National Adaptation Plan Process in Cambodia

Climate Finance Readiness Programme
In cooperation with NCSD, GIZ and USAID

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Executive Summary

Cambodia has made significant effort to combat the effects of climate change. In order to reduce the country's vulnerability in the medium to long term and integrate climate change adaptation into sectoral policy and budget planning, the Royal Government of Cambodia has initiated a process to implement its national adaptation plan (NAP). The necessary political commitment, institutions and policies have been continuously shaped in recent years to better support climate change action. Initial lessons are being learned in planning and implementing climate actions, and domestic and international funds have been allocated for adaptation. The availability of financing is key for the implementation of more climate change adaptation measures, so there are also ongoing efforts to mobilise more funds. This will lay the foundations for more climate change adaptation action on the ground.

1. Introduction

Since the 2000s, Cambodia has been at the forefront of climate change adaptation action. The Royal Government of Cambodia has shown its strong commitment to take climate change seriously in its development agenda to help build a greener, low-carbon and climate-resilient, equitable, sustainable and knowledge-based society, while contributing to global efforts to address climate change.

The national adaptation plan (NAP) process is key in this effort. The NAP aims at strengthening ongoing climate change adaptation processes through cross-sectoral programming and implementation at the national and sub-national level and pools them under one roof. Overall, Cambodia is moving fast to meet the core objectives of the NAP, which are to: (a) take a medium- and long-term approach to reducing vulnerability to the adverse effects of climate change; and (b) facilitate the integration of adaptation, in a coherent manner, into relevant new and existing policies, strategies, programmes and activities. Cambodia's nationally determined contribution (NDC) describes the NAP process as one of four strategic priorities in implementing the Cambodian climate change adaptation policy.

This document summarises the main processes, activities and initiatives that constitute the NAP process in Cambodia.

2. Climate change vulnerability and impacts in Cambodia

Cambodia is among the countries most at risk to the impacts of climate change. Cambodia ranks 13th in the Global Climate Risk Index[1] from 1995–2015 and 8th in World Risk Index 2016.[2] In 2014, Standard and Poor's[3] ranked Cambodia's economy as the most vulnerable to the effects of climate change worldwide. Furthermore, the Notre Dame Global Adaptation Index[4] assigns a high vulnerability score and low readiness score to Cambodia.

The geographical incidence of extreme weather events such as droughts and floods varies, and while floods affect lowlands areas, the geographical distribution of droughts is widespread. Though there are some actual benefits from the seasonal flooding experienced in the central plains, the frequency of severe floods has increased over the last decade. Storms occur more frequently between August and November, with the highest frequency in October. The impacts of climate change on the Cambodian people and key economic sectors are likely to become increasingly significant. Based on vulnerability assessments, as shown in the figure below, climate change and its impacts are assessed through the inter-relationship between three components: exposure, sensitivity and adaptive capacity. The key terms are explained by the Intergovernmental Panel on Climate Change[5] as follows: 'Exposure' refers to 'the nature and degree to which a system is exposed to significant climatic variations'; 'sensitivity' means 'the degree to which a system is affected, either adversely or beneficially, by climate-related stimuli'; 'vulnerability' is defined as 'the degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes'; and 'adaptive capacity' implies 'dynamic and influenced by economic and natural resources, social networks, entitlements, institutions and governance, human resources, and technology'. Understanding the exposure and sensitivity of climate change and their interaction leads to the identification of the potential

[1] http://http://germanwatch.org/en/download/16411.pdf
[2] http://weltrisikobericht.de/english/
[3] Kraemer & Negrila (2014), http://www.maalot.co.il/publications/GMR20140518110900.pdf
[4] http://index.gain.org/country/cambodia
[5] https://www.ipcc.ch/pdf/special-reports/srex/SREX_Full_Report.pdf

impacts. The potential impacts and adaptive capacity determine vulnerability. In Cambodia, agriculture and water resources, forestry, human health, and coastal zones are among the sectors identified as the most vulnerable to the impacts of climate change.

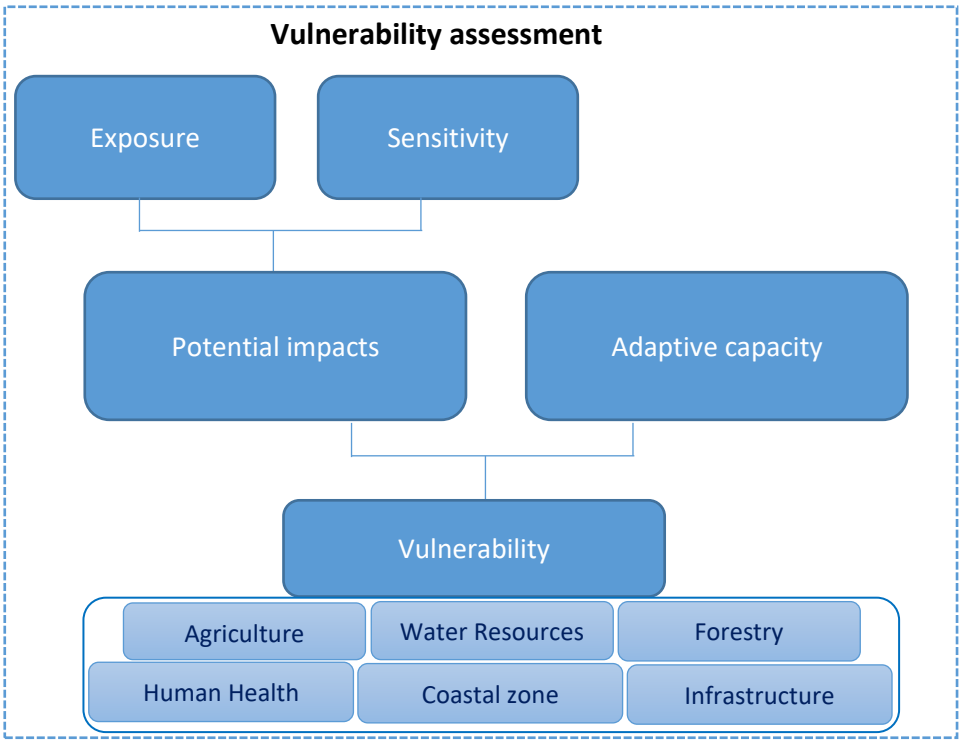

Figure 1: Vulnerability assessment from the Climate Change and Adaptation Planning Framework of the Mekong River Commission[6]

In 2014 the vulnerability assessment indicated that 17.2% of Cambodia's communes were 'highly' vulnerable (i.e. 279 communes) and over 31.5% (512 communes) were 'quite' vulnerable to multiple climate change hazards (see figure 2 below). According to the Climate Risk and Adaptation Country Profile prepared by the World Bank Group in 2011, since 1960 the average annual temperature in Cambodia has increased by 0.8 °C. Moreover, the frequency of warm days and nights has dramatically increased, while cold days and nights have decreased significantly. The future trend indicates that temperatures across the country are projected to rise by 0.7–2.7 ºC by 2060 and 1.4–4.3°C by 2090.[7] While the mean annual rainfall trend is uncertain and is likely to vary between different geographical areas, an overall increase in rainfall is likely to occur during the monsoon season.

