

LINKED DOCUMENT 4b: ADB-SUPPORTED CLIMATE CHANGE INTERVENTIONS IN CAMBODIA

A. Background

1. Cambodia is ranked among the countries in East Asia most vulnerable to the impacts of climate variability and climate change. Nearly 80% of its population lives in rural areas with weak adaptive capacity and poor infrastructure. Floods and droughts are predicted to increase with climate change and are recognized by the government to be among the major contributors to poverty.
2. The National Adaptation Program of Action (NAPA) determined that the agriculture and water resources sectors are highly vulnerable to climate change. These sectors are important to the Cambodian economy, with around 84% of the population (as of 2012) relying on agriculture for their livelihoods.¹ Increased rainfall variability impacts surface water and groundwater availability including potable water supply, flood protection, and irrigation. Likewise, rural infrastructure including roads, water supply, and sanitation, suffers from impacts from floods and cyclones. In the Mekong River and its tributaries, climate-induced changes in hydrological flow regimes in seasonality, timing, and duration will adversely affect sensitive and economically productive wetland ecosystems such as Tonle Sap and fisheries productivity, a major source of livelihood. Disaster risk management and risk reduction gain in importance in the context of increasing climate change risks and vulnerability.
3. The country's agricultural production system is dependent on the annual flooding and recession of Tonle Sap Great Lake and is therefore particularly sensitive to potential changes in local climate and monsoon regimes. Cambodia's 435 kilometers (km) of coastline and large parts of the Mekong River flood plain could be severely affected by sea level rise, adversely impacting coastal communities and ecosystems. Climate models suggest that, under a high emissions scenario, the rainy season will start later, wet season rainfall will increase, dry season rainfall will decrease, and extreme weather events will become more frequent. These changes may lead to more intense flood pulses and adversely impact agriculture, reduce the fertile land area suitable for agriculture, and create food shortages. Higher temperatures and humidity will create conditions for increased incidence of diseases such as malaria and dengue. The poor and marginalized, particularly women and children, will be worst affected. Thus, climate change is expected to compound and amplify Cambodia's development challenges and problems.
4. As per Cambodia's second national communication to the United Nations Framework Convention on Climate Change (UNFCCC), the largest sources of emissions in 2000 were land-use change and forestry (49%) and agriculture (44%). Climate change mitigation is therefore closely linked to policies in these sectors. However, as Cambodia's growth rate increases, emissions from the energy and transport sectors are likely to increase significantly.
5. The impact of climate change has been increasingly felt in Cambodia in recent years. Farmers in various provinces have seen notable changes in terms of the climate over the years. Depending on their location, their vulnerability stems from droughts, floods, and/or storms. Many villages have noticed a definite increase in the frequency and length of droughts including in some areas known to be flood-prone. Such changes are likely to have adverse impacts on animal and human health, waters resources, and crops yields, leading to a rise in food insecurity and a decrease in incomes.²
6. The challenges to addressing climate change issues include limited information on impacts at the local level; limited institutional capacity; weak cross-sector and cross-regional coordination; lack of

¹ https://www.climateinvestmentfunds.org/cif/sites/climateinvestmentfunds.org/files/PPCR_Cambodia.pdf (accessed on January 16, 2014)

² <http://www.adaptationlearning.net/country-profiles/kh> (accessed October 25, 2013)

suitable technologies, reliable disaster control, and forecast mechanisms; and inadequate budgetary funds. There is limited capacity to deal with climate change adaptation issues in the line ministries at all levels—commune, subnational, and national. There is a need for guidelines for climate risk screening and for disaster risk reduction, creating a common tool for all communes to use. While there is growing awareness of climate change risks among all stakeholders, they lack the tools to cope with these risks and adapt to the changing situations. Currently, a major proportion of climate-relevant expenditure is externally funded, including multidonor funds such as Climate Investment Funds (CIFs), Global Environment Facility (GEF), Adaptation Fund, and funds from bilateral donors such as the European Union (EU), Swedish International Development Agency (SIDA), Japan, and Danish International Development Agency (DANIDA).

7. There are a number of programs dedicated to climate change including the pilot program for climate resilience (PPCR), Cambodia Climate Change Alliance (CCCA), and the United Nations (UN) collaborative initiative on Reducing Emissions from Deforestation and Forest Degradation (REDD) with the primary objective of improving climate resilience or contributing to mitigation; these are largely implemented outside the budget. The CCCA is an initiative designed to strengthen Cambodia's response to climate change, launched formally in 2010 by the EU and the United Nations Development Programme (UNDP) with the participation of other donors such as Sweden and Denmark. Its objectives are (i) to support capacity development and institutional strengthening to prepare for and mitigate climate change risks, and (ii) to enhance vulnerable communities' resilience to climate change.³ The CCCA's activities include support to the development of a National Climate Change Strategy and Action Plan and the mainstreaming of climate change into key priority sectors; support to capacity development and institutional strengthening activities, including capacity development within the National Climate Change Committee (NCCC) and the Climate Change Department (CCD), which provides secretariat services to the NCCC; and support to the implementation of public outreach and knowledge management activities, including the development of a national education and awareness strategy and action on climate change for Cambodia. Cambodia joined the UN REDD Program as a partner country in 2009, and the country offices of UNDP and the Food and Agriculture Organization supported the Royal Government of Cambodia (RGC) to develop the Cambodia REDD+ Roadmap.⁴ Progress, however, has been slow, partly due to limited capacity for supervision by local nongovernment organizations (NGOs) and partly due to challenges to forest conservation posed by the development of infrastructure and extractive industries in forest areas and increasing demand for forest products.

8. Cambodia was included in the PPCR due to its least developed country status, high vulnerability to impacts of climate change and variability, the economy's heavy dependence on climate-sensitive sectors, and low adaptive capacity of its population. Phase one of the PPCR was developed by the RGC with the assistance of the World Bank and the Asian Development Bank (ADB). Upon the withdrawal of the World Bank, ADB has solely been actively assisting with the design of interventions under the strategic programs for climate resilience (SPCR), phase 2 of the PPCR. Apart from this, ADB has also been contributing to climate change adaptation through its non-PPCR interventions, even though building climate resilience may not be an explicitly stated objective of these projects.

B. Government Capacity and Commitment to Climate Risk Management

9. The Kingdom of Cambodia ratified the UNFCCC in 1995 and acceded to the Kyoto Protocol in 2002. As a least developed country, the government has expressed its commitment to addressing climate change at both the national and global levels. Climate change was identified as a key priority of

³ <http://www.gcca.eu/national-programmes/asia/gcca-cambodia-climate-change-alliance> (accessed October 25, 2013)

⁴ "REDD+" includes, in addition to reducing emissions from deforestation and forest degradation, the role of conservation, sustainable management of forests and enhancement of forest carbon stocks. Apart from the UN-REDD Program, it includes other multilateral initiatives such as the Forest Carbon Partnership Facility and the Forest Investment Program, hosted by The World Bank.

the National Strategic Development Plan (NSDP) 2009–2013. The government recognizes its responsibilities to act to address climate change, consistent with the principles of common but differentiated responsibilities articulated in the UNFCCC. As a least developed country, its efforts are focused primarily on adaptation to climate change, but there is broad recognition that mitigation opportunities can accelerate ongoing efforts to realize the country's sustainable aspirations. Cambodia also ratified the Convention on Biodiversity in 1995. Although it may not be a result of conscious effort, a recent study showed that the share of total public expenditure that is climate relevant increased from 14% in 2009 to close to 17% in 2011.⁵ Some of the current challenges include limited awareness of climate change impact at the sector level in line ministries; insufficient capacity within various line ministries and lack of coordination among them; and linking climate change to the RGC's other reforms (public administration reform, public financial management reform, and subnational democratic development).⁶

1. National and Sector Climate Change Strategies

10. Cambodia has shown a high level of commitment to climate change issues, seen from the fact that the Prime Minister is the honorary chair of the NCCC, which is the mandated government coordinating and policy support entity for all aspects of climate change. The NCCC comprises representatives of 19 ministries and government agencies. The CCD within the Ministry of Environment (MOE) provides secretariat services to the NCCC. The NAPA, developed in 2006, has so far provided guidance to donors and the government, identifying projects to support. For future guidance a new Climate Change Strategic Plan (CCSP) is currently under preparation, coordinated by the CCD to support Cambodia's strategic approach of integrating climate change in regular development activities. Sector climate change strategic plans developed by various ministries will feed into the CCSP. The NSDP includes specific actions addressing climate change. A Green Growth Roadmap developed in 2009 highlights the opportunities for activities that combine growth and climate mitigation and adaptation (see footnote 5). It includes activities aimed at mitigation, those involving renewable energy and low carbon investments. It also has a number of adaptation-related activities such as forest management, sustainable agriculture, water resource management and irrigation, and infrastructure management. The National Committee on Disaster Management produced a Strategic National Action Plan for Disaster Risk Reduction (SNAP) in 2008 that helped raise the profile of disaster risk management in the line ministries.

