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Climate Change Adaptation: A Monitoring & Evaluation Framework for Cambodia's Ministry of Health

International Institute for Environment and Development

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Contents

Acronyms

CCA	Climate Change Adaptation
CCAP	Climate Change Action Plan
CCCN	Cambodia Climate Change Network
CCCSP	Cambodia Climate Change Strategic Plan
DCC	Department of Climate Change
HIS	Health Information System
LDC	Less Developed Country
M&E	Monitoring and Evaluation
MOH	Ministry of Health
MOE	Ministry of Environment`
MOWRAM	Ministry of Water Resources and Meteorology
NCCC	National Committee on Climate Change
RGC	Royal Government of Cambodia
TAMD	Tracking Adaptation and Monitoring Development
TWGCC	Technical Working Group on Climate Change
UNFCCC	United Nations Framework Convention on Climate Change

Introduction and Overview

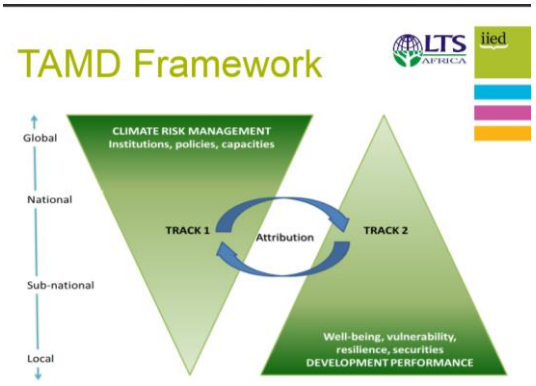


Figure 1: TAMD Conceptual Framework.

Cambodia was one of the first least-developed countries (LDCs) to embrace climate change adaptation (CCA) [1] at the policy level. It ratified the United Nations Framework Convention on Climate Change (UNFCCC) in 1995, and it formulated one of the first LDC National Adaptation Programme of Action to Climate Change (NAPA) plans in 1996 (CCCN 2014). Today it actively partners with a number of international climate change initiatives. An inter-agency General Secretariat of the National Council for Sustainable Development hosted by the Ministry of Environment, has been in place since 2006 (formerly known as National Climate Change Committee (NCCC)), and there are Climate Change Action Plans for the national government and multiple ministries. Cambodia's Climate Change Strategic Plan (CCCSP) 2014–2024 articulates a clear vision, mission, goals and strategies. They are:

- Vision: Cambodia develops towards a green, low-carbon, climate-resilient, equitable, sustainable and knowledge-based society.

- Mission: Creating a national framework for engaging the public, private sector, civil society organizations and development partners in a participatory process for responding to climate change to support sustainable development.

- Goals:
  - Reducing vulnerability to climate change impacts of people, in particular the most vulnerable, and critical systems (natural and societal)
  - Shifting towards a green development path by promoting low-carbon development and technologies;
  - Promoting public awareness and participation in climate change response actions.

- Strategic objectives:
  - Promote climate resilience through improving food, water and energy security;
  - Reduce sectoral, regional, gender vulnerability and health risks to climate change impacts;

[1] Climate change *adaptation* refers to efforts to manage the effects of climate change, such as increasingly severe or erratic weather. Climate change mitigation, by contrast, seeks to reduce the extent and pace of climate change itself through reducing the levels of greenhouse gases in the atmosphere.

- Ensure climate resilience of critical ecosystems (Tonle Sap Lake, Mekong River, coastal ecosystems, highlands, etc.), biodiversity, protected areas and cultural heritage sites;
- Promote low-carbon planning and technologies to support sustainable development;
- Improve capacities, knowledge and awareness for climate change responses;
- Promote adaptive social protection and participatory approaches in reducing loss and damage due to climate change;
- Strengthen institutions and coordination frameworks for national climate change responses; and
- Strengthen collaboration and active participation in regional and global climate change processes.

The CCSP explicitly recognises the importance of building a national monitoring and evaluation (M&E) framework that measures and tracks how well the country is managing climate risks and meeting development targets. From an M&E perspective, climate change poses a distinct bundle of thorny methodological challenges: interventions encompass an enormous diversity of policies and programmes, spanning scales, sectors, and levels of intervention. In the absence of a clear CCA metric or measure, there are challenges in assessing progress towards the aims set out in Cambodia's CCCSP.