The agriculture, forestry and fisheries sectors, which are highly dependent on the climate, accounted for 26 percent of the GDP in 2012.[8] These sectors are also crucial in supporting livelihoods for a large part of the population. Based on data from the past 20 years, losses in production were mainly due to flooding (about 62%) and drought (about 36%). Under future climate conditions, most of Cambodia's agricultural areas will be exposed to higher drought and flood risks. The growing period for most agricultural areas will be less than five months. The impact of climate change on yields is quite significant. Under the high emission scenario, the wet season rice yield (rain-fed) will decrease continuously until 2080, and could fall by up to 70% of current

[6] MRC 2010, Review of climate change adaptation methods and tools, Mekong River Commission, Technical paper, No. 34, Phnom Penh, Cambodia
[7] McSweeney et al. 2010. UNDP Climate Change Country Profiles: Cambodia.
[8] World Bank, Cambodian Agriculture in Transition, 2015.

yield levels. Similarly, for dry season rice (irrigated rice), yields could decrease by 40%. Under the low emission scenario, the yield decrease is much less, ranging from 60% to about 20%.

Fishing holds a central place in rural livelihood strategies and cultural practices and provides more than 80% of the animal protein consumed by Cambodians. Together with rice, fish forms the mainstay of the Cambodian diet. Increased temperatures, changes in rainfall and river flows, sea level rises and increasing storm intensity will all affect fish productivity. And while some species are likely to benefit from changing climate conditions, a loss is in biodiversity is expected.

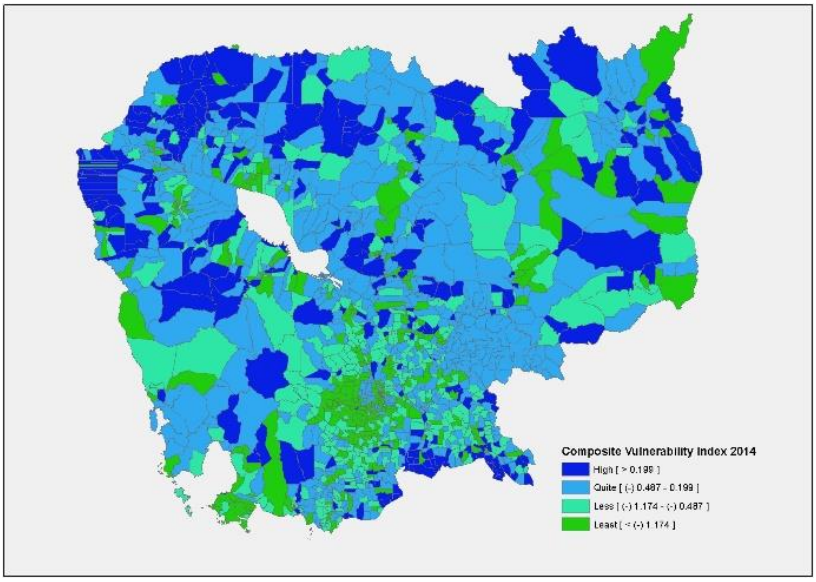

Figure 2: Vulnerability varies across Cambodia. 2014 Vulnerability Assessment[9]

The pressure on Cambodia's forests is high and will increase as the population grows. This situation will be aggravated by climate change. Forest degradation is likely to accelerate due to an increase in erosion as a result of increased rainfall. The change in soil water availability, caused by the combined effects of changes in temperature and rainfall, will directly impact the productivity of forests.

Infrastructure will also be severely affected by climate change. Roads, irrigation systems and other types of physical infrastructure are all significantly affected by floods, higher temperatures, rainfall variability and other extreme events. Management of the water sector will become increasingly difficult as the water supply from rivers is decreased during droughts and low base flows in the dry season and as flooding events increase.

As a tropical country, Cambodia is vulnerable to a number of tropical diseases, such as malaria and dengue fever. Weak health care systems, combined with poverty and a high illiteracy rate, make people more vulnerable to diseases, which are expected to become more widespread due to climate change. Rising sea levels will potentially impact coastal systems in a number of ways, including inundation, flood and storm damage, loss of wetlands, erosion, saltwater intrusion and rising water tables. The energy sector will be compromised by climate change as planned hydroelectric power generation is hampered by increasingly low base flows in rivers during dry periods, and as a result of damage to infrastructure during floods. Other impacts on the energy sector are likely to include a reduction in the availability of fuelwood as an energy source due to the effects of climate change. The tourism sector, which is only recently becoming a significant economic

[9] The Vulnerability Index is based on three main indicators - socio-economic status, infrastructure and population. The socio-economic indicator is based on the condition of education facilities in the community, key occupations of the community, the source of household drinking water and access to drinking water. The infrastructure indicator is based on sanitation conditions, the availability of piped drinking water, electricity and housing facilities, as well as the distance of the community to the district office. The population indicator is based on population density and a dependency ratio, i.e. the ratio between the population aged under 15 or over 65 years old, to the population aged 15 to 65 years old.

sector, will be negatively impacted by climate change due to, inter alia, reduced water availability for consumption in tourism facilities in drought-prone areas and extreme events damaging infrastructure as well as the reputation of the country as a safe destination.

The most recent document on vulnerability and impacts of climate change called, Cambodia's Second National Communication (SNC) under the UNFCCC[10], which specifically assessed vulnerabilities and climate change impacts across four sectors (agriculture, forestry, coastal zones, and human health) validated the large scale impacts climate change will have in Cambodia, including losses in agricultural yields, increased water deficits in lowland forests, and wide inundation as a result of rise in sea-levels. For the SNC, Cambodia adopted a regional climate model (PRECIS) in combination with a number of General Circulation Models (GCM). The objectives of the vulnerability and adaptation assessment for Cambodia are to:

1. Assess historical and future climate change in Cambodia using reconstructed data from PRECIS and GCMs;
2. Assess the vulnerability of Cambodia to climate change and its capacity to manage climate risk;
3. Evaluate the historical and future socio-economic impact of extreme climate events on the Cambodian society;
4. Estimate the impact of climate change on the agriculture and forestry sector, water resources, human health and coastal zone;
5. Develop adaptation options in the agriculture and forestry sectors, water resources, human health and the coastal zone.

Rising sea levels will potentially impact coastal systems in a number of ways, including inundation, flood and storm damage, loss of wetlands, erosion, saltwater intrusion and rising water tables.

