



Board of Directors

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Technical Assistance
Strengthening Climate and Disaster Resilience of
Myanmar Communities
(Financed by the Government of Canada)
(Myanmar)

The attached report is circulated for the information of the Board. The President approved the technical assistance on 31 March 2017.

For Inquiries: S. Dina, Myanmar Resident Mission
(Ext. 5570)
A. Sinha Roy, Sustainable Development and Climate Change Department
(Ext. 1955)



Technical Assistance Report

Project Number: 50403-001
Capacity Development Technical Assistance (CDTA)
March 2017

Republic of the Union of Myanmar: Strengthening Climate and Disaster Resilience of Myanmar Communities (Financed by the Government of Canada)

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Asian Development Bank

CURRENCY EQUIVALENTS

(as of 14 March 2017)

Currency unit	–	kyat (MMK)
MMK1.00	=	\$0.0007342144
\$1.00	=	MMK 1,362.00

ABBREVIATIONS

ADB	–	Asian Development Bank
CCA	–	climate change adaptation
DRF	–	disaster risk financing
DRM	–	disaster risk management
GIS	–	geographic information system
MSWRR	–	Ministry of Social Welfare, Relief, and Resettlement
TA	–	technical assistance

NOTE

In this report, “\$” refers to US dollars.

Vice-President	S. Groff, Operations 2
Director General	J. Nugent, Southeast Asia Department (SERD)
Directors	P. Bhandari, Climate Change and Disaster Risk Management Division, Sustainable Development and Climate Change Department (SDCC)
Officer-in-Charge	Yumiko Tamura, Principal Country Specialist, SERD
Team leaders	S. Dina, Natural Resources and Agriculture Specialist, SERD A. Sinha Roy, Senior Disaster Risk Management Specialist (Climate Change Adaptation), SDCC
Team members	C. Benson, Principal Disaster Risk Management Specialist, SDCC M. Katagami, Principal Natural Resources and Agriculture Specialist, SDCC K. Wynn, Associate Safeguards Officer, SERD
Peer reviewer	S. Teoh, Country Specialist, SERD

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CAPACITY DEVELOPMENT TECHNICAL ASSISTANCE AT A GLANCE

1. Basic Data		Project Number: 50403-001	
Project Name	Strengthening Climate and Disaster Resilience of Myanmar Communities	Department /Division	SERD/MYRM
Country	Republic of the Union of Myanmar	Executing Agency	Ministry of Social Welfare, Relief and Resettlement
2. Sector		Subsector(s)	
✓ Public sector management	Public expenditure and fiscal management	Financing (\$ million)	
Agriculture, natural resources and rural development	Agricultural policy, institutional and capacity development	3.75	
		Total	
		7.50	
3. Strategic Agenda		Subcomponents	
Inclusive economic growth (IEG)	Pillar 2: Access to economic opportunities, including jobs, made more inclusive	Climate Change Information	
Environmentally sustainable growth (ESG)	Disaster risk management	Climate Change impact on the Project	Low
Regional integration (RCI)	Pillar 4: Other regional public goods		
4. Drivers of Change		Components	
Governance and capacity development (GCD)	Institutional development	Gender Equity and Mainstreaming	
Knowledge solutions (KNS)	Pilot-testing innovation and learning	Effective gender mainstreaming (EGM)	✓
Partnerships (PAR)	Bilateral institutions (not client government) Official cofinancing		
5. Poverty and SDG Targeting		Location Impact	
Geographic Targeting	Yes	Not Applicable	
Household Targeting	No		
SDG Targeting	Yes		
SDG Goals	SDG13		
6. TA Category:		A	
7. Safeguard Categorization Not Applicable			
8. Financing			
Modality and Sources		Amount (\$ million)	
ADB		0.00	
None		0.00	
Cofinancing		7.50	
Government of Canada		7.50	
Counterpart		0.00	
None		0.00	
Total		7.50	
9. Effective Development Cooperation			
Use of country procurement systems		No	
Use of country public financial management systems		No	

I. INTRODUCTION

1. Myanmar is vulnerable to natural hazard-related disasters. Between 1980 and 2015, disasters in Myanmar caused about 140,000 deaths and affected the lives of more than 5 million people.¹ Accordingly, the Government of Myanmar has identified in its disaster risk management (DRM) and climate change adaptation (CCA)-related policy frameworks the need for capacity-building support in different sectors. The Asian Development Bank (ADB) has supported the government's development of a National Framework for Community Disaster Resilience and implementation of post-disaster recovery projects involving community-based interventions.²

2. The technical assistance (TA) responds to the government's request and will contribute to the implementation of its priorities, as well as the implementation of ADB's Operational Plan for Integrated Disaster Risk Management, 2014–2020 and ADB's Financial Sector Operational Plan.³ The TA will complement ongoing and future ADB investments and initiatives of other development partners.⁴

3. The TA's proposed impact, outcome, outputs, implementation arrangements, cost, financing arrangements, and terms of reference for consultants were discussed and agreed with government agencies during a TA fact-finding mission fielded 24–28 October 2016 in Nay Pyi Taw.⁵ The TA is included in ADB's country operations business plan, 2017–2019 for Myanmar. The design and monitoring framework is in Appendix 1.