The Department of Climate Change (DCC), under the General Secretariat of the National Council for Sustainable Development coordinates climate change efforts across ministries. To this end, in 2013 the DCC commissioned a national-level M&E framework applying the Tracking Adaptation and Measuring Development (TAMD) model. TAMD is a globally-recognized methodology for monitoring and evaluation (M&E) of climate change adaptation (CCA). It was developed by the International Institute for Environment and Development (IIED) as a 'twin-track' approach to M&E of CCA at the national level; the framework is also flexible enough to be applied in other contexts, including at the Ministry level. The twin tracks encompass "how widely and how well countries or institutions manage climate risks (Track 1) and how successful adaptation interventions are in reducing climate vulnerability and in keeping development on course (Track 2)" (IIED 2012, p. 1). A number of Cambodian Ministries already have approved sectoral Climate Change Action Plans (CCAPs) in place, each with a detailed M&E framework. The TAMD framework is now being applied to selected ministries to bridge the detailed sectoral M&E systems to the national CCA M&E framework.

This report presents the first iteration of applying this framework to Cambodia's Ministry of Health. Its 2014-2018 CCAP represents the agency's first foray into CCCA. The policy document was released in January 2014, and identifies overall health priorities which are relevant to or affected by climate change. It specifically identifies floods, droughts, and storms as the primary causes of CC-related health burdens in Cambodia

(p. iii). Slow-onset disasters and more general linkages between CC and health (for example, nutrition) are absent from the document, although stakeholders indicate that because climate change is a new and largely unfamiliar topic within MOH, the CCAP was intentionally focused tightly on a few, 'do-able' pillars of programming, i.e., specific disease vectors; emergency preparedness and response plans; and building the capacity of population and health personnel regarding disaster-related disease.

This report presents the outcomes of a participatory process and expert stakeholder workshop to apply the M&E framework to Cambodia's Ministry of Health, in order to support measurement of sectoral responses to climate change responses. It is *not* intended to replace the more detailed M&E framework presented in the Ministry's Climate Change Action Plan (CCAP), but rather complements it by distilling key elements and tying them to the national-level CCA framework. To this end, IIED partnered with MOH to develop 'scorecards' to measure institutional readiness to address CCA within the Ministry (Track One), together with results indicators (Track Two) focusing on the key MOH priorities identified in its CCAP. These indicators were validated in a participatory workshop in April 2016 and the results confirmed in a closing meeting with the ministry in early May; the outcomes from that key stakeholder consultation were applied to formulate baseline data presented here. The results can be re-calculated annually to assess progress towards key health adaptation priorities.

MOH Institutional Readiness Indicators: Track One

The institutional readiness indicators within MoHs CCAP is designed to measure the extent to which MOH's efforts have resulted in the integration of climate risk management into health policy and programming, and enhanced institutional capabilities to respond to climate change. Four process indicators will be assessed on regular intervals using the scorecards given below to understand how MOH is integrating climate resilience into sectoral systems and responding to climate change. The indicators are:

- **Indicator 1: Status of climate change integration into MoHs planning:** *Level of inclusion of climate change adaptation into MOH's long, medium and short-term planning.*
- **Indicator 2: Status of coordination:** *Status and functionality of health sector coordination mechanism for climate change responses and implementation of Climate Change Action Plan.*
- **Indicator 3: Status of climate information:** *Status of production, access and use of climate change information in MOH.*
- **Indicator 4: Status of climate integration into financing:** *Status, availability and effectiveness of a financial framework for climate change response at in MOH.*

The four indicators are common across the national climate change M&E framework; however, the content of the scorecards has been individually tailored to each Ministry. The scorecard is used to understand how MOH stands in the overall process of climate change policy and institutional development and how the sector is moving towards achieving its milestones. The scorecard describes the process that the indicator is measuring starting from initial phases (even if they have already been completed) through advanced ones in a 'ladder' approach.

The MOH scorecard was developed in consultation with MOH, using as models Track One scorecards for other Cambodian institutions. The scorecard was validated during an expert stakeholder workshop in April 2016. MOH invited to the April workshop 20-30 representatives who were knowledgeable about MOH's institutional readiness to address climate change (Track One), and/or had relevant expertise to validate the suggested impact (Track Two) indicators. Participants also assigned points to the scorecards and narrative justifications for the Track One indicators, and approved the suggested Track Two indicators. A final meeting was held on May 2, 2016 to confirm scores, reconcile any outstanding differences or issues, and further elaborate on the narrative justification for the scores. Each item on the scorecard 'ladder' was judged as yes (2 points), partial (1 point), or no (0 points). The answers to these questions are added together to yield an overall raw score, and then a total percentage was calculated for each of the four indicators.