Extreme climatic events have already caused serious damage to the welfare of the Cambodian people and to the economy. Under a changing climate, these natural hazards may occur more frequently, and the poor are likely to be disproportionately affected. Nine in ten Cambodians (93%) say they have experienced at least one extreme weather event in the previous years according to a comprehensive survey in 2011 ('KAP1'[11]). This finding was confirmed in the second edition of this survey in 2016 ('KAP2'[12]). KAP2 recorded a significant increase in reports of higher temperatures/heat waves (73 percent in KAP 2 from 44 percent in KAP1) and a more modest increase in rainfall intensity (around 68 percent in KAP2 from 61 percent in KAP1). Other notable experiences included abnormally cool weather, flooding, forest fires, and pest and weed invasion. Furthermore, many Cambodians perceive that climate change does affect their daily lives (see figure 3).

[10] Cambodia's Second National Communication, submitted under the United Nations Framework Convention on Climate Change, Ministry of Environment, November 2015.
[11] Ministry of Environment/BBC World Service Trust, 2011.
[12] http://www.camclimate.org.kh.cp-27.webhostbox.net/en/documents-and-media/library/category/139-second-study-on-understanding-public-perception-report-kap2.html

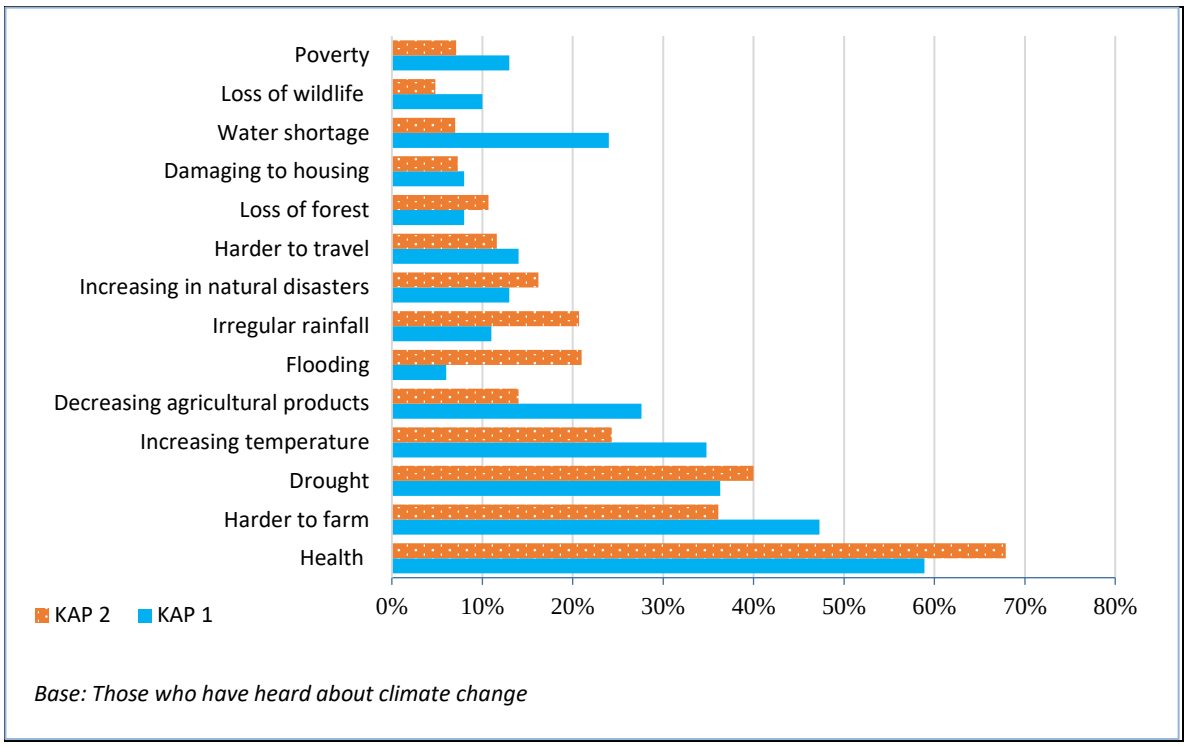

Figure 3: Climate change/variability impacts in Cambodia, KAP2, 2016.

Climate change is likely to have a continued negative impact on the food supply, income streams and livelihoods. Variations in rice production are significantly correlated with climate variability, and an increased frequency of droughts and floods considerably reduces agricultural productivity. These climate change-associated problems are expected to increase over time.

Impacts of the drought in 2016[13]

Cambodia has recently been suffering from a severe drought which directly impacts its population. For example, the only source of free water for the 600 families of Tomnobdach village, O'Chhrou district's O'Beichoan commune, Banteay Meanchey province has been a dirt hole. To reach it, a long descent in 40-degree heat is a daily necessity for 69-year-old Chhorm Yuth and her three grandchildren. The water is a murky, otherworldly blue. "Me and my three grandchildren eat boiled rice and use only five litres of water for taking a shower each day because we are poor," Yuth said this week.

In what may be the worst regional drought in more than 50 years, brought on by an El Niño cycle exacerbated by climate change, water shortages have been declared in 18 of the country's 25 provinces. In Banteay Meanchey, Kampot, Siem Reap and Battambang provinces recently, it was found that water scarcity is jeopardising food security, health and livelihoods of many, though a few have carved out business opportunities amid the devastation.

Box 1: Impacts of drought

3. National adaptation plan process in Cambodia

Having ratified the United Nations Framework Convention on Climate Change (UNFCCC) in 1996, Cambodia has actively participated in the international community's effort to address climate-related issues. In 2006, Cambodia was one of the first countries to submit their national adaptation programme of action (NAPA) to the UNFCCC. The NAPA focused on 'urgent and immediate' needs and will now be complemented by the NAP process, which aims to meet the medium- and

[13] http://www.camclimate.org.kh.cp-27.webhostbox.net/en/documents-and-media/climate-change-in-the-news/328-scenes-from-a-drought-across-the-country,-water-scarcity-is-threatening-health-and-livelihoods.html

long-term adaptation needs. In doing so, the Royal Government of Cambodia is also meeting its commitments under the UNFCCC Cancun Adaptation Framework. Cambodia has also submitted its first and second[14] national communication as well as its intended nationally determined contributions (INDCs) to the UNFCCC.

Political leaders are taking the impacts of climate change seriously. The legal and enabling environment is being built progressively in order to facilitate the required action on the ground.

In an all major respects, the Royal Government of Cambodia is following the technical guidelines of the Least Developed Countries Expert Group (LEG) in developing and implementing its NAP process.[15] This process entails all four key elements of the NAP process, including laying the groundwork, working on preparatory elements, developing implementation strategies and setting up reporting and monitoring frameworks. Cambodia's NAP process was institutionalised in 2014, and adaptation is progressively taking a more prominent role in the government's policy agenda. The United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP) and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) helped to identify entry points. A comprehensive stocktaking report was compiled to that end, in line with the UNFCCC NAP and LEG technical guidelines. In order to specify further strategic intervention areas, climate change adaptation processes in Cambodia were analysed using a 'process landscape' tool.[16] Figure 4 illustrates this landscape.