11. Individual sector strategies also address climate change, in particular, the forestry, water, and other natural resources; energy; and agriculture sectors. The Forest Administration within the Ministry of Agriculture, Forestry and Fisheries (MAFF) oversees implementation of the National Forest Program (NFP), a policy aimed at supporting sustainable forest management. Biodiversity conservation and reduction of emissions from deforestation and forest degradation are among the strategic priorities of the NFP. A major challenge to achieving the sustainability objectives of the NFP is the granting of economic land concessions for development purposes.

12. The Ministry of Industry, Mines and Energy (MIME) is responsible for the energy sector, and its draft energy sector strategy pays increased attention to fuelwood sustainable management. The national policy on rural electrification by renewable energy recognizes that the supply of modern energy sources for community applications like biomass, biogas, small hydro, wind, solar, and LPG is critical in rural areas.

⁵ ODI. 2012. *Cambodia: Climate Public Expenditure and Institutional Review*. (http://www.aideffectiveness.org/images/stories/4.4%20cambodia%20cpeir%20report%2011%20july%202012.pdf?bcsi_scan_97e98328e2b67804=0&bcsi_scan_filename=4.4%20cambodia%20cpeir%20report%2011%20july%202012.pdf)

⁶ UNDP. 2010. *Climate Change Financing and Aid Effectiveness: Cambodia Country Analysis*. http://www.aideffectiveness.org/images/eventlist/cambodia_second_draft_climate_change_and_aid_effectiveness_country_analysis.pdf (accessed on October 25, 2013).

13. Together with Ministry of Water Resources and Meteorology (MoWRAM), MAFF implements the Strategy for Agriculture and Water (2010–2013), which seeks to take into account climate change impacts such as floods and droughts through interventions in food security and water resources management and also a focus on postdisaster emergency relief. Increasing the resilience of roads to climate change is the responsibility of the Ministry of Rural Development (MRD) for district and commune roads and the Ministry of Public Works and Transport (MPWT) for national and provincial roads. The aim here is to incorporate potential climate change impacts into project design in order to reduce damage to transport infrastructure and affected areas.

14. The Health Strategic Plan, 2008–2015 of the Ministry of Health (MoH) recognizes the impact of climate change on diseases such as malaria and other vectorborne diseases, as well as its implications for ensuring access to safe drinking water and other water related health considerations. The Climate Change Strategic Plan for Public Health selected vectorborne diseases; water/foodborne diseases; and health impacts related to extreme weather as the three main targets for development. Given the uncertainties in climate change projections, the focus will be on no-regret adaptation options such as public health training programs, effective surveillance and emergency response systems, and sustainable prevention and control programs.

2. Institutions

15. The NCCC, with the Prime Minister as the honorary chair among other things, provides a foundation for cooperation on climate policy formulation and monitoring and implementation of projects, programs, and activities related to climate change. The committee is chaired by MOE, with vice-chairs from MAFF, MIME, and MoWRAM. There are 20 members, including the 16 ministries most concerned with climate change, and four committees, councils, or authorities. A climate change technical team (CCTT) comprising representatives from government ministries and agencies acts as a technical advisor to NCCC on climate change issues. Different line ministries collaborate with NCCC in managing climate change and have climate change focal points. MOE has the climate change department; MAFF has the climate change committee; and MoWRAM, MRD, MIME, MPWT, the Ministry of Planning (MoP), and MoH have climate change focal points. The CCD is the national focal point for the Clean Development Mechanism (CDM) and the Kyoto Protocol and also supports MOE in the management of CCCA, a multidonor financing facility led by UNDP that provides resources for climate change capacity development and implementation at the national and local levels. Table LD4b.1 gives a list of key government institutions and their responsibilities related climate change issues.

16. The Ministry of Economy and Finance (MEF) plays a substantial role in integrating climate change into economic development and financial management. It has been a lead agency in the development of the PPCR in Cambodia, supported through the CIFs in partnership with ADB and the World Bank.⁸

17. MRD is one of the key participants of the NCCC and CCTT and is also a recipient of funding through the PPCR. It has focused its efforts on district- and commune-level road development, but has limited capacity in addressing climate change.

18. MoP, along with other ministries, is involved in the process of mainstreaming climate change in development plans. MOE as coordinator and facilitator obtains priorities from line ministries and proposes them to MoP; MoP in turn consolidates all projects through the planning and poverty reduction technical working group.

19. The entry point for mainstreaming climate change into subnational planning is the strategic framework for decentralization and deconcentration under the National Program for Subnational

⁸ Interventions under this program will be discussed in greater detail below (section C.1).

Democratic Development. The National Committee for Subnational Democratic Development (NCDD) is an interministerial mechanism for promoting democratic development through decentralization and deconcentration. At the subnational level, climate change adaptation projects are implemented by the provincial and district councils. Each commune prepares a project proposal, and prioritization of projects is based on scoring through a democratic process involving the commune people.

20. Some of the challenges in addressing climate change adaptation include limited Institutional and technical capacity to integrate climate change concerns into sectoral development planning; and limited awareness and planning capacity at the local government and commune levels. Accurate and reliable local forecasts of extreme climate events are non-existent, and there is inadequate access to reliable early warning data. Weather data from Department of Meteorology stations is not easily accessible, and the number and type of hydrological monitoring sites are insufficient for effective early warning. Public finances are also a major constraint. Estimates for 2009–2011 showed that 86% of the climate-related expenditures are from external sources.⁹

21. Capacity for monitoring and evaluation (M&E) of climate change interventions and resilience outcomes is currently weak. MOE recognizes the need for M&E systems at the project, sector, and national levels and collaborates with MPWT, MRD, and MoWRAM on this matter. MoP, which plays an important role in the national M&E system, feels that there is a lack of skills and resources required in preparing indicators for climate change adaptation and mitigation. There is a need for climate change units at the subnational government level, training and developing the capacity of commune members and district council members for preparation of project investment plans, and collection of data for M&E systems to be fed bottom-up to the Institute of Statistics at MoP. Each of the line ministries has appointed a technical team for M&E, and a national working group is set up at MoP for M&E of the NSDP. The PPCR results framework is proposed to be integrated into the national M&E system. This would help mainstream climate resilience into the new NSDP (2014–2018).

Table LD4b.1: Key Government Institutions with Responsibilities Related to Climate Change Issues

Government Institution	Responsibilities Related to Climate Change
National Climate Change Committee (NCCC)	Government-wide coordination on climate change (PM honorary chair; minister of MoE chair); coordinates and cooperates with ministries and institutions to draft policies, strategies, plans, and programs on climate change; determines negotiation positions and strategies for participation in international negotiations on climate change; establishes the Climate Change Technical Team (CCTT) as technical advisor on climate change issues and comprising representatives from government ministries and agencies.
Climate Change Department (CCD) of MoE	Provides secretariat services to NCCC; national focal point of the CDM of the Kyoto protocol, secretariat of the UNFCCC; assessment (four aspects of sustainable development—economic, social, environmental and technology transfer) and approval of proposed CDM projects.
Ministry of Environment (MoE)	Approves economic land concessions and manages community protected areas to reverse the trend of forest loss and protect livelihoods of poor rural communities.
Ministry of Economy and Finance (MEF)	Lead agency in the development of the Pilot Program on Climate Resilience (PPCR) supported by the Climate Investment Funds (CIFs).
Ministry of Rural Development (MRD)	One of the key participants in NCCC and CCTT and recipient of funding from PPCR; focused on district- and commune-level road development.
Ministry of Agriculture, Forestry and Fisheries (MAFF)	Implements a program—enhancing climate-resilient agriculture and food security—in partnership with MoE; the Forest Administration Department of MAFF focuses on community forestry development and implementation of REDD projects. The Fisheries Administration is responsible for the management of flooded forest and mangrove areas whereas management of protected areas is under the jurisdiction of MOE.

⁹ P. Am, E. Cuccillato, J. Nkem, and J. Chevillard. 2013. *Mainstreaming climate change resilience into development planning in Cambodia*. iiEd country report. iiEd, London. <http://pubs.iied.org/10047IIED>

Government Institution	Responsibilities Related to Climate Change
Ministry of Water Resources Management and Meteorology (MoWRAM)	Responsible for water resources management in the areas of river basin, subbasins, watershed run-off, groundwater, and aquifers; coordinates programs on climate risk management and rehabilitation of small- and medium-scale irrigation schemes in the Tonle Sap basin and on the enhancement of flood and drought management with the support of PPCR, and implemented in collaboration with MAFF, MOE, and the National Committee for Disaster Management (NCDM).
Ministry of Industry, Mines and Energy (MIME)	Responsible for planning industrial water use and hydropower; the department of energy development (under MIME) is responsible for energy sector planning, consumption, and data collection.
National Committee for Disaster Management (NCDM)	Interministerial body chaired by the Prime Minister; plays a key role in disaster management, working on both disaster risk reduction/prevention and response preparedness.

CCD = Climate Change Department, CCTT = climate change technical team, CDM = clean development mechanism, CIFs = Climate Investment Funds, MAFF = Ministry of Agriculture, Forestry and Fisheries, MEF = Ministry of Economy and Finance, MIME = Ministry of Industry Mines and Energy, MOE = Ministry of Environment, MoWRAM = Ministry of Water Resources Management and Meteorology, MRD = Ministry of Rural Development, NCCC = National Climate Change Committee, NCDM = National Committee for Disaster Management, PPCR = Pilot Program on Climate Resilience, REDD = Reducing Emissions from Deforestation and Forest Degradation, UNFCCC = United Nations Framework Convention on Climate Change.

