

Work Plan for Strengthening Institutional and Policy Framework on DRR and CCA Integration

I. Introduction

Disasters in Southeast Asia

The number of disasters occurring in ASEAN Member States, as shown in Figure 1, is increasing. Among them, a significant portion of these disasters are water-related or rain-induced, including storms, floods, landslides and droughts, as shown in Figure 2. The situation is getting worse with more intensive and frequent rainfalls. ASEAN suffers damage in excess of USD4.4 billion each year on average as a consequence of natural hazards (AADMER 2016). During the period of 2004 to 2014, the region contributed to more than 50% of the total global disaster fatalities, or 354,000 of the 700,000 deaths in disasters worldwide (ASEAN Vision 2025 on Disaster Management). With this new normal, there is a need to anticipate and prepare for the unknown, such as unprecedented risks and unanticipated affected areas, magnified by climate change (AADMER 2016).

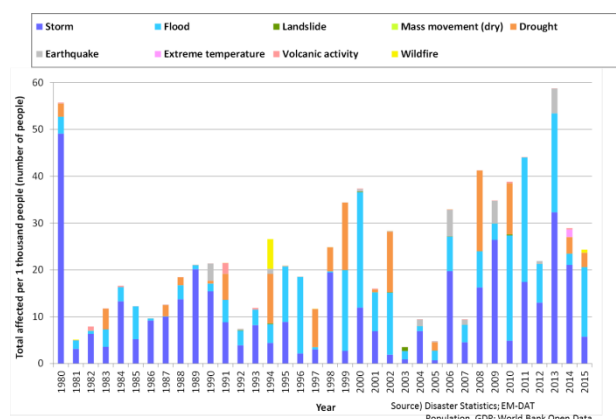


Figure 1 Number of disaster affected people in ASEAN Member States

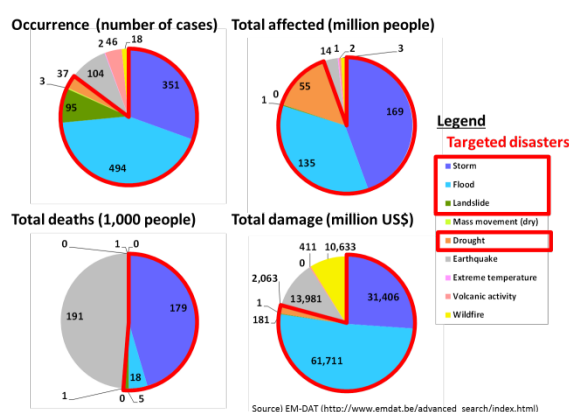


Figure 2 Types of disasters in ASEAN Member States in last 30 years (1987-2016)

Related decisions in ASEAN

In response to such challenges, ASEAN has agreed on a number of decisions related to disaster risk reduction (DRR) and climate change adaptation (CCA). With regard to DRR, **the ASEAN Committee on Disaster Management (ACDM)** established in 2003 developed **the ASEAN Agreement on Disaster Management and Emergency Response (AADMER)** in 2005 in association with **the Hyogo Framework for Action (HFA) 2005-2015**, a 10-year multi-stakeholder and multi-sectoral plan to invest in DRR as a means of building the disaster-resilient communities. **The AADMER Work Programme 2010-2015** laid the regional mechanisms for joint response and DRR at the regional level. During the Phase 1 (2010-2012), **the ASEAN Coordination Centre for Humanitarian Assistance on disaster management (AHA Centre)** was established in November 2011 as a main operation engine of the AADMER that currently serves as a chief regional body for disaster monitoring and coordinated response; and during the Phase 2 (2013-2015), 21 flagship and priority projects were identified for strengthening regional cooperation towards a disaster-resilient ASEAN community. Among them, the Concept Note No. 20 (CN20) is for “Strengthening Institutional and Policy Framework on DRR and CCA Integration”, which implementation is being supported by the JICA

Project Team currently in 2016-2017. The concept of strengthening institutional capacity and policy frameworks for effective implementation of DRR and CCA actions is succeeded in the Priority Programme No. 3. ADVANCE: A Disaster Resilient and Climate Adaptive ASEAN Community under **the AADMER Work Programme 2016-2020**, which corresponds to **the Sendai Framework for DRR 2015-2030**, the successor instrument to the HFA consisting of seven global targets and four priorities for actions. In association with that, the ASEAN also stressed its commitment in reinforcing complementarities of DRR, CC and sustainable development in the Joint Statement in March 2015.

With regard to CCA, **the ASEAN Action Plan on Joint Response to CC** was adopted in 2012 at the 12th ASEAN Ministers Meeting on Environment (AMME). In the action plan, sharing information on ongoing and planned efforts in hydrological management and practices that aim to enhance water resources sustainability and adaptation efforts in urban, rural and coastal areas; assessing CC impacts on socio-economic development and environmental protection; promoting regional climate information and data sharing in order to develop ASEAN CC impact scenarios; enhancing climate/meteorological/oceanographical observatory systems in the ASEAN region; and downscaling global climate models to produce CC impact scenarios at the regional, national and local levels, are stressed. All ASEAN Member States have also submitted Intended Nationally Determined Contributions (INDCs) to **the United Nations Framework Convention for Climate Change (UNFCCC)** Secretariat under **the Paris Agreement** in 2015 that outlines each national efforts and needs for CCA.

The Heads of States/Governments of the ASEAN also adopted **the Declaration on Institutionalising the Resilience of ASEAN and its Communities and Peoples to Disasters and Climate Change** at the 26th ASEAN Summit in Malaysia in April 2015. The Declaration stressed the importance of systematically mainstreaming disaster risk management (DRM) and CCA in relevant sectoral policies, strategies, plans, programmes, and projects; further institutionalising DRM and CCA at the national and local levels; encouraging all stakeholders to participate in planning and implementation; accelerating investments in disaster risk prevention and reduction and CCA focusing on key development sectors such as water management, ecosystems management, agriculture, education, infrastructure and construction, transport and telecommunication, and risk financing and risk transfer; addressing underlying risk drivers and compounding factors, such as CC and climate variability, uncontrolled urbanisation, ecosystem degradation, weak governance, limited risk management capacity especially at the local scale, poor management of urban and rural development, consequences of poverty and inequality; continue sharing and dissemination of risk and climate information to further support risk-informed policy development, decision-making and investment programming; allocating resources to strengthen disaster preparedness; and enhancing cooperation and collaboration among ASEAN Member States; among others, and assigned the ACDM as the focal point for cross-sectoral cooperation at regional level with the support of other relevant sectoral bodies.

In addition, all ASEAN Member States also adopted **the 17 Sustainable Development Goals (SDGs) of the 2030 Agenda for Sustainable Development** at the United Nations Summit in September 2015 that promote to build resilient infrastructure in Goal 9; make cities and human settlement inclusive, safe, resilient and sustainable in Goal 11 by significantly reducing the number of deaths and the number of people affected caused by disasters, including water-related disasters; and take urgent action to combat CC and its impacts in Goal 13 by strengthening resilience and adaptive capacity to climate-related hazards and natural disasters and integrating CC measures into national policies, strategies and planning.

II. Project for Strengthening Institutional and Policy Framework on DRR and CCA Integration (CN20 Project)

The Concept Note No. 20 (CN20) of the ASEAN Agreement on Disaster Management and Emergency Response (AADMER) Work Programme 2013-2015 focuses on Strengthening Institutional and Policy Framework on DRR and CCA Integration with following aims, objectives and expected outputs:

Aims:

- (i) Strengthen institutional and policy frameworks for DRR and CCA;
- (ii) Enhance the integrated planning for DRR through the implementation of national development plans and action plans that integrate DRR and CCA at all level; and
- (iii) Build partnership in linking DRR and CCA at all levels.

Specific objectives:

- (a) Promote the development of umbrella laws and regulations that govern the integration and synchronisation of DRR and CCA in Member States;
- (b) Foster relationships between national ministries and agencies responsible for DRR and CCA;
- (c) Facilitate the establishment of a clear institutional and policy framework on DRR and CCA integration in Member States;
- (d) Strengthen participatory risk assessment, incorporating disaster and climate risks as a basis for decision-making;
- (e) Promote the development of joint funding mechanisms for both DRR and CCA at the national level; and
- (f) Support joint training, meetings, and other opportunities for increased interaction and cooperation.