II. ISSUES

4. Disasters triggered by natural hazards—floods, tropical cyclones, landslides, and droughts—affect a significant share of Myanmar's population and the country's economy. The poorer community members are often worst impacted by the disasters. The interaction of natural hazards with socioeconomic vulnerabilities creates considerable disaster risk. For example, women are likely to be more vulnerable to natural hazards—reflecting their limited access to land ownership, finances, trainings, and information and communication technology. Additionally, climate change is altering the hazard patterns in Myanmar, thereby further increasing disaster risk. It is anticipated that the potential climate change impacts could lead to higher hazard levels for tropical cyclones, floods, and extreme temperature and drought.

5. During the last decade, the government has strengthened its policy landscape for DRM and CCA, which demonstrates its commitment to manage climate and disaster risk.⁶ However,

¹ Centre for Research on the Epidemiology of Disasters. The International Disaster Database. www.emdat.be (accessed 31 January 2017).

² Government of Myanmar. 2017. *Myanmar National Framework for Community Disaster Resilience*, Nay Pyi Taw; ADB. 2016. *Report and Recommendation of the President to the Board of Directors: Proposed Administration of Grant to the Republic of the Union of Myanmar for Emergency Support for Chin State Livelihood Restoration Project*. Manila

³ Categorized as knowledge and support technical assistance under the new staff instructions effective 13 March 2017.

⁴ ADB. 2013. *Proposed Grant Assistance to Myanmar for Enhancing Rural Livelihoods and Incomes*. Manila; Examples of other development partners' initiatives include: (i) Livelihoods and Food Security Trust Fund's support on village development planning, and (ii) the World Bank's Southeast Asia Disaster Resilience Insurance Program.

⁵ The TA first appeared in the business opportunities section of ADB's website on 14 February 2017.

⁶ Examples of policy achievements include the adoption of the National Disaster Management Law, 2013; formulation of the Myanmar Action Plan on Disaster Risk Reduction and the National Adaptation Programme of Action, 2009; ongoing development of the Nationally Determined Contribution; ongoing formulation of the National Climate Change Strategy; and establishment of the National Disaster Management Fund.

capacity gaps remain within the government, particularly in (i) understanding climate and disaster risks, as agencies lack the capacity to assess the spatial and temporal nature of climate and disaster risk and use such information for resilience-related planning, and to observe, analyze, predict, and provide early warning services for climate-related hazards; (ii) utilizing climate and disaster risk information for decision making, or utilizing climate and disaster risk information to identify resilience-related investments in the agriculture and rural development sector, and ensuring that weather, climate, and hydrological forecasts reach the last mile and help in decision making of the farmers and the rural communities;⁷ and (iii) utilizing climate and disaster risk information for improving financial preparedness to manage residual disaster risk, as there are limited efforts to assess disaster risk from a financial perspective and accordingly develop disaster risk financing (DRF) instruments ex-ante for post-disaster response.⁸

6. Addressing such issues requires interagency cooperation and long-term capacity building of government agencies—including national focal agencies for DRM, CCA, planning, and finance—and sector agencies to better understand current and future implications of climate and disaster risk on achieving development objectives; and utilizing such information for resilience planning and identifying investments, including those to strengthen financial resilience. Moreover, recognizing the novelty of undertaking climate- and disaster-risk-informed decision making, especially at the local level, there is an urgent need for pilot testing at the subnational level to demonstrate this approach and learn lessons for scaling up.

7. The proposed TA will support national-level institutional capacity development as well as local pilot testing of innovative approaches. The Ayeyarwady Region has been selected for the pilot testing in view of government priorities as well as high disaster risks, potential impacts of climate change, socioeconomic vulnerabilities and dependence on climate-sensitive livelihoods in this Region.⁹ The pilot testing will be implemented at the community level and will align with priorities of the Myanmar National Framework for Community Disaster Resilience related to agriculture, rural development, and financial inclusion. Within Ayeyarwady Region, activities will be implemented in selected villages of Pathein and Ngapudaw townships to ensure synergies with existing microfinance institutions and ongoing projects.

