

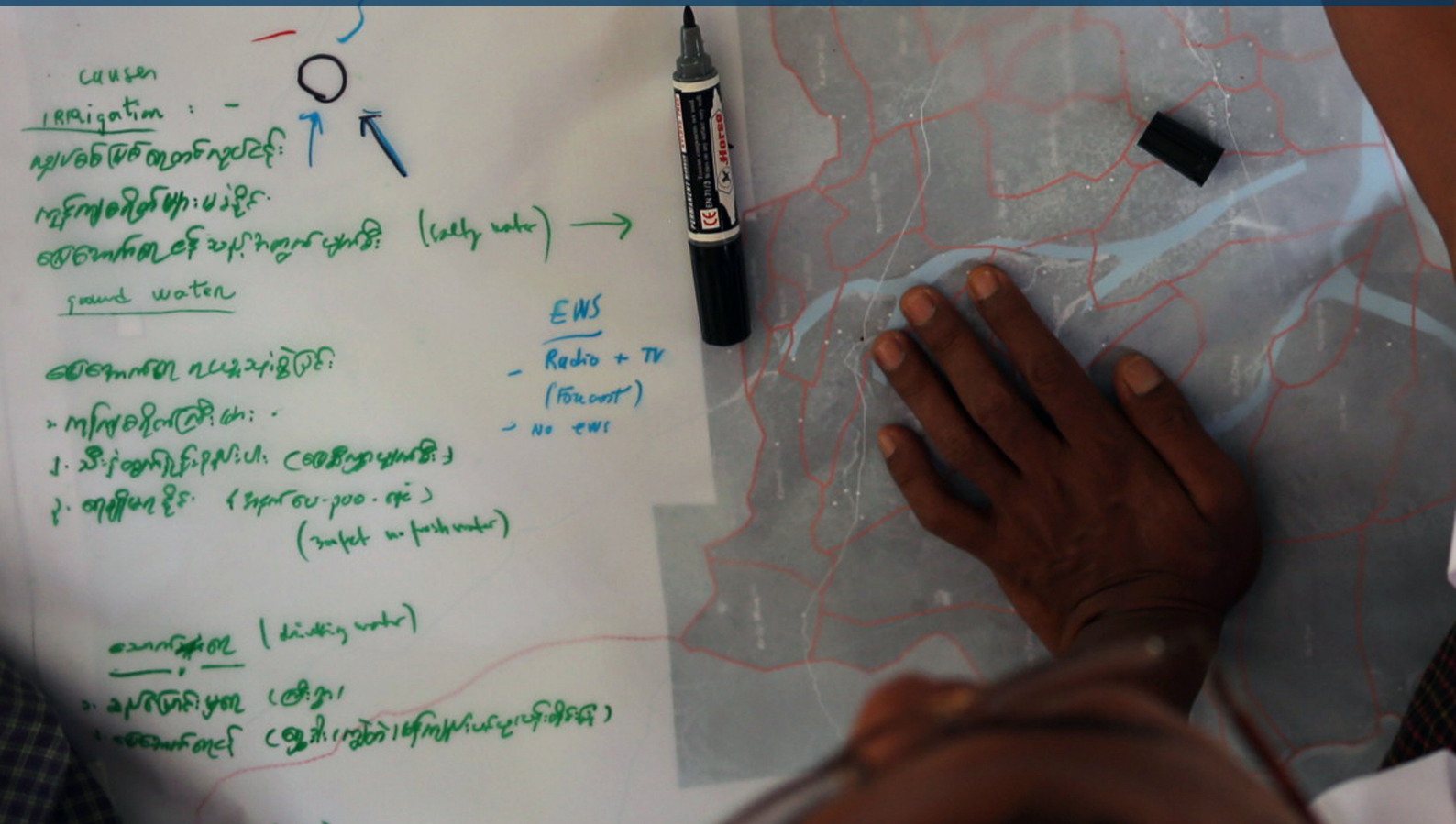
Managing climate risks for people's health and well-being

Policy Guidance Brief 5

October 2017

Movement popⁿ

- Irrigation
- ...
- ...
- ...
- ...



