset investments approved in the first quarter of 2016 grew 80.5 percent from a quarter earlier but dropped 67.9 percent year on year, to USD923.7 m. Agricultural investment rose 6.8 percent to USD27.6 m. Garment investment approvals went up 28.1 percent from the previous quarter to USD55.2 m. Approvals for hotels and tourism in this quarter expanded 1508 percent from USD38.0 m to USD611.1 m.

In the first quarter, total foreign arrivals contracted 6.0 percent compared to the previous quarter, and 2.2 percent from the same quarter last year. Arrivals by air increased 15.2 percent, while by land and water they dropped 25.4 percent from the previous quarter.

Total exports increased 3.4 percent from the previous quarter, and 10.1 percent from a year earlier. Garment exports grew 4.7 percent from a quarter earlier, from USD1681.2 m to USD1759.4 m. Exports to the US shrank 3.6 percent from the previous quarter, and 13.9 percent from a year earlier. Exports to the EU rose 4.4 percent from the previous quarter to USD789.6m, while to ASEAN they dropped 7.1 percent to USD25.6 m. In the first quarter of 2016, agricultural exports contracted 13.9 percent from the preceding quarter. The decrease from the previous quarter for rubber was 24.5 percent, wood 67.9 percent and rice 7.5 percent.

Imports in the first quarter declined 5.6 percent from a quarter earlier, but rose 2.5 percent from the previous year to USD2784.7 m. Imports of gasoline rose 46.6 percent, of diesel 8.8 percent, and of construction materials 20.6 percent.

### Public finance

Total government revenue in the first quarter increased 23.2 percent from a quarter earlier to KHR3532.8 bn, of which current revenue rose 24.7 percent to KHR3514.6 bn. Tax revenue increased 35.1 percent to KHR3255.5 bn, while non-tax revenue decreased 36.6 percent to KHR259.1 bn. In the same quarter, total expenditure declined 53.8 percent from a quarter earlier, to KHR2367.9 bn, due to a decrease of 70.0 percent (KHR624.5bn)

in capital expenditure and of 42.6 percent (KHR1743.4 bn) in current expenditure.

### Inflation and foreign exchange rates

The overall price index in the first quarter of 2016 rose 2.5 percent. The prices of food and non-alcoholic beverages increased 4.7 percent but of transportation dropped 6.5 percent. The riel appreciated 0.7 percent against the US dollar and 0.2 percent against the Thai baht. The riel appreciated 0.5 percent against the Vietnamese dong from the previous quarter. The price of diesel fuel dropped 14.3 percent and of gasoline 7.6 percent.

### Poverty situation

Average real daily earnings of cyclo drivers, small vegetable sellers, rice-field workers, motorcycle taxi drivers and construction workers increased compared to May last year, while those of porters, scavengers, waiters/waitresses and garment workers dropped.

In May, rice-field workers' earnings increased to KHR7916 per day, up 4.8 percent compared with the same month last year. Around 45 percent of the interviewees were the main income source for their families. Their income declined compared to the previous quarter, 67 percent of them said. A majority of them stated that their income during May could support their families. Around 50 percent of them were in debt, and the average interest rate on their borrowing was around 3 percent per month.

Garment workers' daily wages increased by 6.3 percent, to KHR13,828. Sixty percent of them are married. All of respondents have only primary education. On average they have worked for the factory for 4.5 years. Most of them gained skills before joining the factory and through private training, while others gained skills through in-house training at their factories. They worked on average 53 hours per week and saved up to 62 percent of their wages. Most of their savings were sent back home and were enough to support their families. Forty-eight percent of them do not want to change their job, and 81 percent are optimistic that their factory will continue to operate into the future.

In May, earnings of vegetable vendors rose by 11.5 percent from the preceding survey to KHR18,979/day. Vegetable vendors came from

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different provinces and cities, such as Kandal (32.5 percent), Svay Rieng (15 percent), Prey Veng (12.5 percent), Phnom Penh (10 percent), Siem Reap (10 percent), Takeo (10 percent), Kompong Speu (7.5 percent) and Kompong Cham (2.5 percent). Seventy-eight percent of them have one to three hectares of agricultural land, while the rest do not own any. All of the respondents were the main family income earners, and their capital was not enough for their business.

