



Technical Assistance Report

Project Number: 47143-001
Regional—Capacity Development Technical Assistance (R-CDTA)
April 2015

Strengthening Resilience to Climate Change in the Health Sector in the Greater Mekong Subregion (Financed by the Nordic Development Fund)

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Asian Development Bank

ABBREVIATIONS

ADB	–	Asian Development Bank
CDC2	–	Second Greater Mekong Subregion Communicable Diseases Control Project
GMS	–	Greater Mekong Subregion
Lao PDR	–	Lao People’s Democratic Republic
MOH	–	Ministry of Health
NDF	–	Nordic Development Fund
PPP	–	public–private partnership
TA	–	technical assistance
WHO	–	World Health Organization

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CAPACITY DEVELOPMENT TECHNICAL ASSISTANCE AT A GLANCE

1. Basic Data		Project Number: 47143-001	
Project Name	Regional Capacity Development for Strengthening Resilience to Climate Change in the Health Sector in the Greater Mekong Subregion (formerly Mitigating Human Impact of Climate Change)	Department /Division	SERD/SEHS
Country Borrower	REG, CAM, LAO, VIE Governments of Cambodia, Lao PDR, and Viet Nam	Executing Agency	Asian Development Bank
2. Sector	Subsector(s)	Financing (\$ million)	
✓ Health	Health sector development and reform		4.00
	Health system development		0.36
		Total	4.36
3. Strategic Agenda	Subcomponents	Climate Change Information	
Inclusive economic growth (IEG)	Pillar 2: Access to economic opportunities, including jobs, made more inclusive	Adaptation (\$ million)	4.00
Environmentally sustainable growth (ESG)	Disaster risk management Environmental policy and legislation Global and regional transboundary environmental concerns Natural resources conservation	Mitigation (\$ million)	0.36
Regional integration (RCI)	Pillar 1: Cross-border infrastructure Pillar 4: Other regional public goods	CO ₂ reduction (tons per annum)	3
		Climate Change impact on the Project	High
4. Drivers of Change	Components	Gender Equity and Mainstreaming	
Governance and capacity development (GCD)	Civil society participation Institutional development Institutional systems and political economy Public financial governance	Some gender elements (SGE)	✓
Knowledge solutions (KNS)	Application and use of new knowledge solutions in key operational areas Knowledge sharing activities		
Partnerships (PAR)	International finance institutions (IFI) Official cofinancing Private Sector Regional organizations		
5. Poverty Targeting		Location Impact	
Project directly targets poverty	No	Not Applicable	
6. TA Category:	A		
7. Safeguard Categorization	Not Applicable		
8. Financing			
Modality and Sources		Amount (\$ million)	
ADB		0.00	
None		0.00	
Cofinancing		4.36	
Nordic Development Fund		4.36	
Counterpart		0.05	
Government		0.05	
Total		4.41	
9. Effective Development Cooperation			
Use of country procurement systems		Yes	
Use of country public financial management systems		Yes	

I. INTRODUCTION

1. Climate change is now recognized as a significant public health threat. Rising temperatures and changing rainfall patterns are spreading the occurrence of vector borne diseases such as malaria and dengue.¹ Cambodia and the Lao People's Democratic Republic (Lao PDR) bear an unusually high burden of vector-borne diseases; in recent years more than 150,000 dengue cases were reported annually.² Health system functions need to be strengthened in order to increase resilience and adapt to a changing climate. Support to national health systems include investments in surveillance systems, human resources and health infrastructure to help build capacity for a coordinated response at the national and regional level. The proposed regional capacity development technical assistance (TA) aims to strengthen the national health systems of Cambodia, the Lao PDR, and Viet Nam to prepare, coordinate, and respond to climate-induced health threats.

2. The Asian Development Bank (ADB) Midterm Review of Strategy 2020 reconfirmed regional cooperation and integration for regional public goods, including the control of communicable diseases, as one of ADB's institutional objectives.³ The proposed TA will help operationalize recommendations of ADB's Midterm Review of Strategy 2020 with regard to strengthening regional public goods for health through scaling-up efforts on communicable disease control and related climate-induced health risks.⁴ The TA on Strengthening Resilience to Climate Change in the Health Sector in the Greater Mekong Subregion (GMS) for Cambodia, the Lao PDR, and Viet Nam was included in the GMS regional cooperation operations business plan, 2013–2014.⁵ The TA will be financed on a grant basis by the Nordic Development Fund (NDF).⁶ It will build on ADB's comparative advantage in facilitating regional cooperation and strengthening regional public goods for health, such as the Second Greater Mekong Subregion Communicable Disease Control Project (CDC2) and proposed regional interventions on malaria elimination and control, and complement ongoing NDF-supported TA to build capacity for coping with climate change.⁷ The participating developing member countries—Cambodia, the Lao PDR, and Viet Nam—were involved in TA preparation and welcome the initiative.⁸ The design and monitoring framework is in Appendix 1.

