

# Disaster Readiness

## Introduction

**Purpose:** This annex to the Climate Risk Screening and Management Tools is designed to provide you with more information on climate change<sup>1</sup> implications for disaster readiness. The information is grouped into the following sub-sections, with the corresponding step from the Tools shown in parentheses:

- Climate Risks to Disaster Readiness (Step 2)
- Adaptive Capacity Related to Disaster Readiness (Step 3)
- Opportunities Related to Disaster Readiness (Step 5)
- Climate Risk Management Options for Disaster Readiness (Step 6)
- Additional Key Resources Related to Disaster Readiness

The questions and examples provided in this annex are illustrative and designed to stimulate thinking about climate risks, adaptive capacity, opportunities, and climate risk management options. Actual climate risks will depend on the context and anticipated climate changes for particular geographies. The majority of capacity building activities to improve timely and adequate response of emergency managers also improve climate resilience by addressing many of the risks associated with climate variability or weather-related hazards. Note, however, that most emergency management efforts focus on a short timescale (i.e., one year) and may not incorporate longer times scales that are more relevant when considering potential climate change impacts. The need to be prepared for climate-related disasters may increase in the future.

**Sectoral focus of the annex:** The material in this annex aligns with HA.2 Disaster Readiness in the Standardized Program Structure. Note, to the extent your design involves multiple sectors, you may want to consult other relevant annexes. In particular, if any new construction or rehabilitation<sup>2</sup> is anticipated, referring to the [Infrastructure, Construction, and Energy Annex](#) is highly recommended. Please note, *activity*-level climate risk management (CRM) for engineering design **must** be conducted by the Engineer of Record.<sup>3</sup> See the [Infrastructure, Construction, and Energy Annex](#) for solicitation language.

---

<sup>1</sup> In this document, the term “climate change” refers to both climate variability and climate change. “Climate variability” refers to variations in climate (including the normal highs and lows, wet and dry periods, hot and cool periods and extremes) and can refer to month-to-month variability, year-to-year variability, and even decadal scale variability. In this document, “climate change” refers to those variations as well as persistent change in climate over decades or longer (USAID, 2014. Climate-Resilient Development: A Framework for Understanding and Addressing Climate Change).

<sup>2</sup> USAID Implementation of Construction Activities, A Mandatory Reference for ADS Chapter 303, defines “construction” as: “construction, alteration, or repair (including dredging and excavation) of buildings, structures, or other real property and includes, without limitation, improvements, renovation, alteration, and refurbishment. The term includes, without limitation, roads, power plants, buildings, bridges, water treatment facilities, and vertical structures.” Construction at USAID almost always occurs within another primary programming area (e.g., school building for education, hospital/clinic construction for health).

<sup>3</sup> An appropriately qualified engineering firm under contract or subcontract with USAID for the purpose of completing the engineering design.

## NAVIGATION

1. [Introduction](#) | 2. [Climate Risks](#) | 3. [Adaptive Capacity](#) | 4. [Opportunities](#) | 5. [Climate Risk Management Options](#)  
[Additional Resources](#) | [Climate Risk Screening & Management Tool](#)

### Tool Step 2: Climate Risks to Disaster Readiness – Illustrative Examples and Questions

Once you have reviewed this section, you can navigate back to the Tool by clicking on the relevant hyperlink in the header.

#### Capacity Building, Preparedness and Planning

- Need for a greater number of trained responders due to increasing frequency and intensity of extreme weather events.
- Increased need for early warnings and early action due to increasing frequency and intensity of extreme events.
- More rapid depletion of emergency relief stockpiles due to increasing frequency and intensity of floods and droughts.
- Existing codes and standards, or poor implementation might not enable buildings to withstand increasing intensity of cyclones or increased frequency of flooding.
- Increased need to improve resilience planning due to the combination of increasing intensity of storms and rapid urbanization.
- Increased need for community-level response training due to increasing incidence of vector-borne diseases caused by higher temperatures.
- Exacerbated gender inequality due to increasing occurrence of disasters, because women and girls are more likely to face death or injury during extreme events.
- Extreme weather events and climate change may affect people's settlements, basic services, health, and livelihoods (e.g., loss of homes, critical infrastructure and services, disruption of markets and value chains) and may contribute to increased temporary displacement or permanent migration under certain local contexts.
- Increasing displacement associated with extreme weather events may increase the need for establishment and maintenance of continued assistance to host communities and addressing the needs of the displaced.
- Prolonged displacement may lead to social issues related to conflict with host communities, domestic violence, psychosocial impacts of displaced persons, and other issues.

