

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

Overall assessment

Disaster and climate risk:

- Myanmar is rated one of the most disaster and climate risk countries in ASEAN as well as in the world. Myanmar ranks the 5th high risk country by the World Risk Index (WRI) in 2016, 23rd of the Global Climate Risk Index (GCRI) in 2015, and the most vulnerable and less readiness country in ASEAN by the University of Notre Dame Global Adaptation Initiative (ND-GAIN) in 2015. Most of the disaster damages in Myanmar are caused by storms and floods in terms of the numbers of deaths and affected people and the costs.

DRR systems of flood, storm, landslide and drought:

- The **Relief and Resettlement Department (RRD)** under the Ministry of Social Welfare, Relief and Resettlement (MoSWRR) provides immediate relief and aids to disaster affected people, coordinates stakeholders for rehabilitation and reconstruction and conducts training and awareness programmes on DRM; *disaster prevention and mitigation are not the main focus.*
- The **General Administration Department (GAD)** of the Ministry of Home Affairs (MoHA) has branch offices in Township level which are responsible for transmitting warning messages and taking necessary response actions during disasters. *However, allocation of human resources at the Township GAD level is not sufficient to cover all Village Tracts and there is no specialised section for disaster management.*
- The **National Natural Disaster Management Committee (NNDMC)** established in 2016 is chaired by the Second Vice President and co-chaired by the Union Ministers of Home Affairs (MoHA) and Social Welfare, Relief and Resettlement (MoSWRR). The Committee has 26 members from line ministries and others and 12 Working Committees, *which implies an inter-ministerial coordination system is in place.*
- The **Myanmar Disaster Preparedness Agency (MDPA)** chaired by the Union Minister of Social Welfare, Relief and Resettlement established in 2011 takes systematic preparedness measures for disasters and undertakes quick and effective relief and support activities during disasters. The **Myanmar Disaster Preparedness Management (MDPM) Working Committee** chaired by the Deputy Minister for Social Welfare, Relief and Resettlement exists at the government levels of Region/State, District, Township and Village Tract/Village as a Disaster Preparedness Committee.
- *Responsible agencies for the river basin management are not clear.* The **Directorate of Water Resources and Improvement of River System (DWIR)** of the Ministry of Transportation and Communications (MoTC) is responsible for management of major rivers; while the **Irrigation and Water Utilization Management Department (IWUMD)** of the Ministry of Agriculture, Livestock and Irrigation (MoALI) is responsible for managing water use in the tributary river basins and manages the irrigation systems and the flood risk.
- The **Ministry of Construction (MoC)** is responsible for landslide management, *but the focus is on quick response and recovery and not on prevention and mitigation.*

CCA systems:

- The **Environment Conservation Department (ECD)** of the Ministry of Natural Resources and Environmental Conservation (MoNREC) is the national focal point for the climate change issues and plays a coordination role for CCA. The **National Environmental Conservation and Climate Change Committee (NECCC)** established in 2016 and the **Myanmar Climate Change Alliance (MCCA)** launched in 2013 are the main platforms for inter-ministerial coordination and mainstreaming CCA in each ministry's policies.

Integration of DRR and CCA:

- The **Myanmar Action Plan on DRR (MAPDRR, 2012)** lays the road map for DRR implementation with incorporation of CCA. Similarly, the **Myanmar Climate Change Strategy and Action Plan (MCCSAP, 2016-2030)** stresses the importance of resilient society development with active engagement of other ministries. *These cross-sectoral action plans indicate possibilities for effective implementation of DRR and CCA through multi-ministerial coordination.*

Funding:

- *Financial sources for prevention and mitigation of disasters are scattered among the line ministries.*
- *Domestic funding for CCA projects is limited.*

- *Payment for ecosystem services has not been implemented yet.*

Risk assessment:

- The RRD records the disaster data, *but it has not been publicised as a database yet.*
- The **Department of Meteorology and Hydrology (DMH)** of the Ministry of Transport and Communication (MoTC) is responsible for weather and flood forecast based on the hydro-meteorological data management. *Meteorological stations are mainly located in townships and not enough in the upstream of river catchment areas. There is no governmental agencies conducting downscaling from Global Climate Models (GCMs).*
- The DMH is responsible for the preparation of flood hazard and risk maps, *but the coverage is still limited, resolution is not high enough for land-use planning, and the climate risk is not incorporated yet. Hazard and risk maps for storm surge, landslide and drought have not been prepared yet.*