Scavengers' earnings dropped by 34.2 percent to KHR8737/day due to an increase in the number of scavengers and a decrease in the sources of rubbish. Most of them are the breadwinners, and they need to work around 10 hours per day to support their families. On average they spent 53.3 percent of their income, mainly on food (84.2 percent), rent (12.5 percent), and much less on health care and other expenses.

Although the number of unskilled construction workers rose, construction activities increased in May, so their daily earnings expanded by 39.7 percent to KHR20,227. Sixty-five percent of

interviewees migrated to Phnom Penh or Siem Reap for work. They worked 8.5 hours per day, on average, and spent mainly on food. Their income could support their families.

Porters' earnings decreased 20.3 percent to KHR11,898 per day. All the respondents migrated from provinces, and they shared lodgings with an average of five people. Their income was spent on food (76.0 percent), rent (17.5 percent), health care (0.4 percent) and other expenses (6.0 percent). Since they started working as porters, their families have been better off than before, 58 percent of respondents said, while only 7.5 percent said that their families were worse off.

Daily earnings of waiters/waitresses dropped fractionally to KHR8187. Ninety-three percent of them were provided accommodation at the shop house. They had been working for four years, and they spent on average 11.8 hours per day at the shop. They spent 25.5 percent of their total income on food. The respondents sent 69 percent of their earnings to their families, which only partly supported them.

## Economy Watch—Economic Indicators

Table 1: Private investment projects approved, 2008–2016\*

	2008	2009	2010	2011	2012	2013	2014	2015				2016
								Q1	Q2	Q3	Q4	Q1
	Fixed Assets (USD m)											
Agriculture	92.0	615.0	530.7	725.0	531.6	930.5	56.5	25.8	38.1	79.1	26.8	27.6
Industry	724.9	818.5	403.7	2860.1	829.3	3257.0	1002.5	342.8	130.9	130.6	410.4	252.4
<i>. Garments</i>	142.8	90.1	122.8	393.9	497.0	324.1	393.5	63.9	42.4	63.7	55.2	70.8
Services	10,003.2	4432.0	1337.3	3425.4	916.6	140.7	622.6	2504.6	85.6	69.7	74.5	643.6
<i>. Hotels and tourism</i>	8758.1	3980.1	1105.1	2850.9	691.5	106.0	446.9	60.6	0.0	0.0	38.0	611.1
Total	10,570.9	5865.5	2271.7	7010.4	2278.0	4328.0	1583.9	2873.2	254.6	279.4	511.7	923.7
	Percentage change from previous quarter											
Total	-	-	-	-	-	-	-	1816.8	-91.1	9.7	83.1	80.5
	Percentage change from previous year											
Total	308.6	-45.5	-61.3	209.0	-67.5	90.1	63.4	573.0	-33.2	-55.3	241.4	-67.9

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

Table 2: Value of construction project approvals in Phnom Penh, 2009–15

	2009	2010	2011	2012	2013	2014				2015		
						Q1	Q2	Q3	Q4	Q1	Q2	Q3
	USD m											
Villas, houses and flats	213.9	220.1	405.1	547.3	658.9	133.6	84.0	33.1	20.4	122.3	-	637.6
Other	187.8	217.8	199.9	463.6	859.6	190.0	141.7	105.6	11.7	49.8	-	252.6
Total	441.2	489.8	605.0	1010.9	1518.5	323.6	225.7	138.7	32.1	172.0	-	897.4
	Percentage change from previous quarter											
Total	-	-	-	-	-	34.3	-30.2	-38.5	-77.8	437.3	-	-
	Percentage change from previous year											
Total	-60.5	11.0	23.5	67.1	28.1	8.0	-9.2	-64.2	-86.7	-46.8	-	-

Source: Department of Cadastre and Geography of Phnom Penh municipality

Table 3: Foreign visitor arrivals, 2008–2016

	2008	2009	2010	2011	2012	2013	2014	2015				2016
								Q1	Q2	Q3	Q4	Q1
	Thousands											
By air	1239.4	1111.7	1304.3	1480.4	1722.1	2017.7	2273.5	725.1	497.4	563.8	681.3	785.0
By land or water	881.9	999.7	1094.6	1401.4	1862.2	2192.5	2229.3	647.6	496.7	481.1	747.0	557.4
Total	2121.3	2111.5	2398.9	2881.8	3584.3	4210.2	4502.8	1372.6	994.2	1044.9	1428.4	1342.5
Total	Percentage change from previous quarter											
	-	-	-	-	-	-	-	5.4	-27.6	5.1	36.7	-0.6
Total	Percentage change from previous year											
	5.5	-0.5	13.6	20.1	24.4	17.5	7.0	8.3	6.5	4.6	9.6	-2.4