Expected outputs:

1. Documentation of good practices in institutional strengthening and policy development on linking DRR and CCA in ASEAN Member States
2. Assessment of the implementation of national action plans on DRR and CCA and the effectiveness of national platforms
3. Senior official-level roundtable discussions on policy and programme interventions to strengthen the connection and coherence of DRR and CCA efforts at all level

The concept was succeeded in the **AADMER Work Programme 2016-2020** as Component 1. Strengthening institutional capacity and policy frameworks for effective implementation of DRR and CCA actions of the **Priority Programme No. 3 ADVANCE: A Disaster Resilient and Climate Adaptive ASEAN Community**. Targeted outputs of the Component 1 are as follows with associated key activities to be implemented by 2020 as shown in Attachment 1:

1. Documentation of good practices in strengthening institutional capacity and policy development on DRR and CCA in ASEAN;
2. Capacity building programme on DRR and CCA, to strengthen institutional capacity and policy development; and
3. Established ASEAN cross-sectoral collaboration on DRR and CCA.

Results of the baseline study in ASEAN

The JICA Project Team conducted a series of field studies to identify the status of DRR and CCA implementation and their integration in ten Member States from September 2016 to February 2017 under the Project for Strengthening Institutional and Policy Framework on DRR and CCA Integration (CN20 Project). The Project Team assessed the situation on targeted water-related disasters – flood, storm, landslide and drought – using an assessment framework consisting of four categories, namely institutional and policy development (including policies, laws and regulations; management system; and financial arrangement), risk assessment, planning and implementation, and capacity building, as shown in Attachment 2. The assessment framework was formulated based on the key words extracted from the aims and specific objectives of the Concept Note No. 20 and it also corresponds to the Priorities for Action of the *Sendai Framework for Disaster Risk Reduction 2015-2030* as shown in Table 1.

Table 1 Assessment categories for DRR and CCA integration

Key words from the aims and specific objectives of the CN20 Project	Categories		Priorities for Action of the Sendai Framework for DRR
Umbrella laws and regulations	Institutional and policy development	Policies, laws and regulations	Priority 2
Institutional and policy framework		Management system	
Relationships between national agencies responsible for DRR and CCA		Financial arrangement	
Partnership in linking DRR and CCA at all levels			
Joint funding mechanism		Risk assessment	Priority 1
Participatory risk assessment		Planning and implementation	Priority 3
Integrated planning of DRR and CCA		Capacity building	Priority 1-4
Support joint training and meetings			

As a result, main findings of the Project Team were (see Attachment 3):

- DRR and CCA concepts are well integrated or incorporated in national socio-economic development plans but legal framework for DRR and CCA is generally not integrated;
- Inter-ministerial and national-subnational disaster risk management system has been well established in general but the coordination with the CCA management system is still at a development stage in many Member States;
- Regular budgetary arrangements for DRR and CCA activities of line ministries are not tracked systematically except in few Member States;
- Disaster and climate risk assessment capacity, including hydro-meteorological data monitoring and analysis, downscaling from Global Climate Models (GCMs) and hazard and risk mapping, varies from country to country;
- DRR planning and implementation incorporating climate risk as well as development of planning guidelines is still rare in the region; and
- Community-based disaster risk management pilot projects are implemented in most Member States, but integrated DRR and CCA training at national and local levels is still rare in the region.

The Project Team also identified a number of good practices on DRR and CCA integration, or the ones which have a potential to be integrated, that are transferable, applicable and a good reference

for other Member States, through interviews with government officials and site visits during the field study. These practices includes (see Attachment 4):

- Development of a network of national-subnational DRR management and funding system in the Philippines;
- Development of a river basin management system with a stakeholders coordination mechanism in Indonesia;
- Creation of a forest protection fund based on payment for environmental services in Viet Nam;
- Synchronisation of hydro-meteorological data projections and downscaling of GCMs to determine standard values of climate change in Indonesia;
- Preparation of detailed hazard and risk maps in selected areas in Malaysia, the Philippines, Thailand and Viet Nam;
- Development of guidelines and standard for river and coastal structural designs in the Philippines;
- Forest and mangrove rehabilitation and the implementation of water saving measures in various Member States.

Outputs of the National Workshops

Subsequently, three National Workshops were held in Myanmar, Viet Nam and the Philippines in May-July 2017 with about 30-40 participants each from agencies responsible for disaster management, climate change adaptation, hydro-meteorological data management, DRR for floods, storms, landslides and droughts, including forest and water resources management, to identify necessary actions to improve integration of DRR and CCA in each country as well as in ASEAN. As the Project Team explained the baseline study findings and the identified good practices on DRR and CCA integration, the participants of the workshop discussed the issues and necessary national activities to improve the situation as well as expected regional activities to push it forward as listed below (see Attachment 5):

Identified main necessary national activities:

- Strict enforcement of relevant laws and regulations;
- Integrated management of water resources and river basin through coordination of relevant stakeholders;
- Setting up of a central database and data sharing system;
- Upgrading and improving the coverage of hydro-meteorological monitoring system;
- Improving climate risk analysis capacity;
- Provision of high-resolution hazard maps;
- Updating sectoral design, guideline and standard incorporating climate risk and provision of associated training for national and subnational government officials; and
- Prioritisation of projects based on risk and cost-benefit analysis.

Expected regional activities in ASEAN:

- Sharing of good practices and lessons learned on integrated policies, inter-agency coordination and management systems, funding systems, data management, risk assessment and hazard mapping methods, and guidelines, standards and planning methods;

- Development of a standardised database and a data sharing system; standardising risk analysis methods;
- Developing a regional climate model; and
- Organising training and cross-visits for mutual learning and actual observation.

As seen here, each hosting country of the national workshop is facing challenges in integrating DRR and CCA policies, institutional and management systems, risk analysis, planning at national and subnational levels and capacity building, among others, and all of them are keen to learn good practices and lessons learned in other Member States. The challenge and demand here are a facilitator who can manage those regional knowledge by setting up a regional knowledge management system.

III. Work Plan for Strengthening Institutional and Policy Framework on DRR and CCA Integration

In order to strengthen institutional and policy framework on DRR and CCA integration in each ASEAN Member State as well as in the region, the ASEAN Committee on Disaster Management (ACDM) Working Group on Prevention and Mitigation (WG on P&M) will adopt a **Work Plan for Strengthening Institutional and Policy Framework on DRR and CCA Integration** (hereinafter, Work Plan) consisting of the following components:

1. Objective

The ultimate objective of mainstreaming DRR and CCA into national and regional activities is to significantly reduce disaster risks and increase resilience through creating an enabling mechanism for capacity building, knowledge sharing and cross-sectoral collaboration leading to developing suitable policies, good practices, including data sharing platforms, among ASEAN member states.

2. Scope

As described in the rationale of the Concept Note No. 20 as well as confirmed by the CN20 JICA Project Team, there has been some progress in mainstreaming and integrating DRR in development plans in most ASEAN Member States and with integration of DRR and CCA in many of them. It has also been widely acknowledged that effective implementation of those plans is imperative, as well as cost effective, to reduce disaster risk and increase resiliency at national and local levels and access to DRR and CCA information, including assessed risks and vulnerability, is essential for effective formulation of such development plans.

With that general trend and direction in mind, this Work Plan focuses on effective integration, or incorporation, of climate change impact in development plans with particular focus on DRR. Suppose there are five components for managing and reducing disaster risk, namely institutional and policy development, risk assessment, planning, implementation and reviewing, like a cycle of plan-do-check-act (PDCA) management method, climate change impact assessment directly affects the risk assessment and planning but also other components as illustrated in Figure 3.

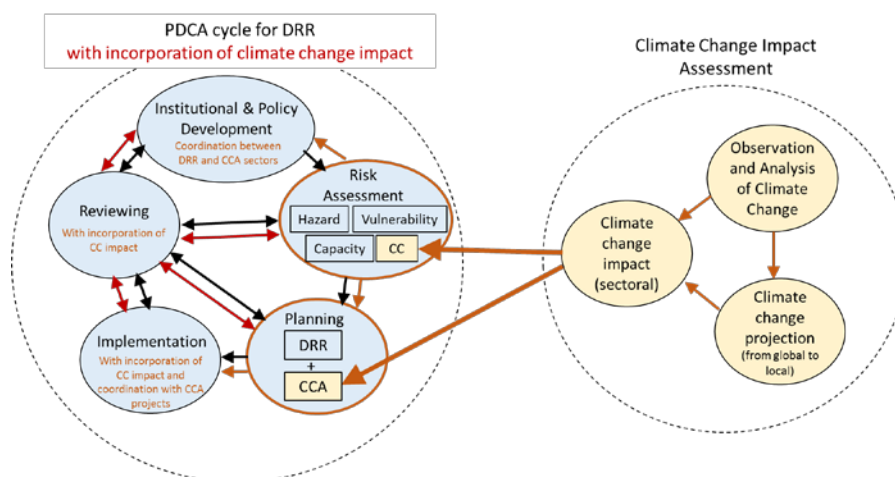


Figure 3 Incorporation of climate change impact in a PDCA cycle for DRR

3. Expected outputs

Through continuous implementation and revision of the PDCA cycle for DRR with improved climate change impact assessment and its incorporation, it is expected that the institutional capacity for DRR, including policy formulation, risk assessment, planning and implementation through coordination of multiple agencies at national and subnational levels, will be strengthened. Targeted outputs of the Work Plan are implementation of such demonstrable actions with engagement of multiple agencies catalysed and facilitated by national disaster management offices (NDMOs) and documentation and arrangement of cross-learning mechanism for their diffusion. By doing so, it is expected that the ACDM develops an autonomous knowledge management and capacity building system for building a disaster resilient and climate adaptive ASEAN in a long run.