Source: Cambodia climate public expenditure and institutional review. In addition to government ministries and departments, civil society also plays a role in climate change adaptation decisions and activities. The NSDP recognizes the importance of the private sector and the need to provide leadership for private sector engagement and to build dialogue mechanisms.

C. ADB's Portfolio of Climate Change Interventions

1. PPCR Interventions

22. The PPCR¹⁰ is meant "to pilot new approaches with potential for scaled-up transformational action aimed at a specific climate change challenge or sectoral response."¹¹ It funds technical assistance (TA) and investments to help governments integrate climate risk and resilience into development planning and initiate broad-based strategies for achieving climate resilience.

23. PPCR programs are meant to be country-led, building on national adaptation programs of action and consistent with countries' poverty reduction and development goals. As a part of the PPCR, a SPCR is prepared under the leadership of the government, based on consultations with civil society, vulnerable groups, women, and other stakeholders.

24. The PPCR is implemented in two phases in Cambodia. Phase 1 (US\$1.5 million) aimed at enhancing institutional readiness to implement the SPCR (Phase 2). The five components of Phase 1 are (i) mainstreaming of climate resilience at the national level, (ii) mainstreaming at the subnational level, (iii) strengthening civil society and private sector engagement and integrating gender considerations, (iv) science-based adaptation planning, and (v) outreach and preparation of the SPCR. Phase 1 was developed by the RGC through MEF in coordination with ADB and the World Bank and implemented by the CCD of MOE. The fifth component was dropped, since the SPCR proposal was prepared in May 2011, much before the expected completion date of Phase 1.

¹⁰ The PPCR is one of the three strategic programs funded by the Strategic Climate Fund (SCF), the other two being the Forest Investment Program (FIP) and the Scaling up Renewable Energy Program (SREP). The SCF and the Clean Technology Fund (CTF) are the two components of multidonor Climate Investment Funds (CIFs) implemented by the multilateral development banks (MDBs). The objective of the CIFs is to support "developing countries' efforts to mitigate and manage the challenges of climate change by providing grants, concessional funds, and risk mitigation instruments that leverage significant financing from the private sector, MDBs, and other sources." With the help of these funds, developing countries can pilot programs leading to lower greenhouse gas emissions and better climate resilience with potential for scaling-up.

¹¹ <https://www.climateinvestmentfunds.org/cif/funds-and-programs> (as accessed on April 29, 2013).

25. The outputs under the first and second components of Phase 1 were the following: analysis of options and opportunities and recommendation of entry points for mainstreaming climate resilience and disaster risk reduction into national and subnational plans, sector plans, policies, budgeting, and investments, and preparation of guidelines; discussion paper on climate change implications for national planning; climate-screening toolkit for analyzing planning policy; and guidelines for climate change adaptation and resilience building.

26. Outputs under component 3 comprised strategy and guidance for strengthening civil society organizations' (CSOs) engagement in mainstreaming climate resilience in the SPCR (collating names and addresses of relevant CSOs in Cambodia, organizational structure for the PPCR/CSO platform on national and provincial levels); guidance for PPCR/climate change department gender strategy, approach, tools, work plan, and names and addresses of relevant organizations in Cambodia; identifying climate change risks, vulnerabilities, adaptive capacity, and needs/opportunities of the private sector; and formulation of specific private sector interventions for inclusion in climate change adaptation projects.

27. The private sector scoping study identified several areas for involving the private sector in SPCR interventions in all the three sectors: agriculture, water resources, and rural infrastructure. It notes that to enhance the adaptive capacity of the rural private sector the interventions have to facilitate access to credit, technological expertise, and business services. Particular attention is required for microfinance institutions (MFIs) to facilitate affordable credit provision. Interventions could focus on capacity development and reducing costs of capital outsourcing for MFIs through credit guarantees. Roles identified for the private sector in agriculture include development of seeds (climate-resilient varieties and high-yielding varieties), crop insurance, and support to fisheries. Attention can be given to support services for seed production, marketing, and certification. In the water resources sector, private sector involvement could be in micro-irrigation, drip irrigation, and solar-powered irrigation systems and clean water systems using solar power. A private sector role is also envisaged in rural roads and rural energy systems. Capacity development for the private sector in climate proofing of rural roads is a possible activity under SPCR interventions.

28. Outputs of the 4th component of Phase 1 were the final inception report outlining implementation arrangements, timeline, etc. for the TA provided by the consultants; a synthesis report on the Cambodia hydrometeorological information system; an analytical report on the value of multimodel scaled climate scenarios for Cambodia; and a synthesis report on vulnerability and adaptation assessment for the key sectors and strategic and operational recommendations. Unfortunately, at the time of the Independent Evaluation Mission (IEM), most of these outputs had not been endorsed by the partner ministries and had not yet been widely disseminated. The translation to Khmer language was not adequate.

29. Though PPCR Phase 1 helped raise awareness among different stakeholders, several knowledge needs remained unfulfilled. The SPCR therefore has a TA component for further capacity strengthening along with the identified investment opportunities to boost the country's climate resilience. The SPCR thus has four components (Table LD4b.2). The first three components focus on adaptation investments promoting climate resilience in water resources and related infrastructure; agriculture; and infrastructure (roads, water supply and sanitation, and other urban infrastructure)—the three sectors that were identified as the most adversely impacted by climate change. The fourth component of the SPCR focuses on TA to strengthen capacity to mainstream climate resilience into development planning. This is in continuation and further development of Phase 1 activities. These actions are aimed at ensuring achievement of Cambodia's development goals in the face of growing challenges from climate change.

30. Taking into account the proposed changes to the initial indicative financing plan and the additional \$5 million resource made available (as endorsed in November 2012), the total resource

envelope for the Cambodia SPCR is around \$447 million. It includes \$91 million from the PPCR (\$55 million as grant and \$36 million as low-interest loan), with rest coming as cofinancing. All the seven investment projects are routed through ADB, and the government is expected to monitor and report the progress of these investments using the PPCR results framework and in alignment with ADB's Managing for Development Results (MfDR) approach.

31. The themes covered by SPCR interventions include climate risk management, flood and drought management, coastal resilience, disaster risk reduction, and ecosystem-based adaptation. The activities under the SPCR relate mainly to flood and drought management, coastal climate resilience, and climate proofing of infrastructure, accompanying ADB-financed projects. The TA aims to strengthen institutional capacity to enhance climate resilience; \$2 million is allocated for engagement of civil society and NGOs. Aid coordination is facilitated through technical working groups.

32. Table LD4b.2, provides a list of projects endorsed by the SPCR along with an update on the progress made so far (as of December 2013).

Table LD4b.2: Projects under the Strategic Programs for Climate Resilience (SPCR)

Project Title and Approval Status	PPCR Grant \$Million	PPCR Loan \$Million	Co- Financing \$Million	Key Result Expected
Component 1: Climate-resilient water resources				
Enhancement of Flood and Drought Management in Pursat and Kratie Provinces- L2970; G0330 (as part of ADB-funded Greater Mekong Subregion [GMS] Flood and Drought Risk Management and Mitigation Project- TA6456) approved in October 2012 <u>Status update:</u> project not yet declared effective; recruitment of implementation consultants ongoing; bidding documents for procurement of goods and services under preparation	6.0	4.0	38.0	Improved flood and drought risk management through capacity development of the government and communities
Component 2: Climate-resilient agriculture				
Promoting Climate-resilient Agriculture, Forestry, Water Supply and Coastal Resources in Koh Kong and Mondulkiri Provinces (as part of ADB-funded GMS Biodiversity Conservation Corridors Project TA7459) (Yet to be approved) <u>Status update:</u> delayed due to delays experienced in the base project (without the PPCR component); consultants for the preparation of PPCR project component mobilized in April 2013	8.0	-	20.4	Improved resilience in Koh Kong and Mondulkiri provinces to floods and droughts
Climate Proofing of Agricultural Infrastructure and Business-focused Adaptation (as part of ADB-funded Climate Resilient Rice Commercialization Sector Development Program TA7904) approved in March 2013 <u>Status update:</u> declared effective in September 2013; recruitment of implementation consultants in progress	5.0	5.0	77.9	Increased agricultural productivity and food security in target provinces through integrated crop management
Component 3: Climate proofing of infrastructure				