Figure 1 Scoring workshop, Phnom Penh, Cambodia, April 2016

The scorecards and results are listed below:

Indicator 1			
<u>Indicator 1: Status of climate change integration into sectoral planning</u>: *Level of inclusion of climate change adaptation into MOH's long, medium and short-term planning.*			
Step	**Milestone**	**Yes: 2 points Partial: 1 point No: 0 points**	**Evidence / Supporting Narrative**
1	**CC adaptation is integrated within MOH's over-arching health policy (Health National Strategic Plan 2016-2020, or HNSP).**	Partial	CC included in Health Sector Program Phase 3 (HSP3) and other key policies, but not a top priority.
2	**MOH has adjusted its overall policy and priorities (HNSP) to reflect CC adaptation considerations.**	Partial	Climate change is 'on the radar' but has not driven key changes in health strategy or priorities.
3	**The MOH CCAP identifies specific CC adaptation priorities and strategies for the health sector.**	Yes	Yes, the CCAP identifies very specific disease vectors which are likely to be sensitive to climate changes and lays out a strategy to address.
4	**The CCAP identifies clear actions and a specific timeframe for implementation.**	Yes	CCAP includes action plan (action fiches) including pilot projects and fuller programs, together with a timeframe. However, implementation depends on budget and other resources, especially from donors. The CCAP

			itself, however, is very clear.
5	**The strategy and activities presented in the CCAP to address climate-related health challenges in Cambodia is strong, sound, and comprehensive.**	Partial	The strategic plan is detailed with an operational plan.
6	**Responsibility for integrating CC adaptation into MOH's M&E systems is assigned to a specific department or unit within MOH.**	Yes	The Department of Preventive Medicine is responsible for planning and health information. A Technical Working Group is in place.
7	**MOH has identified clear procedures and standards for assessing climate-related health risks.**	Partial	There has been consultation and some procedures are being prepared to do this, but is not yet fully realized.
8	**As a result of climate change, MOH has increased its training of health and medical personnel regarding climate-related health and medical concerns which are prioritized in the MOH CCAP.**	Partial	There has been some training in high-risk provinces, but not because of climate change.
9	**As a result of climate change, MOH has increased its awareness efforts for CC-related health issues which are prioritized in the CCAP.**	Partial	MOH lacks resources to do this. There have been only a few awareness-raising workshops.
10	**MOH has designed an M&E framework for CC *adaptation*.**	No	MOH lacks an expert / resources to fully do this. There is an M&E framework within the MOH CCAP but it is not operational. Now being operationalised through IIED.
11	**Data is being actively collected and analysed for the indicators in the CCAP.**	No	The data is not available in the existing Health Information System. MOH is still

			conceptualizing how to approach this.
12	**Regular monitoring and evaluations assess MOH's progress towards achieving the objectives set in the health CCAP.**	No	No systems or tools are in place.
13	**The CCAP is updated according to planning schedule, and reflects new evidence and recommendations from evaluations and other research.**	No	Work on this has only just started.
14	**MOH's CCAP strategies and M&E frameworks are effectively linked to national one.**	Partial	The M&E frameworks are not fully functioning. However, the indicators and plans are linked to national strategies, templates, etc.
	Total score:	13 points 46%	

Indicator 2
2. **<u>Indicator 2: Status of coordination</u>: *Status and functionality of health sector coordination mechanism for climate change response and implementation of Climate Change Action Plan.***

Step	**Milestone**	**Yes: 2 points Partial: 1 point No: 0 points**	**Evidence / Supporting Narrative**
1	**Climate change focal points (individuals or units) for coordination are established within MOH.**	Yes	This is the responsibility of the Department of Preventive Medicine. There is a designated focal point.
2	**Working group responsible for coordinating is established within MOH.**	Yes	There is a Technical Working Group for

			Climate Change at MOH.
3	**The focal points are fully functional and properly structured to deliver its inter-ministerial coordination mandate.**	Partial	There are focal points, but the work is ad hoc and dependent on external technical and financial support.
4	**The working group is fully functional and properly structured to deliver its inter-ministerial coordination mandate.**	Partial	Working Group meets on an ad hoc basis, rather than regularly and is dependent on external technical and financial support.
5	**Capacity building and training support is being provided to build institutional strengths of MOH staff so that they integrate CC issues in MOH planning and implementation.**	Partial	There are 25 provinces, but only one focal point person. It is not a priority in MOH, and there are not enough resources or knowledge to pursue this fully.
6	**Trained MOH staff considers CC adaptation considerations when planning for specific projects, strategies, and priorities.**	Partial	Not yet trained on how to do this fully. This is sometimes being done on specific projects on specific diseases, but is not systematic.
7	**Regular CCAP Plan progress reports are submitted by MOH to NSDC Secretariat.**	Partial	Reports are regularly submitted quarterly.
8	**Regular meetings are organized to review the progress of the sectoral CCAP aligned with CCCSP.**	No	Efforts to do this have just started, but there is no budget to do it.
	Total score:	9 points 56%	