Source: Ministry of Tourism

Table 4: Exports and imports, 2008–2016\*

	2008	2009	2010	2011	2012	2013	2014	2015				2016
								Q1	Q2	Q3	Q4	Q1
	USD m											
Total exports	3097.8	2901.6	3630.2	4929.5	6106.4	6982.4	8106.0	2170.1	2182.0	2595.0	2309.3	2388.3
Of which: Garments	2986.2	2565.3	3223.4	4259.6	5015.4	5386.1	5960.5	1548.8	1601.7	1995.3	1681.2	1759.4
. To US	1908.3	1512.6	1853.9	2055.3	2143.3	2075.2	1963.6	491.1	494.3	585.3	438.8	423.1
. To EU	689.0	644.7	809.5	1322.2	1716.9	1969.6	2403.7	617.3	685.9	844.1	756.6	789.6
. To ASEAN	10.8	6.9	9.9	17.6	39.4	60.2	83.3	24.8	24.6	26.4	27.5	25.6
. To Japan	25.2	44.6	86.5	147.0	188.6	278.7	383.1	121.4	93.6	170.8	138.4	176.0
. To rest of the world	352.9	356.5	463.6	717.5	927.2	1002.9	1126.8	294.2	303.4	368.8	319.9	345.2
Agriculture	44.5	73.1	164.9	362.1	376.7	554.5	624.4	150.3	127.3	111.4	159.7	137.5
. Rubber	35.8	51.6	89.1	197.6	176.6	175.2	153.9	41.7	40.9	42.1	40.7	30.7
. Wood	3.4	3.5	34.1	48.8	36.8	73.6	132.0	13.9	9.8	7.3	15.3	4.9
. Fish	2.3	4.0	2.8	3.1	2.0	1.2	0.8	0.2	0.2	0.1	0.1	0.2
. Rice	2.6	10.9	34.7	106.6	146.4	262.3	248.5	89.5	72.4	54.7	98.8	91.4
Other agriculture	0.5	3.0	4.1	6.0	14.9	42.4	89.1	5.2	4.0	7.2	4.9	10.3
Others	67.1	263.2	242.0	307.9	714.4	1088.2	1520.1	471.0	452.9	488.0	468.4	491.3
Total imports	4272.0	4332.0	5190.6	6375.9	8593.3	8639.4	10,295.4	2717.3	2920.3	2907.9	2949.1	2784.7
Of which: Gasoline	84.9	91.1	108.6	294.4	308.0	306.4	334.7	34.5	92.2	96.5	65.1	95.4
Diesel	119.5	180.7	203.8	447.0	559.5	569.1	602.3	45.1	152.7	139.6	150.0	163.1
Construction materials	56.3	49.7	57.6	48.1	66.1	80.8	117.6	12.4	42.0	45.9	42.1	50.8
Other	4011.8	4010.0	4820.6	5586.4	7659.1	7682.6	9240.7	835.2	2633.0	2626.0	2691.9	2475.0
Trade balance	-1174.7	-1429.9	-1560.5	-1446.4	-1341.6	-1610.9	-2184.3	-547.2	-738.3	-312.9	-639.7	-396.4
Total garment exports	Percentage change from previous quarter											
	-	-	-	-	-	-	-	3.8	3.4	24.6	-15.7	4.7
Total exports	Percentage change from previous year											
	1.6	-14.1	25.7	32.1	17.7	7.4	10.7	5.8	16.1	22.8	12.6	13.6
Total imports	Percentage change from previous quarter											
	-	-	-	-	-	-	-	-3.2	7.5	-0.4	1.4	-5.6
Total imports	Percentage change from previous year											
	13.3	1.4	19.8	22.8	16.8	15.4	19.7	21.4	19.2	4.0	5.0	2.5

\* 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, 2008–16 (billion riels)