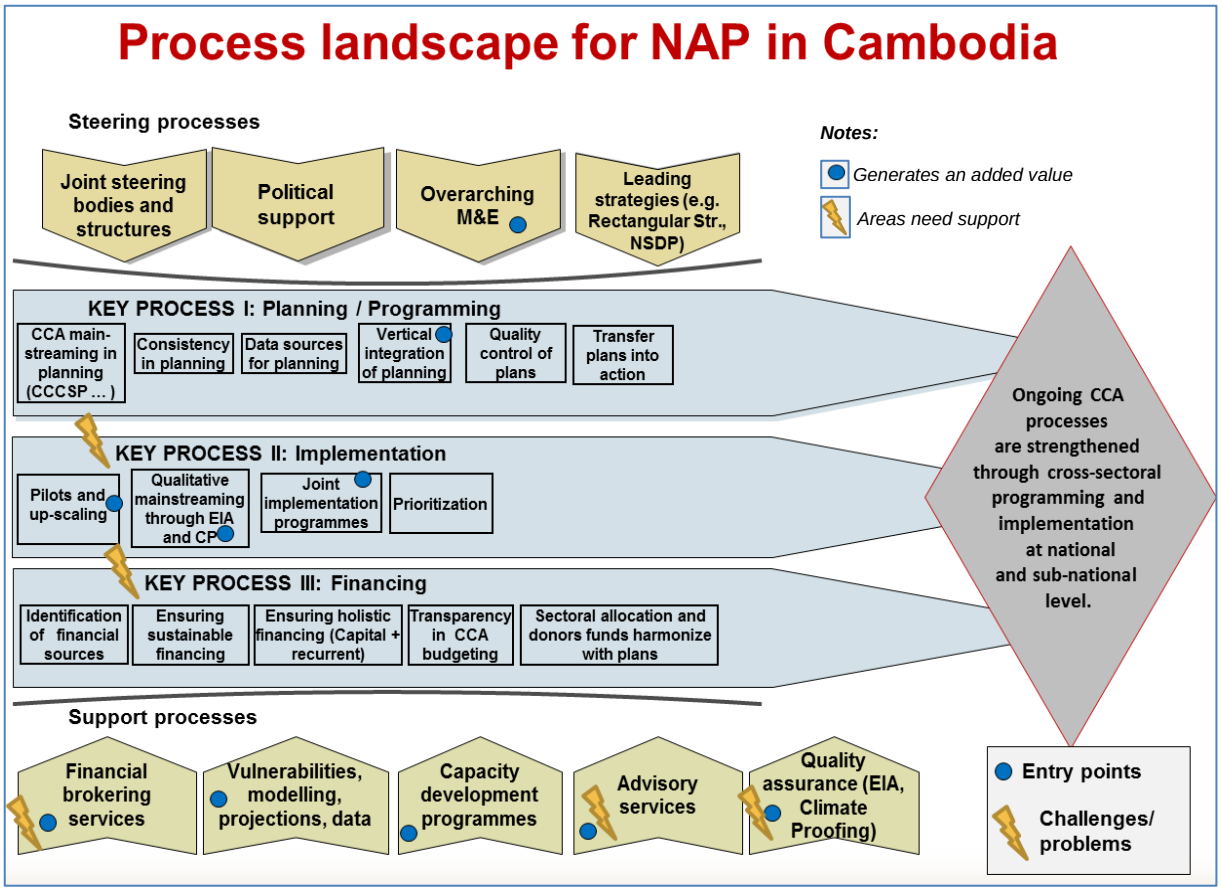

Figure 4: Process landscape for the national adaptation plan in Cambodia

[14] http://unfccc.int/essential_background/library/items/3599.php?rec=j&priref=7827#beg
[15] http://unfccc.int/nap
[16] The 'process landscape' tool assists in defining the strategic context in which a project, programme or initiative operates and helps steer complex interventions in settings with multiple actors.

The goal of the NAP process in Cambodia is 'ongoing climate change adaptation processes are strengthened through cross-sectoral programming and implementation at national and sub-national level'.

The goal of the NAP process builds on the objectives set by the National Strategic Development Plan (NSDP) and the Cambodia Climate Change Plan (CCCSP) 2014–2023 and focuses on strengthening and better integrating ongoing processes. In order to fill the identified gaps and to operationalise the goal of the NAP process, a focus on the following strategic intervention areas is envisaged:

- inter-sectoral coordinated implementation: Opportunities for coordinated implementation include: capacity development on climate change adaptation and financing at national level; development and implementation of data management systems, etc.;
- data systems and analyses: Harmonisation/standardisation of data processing, modelling, projections, vulnerability assessments and the use of geographic information systems (GIS);
- systematic financial support: establishment of a function to match financing needs with sources;
- capacity development and vertical mainstreaming linking national and sub-national levels: support measures such as capacity development, advisory services, upscaling mechanisms and enhanced ownership at the local level;
- overall steering of implementation and evaluating effectiveness (monitoring and evaluation (M&E)): establishment and operation of an overall M&E system to ensure a learning process for climate change adaptation;
- qualitative mainstreaming: integration of climate risks into the environmental impact assessment and climate-proofing of larger projects.

A NAP roadmap divided into three workstreams has been developed in accordance with these priorities. Figure 5 below shows the workstreams with examples of planned actions.[17] As can be seen from the figure, workstreams occur in parallel and some of them are iterative throughout the process.

Timeframe	**Workstream I** Planning, establishing and steering the NAP process	**Workstream II** Implementing the NAP process	**Workstream III** Review and learning
Short term, 2014–2015	Example of action: Launch the NAP process at the national level	Example of action: Establish mechanisms and standards for vulnerability assessments and climate change mainstreaming	Example of action: Set up monitoring and evaluation (M&E) system for adaptation to climate change
Medium term, 2016–2018	Example of action: Review inter-sectoral implementation programmes including lessons learned and initiate feedback into the NAP process	Example of action: Disseminate results from vulnerability assessments and train users in applying vulnerability assessment data	Example of action: Analyse, publish and disseminate results from inter-sectoral implementation programmes
Long term, 2019 and beyond		Example of action: Systematically mainstream adaptation in the development of National Strategic Development Plan 2019–2024	Example of action: Perform a review on the steering and cooperation mechanisms within the NAP process

Figure 5: Extract of the national action plan roadmap matrix

[17] The complete matrix with the three workstreams is available in the report Cambodia's National Adaptation Plan Process, Stocktaking Report and Recommendations for a Roadmap for Advancing Cambodia's NAP Process.