4. Implementation period

The Work Plan will be implemented for three years from the date of its adoption along with the AADMER Work Programme 2016-2020 with annual revision and the Working Group on Prevention and Mitigation (WG on P&M), which oversees the Priority Programme No. 3 ADVANCE, decides how to continue it beyond that.

5. Implementation structure

Toward that end, the WG on P&M plays a central role with support from ACDM members. Practically, in the Work Plan, each ASEAN Member State plans and implements DRR and CCA activities in an integrated manner and the National Project Focal Point appointed by the ACDM National Focal Point in each Member State reports the progress and issues to the WG on P&M annually. Following that, the WG on P&M compiles the information and reports it to the ACDM Meeting. Then, the ACDM Meeting, which will endorse the Work Plan, provides suggestions for improvement. Other development partners and resource institutions identified in the Member States may provide capacity building and technical assistance services through WG on P&M's coordination. The WG on P&M is a manager of the Work Plan that is responsible for the knowledge management, coordination of the stakeholders and overall management as shown in Figure 4.



Figure 4 Implementation structure of the Work Plan

Detailed activities of the WG on P&M and the National Project Focal Points are listed below:

a. Working Group on Prevention and Mitigation

The WG on P&M is responsible for:

- Facilitate coordination of mutual cooperation activities among the Member States by referring to the Focal Point reviews;
- Facilitate collection, processing and dissemination of relevant information and knowledge, including the local knowledge, for DRR-CCA integration from the Member States and reporting it to the ACDM Meeting;
- Facilitate sharing of technical resources, matching regional needs and develop programmes for DRR and CCA integration with development partners;
- Enable capacity building measures for accessing global and regional finances for DRR and CCA integration activities in ASEAN Member States;
- Facilitate data management, standardisation of data collection, processing and use for robust decision-making, including improved resolution of hydro-met information collection at the local level and feeding into national and regional databases; and
- Facilitate development and adoption of integrated monitoring and evaluation frameworks through development of appropriate guidelines, tools and capacity building measures.

b. National Project Focal Point

Each Project Focal Point collects relevant information listed in Table 2 from line agencies, reviews it and reports it to the WG on P&M annually with particular focuses on:

- Promote management of data necessary for DRR-CCA integration and share the same with relevant agencies with specific focus on the vulnerable sectors, ecosystems and societies;

- Facilitate monitoring and evaluation of DRR and CCA related plans and activities and share among relevant agencies, including the DRR expenditure of line ministries, considering the need for inter-agency coordination;
- Promote capacity building through training programmes and provide related services regionally with specific focus on understanding resilience at the community level;
- Promote bottom-up approaches for DRR and CCA integration, as well as develop guidelines for mainstreaming DRR and CCA at the grass-root level;
- Enable stakeholder engagement for integration of DRR and CCA, including the engagement of the private sector by promoting various forums and networks; and
- Promote consolidation of climate change laws and regulations and put in place appropriate measures for monitoring the progress in the same.

Table 2 DRR and CCA activities to be implemented and reported by each ASEAN Member State

Activities		Review points*
1. Institutional and policy development		
1.1 Policies, laws and regulations	National socio-economic development plan	<ul style="list-style-type: none"> Monitoring of Current National Socio-economic Development Plan
	DRR and CCA laws and regulations	<ul style="list-style-type: none"> Progress of enactment and enforcement of individual DRR and CCA laws and regulations Progress of enactment of integrated laws and regulations of DRR and CCA
	DRR and CCA related sectoral laws and regulations	<ul style="list-style-type: none"> Progress of enactment and enforcement of relevant sectoral laws and regulations
1.2 Management system	National and subnational DRR and CCA management systems	<ul style="list-style-type: none"> Progress in risk management system at national and local levels
1.3 Financial arrangement	Regular budgetary arrangements of line ministries for DRR and CCA	<ul style="list-style-type: none"> Progress in budget allocation and monitoring of DRR and CCA expenditures
	Special funds for local and community-based DRR and CCA activities	<ul style="list-style-type: none"> Progress in creation and operation of national and local DRR and CCA funds
	Payment for ecosystem services (PES) and insurance scheme	<ul style="list-style-type: none"> Progress in PES and insurance measures
2. Risk assessment		
2.1 Climate change impact analysis	Observation and analysis of hydro-meteorological data	<ul style="list-style-type: none"> Progress in monitoring systems and data sharing and analysis
	Climate change projection	<ul style="list-style-type: none"> Progress in projection of climate change impacts on rainfall, sea level rise, etc.
	Standard values of CC impact	<ul style="list-style-type: none"> Progress in setting standard values for climate change.
2.2 Hazard and risk mapping	Hazard and risk mapping of flood, storm surge, landslide and drought	<ul style="list-style-type: none"> Progress in preparation of hazard maps considering the limitation of information disclosure by each Member State.
3. Planning and implementation**		
3.1 Disaster risk reduction	DRR plans and implemented projects for flood, storm surge, landslide and drought	<ul style="list-style-type: none"> Progress in planning, implementation and updating prevention and mitigation measures. Progress in legally authorized DRR and CCA plans.
3.2 Standard guideline for disaster and climate risk assessment and planning		<ul style="list-style-type: none"> Progress in preparation of guidelines.
4. Monitoring and evaluation (by the National Project Focal Point)		
4.1 Data management	Basic disaster, hydro-meteorological, risk, vulnerability and socio-economic data are periodically managed, updated and shared with relevant agencies for synthetic analysis and decision making	
4.2 Reviewing	DRR and CCA related plans and activities are periodically reviewed for close coordination and knowledge sharing among relevant agencies	
4.3 Capacity building and needs assessment	Based on the reviewing results, capacity building needs are identified and corresponding training programmes are arranged using domestic resources; other required external technical assistances and identified resource institutions and agencies possible to provide capacity building services regionally are reported to the WG on P&M	

*Use appropriate SDG target indicators wherever possible while reporting (to be developed later)

** Planning and implementation are merged here as the review points for both components are similar.

6. Immediate collaborative activities

Following immediate collaborative activities will be implemented under the Work Plan:

- Knowledge sharing and training on (with references to the good practices of DRR and CCA integration identified by the Project Team (Attachment 4) and recommended by the ASEAN Member States):
 - Capacity building for planning and implementation of measures for flood, storm, landslide and drought hazards with focus on spatial approaches for risk assessment and risk mapping at the local level;
 - Integration of DRR and CCA laws and regulations, where applicable, with coordination of relevant agencies for the effective implementation at the national and sectoral level;
 - Building capacity for accessing regional and global funds for integrating DRR and CCA;
 - Measures to share skills, knowledge and data on climate change impacts, implementation of river basin management, countermeasures for climate change impacts including policies; and
- Develop guidelines and tools with indicators for monitoring and evaluation of programmes, policies and projects on integration of DRR and CCA and conduct associated training.

7. Further challenges

In order to strengthen integration of DRR and CCA further beyond this Work Plan, following activities shall be planned in parallel:

- Linking the activities with the national reporting of the global frameworks including the Sustainable Development Goals (SDGs) and the Sendai Framework for DRR and use their designated indicators
- Strengthening collaboration with regional groups and organisations such as ACDM Working Group on Knowledge and Innovation Management (WG on KIM), AHA Centre, ASEAN Working Group on Climate Change (AWGCC) and Climate Change International Technical and Training Center (CITC), among others
- Strengthening human resources development and capacity building for implementation of local and national socio-economic development plans after integrating DRR and CCA with appropriate budget and fund allocation

Endorsement

The **Work Plan for Strengthening Institutional and Policy Framework on DRR and CCA Integration** was endorsed by the 31st ACDM Meeting in Luang Prabang, Lao PDR, on 17 October 2017.