	2008	2009	2010	2011	2012	2013	2014	2015				2016
								Q1	Q2	Q3	Q4	Q1
Total revenue	5290.0	5989.0	5989.0	6251.4	7691.9	8255.2	10,543.4	2647.8	3301.6	3063.8	2867.3	3532.8
Current revenue	5210.7	5859.1	5859.1	6179.3	7443.8	8233.2	10,359.4	2638.0	3274.5	3028.7	2818.2	3514.6
Tax revenue	4409.9	4693.0	4693.0	5277.5	6334.8	7198.1	8995.2	2430.6	3006.1	2656.2	2409.7	3255.5
Domestic tax	3248.4	3533.6	3533.6	4071.6	5002.8	5728.1	7226.5	2012.6	2481.6	2153.9	1943.6	2715.4
Taxes on international trade	1161.5	1159.4	1159.4	1205.9	1331.7	1470.0	1822.7	418.0	524.5	502.3	466.1	540.1
Non-tax revenue	800.8	1166.1	1166.1	901.8	1118.2	1035.2	1310.3	207.4	268.5	372.5	408.5	259.1
Property income	78.0	291.1	291.1	63.8	143.0	84.0	88.5	3.0	16.7	35.9	21.7	8.2
Sale of goods and services	424.7	460.1	460.1	588.7	667.4	750.3	871.2	189.6	219.2	304.6	333.9	198.3
Other non-tax revenue	298.2	408.9	408.9	249.3	298.8	200.8	350.5	14.8	32.6	31.8	53.0	52.7
Capital revenue	79.3	129.9	129.9	72.1	247.9	73.4	184.0	9.8	27.1	35.0	49.1	18.3
Total expenditure	6297.8	8784.7	8784.6	9032.4	9660.9	12,535.7	13,306.5	2093.3	1964.8	3337.5	5121.3	2367.9
Capital expenditure	2574.4	2853.2	2853.2	3546.9	3628.3	5567.5	5590.7	654.4	584.7	649.9	2083.4	624.5
Current expenditure	3809.0	4773.1	4773.1	5341.2	6188.4	6968.3	7715.8	1438.9	1380.1	2687.7	3038.0	1743.4
Wages	1397.0	2048.8	2048.8	2170.6	2486.6	2997.3	3755.5	945.3	959.1	1281.2	1086.3	1133.1
Subsidies and social assistance	927.1	1099.4	1099.4	1518.8	1586.8	1563.0	1627.0	194.3	207.1	544.0	797.1	259.1
Other current expenditure	1384.9	1624.8	1624.8	1651.8	2115.1	2408.0	2333.4	299.3	213.9	862.4	1154.6	351.2
Overall balance	-1007.8	-2795.7	-2795.7	-1271.4	-1969.0	-4280.6	-2763.1	554.5	1336.8	-273.8	-2254.0	1164.9
Foreign financing	2055.1	1845.2	1845.2	-2781.0	2457.8	4326.2	3972.1	368.9	330.1	297.6	1414.8	270.0
Domestic financing	-127.0	938.6	938.6	2379.2	-332.9	824.4	-1428.7	-2464.8	-793.3	-259.1	-109.4	-1471.3

Source: MEF web site

Table 6: Consumer price index, exchange rates and gold prices (period averages), 2008–16

	2008	2009	2010	2011	2012	2013	2014	2015				2016
								Q1	Q2	Q3	Q4	Q1
(Based year 2006)	Consumer price index (percentage change from previous year)											
Phnom Penh - All Items	4.7	5.8	4.1	5.4	2.3	3.0	3.9	1.0	1.0	0.8	2.0	2.5
- Food & non-alcoholic bev.	6.4	9.9	4.4	6.5	2.5	3.9	4.9	4.2	3.9	3.3	4.7	4.7
- Transportation	9.1	5.8	7.0	6.9	3.3	-0.6	-1.0	-10.9	-7.9	-9.1	-8.9	-6.5
	Exchange rates, gold and oil prices (Phnom Penh market rates)											
Riels per US dollar	4119.0	4062.7	4187.1	4063.6	4039.2	4036.2	4060.4	4042.2	4056.7	4091.8	4050.9	4022.4
Riels per Thai baht	108.7	122.8	133.1	133.2	130.0	124.9	119.4	124.4	122.6	116.8	113.6	113.4
Riels per 100 Vietnamese dong	25.1	25.0	21.7	19.7	19.4	19.1	18.7	19.0	18.8	18.6	18.2	18.1
Gold (US dollars per chi)	70.6	83.2	147.5	184.5	200.9	175.9	152.3	150.9	144.4	136.0	130.9	
Diesel (riels/litre)	3140.0	3262.3	3859.3	4761.2	4941.2	4852.1	4934.1	3823.4	4032.0	3840.2	3389.4	2903.8
Gasoline (riels/litre)	4004.0	4005.0	4368.1	5044.5	5312.7	5083.3	5155.7	3986.2	4189.0	4048.9	3582.5	3310.6