⁷ The Department of Hydrology and Meteorology provides a range of weather and climate forecast products (i.e., seasonal outlook, monthly weather, 10-day weather, and daily weather forecast) and hydrological forecasts (i.e., long-range flood forecast, monthly forecast, 10-day forecast, and daily water-level forecast). However, significant gaps remain to enhance the forecast resolution, both spatial and temporal, and its application.

⁸ The primary in-advance DRF instrument in use is the budgetary reserve for post-disaster response, which is insufficient and requires the government to rely on international assistance and budget reallocations in the event of major disasters. Moreover, the limited financial capacity of farmers to manage disaster risk—including highly limited insurance coverage—places additional contingent liability on government.

⁹ The Ayeyarwady Region was one of the five regions declared disaster areas by the Government of Myanmar after Cyclone Nargis.

III. THE CAPACITY DEVELOPMENT TECHNICAL ASSISTANCE

A. Impact and Outcome

8. The impact will be increased capacity of government for strengthening resilience, including financial resilience, to extreme weather events in Myanmar. The outcome will be strengthened climate and disaster risk governance at the national level and in Ayeyarwady region in Myanmar. To achieve the outcome, the TA will adopt a comprehensive approach of combining disaster risk reduction, CCA, and DRF. Activities will be implemented primarily at the national level and at pilot sites in Ayeyarwady Region.

B. Methodology and Key Activities

9. The TA will include three outputs.

10. **Output 1: Improved capacity in government agencies at the national level and in Ayeyarwady region to understand climate and disaster risk.** This output will help strengthen government officials' understanding of climate and disaster risk—and its potential impacts on the poor and vulnerable—at the national level and for Ayeyarwady, thus increasing the political will to prioritize risk-informed investments to strengthen resilience, including financial planning for post-disaster response. The output will (i) strengthen the capacity of national-level government institutions responsible for DRM and CCA to better understand risks from extreme weather events;¹⁰ (ii) undertake disaster risk modeling at the national level and for Ayeyarwady;¹¹ (iii) support the development of a DRM plan and a recovery guide at the national level, and a DRM plan for Ayeyarwady; (iv) install hydrometeorological stations (at least 10) in Ayeyarwady to improve government capacity to produce improved hydrometeorological forecasts of different timescales and enhance early warning systems; and (v) improve government capacity at the national level and in Ayeyarwady to systematically collect disaster loss data.

11. **Output 2: Enhanced capacity of government agencies at the national level and of selected communities in Ayeyarwady region to undertake disaster-resilient investments in the agriculture and rural development sector.** With a majority of poor and vulnerable people living in Myanmar's rural areas—and given their high dependence on climate-sensitive livelihoods—it is critical to build capacity at all levels to use climate and disaster risk information to protect development gains and prioritize investments that would strengthen resilience. This output will (i) support the development of a decision-making tool for the Ministry of Agriculture, Livestock, and Irrigation staff, undertaking the necessary capacity building for agriculture and rural development-related government agencies to systematically use climate and disaster risk information to plan, identify, and prioritize investments;¹² (ii) pilot test the use of mid- and long-range climate information for agriculture planning through capacity strengthening of field-level government officials and selected rural community members, especially women, in Ayeyarwady;¹³ and (iii) pilot test the integration of disaster and climate risk considerations in village development planning processes and implementation of selected non-structural,

¹⁰ TA trainings will be implemented through the government's national disaster management training center, where appropriate. This will contribute to strengthening the capacity of trainers in the center and overall TA sustainability.

¹¹ This will include using advanced technology such as earth-observation data, crowdsourcing and community mapping techniques, and an open-source geographical information system platform for data visualization.

¹² Preferably using an open-source geographic information system platform.

¹³ Including, where needed, the installation of agrometeorological stations in the pilot areas.

community investments to strengthen resilience of selected vulnerable rural communities in Ayeyarwady.¹⁴

12. Output 3: Increased awareness and capacity for disaster risk financing among government and the private sector in Myanmar. This output will build capacity of the government and financial institutions to adopt a comprehensive approach to identify and develop a national DRF strategy based on a thorough understanding and quantification of disaster risk (undertaken in output 1). The output will (i) support the development of a national DRF strategy based on a risk-layered approach that will recommend suitable financing instruments—including insurance (such as microinsurance, agricultural insurance, small and medium-sized enterprises insurance, and portfolio insurance of microfinance institutions), depending on the needs of the most vulnerable and capacities of policyholders and the insurance sector—and how such instruments can be piloted; (ii) undertake review of the enabling environment, including policy and regulatory challenges, for disaster risk insurance; (iii) strengthen awareness and capacity of government and financial institutions, including the insurance regulator, on DRF; and (iv) in collaboration with a selected microfinance organization in Ayeyarwady, pilot test new instruments to strengthen the resilience of its clients, especially women, including improved resilience-enhancing credit products, disaster microinsurance products, and a scheme for recovery lending.