¹ These include deaths related to communicable and noncommunicable diseases, contributing to the burden of disease patterns and possibly prolonging the fight against vector-borne and waterborne diseases. World Health Organization (WHO), Regional Office for the Western Pacific. Informal draft working paper (2013). Unpublished.

² WHO, Regional Office for the Western Pacific. 2011. *Western Pacific Country Health Information Profiles 2011 Revision*. Manila.

³ ADB. 2014. *Midterm Review of Strategy 2020: Meeting the Challenges of a Transforming Asia and Pacific*. Manila.

⁴ Proposed GMS Health Security Project scheduled for 2016 and other future investments in the health and non-health sectors. The TA will also address climate-induced health risks such as heat-related morbidity and mortality.

⁵ ADB. 2012. *Greater Mekong Subregion: Regional Cooperation Operations Business Plan 2013–2014*. Manila; The TA first appeared in the business opportunities section of ADB's website on 24 October 2014.

⁶ The TA received pre-board clearance by the NDF on 9 December 2013 for €4 million. NDF's Board of Directors approved the grant financing of up to €4 million on 23 January 2015.

⁷ ADB. 2010. *Report and Recommendation of the President to the Board of Directors: Proposed Loan and Grants to the Kingdom of Cambodia, Lao People's Democratic Republic, and Socialist Republic of Viet Nam for the Second Greater Mekong Subregion Communicable Diseases Control Project*. Manila; ADB. 2014. *Results for Malaria Elimination and Control of Communicable Disease Threats in Asia and the Pacific and Integrated Risk Mapping Using Mobile Phone Technology and Satellite Remote Sensing for Strategic Malaria Control and Elimination Planning in Selected Greater Mekong Subregion Countries*. Manila; ADB. 2010. *Technical Assistance to the Lao People's Democratic Republic for Capacity Enhancement for Coping with Climate Change*. Manila.

⁸ TA fact-finding missions were conducted jointly with the NDF in April–May 2014. ADB will not undertake any activities in the relevant developing member country until receiving a written no-objection.

II. ISSUES

3. Changes in temperature and rainfall patterns are increasing the vulnerability of populations to the incidence of vector-borne diseases. A higher risk of heat waves in urban areas reduces air quality and exacerbates the occurrence of respiratory infections. The pace of urbanization and population mobility is in turn compounding these diseases.⁹ Strengthening the resilience of national health systems is a priority for Cambodia, the Lao PDR, and Viet Nam to achieve sustainable economic development. In the Greater Mekong Subregion (GMS), health has been identified as a priority sector within national adaptation plans. Support to national health systems includes enhancing existing surveillance systems, human resource development and identifying future health infrastructure investments to help build capacity to improve tracking of disease and coordinate response at the national and regional level.

4. The WHO Regional Committee for the Western Pacific developed the Regional Framework for Action to Protect Human Health from the Effects of Climate Change in the Asia–Pacific Region.¹⁰ The governments of Cambodia, the Lao PDR, and Viet Nam recognized that climate change is a major threat to development and approved climate change strategic plans for public health as part of the national strategic plans on climate change.¹¹ The TA builds on and complements other climate change TA projects in the region such as ADB's projects on Capacity Enhancement for Coping with Climate Change in the Lao PDR, on Mainstreaming Climate Resilience into Development Planning in Cambodia, and on Support for the National Target Program on Climate Change with a Focus on Energy and Transport in Viet Nam.¹²

5. An essential prerequisite for health adaptation to climate change is to increase the knowledge base and the human skills needed to analyze, prioritize, plan, and implement adaptations. Given that consideration of climate change adaptation for health is a new area, advocacy and knowledge sharing will also be critical to developing a successful program. Identification of investments for adaptation and capacity building will be required to address risks to the health sector from extreme climate events. Improved surveillance will be crucial in providing timely, disaggregated surveillance of climate-sensitive infectious diseases.¹³ Downscaling climate models will be utilized to project how climate change may affect health in the region.¹⁴ Investments are also needed in a range of human resource development areas to incorporate (i) new knowledge and skills related to climate change into current health systems

⁹ Vector reproduction, the parasite development cycle, and bite frequency rise with temperature. Therefore, malaria, dengue, and tick-borne encephalitis are increasingly widespread. In Japan, dengue reoccurred after almost 40 years.

¹⁰ WHO. 2013. *Regional Framework for Action to Protect Human Health from the Effects of Climate Change in the Asia–Pacific Region*. Geneva.

¹¹ Health Working Group for Climate Change. 2012. *Climate Change Strategic Plan for Health. Towards Increased Climate Resilience for Better Health and Well-Being of all Cambodians*. Phnom Penh; Government of Viet Nam, Ministry of Health. 2010. *Action Plan, Response to Global Change (2010–2015)*. Ha Noi; Government of Lao PDR, Ministry of Health. 2011. *Draft Climate Change and Health Adaptation Strategy in Lao PDR*. Vientiane.