The consideration of risk may be approached in two different but related ways: by climate stressor and by programming or system element. It can be useful to consider both if time permits. Note that while climate risk screening is not relevant for much of the humanitarian assistance sector, given the short-term nature of emergency response, preparedness, planning, and programming in disaster readiness may be affected by climate change and, thus, merits further consideration.

#### Illustrative questions by climate stressor:

##### *Temperature:*

- How may higher temperatures contribute to increased frequency of heat waves that lead to or contribute to public health-related disasters? Consider multiple stressors due to both direct temperature effects and indirect effects of heatwaves on the reliability of electricity supply (and other infrastructure services), and how those stressors may affect marginalized populations<sup>4</sup> differently?

---

<sup>4</sup> Marginalized populations are groups of people who are excluded, based on their identity, from political, social, and economic power and participation. Often they include women and girls, at-risk youth, the elderly, LGBTI individuals, persons with disabilities, people in linguistic minorities, indigenous people, and/or a combination of any of these identities. (LGBTI individuals refers to lesbian, gay, bisexual, transgender,

## NAVIGATION

1. [Introduction](#) | 2. [Climate Risks](#) | 3. [Adaptive Capacity](#) | 4. [Opportunities](#) | 5. [Climate Risk Management Options](#)  
[Additional Resources](#) | [Climate Risk Screening & Management Tool](#)

- Does the nationally authorized entity (National Meteorological and Hydrological Services-NMHSs) have the capacity to forecast and send warnings on extreme temperatures for action by relevant sectors? Do relevant sectors utilize the early warnings to plan and take action?

### *Flooding:*

- How may changes in flooding directly affect communities and the infrastructure, agricultural, and other services upon which they depend?
- How may changes in flooding affect displacement of people and the need for corresponding planning and response? How may marginalized populations be impacted differently? Are marginalized populations that are frequently neglected in disaster assistance considered in planning and response?
- How may changes in flooding affect the need for disaster risk planning, disaster risk mitigation,<sup>5</sup> capacity building, disaster response training, and early warning systems, and displacement of trained responders?
- Does the nationally authorized government entity (NMHSs) have the capacity to forecast and warn different segments of the population, especially those that are hard to reach and most at risk? Does the disaster management entity use early warnings to take early action? Do other relevant sectors utilize the warnings to take early action to reduce impacts?

### *Drought:*

- How may the increasing frequency and duration of drought affect water and food availability, the potential for corresponding disasters, and the level of preparedness required?
- Does the nationally authorized government entity (NMHSs) have the capacity to forecast and warn different segments of the population, especially those that are hard to reach and most at risk? Do relevant sectors use forecasts and warnings to take action? Is there a coordination mechanism of government entities to take action?

### *Sea level rise and storm surge:<sup>6</sup>*

- How may coastal flooding due to sea level rise affect populations living along the coast? How will marginalized populations be impacted?
- How may storm surge damage coastal resources and infrastructure and affect the magnitude of response needed?

## **Illustrative questions by programming or system element:**

### *Capacity Building, Preparedness, and Planning*

- Are current disaster readiness plans, systems, and operations informed by weather/climate information, forecasts, and warnings?
- What is known regarding potential longer term trends in the frequency and/or intensity of hydro-meteorological hazards (e.g., storms, floods, droughts, heat and cold waves) for your region? Could these trends affect the likelihood of other natural hazards (e.g., wildfires, landslides)?

---

or intersex individuals. Further information can be found in the LGBT Vision for Action, <https://www.usaid.gov/what-we-do/democracy-human-rights-and-governance/protecting-human-rights/lgbti-inclusive-policies>.)

<sup>5</sup> In this document “climate change mitigation” refers to efforts to reduce greenhouse gas emissions.

<sup>6</sup> A temporary sea level rise associated with a storm.

## NAVIGATION

1. [Introduction](#) | 2. [Climate Risks](#) | 3. [Adaptive Capacity](#) | 4. [Opportunities](#) | 5. [Climate Risk Management Options](#)  
[Additional Resources](#) | [Climate Risk Screening & Management Tool](#)

- Are current disaster preparedness plans adaptable or robust enough to respond to changing stressors in the future?
- Do local plans (e.g., land use, zoning) use weather, climate, and hazard (e.g., flood maps) information?
- Do authorized entities have adequate capability to monitor climate and develop relevant products, and the ability to disseminate information in a timely and understandable manner? Do authorized entities have an established operational early warning systems (EWS) to warn the public and stakeholders in advance and provide guidance on response options? Will women, girls, and other marginalized populations be reached by these early warning systems?
- Do training and other capacity building programs incorporate climate-related information?
- Are building / infrastructure design standards sufficient to withstand extreme weather events? Are there the capability and data to develop design codes and standards that are updated to include climate change scenarios?
- What is the potential for short-term disaster risk reduction and coping strategies (e.g., small scale protective infrastructure) to be maladaptive in the future? What alternative options could be implemented to reduce risk from climate impacts while still meeting shorter-term needs?
- Do disaster risk reduction and coping strategies address issues for marginalized populations, such as women, girls, and the elderly, whose response may be impacted by cultural norms, such as mobility restrictions?