The Myanmar Climate Change Strategy & Action Plan (MCCSAP) is a 15-year road map of Myanmar's strategic response to climate-related risks. MCCSAP aims to increase the adaptive capacity of the country and maximise opportunities for low-carbon and climate-resilient development. To achieve this, the Strategy is intended to guide investments in six key development sectors including: (i) agriculture, fisheries and livestock; (ii) environment and natural resources; (iii) energy, transport and industry; (iv) urban development; (v) health and disaster risk reduction; and (vi) education, public awareness and technology.

This Guidance Brief is one of a series produced by the Myanmar Climate Change Alliance (MCCA) to help develop understanding on key sectoral challenges, strategic objectives and specific actions to effectively address climate change in Myanmar. The series aim at providing high-level policy guidance designed for use by the Members of the six sectoral Working Groups on MCCSAP. In addition, the briefs seek to raise awareness of various stakeholders on the national priorities of action in the field of climate change.

Key Points

- Improving the health status of Myanmar's population remains a challenge as current efforts are impeded by poverty and malnutrition in rural areas, inadequate hygiene and sanitation, and limited health care access in remote locations.
- Myanmar is prone to natural hazards and has been recently ranked as the second-most vulnerable country to weather-related extreme events. Latest climate change projections suggest that in future, climate hazards like extreme temperatures, floods and storm surges, will have significant implications for health in the absence of adequate climate risk management, health and social protection systems.
- The potential health risks from climate change include: increase of waterborne and vector-borne diseases, heat-related illnesses, injuries and deaths, food insecurity and increased malnutrition. The poor, women, children and the elderly, as well as communities living in remote high-risk areas are most vulnerable.
- To enhance the resilience of its population and economy to climate hazards, Myanmar should work towards integrating climate change into existing disaster risk reduction (DRR) initiatives and strengthening its early warning capacities. Myanmar should implement various adaptation measures to address the health risks from climate change such as improving access to health services, sanitation and hygiene, climate-proofing of health care infrastructure and raising public awareness. The government also must develop inclusive social protection approaches to tackle climate risks.
- According to the Climate Change Action Plan for the Natural Hazards and Health Sector, by 2030

communities and economic sectors should be able to respond to and recover from climate-induced disasters, risks and health impacts and build a healthy society.

- The expected results to achieve this outcome are: (i) climate risk management system is well-established, robust and nationally integrated to respond effectively to increased intensity and impact of risks and hazards on people's health and wellbeing; (ii) improved social protection, gender consideration and risk finance capacity to prepare for and recover from potential loss and damage resulting from climate change; (iii) Myanmar's health system is improved and can deal with climate-induced health hazards and support climate-vulnerable communities to respond effectively to disaster and health hazards from climate change.



Why is the climate hazards and health sector of strategic importance for the sustainable development of Myanmar?

Myanmar is facing critical health issues. The life expectancy at birth is 64.7 years (the lowest among ASEAN countries), the maternal mortality ratio is 282 deaths per 100,000 live births (the second highest among ASEAN countries), and child malnutrition is highly prevalent (MoHS, 2016). The limited access to clean drinking water and inadequate sanitation pose additional health risks (MoNREC, 2012b). Furthermore, the poor living standards in the country condition the spread of diseases like diarrhoea, influenza, malaria, dengue fever and tuberculosis, which are a major cause of morbidity and mortality (MoNREC, 2012b).

Recent efforts have been made to improve the health status of Myanmar's population including an increase in public spending on health from 0.2 per cent of the gross domestic product in 2009 to over 1 per cent in 2014 (MoHS, 2016). Yet, the sector remains challenged by shortages of skilled human resources, accessibility in rural areas and unbalanced distribution of health infrastructure. These factors limit the disaster response capacities of the country.

According to the Global Climate Risk Index ranking, Myanmar is the second-most vulnerable country to weather-related*

extreme events that occurred between 1995 and 2014 worldwide.

**Kreft S. et al. (2015)*

Historically, Myanmar has been affected by various climate hazards including cyclones and storm surges, river and flash floods, landslides, droughts, heat waves and wildfires. For the period 1998-2007, the country experienced mostly fire-related disasters (71 per cent of all reported disasters), and numerous storm and flood events (MoSWRR, 2009). A severe dry spell and extreme high temperatures in the summer of 2010 brought water insecurity, economic losses in agriculture, and resulted in 260 heat-related deaths across Myanmar (MoNREC, 2012b). In 2015, torrential rains and the onset of Cyclone Komen caused severe floods and activated landslides across 12 out of 14 states and regions in Myanmar, temporarily displacing from their homes 1.6 million people and causing 132 deaths (CoM, 2015).