Project Title and Approval Status	PPCR Grant \$Million	PPCR Loan \$Million	Co- Financing \$Million	Key Result Expected
Climate Proofing of Roads in Prey Veng, SvayRieng, Kampong Chhnang and Kampong Speu Provinces- L2839; G0278; L8254 (as part of ADB-funded Provincial Roads Improvement Project TA 8005) approved in November 2011 <u>Status update</u> : declared effective in May 2012, but experienced delays as consulting team was recruited in November 2013	7.0	10.0	62.1	Enhanced climate resilience of more than 200 km of provincial roads to make them accessible and usable in all seasons
Climate Proofing Infrastructure in the Southern Economic Corridor Towns- L2983; L8265; G0334; G0335; TA7644 (as part of ADB-funded GMS Southern Economic Corridor Towns Development Project) approved in October 2012 <u>Status update</u> : declared effective in March 2013; recruitment of implementation consultants in progress	5.0	5.0	45.4	Enhanced institutional capacity and improved resilience of water supply and sanitation infrastructure to floods
Flood-resilient Infrastructure Development in Pursat and Kampong Cham – TA7986 (as part of ADB-funded Integrated Urban Environmental Management in the Tonle Sap Basin Project) (Yet to be approved) <u>Status update</u> : delays experienced due to lack of ADF resources; project preparation consulting team mobilized in February 2013	5.0	5.0	40.0	Improved resilience of urban infrastructure to floods in target areas
Climate Resilience of Rural Infrastructure in Kampong Cham province L2670 (as part of ADB-supported Rural Roads Improvement Project). (Yet to be approved) <u>Status update</u> : new project proposed in place of the cancelled project on water resources	9.0	7.0	162.3	Rehabilitation of rural roads in nine provinces (around Tonle Sap basin) to climate-resilient condition
Component 4: Technical Assistance				
Mainstreaming Climate Resilience into Development Planning (TA8179) approved in August 2012	10.0	-	1.3	Strengthened institutional capacity for mainstreaming climate change concerns into planning, budgeting, and development; established support for civil society organizations; and disseminated knowledge products on climate change nationally and internationally
Total	55.0	36.0	447.4	

GMS = Greater Mekong Subregion, PPCR = Pilot Program on Climate Resilience, SPCR = Strategic Programs for Climate Resilience, TA = technical assistance.

Source: Compiled by the study team.

33. Given the limited time within which PPCR funds had to get allocated, it was considered best to implement SPCR activities as retrofits to ongoing or approved ADB projects in Cambodia. This gives an

impression that priorities for intervention may not have necessarily been the same as what would have been chosen in an unconstrained situation. This is also evident from the fact that a previously endorsed water resources project (climate risk management and rehabilitation of irrigation schemes) had to be cancelled and the funds allocated to an additional project on rehabilitating/building climate resilient rural roads.

34. The SPCR allocated \$17 million (\$10 million loan and \$7 million grant) for climate proofing of roads in Prey Veng, Svay Rieng, Kampong Chhnang, and Kampong Speu provinces as part of the ADB-funded Provincial Roads Improvement Project (L2839). The SPCR activities focused on climate proofing of roads, which included piloting approaches to strengthen civil works design and planning and ecosystem-based measures to reduce risks of damage from climate change impacts. The project will rehabilitate the pavement of about 157 km of roads in the four provinces. The rehabilitation program will provide a safer, climate-resilient, and cost-effective provincial road network with all-year access to markets and other social services for provincial centers of southeastern and midwestern Cambodia.

35. This project can be considered a “no-regret” investment, as it reduces both adaptation and development deficits through improved access to markets, jobs, and social services in four project provinces. It addresses current climate variability (particularly frequent flooding during wet season), and not so much the future anticipated impacts of climate change, which are uncertain.

36. Climate resilience of the project roads is planned to be achieved through making adjustments to the design of road embankments to avoid soil erosion, use of materials less susceptible to moisture so that structural layers are not weakened upon flooding and soaking, and improving water conservation of watershed, and diverting run-off water away from the road. In addition, the project will undertake tree planting by engaging vulnerable communities and women in order to extend road slope-side stabilization, provide shade around borrow pits, and restore ecosystem functions for flood management. A pilot plan for water capture and storage integrated with road construction would simultaneously contribute to supply of water in the project area while improving road safety and stability.

37. Outcome indicators for climate resilience are improved adaptation planning and introducing ecosystem-based adaptation strategies. The output will also develop emergency management planning for project roads and plan water capture and storage systems. Climate change impacts will be reduced by a mixture of design adjustments to civil works, hazard mapping, bioengineering and other ecosystem-based measures, and infrastructure policy and planning activities.

38. A site visit to Kampong Chhnang Province and discussions with the commune officials revealed that floods and droughts are the major climate-related risks faced by the local population. The current condition of the roads is such that parts of them get washed away due to rains. The village communities notice increasing occurrences of dry spells even during wet season. While those living near lakes are affected by floods, the rest face mainly risks of drought. While there is a small lake that provides water during the dry season, it is not enough to serve the needs of all five villages in the area. The adaptation needs as identified by the people were, apart from climate proofing of roads, increased access to irrigation facilities, access to agricultural techniques, improved rice varieties that are early maturing and, resistant to droughts and floods, extension services for crop diversification, and managing livestock and aquaculture.

39. To deal with changes arising from climate variability in vulnerable parts, higher elevation of roads will be considered, and materials that withstand higher moisture content will be used. The project will undertake tree planting activities with the active involvement of local vulnerable groups in order to stabilize slopes and reduce the effects of erosion and landslides. The trees will bring added benefits such as shade, fruits, and restoration of ecosystem functions for flood management.

40. There has not been much progress in implementation so far, even though the project was approved in November 2011. This is mainly due to delays in achieving loan effectiveness and in the recruitment of project implementation consultants. This has been the case with other approved projects as well, indicating weak governance and capacity issues within the government.

41. As part of ADB's Greater Mekong Subregion (GMS) Biodiversity Conservation Corridors (BCC) project in Cambodia the SPCR allocated an \$8 million grant to improve the resilience of agriculture in Koh Kong and Monduliri provinces to floods and droughts, thereby improving livelihood options. The implementing agency for this component is MAFF, with the Forestry Administration as the focal point. The specific objectives include preventing river flooding during high rainfall periods; improving rainwater harvesting systems to enhance the resilience of community water supply; and enhancing the resilience of small-scale agriculture through the introduction of high-yielding drought- and flood-tolerant crop varieties, small-scale irrigation, water harvesting, and other water-saving technologies. The project beneficiaries are poor upland farmers, ethnic minority and indigenous peoples' households, and women and children living in and dependent on the forest ecosystem in nationally acknowledged poor communes and villages. Although the BCC project has benefits for the GMS region from improved forest connectivity and protection of forest resources and biodiversity, the benefits from the SPCR component are aimed specifically at local communities to improve their climate resilience.

42. Droughts posed a major risk for the village communities in Monduliri, the other site visited by the IEM which is part of the Promoting Climate-Resilient Agriculture, Forestry, Water Supply and Coastal Resources in Koh Kong and Monduliri Provinces project. This is a supplementary project funded from the PPCR and designed to complement BCC project (TA7459) efforts to improve biodiversity conservation within the corridor and connectivity between national protected areas and other protection and production forest areas in the surrounding area. It will achieve this by augmenting activities in BCC's target communes with proposed climate change adaptation activities that assist local communities to develop resilience to climate change and therefore reduce their dependence on unsustainable forest product exploitation. Five activities have been identified that meet local priorities while developing climate change resilience: (i) Rainwater Harvesting and Climate Resilient Home Garden Productivity, (ii) Forest Border Climate Resilient Rice Production, (iii) Mangrove Restoration and Bioengineering, (iv) Community-based Production Forestry, and (v) Micro-watershed Management. The village communities identified clean water supply and extension services for home garden production and raising livestock as their adaptation needs. In addition the roads become inaccessible during the wet season.

43. The Climate Resilient Rice Commercialization Sector Development Program (44321-013) has as one of its objectives dealing with climate change risks. The project aims to transform the predominantly subsistence rice subsector into a commercially oriented one by improving household and national food security and expanding rice export through (i) removing legal and regulatory constraints inhibiting rice commercialization, (ii) improving productivity of paddy crops and consistency in quality of milled rice, (iii) enhancing rice value chain support services, and (iv) addressing risks of climate change through mitigation and adaptation.

44. Paddy production in Cambodia is increasingly becoming vulnerable to the changing climate as the number of extreme climate events such as floods and droughts is on the rise, and in the coastal regions the impacts of sea level rise and saltwater intrusion are expected to be severe by 2050. To minimize the impacts of climate change, this program will support both soft and hard adaptation measures. Rehabilitation and climate proofing of irrigation systems are the envisaged hard adaptation measures. The soft adaptation measures include conservation agriculture, preserving the natural resource base, agricultural land use zoning, and improving water use efficiency; developing the capacity of MAFF and MoWRAM to undertake joint work in relation to agricultural land-use planning; and undertaking a detailed feasibility study to determine the appropriateness of a weather-indexed crop insurance scheme.

45. The following are some of the specific indicators used in the design and monitoring framework (DMF): (i) increase in food output (the impact on output due to rice commercialization policies and that due to actions taken to improve climate resilience cannot however be separated), (ii) framework for establishing agricultural land use zones completed, (iii) legislation on sustainable management and use of agricultural land operational, (iv) increase in command area served by climate-resilient rehabilitated irrigation structures, and (v) percentage of farmers or percentage of cultivated area covered by weather indexed insurance.

46. The Greater Mekong Subregion Flood and Drought Risk Management and Mitigation Project will support the RGC to undertake structural and nonstructural measures (hard and soft climate change adaptation measures) to prepare for and manage disaster risks linked to floods and droughts. Project interventions will (i) enhance regional data, information, and knowledge base for the management of floods and droughts; (ii) upgrade or develop water management infrastructure; and (iii) prepare communities to manage disasters such as floods and droughts and adapt to climate change.