13. Risks. Risks include that (i) investments in CCA and DRM are sidelined with other development priorities based on short-term agendas, thereby reducing the use of TA-developed information and tools; and (ii) disaster risk information of appropriate quality and scale is not available or is difficult to collect, especially in conflict-affected areas. To mitigate the risks, the TA will (i) undertake regular dialogue with high-level decision makers and (ii) adopt a wide range of technologies—including high-resolution, earth-observation data and other ground validation methods—to collect climate and disaster risk information.

C. Cost and Financing

14. The TA is estimated to cost \$7,600,000, of which \$7,500,000 will be financed on a grant basis by the Government of Canada. The rest will be provided by the Government of Myanmar in the form of counterpart staff, office space, data, maps, and other in-kind contributions. The cost estimates and financing plan are in Appendix 2.

D. Implementation Arrangements

15. The TA will be implemented from April 2017 to March 2021. The executing agency will be the Ministry of Social Welfare, Relief, and Resettlement (MSWRR). The implementing agencies will be MSWRR for output 1; the Ministry of Agriculture, Livestock, and Irrigation for output 2; and the Ministry of Planning and Finance for output 3. TA administration will not be delegated but carried out by ADB following its standard policies and procedures. Within ADB, the Myanmar Resident Mission and the Southeast Asia Department will take the lead in TA administration, with technical support from the Climate Change and Disaster Risk Management Division, Sustainable Development and Climate Change Department.

16. A TA steering committee will be established to provide high-level policy directions for TA implementation. The committee, chaired by MSWRR, will meet every quarter and will include

¹⁴ Examples of nonstructural, community-level investments are trainings on resilient livelihoods, disaster resilient construction techniques, capacity building for early warning systems, equipment for disaster response, ecosystem-based interventions, and awareness raising on DRM and CCA.

the Department of Relief and Resettlement and Department of Social Welfare, MSWRR; Department of Meteorology and Hydrology, Ministry of Transport; Environmental Conservation Department, Ministry of Natural Resources and Environmental Conservation; Department of Agriculture and Department of Rural Development, Ministry of Agriculture, Livestock, and Irrigation; Planning Department, Budget Department, and Myanma Insurance, Ministry of Planning and Finance; and ADB.

17. The TA will require about 169 person-months of international and 158 person-months of national consulting services with expertise in various aspects of DRM. ADB will engage the international DRM coordinator, international DRM and gender specialist, national DRM coordinator, and national DRM gender expert on an individual basis and the remaining consultants through firms, following the Guidelines on the Use of Consultants (2013, as amended from time to time). It is proposed to have a maximum of four packages for consulting firms based on the specialized skills required. The firms will be selected following quality- and cost-based selection method, and using a simplified or full technical proposal. Where appropriate, the consultants will be engaged on output-based (lump sum) contracts to reduce the administrative burden and improve the TA's economy, efficiency, and value for money. The outline terms of reference for the consultants are in Appendix 3. All TA disbursements will be made following ADB's *Technical Assistance Disbursement Handbook* (2010, as amended from time to time). Procedures for equipment procurement will be agreed with the government. Limited international bidding or direct contracting with a specialized supplier and installer might be considered. All procurement under the TA will be made following ADB's Procurement Guidelines (2015, as amended from time to time).

18. All TA outputs will be disseminated through government agency websites, the ADB corporate website, and workshops organized under the TA.

IV. THE PRESIDENT'S DECISION

19. The President, acting under the authority delegated by the Board, has approved ADB administering technical assistance not exceeding the equivalent of \$7,500,000 to the Republic of the Union of Myanmar to be financed on a grant basis by the Government of Canada for Strengthening Climate and Disaster Resilience of Myanmar Communities, and hereby reports this action to the Board.