In the last four decades, six major cyclones had devastating impacts in Myanmar, among which Nargis (2008) was the largest natural disaster in the country's recent history. Cyclone Nargis hit the Ayeyawady Delta affecting 3.2 million people and killing 138,373 people (MoNREC, 2012b). In 2010, Cyclone Giri left 70,000 people without homes and caused significant losses and damages to infrastructure and assets.

The observed changes in climate-related hazards in Myanmar include: increase in intensity and frequency of cyclone/strong winds; increase in the prevalence of drought events; more unpredictable and intense rainfall; increase in the occurrence of



flooding and storm surges; increase in extreme high temperatures; sea level rise (MoNREC, 2012b). These trends will likely continue in the future. Therefore,

To sustain its socio-economic development, Myanmar needs to improve the public health care system and enhance its disaster risk reduction and management capacities.

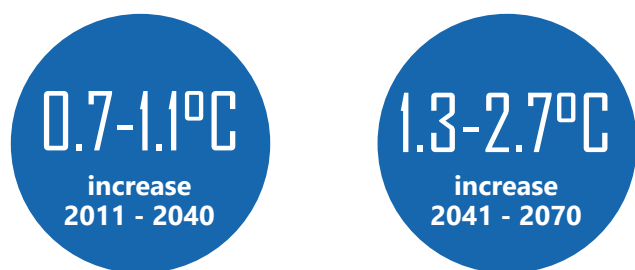
What are the impacts of climate change on human health?

Climate change and hazards pose significant risks to human health. Potential impacts of future climate include increase of waterborne and vector-borne diseases, heat-related illnesses, injuries and malnutrition, among others (MoNREC, 2012b).

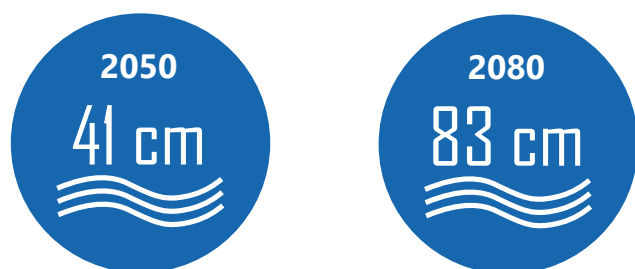
Vector-borne diseases like malaria and dengue will likely spread in highland regions such as Shan state due to the warming of the climate in these areas. An increase in the number of days with extreme hot temperatures will put the population at risk of heat-related illnesses and deaths, and exacerbate cardiovascular and respiratory diseases. Floods and storm surges can contaminate drinking water, which increases the risk of waterborne diseases like diarrhoea, while exposure to flood waters can cause various skin disorders. Floodwater is also a breeding ground for mosquitos and hence increases the risk of malaria. Furthermore, many communities will experience decreased access to safe drinking water due to droughts or salinization of freshwater resources, which will increase the dehydration risks and further exacerbate the exposure to diarrheal diseases. The population living in large urban centres will likely be exposed to high heat stress (urban heat island effect), decreased access to water and nutrition, and increasing pollution levels. Accessibility to health care services in remote regions will be further limited due to an increase in

FUTURE CLIMATE IN MYANMAR AND IMPACTS ON PUBLIC HEALTH

Increasing average temperatures, heat extremes and heat-related morbidity and mortality



Sea level rise



Note: The provided values for increase in temperatures and sea level refer to projections with base period 1980-2005 and 2000-2004, respectively.

Erratic rainfall leading to frequent river and flash flood events, and droughts.

Coastal inundation and salinization of water resources due to sea level rise. Increasing risk of coastal hazards – coastal flooding, storm surges, strong winds and cyclones.

Waterborne and vector-borne diseases
Damaged public health infrastructure due to cyclones

Loss of life, Injuries and illness due to disasters

Social and mental stress from disaster and displacement

Water and food shortages and child malnutrition

Summarized from: Horton R. et al., 2016; MNREC, 2012; MNREC, 2017.