47. The SPCR component Enhancement of Flood and Drought Management in Pursat Province will (i) fund additional irrigation and river bank protection infrastructure costs, (ii) strengthen the capacity of communities to better manage risks associated with extreme events, and (iii) strengthen regional coordination for management of climate extremes. These look like “no-regret” interventions that help tackle current climate related hazards as well as future anticipated climate change-related events.

48. Outcome and output indicators used in the DMF are improved climate resilience as given by reduced economic losses (due to droughts and floods) in project areas, number of commune disaster risk management plans implemented, area under upgraded irrigation and drainage facilities, and number of people with increased flood protection.

49. The GMS Southern Economic Corridor Towns Development Project is aimed at strengthening the capacities of the corridor towns to manage local economic development in an environmentally sustainable manner. It supports climate resilience of towns through adaptation initiatives to reduce the adverse impact of climate risk on infrastructure investment.

50. The SPCR component Climate Proofing Infrastructure in the Southern Economic Corridor Towns will support (i) mainstreaming of adaptation concerns into urban planning, and (ii) strengthening of climate resilience of sanitation systems (drainage channels, sewerage, and sanitary landfills) to minimize the impact of floods.

51. The expected outcome is improved urban infrastructure and enhanced climate resilience in the project towns. The DMF has indicators such as reduction in number of people affected by flood, reduced frequency of flooding in town centers, reduced frequency of flooding events in waste water treatment plants, and length of flood protection dike constructed.

52. Mainstreaming Climate Resilience into Development Planning, the \$7million TA, addresses the need to strengthen the capacity of key stakeholders to mainstream climate resilience into development planning. Its aim is to enhance climate resilience of programs, plans, and/or policies by (i) strengthening institutional capacity for planning, budgeting, and implementing climate change-related actions; (ii) strengthening the information base for decision making; and (iii) promoting synergies between adaptation and disaster risk reduction. Capacity development activities will be targeted at technical staff and senior decision makers. The TA will include establishment of a PPCR Coordination and Technical backstopping unit at MOE, and provision of support to CSOs to galvanize adaptation efforts at commune level.

53. The TA directly supports NAPA through undertaking feasibility studies for priority projects, and the SNAP through enhancing capacity to mainstream disaster risk reduction (DRR) into development

policies and plans. It also supports the 2010–2019 implementation plans for decentralization and deconcentration under the National Program for Sub-National Democratic Development, which calls for mainstreaming climate change at subnational levels. Feasibility studies on high priority NAPA projects will allow the TA methodologies to be replicated and the TA outputs including information and knowledge products to be disseminated throughout Cambodia and across the GMS and Southeast Asia.

54. The TA intends to strengthen linkages with other initiatives such as the CCCA (an \$8.9 million initiative funded by the EU, SIDA, DANIDA, and UNDP) and the Climate Change and Adaptation Initiative (a 15-year program [2010–2025] of the Mekong River Commission) and other proposed ADB projects (Proposed Additional Financing for the Emergency Food Assistance project [agricultural adaptation]; Proposed Japan Fund for Poverty Reduction financing linked to the Emergency Flood Reconstruction Project [community-based disaster risk management]).

55. As an outcome of the TA, vulnerability assessments will be performed and risk-screening tools used routinely for projects in key areas such as irrigation, agriculture, roads, and water supply and sanitation.

2. Problems in Implementation and Progress Made in PPCR Projects

56. There has not been much progress so far in the implementation of the approved projects, mainly due to delays in achieving loan effectiveness. The recruitment of project consultants and the preparation of bidding documents for procurement of goods and services have been slow. This indicates weak governance and capacity issues within the government. The process of recruiting project implementation consultants is in progress and is expected to be completed sometime in 2014 in all approved projects with the exception of the Climate Proofing of Roads in Prey Veng, Svay Rieng, Kampong Chhnang, and Kampong Speu project, for which the consultant team was on board as of November in 2013 and the civil works were to commence in first quarter of 2014.

57. For the yet-to-be-approved projects the delay in approval is mostly due to delays in the implementation of base projects (without the PPCR climate resilience component). In the case of the Promoting Climate-resilient Agriculture project, there were coordination problems among executive agencies and delays in mobilizing project implementation consultants for the base project and in the recruitment of consultants for preparing the PPCR component. The project had MOE and MAFF as executing agencies to ensure the ecological integrity of landscapes and protected forests. This double institutional structure caused complications resulting in delays in staffing the central project coordination units and provincial project management units. The consultants could be mobilized only in April 2013, and the draft feasibility report was submitted in October 2013. The ADB Board's approval is expected in June 2014, and the implementation activities are to commence in September 2014.

58. The PPCR project on water resources (climate risk management and rehabilitation of irrigation schemes) had to be cancelled, as the original project (without the PPCR component) experienced delays because the required policy reforms to provide the enabling environment were yet to happen, and it was felt unlikely to materialize anytime soon. It has now been proposed that funds allocated to this project be reallocated to a new infrastructure project on rehabilitating/building climate-resilient rural roads (rural roads improvement project to be implemented by MRD). This proposed change would, however, still be consistent with Cambodia Climate Change Strategic Plan (CCCSP 2014–2023) as well as NSDP 2014–2018.

59. The delay in the case of the Flood-resilient Infrastructure Development project was due to the lack of Asian Development Fund resources (the project was put on standby for 2013 and firmed up for 2014). The project preparation consulting team was mobilized only in February 2013, and as of December 2013 the documents are expected to be submitted to the PPCR subcommittee's approval.

The project scope was changed to limit it to just two provinces Pursat and Kampong Chhnang in place of the earlier stated six provinces, at the request of the government. The project was also renamed Integrated Urban Environmental Management in the Tonle Sap Basin.

60. The SPCR TA on Mainstreaming Climate Resilience into Development Planning was approved by the ADB Board in October 2012. There is not much to be reported in terms of progress made, as the actual implementation commenced only in September 2013, partly due to the delay in the completion of the Phase 1 TA, which was closed in August 2013. The Phase 1 TA examined the issues of institutional readiness to mainstream climate resilience at the national and subnational levels. Although the Phase 1 TA helped raise awareness among key stakeholders, much remained to be done, and the SPCR TA is expected to continue the capacity development process started by the Phase 1 TA. The SPCR TA is expected to (i) strengthen government's capacity to coordinate all SPCR investments and mainstream adaptation concerns into national and subnational planning, budgeting, and development; (ii) conduct feasibility studies for priority projects of the NAPA with a view to securing additional funds from sources such as the Adaptation Fund and Green Climate Fund; (iii) establish a civil society support mechanism to fund community-based adaptation activities and strengthen the capacities of CSOs and NGOs to mainstream climate resilience into their operations; and (iv) generate and disseminate adaptation knowledge in various sectors.

61. \$3 million of the newly endorsed grant resources of \$5 million, along with \$1.3 million from Nordic Development Fund, would be processed as additional financing to this TA and will be used in four areas: (i) support to MOE in operationalizing the CCCSP 2014–2023, which was approved by the government in November 2013; (ii) support to the secretariat of NCDD and Ministry of Interior (MoI) to facilitate mainstreaming of climate resilience at subnational levels; (iii) support to Ministry of Women's Affairs (MOWA) in accelerating efforts to integrate gender considerations in climate change adaptation; and (iv) support to MoP to strengthen M&E of climate change investments.

3. ADB's Other Climate Change-related Interventions

62. Like the PPCR, ADB's projects supporting climate change adaptation will be country-driven and will promote the mainstreaming of adaptation and DRR into national development plans.¹² ADB's climate change-related interventions in Cambodia, other than the above SPCR interventions, are listed in Tables LD4b.3 and LD4b.4. These projects, except for the GMS biodiversity corridor project, are mainly roads and irrigation infrastructure. The interventions have focused on rehabilitating small- and medium-scale irrigation services; upgrading water management infrastructure and enhancing the capacity of community-based disaster risk management; improving livelihoods through restoration and protection of biodiversity corridors; increasing resilience of provincial roads and rural roads to climate change; and urban infrastructure investments such as wastewater treatment, flood control protection, and solid waste management.

63. The Flood Damage Emergency Reconstruction Project (L2852), for example, focuses on restoring damaged infrastructure relating to irrigation and flood control and national, provincial, and rural roads. Resilience to climate change and future floods is implicit and not directly stated in the objective. Although this project is marked as having high adaptation impact, the funds may not be treated as additional, since reconstruction of damaged infrastructure was needed anyway, and climate adaptation benefits are incidental.

64. The Rural Roads Improvement Project includes innovative climate change adaptation activities relating to road design and planning for emergency preparedness, mitigation, and response, given the flooding-related disasters faced by Cambodia in recent years. Some of the activities include vulnerability mapping for rural roads to improve planning for climate changes, introducing ecosystem-based

¹² <http://www.adb.org/themes/climate-change/climate-resilience> (accessed October 30, 2013).

adaptation strategies, and developing pilot programs for an early warning system and emergency management planning for rural roads. The project is rated to have high adaptation benefit.