Attachments:

1. ADVANCE: A Disaster Resilient and Climate Adaptive ASEAN Community, Priority Programme No. 3, AADMER Work Programme 2016-2020
2. Assessment framework of institutional and policy framework on DRR and CCA integration
3. Current status of DRR and CCA implementation and their integration in ASEAN: An assessment result by the JICA Project Team
4. Current situation and good practices of institutional and policy framework on DRR and CCA integration in ASEAN
5. Main outputs of the National Workshops in Myanmar, Viet Nam and the Philippines

Attachment 1

Inputs by the CN20 Project

**Priority Programme No. 3 under the AADMER Work Programme 2016-2020
ADVANCE: A Disaster Resilient and Climate Adaptive ASEAN Community**

Attachment 1

1. Strengthening institutional capacity and policy frameworks for effective implementation of DRR and CCA actions

Outputs	Key Activities (to be led by the ACDIM WG on Prevention and Mitigation)	2016				2017				2018				2019				2020							
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
1.1. Documentation of good practices in strengthening institutional capacity and policy development on DRR and CCA in ASEAN	1.1.1. Conduct national workshops on good practices in integrated plan and policy development, funding mechanisms, and risk assessments for DRR and CCA in the Member States [by NDMOs]					★	★																		
	1.1.2. Conduct regular regional documentation and dissemination of good practices and innovation of approaches in building community resilience							●																	
	1.1.3. Come up with a regular publication of ASEAN: One Against Disaster and Climate Risks							●																	
1.2. Capacity building programme on DRR and CCA, to strengthen institutional capacity and policy development	1.2.1. Stocktake and map training institutes among ASEAN Member States who can form the ASEAN Training Centres on DRR and CCA																								
	1.2.2. Develop accreditation of civil society organisations/private sector/training institute who can provide training for NDMOs on DRR and CCA																								
	1.2.3. Launch the ASEAN Training Programme for DRR and CCA implementers from government, civil society, private sector and other sectors to boost a roster of certified ASEAN experts or professionals on DRR and CCA							○	○																
	1.2.4. Establish a financing mechanism to support continuing education for DRR and CCA implementers																								
	1.2.5. Develop peer-to-peer support programme among ASEAN Member States to strengthen institutional and policy development related to DRR and CCA							○	○																
1.3. Established ASEAN cross-sectoral collaboration on DRR and CCA	1.3.1. Identify government agencies relevant to DRR and CCA at national level [by NDMOs]					▲																			
	1.3.2. Establish mechanism to facilitate inter-agency, multi-stakeholder collaboration on DRR and CCA at the national level [by NDMOs]					★	★																		
	1.3.3. Establish a regional mechanism to gather relevant ASEAN sectoral bodies engaged in DRR and climate change, including environment, agriculture, and food security, among others							○	○																
	1.3.4. Conduct a regular dialogue among the agencies and sectors to develop recommendations on the policy and implementation of DRR and CCA at the national and regional level																								

Attachment 2

Assessment framework of institutional and policy framework on DRR and CCA integration

Assessment category	Evaluation criteria
1. Policies, laws and regulations	
1) National development plan	DRR and CCA concepts are incorporated in the national socio-economic development plan
2) DRR laws, regulations and policies	DRR laws, regulations and policies are enforced with consideration of CCA; DRR is mainstreamed in each ministry's policies
3) CCA laws, regulations and policies	CCA laws, regulations and policies are enforced with consideration of DRR; CCA is mainstreamed in each ministry's policies
4) Relevant sectoral laws, regulations and policies	DRR and CCA concepts are incorporated in relevant sectoral laws, regulations and policies including local land-use and urban plans, building codes, water resources and river basin management, forestry management, etc.
2. Management system	
1) National disaster risk management system	A national disaster risk management committee has been setup for inter-ministerial coordination and it also coordinates with the CCA committee; A national-subnational disaster risk management system has been setup for integrated disaster risk management;
2) National CCA system	A national CCA committee has been setup for inter-ministerial coordination and it also coordinates with the disaster risk management committee
3) Transboundary disaster risk management	A multi-stakeholder transboundary disaster risk management system has been setup for floods, storms and droughts
3. Financial arrangement	
1) Financial arrangement for DRR	Funds are allocated for DRR activities with a monitoring and tracking system
2) Financial arrangement for CCA	Funds are allocated for CCA activities with a monitoring and tracking system
3) Payment for ecosystem services	Payment for ecosystem services is implemented based on the economic assessment
4. Risk assessment	
1) Disaster database	Disaster data is recorded and used for science-based analysis
2) Hydro-meteorological data management and climate risk analysis	Climate risk is analysed based on hydro- meteorological data monitoring and downscaling from Global Climate Models (GCMs)
3) Hazard and risk mapping	Hazard maps and risk maps for flood, storm surge, landslide and drought are prepared by assessing the damages of the past disasters, the capacity and vulnerability of local authorities and communities, and the climate risk and they are provided with high resolution for local land-use planning
4) Data sharing and dissemination	Disaster and climate risk data including hazard and risk maps are accessible
5) Early warning system and	Early warning system is set up and disaster risks are communicated

Assessment category	Evaluation criteria
disaster risk communication	through traditional media, social media and mobile phone networks
5. Planning and implementation	
1) Guideline and standard	Guidelines and standards incorporating disaster and climate risk are developed and used
2) Land-use and urban planning	Land-use and urban plans are prepared by incorporating disaster and climate risk and with an assessment of ecosystem services
3) Disaster-resilient investment	Public and private investments are channelled to strengthen resiliency of critical facilities, including schools, hospitals, evacuation facilities, roads and transport, river and coastal dykes, reservoirs and irrigation networks, forests and retardation areas, etc., and they are implemented in a stage-wise manner
4) Drought risk reduction	Drought risk reduction measures including water resources management and agricultural measures are implemented
6. Capacity building	
1) DRR and CCA training	DRR and CCA trainings for national and local government officials and other stakeholders are provided
2) Sector-wise training	Special training programmes are implemented for specific purposes such as a climate school for farmers

Attachment 3

Current status of DRR and CCA implementation and their integration in ASEAN:

An assessment result by the JICA Project Team

Category		Current status
Institutional and policy development	Policies, laws and regulations	<ul style="list-style-type: none"> • DRR and CCA concepts are well integrated in national socio-economic development plans in the Philippines and Lao PDR; whereas they are incorporated individually in other Member States. • Legal framework for DRR and CCA composed of several legal documents is not well integrated in general.
	Management system	<ul style="list-style-type: none"> • Inter-ministerial and national-subnational disaster risk management systems have been well established in general. Inter-ministerial CCA management system has been well established but national-subnational linkage is not so strong compared to the disaster risk management system in most Member States. • Coordination between the disaster risk management and CCA management systems need to be improved in most Member States. Indonesia and Malaysia have an advantage in this aspect for their institutional arrangement.
	Financial arrangement	<ul style="list-style-type: none"> • Regular budgetary arrangements for DRR and CCA of line ministries of each Member State need to be strengthened. • Fund allocation for subnational DRR and CCA management activities in Indonesia and the Philippines is advanced compared to others. • Payment for forest environmental services which levies hydropower generators, water suppliers and tourism service providers has only been implemented in Viet Nam.
Risk assessment	<ul style="list-style-type: none"> • Disaster database has been set up in Cambodia, Indonesia, Malaysia, the Philippines, Thailand and Viet Nam. • All Member States have hydro-meteorological data management system and the conditions in Malaysia, Singapore, Thailand and Viet Nam are better than others. Coverage of the observation stations in upstream river basins and rural areas is not sufficient in some of them. Hydro-meteorological data sharing of international rivers is insufficient except in the Lower Mekong River. • Downscaling from Global Climate Models (GCMs) is conducted in Indonesia, Malaysia, the Philippines, Singapore and Viet Nam. There are no standard values of CC impacts set in any Member States yet. • Flood hazard maps or risk maps without incorporating climate risk are prepared in Brunei Darussalam, Malaysia, the Philippines, Thailand and Viet Nam, but their resolution is insufficient for DRR and preparedness planning in general. Malaysia and Viet Nam have prepared flood hazard maps with climate change impacts in selected areas. Preparation of hazard maps or risk maps of landslide are generally insufficient except some areas in Indonesia, the Philippines and Thailand and the situation for storm surge and drought hazard maps or risk maps are similar. 	
Planning and implementation	<ul style="list-style-type: none"> • DRR planning and implementation without considering CC impacts are insufficient in general except some areas in Malaysia. DRR planning and implementation with CC impacts are lacking or insufficient in general except some good practices or potential good ones seen in Brunei Darussalam, Indonesia, the Philippines, Singapore and Viet Nam. Guiding tools for planning and implementation including the related risk assessment have not been prepared in most Member States. 	
Capacity building	<ul style="list-style-type: none"> • Community-based disaster risk management are conducted in most Member States, but integrated DRR and CCA training is rarely conducted except in Indonesia. 	