Planning and implementation:

- *There is no concrete DRR guideline or standard incorporating climate risk yet.*
- *DRR planning and implementation (without incorporating climate risk) are insufficient yet. But there are potential good practices for DRR and CCA integration, for example, in Bago River Basin and Ayeyarwady Delta.*

Capacity Building

- *DRR training for the Division and State level has been implemented by the RRD, but its extension in the Township and Village levels is limited.*
- *Agro-meteorological service provided by the DMH is effective and the nation-wide extension is demanded.*

1. Laws, regulations and policies	
1) National development plan	<ul style="list-style-type: none"> • The 20-year National Comprehensive Development Plan (2011-2030) covers both DRR and CCA aspects in line with the climate smart approaches, including resilience, risk management and climate change mitigation strategies aligned with environmental protection and natural resources management toward sustainable development. • <i>DRR and CCA concepts are stressed in the national development plan.</i>
2) DRR laws and regulations	<ul style="list-style-type: none"> • The Natural Disaster Management Law (2013) was developed to be in line with the Hyogo Framework for Action (2005-2015) and to comply with the ASEAN Agreement on Disaster Management and Emergency Response (AADMER). The law focuses on risk information, preparedness, awareness and early warning, and data management for early warning, <i>and does not include the concept of CCA.</i> • The Myanmar Action Plan on DRR (MAPDRR, 2012) consists of 7 components: 1) Policy and institutional arrangement; 2) Hazard, vulnerability and risk assessment; 3) Multi-hazard early warning systems; 4) Preparedness and response programmes at national and regional levels; 5) Mainstreaming of DRR into development; 6) Community-based disaster preparedness and risk reduction; and 7) Public awareness, education and training. Elements of CCA are incorporated, for example, in 3.3 Improved meteorological observation and forecasting; 3.4 Enhanced flood monitoring and forecasting capacities at township level; 5.2 National land use and physical planning policy; 5.3 Sustainable coastal development to protect against natural disasters; 6.7 Integration of community based DRR into community development projects; and 6.8 Development and implementation of community based natural resource management programs. • <i>The MAPDRR supported by the Natural Disaster Management Law lays the road map for DRR implementation with incorporation of CCA.</i>
3) CCA laws and regulations	<ul style="list-style-type: none"> • The Environmental Conservation Law (2012) aims to lay down the basic principles and give guidance for systematic integration of environmental conservation in the sustainable development process. The law enables the formation of an Environment Conservation Committee and the establishment of an Environmental Management Fund for environmental conservation works. The law also identifies duties and powers of the Ministry of Natural Resources and Environmental Conservation (MoNREC) in guiding climate change mitigation and adaptation policies. • The Myanmar Climate Change Strategy and Action Plan (MCCSAP, 2017) has identified 6 key sector entry points: Climate smart agriculture, fisheries and livestock for food security;