¹² ADB. 2010. *Technical Assistance to the Lao People's Democratic Republic for Capacity Enhancement for Coping with Climate Change*. Manila; ADB. 2002. *Technical Assistance to the Kingdom of Cambodia for Mainstreaming Climate Resilience into Development Planning*. Manila; and ADB. 2011. *Technical Assistance to the Socialist Republic of Viet Nam for Support for the National Target Program on Climate Change with a Focus on Energy and Transport*. Manila.

¹³ The ADB-financed CDC2 has developed a database platform on communicable disease incidences, which could be used to include climate change-related diseases and function as an early warning system.

¹⁴ Downscaled regional climate models provide climate change adaptation planning at the local and regional levels. Developing countries have started to simulate local climate change impacts using statistical downscaling. Statistical downscaling uses a series of equations to convert global scale model output to regional scale conditions.

practices, and (ii) adaptations in health and other infrastructure to ensure responsiveness to extreme weather and related disasters. Limited economic studies are available to enable decision makers to understand (i) how to most effectively address the rising burden from climate-sensitive diseases, and (ii) the costs and benefits of health adaptation in relation to averting the health risks of climate change.

6. Capacities need to be built within national and regional academic and research institutes, public health and healthcare institutions, and environmental agencies to assess how climate change may alter the effectiveness of programs. Public and private health institutions need to improve their capacities with regard to climate change epidemiology, stronger early warning systems, better risk assessments, and more innovative communication approaches. For successful adaptation, the use of integrated and cross-sector approaches, and the establishment of networks and solutions on a regional basis from a number of fields (including agriculture and water management) will be necessary. Gender-sensitive collection, analysis, and reporting of sex-disaggregated data are needed to better understand the health implications of climate change and climate policies. This will provide information to support gender mainstreaming in climate change policies, as well as to empowerment individuals to build their own resilience.¹⁵

7. Both governments and the private sector have an important role in facilitating adaptation through (i) investing in regional public goods, including improved monitoring and prediction of climate change and better monitoring of regional impacts; and (ii) building public-private partnerships (PPPs) for climate-related investments in health and related sectors. The TA aims to help explore private sector engagement in adaptation measures since successful private sector involvement in adaptation could catalyze greater investments, which, in turn, could accelerate the replication of climate-resilient technologies and services.¹⁶ The TA will help to identify activities in the areas of regional surveillance and human resource development as part of the proposed GMS Health Security Project. Given that most activities are focused on capacity building at the institutional level, TA interventions are likely to be sustained.

III. THE PROPOSED CAPACITY DEVELOPMENT TECHNICAL ASSISTANCE

A. Impact and Outcome

8. The impact will be reduced vulnerability to climate-induced health risks, especially for vulnerable populations, including the poor, migrants, and ethnic minority groups in the GMS. The outcome will be enhanced capacity of participating countries and health agencies in climate change adaptation.

B. Methodology and Key Activities

9. **Output 1: Knowledge and understanding of the relationship between climate change and human health improved.** The TA will work with regional academic and research institutions, and public health and environment authorities to build science-based knowledge to address the health impact of climate change and quantify the additional burden of health outcomes. Reliable national and regional surveillance data will be necessary to identify (i) trends in epidemiological patterns and various pathways by which climate change affects public health;

¹⁵ WHO. 2011. *Gender, Climate Change, and Health*. Geneva.

¹⁶ B. Biagini et al. 2013. Engaging the Private Sector in Adaptation to Climate Change in Developing Countries. *Climate and Development*. 5 (3). p. 242.

(ii) vulnerable groups, including the poor and ethnic minority groups; and (iii) risk factors.¹⁷ The TA will build on the work of the CDC2 (footnote 7), the WHO, and other partners to (i) harmonize national and regional surveillance and response mechanisms for climate-sensitive diseases; and (ii) identify opportunities for scaling-up climate change and health adaptation, including related investment needs. The activities will help the ministries of health to (i) improve the database on disease incidence (early warning); (ii) reinforce surveillance to strengthen clinical services and assessment of regional risks and opportunities; (iii) identify adaptation options, including the most suitable and cost-effective health interventions; and (iv) assess capacity to deliver interventions.¹⁸

10. Output 2: Human resource skills in coping with climate change adaptation in the health sector strengthened. The TA will support workforce development by helping to ensure the training of a new generation of competent, experienced public health staff to respond to the threats posed by climate change and incorporate mainstream climate concerns into health policies and programs. Activities include (i) development of technical guidelines for adaptation in the health sector based on existing modules, (ii) training on field epidemiology and disease surveillance related to climate change adaptation, and (iii) enhanced emergency preparedness for rapid response and recovery from extreme weather events. At the local level, community groups, including women's groups, will need to be involved to strengthen local public health interventions, which will increase community resilience and emergency preparedness. The TA will complement ongoing work in the area of surveillance and emergency preparedness by institutions including the WHO, Institut Pasteur, and the Mekong River Commission.