Short-term actions (2014–2015) include most of the preparatory work needed to establish a functioning NAP-process and setting the framework for implementation and continuous learning. Examples of short-term priorities include setting up mechanisms for vulnerability assessments, creation of inter-sectoral coordination mechanisms, data systems collection set-up and to start mobilising resources for implementation of adaptation measures. In all major respects, the short-term actions have now been implemented in Cambodia.

Medium-term efforts (2016-2018) would focus on implementation of the NAP process by using and building upon the structures and tools set-up during the first phase. Several topics would be included during this phase such as conducting vulnerability assessments, upscaling of adaptation pilot projects and dissemination of results to stakeholders. As projected, Cambodia currently largely remain in this medium-term phase of the NAP-process.

Longer-term endeavours (2019 and beyond), which are estimated to be implemented from 2019 and beyond, will still focus on implementation of NAP-priorities but with an emphasis on review and learning, as well as adjustment of established processes and arrangements. Some of the foreseen features of the longer-term efforts would be to mainstream adaptation into long-term development planning, budgeting and monitoring systems, as well as to review and adjust the NAP process.

The Cambodia Climate Change Alliance (CCCA) is a key programme in supporting the different processes constituting the NAP. With financing from the United States Agency for International Development (USAID), GIZ is supporting the National Council on Sustainable Development (NCSD) in institutionalising the NAP, focusing on a financing strategy and implementation plan.

In 2013, the Cambodia Climate Change Strategic Plan (CCCSP) was approved and launched, which marked an important milestone as it was the first comprehensive national policy document responding to the climate change issues Cambodia is facing. The major content of the CCCSP was integrated in the NSDP 2014–2018 and in sector development plans of all relevant ministries. This constituted an important step towards the implementation of climate change-related activities through the national system. Building synergies with other existing government policy documents such as the NSDP, Rectangular Strategy, National Policy and National Strategic Plan on Green Growth and sectoral development plans, the CCCSP was designed to ensure its strategic cohesion to address a wide range of climate change issues concerning adaptation, GHG mitigation and low-carbon development.

National and sectoral policies have taken climate change on board effectively. Planning and budgeting processes are currently being adjusted, and mainstreaming initiatives are undergoing progressive improvements. Cambodia is in the process of building a climate-smart policy system. The NAP process is an important pillar in this endeavour.

Moreover, the Cambodia Climate Change Financing Framework was finalised in April 2015 to promote a common approach to defining climate financing and to assess its current level and prospects for future financing. There is increasing political commitment to climate change by political leaders in the Cambodian Government. Political leadership was demonstrated by, for instance, His Majesty King Norodom Sihamoni when he delivered a speech at the twenty-first Conference of the Parties to the UNFCCC in Paris 2015. Also, the strong focus on adaptation of the INDC submitted by the Royal Government of Cambodia was an important step in furthering adaptation as the core of Cambodia's climate change policy. Likewise, the Prime Minister's initiative to allocate significant domestic funds to address the impacts of the recent drought and floods in 2017 and 2018 is a clear message that climate change is being taken seriously by the government. Guidelines for the district and commune levels have been developed to intensify the mainstreaming

process and the integration of climate change measures into national and sub-national planning. The following sections of this paper summarise other key aspects of the NAP process in Cambodia.

4. Institutional landscape for climate change adaptation

Cambodia has undertaken significant efforts in shaping an institutional setup to best address climate change in public policies as well as planning and resource allocation processes. The Climate Change Office under the Ministry of Environment (MoE) was already created in 2003 to take on a wide range of climate change responsibilities. In 2006, the National Climate Change Committee, comprising of 19 ministries and government agencies, was created with the mandate to prepare, coordinate and monitor the implementation of policies, strategies, regulations, plans and programmes in addressing the issues of climate change.

In 2009 the government upgraded the Climate Change Office to a Climate Change Department. In recent years, the institutional landscape for climate change has advanced tremendously. The 2015 establishment of the NCSD shows the strong commitment of the government to climate change responses.

Good governance is key to embedding climate change action into wider development policy and action. Cambodia has moved towards a setup where climate change is institutionally embedded in sustainable development policies through the establishment of the National Council for Sustainable Development.

The NCSD is now tasked with climate change policy formulation and guidance for Cambodia. The council membership covers 38 ministries, institutions and agencies, including capital and provincial governors. Under the chairmanship of the Minister of Environment, the NCSD held its first meeting in August 2016 in which the NCSD structure and subsidiary bodies, rules and procedures, and priority strategic programmes were approved. With the NCSD effectively established, it is expected that inter-ministerial collaboration will be further improved. While the mandate of the NCSD is to lead, manage and facilitate the work related to sustainable development, including the green economy, biodiversity conservation and biosafety, it also contains the responsibility for climate change as described in box 2 below.

- Formulating, directing, and evaluating policies, strategic plans, action plans, legal instruments, programmes and projects;
- Promoting the mainstreaming of climate change in relevant policies, legal instruments, strategic plans, action plans, programmes and projects;
- Mobilising resources for the implementation of policies, legal instruments, strategic plans, action plans, programmes and projects;
- Establishing and fostering partnerships with development partners, private sector, academia and other relevant stakeholders;
- Encouraging and promoting research studies, education, training, exchange and dissemination of technologies;
- Proposing national positions and strategies for participating in international agreements, meetings and negotiations;
- Reviewing and giving approval on national communications under the multilateral environmental agreements to which Cambodia is a party; and
- Managing government information and communications.

Box 2: Mandate of the National Council for Sustainable Development

A General Secretariat (GSSD) was established to support the operations of the NCSD and for coordinating the development of policies, strategic plans, action plans and legal instruments concerning sustainable development, including the green economy, climate change, biodiversity

conservation and biosafety, and science and technology. The Department of Climate Change (DCC) is part of the GSSD and has led the technical efforts for climate change adaptation response. Following the appointment of the MoE as the national designated authority (NDA) for the Clean Development Mechanism in July 2003, the DCC is currently also acting as the secretariat of the Cambodian NDA. The MoE has also been selected as the NDA for the Green Climate Fund (GCF).

The NCSD has an important coordinating role vis-à-vis the National Committee for Disaster Management (NCDM), which is the main institution responsible for disaster risk management. The NCDM supports disaster preparedness activities in communities, mostly involving capacity-building.

Committees or working groups have been created in several line ministries to take on the coordination responsibilities for climate change actions within their respective sectors. For example, the Ministry of Women's Affairs has formed a Gender and Climate Change Committee, which gathers information on gender and climate change, conducts studies on climate change impacts on women and children, and builds climate change capacity in the ministry's departments.

At sub-national level, mainstreaming climate change in the planning process is an important strategy for acting on climate change challenges. There are different actors such as the NCSD, the National Committee for Sub-National Democratic Development, NCDM, line ministries and civil society organisations that are involved in sub-national climate change activities. The decentralisation reform in Cambodia provides a local planning framework and introduces a sub-national financing system. Through this process, climate change can be mainstreamed in sub-national and local level planning and management. Moreover, relevant line ministries use their provincial and district departments to assist in the mainstreaming of climate change activities at the local level.