"In 2012 there was a terrible flood. It happened at around 3am when we were sound asleep – we weren't at all prepared and there was no time to take any belongings. We just ran for our lives. My two children were aged seven and three at the time. The electricity was cut out by the flood so we were in the dark and it was really scary. Back then we didn't have mobile phones and there was no warning information system. Most people were swept away by the currents

because they didn't know what to do. Fifty children died.

It was my first experience of a very serious flood – there had only been smaller floods before. The whole house was destroyed. We lost all our belongings and stayed in the monastery for two weeks. We had food but there were so many people living there – I think about six hundred. After two weeks, some were able to move to a new home, but we had to pay three lakh to repair ours so it took time. I worry about the possibility of another flood. We can't move somewhere further from the river's edge because we're too poor. I feel unsafe almost every day but I cannot move. All my relatives live here also. Even if the house is very tall and strong, the ground will move from underneath it. Whether it gets swept away depends on the force of the current. That flood in 2012 swept away 300 homes. "

Myat Myat Khine, 31, Shwe Khan Tar village

Credit: MCCA/UN-Habitat (2016)

the occurrence of hazards like floods, landslides and inundation of low-lying coastal regions.

In future, particularly vulnerable groups such as marginalized and poor people, migrants living in informal settlements, women, children and the elderly will face increasing risk to health, life and food security. Therefore, there is an urgent need of integrating climate change into Myanmar's social protection policies and programmes.





“Twenty-eight people died in this village during Cyclone Nargis. Those of us who survived did so because we took shelter in the monastery. There have been fewer storms since Cyclone Nargis, but we get two or three bad ones a year. My husband has a fishing net and I help him catch fish. We haven’t been able to fish for over a month because the winds are so strong. The winds were never as strong as this in the past. I don’t know

when the weather will improve and my husband and I are starting to think about looking for different work because it’s become too hard to survive. The most we can earn in a day from fishing is 10,000 kyats but some days we get nothing. The average amount is 2,500 kyats.

Since Cyclone Nargis we pay a lot more attention to the weather warnings on the TV and radio. Our village chief sends alerts through the loudspeaker at the monastery also. When Cyclone Nargis struck, no one had experienced such a bad storm before, so some people didn’t pay attention to the warnings. We didn’t take it seriously and we weren’t prepared.”

Ma Sandar Aye, 39, Thingangyin village,
Laputta Township

Credit: MCCA/UN-Habitat (2016)

What is the current response to climate change?

Over recent years, Myanmar has developed new policy instruments within the social protection, public health and DRR sectors, which could play a key role in reducing people’s vulnerability to climate hazards.

Improving early warning systems, particularly advancing the national weather observation capacities and developing drought and flood early warning systems, is identified as a priority area in the National Adaptation Programme of Action.

The latest Myanmar Action Plan on Disaster Risk Reduction (2017) aims at ‘fostering resilient development’ through an integrated and multi-stakeholder approach, and has strong climate change and social protection considerations.

The Myanmar National Framework for Community Disaster Resilience (2017) aims at promoting people-

centred, inclusive and sustainable local development in the face of disasters (including climate hazards), by proposing actions for social protection and disaster preparedness, among others.

Recently initiated, the Myanmar National Health Plan 2017-2021 paves the way towards improved access to basic health services of the population. While the Plan does not make explicit reference to climate change or hazards, “it is meant to provide a framework that will enhance the effective and efficient implementation of those programs within the broader health system, especially at Township level and below”, including of projects relevant to DRR such as Disaster Management and Public Health Emergency, and Vector Borne Diseases Control projects (MoHS, 2016).

The National Social Protection Strategic Plan (2014) has specific objectives of social protection related to disaster risk and climate change such as to contribute to reducing people’s vulnerabilities through enhanced access to information, basic services and predictable income, among others.

What is the required response?

Climate-related disasters have already brought enormous social losses across Myanmar. The future climate will be even more extreme than it is today. Therefore, current policy initiatives on DRR, health and social protection need to be strengthened so that vulnerable communities and sectors can face the uncertainties of the future.