### Tool Step 3: Adaptive Capacity Related to Disaster Readiness

This step in the Tool is less relevant to the sector, since disaster readiness is a form of adaptive capacity.

## NAVIGATION

1. [Introduction](#) | 2. [Climate Risks](#) | 3. [Adaptive Capacity](#) | 4. [Opportunities](#) | 5. [Climate Risk Management Options](#)
- [Additional Resources](#) | [Climate Risk Screening & Management Tool](#)

### Tool Step 4: Opportunities Related to Climate Risk Management for Disaster Readiness – Illustrative Examples

The need to address climate risks related to disaster readiness may provide a range of additional opportunities. For moderate/high risk strategic elements, projects, and activities, the important types of opportunities to discuss are climate change mitigation, potential co-benefits for non-climate development objectives, leveraging political will, opportunities to increase gender equality and female empowerment, and other development issues. For Washington-based and low-risk strategic elements, projects, and activities, opportunities should focus more on how to support resilience more broadly.

Once you have reviewed this section, you can navigate back to the Tool by clicking on the relevant hyperlink in the header.

#### Enhance disaster preparedness and planning

- Climate change provides an expanded opportunity to promote training for disaster readiness and expand/strengthen existing early warning systems.
- Potential impacts from climate change provide opportunities to develop plans for more resilient response options and post-disaster recovery.

#### Increase resilience across multiple development sectors

- The need to rebuild after extreme events provides an opportunity to construct improved, more resilient infrastructure.
- The need to rebuild after extreme events also provides an opportunity to try innovative approaches such as “incremental housing”, which enables quick reconstruction while helping residents to invest in high quality long-term housing. More durable housing may reduce the need to rebuild after future disasters and thereby reduce the energy and greenhouse gas emissions associated with the production and transport of construction materials.
- Capacity building across other development sectors, to screen plans and projects for climate and disaster risks, may increase resilience to disasters and ensure effectiveness and sustainability of development objectives.
- Disaster surveillance equipment used for early warning and emergency response can be used to provide information to those in other sectors (e.g., farmers).
- Capacity building across other development sectors for emergency management and response (e.g., transport, public health).

#### Incorporate resilience into other development activities

- New challenges caused by climate change may provide opportunities to establish new coalitions or partnerships to enhance resilience.
- Incorporating information about disaster preparedness into education initiatives may increase public awareness.
- Improved infrastructure, such as electricity and communication networks, may enhance dissemination of early warnings.

## NAVIGATION

1. [Introduction](#) | 2. [Climate Risks](#) | 3. [Adaptive Capacity](#) | 4. [Opportunities](#) | 5. [Climate Risk Management Options](#)
- [Additional Resources](#) | [Climate Risk Screening & Management Tool](#)

### Tool Step 5: Climate Risk Management Options for Disaster Readiness – Illustrative Examples

Many interventions that are used to make communities more resilient to climate variability in the short term have the potential to contribute to longer term adaptation strategies. Some of the options for reducing climate risks to disaster readiness are outlined below.

Once you have reviewed this section, you can navigate back to the Tool by clicking on the relevant hyperlink in the header.

#### Incorporate climate change into capacity building, preparedness, and planning

- Build capacity to incorporate and update disaster readiness plans with information on extreme weather and climate.
- Enhance capacity to monitor, forecast, interpret, and communicate weather and climate information required to plan adaptive responses and ensure that responses are gender-informed and reach the most vulnerable.
- Strengthen available risk information through community mapping and open-source platforms.
- Incorporate climate-related information into trainings and other capacity building programs to increase and strengthen capacity on DRR and potential response options.
- Incorporate climate related risks in DRR strategies and plans. Post-disaster recovery may present a unique opportunity for transformative adaptation that fundamentally reduces vulnerability or increases resilience to future events.

#### Strengthen disaster risk mitigation

- Enhance early warning systems.
- Enhance support for information-sharing systems and services, which may involve strengthening networks and promoting dialogue and cooperation among scientific communities and practitioners.
- Further incorporate resilience measures into recovery to mitigate negative impacts of future disasters. For example, planting appropriate vegetation on coastlines that would protect from storm surges or integrating disaster awareness into education projects.

## NAVIGATION

1. [Introduction](#) | 2. [Climate Risks](#) | 3. [Adaptive Capacity](#) | 4. [Opportunities](#) | 5. [Climate Risk Management Options](#)  
[Additional Resources](#) | [Climate Risk Screening & Management Tool](#)

### Additional Key Resources Related to Disaster Readiness

The following **resources** provide additional information related to climate risks to disaster readiness and corresponding climate risk management options.