	<p>Sustainable management of natural resources for health eco-system; Resilient and low carbon energy, transport and industrial systems for sustainable growth; Resilient, inclusive and sustainable cities and towns where people can live and thrive; Climate risk management for people's health and well-being; and Education, science and technology for a resilient society.</p> <ul style="list-style-type: none"> • <i>The MCCSAP stresses the importance of resilient society development under the guiding principles of inclusive, resource-efficient, integrated and result-oriented development particularly with the active engagement of other ministries including the Ministry of Natural Resources and Environmental Conservation (MONREC), Ministry of Social Welfare, Relief and Resettlement (MSWRR), Ministry of Agriculture, Livestock and Irrigation (MoALI), Ministry of Construction (MoC), and Ministry of Transport and Communication (MoTC), among others.</i> • <i>There are no drought-specific laws and regulations pertaining to CCA in the country.</i>
4) Relevant sectoral laws and regulations	<ul style="list-style-type: none"> • The Forest Law (1992) supports conservation initiatives, sustainable forestry practices and socio-economic benefits and encourages private sector and community participation in forest management. Relevant plans and policies include the 30-year National Forestry Master Plan (2001-30), the Comprehensive Plan for Dry Zone Greening (2001-31), the National Biodiversity Strategy and Action Plan (2011), among others. • The National Water Resource Committee was formed in 2014 and the Water Policy (2014) and associated water directives were adopted. The Forest Department under the MoNREC is focusing on the sustainability of watersheds and to prevent sedimentation inside dams and reservoirs by drafting a National Watershed Management Policy and formulating Action Plans for establishing watershed plantations in watershed areas of major dams, reservoirs and water sources. • The Ministry of Construction is working to develop Myanmar specific national building codes with international support. • To promote sustainable urbanisation, the Government of Myanmar is drafting a National Urban and Regional Development Planning Law, a National Housing Policy and a National Urban Policy. The Law of Protection of Farmers' Rights and Enhancement of their Benefits (2013) assures farmers to receive assistance from the Ministry of Agriculture, Livestock and Irrigation (MoALI) when affected by disasters. • <i>Relevant sectoral laws and regulations for forest management, water resources management and land-use management, among others, are in place but the degrees of enforcement are not clear.</i>
2. Institutional arrangement	
1) National DRM system	<ul style="list-style-type: none"> • The National Natural Disaster Management Committee (NNDMC) established in 2016 is chaired by the Second Vice President and co-chaired by the Union Ministers of Home Affairs (MoHA) and Social Welfare, Relief and Resettlement (MSWRR). The Committee has 26 members from line ministries and others and 12 Working Committees covering the themes of national disaster management (chaired by the MSWRR), rehabilitation and reconstruction (Minister of Construction), fund raising and management (MSWRR), assessment of requirements and damage/loss (Ministry of Planning and Finance), and Environment conservation (MoNREC), among others. • The Myanmar Disaster Preparedness Agency (MDPA) chaired by the Union Minister of Social Welfare, Relief and Resettlement was established in 2011 to take systematic preparedness measures for disasters and to undertake quick and effective relief and support activities during disasters. The MDPA consists of 13-member agency with the Union Ministers for Defense and Home Affairs as co-chairs and Deputy Ministers of designated ministries as members. The 11-member Myanmar Disaster Preparedness Management (MDPM) Working Committee chaired by the Deputy Minister for Social Welfare, Relief and Resettlement supervises the implementation of disaster management activities in accordance with MDPA guidelines and coordinates MDPA activities. The Director General of Relief and Resettlement Department (RRD) is the Secretary of the Working Committee. • The Myanmar Disaster Preparedness Management (MDPM) Working Committee exists at the government levels of Region/State, District, Township and Village Tract/Village as a Disaster Preparedness Committee. • The Relief and Resettlement Department (RRD), MSWRR, was established to provide immediate relief and aids to disaster affected people; provide support to people who suffer from starvation; coordinate with stakeholders for rehabilitation and reconstruction; and conduct training and awareness programs on DRM; <i>disaster prevention and mitigation are not the main focus</i>. The RRD has branch offices in Region/State and District levels but not in Township level. • The General Administration Department (GAD) of the Ministry of Home Affairs (MoHA) has