Indicator 3

3 **Indicator 3: Status of climate information**: ***Status of production, access and use of climate change information in MOH.***

Step	Milestone	Yes: 2 points Partial: 1 point No: 0 points	Evidence / Supporting Narrative
1	**Coordination mechanism for sharing CC-related data through sub-national programs.**	No	No network or system is in place. This is partly because there are not many initiatives generating this kind of data.
2	**MOH's Health Information System (HIS) is effectively collecting, analysing, and disseminating data on the key climate-related health issues which are prioritized in the MOH CCAP.**	No	Only the standard HIS is available, and it has not been modified or updated to track additional data outlined in the CCAP M&E plan.
3	**Public database with climate change information is available and accessible (e.g. online portal), and includes data and information on the climate-related health issues which are prioritized in the MOH CCAP.**	No	This does not exist.
4	**MOH has an up-do-date Climate Vulnerability and Adaptation Analysis (V&A)[2] which is used to inform adaptation planning.**	Partial	The last CVA was done in 2009, but there are plans to update it in 2016 if resources are available (there is not yet any budget allocation, however).
5	**MOH conducts Vulnerability Reduction Assessments (VRAs)[3] designed to monitor community-based projects and programs which relate to climate change concerns.**	No	MOH has some VRA tools already, but there is not enough budget to

[2] WHO Countries including Cambodia are now being encouraged to conduct V&As regularly, in addition to general climate-sensitive disease surveillance, and is intended to inform the MOH CCAP.

[3] The Government of Cambodia is promoting the use of a VRA tool (commissioned from UNDP) to inform local- and community-based projects and programs.

			systematically use them.
6	**Epidemiological modelling information on climate-related health issues prioritized in the MOH CCAP is available to public institutions in a format that can be easily used and applied.**	No	No expertise exists within MOH to do this. MOH does conduct epidemiological modelling (including on CC-sensitive diseases), but CC factors themselves are not included.
7	**MOH planners and policymakers working on climate-sensitive topics routinely use and apply key data, information, and analyses regarding climate and climate vulnerability to inform their work.**	Partial	There are a few times during the past few years when this has been done (namely for malaria and dengue), but these are exceptional examples.
	Total Score:	2 points 14%	

Indicator 4	
4	**<u>Indicator 4: Status of climate integration into financing</u>: *Status, availability and effectiveness of a financial framework for climate change response at in MOH.***

Step	**Milestone**	**Yes: 2 points** **Partial: 1 point** **No: 0 points**	**Evidence / Supporting Narrative**
1	**Climate Change Action Plan (CCAP) includes clear cost estimates.**	Yes	The CCAP includes budget estimates (although in some cases they are "guesstimates").

2	**Funding for identified climate-related health issues prioritized in the CCAP has increased due to awareness of the health implications of climate change.**	Partial	The government is interested, but has not allocated funding for it. Some donors are increasingly interested in funding this topic.
3	**MOH has accessed climate finance to support specific projects and priorities.**	Partial	Funding has been secured from several international sources (including ADB, GEF, CCCA via WHO and GIZ).
4	**MOH's CCAP priorities are reflected in the Public Investment Programme**	Partial	MOH's CCA priorities are included within government priorities, but they are not yet adequately funded.
5	**A tool to track % of CC relevance of expenditure is established and used.**	No	No tool exists.
6	**A Climate Change Expenditure Review is regularly conducted and reported in the MOH CCAP progress report.**	No	This is never done.
7	**MOH's epidemiological forecasts of climate-related health issues prioritized in the CCAP include budget implications.**	No	MOH's epidemiological forecasts are not costed.
8	**MOH has mobilized adequate funding from government and development partners to finance the MOH CCAP. (No = less than 33%; Partial = 33-65%; Yes = 65% or more)**	No	There is some funding from development partners (e.g., ADB, WHO, GIZ) but not enough.
	Total score:	5 Points 31%	

The results from each scorecard are summarized in the following spiral diagram (See figure 2):