11. Output 3: Knowledge products shared and advocacy promoted. This output is designed to increase awareness about the significance of climate change in the public and private sectors and to identify potential PPPs for adaptation measures, e.g., climate-proof infrastructure. The TA will support high-level advocacy for decision makers, including officials from the ministries for planning and investment, finance, natural resources, and the environment, as well as local and regional academic and research institutes, to discuss benefits, effectiveness, and costs of adaptation options; cost-effective interventions; and necessary investments. The TA will foster cooperation among developed and developing countries on climate change to provide and/or share information.¹⁹ The national technical working groups on climate change, as well as climate change networks and the GMS secretariats in each country, will also serve as platforms for knowledge sharing.

C. Cost and Financing

12. The TA is estimated to cost \$4,410,000, of which €4,000,000 will be financed by NDF on a grant basis. The grant amount will be converted to US dollars upon receipt and administered by ADB.²⁰ The governments of Cambodia, the Lao PDR, and Viet Nam will provide counterpart support in the form of staff, office accommodation and utilities, and other in-kind contributions.

¹⁷ Poor women, children, and elderly people are more likely to be affected by climate-induced health risks.

¹⁸ The CDC2 commenced with the development of a database on disease incidence in Viet Nam.

¹⁹ A number of platforms for knowledge sharing exist such as ADB's regional consultation meetings and the website of the CDC2.

²⁰ The amount of €4,000,000 is equivalent to \$4,360,000 based on an exchange rate of \$1.09 on 25 March 2015. The amount of €4,000,000 is subject to currency fluctuations based on the date of conversion.

D. Implementation Arrangements

13. ADB will be the executing agency through its Southeast Asia Department. In Viet Nam, the implementing agency will be the Health Environment Management Agency, which is responsible for the coordination of climate change activities in the MOH and will coordinate closely with ADB's CDC2 (footnote 7). In Cambodia, the implementing agency will be the Department of Preventive Medicine, which coordinates climate change-related interventions and is also the implementing agency for the CDC2. In the Lao PDR, the implementing agency will be the Department of Hygiene and Health Promotion, which will work closely with the CDC2.²¹ Building on the CDC2 (footnote 7) and the proposed GMS Health Security Project, the TA will foster regional knowledge sharing and dialogue on the impact of climate change on health and the harmonization of databases and surveillance systems. Cooperation with the WHO country offices in Cambodia, the Lao PDR, and Viet Nam is sought to strengthen vector surveillance and vulnerability mapping. The MOH in Myanmar and selected representatives of the climate change alliance will participate in regional consultation meetings.²²

14. The TA will be implemented from 1 August 2015 to 31 December 2018. The TA will procure the services of (i) international consultants (up to 58 person-months) and national consultants (up to 243 person-months), and (ii) short-term international and national resource persons (up to 150 working days) to provide specific expertise. The international TA coordinator and team leader will support the consultants based in the respective departments in the health ministries of the three countries. The outline terms of reference for consultants, including experts in public health, science, climate change adaptation, training, and health economics, are in Appendix 3. All consultants will be recruited in accordance with ADB's Guidelines on the Use of Consultants (2013, as amended from time to time). All consultants (except those engaged as resource persons) will be recruited through a firm using the quality- and cost-based selection method, with a quality–cost ratio of 90:10. Short-listed firms will be required to submit full technical proposals. Output-based contracts will be utilized to the extent possible. Procurement of goods and services will follow ADB's *Procurement Guidelines* (2013, as amended from time to time). Advance action for consultant selection and recruitment is proposed to avoid initial start-up delay. An advanced payment facility will be opened with the three implementing agencies to administer funds for national workshops and procurement of small-scale equipment. Disbursement under the TA will be in accordance with ADB's *Technical Assistance Disbursement Handbook* (2010, as amended from time to time).

IV. THE PRESIDENT'S RECOMMENDATION

15. The President recommends that the Board approve ADB administering technical assistance not exceeding the equivalent of €4,000,000 to be financed on a grant basis by the Nordic Development Fund for Strengthening Resilience to Climate Change in the Health Sector in the Greater Mekong Subregion.

²¹ Assessment of financial management systems, procurement, and financial reporting of implementing partners are not required for this high-value TA as the ministries of health in the three countries are already implementing a number of ADB-financed projects and are not delegating implementation to a third party.

²² The climate change alliance committee provides technical and administrative support for policy development and reform agenda.