	<p>branch offices in Township level which are responsible for transmitting warning messages and taking necessary response actions during disasters. <i>However, allocation of human resources at the Township GAD level is not sufficient to cover all Village Tracts under the Township and there is no specialised staff or section for disaster management.</i></p> <ul style="list-style-type: none"> • <i>National DRM system including the inter-ministerial NNDMC and the national-subnational MDPM Working Committee has been setup.</i> • <i>All the national institutional systems have multi-hazard focus and hence no drought-specific institutional mechanisms are in place.</i>
2) National CCA system	<ul style="list-style-type: none"> • The National Environmental Conservation and Climate Change Committee (NECCC) was established in 2016 and chaired by the Vice President. The Committee has 6 sub-committees including the Climate Change Mitigation and Adaptation Sub-Committee served by the Environmental Conservation Department (ECD), MONREC, as a secretariat. • The Myanmar Climate Change Alliance (MCCA) launched in 2013 with the support of the EU-funded Global Climate Change Alliance provides a platform to mainstream climate change into Myanmar Government's policy development and reform agenda. • <i>An inter-ministerial national CCA system has been setup.</i>
3) Transboundary disaster risk management	<p><u>River basin management</u></p> <ul style="list-style-type: none"> • <i>Responsible agencies for the river basin management are not clear.</i> The Directorate of Water Resources and Improvement of River System (DWIR) of the Ministry of Transportation and Communications (MoTC) is responsible for management of major rivers; while the Irrigation and Water Utilization Management Department (IWUMD) of the Ministry of Agriculture, Livestock and Irrigation (MoALI) is responsible for managing water use in the tributary river basins. IWUMD manages the irrigation systems including irrigation canals, weirs, navigation locks, sluice gates, irrigation dams and multipurpose dams. IWUMD is also responsible for flood risk management in the tributary river basin including construction of dikes and improvements of the channels. Also, in case of flooding along major rivers, IWUMD constructs flood control structures such as dikes. <p><u>River management</u></p> <ul style="list-style-type: none"> • Based on the River Conservation Law in 2006, DWIR has the responsibility of water resources management of major rivers such as Ayeyarwady, Chindwin and Sittaung Rivers. <i>However, the main focuses are limited to the maintenance of navigation system along the major rivers</i> through dredging, cutting bending portions, bank protection against erosion, and monitoring of the water level (by the Department of Meteorology and Hydrology (DMH) of the MOTC), water quality and sedimentation. For construction of any river structures along the major rivers or tributaries, approval or agreement from the DWIR is required. <p><u>Forest management</u></p> <ul style="list-style-type: none"> • The Forest Department of the Ministry of Resources and Environmental Conservation (MoNREC) is the responsible agency for forest management including conservation of forest and reforestation of upland forest and mangrove forest in the coastal areas. <p><u>Drought risk management</u></p> <ul style="list-style-type: none"> • The Ministry of Agriculture, Livestock and Irrigation (MoALI) deals with drought impacts and related risk reduction activities in agriculture and related water resources management; while the Ministry of Social Welfare, Relief and Resettlement (MoSWRR) addresses the social aspects of the drought risk reduction as one of the targeted disasters. Drought risk management activities are listed in the Myanmar Action Plan on DRR (MAPDRR) 2012 as sub-components of 2.5 Drought prone area mapping; 3.6 Drought study and monitoring; and 5.8 Sustainable development in dry zone area to protect/mitigate against drought. • The Dry Zone Greening Department was established in 1997 under the Ministry of Environmental Conservation and Forestry (MoECAAF then; now MoNREC) covering 21 million acres of dry land forests.
3. Funding	
1) Funding for DRR	<ul style="list-style-type: none"> • <i>The financial sources for the prevention and mitigation of disasters are scattered among line ministries.</i> • <i>The majority of the RRD's budget is used for the personnel and operation expenses and maintenance of existing facilities. Strategic investment in DRR activities is limited.</i> • <i>Some DRM activities are funded by development partners.</i> • The Myanmar Humanitarian Fund (MHF) is a funding mechanism managed by the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) to provide an emergency response