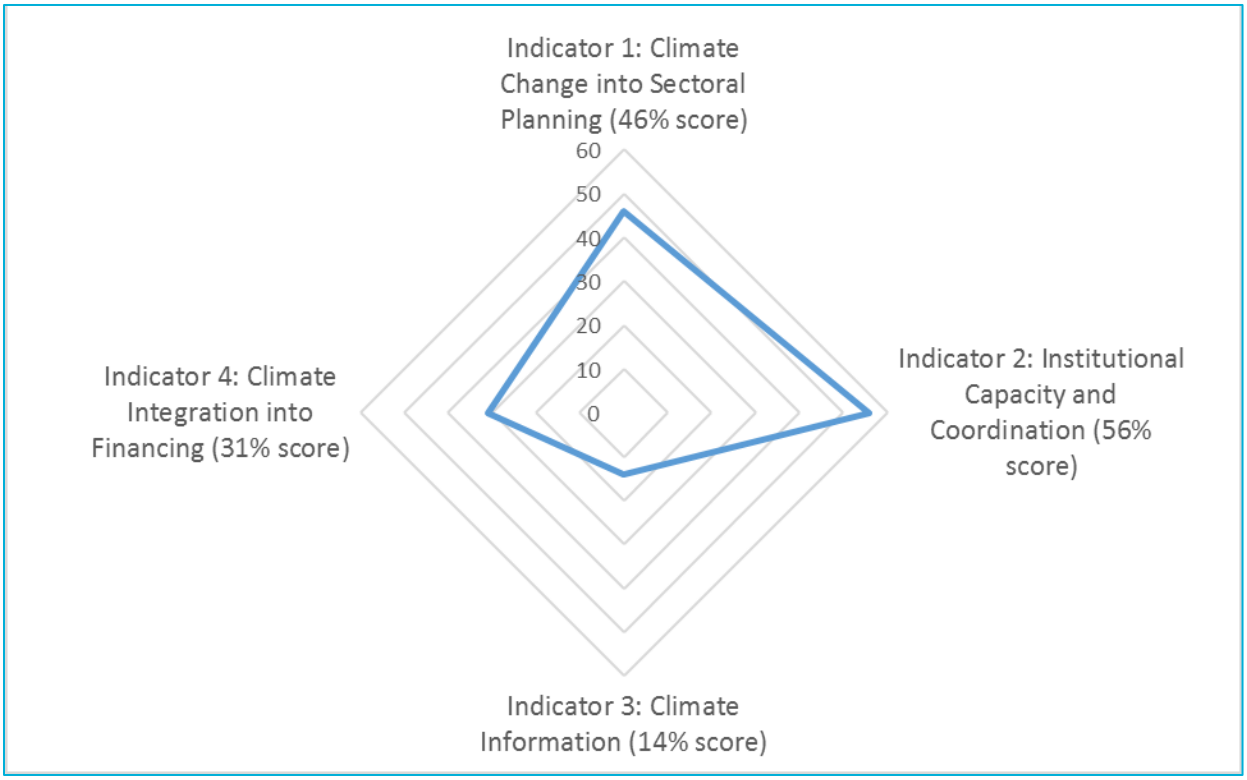


Figure 2: Spiral diagram: Institutional readiness of MoH

We see considerable variation across the four Track One institutional readiness indicators. The first two (level of inclusion into MOH planning and coordination mechanisms) have quite high scores (46% and 56%), which is remarkable given that CCA is a new topic for MOH. These relatively high scores reflect in part that the Royal Government of Cambodia has existent frameworks and systems to mainstream climate change, which have been effectively extended to MOH. For example, it has a CCAP and specific focal points within the Ministry who also engage in inter-ministerial coordination. However, only a marginal score (14%) was assigned to use of climate information, and only 31% for integrating climate into financing mechanisms of health sector. Moreover, across all the scorecards the expert stakeholders emphasized that while formal policies, plans, and mechanisms were in place, MOH lacked financial and human resources to fully implement its climate change priorities. In this sense, the scores reflect structures and intentions, but not yet a track record in implementation. The challenge for the coming years will be in realizing the articulated strategies.

MOH Impact Indicator Framework: Track Two

The MOH CCAP includes a wide range of indicators across its over-arching strategies and action fiches. In consultation with MOH expert stakeholders, a small and highly-selective number of impact indicators were identified to serve as overall Track Two indicators for MOH: the morbidity rates of the specific diseases which MOH regards as most affected by CC, ***which are diarrhoea, malaria, and dengue***. A particular innovation is that for the TAMD framework, we are adjusting the results by rainfall in order to better define the link between precipitation data and disease burden.