DESIGN AND MONITORING FRAMEWORK

Impact the TA is Aligned with			
Increased capacity of government for strengthening resilience, including financial resilience, to extreme weather events in Myanmar ^a			
Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting	Risks
Outcome Climate and disaster risk governance at the national level and in Ayeyarwady region in Myanmar strengthened	a. The DRM plan for national level and for Ayeyarwady region, and the national disaster recovery guide implemented by 2020 (Baseline 2016: 0) b. Climate and disaster-resilient investments in the agriculture and rural development sector identified by the government by 2021 (Baseline 2016: 0) c. National DRF strategy developed by the government by 2020 (Baseline 2016: 0)	a1. National DRM plan, Government of Myanmar a2. Ayeyarwady DRM plan, Government of Ayeyarwady Region a3. National disaster recovery guide, Ministry of Social Welfare, Relief, and Resettlement b. Sector plans for agriculture and rural development, Ministry of Agriculture, Livestock, and Irrigation c. National DRF strategy, Government of Myanmar	Investments in disaster resilience are sidelined by other development priorities based on short-term agendas, thereby impacting the use of TA-developed information and tools. A major disaster disrupts TA implementation, especially in the Ayeyarwady region.
Outputs 1. Capacity in government agencies at the national level and in Ayeyarwady region to understand climate and disaster risk improved	1a. By 2020, four high-level sensitization workshops (20% female participation), and four trainings (30% female participation) on linking DRM and CCA held (Baseline 2016: NA) 1b. By 2019, one disaster risk modeling at national level and one for Ayeyarwady region undertaken, and results presented in an open-source platform (Baseline 2016: 0) 1c. By 2020, DRM plan and disaster recovery guide for national level and DRM plan for Ayeyarwady region developed (Baseline 2016: 0) 1d. By 2020, at least 10 new hydrometeorological stations installed, and one study tour,	1a.1. Workshop reports 1a.2. Training curriculum on DRM 1a.3. Training reports 1b.1. National disaster risk modeling report 1b.2. Ayeyarwady disaster risk modeling report 1b.3. Open-source platform 1c.1. National DRM plan 1c.2. National disaster recovery guide 1c.3. Ayeyarwady DRM plan 1d.1. Data from 10 new hydrometeorological stations; Department of	Disaster risk information of appropriate quality and scale is not available or is difficult to collect, especially in conflict-affected areas.

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting	Risks
<p>2. Capacity of government agencies at the national level and of selected communities in Ayeyarwady region to undertake disaster-resilient investments in the agriculture and rural development sector enhanced</p>	<p>three trainings (20% women participation) on early warning systems, and three trainings on disaster loss data (disaggregated by sex) held (Baseline 2016: NA)</p> <p>2a. By 2020, one decision-making tool developed, and six training courses (30% female participation) on use of climate and disaster risk information for agriculture and rural development held (Baseline 2016: NA)</p> <p>2b. By 2020, two pilot demonstrations implemented, one study tour conducted, and six trainings (40% female participation) on use of mid- and long-range climate information held (Baseline 2016: NA)</p> <p>2c. By 2020, nonstructural investments to strengthen disaster resilience implemented as part of village development planning by the communities (50% female participation), and 15 trainings (30% female participation) delivered (Baseline 2016: 0)</p>	<p>Hydrology and Meteorology</p> <p>1d.2. Study tour report</p> <p>1d.3. Training reports on collecting weather data</p> <p>1d.4. Myanmar Disaster Loss Database, Ministry of Social Welfare, Relief, and Resettlement</p> <p>1d.5. Training reports</p> <p>2a.1. Decision-making tool, Ministry of Agriculture, Livestock, and Irrigation</p> <p>2a.2. Training reports</p> <p>2b.1. Pilot demonstration reports</p> <p>2b.2. Knowledge publication on the role and benefits of women from the implementation of pilot demonstrations</p> <p>2b.3. Study tour report</p> <p>2b.4. Training reports</p> <p>2c. Report on 15 nonstructural community investments</p>	
<p>3. Awareness and capacity for DRF among government and the private sector in Myanmar increased</p>	<p>3a. By 2020, national DRF strategy developed through a consultative process (30% female participation) (Baseline 2016: 0)</p> <p>3b. By 2019, report on challenges for disaster risk insurance developed through a consultative process (30% female participation) (Baseline 2016: 0)</p> <p>3c. By 2020, four sensitization workshops, (30% female participation) and four</p>	<p>3a.1. National DRF strategy</p> <p>3a.2. Consultation workshop reports</p> <p>3b.1. Report on enabling environment for disaster risk insurance</p> <p>3b.2. Consultation workshop reports</p> <p>3c.1. Workshop reports</p> <p>3c.2. Training curriculum</p>	