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
<p>Impact Reduced vulnerability to climate-induced health risks, especially for vulnerable populations, including the poor, migrants, and ethnic minority groups in the GMS</p>	<p>By 2020</p> <p>Temperature-related morbidity and mortality from key climate change-induced diseases (e.g., dengue and waterborne diseases) averted (Baseline: not applicable)</p>	<p>National MOH surveillance data</p> <p>World Health Organization burden of disease study</p>	<p>Assumption Stable economic environment</p> <p>Risk Major natural disasters</p>
<p>Outcome Enhanced capacity of participating countries and health agencies in climate change adaptation</p>	<p>By 2019</p> <p>Participating countries identified cost-effective priority interventions to reduce burden of diseases related to climate change</p> <p>Adopted national health adaptation plans in three countries</p> <p>Improved use of early warning systems (disease incidence) and surveillance by the health sector in three countries</p>	<p>ADB TA quarterly progress reports</p> <p>Country-specific health adaptation plans</p> <p>TA prefeasibility studies</p>	<p>Assumption Government remains committed to integrating health into climate change planning, and provides personnel and resources</p> <p>Risks High staff turnover</p> <p>Insufficient budget allocation</p>
<p>Outputs 1. Knowledge and understanding of the relationship between climate change and human health improved</p>	<p>Revised national health adaptation plans based on completed vulnerability, impact, and adaptation assessment for each country and detailed assessments for 12 high-risk provinces in three countries by Q2 2016</p> <p>Economic evaluation on cost-effectiveness of health adaptation developed for each country by Q2 2016</p> <p>Developed modeling and forecasting of climate change related health effects to support early warning systems by Q4 2016</p> <p>Integrated climate-related information in existing surveillance systems by Q4 2016</p> <p>At least two options for investment projects and/ or programs on mitigating risks of climate change adaptation in the health sector identified</p>	<p>ADB TA quarterly progress reports</p> <p>Revised country-specific vulnerability maps</p>	<p>Assumption Data quality and availability are sufficient to develop tools and maps</p> <p>Risk Lack of cooperation and coordination between MOHs and relevant government agencies</p>

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
	and developed to prefeasibility stage by Q3 2017		
2. Human resource skills in coping with climate change adaptation in the health sector strengthened	<p>Human resources for health climate change adaptation plan developed by Q1 2016</p> <p>At least three training modules developed by Q4 2016</p> <p>At least 300 staff trained on climate change adaptation including early warning systems and surveillance and on the implementation of the revised health adaptation plans at the national level and 72 trained at the provincial level (30% female) by Q2 2018</p>	ADB TA quarterly progress reports	<p>Assumption Staff is qualified and available for training</p> <p>Risks Staff with inadequate expertise participate in training</p>
3. Knowledge products shared and advocacy promoted	<p>At least 600 professional staff are reached through workshops on national health adaptation strategies by Q3 2018</p> <p>At least 150 decision makers in the public and private sectors are reached through high level advocacy meetings by Q3 2018</p> <p>At least three knowledge products on climate change and health are prepared by Q3 2018</p>	<p>ADB quarterly TA progress reports</p> <p>Workshop proceedings</p> <p>Working papers</p>	<p>Assumption Decision makers will adopt national health adaptation strategies</p> <p>Risk Lack of coordination among health ministries and relevant ministries</p>
<p>Activities with Milestones</p> <p>1. Knowledge and understanding of the relationship between climate change and human health improved</p> <p>1.1 Mobilize consultant firm (Q2 2015)</p> <p>1.2 Prepare and finalize detailed work plan for each country (Q4 2015)</p> <p>1.3 Identify regional institutes to participate in modeling and economic evaluation exercises (Q3 2015)</p> <p>1.4 Conduct baseline epidemiology and literature review (Q1 2016)</p> <p>1.5 Identify trends in epidemiological patterns considering epidemiological and environmental data to forecast unexpected and emerging events in the short, medium, and long term at national and regional levels (Q2 2016)</p> <p>1.6 Develop modeling and forecasting for climate-related health effects including downscaled regional and national (including urban) models (Q4 2016)</p> <p>1.7 Identify vulnerable populations, risk factors, and geographical areas (Q3 2016)</p> <p>1.8 Propose and evaluate adaptation measures (Q3 2016)</p> <p>1.9 Develop and/or improve existing early warning systems (e.g., heat waves, extreme weather) for human health (Q4 2016)</p> <p>1.10 Provide recommendations on strengthening existing surveillance systems to integrate climate-related information, including investment</p>		<p>Inputs</p> <p>Total cost estimates: \$4,360,000</p> <p>NDF financing: €4,000,000</p> <p>Government: in-kind contribution</p>	