	<p>and timely assistance to urgent needs of people affected by natural disasters. Prior to 2015, the MHF was known as the Myanmar Emergency Response Fund (MERF). The MHF allocations are made to ensure a rapid response to sudden-onset emergencies or to rapidly deteriorating conditions in an existing emergency and to support humanitarian response activities within an underfunded emergency.</p> <ul style="list-style-type: none"> The local governments in collaboration with the international organisations and non-governmental organisations are implementing the Community Based Disaster Risk Reduction (CBDRR). The CBDRR in the Cyclone Nargis affected areas, which is a typical example, is a joint project of the UNDP and UN-HABITAT in line with the notion of “building back better”. Through the financial and technical assistance, the overall objective of the programme was to enhance basic disaster preparedness of the cyclone-affected communities and integrate disaster risk reduction efforts. Towards this objective, the programme is designed to deliver outputs such as community-based disaster preparedness, capacity development for integrating disaster risk reduction in the rebuilding of human settlements, and awareness generation, knowledge networking and partnerships among relevant stakeholders.
2) Funding for CCA	<ul style="list-style-type: none"> <i>Domestic funding for CCA projects is still limited.</i> CCA projects targeting community-based forestry management, strengthening fisheries and aquaculture-dependent livelihoods, water resources management and food security in the Central Dry Zone, eco-system-based adaptation for urban resilience, mangrove rehabilitation and management, etc, are funded by international organisations including the Least Developed Countries Fund (LDCF), Global Environmental Facility (GEF), Adaptation Fund, JICA, among others.
3) Payment for ecosystem services	<ul style="list-style-type: none"> <i>Payment for ecosystem services has not been implemented yet.</i>
4. Risk assessment	
1) Management of disaster records	<ul style="list-style-type: none"> The Relief and Resettlement Department (RRD) of the Ministry of Social Welfare, Relief and Resettlement (MoSWRR) keeps disaster damage records including the damage data, <i>but disaster database has not been developed and publicised yet.</i>
2) Meteorological data management and climate risk analysis	<ul style="list-style-type: none"> The Department of Meteorology and Hydrology (DMH) conducts weather forecast based on meteorological observation mainly at townships. DMH is measuring water level along major rivers such as Ayeyarwady, Chindwin, Sittaung, Thanlwin and Bago Rivers and forecasting flood water levels. DMH is now developing weather observation and forecasting systems using s-band radar rain gauges in Rakhine State, Yangon and Mandalay with support from the Government of Japan. There are other projects for upgrading meteorological gauging stations supported by the Government of India. Some of the meteorological stations may have data up to 50 years or so. Future changes of temperature and precipitation have been estimated for Myanmar using a number of global and regional climate models. For the purpose of NAPA (National Adaptation Programme of Action), the predictions from the model ‘Providing Regional Climates for Impacts Studies’ (PRECIS) are reported. The model was conducted using 20 km x 20 km resolution, and operated by the South East Asia System Analysis Research and Training Regional Centre (SEA START RC) using A2 emissions scenario. The baseline information uses modelled data for the period 1971-2000. The model used data collected at seven stations, assumed to be representing seven physiographic regions in Myanmar. Customized climate outlook for geographical areas (three states and regions) was developed by RIMES and DMH in developing agro-meteorological bulletin on a shorter timescale (3-5 days) as an AI system where the user gives input and the system provides an outlook (SESAME, Specialized Expert System for Agro-Meteorological Early Warning); developed by the RIMES and UNESCAP, DMH and MOA and piloted in two townships. Monsoon forums being organized by the DMH is helping in developing the regional and sub-regional climate outlooks and improving the forecasts for specific users such as agriculture and water resources. <i>Meteorological observation stations are mainly located in townships and not enough in upstream of river catchment areas.</i> <i>There is no governmental agency conducting downscaling from Global Climate Models (GCMs).</i>
3) Preparation of hazard maps and risk maps	<ul style="list-style-type: none"> The DMH is in charge of preparing hazard maps and risk maps for storm, flood and drought. <i>However, only some hazard maps for several areas along the Ayeyarwady River including the delta area and cities such as Mandalay were prepared by the support of the Governments of Canada and Switzerland and the European Union (EU) and by using the study results of the Asian</i>