Sources: NIS, NBC and CDRI

Table 7: Monetary survey, 2008–16 (end of period)

	2008	2009	2010	2011	2012	2013	2014	2015				2016
								Q1	Q2	Q3	Q4	Q1
	Billion riels											
Net foreign assets	10,345.6	14,655.0	16,697.9	17,893.9	18,154.5	21,260.1	26,699.7	26,823.0	27,975.3	26,359.2	26,665.5	29,247.8
Net domestic assets	1513.3	1573.0	2778.9	5760.8	10,437.4	11,508.3	15,859.8	16,863.2	18,178.3	20,600.9	22,157.6	21,643.0
Net claims on government	-2987.0	-2252.0	-2126.6	-2123.1	-2486.4	-2794.9	-4359.1	-5064	-5666.1	-5933.1	-6428.8	-7621.2
Credit to private sector	9894.1	10,532.0	13,331.2	17,552.8	23,536.6	27,608.8	36,244.6	37,759.4	40,995.0	43,807.1	46,071.0	47,627.0
Total liquidity	11,858.9	16,228.0	19,476.8	23,654.7	28,591.9	32,768.4	42,559.5	43,685.2	46,153.7	46,960.1	48,823.1	50,890.9
Money	2399.6	3120.0	3220.9	3956.2	4045.7	4878.2	6308.4	6628.0	6293.1	6287.5	6741.4	6717.8
Quasi-money								37,058.2	39,860.6	40,672.6	42,081.7	44,173.1
	Percentage change from previous year											
Total liquidity	4.8	36.9	20.0	17.8	20.9	14.6	29.9	24.2	20.6	15.2	14.7	16.5
Money	16.9	30.1	3.2	16.9	2.3	20.6	29.3	23.3	20.3	12.6	6.9	1.4
Quasi-money	2.2	38.6	24.0	17.9	44.6	13.6	30.0	24.4	20.7	15.6	16.1	19.2

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			
	2010	2011	2012	2013	2014	2015**		2016		2015**	2016	
						Feb	May	Feb	May		Feb	May
Cyclo drivers	9055	9532	10,303	10,438	10,774	12,408	11,677	11,880	11,898	15.1	-4.3	1.9
Porters	9964	10,785	12,143	13,247	13,580	16,094	14,782	14,888	11,774	15.1	-7.5	-20.3
Small vegetable sellers	8266	8337	10,771	11,366	14,751	14,379	17,020	20,337	18,979	7.6	41.4	11.5
Scavengers	6698	8388	8680	9819	9173	10,181	13,272	11,159	8737	34.6	9.6	-34.2
Waitresses*	5607	5986	6111	6697	7789	8111	8188	7860	8187	6.9	-3.1	-0.01
Rice-field workers	5691	5695	6151	6599	7514	7955	7552	8,484	7916	0.1	6.6	4.8
Garment workers	7746	8409	8932	10,161	11,178	14,644	14,803	14,937	13,828	8	2.0	-6.3
Motorcycle taxi drivers	10,623	11,568	12,930	13,450	13,386	13,939	13,761	15,526	15,425	8.3	11.4	12.1
Unskilled construction workers	8790	10,307	11,078	13,184	13,336	15,981	14,474	16,164	20,227	16.4	1.1	39.7
Skilled construction workers	11,952	13,159	13,743	15,442	17,420	16,336	18,656	18,853	21,150	34.1	15.4	13.4

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

\*\* November 2015 data are not available.

*Continued from page 24* **CDRI UPDATE**

**9-11 June:** The Executive Director attended the launch of the International Centre for Higher Education Innovation (ICHEI), Southern University of Science and Technology in Shenzhen, China. CDRI and ICHEI agreed to sign a memorandum of understanding. He was invited to serve on the Advisory Board of ICHEI and also participated in the International Meeting on Innovation and Entrepreneurship Education.

**14 June:** The Executive Director joined the parliamentary workshop on "Macroeconomic Framework and Financial Policy for Preparation of the Draft Law on National Budget Management 2017", hosted by the National Assembly of Cambodia. This was a unique opportunity to interact with senior policymakers from both the government and the National Assembly, and various international development partners.