Attachment 4

Current situation and good practices of institutional and policy framework on DRR and CCA integration in ASEAN

Assessment category	Evaluation criteria	Current situation <i>and selected good practices</i>
1. Laws, regulations and policies		
1) National development plan	DRR and CCA concepts are incorporated in the national socio-economic development plan	DRR and CCA concepts are incorporated in the national development plans individually. <ul style="list-style-type: none"> <i>DRR and CCA concepts are integrated in the national development plans in Lao PDR and the Philippines.</i>
2) DRR laws, regulations and policies	DRR is mainstreamed in each ministry's policies	DRR is promoted through the activities of national disaster risk management committee, but the degree of mainstreaming is not clear.
	DRR laws, regulations and policies are formulated and enforced (with consideration of CCA)	Degree of DRR policy enforcement is not clear. <ul style="list-style-type: none"> <i>DRR and CCA are being converged by the coordination of the National Development Planning Agency (BAPPENAS), Ministry of Agrarian and Spatial Planning and Ministry of Home Affairs in Indonesia particularly for formulation of 5-year local development plan and associated spatial plan and annual budget.</i>
3) CCA laws, regulations and policies	CCA is mainstreamed in each ministry's policies	CCA is promoted through the activities of the UNFCCC. <ul style="list-style-type: none"> <i>A study report on disaster risk management to advance CCA was compiled by the Institute of Meteorology, Hydrology and Climate Change (IMHEN), Ministry of Natural Resources and Environment (MONRE) in cooperation with the UNDP in Viet Nam.</i> <i>Each ministry in Cambodia drafts CC action plan.</i>
	CCA laws, regulations and policies are formulated and enforced (with consideration of DRR)	All Member States have CCA policies and or plans in place but the degree of their implementation is not clear.
4) Relevant sectoral laws, regulations and policies	DRR and CCA concepts are incorporated in relevant sectoral laws, regulations and policies including land-use and urban plans, building codes;	DRR and CCA concepts are being incorporated in land-use and urban plans in few Member States (e.g. Philippines, Indonesia), but the degree of the implementation is not clear.
	water resources and river basin management;	Importance of the water resources management is recognised in sectoral laws and regulations in each Member State. <ul style="list-style-type: none"> <i>River Basin Management Offices (Balai) and National Water Resources Management Agencies (Perum Jasa Tirta) are set up in Indonesia and Malaysia (e.g. MADA). Singapore has an integrated water resources management system. The Law on Water Resources (2012) in Viet Nam mandates integrated operation of hydroelectric reservoirs to reduce flood risks.</i>
	forestry management	Forestry management is promoted in each Member State. <ul style="list-style-type: none"> <i>Brunei Darussalam maintains high forestry coverage in accordance with the Heart of Borneo Initiative. Payment for forest environmental services is legalised in Viet Nam.</i>
2. Institutional arrangement		

Assessment category	Evaluation criteria	Current situation <i>and selected good practices</i>
1) National disaster risk management system	National disaster risk management committee has been setup for inter-ministerial coordination	All Member States have an inter-ministerial disaster risk management committee.
	National disaster risk management committee also coordinates with the CCA committee	Coordination between the national disaster risk management and CCA committees seem to be rare despite the similar constituent member ministries. <ul style="list-style-type: none"> <i>DRR and CCA focal points signed a cooperation agreement in the Philippines.</i> <i>There are potentials to integrate the plans and activities of disaster risk management and CCA committees as they often have similar constituent member ministries.</i>
	A national-subnational disaster risk management system has been set up for integrated disaster risk management	All Member States have a national-subnational disaster risk management system. <ul style="list-style-type: none"> <i>The Philippine DRRM Act (2010) mandates setting up of a Local DRRM Office in each local authority.</i>
2) National CCA system	A national CCA committee has been set up for inter-ministerial coordination	All Member States have an inter-ministerial CC committee.
3) Transboundary disaster risk management	A multi-stakeholder transboundary disaster risk management system has been set up for floods, storms and droughts	River basin management is still at a development stage in most Member States. <ul style="list-style-type: none"> <i>River Basin Management Offices (Balai) coordinate multiple stakeholders in the same river basin in Indonesia. Rivers in Malaysia are managed by the Department of Irrigation and Drainage together with relevant State Governments. River Basin Organizations are being established in major river basins for efficient water resources management in Viet Nam.</i> <i>Operation of multiple multi-purpose dams in a river basin is regulated in an integrated manner by national water resources management agencies (Perum Jasa Tirta: PJT) to reduce flood and drought risks in Indonesia.</i> <i>Ormoc City in the Philippines established a Flood Mitigation Committee (FMC) for river management from upstream to downstream with engagement of multiple stakeholders.</i>

3. Financial arrangement

1) Financial arrangement for DRR	Budgets are allocated for DRR activities	DRR measures are implemented (budgeted) by line ministries. <ul style="list-style-type: none"> <i>The Philippine DRRM Act (2010) mandates each local authority to set aside a local DRRM fund. The Office of Civil Defense (OCD) has been awarding the best performing Local DRRM Councils since 1998.</i>
	DRR expenditures are monitored and tracked	Most Member States do not have a monitoring and tracking system of DRR expenditures. <ul style="list-style-type: none"> <i>DRRM expenditures are monitored and tracked in the Philippines. Local authorities can carry over unspent Quick Response Fund for 5 years.</i>
2) Financial arrangement for CCA	Budgets are allocated for CCA activities	Budget allocation for CCA activities is limited in most Member States. Some activities are funded by supporting organisations (e.g. NAPA development support in Cambodia, Lao PDR and Myanmar). <ul style="list-style-type: none"> <i>National funds are set up for CCA activities in Indonesia</i>

Assessment category	Evaluation criteria	Current situation <i>and selected good practices</i>
		<i>(Climate Change Trust Fund (ICCTF)) and the Philippines (People's Survival Fund (PSF)).</i>
	CCA expenditures are monitored and tracked	Most Member States do not have a monitoring and tracking system of CCA expenditures. <ul style="list-style-type: none"> <i>There is a climate change expenditure tagging system in the Philippines.</i>
3) Payment for ecosystem services	Payment for ecosystem services is implemented based on the economic assessment	Most Member States do not have a payment for ecosystem services. <ul style="list-style-type: none"> <i>Payment for forest environmental services which levies hydropower generators and water suppliers, among others, for forest protection and rehabilitation has been successfully implemented in Viet Nam since 2011.</i>
4. Risk assessment		
1) Disaster database	Disaster data is recorded and publicised	All Member States record disaster data. <ul style="list-style-type: none"> <i>Disaster database is publicised in Cambodia, Indonesia, Malaysia, the Philippines, Thailand and Viet Nam.</i>
	It is used for science-based analysis	Whether the disaster database is used for science-based analysis is not clear.
2) Hydro-meteorological data management and climate risk analysis	hydro-meteorological data is managed	All Member States have a hydro-meteorological data monitoring and management system, but the geographical coverage and accuracy vary from country to country.
	Downscaling from Global Climate Models (GCMs) is conducted	<ul style="list-style-type: none"> <i>Downscaling from GCMs is conducted in Indonesia, Malaysia, the Philippines, Singapore and Viet Nam. Other Member States obtain the downscaled values from external agencies.</i>
	Climate risk is analysed based on hydro-meteorological data and downscaling from GCMs	<ul style="list-style-type: none"> <i>Climate risk analysis is advanced in the above-mentioned Member States.</i>
	Standard values of CC impacts on rainfall etc. have been set	No Member States have set the standard values of CC impacts yet.
3) Hazard and risk mapping	Hazard maps and risk maps for flood are prepared (by assessing the damages of the past disasters and the capacity and vulnerability of local authorities and communities)	Flood hazard maps are prepared in all Member States (with support from supporting organisations in some countries). <ul style="list-style-type: none"> <i>Flood hazard maps are prepared in Brunei Darussalam, Indonesia, Malaysia, the Philippines, Thailand and Viet Nam.</i>
	Climate risk is analysed and incorporated in the flood risk maps	Flood risk maps incorporating climate risk is still limited. <ul style="list-style-type: none"> <i>Flood risk maps incorporating climate risk are developed in some areas in Malaysia and Viet Nam.</i>
	Hazard maps and risk maps for storm surge are prepared	Hazard maps and risk maps for storm surge is still limited in most Member States.
	Hazard maps and risk maps for landslide are prepared	Hazard maps and risk maps for landslide are prepared in some Member States. <ul style="list-style-type: none"> <i>Good quality ones are available in Indonesia, Malaysia, the</i>

Assessment category	Evaluation criteria	Current situation <i>and selected good practices</i>
		<i>Philippines, Thailand and selected areas in Viet Nam.</i>
	Hazard maps and risk maps for drought are prepared	Drought hazard maps at the national scale are present in Cambodia, Indonesia, Lao PDR, the Philippines, Thailand and Viet Nam and drought risk maps are prepared by external agencies for all ASEAN countries. However, drought risk maps are largely absent in all Member States.
	Hazard maps and risk maps are provided with high resolution for local land-use planning	Hazard maps and risk maps with high resolution and detailed topography for local land-use planning is still limited in most Member States.
4) Data sharing and dissemination	Disaster and climate risk data including hazard and risk maps are accessible	Access to hazard and risk maps is still limited in most Member States. <ul style="list-style-type: none"> • <i>These maps are publicised in the Philippines and Thailand.</i> • <i>Hydrological data of Mekong River in the Lower Mekong countries (Cambodia, Lao PDR, Myanmar, Thailand and Viet Nam) is shared by the Mekong River Commission (MRC).</i>
5) Early warning system and disaster risk communication	Early warning system is set up and disaster risks are communicated through traditional media, social media and mobile phone networks	All Member States have an early warning and a disaster risk communication system, but the outreaching capacity differs from country to country.