	<p><i>Development Bank (ADB) etc.</i></p> <ul style="list-style-type: none"> • <i>There are no clear hazard maps and risk maps of storm, flood and drought covering the whole country. There are no hazard maps and risk maps of landslide either.</i>
4) Data sharing and dissemination	<ul style="list-style-type: none"> • <i>Hazard maps and risk maps are not widely disseminated yet</i> but only used for land-use and urban planning of major cities and specific areas.
5) Early warning system and disaster risk communication	<ul style="list-style-type: none"> • The DMH has a flood forecasting and warning system and uses the website, Facebook and Radio/TV/media for the information dissemination. Water level forecast is provided in a period of long range, seasonal, monthly, 10 days and daily. • <i>Access to the rain and flood forecasting and early warning provided by the DMH has been increasing as the service quality improves and the awareness of people raised after experiencing multiple rain-induced disasters in recent years.</i>
5. Planning and implementation	
1) Design guideline and standard	<ul style="list-style-type: none"> • Climate change impacts are considered in the plans such as the Myanmar's National Adaptation Programme of Action (NAPA) to Climate Change (2012) and the Myanmar Climate Change Strategy and Action Plan (MCCSAP) 2016-2030, <i>but no concrete guideline or standard incorporating CCA is formulated yet.</i>
2) Local land-use plan and urban plan	<ul style="list-style-type: none"> • The Myanmar Action Plan on DRR (MAPDRR) 2012 has following land-use related sub-components: 5.2 National land use and physical planning policy to formalise land use planning procedures in urban and rural planning activities; 6.7 Integration of community-based DRR into community development projects in selected 30 villages in Ayeyarwady and Mandalay Regions; and 6.8 Development and implementation of community-based natural resources management programs in 10 townships in Ayeyarwady and Shan. • <i>Land-use and urban plans incorporating disaster risk is promoted but the ones incorporating climate risk is yet to seen.</i>
3) Disaster-resilient public and private investment	<ul style="list-style-type: none"> • Cyclones usually cause damage in the western coastal areas in Rakhine State, but the Cyclone Nargis in May 2008 caused tremendous damage in Ayeyarwady Delta causing about 140,000 casualties. For the Ayeyarwady Delta, strengthening of preparedness by forecasting and warning cyclones is being conducted by the assistance of JICA. In addition, for evacuation, cyclone shelters have been constructed in the Delta by the Myanmar Government with the assistance of several international agencies including JICA. Furthermore, reforestation of mangroves is also being conducted in the Delta. <i>These measures are implemented in response to the disaster but they are also effective for the conditions with climate change.</i> • In the Bago River Basin, based on the integrated plans for navigation, irrigation and flood mitigation which were formulated about 140 years ago (in the middle of 1870s), various water use cum flood control facilities such as Bago-Sittaung Canal, navigation locks, irrigation and drainage canals with sluice gates, and Moe Yin Gyi storage cum retarding basin were constructed. <i>Although these structures were planned and designed without consideration of the impacts of climate change, they are still functioning well</i> with renovation including rehabilitation of the dikes and dredging. However, Bago City and surrounding low-lying areas still suffer from floods despite the newly constructed four flood control dams (Salu, Shwe Laung, Kodukwe and Zaung Tu Dams) in the upstream of Bago River. <i>In order to mitigate the damage, integrated flood management plan with the Sittaung River is required.</i> • The Ministry of Construction (MoC) is responsible for landslide management, <i>but the focus is on quick response and recovery and not on prevention and mitigation.</i> • <i>Development of DRR plans and the implementation without consideration of climate change impacts are insufficient yet. Some areas have a potential to develop DRR plans with CCA.</i>
4) Drought risk reduction and water resources management	<ul style="list-style-type: none"> • Water management is a crucial aspect in the drought risk reduction and <i>a very little progress has been made in this area.</i> The water management is done through regional level Water Management Committees comprising of Departments of Irrigation, Agriculture, Statistical and General Administration of Township and this Committee decides when and to what crops to release the water. <i>Though there are water user groups unofficially, these are not established under every pump.</i> There is a Water Resources Committee in Myanmar and related departments and ministries are part of the Committee. This is the apex body for water resources management in Myanmar and the DWIR is serving as focal agency and the Director General of the DWIR is the Secretary for the Committee. <i>However, the role of the Committee in drought risk reduction has not been very clear.</i> At the village level, the Village Irrigation Committees usually take care of the village level ponds. If the tanks have command more than 5,000 acres, then the national level

	<p>IWUMD takes care of them. Below this size, the local governments such as Townships and Regional Governments take care of their maintenance.</p> <ul style="list-style-type: none"> • In terms of government programs, some of the sector ministries are bringing new crop varieties such as legumes etc. to deal with the Dry Zone problems. Myanmar has lot of programs combining food security and Dry Zone concerns. Food security, nutrition, health care etc. are being looked into in a comprehensive and inter-linked manner. The Government of Myanmar has established a Dry-Zone Greening Department based in Mandalay which promotes several afforestation projects. • <i>Water resources management is being promoted and piloted along the main rivers including Ayeyarwady River.</i>
6. Capacity building	
1) DRR and CCA training	<ul style="list-style-type: none"> • The RRD has been conducting disaster management training courses at the Division and State levels since 1977. The program by the RRD incorporates a five-day training schedule which teaches the history of disasters and hazard information in Myanmar and preparation for fire, earthquake, cyclone, tsunami, landslide, etc. The training curriculum is continuously updated as the country responds to current disaster situations. • <i>DRR training for the Division and State level has been implemented by the RRD, but it needs to be extended to Township and Village levels too.</i>
2) Sector-wise training	<ul style="list-style-type: none"> • The DMH issues Agro-Meteorological Weekly Forecast and has broadcasted it in a TV Farmer Channel since 2013. The DMH also organises Agro-Met Basic/Intermediate Courses and the Forecast Application for Risk Management in Agriculture (FARM) School for farmers and local staff of the Department of Agriculture. A location-specific weather advisory project called SESAME (Specialized Expert System for Agro-Meteorological Early Warning) provides 3-day and 10-day forecast of wind speed, rainfall and temperature via Facebook and SMS to farmers in two pilot sites of Central Dry Zone which influence their decisions such as the timing of sowing and harvesting of crops. • <i>Agro-meteorological service is in high demand and the DMH needs to extend it nation-wide.</i>