Climate risk management: Myanmar should establish climate risk management systems and integrate climate change into DRR planning and implementation, e.g. by strengthening the national and local weather forecasting systems for improved early warning, promoting the use of climate change data in disaster risk assessments and implementing ecosystem-based DRR.

Adequate public health care: Myanmar should strengthen national and local level capacities to respond to existing and new climate-related health risks, and ensure that most at-risk communities have access to health care. This can be achieved through:

- Conducting sector-specific climate risk assessments and organizing trainings for health

professionals and government staff in order to advance the national and local level capacities for health adaptation planning.

- Improving the access to sanitation and hygiene (e.g. constructing or upgrading water and sanitation infrastructure), climate-proofing of health care infrastructure and ensuring that all citizens have access to basic services.
- Increasing awareness of climate change and health to enable people to undertake actions by themselves that prevent injury and disease due to climate hazards.

Social protection and inclusion: National and local governments should place social protection and inclusion at the core of climate change adaptation and DRR planning and implementation, through:

- Developing inclusive climate change adaptation and DRR plans that consider the needs of children, poor and marginalized groups, and ensure their participation in policy planning and implementation.
- Tailoring climate change adaptation and DRR measures that target vulnerable groups such as low-income families, people with disabilities and women heads of households.



What is the climate change strategy for the climate hazards and health sector?

The Government of Myanmar has recently formulated the Myanmar National Climate Change Policy, which is a high-level statement of the country's long-term vision and position on climate change.

Myanmar's vision is to be a climate-resilient, low-carbon society that is sustainable, prosperous and inclusive, for the well-being of present and future generations.

The Myanmar Climate Change Strategy and Action Plan (MCCSAP) 2016-2030 is the prime instrument for the implementation of the Climate Change Policy, which defines sectoral objectives and response actions.

The Climate Change Action Plan for the Climate Hazards and Health Sector seeks to achieve the following outcome:

Communities and economic sectors are able to respond to and recover from climate-induced disasters, risks and health impacts and build a healthy society.

The sectoral response rests on the following key principles embedded in MCCSAP:

- **Inclusive development** to include poor, landless, marginalised and vulnerable women and men to act as agents of change, and all geographic regions to shape and benefit from opportunities provided by climate-resilient and low-carbon development.
- **Integrated development** to direct government, development partners, civil society, private sector entities and communities to align, harmonise and coordinate policies and programmes to support the strategy's overall objectives.



How does the Climate Hazards and Health Sector Action Plan address the climate change vulnerability of Myanmar?

Climate change impacts and sector-specific issues	Key vulnerability factors	Sector Action Plan: Expected Results	Indicators for monitoring progress
Increasing risk of slow- and rapid-onset disasters, and sea level rise	Limited DRR/management capacities at the national and local levels	Climate risk management system is well established, robust and nationally integrated to respond effectively to increased intensity and impact of risks and hazards on people's health and wellbeing	# of climate risk management systems developed
Reduced connectivity of remote areas	Poor infrastructure and limited access to basic services	Myanmar has improved social protection, gender consideration and risk finance capacity to prepare for and recover from potential loss and damage resulting from climate change	# of local communities, local governments and civil society organisations with access to risk mapping, early warning systems, technologies for disaster preparedness and responses, including a gender-sensitive approach
Loss of life and destruction of infrastructure and houses due to climate-induced disasters	Limited access to health care services especially in rural regions	Myanmar's health system is improved and can deal with climate-induced health hazards and support climate-vulnerable communities to respond effectively to disaster and health hazards from climate change	# of states and townships with capacity for climate risk management planning
Increase/wider spread of vector-borne and waterborne diseases and heat-related illnesses	Rural-urban migration, poverty and social inequality		# of social protection policies, strategies, budgeting and plans that integrate climate change
Food and water insecurity due to climate hazards, malnutrition	Limited capacities of the health and social systems to respond to the growing climate risks		# of gender vulnerability assessments to climate change
Climate-induced migration to large urban centres	Low level of public awareness on the effects of climate change on human health		# of stakeholders that allocate % of resources for social protection and resilience-building activities
Polluted urban environment and effects on the health and quality of life			# of states and townships that integrate climate change in their budgeting systems to finance climate risk management and social protection activities
			# of laws, by-laws, policies and plans within the health sector that integrate climate change
			# of health professionals and government staff with capacity for climate risk and disaster mapping, early health hazard detection and forecasting and resilient planning
			# of households in a climate-vulnerable state/region and township who can access improved health and sanitation practices and resilient health infrastructures