Cambodia receives an average rainfall of 1400 mm in the central low land regions and may reach 4000 mm in certain coastal zones or in highland areas. This average rainfall rates are expected to further increase as per the projections of annual precipitation from 2008-2009 based on a PRECIS SRESA2 climate model(Thoeuna, 2015). The model also predicts that the wetter months are likely to become wet while drier months are likely to become drier. These changes in rainfall patterns due to climate change will have implications on disease patterns related to diarrhoea, dengue and malaria. For example: epidemiological studies show that elevation of precipitation levels result in increased diarrhoea incidence after relatively dry periods(Carlton et al., 2014). Similarly, rainfall affects dengue primarily by increasing sites to breed for the *Aedes* mosquito (i.e. vector or carrier of dengue disease)(Ehelepola et al., 2015). Periods of unusually high rainfall or changes in humidity and temperatures can also cause changes in malaria spread and transmission even in regions were disease management is strong

The chart below (Figure 3) compares 2015 government disease rates (per 100,000 people[4]) for each province in Cambodia for which data is available, divided by millimetres of rainfall.

The data shows (see figure 3) that the province of Otdar Meanchey is the most affected from diarrhoea and malaria in 2015 (by average rainfall received) while Siem Reap has witnessed maximum incidences of dengue. This is despite of the fact that provinces such as Preah Sihanouk and Kohkong have received much more rainfall in the year 2015 (see figure 4). These could be due to better coping mechanisms within these provinces or better economic conditions of the residents of Kohkong and Preah Sihanouk. For example our hazard specific national vulnerability assessments show that Otdar Meanchey is one of the most vulnerable provinces to flood related hazards while Preah Sihanouk and Kohkong are the least vulnerable (see figure 5)(Rai et al., 2015).

These findings stress the need to analyse health data alongside precipitation data rather than studying results in isolation. Looking at the data in isolation we would have assumed that provinces with highest rainfall will also be highly susceptible to water

[4] The 2015 data that MOH extracted from its Health Information System consisted of total numbers of recorded cases of the three target diseases. The 'population data' link on MOH's website was malfunctioning at the time of writing the report, and so disease rates were calculated using 2015 population data from a MAFF database entitled "Annex-Print-Out-2014-15(EN)".

borne diseases or vice versa. However, results show that provincial vulnerability or ability to proactively respond to diseases in extreme weather patterns determines the level of disease incidence. Hence, while interpreting health impacts vis-à-vis climate responsiveness of MoH, it will be important to normalise disease data with climate data (such as precipitation levels).

As MOH invests in prevention, diagnosis, and treatment of these weather-sensitive diseases, we would expect to see rates stabilized or improved even in times of heavy rainfall.