<p>Activities with Milestones requirements and costs (Q4 2016)</p> <p>1.11 Develop guidelines for improved surveillance systems (Q2 2016)</p> <p>1.12 Provide training for improved surveillance systems (Q3 2016)</p> <p>1.13 Prepare and strengthen health sector adaptation plans, including budgets and human resource requirements (Q2 2016)</p> <p>1.14 In cooperation with relevant government agencies, identify and prioritize investments to address health impacts of climate change, including climate-resilient infrastructure in each country (Q1–Q3 2016)</p> <p>1.15 Prepare prefeasibility studies for each country on climate change adaptation in the health sector, and assess potential for cofinancing, including the private sector (2017–2018)</p> <p>2. Human resource skills in coping with climate change adaptation in the health sector strengthened.</p> <p>2.1 Analyze capacities of current public health training, health systems, and workforce in each country, and provide recommendations on how to respond to climate change-related health risks (Q4 2015)</p> <p>2.2 Prepare technical guidelines for climate change adaptation in the health sector (Q3 2016)</p> <p>2.3 Human resources for health and climate change adaptation plan developed (Q3 2016)</p> <p>2.4 Make recommendations for inclusion of climate change adaptation in national climate change and public health training curricula (Q3 2016)</p> <p>2.5 Conduct regional inception, midterm, and final workshops and consultation meetings (2015–2018)</p> <p>2.6 Assess health systems, research, and academic capacities in each country to respond to climate change (Q1 2016)</p> <p>2.7 Work with existing health impact assessment institutions to assess guidelines and implementation practices to determine if they are well suited for climate change adaptation (Q4 2015)</p> <p>2.8 Adopt existing training modules on surveillance, early warning, environment, and health in the context of each country (Q4 2016)</p> <p>2.9 Organize and conduct training for at least 300 staff (Q2 2018)</p> <p>3. Knowledge products shared and advocacy promoted</p> <p>3.1 Provide technical advice and support to health and other sector departments, the private sector, and other implementing national and regional preparedness measures related to health effects on climate change (Q1–Q4 2016)</p> <p>3.2 Prepare communication plans for health-related aspects of climate change, including risks and ways to reduce them (Q1 2016)</p> <p>3.3 Develop partnerships with the government and private sector, research institutions, and multilateral and bilateral organizations to more effectively address GMS health aspects of climate change (2016–2018)</p> <p>3.4 Train professional staff of government and private sector on national health adaptation strategies</p> <p>3.5 Conduct a Nordic seminar on climate change and health in a Nordic country, as well as one seminar to share experiences in a GMS country with other NDF-funded World Bank projects on climate change and health (Q1 2017–Q1 2018)</p> <p>3.6 Prepare and organize high-level advocacy meetings with public and private sector stakeholders (2016–2018)</p> <p>3.7 Prepare working papers and/or publications in cooperation with leading research institutions on climate change and public health (2016–2018)</p>	
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ADB = Asian Development Bank, GMS = Greater Mekong Subregion, MOH = Ministry of Health, NDF = Nordic Development Fund, TA = technical assistance.

Note: The amount of €4,000,000 is equivalent to \$4,360,000 based on an exchange rate of \$1.09 on 25 March 2015. The amount of €4,000,000 is subject to currency fluctuations based on the date of conversion.

Source: Asian Development Bank.

COST ESTIMATES AND FINANCING PLAN
(\$'000)

Item	Amount
Nordic Development Fund^a	
1. Consultants	
a. Remuneration and per diem	
i. International consultants	1,060.0
ii. National consultants	470.0
b. International and local travel	140.0
c. Reports and communications	60.0
2. Asian Development Bank's administration fee	250.0
3. Resource persons ^b	130.0
4. Equipment ^c	450.0
5. Seminars, workshops, and conferences ^d	530.0
6. Training	470.0
7. Diagnostic studies and surveys	75.0
8. Reports and dissemination	25.0
9. Miscellaneous administration and support costs ^e	240.0
10. Contingencies	460.0
Total	4,360.0

Notes: (i) The technical assistance (TA) is estimated to cost \$4,410,000, of which €4,000,000 will be financed by the Nordic Development Fund (NDF) on a grant basis. The NDF will provide funds in euros (€). The governments of Cambodia, the Lao People's Democratic Republic, and Viet Nam will provide counterpart support in the form of staff, office accommodation and utilities, and other in-kind contributions.

(ii) The amount of €4,000,000 is equivalent to \$4,360,000 based on an exchange rate of \$1.09 on 25 March 2015. The amount of €4,000,000 is subject to currency fluctuations based on the date of conversion.

^a Administered by the Asian Development Bank. This amount also includes audit costs, bank charges, and a provision for foreign exchange fluctuations (if any) to the extent that these items are not covered by the interest and investment income earned on this grant.

^b Includes the recruitment of experts and scientists from universities and research institutes to lead advocacy events and activities related to climate modeling.

^c Includes office equipment, information and communication technology hardware and software, and health-related goods. Equipment will be turned over to government counterparts once the TA is completed. Office equipment to be used for project management will include computers and printers.

^d Includes logistic arrangements, venue rentals, travel of resource persons (including Asian Development Bank staff and experts), supplies, and materials that will be used in the seminars, meetings, and workshops. Costs will also cover a seminar organized in a Nordic country and in the GMS to share experiences with other climate change and health projects funded by the Nordic Development Fund. This may include limited representation expenses where there are directly identifiable costs under the TA.

^e Includes costs related to translation, administrative staff, office stationery, and communication.

Source: Asian Development Bank estimates.

OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

1. The technical assistance (TA), to be implemented from 1 August 2015 to 31 December 2018, will strengthen the national and regional capacities of Cambodia, the Lao People's Democratic Republic, and Viet Nam to cope with adverse health impacts of climate change. An advisory technical committee will be established with members from relevant ministries (environment, agriculture, health), representatives from the national climate change and disaster management working groups and research institutes, and development partners to provide guidance in each country, and to ensure the coordination of project activities. The TA will require about 58 person-months of international consultants and 243 person-months of national consultants.