All actors in Cambodian society need to be mobilised, including the private sector, civil society and research institutions, in order to make a difference. That also shows the extent to which adaptation needs to be embedded in all segments of society.

In addition, the Cambodian civil society also contributes to adaptation efforts, in particular at community level. Over recent years, Cambodian civil society organisation (CSOs) have acquired substantial capacity and knowledge and have shown commitment to integrating climate change considerations into their development projects. Many civil society groups report good working relationships with the government at an operational level in generating more attention to these issues, although many challenges remain to be resolved.

In recent years, the CSOs have also engaged more on climate change. The Cambodia Climate Change Network (CCCN)[18] is an umbrella initiative that brings about a more collective civil society approach to addressing the challenges and opportunities presented by climate change. CCCN is taking an active role in bringing forward the interests of the poorest and most vulnerable people so that their needs are taken into consideration when and where climate change policies are shaped. The NGO Forum on Cambodia[19] is also taking a lead role in organising civil society engagement in the area of climate change. The NGO Forum works on mainstreaming adaptation in CSO programmes, documenting and disseminating adaptation initiatives, and carrying out advocacy efforts at national and sub-national levels.

[19] http://www.ngoforum.org.kh/

Development partners and private sector companies are also involved in addressing climate change issues and contribute to reducing the vulnerability of people and building their capacity to cope with natural disasters.

5. NAP objectives and priority actions in Cambodia

The thematic objectives and priorities for the NAP builds on the CCCSP and the sectoral climate change action plans. The CCCSP outlines 8 strategic objectives, namely:

1. To promote climate resilience through improving food, water and energy security;
2. To reduce sectoral, regional, gender vulnerability and health risks to climate change impacts;
3. To ensure climate resilience of critical ecosystems (Tonle Sap Lake, Mekong River, coastal ecosystems, highlands, etc.), biodiversity, protected areas and cultural heritage sites;
4. To promote low-carbon planning and technologies to support sustainable development;
5. To improve capacities, knowledge and awareness for climate change responses;
6. To promote adaptive social protection and participatory approaches in reducing loss and damage due to climate change;
7. To strengthen institutions and coordination frameworks for national climate change responses; and
8. To strengthen collaboration and active participation in regional and global climate change processes.

Building institutional capacity and utilizing science-based solutions to address climate risks are common themes running through the CCCSP and other overarching national policy documents. Within this framework, line ministries have prepared Sectoral Climate Change Strategic Plans supported by actionable Climate Change Action Plans (CCAPs), prepared in 2013-2014 and lasting until 2018. So far, 15 ministries[20] have developed CCAPs and these encompass a total of 171 climate actions, 93% of these being adaptation focused.

The climate actions in the CCAPs build on the sectoral priorities and are consequently diverse in nature, combining both "soft" investments in capacity and policy development, and "hard" infrastructure projects. Overall, CCAPs have been a vital step in improved adaptation planning.

6. Climate financing and the financial gap for adaptation

Public funding

The increase in public spending on climate change has been supported by increases in both domestic and external financial resources. Based on the 2015 Climate Public Expenditures Review, figures show that the allocation from domestic resources (national budget) for climate expenditure increased from CR 87 billion (USD 21.7 million) in 2009 to CR 211 billion (USD 52.7 million) in 2014. At the same time, the amounts from external sources increased from USD 71.6 million in 2009 to USD 159 million in 2014. In terms of GDP, climate related expenditure rose to 1.3%.

The Government budget, currently funds almost 25% of climate-related public expenditures. Sectoral allocation shows a strong focus on irrigation and climate-resilient national and rural roads, representing KHR 433 billion or 51% of the total estimated climate

The Government allocates significant funds to climate-related expenditures, of which the majority finances adaptation projects and programmes. In 2014, the national budget covered 25% of all climate-related spending.

[20] 14 CCAPs have already been approved, while CCAP of the Ministry of Post and Telecommunication is awaiting official endorsement.

spending, followed by 20.7% on disaster response, 16% on climate-resilient livelihoods (including agriculture), 3.4% on health, 1.3% on the energy sector and 1% on disaster risk reduction.

Table 1: Proportion of climate change expenditure to total spending and GDP

	2009	2010	2011	2012	2013	2014
CC related spending to total spending	28.9%	28.9%	29.8%	30.9%	28.7%	33.3%
CC spending to total spending	3.3%	3.5%	2.9%	3.1%	3.3%	4.1%
CC spending to GDP	0.9%	1%	0.8%	0.9%	1%	1.3%

Source: MEF, CDC, IMF and MEF & expert team calculation.

External financing

In addition to domestically-funded projects, there are also large-scale flagship initiatives funded through international adaptation finance sources. The Strategic Program for Climate Resilience (SPCR) [21] is the largest provider of climate finance in Cambodia, with a total climate-specific budget of USD 120 million. The CCCA[22] is being implemented by NCSD/MoE with UNDP support and funding from UNDP, the European Union and Sweden. CCCA has been designed as a comprehensive and innovative approach to address climate change in Cambodia. It has provided funding for the development of the CCAPs and for pilot projects. It supports the strengthening of the national institutional framework for the coordination of the climate change response. The overall objective of the CCCA is to strengthen the capacity of the NCSD to fulfil its mandate to address climate change and to enable line ministries and civil society organisations to implement priority climate change actions.

Adaptation efforts are widespread in the country. The public sector supports people to protect and improve their livelihoods, manage natural resources and become more resilient in the face of a changing climate. However, action is only starting now and positive lasting effects require time and effort.

Moreover, there is the International Fund for Agricultural Development-financed USD 80 million Agriculture Services Programme for Innovation, Resilience and Extension (ASPIRE) project,[23] which seeks to enhance a Cambodian model for agriculture services. Embedded in national policies it assists smallholder farmers to contribute to broad-based economic growth through profitable and resilient farm businesses. Furthermore, the Adaptation Fund-supported project 'Enhancing Climate Change Resilience of Rural Communities Living in Protected Areas'[24] aims to increase the food supply and reduce soil erosion in protected areas by restoring degraded forests and crop productivity through various agroforestry techniques. The Asian Development Bank-funded 'Uplands Irrigation and Water Resources Management Sector Project'[25] helps Cambodians to increase agricultural production by rehabilitating, modernising, and

climate-proofing selected irrigation systems in selected provinces.

Private-sector funding

[21] http://www.spcrcambodia.org/en/

[22]. http://camclimate.org.kh/en/activities/cambodian-climate-change-alliance/21-activities/ccca/ccca-core/46-ccca-background-and-approach.html. CCCA is funded by the European Union, the United Nations Development Programme, and Sweden.