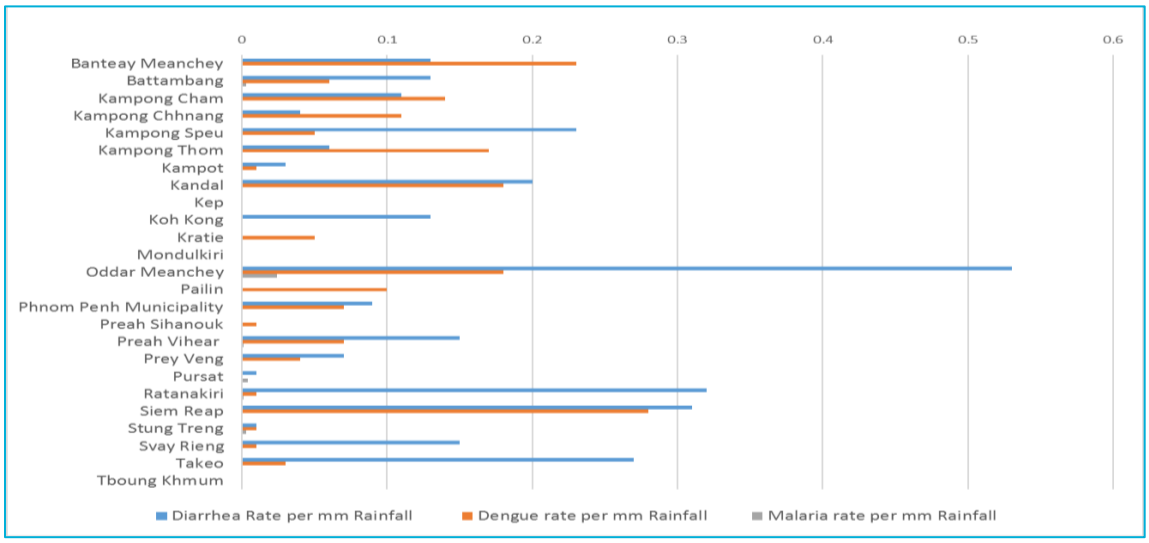


Figure 3: Rate of disease by rainfall (province level), 2015, MOH

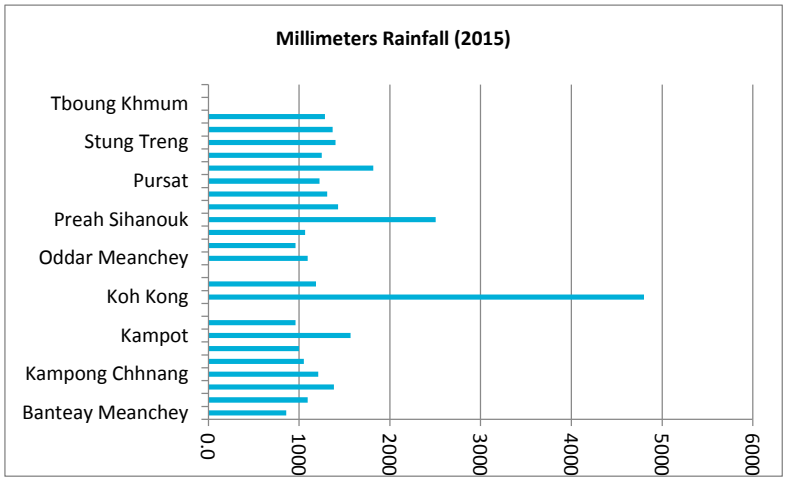
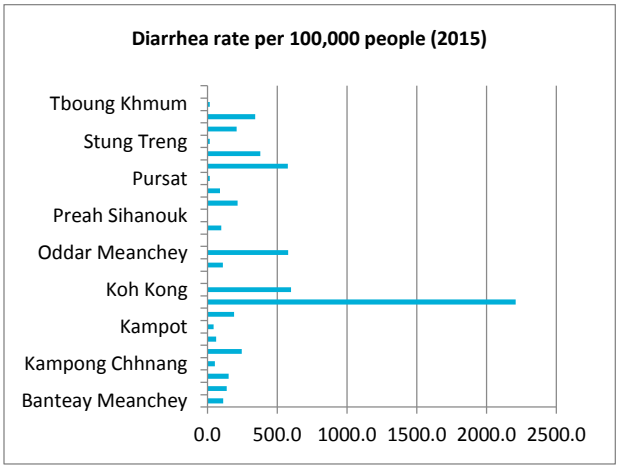


Figure 4: Precipitation levels and diarrhoea rate/100,000 people, 2015



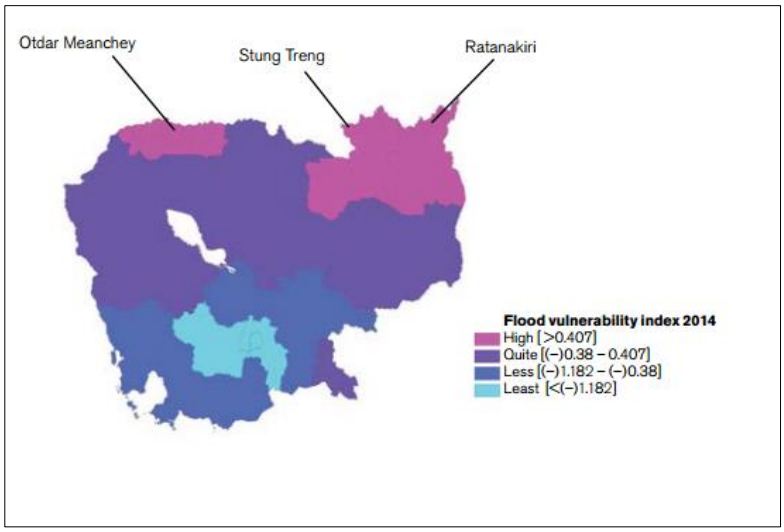


Figure 5: Province level flood vulnerability, 2014, (Rai et al., 2015)

Limitations in data:

There are several limitations to the data. The Ministry of Water Resources and Meteorology (MOWRAM) 2015 rainfall data is unavailable for the following provinces: Kep, Mondulkiri, and Tboung Khmum; disease rates were also unavailable for Tboung Khmum, which is a newly-drawn province. Phnom Penh Municipality (note that the capital city has the same legal status as a province) is *not* listed in the MOWRAM database, although "Pochentong" is. This apparently refers to Pochentong Airport, which is within the municipality, and so this data was applied to the city itself. The MOH Health Information System (HIS), meanwhile, collects data from provincial clinics; this data does not include incidents of disease which were treated at home rather than in a clinic. Additionally, in the HIS "national hospitals" are a separate category from provincial clinics and this data is not disaggregated by location. As a result, this data has been omitted from these results. Readers should thus be aware that these results exclude data from those who were sick but did not seek treatment, and those who were treated at a national hospital or private practitioner, rather than in a provincial clinic. It should also be noted that because MOH has only just begun implementing CCA program strategies, retrospective data analysis would not be appropriate, insofar as it would pre-date the specified interventions. The material here should be understood to be represent a baseline to help assess the effectiveness of MOH's CCA interventions.