Sectoral Action Plan



Policies and legislation

Objective: Integrate climate change into disaster risk reduction, social protection and health legal, policy and normative instruments

Activities:

- Review existing policies, strategies and guidelines to identify gaps and scope for integrating climate change
- Integrate climate change into DRR, social protection, gender equality and health policies and plans for risk-informed policy development and planning
- Provide support to townships or districts to develop and update disaster preparedness plans to include climate change risks and hazards
- Implement DRR and climate change adaptation activities and scale these up in vulnerable townships in the delta, Dry one, coastal and mountain regions
- Update and implement multi-hazard preparedness and response plans to include climate induced disasters
- Implement activities to reduce climate-induced, water-related health hazards through increased access to safe drinking water, improved sanitation and behaviour change communication
- Pilot social protection measures — such as social transfers, livelihood diversification, weather-indexed crop insurance and access to credit and assets — in five vulnerable regions



Institutions

Objective: Build institutional and decentralised processes to plan and implement climate change responses

Activities:

- Strengthen disaster management committees for effective preparedness and response, including additional human resource development in the context of climate change
- Conduct health vulnerability assessment and develop health adaptation planning to address climate change impacts
- Carry out study to explore national, regional and district linkages and potential mechanisms for climate risk management
- Develop new institutional mechanism for effective

early warning system and communication

- Strengthen the National Disaster Management Technical Centre in Hintada to provide technical support on climate-induced risk and climate change modules



Capacities

Objective: Increase awareness and capacity of relevant ministries to effectively carry out climate risk management

Activities:

- Provide training to local communities on shelter management, search and rescue in the context of climate change
- Provide training and exposure to Department of Meteorology and Hydrology (DMH) staff for climate change research
- Raise awareness on the health impacts of climate change and provide training on mainstreaming climate change in health programming and planning
- Establish research grants to DMH, sectoral agencies and university students to build their capacity to generate knowledge and evidence that is useful for climate risk management
- Incorporate climate change and health modules in school, university and training curricula



Financing

Objective: Build financial capacities to address climate change at local level, using multiple sources of funding

Activities:

- Integrate climate change within national and sub-national DRR planning and budgeting
- Provide training and exposure visits to build capacity of relevant institutions to improve financial management capacity to explore and manage funds for DRR and climate change adaptation
- Mobilise a national contingency fund to support responses to climate risk and disasters



Technology and innovation

Objective: Increase access to climate-resilient and low-carbon technology and practices for climate



Partnerships

Activities:

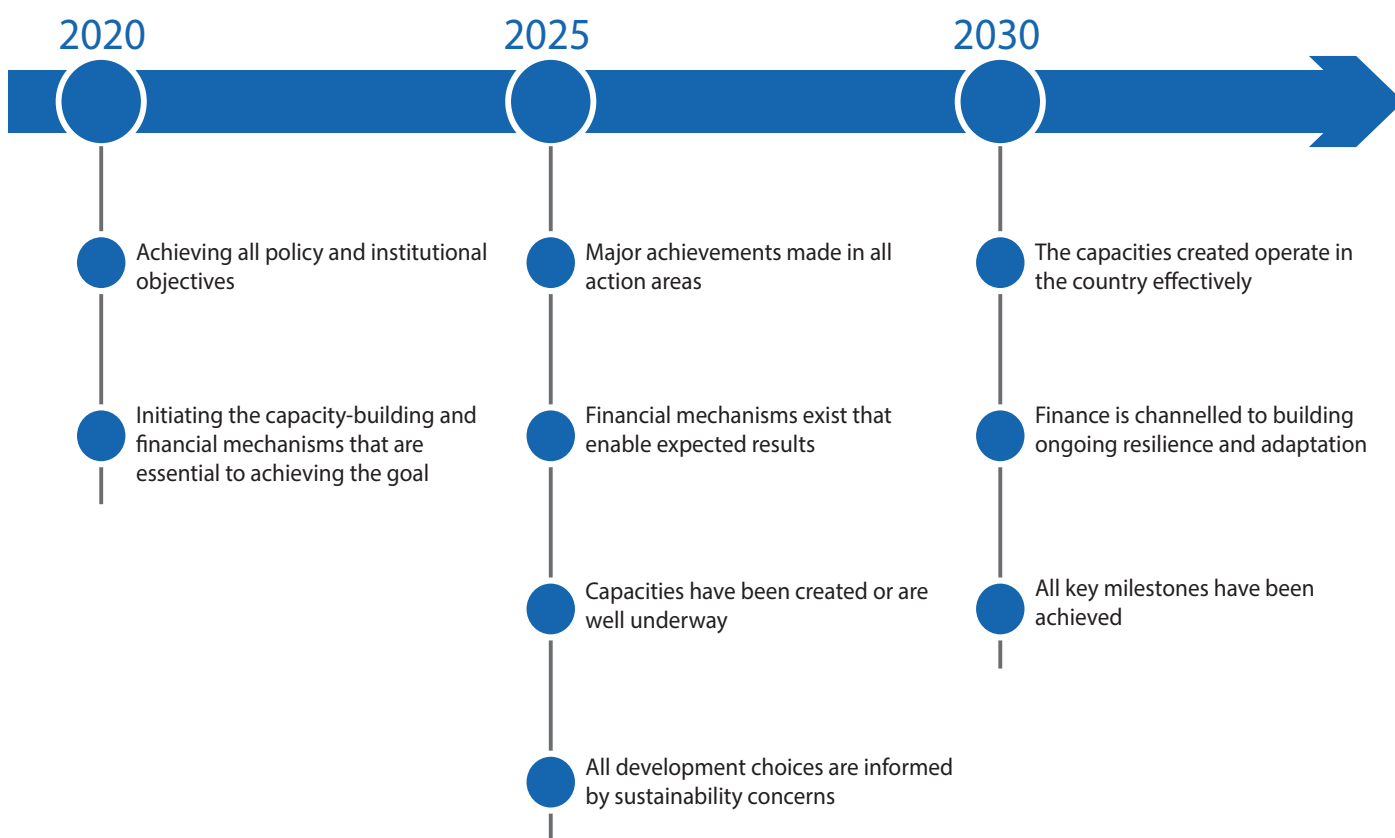
- Provide training to government staff on information and communication technology and other skill-based areas for effective climate change adaptation and DRR responses
- Develop early warning system that is accessible around the day to increase public access to weather and climate-related forecasts
- Improve the efficiency of existing systems by modernising equipment, instruments and tools (ocean, marine)
- Set up water, air and food assessment laboratory or facilities in the Ministry of Health and Sports and in three major cities
- Retrofit and climate-proof critical infrastructure — including schools and hospitals — in climate-vulnerable townships
- Develop climate and weather information services — such as an agro-weather information management system — to generate information for communities
- Train government officials and development practitioners in scientific and technical skills, such as vulnerability assessment and risk and hazard mapping
- Set up national and sub-national-level (in delta, Dry Zone, coastal, flood and mountain regions) integrated surveillance systems for climate-sensitive diseases, with metrology data for early health warning system

Objective: Promote public-private and civil society partnerships at national and sub-national levels for climate change resilience and sustainability

Activities:

- Form new — or revitalise and upgrade existing — district, township, state and national level multi-stakeholder disaster risk management committees, integrating climate change within their portfolios
- Set up a network and DMH links with international networks to exchange information and knowledge on climate and disaster forecasting
- Design and implement multi-stakeholder projects on climate risk management in climate-vulnerable areas
- Develop multi-stakeholder, social protection and resilience-building projects for Green Climate Fund and Adaptation Fund targeted to the most vulnerable townships in Dry Zone, delta and coastal areas

Timeframe to achieve results



How can the response to climate change within the climate hazards and health sector bring sustainable development outcomes?

Strengthening weather forecasting systems, conducting climate risk assessment studies for key economic sectors and raising awareness of the private sector can help build resilient economy, food production systems and jobs market.

Building climate resilient health infrastructure and services accessible to all can reduce the risk of human losses due to disasters and improve the well-being of people living in remote regions.