**27-29 June:** Education researchers and the Executive Director visited Sihanoukville Autonomous Port and its special economic zone, the Kirirom Institute of Technology and the National Polytechnic Institute of Cambodia. The aim was to establish working relationships for future collaborative research on the human resources and logistics capabilities needed to drive Cambodia's industrial development.

## RESEARCH

### Agriculture

The team is implementing seven projects. The study on *Off-farm Income Generation Activities in Cambodia*, supported by the Food and Agriculture Organization (FAO), concluded with the submission of the final report and a policy brief. Also submitted was the final report for the project on the *Impact of Education Public Spending on Human Capital, Poverty and Inequality: A Computable General Equilibrium (CGE) Approach for Cambodia*, supported by Partnership for Economic Policy (PEP). Data analysis for the project *Impact of Rice Export Promotion Policy and Food Security* was completed; the literature review and report writing are in progress.

In June the team organised a stakeholder workshop to present the research results for *Irrigated Agriculture in Cambodia*, a study backed

by the Australian National University. The baseline survey for *Testing Innovative Models of Extension in Cambodia's PADEE Programme*, funded by the International Food Policy Research Institute (IFPRI), was implemented and the final, cleaned data submitted to IFPRI. Work has started on *Rice Policy Analysis*, a study funded under the Lower Mekong Public Policy Initiative (LMPPPI). Also in the pipeline is a project on *HARVEST (Helping Address Rural Vulnerabilities and Ecosystem Stability) Final Impact Evaluation*, funded by the United States Agency for International Development (USAID).

### Economics

The study on the *AEC Guidebook for Businesses in Cambodia*, supported by the ILO Bureau for Employers' Activities (ACT/EMP), was successfully completed. The team presented key research findings at the book launch and workshops in Phnom Penh on 6 June and in Siem Reap on 30 June. Nearing completion are three other projects: (1) *Mapping Sending Channels and the Management of Remittances in Cambodia*; (2) *Interrelations between Partner Countries' Public Policies, Migration and Development: Case Studies and Policy Recommendations*; and (3) *Revisiting the Unfinished Agenda: Determinants of Credit Access and Its Impact on Farm Production and Use of Fertiliser in Rural Cambodia*.

Making good progress is a project on *Vocational Training and Labour Market Transitions: A Randomised Experiment among Cambodian Young Adults*, which receives funding under the Greater Mekong Subregion Research Network (GMS-Net) program, supported by the International Development Resource Centre (IDRC) of Canada. The team has already selected 20 project participants to take part in the skills training at Pour un Sourire d'Enfant (PSE) and is now selecting a second group of project participants for skills training.

The unit's research proposal submitted under the Lancang-Mekong River Dialogue and Cooperation framework on *Enhancing China-Mekong Research and Policy Dialogue* has been selected and awarded a USD500,000 grant by the Ministry of Foreign Affairs of the People's Republic of China. The program has two main objectives: (1) to conduct research that is of policy relevance to all participating countries, and (2) to enhance people-to-people connectivity through joint research and China-Mekong policy

dialogue. It consists of two components, research and policy dialogue, and will run for two years from 1 July 2016 to 31 July 2018.

### Education

An inception workshop on “Higher Education Policy Research and Influencing in Cambodia”, a partnership between CDRI, MOEYS’ Department of Higher Education and Australia’s Department of Foreign Affairs and Trade (DFAT), was held in April at CDRI. The aim of the workshop was to launch the three-year project and to consult on project priorities and their relevance in higher education policy reform.

Also in April, the Education Unit hosted a delegation from the South University of Science and Technology of China and its affiliated UNESCO International Centre for Higher Education Innovation (ICHEI). Both parties discussed issues around higher education in China and Cambodia, and potential joint research partnerships. A memorandum of understanding has since been drafted and will be signed in due time to enable collaborative research.

A series of training workshops on “Research Methodology” was organised, thanks to funding from DFAT as part of the higher education policy research program. The eight-module training, scheduled for April and June, was delivered by Dr Un Kheang, Assistant Professor at Northern Illinois University. Fifteen participants from five units benefited from this hands-on research training.