[23] http://operations.ifad.org/web/ifad/operations/country/project/tags/cambodia/1703/project_overview

[24] http://www.adaptation-fund.org/project/enhancing-climate-resilience-of-rural-communities-living-in-protected-areas-of-cambodia/

[25] http://www.adb.org/projects/44328-013/main#project-overview

While the bulk of adaptation action is implemented by public sector institutions, the private sector complements these efforts and will play an increasingly important role in the future. It was estimated[26] that USD 185 million was invested by private actors in climate-related projects over the period 2009–2011. However, the identification of adaptation measures supported by the private sector remains a challenge. The majority of these investments have so far been mitigation-related.

Financing gap

In spite of all ongoing efforts, the financial demand remains high as a significant amount of the financial needs determined in the CCAPs remains unfulfilled. In August 2015, the Climate Financing Framework calculated that the estimated cost of the total public response amounts to USD 1.1 billion for the period 2014-2018 based on existing action plans and estimates for sectors which did not have an action plan at the time.

An analysis conducted by the GIZ Climate Finance Readiness Programme attempted to calculate the financing gap for CCAP implementation. It concluded that roughly half of the USD 865 million needed to implement the climate change priority actions determined by line ministries for the period until 2018–2019 still remains unfunded.[27] This is a significant gap and further resource mobilisation efforts should aim to close it. The demand for finance is determined by several factors, notably the absorption capacity of implementing agencies, the adaptation goal/target, the degree of trade-offs between impacts of climate change, the costs of adaptation and the residual costs after adaptation.[28]

Overall, the costs of adaptation in Cambodia are generally high and correlate with the magnitude of future climate change impacts. However, in order to cost adaptation actions, it is necessary to better inform these choices. This can be done, for instance, through enhanced ways of calculating costs and benefits of adaptation.[29,30]

The costs of adaptation in Cambodia are high and a significant amount of planned adaptation actions remain unfunded up to now. The financing gap is currently estimated at more than USD 400 million for the period up to 2018.

7. Resource mobilisation for future adaptation action

Mobilising resources for the implementation of climate-related programmes and projects in specific locations with high climate risks is also critical to achieve the goals and objectives of the CCCSP.

The integration of the CCCSP into the NSDP and sectoral plans has been carried out with the expectation to provide multiple benefits in terms of knowledge and capacity enhancement for climate change planning, improved stakeholder participation, coordination of funding flows, and the systematic M&E of climate change-related policy responses. Up to 2016, three ministries, the Ministry of Agriculture, Forestry and Fisheries, the Ministry of Water Resources and Meteorology and the Ministry of Public Works and Transport, successfully mainstreamed climate change in the planning and budgeting process. In the coming years, it is expected that climate change will be further mainstreamed in the annual planning and domestic budgeting processes, as well as

[26] http://www.camclimate.org.kh/en/activities/347-new-release-%E2%80%93-study-report-on-promoting-private-sector-contribution-to-the-climate-change-response-in-cambodia.html
[27] GIZ Mission Report: Costing and Mobilizing Funds for Climate Change Adaptation Projects, Support to the NAP Process in Cambodia, August 2016
[28] http://web.unep.org/adaptationgapreport/2015
[29] http://www.adaptasiapacific.org/tags/cost-benefit-analysis
[30] http://www.adaptationcommunity.net/?wpfb_dl=144

the Public Investment Programme. The Ministry of Economy and Finance is considering developing a budget code for climate change projects that will help to further facilitate this process.

A significant number of projects and programmes to boost adaptation are already underway (see chapter 5). This also demonstrates Cambodia's capacity to mobilise and spend domestic and external financial resources. However, more resources are required to cover the costs of mid-term and long-term climate change adaptation.

The strategy to mobilise more resources will focus on several funding sources. More domestic funds are expected to be allocated to climate change actions. Continued political commitment and enhanced planning and budget processes in view of mainstreaming climate change are promising signs. With regard to international funds, the NCSD, in collaboration with GIZ, has further screened the prioritised actions of the sectoral CCAPs and identified those that have high potential to be funded according to the screening criteria of international climate funds. These could be further developed into a limited set of bankable climate change project proposals that can eventually be presented to bilateral and multilateral donors. In addition, the screening tool developed for this exercise can also be used as an adjustable tool to screen and prioritise CCAP actions for other purposes in the future.

The primary source of international adaptation finance is the GCF. Cambodia is therefore in the process of preparing to access significant adaptation funds from the GCF. It is applying for funding through multilateral organisations and preparing for direct access. The National Committee for Sub-National Democratic Development Secretariat has been selected by the MoE (the NDA to the GCF) as a potential national accredited entity and is now starting the accreditation application process. It is the first organisation that the GCF has pre-selected to provide funding to sub-national levels.

Future resource mobilisation will look towards a reasonable mix of national and international funds; public and private funds. Overall, Cambodia requires an increase in funding to implement its ambitious plans.

Given that Cambodia has been fairly successful in attracting funds from multilateral adaptation funds (Adaptation Fund, SPCR, IFAD/ASPIRE etc.) so far, it will be key in expanding efforts towards adaptation funding by bilateral donors and other funding sources like foundations. Adaptation financing mechanisms must also be innovative. Public–private partnerships, payments for ecosystem services (such as REDD+) and other mechanisms that also leverage private funds will be tested and further developed.

To attract private climate investments in adaptation the following drivers have been identified:[31]

- supply chain resilience: mitigating supply chain risks (e.g. business continuity of suppliers during extreme weather events) can be mitigated by working with suppliers to strengthen their resilience;
- compliance: foreign owned companies, or Cambodian companies with business links abroad, are expected to comply with more stringent environmental, social and governance regulations that are in force in other countries and apply these in the Cambodian context;
- providing access to essential services as a means to escape the poverty cycle (clean cooking, clean water, mobility, etc.).

[31] http://www.camclimate.org.kh/en/activities/347-new-release-%E2%80%93-study-report-on-promoting-private-sector-contribution-to-the-climate-change-response-in-cambodia.html

A staggered approach may have advantages in bringing further focus to the resource mobilisation strategy. Key actors that have already acquired experience in planning and implementing climate change-related actions would acquire the means to further enhance those strengths, while others would receive support in 'catching up' and gaining similar planning and implementation experience.

Cambodia will increasingly aim to secure project preparation grants to enhance existing capacities. For instance, the GCF has recently established a project preparation facility and other donors have similar facilities. Overall, Cambodia will continue to improve its readiness for climate finance and will seek additional domestic and international funding sources to address the increasing needs to adapt to climate change and achieve sustainable development.