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting	Risks
	<p>trainings (30% female participation) on DRF held (Baseline 2016: NA)</p> <p>3d. By 2021, one pilot on disaster-resilient microfinance implemented (50% female participation), and results disseminated through a workshop (30% female participation) (Baseline 2016: 0)</p>	<p>3c.3. Training reports</p> <p>3d.1. Disaster-resilient microfinance pilot report</p> <p>3d.2. Workshop report</p>	

Key Activities with Milestones

1. Improved capacity in government agencies at the national level and in Ayeyarwady region to understand climate and disaster risk

1.1 Workshop conducted, and training materials developed (Q3 2017, Q3 2018, Q3 2019, Q3 2020)

1.2 Consultations undertaken and data collected for disaster risk modeling (Q1 2018–Q2 2019)

1.3 Consultations undertaken and data collected for DRM plans and disaster recovery guide (Q1 2019–Q1 2020)

1.4 Study tour participants identified, training material developed, and weather data and disaster loss data collected (study tour Q3 2018; trainings Q4 2017, Q4 2018, Q4 2019)

2. Enhanced capacity of government agencies at the national level and of selected communities in Ayeyarwady region to undertake disaster-resilient investments in the agriculture and rural development sector

2.1 Training materials for decision-making tool developed (Q2 and Q4 2018, 2019, 2020)

2.2 Pilot communities identified, study tour participants identified, and pilot on use of mid- and long-range climate information undertaken (pilot Q2 2018–Q2 2019; study tour Q4 2018; and trainings Q3 and Q4 2018, 2019, 2020)

2.3 Pilot communities identified and nonstructural DRM priorities implemented (Q1 2018–Q4 2020)

3. Increased awareness and capacity for DRF among government and the private sector in Myanmar

3.1 Consultations undertaken for national DRF strategy (Q2 2018, Q4 2018, Q2 2019, Q4 2019)

3.2 Consultations undertaken and data collected for report on the enabling environment for disaster risk insurance (Q2 2018, Q1 2019, Q2 2019)

3.3 Workshop conducted and training materials developed (workshops Q1 of 2018–2021; trainings Q4 2019, Q2 2020, Q4 2020)

3.4 Pilot communities identified, pilot implemented, and dissemination workshop conducted (identification Q1 2018; pilot Q2 2018–Q2 2020; workshop Q3 2020)

TA Management Activities

Quarterly meetings of the TA steering committee; annual consultation meetings with the Government of Canada

Inputs

Government of Canada: \$7,500,000

Assumptions for Partner Financing

Partner financing is available as and when required during implementation.

CCA = climate change adaptation, DRF = disaster risk financing, DRM = disaster risk management, NA = not applicable, TA = technical assistance.

^a Defined by project.

Source: Asian Development Bank.

COST ESTIMATES AND FINANCING PLAN

(\$'000)

Item	Amount
Government of Canada^a	
1. Consultants	
a. Remuneration and per diem	
i. International consultants	3,747.5
ii. National consultants	811.5
b. International and local travel	308.0
2. Equipment ^b	400.0
3. Training, seminars, and conferences	
a. Training and workshops	452.0
b. Resource persons' travel (ADB staff)	48.0
4. Surveys	304.6
5. Miscellaneous administration and support costs	537.3
6. Contingencies	891.1
Total	7,500.0

ADB = Asian Development Bank.

Note: The technical assistance (TA) is estimated to cost \$7,600,000, of which contributions from the Government of Canada are presented in the table above. The Government of Myanmar will provide counterpart support in the form of counterpart staff, data, maps, and other in-kind contributions. The value of government contribution is estimated to account for 1.3% of the total TA cost.

^a Financing partner: the Government of Canada. Administered by ADB. This amount also includes ADB's administration fee, 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, or any additional grant from the Government of Canada.

^b Equipment includes hydrometeorological stations, early warning communication devices, a global positioning system, and surveying instruments. Equipment purchased under the TA will immediately be transferred to the executing agency and/or implementing agencies on purchase.

Source: ADB estimates.

OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

A. Introduction

1. The outline terms of reference for consultants describe the main tasks under this technical assistance (TA). The TA has three outputs: (i) improved capacity in the Government of Myanmar agencies at the national level and in Ayeyarwady region to understand climate and disaster risk; (ii) enhanced capacity of government agencies at the national level and of selected communities in Ayeyarwady region to undertake disaster-resilient investments in agriculture and rural development sector; and (iii) increased awareness and capacity for disaster risk financing (DRF) among government and the private sector in Myanmar. The TA will require 169 person-months of international and 158 person-months of national consulting services. It is proposed to engage four individual consultants and a maximum of four packages for consulting firms. The selection and engagement of consultants will follow the Guidelines on the Use of Consultants (2013, as amended from time to time) of the Asian Development Bank.