Integrating climate change into social protection systems, e.g. by introducing job guarantee schemes and training programmes for people affected by disasters, can help alleviate poverty. When these policies are tailored to take into account the needs of most vulnerable groups such as women, migrants

and the poor, they can bring social equity outcomes.

Integrating ecosystem-based actions into DRR frameworks can provide numerous co-benefits in terms of disaster resilience, public health, climate change mitigation (carbon sequestration), food and water security, and biodiversity. For instance, restoration of forests can safeguard critical ecosystem services such as flood control, water purification and food. Introducing open green spaces and green roofs in cities can reduce air pollution and the adverse effects of heat waves.

Strengthening environmental and health education and engaging children and youth in DRR, can bring social change toward a resilient future.





Building Resilience and Adaptation to Climate Extremes and Disasters (BRACED)

BRACED encompasses projects that aim at helping people to become more resilient to climate extremes in South and Southeast Asia, including in Myanmar. Through an online platform, BRACED partners share new knowledge and practical tools to support learning on resilience covering a wide portfolio of topics such as climate and weather information, gender and social equality, and technology and innovation.

Learn more:
www.braced.org

Health and climate change toolkit for planners and policy makers

The World Health Organization (WHO) has developed a toolkit containing key resources that address climate change and human health issues such as tools to estimate health and adaptation costs, assess health vulnerability and adaptation, monitor and evaluate health adaptation, and build resilience of health systems, among others.

Learn more:
www.who.int/globalchange/resources/toolkit/en/



The Myanmar Climate Change Alliance (MCCA) was launched in 2013 to support the Government of the Union of the Republic of Myanmar in addressing the challenges posed by climate change. MCCA is an initiative of the Environmental Conservation Department (ECD) of the Ministry of Natural Resources and Environmental Conservation (MoNREC). It is funded by the European Union as part of the Global Climate Change Alliance (GCCA), and implemented by the United Nations Human Settlements Programme (UN-Habitat) in partnership with the United Nations Environment Programme (UN Environment). For more information: www.myanmarcalliance.org; Facebook: @myanmarcalliance.



Learn more:

- Government of Myanmar (2014). Myanmar National Social Protection Strategic Plan. The Republic of the Union of Myanmar. December 2014.
- Government of Myanmar (2015). Myanmar Post-Disaster Needs Assessment of Floods and Landslides July–September 2015. Government of the Union of Myanmar, November 2015.
- Horton, R., De Mel, M., Peters, D., Lesk, C., Bartlett, R., Helsingen, H., Bader, D., Capizzi, P., Martin, S. and Rosenzweig, C. (2016). Assessing Climate Risk in Myanmar. New York, NY, USA: Center for Climate Systems Research at Columbia University, WWF-US and WWF-Myanmar.
- Kreft, S., Eckstein, D., Junghans, L., Dorsch, L., and Fischer, L. (2015). Global climate risk index 2016: Who suffers most from extreme weather events? Weather-related loss events in 2014 and 1994 to 2014. In: J. Chapman-Rose, G. Kier, D. Baum (Eds.). Briefing Paper. Germanwatch. Available at: <https://germanwatch.org/fr/download/13503.pdf>.
- Ministry of Health and Sport (2016). Myanmar National Health Plan 2017-2021.
- Ministry of Natural Resources and Environmental Conservation (2012,a). Myanmar Initial National Communication under UNFCCC.
- Ministry of Natural Resources and Environmental Conservation (2012,b). Myanmar's National Adaptation Programme of Action (NAPA) to Climate Change.
- Ministry of Natural Resources and Environmental Conservation (2017) Myanmar Climate Change Strategy and Action Plan (MCCSAP) 2016–2030. Nay Pyi Taw, Myanmar: The Republic of the Union of Myanmar.
- Ministry of Social Welfare, Relief and Resettlement (2009) Myanmar Action Plan on Disaster Risk Reduction 2009-2015. The Republic of the Union of Myanmar.

© 2017 MCCA/UN-Habitat. All rights reserved.

The views expressed in this publication are those of the author(s) and do not necessarily represent the official position of the United Nations, including United Nations Member States and UN-Habitat.

Photos: © MCCA/UN-Habitat (unless otherwise specified)

Front cover photo: Sukun/MCCA (2016)

Back cover photo: House at risk in Hakha, Chin State. Credit: MCCA (2017)