5. Planning and implementation

1) Guideline and standard	Guidelines and standards incorporating disaster and climate risk are developed and used	Guidelines and standards incorporating disaster and climate risk are not developed in most Member States. <ul style="list-style-type: none"> • <i>All planning divisions of the Ministry of Public Works and Housing (PU), Indonesia, are integrated into one division which provides standard structural designs incorporating disaster and climate risk.</i> • <i>Guidelines and standards incorporating climate risk for river structures are drafted by the Department of Public Works and Highways (DPWH) in the Philippines and are being prepared by the Department of Irrigation and Drainage (DID) in Malaysia.</i> • <i>Houses in flood-prone areas are mandated to be elevated in Brunei Darussalam.</i>
2) Land-use and urban planning	Land-use and urban plans are prepared by incorporating disaster and climate risk and with an assessment of ecosystem services	There are some land-use and urban plans which incorporate disaster and climate risk in some Member States. <ul style="list-style-type: none"> • <i>A flood control plan in the Mekong Delta incorporates climate risk in the land-use plan. A flood control and drainage project at the river mouth of Pahang River protects the downtown with river dykes and river walls. The Bago River flood control system with a 140-year old Bago-Sittaung Canal, Moe Yin Gyi Lake and newly constructed several flood control and irrigation dams in Myanmar has a potential to incorporate climate risk by improving these structures in a stage-wise manner.</i> • <i>Local CCA action plans with resilient city concepts are formulated in several cities in Viet Nam.</i> • <i>Landslide risk management including relocation of the affected families, land-use control and monitoring of</i>

Assessment category	Evaluation criteria	Current situation <i>and selected good practices</i>
3) Disaster-resilient investment	Public and private investments are channelled to strengthen resiliency of critical facilities, including evacuation facilities, roads and transport, river and coastal dykes, reservoirs and irrigation networks, forests and wetlands, etc. and they are implemented in a stage-wise manner	<p><i>rainfall and slope movement is implemented in Indonesia and the Philippines.</i></p> <p>Development of DRR plans and the implementation (without consideration of CC impacts) are insufficient in general. Development of DRR plans and the implementation with CCA is being experimented in some Member States.</p> <ul style="list-style-type: none"> <i>There are several projects incorporating climate risk or having a potential, such as river management in Ormoc City and polder wall construction for protecting low-lying areas in Metro Manila, the Philippines; flood control by Neyama floodway tunnel in Tulungagung, Indonesia; and SMART Tunnel and retention ponds in Kuala Lumpur, Malaysia, among others.</i> <i>Cyclone shelters and coastal dykes are constructed for storm risk management in Ayeyarwady Delta, Myanmar and Mekong Delta, Viet Nam.</i> <i>Investment in reinforcing roofs and walls and elevating the ground floor against storm is promoted for low-income house owners by provision of soft loans in Da Nang, Viet Nam.</i> <i>Traditional houses in Cambodia are elevated to adapt to recurrent floods.</i>
	Public and private investments in forests and wetlands	<ul style="list-style-type: none"> <i>Forest management and rehabilitation including coastal mangrove rehabilitation are actively promoted in Brunei Darussalam, Myanmar, Thailand and Viet Nam.</i>
4) Drought risk reduction	Drought risk reduction measures including water resources management are implemented;	<p>Some Member States have set up a water resources management committee with involvement of multiple stakeholders and started implementation of pilot projects at selected sites.</p> <ul style="list-style-type: none"> <i>Storage of flood water for the use in dry season is commonly practiced in countries including Cambodia, Indonesia, the Philippines and Viet Nam.</i> <i>Formation of water user associations and farmer associations for efficient natural resources management is commonly applied in countries including Cambodia, Malaysia and the Philippines.</i> <i>Other agricultural practices in water-scarce seasons include sprinkler irrigation in Viet Nam, recycled water for supplementary irrigation in Malaysia, and groundwater irrigation in Indonesia and other countries, among others.</i> <i>Installing salinity monitors in water courses and sharing the data with relevant stakeholders to reduce the damage is practiced in Viet Nam.</i> <i>Water resources management is actively implemented in Singapore particularly with rain water harvesting by a network of rivers and canals connected to 17 reservoirs covering two-thirds of the land surface as a catchment area.</i>
	Agricultural measures are implemented;	<ul style="list-style-type: none"> <i>Conservation farming which improves the soil quality and conserves it from erosion in the undulated topographies in Indonesia provides needed buffer from short to medium dry</i>

Assessment category	Evaluation criteria	Current situation <i>and selected good practices</i>
		<p><i>spells.</i></p> <ul style="list-style-type: none"> • <i>Microfinance is instrumental in livelihood diversification of the poor in Indonesia.</i> • <i>Climate-smart agriculture principles and practices are being introduced into the region by FAO and other agencies</i> • <i>Climate-field schools are being promoted extensively in Indonesia and the Philippines.</i>
	Risk transfer measures are implemented	<ul style="list-style-type: none"> • <i>Weather index insurance is being piloted in Indonesia, the Philippines and Thailand to hedge climate risk for agriculture and other Member States are planning to introduce insurance in the near future (e.g. Myanmar).</i>
6. Capacity building		
1) DRR and CCA training	DRR and CCA trainings for national and local government officials and other stakeholders are provided	<p>Community-based disaster risk management projects and associated capacity building activities are implemented in most Member States.</p> <ul style="list-style-type: none"> • <i>National Development Planning Agency (BAPPENAS) in Indonesia has developed a 2-week training course for integrating DRR and CCA in local development plans for government officials.</i> • <i>Community-based disaster risk management projects and associated capacity building activities are implemented in most of the Member States.</i>
2) Sector-wise training	Special training programmes are implemented for specific purposes, such as downscaling from GCMs;	<p>Special training programmes are implemented for specific purposes in some Member States.</p> <ul style="list-style-type: none"> • <i>Regional collaboration for downscaling from GCMs is being implemented with involvement of national agencies from Indonesia, Lao PDR and Malaysia.</i>
	A climate school for farmers	<ul style="list-style-type: none"> • <i>Climate field schools which train farmers to use location-specific weather forecasts for better agricultural practices are actively implemented in Indonesia, Myanmar and the Philippines.</i>

Attachment 5

Main outputs of the National Workshops in Myanmar, Viet Nam and the Philippines

Category	Necessary national activities	Expected regional activities
Institutional development		
Policies, laws and regulations	<ul style="list-style-type: none"> • Strict issuances of environment compliance certificate, building permits, no build zones and safe zones; • Development of relevant sectoral laws and regulations; • Integration of DRR and CCA policies and plans 	<ul style="list-style-type: none"> • Share the effects of DRR and CCA integration
Management system	<ul style="list-style-type: none"> • Strict implementation of integrated water resources management (IWRM) through coordination of relevant agencies; • River basin management for drought, flood and landslide risk and sedimentation management; • Coordination between DRR and CCA national committees and the focal points; • Mainstreaming DRR and CCA in each ministry by appointing a focal unit; • Strengthening the functions of subnational committees for DRR and CCA 	<ul style="list-style-type: none"> • Share coordination mechanisms of DRR and CCA integration
Financial arrangement	<ul style="list-style-type: none"> • Increase funds for DRR and CCA activities; • Budget tagging of DRR and CCA expenditures; • Develop a payment system for environmental conservation 	<ul style="list-style-type: none"> • Share resource mobilisation methods; • Fund raising by an ASEAN-wide approach
Risk assessment		
Data management	<ul style="list-style-type: none"> • Set up a central database and a data sharing system through coordination of relevant agencies; • Upgrade and increase the coverage of hydro-meteorological monitoring system (groundwater monitoring system too) and mobilise social capital and private funds for that 	<ul style="list-style-type: none"> • Establish standardised database and a data sharing system; • Share experiences on database development and management
Climate risk analysis	<ul style="list-style-type: none"> • Build capacity on sectoral climate impact modelling and socio-economic impact analysis; • Improve climate risk analysis capacity including downscaling from global climate models 	<ul style="list-style-type: none"> • Share climate risk assessment and modelling methodologies; • Standardise the methodologies; • Develop a regional climate model
Hazard and risk mapping	<ul style="list-style-type: none"> • Integration of climate projections to geo-hazard maps; • Provision of high resolution base maps covering the entire country; • Provision of simplified guidelines and standards for hazard mapping and risk assessment; • Capacitate subnational governments' access and usage of database and tools; • Monitoring system for landslide 	<ul style="list-style-type: none"> • Share hazard mapping and risk assessment technologies; • Share salinity intrusion monitoring and analysis system
Planning and implementation		
Guideline and standard	<ul style="list-style-type: none"> • Update sectoral design, guideline and standard incorporating climate risk; • Translate climate projection to flood return periods; 	<ul style="list-style-type: none"> • Share guidelines, standards, planning methods and good practices and benchmark it; • Share dam management