65. The Water Resources management sector development program, for example, focuses on soft aspects of climate adaptation. Its aim is to strengthen the capacity of MoWRAM for integrated water resources management (IWRM) and climate change adaptation as well as to improve data management for flood and drought forecasting. The outcome indicators include increased cropping intensity and crop yields in both wet and dry seasons and improved coordination and cooperation between MoWRAM and MOE to mainstream adaptation to climate change in IWRM plans.

Table LD4b.3: ADB's Non-PPCR Climate Change Adaptation and Mitigation Loan Portfolio (2009–2012)

Loan/ Grant/ Equity Investment No.	Modality of Assistance	Project Name	Approval Date	Total Project Cost ^a (\$million)	Total ADB Internal and ADB-administered Financing ^b (\$million)	Climate Change Adaptation Impact ^c	Climate Change Mitigation Impact
L2852/ G0285	Loan Grant	Flood Damage Emergency Reconstruction Project	27-Mar-12	67.18	60.25	High	Medium
G0241	Grant	GMS-CAM Biodiversity Conservation Corridor	10-Dec-10	20.9	19	Medium	-
L2670	Loan	Rural Roads Improvement Project	23-Sep-10	67	35	High	Low
L2672 L2673 G0220	Loan Grant	Water Resources Management Sector Development Program (Project and Program Loan)	23-Sep-10	31.92	24.8	Medium	Medium
L2602	Loan	GMS Rehabilitation of the Railway in Cambodia (Supplementary)	15-Dec-09	68.6	63.5	X	-

ADB = Asian Development Bank, CAM = Cambodia, GMS = Greater Mekong Subregion.

^a Total project cost includes ADB internal resources and ADB-administered financing; parallel financing; counterpart financing from government, implementing agencies, beneficiaries, and/or equity contributions.

^b Total ADB internal and ADB-administered financing includes all ADB internal resources and cofinancing resources administered by ADB, whether administered fully or partly. The financing costs for ADB and ADB-administered financing are based on the Board-approved RRP and the Listing of Loan, TA, Grant and Equity Approvals database accessible via the ADB Intranet portal. Where the two differ, ADB's Operations Services and Financial Management Department database is used, since some projects had yet to finalize co- or parallel financing at the time of Board consideration. All total project costs and cost data for counterpart and parallel financing are taken from project RRP.

^c As indicated by the climate change markers of the eOperations database. "X" indicates project has been identified in RRP or "Projects at a Glance" as having mitigation or adaptation impact, but with no rating of High, Medium, or Low.

Source: Compiled by the study team.

Table LD4b.4: ADB's Non-PPCR Climate Change Adaptation and Mitigation TA Portfolio (2009–2012)

TA No.	TA Name	Date Approved	Total ADB Internal and ADB-administered Financing (\$ million)
TA7986	Integrated Urban Environmental Management In the Tonle Sap Basin	13-Dec-11	0.7
TA7904	Climate Resilient Rice Commercialization Sector Development Program	03-Nov-11	1.5
TA7610	Supporting Policy and Institutional Reforms and Capacity Development In the Water Sector (2nd Supplementary)	30-Mar-11	4.55
TA8005	Provincial Roads Improvement Project	16-Dec-11	0.5
TA7610	Supporting Policy and Institutional Reforms and Capacity Development in the Water Sector	23-Sep-10	1.0
TA7459	Greater Mekong Subregion Biodiversity Conservation Corridors (Supplementary)	10-Jul-12	1.1

ADB = Asian Development Bank, TA = technical assistance.
Source: Compiled by the study team.

66. The TAs identified as climate adaptation-related are either project preparatory or sector development ones. *TA7986 Integrated Urban Environmental Management in the Tonle Sap Basin* supports improved solid waste management facilities, improved drainage, and improved riverbanks leading to the outcome of increased climate change resilience, apart from improved urban environment.

67. *TA7904 Climate Resilient Rice Commercialization Sector Development Program* supports enhanced paddy production and productivity through improved irrigation water use efficiency and paddy crop insurance pilots.

68. *TA7610 Supporting Policy and Institutional Reforms and Capacity Development in the Water Sector* aims to strengthen the framework for integrated water resources management and adaptation to climate variability would be an integral part of this approach.

69. *TA7459 GMS Biodiversity Conservation Corridors* aims to maintain and improve the cover, condition, and biodiversity of forestlands and associated ecosystems in priority biodiversity conservation landscapes.

4. Climate Change Mitigation-related Interventions in Cambodia

70. The Rehabilitation of the Railway in Cambodia project is classified as climate change mitigation, since it could contribute to mitigation if it encourages diversion of passenger and freight traffic away from roads to the more energy efficient railways.

71. The GMS: Reducing Emissions from Deforestation and Forest Degradation in the Biodiversity Conservation Corridors Initiative Pilot Sites project funded by ADB's climate change fund aims to contribute to establishing climate-resilient transboundary biodiversity conservation corridors that sustain livelihood improvements by establishing cross-border arrangements for maintenance and protection of these biodiversity corridors with climate-resilient activities in place. This \$1 million project leveraged the \$69 million project GMS BCC Project (Cambodia, Lao People's Democratic Republic, and Viet Nam). The envisaged impact from this project is climate-resilient sustainable forest ecosystems benefiting local livelihoods. Large areas of forest area would be restored with additional area leveraged under REDD+ for climate change mitigation.

72. The Rural Energy Project (45303-001), which is in the pipeline, would among other things promote the use of improved cook stoves with higher efficiency in rural areas of Kampong Cham Province. This would avoid the burning of traditional biomass, thereby reducing greenhouse gas emissions and women's and children's exposure to air pollution. In Cambodia, 93% of the population relies on combustion of traditional biomass for cooking.

5. Process of SPCR Formulation and Evaluation

73. The PPCR aims to provide incentives for scaled-up action and transformational change in integrating climate resilience considerations into national development planning consistent with poverty reduction and sustainable development goals.

74. Phase 1 of the PPCR project was intended primarily to prepare the groundwork for the phase 2 investments under the SPCR by assessing and strengthening institutional readiness. The preparation of PPCR Phase 1 started with a joint mission in October 2009 led by MEF and comprising ADB, the International Finance Corporation, and the World Bank, with participation by UNDP and the Department for International Development.¹³ As mentioned in the completion report, cumulative deficiencies on the ground such as technical and organizational capacity among government and project staff and, procedural inexperience resulted in a delay of more than 1 year to get the project started. The PPCR was one of the last projects approved before the World Bank decided to suspend all its new projects due to procedural issues encountered in late 2010 during execution of the Land Management and Administration Project.

75. The preparation of Phase 2 commenced in March 2011 with a range of meetings with various ministries and agencies, and civil society. Consultations with government agencies, the private sector, civil society, and development partners confirmed agriculture, water resources, and rural infrastructure as the priority sectors to be addressed by the PPCR. The Phase 2 proposal was prepared in April and May 2011 and approved by the CIF in June 2011.

76. The major findings and lessons from the completion report of PPCR Phase 1 are as follows:¹⁴ Phase 1 succeeded in bringing climate adaptation and resilience dialogue to all the key line ministries. A major achievement was increasing the awareness and capacity of key ministries including MOE, MOI, MoP, MEF, MoWA, and MRD, which helped them take ownership and responsibility for building climate resilience. However there is much to be achieved still. Clear understanding of the roles of various line ministries is lacking, and climate resilience has not yet been made a planning priority to the extent possible. Local level engagement has been limited, with very little data collected on subnational mainstreaming needs and no specific awareness-building activities undertaken. Incentives, say in the form of salary supplements, may be needed to maintain the ownership of mainstreaming processes in Phase 2, as staff in line ministries have been making additional contributions without compensation and in tight time frames. Collaboration among key stakeholders needs improvement, especially cooperation with line ministries such as MIME, MPWT, National Committee for Disaster Management, MAFF, provincial and local authorities, and national universities. Private sector support has been absent and remains an unutilized potential resource. Involvement of government staff in project activities needs to be increased significantly so that their skills are developed for when consultants leave. Project activities need to target the most vulnerable. There is need for downscaling of climate models at least to the district or commune level.

77. The completion report noted that the overall achievement of outcomes is only moderately satisfactory. Some of the deliverables such as guidelines for mainstreaming climate resilience and DRR into national and subnational plans and budgeting were "not 100% finalized in time for project

¹³ <http://www.climateinvestmentfunds.org/cif/sites/climateinvestmentfunds.org/files/PPCR%204%20SPCR%20Cambodia.pdf>

¹⁴ MOE. 2013. *Pilot Program for Climate Resilience Phase One Completion Report: Implementation Completion Memorandum*. Ministry of Environment, Climate Change Department, PPCR Project Office. April 30, 2013. Cambodia.

completion.” The private sector scoping study meant to identify climate change risks, vulnerabilities, needs, and opportunities of the private sector was considered not fully satisfactory, as the “final report lacked a concise summary.” However, other deliverables such as the report on hydrometeorological information system, synthesis report on vulnerability and adaptation assessment of key sectors, and the report on M&E framework were found to be satisfactorily achieved.

78. The following are some of the key insights gained by the IEM: Government ownership of SPCR formulation is evident, as the government considers that priorities for the SPCR were guided by national development strategies and the climate change action plan. The perception among NGOs, however, is that the process has been externally driven, since the government’s decision making is not backed by a full-scale vulnerability assessment and is in the form of topping up investments for existing ADB projects. There is also a feeling among NGOs that there is lack of transparency regarding resource allocation across projects, and doubts that benefits reach the most vulnerable.

