Table: Description of climate hazards/extreme weather events that affect Myanmar including the highest impact sectors, areas and direct/indirect impacts.

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| Cyclone/ strong winds  | agriculture (crops and livestock), fisheries (marine), water, energy and public health  | Coastal areas, mainly the Rakhine Coastal State, Ayeyarwady Delta and Mon State  | **Direct**  Storm surges (higher than 3m), heavy rains (>127mm in 24 hours), and strong winds (as high as 120mph)  Damage to agricultural land and crops, and windthrow of trees.  Damage to vulnerable ecosystems e.g. coral reefs and mangrove/coastal forests.  Local rice/crop landraces (germplasm) damaged and/or lost.  Loss of lives and livelihoods.  Displaced ground and surface freshwater supplies by saline water. **Indirect**  Limited drinking-water and irrigation water supply.  Outbreak of food- and water-borne diseases.  Post-traumatic stress disorders.  |
| Intense rains  | agriculture, water, and public health,  | Catchment areas of major rivers in the Northern Hilly region and Central Dry Zone  Mountainous and hilly areas in Kayin, Kachin, Shan, Mon and Chin States.  Ayeryarwady River basin areas.  Coastal areas.  | **Direct**  Flash floods in lowland areas44.  Top soil runoff and erosion resulting in severe soil degradation and loss of fertile soils.  Damage to crops.  Enhanced problems during La Niña periods when the country experiences excessive water levels. **Indirect**  Death of livestock.  Health risks such as skin diseases and the outbreak of diarrheal diseases.  Erosion gullies in agricultural areas.  Loss of valuable farming areas.  Degradation of natural vegetation resulting in an increase in erosion.  Landslides resulting in extensive damage to human settlements and agricultural land.  |
| Flood/storm surge  | Agriculture (crop and livestock), water, infrastructure, energy and public health.  | Upper reaches of river systems.  Coastal areas.  Low-lying areas along major river systems (such as the Ayeyarwady Delta).  | **Direct**  Storm surge flooding as a result of cyclones and storms in coastal areas.  River floods in delta areas.  Flash floods.  Localized floods in urban areas as a result of *inter alia* cloudburst, poor infiltration rates, saturated soils, and inadequate infrastructure.  Damage to coastal areas e.g. mangroves and river ecosystems.  Severely flooded or inundated land (every 2 years ~2 million hectares of land is flooded and 3.25 million hectares is moderately inundated). **Indirect**  Intense runoff and soil erosion (particularly during La Niña periods).  Damage to riverbanks and irrigation systems.  Landslides triggered.  Entire villages lost including loss of lives and livelihoods.  |

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| Scientific Information | The observed climate variability and change in Myanmar over the last ~six decades includes the following:  a general increase in temperatures across the whole country (~0.08°C per decade); a general increase in total rainfall over most regions; a decrease in the duration of the south-west monsoon season as a result of a late onset and early departure times; and  increases in the occurrence and severity of extreme weather events, including; cyclones/ strong winds, flood/storm surges, intense rains, extreme high temperatures and drought.  |
| Climate change projections for Myanmar predict:  a general increase in temperature across the whole country, particularly from Dec – May;  an increase in clear sky days exacerbating drought periods;  an increase in rainfall variability during the rainy season including an increase across the whole country from March – November, and decrease between December and February;  an increase in the risk of flooding resulting from a late onset and early withdrawal of monsoon events;  an increase in the occurrence and intensity of extreme weather events, incl. cyclones/ strong winds, flood/storm surge, intense rains, extreme high temperatures and drought.  |

Source: Myanmar’s NAPA to climate change 2012.

Climate projections in Myanmar

* **Climate projections out to 2100 show an increase in the severity of climate-related hazards** (NECC, 2012; McKinley et al., 2015).
* Temperatures will continue to increase across the whole country, with the greatest increases expected in the Central and Northern regions (NECC, 2012).
* By the end of the century, climate projections show an increase in mean temperatures of 1–4°C, although outcomes will vary throughout the year and spatially across the country (RIMES, 2011; World Bank, 2012a). Rainfall variability is expected to increase in rainy seasons, potentially by ~10% over the coming decades (NECC, 2012; McKinley et al., 2015).
* Combined with a continued shortening of the rainy season observed over the past 40 years, many climatologists expect greater concentration and variability in rainfall that will lead to increased frequency and intensity of flooding (NECC, 2012; McKinley et al., 2015). Finally, extreme weather events like cyclones, strong winds, flood and storm surges, intense rains, extreme high temperatures and drought are all expected to increase in occurrence and intensity (NECC, 2012) (based on the PRECIS model). Rising sea levels along the coasts are likely to compound these problems by aggravating saltwater intrusion and soil salinity in the coastal areas and river deltas (McKinley et al., 2015).