	<ul style="list-style-type: none"> • Improve dam safety against floods; • Train national and local government officials to capacitate designs of water-related structures; • Updated training programmes for community-based disaster risk management based on past experiences 	<p>protocols and flood risk assessment methods;</p> <ul style="list-style-type: none"> • Experts exchange programmes and cross-visits for learning and actual observation
Land-use and urban planning	<ul style="list-style-type: none"> • Strengthen monitoring and evaluation of local development plans in accordance with the comprehensive land-use plan, zoning ordinance and national building code 	<ul style="list-style-type: none"> • Share monitoring and evaluation mechanism of land-use plan, zoning ordinance and building code
Disaster resilient investment	<ul style="list-style-type: none"> • Further promotion of forest protection and rehabilitation; • Prioritisation of development projects based on risk levels; • Cost-benefit analysis of DRR and CCA expenditures to justify the investment 	<ul style="list-style-type: none"> • Training for geo-technical measures for flood- and landslide-prone areas; slope protection methods; • Capacity building for coastal zone management; • Share cost-benefit analysis of DRR and CCA measures

Attachment 5a

National Workshop in Myanmar: Main Outputs of the Group Discussion

Key issues and necessary actions in Myanmar	Expectations to ASEAN
<p>Laws/ Regulations/ Policies</p> <ul style="list-style-type: none"> ● Integration of DRR and CCA policies and plans ● Development of relevant sectoral laws and regulations 	<ul style="list-style-type: none"> ● Clarification of the effect of DRR and CCA integration in other ASEAN countries
<p>Institutional Arrangement</p> <ul style="list-style-type: none"> ● National coordination mechanism (weak coordination and cooperation among implementing activities, particularly for river basin management from upstream to downstream to manage flood, drought and landslide risks and sedimentation) ● Mainstreaming DRR and CCA in each ministry (by appointing a focal unit in each department and exchanging staff between the RRD and line ministries) ● Strengthening the functions of committees at district and township levels to deal with DRR and CCA issues 	<ul style="list-style-type: none"> ● Coordination mechanism for DRR and CCA integration
<p>Financial arrangement</p> <ul style="list-style-type: none"> ● Insufficient budgets for DRR activities in line ministries (the National Disaster Management Fund is mostly for response, recovery and reconstruction; not for prevention and mitigation) ● Lack of budgets for CCA ● Budget tagging of DRR and CCA expenditures ● No payment system for environmental conservation 	<ul style="list-style-type: none"> ● Resource mobilisation methods in other ASEAN countries ● Fund raising by an ASEAN-wide approach
<p>Risk Assessment</p> <ul style="list-style-type: none"> ● Integration of disaster database with all sectors ● Improved hydro-met monitoring system for flood and drought (incl. groundwater monitoring) 	<ul style="list-style-type: none"> ● Data sharing among ASEAN countries with a unified standard (by establishing a regional responsible body) ● Regional climate models for

Knowledge sharing on good practices of policies, institutional arrangement and funding

Data and knowledge sharing on risk assessment methods and technology

<ul style="list-style-type: none"> ● Climate risk analysis capacity incl. downscaling from GCMs ● Monitoring system for landslide ● Insufficient hazard maps and risk maps ● Improved data accuracy and reliability ● Dam safety against floods; flood risk assessment for each basin ● Improved early warning and communication systems at local level ● Require cost-benefit analysis of DRR and CCA expenditures to justify the investment 	<p>ASEAN</p> <ul style="list-style-type: none"> ● Hazard mapping and risk assessment technology ● Flood risk assessment for dam safety ● Salinity intrusion monitoring and analysis ● Cost-benefit analysis of DRR and CCA expenditures 	<p>Justification of DRR and CCA investment</p>
<p>Planning and Implementation</p> <ul style="list-style-type: none"> ● Sectoral planning capacity of each ministry ● Climate and disaster resilient design of infrastructures (for reducing the long-term maintenance cost) ● Urban and land-use plan with DRR and CCA ● Slope protection methodology ● Catchment (river basin) management against drought; water storage facilities ● Climate smart agriculture, crops diversification 	<ul style="list-style-type: none"> ● To develop guiding tools for integrating DRR and CCA (and build capacity by implementing a pilot project using it) ● Slope protection pilot projects ● Climate smart agriculture 	<p>Guiding tools for climate and disaster resilient design</p>
<p>Capacity Building</p> <ul style="list-style-type: none"> ● Education of DRR and CCA; development of curriculums for schools ● Public awareness with easy to understand materials ● Training of trainers and experts ● Usage of ICT equipment 	<ul style="list-style-type: none"> ● Training and capacity building ● Technical assistance ● Exchange program 	<p>Training opportunities; DRR and CCA education and public awareness</p>

Attachment 5b Group discussion summary of the National Workshop in Viet Nam

Assessment category	Priority issues	Necessary actions and roles of relevant agencies	Proposed common approaches in ASEAN and required technical assistance
Risk assessment			
Data management	<ul style="list-style-type: none"> Fragmentation of information related to disaster among the different ministries due to lack of data sharing mechanism Different layers of data need to be integrated; data sharing system needs to be established Sectoral barriers; vertical information sharing is not an issue Cross-sectoral data sharing needs to be promoted (e.g. forest data can be useful for hydro-mapping) Hydro-meteorological data monitoring system needs to be upgraded and the coverage needs to be expanded 	<ul style="list-style-type: none"> Develop national disaster database by engaging relevant agencies; standardize type and contents of database[DNDPC] Inter-ministerial data sharing[CCNDPC] Install automatic hydro-meteorological monitoring system [DNDPC, DMC, NHMS] Mobilize social capital (communities, LGUs) for hydro-meteorological data monitoring by providing training courses on knowledge and equipment use; engage private companies for developing smart phone apps and software for monitoring and data integration [DNDPC, NHMS] 	<ul style="list-style-type: none"> Information and data sharing (however, there are confidential data and limit of data sharing in Viet Nam) Sharing software for monitoring to develop standardized database Exchange experiences on database development and management
Climate risk analysis and hazard and risk mapping	<ul style="list-style-type: none"> Hazard and risk maps need to be included in the database Standardize and digitize base maps are required 	<ul style="list-style-type: none"> DNDPC needs to incorporate other information in disaster and risk maps / database including land-use change data, forest coverage data; DNDPC also needs to specify necessary data, indicators and parameters and direct other agencies[MARD, MONRE, LGUs] 	<ul style="list-style-type: none"> Exchange experiences on DRR and CCA integration, techniques, including risk assessment Multi- and bilateral cooperation
Data sharing and dissemination	<ul style="list-style-type: none"> Insufficient facility for disseminating information 	<ul style="list-style-type: none"> Cooperation mechanism between network service providers, forecast agencies, receivers Access to data by provincial government needs to be improved [DNDPC, NHMS, LGUs] 	
Early warning system and disaster risk communication	<ul style="list-style-type: none"> Multi-hazard early warning systems is needed Insufficient communication with local people based on early warning system 	<ul style="list-style-type: none"> Develop an early warning system for multiple disasters and disseminate it to vulnerable communities[MARD, MONRE, MoCom, LGUs] Capacity building of communities on early disaster warning using mobile SMS and smartphone apps [DNDPC, LGUs] 	