2. A team of international and national consultants, to be provided by a consulting firm, will assist the team leader in coordinating the consulting inputs and facilitating efficient and effective use of resources. The consulting firm will be selected on the basis of the quality- and cost-based selection method in accordance with the Asian Development Bank (ADB) Guidelines on the Use of Consultants (2013, as amended from time to time). All consultants, except those engaged as resource persons, will be recruited through a firm using the quality- and cost-based selection method with a quality–cost ratio of 90:10. Short-listed firms will be required to submit full technical proposals. The TA will support about nine national administrative staff, including administrators, accountants, and translators in each country. Equipment under the TA will be procured by each country's Ministry of Health (MOH) in accordance with ADB's Procurement Guidelines (2013, amended from time to time), and retained by the implementing agencies upon completion of the TA. TA funds for administration, training, regional meetings, workshops, and study tours will be managed under the consulting firm's contract.

3. The TA will be implemented in a participatory manner, and the consultants will ensure that they hold regular consultations with relevant stakeholders, including research institutions in the three countries. The consultants will undertake field visits and review, assess, compile, and/or collate data on the current status of ongoing climate change adaptation work in the health sector. In addition, they will document lessons learned and experience gained, and ensure that these are fully reflected in proposed TA activities. The consultant team will be responsible for preparing relevant training modules and prefeasibility studies in at least two countries. A regional inception workshop will be held in September 2015, and the inception report will describe the preliminary findings and recommended revision of the TA work plan and deliverables that are expected by the midterm workshop in June 2017.

A. International Consultants

4. **Public health expert and technical assistance coordinator** (estimated at 20 person-months, intermittent). The coordinator will provide thought leadership and strategic guidance for the entire TA and will support the development of national adaptation plans and lead high-level advocacy meetings. The coordinator will be an accomplished public health expert with a degree in medical sciences or equivalent; a Master's or doctorate degree in public health, epidemiology, or equivalent; at least 15 years of relevant experience in disease surveillance; and excellent knowledge of climate change-related aspects in public health. Experience in working with the public and private sectors is essential. Excellent knowledge of written and spoken English is a must. Tasks include:

- (i) ensure delivery of all outputs;
- (ii) ensure proper collection of epidemiological data;
- (iii) lead planning and conduct of regional workshops;
- (iv) lead high-level advocacy meetings with the public and private sectors;
- (v) ensure the adequacy and quality of regional training interventions;

- (vi) coordinate the preparation of prefeasibility studies;
- (vii) coordinate logistics for capacity development and knowledge sharing;
- (viii) ensure adequate communication between MOH departments and related ministries (such as environment);
- (ix) ensure monitoring of the project activities, as per the design and monitoring framework;
- (x) ensure implementation of gender mainstreaming;
- (xi) liaise with existing coordination forums on climate change in the three countries;
- (xii) coordinate with health economist inputs for prefeasibility studies on investment opportunities for climate change adaptation in the health sector;
- (xiii) coordinate inputs for prefeasibility studies, and identify possible cofinancing, including from the private sector, in cooperation with the health economist;
- (xiv) prepare project reports and compile inputs of different consultants;
- (xv) participate in review missions to assess TA progress; and
- (xvi) supervise national consultant inputs.

5. **Expert on climate change adaptation and health sector** (estimated at 15 person-months, intermittent). The expert must have experience in the design of climate change projects in the health sector. The expert will work in close coordination with the national epidemiologists to analyze epidemiological data and will be able to analyze climate change data and produce succinct written reports. In cooperation with the training specialist, the expert will prepare training modules, and in cooperation with the health economist, the expert will prepare an assessment on potential future investment opportunities on climate change in public health, outlining climate-resilient infrastructure and exploring private sector financing opportunities for the national and regional levels. Tasks include:

- (i) coordinate the analysis of disease prevalence and incidence;
- (ii) ensure proper collection of epidemiological data and supervise national consultants;
- (iii) identify data gaps and offer advice on approaches to estimate prevalence and incidence rates;
- (iv) lead preparation of training modules on climate change and public health;
- (v) review relevant national documents such as national climate change strategies;
- (vi) prepare working papers that identify, assess, and determine investments and financial flows necessary to address climate change in the health sector;
- (vii) lead preparation of prefeasibility studies;
- (viii) prioritize capacity building needs of decision makers and technical staff in each country's ministry of health and selected provinces to contribute to building long-term capacity; and
- (ix) develop advocacy materials for decision makers.

6. **Expert on climate change modeling** (estimated at 4 person-months, intermittent). The expert must have at least 8 years of experience on climate modeling and be familiar with geographic information systems. The expert will develop a regional model for examining potential health impacts from climate change, with more detailed information for the three countries covered under the TA. The model should predict health impacts of climate change at 5, 10, and 20 years for consideration in health planning and in the prioritization of adaptation actions for population health. The model should be transparent, incorporate a geographic information system, be based on open source or commonly available software, and be easily tested and updated. The expert will determine the best institutional home for public access to the model (e.g., academic or research institutes) given underlying capacities and interests, and the expert will work together in climate modeling development to build lasting capacities to support MOH interests. Tasks include:

- (i) identify appropriate partner institutes for the modeling exercise,

- (ii) develop the model based on other successful models currently in use,
- (iii) test model,
- (iv) provide country-specific and regional analysis of impacts based on modeling exercise, and
- (v) work with health and other authorities to understand the model and its outcomes.