B. Individual Consultants

2. **Disaster risk management specialist and technical assistance coordinator** (1 international, 41 person-months, intermittent). The specialist should have a postgraduate degree in economics, engineering, development planning, or equivalent, preferably with 8 years of international experience in disaster risk management (DRM) and a good understanding of climate change adaptation (CCA). The specialist should have experience implementing similar projects in developing countries, preferably in Asia. Experience implementing DRM- and CCA-related projects in Myanmar is an advantage. The specialist will

- (i) support the executing agency in leading TA activity implementation, including coordination with the implementing agencies, TA steering committee, TA consultants, and other partners; reviewing all TA outputs; and ensuring timely achievement of all milestone activities;
- (ii) support the implementing agencies in leading the development, approval, and dissemination of TA outputs;
- (iii) lead the organization and delivery of high-level workshops;
- (iv) in collaboration with the national disaster management training center, lead the development and delivery of training courses on linking DRM and CCA, ensuring that gender considerations are factored into the course;
- (v) support the Ministry of Social Welfare, Relief, and Resettlement to formulate the national DRM plan and its office in Ayeyarwady to formulate the region's DRM plan based on the results of the disaster risk modeling work (undertaken by consulting services package 1);
- (vi) lead the development of the national recovery guide;
- (vii) ensure all project activities and outputs consider gender aspects;
- (viii) coordinate routinely with the Asian Development Bank project officer on TA progress, and be responsible for periodic and final project reports; and
- (ix) supervise the DRM gender specialist, DRM expert and technical assistance coordinator and gender expert.

3. **Disaster risk management gender specialist** (1 international, 3 person-months, intermittent). The specialist should have a postgraduate degree in gender studies, sociology, development planning, or equivalent, preferably with 8 years' experience in gender, development, and DRM. Experience working on gender and DRM projects in Myanmar is an advantage. Under the supervision of the international TA coordinator, the specialist will

- (i) support the implementing agencies, consultants, and national gender expert to develop broad guidance for conducting gender analysis and collection of sex-disaggregated data, and to ensure gender-related DRM concerns are addressed in all relevant TA outputs;
- (ii) review the gender-related TA case studies (especially of the pilots) and lessons learned documents developed by the national gender expert, and provide inputs; and
- (iii) guide the national gender expert in undertaking gender-related analysis in preparatory activities, and preparing periodic and final project reports.

4. **Disaster risk management expert and technical assistance coordinator** (1 national, 45 person-months, intermittent). The coordinator should be a national of Myanmar with a degree in economics, engineering, development planning, or equivalent, and preferably with 5 years' experience in DRM in Myanmar. The coordinator should be fluent in spoken and written English and Myanmar language. Under the supervision of the international TA coordinator and in collaboration with the DRM gender specialist, the coordinator, based in Nay Pyi Taw, will

- (i) support the executing agency in the day-to-day coordination with the implementing agencies, steering committee, consultants, and other partners, and the development of policy advocacy materials;
- (ii) support the Ministry of Social Welfare, Relief, and Resettlement and its office in Ayeyarwady to formulate the national and regional DRM plans by collecting the data and information needed, and to organize consultations with stakeholders;
- (iii) work with the national disaster management training center staff to collect data, information, and case studies for the training courses on linking DRM and CCA;
- (iv) support the development and delivery of training courses on linking DRM and CCA, and the finalization of training reports;
- (v) support the executing agency in organizing consultations on the development and dissemination of outputs, arranging trainings and study tours, and delivering trainings; and
- (vi) support the international TA coordinator in preparing periodic and final project report and in translating documents and key output findings.

5. **Gender expert** (1 national, 16 person-months, intermittent). The expert should be a national of Myanmar with a degree in gender studies, sociology, development planning, or equivalent, preferably with 5 years' experience in gender and development in Myanmar. Experience working on DRM projects is an advantage. The expert should be fluent in spoken and written English and Myanmar language. Under the supervision of the international TA coordinator, the expert will

- (i) coordinate with the executing agency and implementing agencies to ensure participation of women in all activities;
- (ii) support the implementing agencies and consultants in conducting gender analysis, collecting sex-disaggregated data, and ensuring gender-related DRM concerns are addressed in all relevant TA outputs;
- (iii) lead the development and dissemination of gender-related TA case studies (especially from the pilots) and lessons learned; and
- (iv) lead gender-related analysis in preparatory activities, and in periodic and final project reports.