	<ul style="list-style-type: none"> Equip skills to response to disaster for communities; education of communities to respond to additional risks is required 	<ul style="list-style-type: none"> Early warning and preparatory training (to prevent forest fire; cannot do much once the fire starts) [DNDPC, VN Forest] 	
Planning and implementation			
Guideline and standard; Land-use and urban planning; Disaster-resilient investment	<ul style="list-style-type: none"> Each ministry has guidelines for specific areas and disseminated at local level Generally local authorities are waiting for guidelines from the national government Capacity building needs at local level; quality of training matters 	<ul style="list-style-type: none"> Develop guidelines incorporating climate risk and review of existing structures adapting to disasters and extreme weathers and disseminate it to LGUs [DNDPC, DCC, MOC] Training program needs to be developed based on actual needs assessment using the 10-year experiences of community-based disaster risk management; it needs to be integrated in the socio-economic development plan [MPI, DNDPC, DCC] 	<ul style="list-style-type: none"> Share standards and guidelines Share planning techniques
	<ul style="list-style-type: none"> Water resources management requires coordination among relevant agencies to avoid overlaps between agricultural, urban and environmental sectors 	<ul style="list-style-type: none"> Coordination office is required for water resources management (a successful case in NinhThuan Province) [MONRE, MARD] 	
	<ul style="list-style-type: none"> CC is cross-cutting; different sectors have different laws; there are two different national strategies 	<ul style="list-style-type: none"> Two national committees on DRR and CCA need to coordinate (and to be integrated and covered by a single agency) [CCNDPC/DNDPC, NCCC/DCC] 	
	<ul style="list-style-type: none"> Developing disaster infrastructure work does not look into CC; only technical specification to be fully complied 	<ul style="list-style-type: none"> Technical standard for infrastructure design incorporating CC risk is required [DNDPC, DWR, MOC] 	
	<ul style="list-style-type: none"> Forest protection is not sufficient 	<ul style="list-style-type: none"> Forest protection and rehabilitation need to be further promoted [DNDPC, VN Forest, DCC] 	
	<ul style="list-style-type: none"> Risk levels need to be determined to prioritize development areas 	<ul style="list-style-type: none"> Determine risk levels to prioritize development projects [DNDPC, DCC] 	

DNDPC: Department of National Disaster Prevention and Control (to be upgraded to a Directorate in July or August 2017)

CCNDPC: Central Steering Committee for Natural Disaster Prevention and Control

DWR: Directorate of Water Resources; DMC: Disaster Management Center

MONRE: Ministry of Natural Resources and Environment; DCC: Department of Climate Change; NHMS: National Hydro-Meteorological Service

MoCom: Ministry of Communication; MOC: Ministry of Construction; MPI: Ministry of Planning and Investment

Attachment 5c

Group discussion summary of the National Workshop in the Philippines

Assessment category	Priority issues	Necessary actions and roles of relevant agencies	Proposed common approaches in ASEAN and required technical assistance
Risk assessment			
Data management	<ul style="list-style-type: none"> Lack of central database system; Lack of coordination among agencies involved Data usage by government agencies is charged 	<ul style="list-style-type: none"> Set up a central database / data sharing system through coordination among relevant agencies [NDRRMC/OCD, PAGASA, MGB/DENR, NAMRIA, DPWH, CCC] 	<ul style="list-style-type: none"> Establishment of standardized database and data sharing
	<ul style="list-style-type: none"> Hydro-meteorological monitoring system needs to be upgraded Data reliability needs to be improved 	<ul style="list-style-type: none"> Upgrade manually-operated monitoring system to automated ones; install extreme weather resilient devices; increase the coverage; validate the data on the ground [NDRRMC/OCD, PAGASA, DPWH] 	
Climate risk analysis	<ul style="list-style-type: none"> Limited basis of CC information for spatial analysis and impact modeling; limited capacity for sectoral climate risk analysis 	<ul style="list-style-type: none"> Build institutional capacity on sectoral climate impact modeling (socio-economic impact analysis); translate climate projection methodologies to flood return periods [NDRRMC/OCD, PAGASA, DPWH] 	<ul style="list-style-type: none"> Sharing of climate risk assessment / modeling methodologies; standardization of the methodologies; implementation of pilot projects
Hazard and risk mapping	<ul style="list-style-type: none"> Varied methodologies and parameters for hazard maps and risk assessment; climate risk is not integrated in hazard and risk maps Limited availability of multi-hazard and climate risk maps (only in Greater Metro Manila); high resolution base maps do not cover the entire country 	<ul style="list-style-type: none"> Simplified guidelines and standards for hazard mapping and risk assessment [NDRRMC/OCD, PAGASA, MGB/DENR, DPWH, CCC] Integration of climate projections to geohazard maps; provision of high resolution base maps covering the entire country [PAGASA, MGB/DENR, NAMRIA] 	
Data sharing and dissemination	<ul style="list-style-type: none"> Online accessibility; limited exposure to information database and tools; redundancy in sharing the data to the public 	<ul style="list-style-type: none"> Capacitate LGUs's access and usage of database and tools [NDRRMC/OCD, PAGASA, MGB, DILG] 	
Early warning system and disaster risk communication	<ul style="list-style-type: none"> Need an impact-based forecast / warning system; no localized (dialect-based) early warning 	<ul style="list-style-type: none"> Implement an impact-based warning system in local languages [NDRRMC/OCD, PAGASA, DILG] 	
Planning and implementation			
Guideline and standard	<ul style="list-style-type: none"> Lack of sectoral design, guideline and standard incorporating climate risk 	<ul style="list-style-type: none"> Update sectoral design, guideline and standard incorporating climate risk; train 	<ul style="list-style-type: none"> Benchmarking and sharing of guidelines, standards

	<ul style="list-style-type: none"> Coastal roads are easily washed away; some LGU officers are not knowledgeable with designs of water-related structures 	national and local government officers to capacitate designs of water-related structures [DPWH]	and good practices
	<ul style="list-style-type: none"> Some project proposals are not compliant with national and regional development plans and river basin master plans Slow implementation of approved and ECC (Environment Compliance Certificate) issued projects due to budget constraint and conflict of interests between stakeholders (e.g. politicians, national government and LGUs) 	<ul style="list-style-type: none"> Build capacity of LGU officers in designing project proposals in compliance with the master plans [DPWH, HLURB, DILG, DENR] Strict issuance of ECCs, building permits, no build zones, safe zones, among others [HLURB, DILG, DENR] 	<ul style="list-style-type: none"> Experts exchange program; cross-visit to other countries for learning / actual observation Training for geotechnical measures for flood-prone, landslide-prone and high elevation areas
	<ul style="list-style-type: none"> Weak water resources management among relevant agencies 	<ul style="list-style-type: none"> Provision of guidelines and strict implementation of integrated water resources management (IWRM) [DPWH, DENR, DA, NIA, MWSS]; strict implementation of the National Greening Program (NGP); revision of the Water Code [DENR] 	<ul style="list-style-type: none"> Capacity building in coastal zone management Updated dam protocols based on hydrology
Land-use and urban planning	<ul style="list-style-type: none"> Weak monitoring and evaluation (M&E) of local development plans Conversion of land-use from agriculture to residential areas 	<ul style="list-style-type: none"> Strengthen M&E of local development plans in accordance with the comprehensive land-use plan, zoning ordinance and national building code [LGUs, DENR] 	<ul style="list-style-type: none"> M&E mechanism on the implementation of land-use plan, zoning ordinance and building code
Disaster-resilient investment	<ul style="list-style-type: none"> Outdated drainage systems and inefficient solid waste management 	<ul style="list-style-type: none"> Improve drainage and solid waste management systems [LDRRMC/OCD, DPWH, DILG, LGUs] 	<ul style="list-style-type: none"> Sharing of cost-benefit analysis of DRR & CCA measures for justifying the investment
	<ul style="list-style-type: none"> Limited number of LGUs accessing the People's Survival Fund (PSF) 	<ul style="list-style-type: none"> Revisit guidelines of the PSF and build capacity of LGUs [DILG, CCC] Active engagement of concerned implementing agencies [NDRRMC/OCD] 	
	<ul style="list-style-type: none"> Limited insurance for disasters 	<ul style="list-style-type: none"> Promote insurance [NDRRMC/OCD, DA] 	

NDRRMC: National Disaster Risk Reduction and Management Council; LDRRMC: Local DRRM Council; OCD: Office of Civil Defense; PAGASA: Philippines Atmospheric, Geophysical and Astronomical Services Administration; DPWH: Department of Public Works and Highways; DENR: Department of Environment and Natural Resources; MGB: Mines and Geoscience Bureau; NAMRIA: National Mapping and Resource Information Authority; CCC: Climate Change Commission; NEDA: National Economic and Development Agency; NIA: National Irrigation Administration; MWSS: Metropolitan Waterworks and Sewerage System; DA: Department of Agriculture; HLURB: Housing and Land Use Regulatory Board; DILG: Department of Interior and Local Government; LGUs: Local Government Units