79. A key feature of the PPCR implementation process is to empower and ensure the active contribution of a wide range of stakeholders including development partners, government ministries, civil society, NGOs, and the private sector. Discussions with various government officials and members of civil society during the IEM revealed the following: Stakeholder consultations in the SPCR process were generally through occasional meetings and workshops, with no regular forums for interactions among government, donors, civil society, and the private sector on climate change strategies and implementation. Consultations with CSOs were more in the nature of information-sharing as opposed to consultative interactions. A case study by ADB on stakeholder engagement in the preparation of investments for CIFs also revealed that, while the consultative process was satisfactory during Phase 1, the quality of the process deteriorated during Phase 2.¹⁵ Since the projects under the SPCR are mostly in the form of add-on components to the ADB pipeline projects, it is unlikely that the limited consultations that took place would have influenced the nature of these interventions.

80. Currently, it is unclear how the output from the PPCR Phase 1 would be integrated with other donors’ activities. There are no concrete plans to integrate the PPCR output with work done by other donors into one program of climate change for Cambodia. As noted in the completion report it is also felt that there is not much government involvement in the implementation process, as it is mainly led by consultants and may not result in improved capacity for the government. The Phase 1 completion report observed significant training and knowledge management needs to be fulfilled before the implementation of pilot projects in the rural infrastructure, water resources, and agriculture sectors.

81. Although during Phase 1 of the PPCR there was adequate engagement with development partners, it was felt that phase 2 was rushed through with not much feedback taken from development partners. There was also a view that the opportunity of incorporating lessons from the experiences of CCCA interventions was missed, and there is scope for greater coordination among funding agencies to avoid overlap in their activities. This is in line with the recommendations by the completion report of Phase 1 for consideration in the SPCR’s TA, where it suggested that PPCR activities need to be closely coordinated with those within the CCD including the CCCA. The report also suggested that a formal collaboration and cooperation agreement would be necessary between the PPCR phase 2 (MOE), CCCSP (CCCA and CCD), and NSDP (MoP).

82. Availability of information on climate change issues in the public domain such as websites of government ministries has been poor. For example, information on climate risks and adaptation measures is not easily available to the private sector including documents on environmental regulations and guidelines. A need is felt for coordination among development partners as well as different line ministries in developing knowledge products based on the experiences from innovative interventions undertaken on a pilot basis. Currently there is also lack of knowledge regarding accessing climate

¹⁵ ADB 2013. Stakeholder Engagement in Preparing Investment Plans for the Climate Investment Funds: Case Studies from Asia.

funds, especially at the subnational level. Systems are also currently lacking for knowledge dissemination. While climate projections are made, this information does not effectively reach the farmers. Good practices need to be shared widely. Simplified versions of education material need to be prepared for dissemination through various media for raising awareness.

83. The experience gained from innovative pilot interventions on climate adaptation interventions in the past few years by various aid agencies, e.g., the UNDP GEF small grants program, can be used for identification of best practices and dissemination of the lessons from these interventions. Future ADB interventions could also possibly gain from these experiences. A subnational finance system piloted by the UN Capital Development Fund, for example, is likely to be scaled up by the NCDDS, which is developing guidelines to mainstream climate change in decentralized planning and budget processes and to ensure that climate change funds reach where they are needed most. There is a need for developing a knowledge management system that would consolidate experiences from various external interventions.

84. *Monitoring and Evaluation of the SPCR:* The SPCR is expected to give rise to transformative impacts at the community, household, and institutional levels. These include enhanced adaptive capacity and climate resilience at the household and community level; improved institutional capacity to manage and coordinate investments and knowledge on climate-resilient initiatives and climate resilience mainstreamed into development plans; and increased involvement of women, CSOs, and the private sector in decisions that enhance climate resilience at the commune, provincial, and national levels.

85. Monitorable Indicators are needed to track climate resilience benefits reaching the poor, the extent of diversification of livelihoods, and access to financial and technical resources to deal with climate impacts. The PPCR is in the process of developing an M&E framework for climate change adaptation that is compatible with the national M&E system and, among other things, would focus on measuring transformative impacts and program outcomes.

86. *Results Framework:* The overall goal of all adaptation projects and programs is to support concrete adaptation activities that reduce the adverse effects of climate change facing communities and sectors. The results monitoring framework should be able to measure the extent to which the project or program contributes to adaptation and climate resilience.

87. The need for an effective M&E system is well recognized by the design and implementing agencies of the PPCR projects. Since all the SPCR investments in Cambodia are administered by ADB, one of the guiding principles for the PPCR M&E framework is that it should align with ADB's MfDR approach and operate within existing national M&E systems.¹⁶ Twelve core indicators have been identified by the PPCR results framework.

88. Four of them are indicators that reflect the transformative impact in terms of climate resilience of households, communities, and sectors: (i) change in percentage of households with improved livelihoods in areas at risk, (ii) change in damage/losses from extreme climate events, (iii) number of people supported by the PPCR to cope with climate change, and (iv) percentage with reliable year-round access to reliable water supply.

89. Two of the indicators reflect transformative impacts in terms of development planning that is climate responsive: (i) extent of integration of climate change in national planning (e.g., national strategies and action plans for climate change, annual development plans and budgets), and (ii) changes in budget allocations of different levels of government to account for actions related to climate change and variability.

¹⁶ http://ppcrcambodia.files.wordpress.com/2013/02/concept-note_-me_moe-comments_20130122.pdf (accessed January 21, 2014).

90. The remaining six are those used for program outcomes: (i) extent of use of improved tools and strategies by vulnerable households to respond to climate variability and climate change, (ii) government capacity to mainstream climate resilience, (iii) use of climate information products in decision making at the sector level (e.g., risk/vulnerability maps), (iv) number of climate-sensitive sectors adopting regulatory reforms that incorporate climate resilience, (v) leverage ratio of PPCR funding against public and private investment in climate-sensitive sectors, and (vi) number of climate-responsive financial instruments and investment models developed and tested.

91. Outcomes for the water resources sector, for example, would include enhanced provincial and district administrative capacity in climate-resilient development; enhanced resilience of irrigation infrastructure to climate change; climate-resilient agriculture and enhanced food security; improved technical skills, livelihood options, and adaptive capacity for water user associations and farmers; reduced economic and human losses from floods and droughts; enhanced capacity of communities to manage flood and/or drought events; and improved subregional cooperation for flood and drought management.

92. Examples of indicators to monitor these outcomes in the project area would be decrease in the number of households below the poverty line; decrease in the number of households with insufficient rice production for year-round consumption; increase in average incomes derived from agriculture; number of provinces and districts whose administrative capacity in climate risk management and resilience is strengthened; increase in the number of people with secured and sustained access to irrigation; percentage of population or percentage of agricultural land provided with flood protection; number of farmers/women adopting new techniques and better adapted to changing climate; early warning systems for floods established; and the leverage factor of PPCR funding in the water sector.

93. Outcomes related to agriculture and food security include enhanced protection of coastal areas from storm surge/sea level rise/saltwater intrusion; improved resilience of agrobiodiversity; enhanced and continued water supply during dry season and drought periods; improved coping mechanisms of small farmers against climate change impacts; enhanced demand-side water efficiency; improved design, construction/rehabilitation, and maintenance of postharvest facilities to withstand climate risks; and improved institutional structures to respond to climate change (e.g., weather-based insurance).

94. Indicators are, for example, number of kilometers of coastal protection increased; number of hectares of mangrove and nonmangrove area restored to protect against tidal surges and strong winds; number of farm households adopting adaptive water management technologies and practices increased; number of new irrigation technologies adopted; percentage access to irrigable water sources increased, and salt water intrusion decreased; number of farmers/women adopting stress-tolerant and adaptive varieties increased; total area of cropped land under adaptive varieties increased; area of farms equipped with water-saving technologies increased; area of crop farms equipped with all-weather postharvest facilities increased; access to credit to transform farm practices increased; and insurance mechanism against climate risk successfully piloted and ready to be adopted on a larger scale.

95. In the case of Infrastructure the outcome for example would be increased climate resilience of roads and indicators include: length of roads enhanced to climate resilient codes and standards to ensure all-year access; length of roads planted with trees to stabilize slopes and reduce landslides.

96. Key issues involved in measuring indicators for impact are collection of required baseline data and description of a counterfactual against which changes are measured; and strengthening of capacity of national statistical system. Target levels have to be specified for each of the indicators to help determine the extent of progress made in achieving the desired impact.

97. *Transformative Impacts:* As per the PPCR results framework, transformational impacts can be measured in terms of increase in a country's resilience to climate change and climate variability as well as increase in institutional strength in accounting for and responding to challenges posed by climate change in development planning. The PPCR will help revive and strengthen existing institutions in Cambodia, for example by strengthening the CCD and the CCTT through the TA component of the SPCR.