Title	Author(s)	Organization	Date	Length	Intended Audience	Unique Value
<a href="#">Climate Change Adaptation and Disaster Risk Reduction in the Education Sector</a>	Anonymous	UNICEF	2012	228 pp.	Development practitioners, educators, government officials	Resource manual with modules providing more in-depth information than the Tools on climate risks and adaptation in the education sector. Modules cover risks; legal instruments policy framework for reducing risks; approaches for scaling up and mainstreaming adaptation and disaster risk reduction; child and youth participation; M&E; cross-sector planning; implementation; and case studies.
<a href="#">Assessing Drought Hazard and Risk: Principles and Implementation Guidance</a>	World Bank	World Bank	2019	69 pp.	Those who may set up and run a drought risk assessment and at which moments to involve experts.	Provides direction to effective drought hazard and risk assessments. It is based on a new extensive inventory of drought models and tools, made available through <a href="http://www.droughtcatalogue.com">www.droughtcatalogue.com</a> , and a technical evaluation of these models on a set of case studies.
<a href="#">Ecosystem-based Adaptation and Extreme Events</a>	USAID Forestry & Biodiversity Office and USAID BRIDGE	USAID	2017	8 pp.	Development experts, policymakers	Provides an overview of ecosystem-based adaptation approaches to help communities adapt to extreme weather and other climate events

## NAVIGATION

1. [Introduction](#) | 2. [Climate Risks](#) | 3. [Adaptive Capacity](#) | 4. [Opportunities](#) | 5. [Climate Risk Management Options](#)  
[Additional Resources](#) | [Climate Risk Screening & Management Tool](#)

<a href="#">Ecosystem-based Adaptation and Coastal Populations</a>	USAID Forestry & Biodiversity Office and USAID BRIDGE	USAID	2018	8 pp.	Development experts, policymakers	Provides an overview of ecosystem-based adaptation approaches to help coastal communities build resilience to climate change.
<a href="#">Improving Ecosystem Management to Strengthen Resilience to Extreme Weather in the Philippines</a>	USAID Forestry & Biodiversity Office and USAID BRIDGE	USAID	2018	4 pp.	Development experts, policymakers	Highlights a project supported by the USAID/Philippines mission that used ecosystem-based adaptation approaches to strengthen community resilience to extreme weather events.
<a href="#">Restoring Coral Reefs in the Face of Climate Change in the Seychelles</a>	USAID Forestry & Biodiversity Office and USAID BRIDGE	USAID	2018	4 pp.	Development experts, policymakers	Highlights a project supported by the USAID/Southern Africa Regional Mission that used ecosystem-based adaptation approaches to strengthen community resilience to sea level rise and extreme weather events in the Seychelles.
<a href="#">Words into Action Guidelines: Implementation Guide for Local Disaster Risk Reduction and Resilience Strategies</a>	J. Hardoy, M. Filippi, C. Johnson, E. Gencer, B. Eduardo, Morera, and D. Satterthwaite	United Nations Office for Disaster Risk Reduction (UNDRR)	2019	113pp	Local government (authorities, planners and managers at city or other subnational levels)	Advise on developing and implementing a holistic and integrated local DRR (disaster risk reduction) strategy that contributes to building resilience at the local scale and that accommodates to a national strategy whenever one is in place.

## NAVIGATION

1. [Introduction](#) | 2. [Climate Risks](#) | 3. [Adaptive Capacity](#) | 4. [Opportunities](#) | 5. [Climate Risk Management Options](#)  
[Additional Resources](#) | [Climate Risk Screening & Management Tool](#)

<a href="#">Introductory Capstone Enhancing Disaster Preparedness for Effective Response</a>	Masayo Kondo Rossier, and Sarah Wade-Apicella	United Nations Office for Disaster Risk Reduction (UNDRR)	2017	75pp	National Disaster Management Offices (NDMOs), Emergency Managers and relevant government officials, civil society and international organizations, within and across all sectors at national/local and global/regional Levels	Highlights the key principles and required actions outlined in the Sendai Framework to enhance disaster preparedness for effective response, points to existing resources that provide more detailed explanations and guidance, and illustrates implementation with examples.
<a href="#">A better climate for disaster risk management</a>	Many	International Research Institute for Climate and Society (IRI) with funding from CCAFS, OCHA, RCCC, and NOAA	2011	133pp	Disaster risk managers, Humanitarian community, Climate information providers	Describes opportunities for building trust and the sharing of knowledge between the providers of climate services and those who can use those services to enhance disaster risk management.