C. Consulting Firms

6. Consulting services package 1: Disaster risk assessment specialists or experts.

The consulting firm will be responsible for the following outputs: (i) a national disaster risk modeling report, (ii) an Ayeyarwady disaster risk modeling report, and (iii) an open-source platform for disaster risk-related data. To deliver these, the package will include the following indicative positions:

- (i) disaster risk modeling specialist and team leader for consulting services package 1 (1 international, 8 person-months, intermittent);
- (ii) climate hazard modeling specialist for floods and tropical cyclones (1 international, 10 person-months, intermittent);
- (iii) exposure database geographic information system (GIS) specialist (1 international, 6 person-months, intermittent);
- (iv) vulnerability assessment specialist (1 international, 3 person-months, intermittent);
- (v) structural engineer (1 international, 3 person-months, intermittent);
- (vi) climate hazard expert (1 national, 6 person-months, intermittent);
- (vii) vulnerability assessment expert (1 national, 5 person-months, intermittent);
- (viii) civil engineer (1 national, 5 person-months, intermittent); and
- (ix) GIS expert (1 national, 6 person-months, intermittent).

7. Consulting services package 2: Disaster risk management specialists or experts in early warning, agriculture, and rural development.

The consulting firm will be responsible for the following outputs: (i) a decision-making tool for undertaking climate and disaster risk-sensitive investments in agriculture and rural development; (ii) trainings on the use of the decision-making tool; (iii) a pilot on the use of climate information by rural communities for agricultural planning, including delivering trainings, facilitating a study tour, and documenting results; and (iv) a pilot on integrating climate and disaster risk information in village development planning and supporting nonstructural, community-level investments. The firm will also be responsible for purchasing and immediately transferring equipment to the executing agency and/or implementing agencies. To deliver the outputs, the package will include the following indicative positions:

- (i) early warning specialist and floods and cyclones team leader for consulting services package 2 (1 international, 8 person-months, intermittent);
- (ii) hydrological forecast specialist (1 international, 4 person-months, intermittent);
- (iii) disaster database specialist (1 international, 3 person-months, intermittent);
- (iv) DRM and agriculture or rural development specialist (1 international, 9 person-months, intermittent);
- (v) disaster risk assessment specialist (1 international, 3 person-months, intermittent);
- (vi) water resources management specialist (1 international, 2 person-months, intermittent);
- (vii) GIS specialist (1 international, 2 person-months, intermittent);
- (viii) agrometeorologist (1 international, 9 person-months, intermittent);
- (ix) community disaster resilience specialist (1 international, 6 person-months, intermittent);
- (x) hydrometeorological forecasting expert (1 national, 9 person-months, intermittent);
- (xi) disaster database expert (1 national, 9 person-months, intermittent);
- (xii) DRM and rural development expert (1 national, 9 person-months, intermittent); and

(xiii) community disaster resilience expert (1 national, 9 person-months, intermittent).

8. **Consulting services package 3: Disaster risk financing specialists.** The consulting firm will be responsible for the following outputs: (i) a national DRF strategy, (ii) a report on the enabling environment for disaster risk insurance, and (iii) DRF sensitization workshops and trainings. To deliver the outputs, the package will include following indicative positions:

- (i) DRF specialist and team leader for consulting services package 3 (1 international, 7 person-months, intermittent);
- (ii) public financial management specialist (1 international, 6 person-months, intermittent);
- (iii) disaster risk insurance specialist (1 international, 6 person-months, intermittent);
- (iv) agriculture insurance specialist (1 international, 6 person-months, intermittent);
- (v) disaster microinsurance specialist (1 international, 2 person-months, intermittent);
- (vi) public financial management expert (1 national, 12 person-months, intermittent); and
- (vii) insurance expert (1 national, 9 person-months, intermittent)

9. **Consulting services package 4: Disaster resilient microfinance.** The consulting firm will be responsible for (i) implementing a pilot on disaster resilient microfinance, and (ii) documenting and disseminating the pilot findings. A microfinance institution that has a presence in Myanmar will be selected to implement this package. To deliver the output, the package will include following indicative positions:

- (i) disaster-resilient microfinance specialist and team leader for consulting services package 4 (1 international, 9 person-months, intermittent);
- (ii) climate risk specialist (1 international, 4 person-months, intermittent);
- (iii) disaster microinsurance specialist (1 international, 9 person-months, intermittent);
- (iv) disaster microinsurance expert (1 national, 9 person-months, intermittent); and
- (v) community resilience expert (1 national, 9 person-months, intermittent).