Two articles on “Upper Secondary School in Cambodia: Research Gaps” and “Student Engagement in STEM Education: Global Review and Implications for Cambodia” are being prepared for publication in the quarterly *Cambodia Development Review*.

### Environment

A working paper titled *Common Pool Resources and Climate Change Adaptation: Community-based Natural Resource Management in Cambodia* is being prepared for publication. This paper presents the findings of a Sida-funded project conducted to explore how community-based natural resource management can be strengthened to sustain or improve its contribution to climate change adaptation, resilience and food security. Also being finalised for publication is a synthesis report combining the five working papers produced under the five-year Sida program 2011-16. Topics

covered include livelihoods and inclusive growth, gender in water governance, adaptive capacity, climate-smart agriculture and community-based natural resource management. Work has started on the project *Gender in Environmental Impact Assessment in Cambodia*, which receives funding from USAID under the Mekong Partnership for the Environment. The research team is reviewing available information in preparation for fieldwork in Stung Treng and Kampot provinces in June and July.

### Governance

The team has been engaged in several projects. Under the *Good Mekong Water Governance* project, two working papers are being prepared on *Local Perceptions of Dam Resettlement*, and *Participatory Action Research on Women’s Participation in Mekong Governance*. The team completed a *Participatory Photography Report* which demonstrates the impacts of hydropower development on local livelihoods from local communities’ perspectives. Participants’ photographs gave them an added voice, enabling them to express their personal thoughts and ideas and allowing researchers a more intimate understanding of the problems they face.

Under the Sida Program, the team is completing three working papers examining progress and challenges with regard to the recent implementation of transferred functions for solid waste management and the district/municipality fund, and the potential transfer of functions for primary education. The team has also initiated an edited volume titled *The Unfolding Impact of a New Generation of Young Cambodians on Society and Politics*. The volume aims to bring together existing studies primarily by Cambodian researchers about Cambodian youth. A one-day workshop for contributors and researchers was organised in mid-June to discuss key concepts, central research questions and initial findings from the chapter contributors.

In terms of capacity development, a one-day “Writing for Publication Workshop” was delivered by Dr Caroline Hughes, Research Advisor and Professor of Peace Studies at Bradford University. Some members of the team also participated in an eight-week “Research Design and Methods” training program, provided by Dr Un Kheang, Research Advisor and Associate Professor at Northern Illinois University.

## CDRI UPDATE

## Major Events

**1 April:** At a courtesy meeting, CDRI's Executive Director briefed Ruth Stewart, new Deputy Head of Mission, Australian Embassy, about CDRI's mission and activities and the progress of the education policy research program funded by Australia's Department of Foreign Affairs and Trade (DFAT).

**4 April:** An inception workshop on "Higher Education Policy Research and Influencing in Cambodia" was attended by Sarah Toh from the Australian Embassy, HE Mak Ngoy, Director General of Higher Education, representatives of the Swedish International Development Cooperation Agency (Sida) and academics from the Royal University of Phnom Penh, National Institute of Education and American University of Phnom Penh. The purpose was to establish a dialogue to identify key research directions for CDRI's education program.

**7 April:** The Executive Director joined a three-day policy dialogue workshop to discuss how to foster female participation in STEM education and mainstream gender-sensitive STEM education into teacher training, learning and materials. The workshop was co-organised by the Ministry of Education, Youth and Sport (MOEYS) and UNESCO within the framework of the Malaysia-UNESCO Cooperation Programme "Strengthening

STEM Curricula for Girls in Africa and Asia and the Pacific". This was an opportunity to share CDRI's research on STEM education with government officers, development partners and academics.

**5 May:** Members of the Economics Unit and the Executive Director met with Takashi Shimada, Principle Researcher, Overseas Coastal Area Development Institute of Japan. The purpose was to exchange information and ideas about research projects on maritime connectivity in Southeast Asia.

**10-11 May:** The Executive Director took part in the first International Think Tank Forum of 21st Century Maritime Silk Road, organised in Guangzhou by the Collaborative Innovation Center for 21st Century Maritime Silk Road Studies, Guangdong University of Foreign Studies. CDRI signed a memorandum of understanding with the Centre to formalise future collaborative research activities.

**31 May:** At an introductory meeting, senior researchers and managers briefed the new ANZ Royal CEO, Leonie Lethbridge, about CDRI's research programs and activities and discussed collaboration in organising the annual Cambodia Outlook Conference, a partnership of CDRI and ANZ.

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