Conclusion

Cambodia's Ministry of Health has made remarkable headway in addressing a new and largely unfamiliar topic. It has an approved Climate Change Action Plan (CCAP) with strategies to address specific diseases burdens which have been identified as being linked to climate change. The TAMD framework is being applied to measure institutional readiness (Track One) and results (Track Two) on key CC-related disease burdens which have been identified as MOH priorities. This system complements the more complex one laid out in the MOH CCAP, and ties it directly into the national CC M&E framework. The TAMD framework was tailored to reflect the priorities of the MOH in 2015, and validated and scored in 2016 in a participatory expert stakeholder workshop.

These findings highlight several important themes. CCA is an entirely new consideration for MOH, and there is some consensus that it was appropriate to make the overall CCA strategy for this Ministry focused and 'do-able' rather than comprehensive. In a short period of time it has put mainstreaming structures in place. Nevertheless, stakeholders indicated that CCA remains poorly understood and resourced within the Ministry, and while the architecture for mainstreaming climate change is there, implementation has only barely begun. The real challenge will be in securing resources – financial and technical – to achieve the CCAP's current aims and (possibly) expand its scope in the future.

As requested by the Ministry, the selected impact indicators are straightforward and build on data readily available in its Health Information System. We have selected morbidity rates for key diseases specified in the CCAP, which are influenced by climate factors: malaria, dengue, and diarrhea. A key innovation is to adjust these rates by rainfall data collected by MOWRAM. While we would normally expect dengue rates to vary according to precipitation, this way we can see whether or not effort to control priority diseases are effective *despite* rainfall variation. These results should, of course, be interpreted with caution: there are multiple weather and other factors which influence the rates of the selected diseases – including data quality. The 2015 figures, for example, show an outlier for diarrhoea rates in Oddar Meanchey. This may reflect a specific disease outbreak, but could also reflect more meticulous disease reporting in this location or specific vulnerability levels of this province.

The Track One and Track Two data presented here represents a baseline which can be updated regularly to track ongoing progress as Cambodia's health sector adapts to climate change. It includes a series of mainstreaming/process indicators to assess institutional readiness, together with impact indicators to gauge progress in controlling specific weather-influenced disease vectors.

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Annex One: Data Table on Malaria, Dengue, and Diarrhoea Rates (per 100,000 population) per Millimetres of Rainfall

Provinces (Alphabetical)	Diarrhoea Rate (100,000 pop.) per mm Rainfall (2015)	Dengue Rate (100,000 pop.) per mm Rainfall (2015)	Malaria Rate (100,000 pop.) per mm Rainfall (2015)
Banteay Meanchey	0.131	0.23	0.00031
Battambang	0.126	0.06	0.00228
Kampong Cham	0.110	0.14	0.00000
Kampong Chhnang	0.044	0.11	0.00000
Kampong Speu	0.234	0.05	0.00000
Kampong Thom	0.062	0.17	0.00042
Kampot	0.028	0.01	0.00010
Kandal	0.198	0.18	0.00000
Kep	Rainfall data not available		
Koh Kong	0.125	0.00	0.00000
Kratie	0.002	0.05	0.00000
Mondulkiri	Rainfall data not available		
Oddar Meanchey	0.527	0.18	0.02389
Pailin	0.000	0.10	0.00000
Phnom Penh Municipality	0.094	0.07	0.00000
Preah Sihanouk	0.000	0.01	0.00015
Preah Vihear	0.152	0.07	0.00131
Prey Veng	0.069	0.04	0.00006
Pursat	0.015	0.00	0.00379

Ratanakiri	0.317	0.01	0.00111
Siem Reap	0.305	0.28	0.00034
Stung Treng	0.012	0.01	0.00280
Svay Rieng	0.153	0.01	0.00082
Takeo	0.267	0.03	0.00024
Tboung Khmum	Neither rainfall nor disease data available. Note that this is a newly-drawn province.		