8. Monitoring and evaluation systems

The CCCSP acknowledges that M&E is an integral part of climate change solutions at both national and sub-national level, and in April 2016 Cambodia launched the National Climate Change Monitoring and Evaluation Framework to accompany the NAP process. It was developed with support from the International Institute for Environment and Development, CCCA and GIZ.[32] The incorporation of an M&E framework into national and sub-national development planning processes will facilitate the tracking of impacts of climate change adaptation actions and verify the effectiveness of national development. The main objectives of the climate change M&E framework are:

- measure the extent to which adaptation efforts have been effective in keeping development on track in a changing climate;
- monitor climate change mitigation actions and low-carbon development policies;
- generate evidence and lessons learned as a basis for future policy development;
- facilitate the coherent integration of climate change M&E in national development planning and key sectors;
- provide the information required to fulfil the reporting obligations under the UNFCCC and for development partners.

The framework is based on a framework called Tracking Adaptation and Measuring Development, which evaluates climate change responses by combining how widely and how well institutions manage climate risks (Track 1) and how successful adaptation actions are in reducing climate vulnerability and in keeping development on course (Track 2). This 'twin track' approach uses two categories of indicators as shown in the figure below.

[32] http://pubs.iied.org/10118IIED/

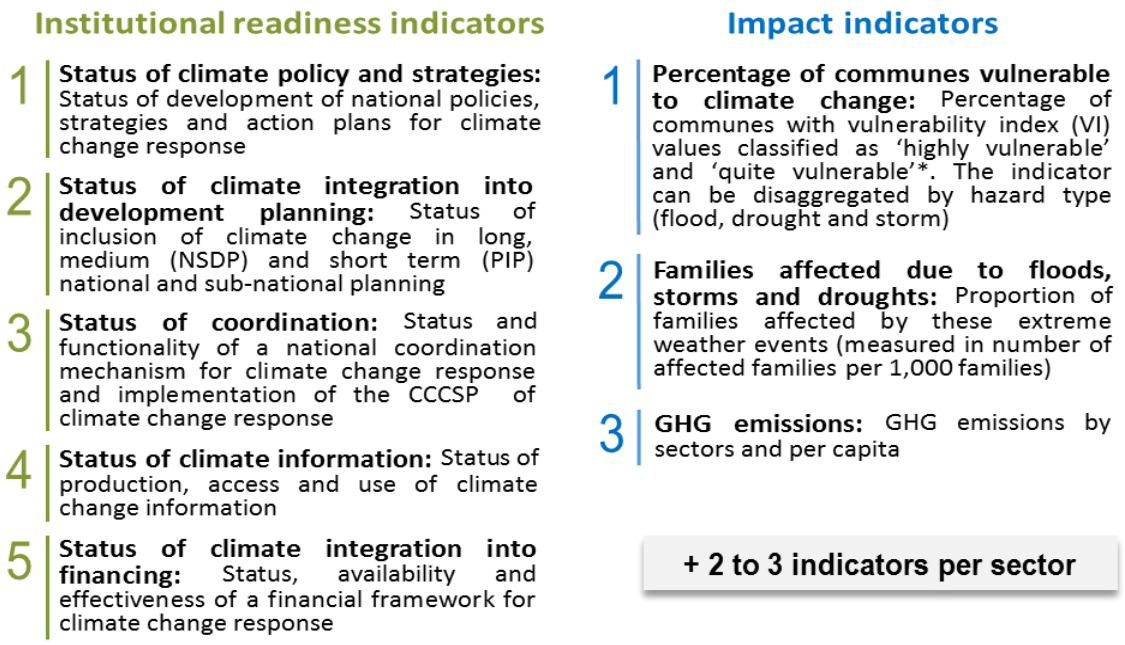

Figure 6: Cambodia's national climate change monitoring and evaluation framework, April 2016

Upstream Track 1 indicators show Cambodia's readiness to manage climate risks. These indicators relate to climate change policies and institutions, the mainstreaming of climate change policies in development planning, the level of institutional coordination, climate integration in financing and budgeting, and the strength of climate information systems, among other things. Downstream Track 2 indicators follow changes in social and economic development and vulnerability to climate change within communities and ecosystems.

The 2014 baselines for 7 of the 8 core set indicators of the national M&E framework for climate change were established, with the exception of the indicator on GHG emissions. The DCC within the NCSD expects to be able to measure the baseline for GHG emissions in 2017. Baselines for additional sector indicators that are to be part of the national framework will be established as part of the ongoing effort to develop sectoral climate change M&E frameworks. Cambodia is one of the first countries to develop such a framework for the M&E of climate change responses, and though the issues involved are complex, DCC has decided to invest in building its capacity for M&E, establishing a dedicated M&E team in its Policy and Coordination Office, and extending support to sectors as needed to develop sectoral M&E frameworks.

The Royal Government of Cambodia also already has a national M&E framework for assessing its overall development interventions. The aim is to integrate the national M&E system for climate change responses into this framework. This will assist in linking and mainstreaming climate change to national development priorities and targets as set out in the NSDP.

Furthermore, several line ministries are in the process of improving their databases and information on climate change impacts, which is one focus of CCAP priority actions. Notably, the NCDM is developing a nationwide database to record disaster loss (CamDi).[33] Cambodia is also one of few countries to regularly track climate expenditures, and it does this through annual climate public expenditure reviews. In addition to impact and performance monitoring, the MEF has, supported by UNDP, reviewed the climate-related public expenditure review since 2009. Two editions of these review reports have been published so far.

[33] http://camdi.ncdm.gov.kh/DesInventar/profiletab.jsp?countrycode=kh855&continue=y

Cambodia is tracking its progress in building institutional readiness for adaptation and monitors the vulnerability of communities to better understand where action is taken and where additional action is necessary.

Over time, the expenditure data should be combined with data on the performance of climate-related investments so that the effectiveness and efficiency of those investments can be assessed. With the introduction of a stronger M&E component in budget reforms over the next few years, the MEF will be able to better analyse the efficiency and effectiveness of climate-related expenditure and to direct public resources where they bring the most benefits in a climate change context. When the next phase of public financial management reforms is launched, there will be an opportunity to include climate-related indicators in the national budget system. This would make reporting and analysis much easier, particularly if indicators are reflected in the new financial management information system. These combined efforts will make it increasingly possible to monitor and document adaptation efforts and results and better support decision-making.

9. Way forward

Cambodia is climbing up the climate change readiness ladder.[34] It has the key ingredients to scale up adaptation efforts in the country. The necessary political commitment, institutions and policies are in place, some experience in implementing climate change actions has been collected and initial but significant amounts of money have been spent on adaptation. But given the size of the challenge, additional efforts and resources are needed for Cambodia's medium- and long-term climate change response. There are many steps required for effective adaptation to take place, but many of them are not new challenges for Cambodia and its partners as they are deeply rooted in good development and poverty reduction work. However, to deal with the additional stress of climate change, specific institutional, technical, management and process-related capacities need to be further developed and more financial resources need to be mobilised.

[34] http://www.iied.org/cambodia-climb-climate-change-readiness-ladder

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