7. **Health economist** (estimated at 6 person-months, intermittent). The economist must have at least 10 years of working experience in economic impact assessment related to climate change, including cost and benefit analysis of specific health interventions to protect health from climate change, preferably in Asia. Tasks include:

- (i) compare the health costs and benefits of specific health interventions outlined in the national action plans for climate change adaptation in the public health sector,
- (ii) conduct an economic evaluation examining the costs and benefits of health adaptation in relation to averting health risks of climate change to guide decision making,
- (iii) support the climate change adaptation specialist through economic evaluation studies to prioritize investments in each country that most efficiently address the rising burden from climate-sensitive diseases,
- (iv) assess the readiness of the health sector for public–private partnerships (PPPs) and the expected level of demand for various health services addressing climate change-related health risks,
- (v) assist the climate change adaptation specialist in the preparation of prefeasibility studies, and
- (vi) prepare preliminary financial and economic analysis for potential investment projects.

8. **Training specialist** (estimated at 4 person-months, intermittent). The specialist must have at least 10 years of experience in preparing training modules and conducting training for technical-level health staff in Southeast Asia, and must be familiar with the latest training methodologies. Tasks include:

- (i) undertake institutional capacity assessment, including training needs assessment, to address climate change adaptations in public health;
- (ii) lead the development of training modules and the organization of regional training events;
- (iii) organize and lead regional trainings and workshops;
- (iv) conduct post-training evaluation; and
- (v) provide country-specific recommendations on mainstreaming climate change adaptation training in public health.

9. **Expert on public–private partnerships** (estimated at 3 person-months, intermittent). The expert must have at least 10 years of international experience in undertaking PPPs and developing proposals for the health sector in Asia. Tasks include:

- (i) work with the MOHs to provide recommendations for PPP development to develop a potential project pipeline,
- (ii) develop guidelines on the preparation of prefeasibility studies,
- (iii) help the team leader to identify and prepare prefeasibility studies, and
- (iv) help organize and administer workshops related to PPP.

10. **Data management specialist** (estimated at 6 person-months, intermittent). The specialist will have at least 5 years of working experience in epidemiological data processing and analysis, preferably related to climate change in the health sector. The specialist will help to improve current mapping systems to show the impact of climate change on health at national and subnational levels, and support the MOHs in the three countries to identify a set of data

measuring the impact of climate change on health. The specialist will, based on existing mapping, prepare detailed maps with regard to health hazards expected by climate change and extreme weather in each country.

11. **Resource persons.** Leading experts from universities, research institutes, and think-tanks on climate change, public health, and science will be recruited to support high-level advocacy events and regional conferences.

B. National Consultants

12. **Public health experts and deputy team leaders** (estimated at 90 person-months; for three countries). The public health expert in each country will support the international TA coordinator and the climate change adaptation specialist in the day-to-day management of TA implementation, including by (i) reviewing national documents related to climate change adaptation in the public health sector; (ii) assisting in the preparation of training modules on adaptation in the health sector; (iii) reviewing, identifying, designing, and preparing feasibility studies; and (iv) preparing plans for scaling up and replicating TA outcomes, including costing.

13. **Epidemiologists** (estimated at 108 person-months; for three countries). The epidemiologists will be responsible for country epidemiological data collection and analysis to support the work of the international experts on climate change adaptation and climate change modeling.

14. **Gender and community specialists** (estimated at 30 person-months, intermittent; for three countries). The consultants will help in the collection and analysis of disaggregated data related to gender and ethnic minority groups as part of country vulnerability and adaptation assessments in 12 high risk provinces and inputs on training modules. The consultants will review national policies and programs on climate change and health, and provide recommendations on how particular vulnerable women including migrants and ethnic minority groups will be targeted in national health adaptation plans to reduce vulnerability to climate change related health risks. The consultants will work closely with the expert on climate change adaptation and training specialists

15. **Communications and knowledge management specialist** (estimated at 15 person-months, intermittent; for three countries). The specialist will have at least 8 years of experience in communication and knowledge management in health, and a strong command of English. Tasks include:

- (i) assist in the preparation of workshops, background papers, and consultative meetings;
- (ii) oversee the development and maintenance of websites related to climate change in public health;
- (iii) develop international and external communications strategies, including high-level advocacy for various stakeholders; and
- (iv) assist the team leader and climate change adaptation specialist in the dissemination of TA outputs.

C. Reporting

16. Five technical progress reports will be submitted to ADB and the Nordic Development Fund. The draft inception report will be submitted 2 weeks before the inception workshop, and the final inception report will summarize initial findings, including a description of potential pilots and an implementation plan. The consulting team will support the implementing agencies in the preparation of quarterly progress reports outlining progress, delays, and issues.