98. There are some early indications of Cambodia's progress in mainstreaming climate resilience into development planning, although this may not be entirely attributable to the PPCR. Cambodia is in the process of preparing its CCSP, which will provide guidance on integrating climate resilience into the NSDP. The new NSDP 2014–2018 will include climate change as a cross-cutting issue. Starting from the 2015 budget, various ministries will develop climate change action plans that will guide public investment programs and budget. Strengthening of capacity to mainstream climate resilience into development planning is, however, an ongoing process under the SPCR.

99. The DMFs of SPCR projects will help monitor such transformational impacts as well as benefits in the form of climate resilience and adaptive capacity.

100. Project level impacts can be transformative if SPCR-funded activities lead to widespread adoption of climate-resilient crop varieties and diversification of livelihoods through livestock production and cash crop farming. Bioengineering designs for climate proofing of roads with community involvement if sustained can also be transformative.

101. *Additionality and Tracking of Climate Finance:* One of the principles of CIFs is that "the MDBs should mobilize new and additional financing for adaptation and mitigation programs to address climate changes that are country-led and designed to support sustainable development and poverty reduction."¹⁷ Additionality of external funds can be defined as the extent to which funding agencies provide climate funds beyond "business-as-usual" official development assistance (ODA) levels, to allow communities and countries to adapt to climate change impacts. Business as usual can be defined in different ways, say 0.7 percent of gross national product or observed levels in some baseline year.¹⁸ This additionality is difficult to verify due to unpredictability in the level of pledges under ODA by developed countries. Evidence based on survey responses of development partner agencies suggests that climate financing to Cambodia was not additional to ODA.¹⁹

102. Alternatively, additionality can be defined as climate expenditure that does not displace or crowd out planned expenditure on climate change mitigation or adaptation. For example, in CDM and joint implementation projects, additionality has to be demonstrated to qualify for funding. That is, a carbon dioxide reduction project would not have occurred but for the funding. If a "business-as-usual" project yields climate change mitigation benefits, it would not qualify for CDM funding.

103. In the case of climate change adaptation projects, funding can be considered additional if the funds are actually spent on adaptation-related activities and not on "business-as-usual" development-related activities. The activities planned under SPCR interventions are such that they might have very well been undertaken eventually as part of the usual development projects. But the fact that these have not been included in the original design of ADB projects implies that these may not have occurred any time soon in the absence of PPCR funding.

¹⁷ http://www.climateinvestmentfunds.org/cif/sites/climateinvestmentfunds.org/files/Clean_Technology_Fund_paper_June_9_final.pdf (accessed on October 30, 2013).

¹⁸ See, e.g., Brown et al. 2010. *Climate finance additionality: emerging definitions and their implications*. ODI Climate Finance Policy Brief No.2. <http://www.odi.org.uk/sites/odi.org.uk/files/odi-assets/publications-opinion-files/6032.pdf> (accessed October 30, 2013).

¹⁹ UNDP. 2010. *Climate Change Financing and Aid Effectiveness: Cambodia Country Analysis*. http://www.aideffectiveness.org/images/eventlist/cambodia_second_draft_climate_change_and_aid_effectiveness_country_analysis.pdf (accessed on October 25, 2013).

104. For projects with adaptation-related activities as components, demonstrating additionality would require measuring how much of the funds are actually used in the activities meant to reduce vulnerability to climate change or to build climate resilience or adaptive capacity. According to the joint multilateral development bank approach a project would be reported under adaptation finance if it satisfies three criteria.²⁰ A context of climate vulnerability must be set out, taking into account impacts from climate change and variability-related risks; there should be a statement of intent to improve climate resilience to differentiate between adaptation and development objectives; and project activities should have a direct link to contributions to climate resilience. The three criteria need to be included in the project appraisal report or its technical annexes, but explicit inclusion in project development objectives is not required. Measuring the amount of funds used to deal with climate change vulnerability or building climate resilience is in general difficult. In the case of the SPCR, however, since the project objectives focus exclusively on developing adaptive capacity or climate resilience, the entire funding allocation can be considered to be additional. In the case of non-SPCR projects, in most cases the context of vulnerability to climate change is discussed. However, climate change scenarios are not considered in the economic analysis, and, based on the information available, it is difficult to say how much is spent on climate adaptation-related activities.

105. *Leverage:* Leverage refers to the extent to which capital from other sources, including the private sector, is mobilized by the climate funds. With the proposed changes to the initial financing plan under the SPCR and the additional \$5 million resource endorsed in November 2012, funding by the PPCR includes grants of \$55 million plus near-zero interest concessional loans worth \$36 million and cofinancing of \$447.4 million. This amounts to a leverage ratio of about 5:1. The leverage ratio varies across projects in the range of 2.5:1 and 10:1. The cofinancing is mainly from ADB (\$288 million), other development partners including bilateral donors (\$108.8 million), and the government of Cambodia (\$50.6 million), but very little from the private sector.

106. The Cambodia SPCR portfolio has limited private sector activity and hence not much leveraging of private sector finances. SPCR projects could, however, induce some community- and individual-level investments related to climate change adaptation by raising awareness of climate risks. These, however, may be difficult to quantify and track. Opportunities for private businesses exist in areas such as crop insurance and investments in water-saving technologies such as drip irrigation. There is limited awareness among private businesses regarding climate change risks and adaptation measures. There is a need for investment regulations and guidelines that incorporate climate change concerns.

D. Concluding Remarks

107. There are clear indications of progress in the mainstreaming of climate change adaptation into the planning process in Cambodia. This, however, is an ongoing process and would continue with the support of the TA in phase 2. Current barriers to mainstreaming climate adaptation include, apart from inadequate financial resources, limited awareness and institutional capacity, especially at the subnational level; and knowledge gaps in climate risk management and vulnerability assessments. Additional financing from the PPCR has led to changes of scope in existing ADB projects to incorporate activities promoting climate resilience. Implementation of SPCR activities as retrofits to its projects in the pipeline provides ADB opportunities to learn from experience and help promote mainstreaming of climate adaptation into ADB's investment portfolio. The fact that such climate resilience-building activities were not included in its projects in the first place indicates that mainstreaming of climate change is in a developmental stage even at ADB.

108. To the extent that climate change-related interventions are aligned with the national priorities identified in the national strategic plans and the NAPA, these can be considered country driven. The

²⁰ <http://www.worldbank.org/content/dam/Worldbank/document/Joint%20MDB%20Report%20on%20Adaptation%20Finance%202011.pdf> (accessed on October 30, 2013).

institutional arrangements for climate policy making and implementation of projects existed even before the CIFs were established. As regards country ownership, however, there is scope for greater consultations with various stakeholders in determining priority interventions and actions. Effective participation of civil society in government-led processes can help ensure targeted and bottom-up adaptation planning. Lack of sufficient awareness of climate risks and limited technical capacity implies that the project selection process is consultant driven, where consultants provide the needed technical support and facilitate the government in addressing climate-related issues. Recruitment of a consultant, however, is viewed as diminishing government ownership and may also be not conducive to capacity development within government, as the experience gained through project implementation remains with the consultant.

109. As confirmed during the IEM, Cambodia's development needs are very high. The communities in both the sites visited shared common development needs such as clean drinking water and sanitation facilities as well as dealing with risk of diseases such as malaria. These problems get compounded due to climate-related incidents. Apart from climate proofing of roads, the following were identified as adaptation needs: increased access to irrigation facilities, access to agricultural techniques, improved rice varieties that are early maturing and resistant to droughts and floods, extension services for crop diversification, and managing livestock and aquaculture.

110. *Transformative Impacts.* The PPCR has been influential in bringing about the institutional transformation needed for mainstreaming climate change into the planning and development process. Although sector-level priorities are determined at the national level, mechanisms are being put in place for determining project-level priorities for climate-related interventions. Sector-level strategic plans are prepared by each of the line ministries to feed into the national CCSP. At the subnational level, prioritization of projects is based on a democratic process involving the local people.

111. *Additionality.* The high development needs of Cambodia imply that it needs finances additional to the usual ODA to deal with climate-related issues. Verifying additionality is not an issue in the case of PPCR-funded projects, since it is hard to imagine that any project that explicitly addresses climate change issues (e.g., climate proofing of roads) would occur without these additional funds, given the large need for development-oriented interventions. The same, however, cannot be said of other ADB climate-related interventions that are focused mainly on usual development projects with incidental climate adaptation or mitigation benefits.

112. Aligning of climate-related interventions with the local government planning process is likely to help in the sustainability of project outcomes. Lack of capacity is a major factor affecting the effective planning, design, and implementation of climate-related activities, especially at the provincial and local levels. Capacity development, however, is required on a continual basis, as knowledge in this area is currently evolving and growing rapidly.

113. As noted in the completion report of PPCR Phase 1, active coordination and cooperation among MOE, MoP, and other development partners is an imperative for continued strengthening of the climate change mainstreaming process in the government. The vulnerability and adaptation assessments started in Phase 1 need to be developed further for context- and site-specific assessments to be able to inform the design and implementation of climate adaptation investments. There is a great need for capacity development, but it requires long-term investment and an ongoing process.

114. Delays experienced during Phase 1 and the implementation of SPCR investments are an indication of governance issues within the government apart from the lack of capacity. The presence of civil society representatives in the oversight and governance boards might improve accountability apart from making meaningful contributions to the design of projects through improved consultation.