Assessing Your Project's Climate Risk: A Worksheet for Applicants and Technical Assistance Providers

This worksheet is intended to support technical assistance providers and applicants (both referred to here as "users") with conducting a basic assessment of climate risk to a project of interest.

As part of the risk assessment, this worksheet walks users through a simple climate hazard screening—helping them think through and analyze the hazards relevant to a geographic (or project) area of interest. As users go through this worksheet, they will start by identifying their project components (e.g., for an infrastructure project this includes the physical assets; for other projects this broadly includes aspects important to the project's functionality), considering the risk tolerance and lifetime of their project, and articulating the characteristics of their project that are both important to them and the project's resilience to climate impacts. Finally, this worksheet helps users put all this information together to assess the overall climate risk to the project, given the project's characteristics and projections of climate hazards in the present and future. The information gathered through this exercise will help users identify whether adaptation actions are needed to enhance the resilience or adaptive capacity of their project.

While there are portions of this worksheet that involve referencing quantitative climate hazard data, this exercise is primarily qualitative. Users of this resource should also anticipate an element of uncertainty as part of this exercise, as uncertainty is inherently part of assessing climate risk.

Time of Completion: Depending on the scope of the project and the user's background knowledge, this worksheet may take one to four hours to complete for a simple project or project area, and longer for a more complex project involving multiple systems or areas. If additional data other than what is available on EPA's Climate Risk Assessment Resources is required, then the process may require longer time.

Disclaimer: *This worksheet is designed to help users walk through a process that will strengthen an applicant's understanding of climate risk to a proposed project. It is not designed to replace a comprehensive sector-specific risk assessment. This worksheet does not guarantee that applicants will be selected for funding, nor should it be construed as official EPA guidance. Whether and how EPA utilizes its legal authorities to address climate change mitigation, adaptation and resilience will depend, among other things, on the specific statutory, regulatory, policy, scientific and factual contexts at issue, as well as the resources available to the Agency. This worksheet is not intended to prescribe when and how the agency should undertake specific actions, nor does it provide official agency methodologies for how to assess the implications of climate change. This worksheet does not substitute for statutory provisions and EPA regulations, nor is it a regulation itself.*

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Preliminary Step: Scope the Area of Interest

This step determines whether a climate hazard screening analysis or a climate risk assessment is more appropriate for the proposed project.

What is the geographic scope of your project?

☐ **Local, site level:** There is a single site where the project will take place.
Examples: A community resilience center, wastewater treatment plant, or an ecosystem at a specific, defined location.

☐ **Local, community level:** There are multiple sites at the local level that are relevant to the project. There may be multiple types of facilities of interest. There may be a focus on the community holistically or thinking about how the sites or areas of interest are functionally interconnected.
Examples: Comprehensive planning for a town, siting multiple resilience hubs, a complex ecosystem, critical infrastructure across a city, targeted tree planting in a historically underserved neighborhood.

☐ **Regional, statewide, nationwide levels.** The project constitutes many sites. Some may be in close in geographic proximity (regional), while others may be in separate regions.

If you answered "**local, community level**" or "**regional, statewide, nationwide levels**", consider if your project is a good fit for a screening analysis instead of a climate risk or vulnerability assessment.

- A *full climate risk or vulnerability assessment* will ask about the project and site components that you want to protect, and this is most appropriate at the site-level or when analyzing one infrastructure system as a whole.
- A *climate screening analysis* will consist of looking at a few key climate metrics and determining if those raise concerns for your project. If you only want to conduct a screening analysis for your geographical region of interest, without considering how the project's individual components may be at risk, you can skip to Step 4 below and/or explore "Climate Hazard Screening" tools on the Climate Risk Assessment Resources page.

Step 1: Identify Project Components

This step focuses on what is at risk. What components (e.g., assets, physical structures, investments) make up your project or project's system? What components are important to your project's functioning? Here are a few examples from different types of projects:

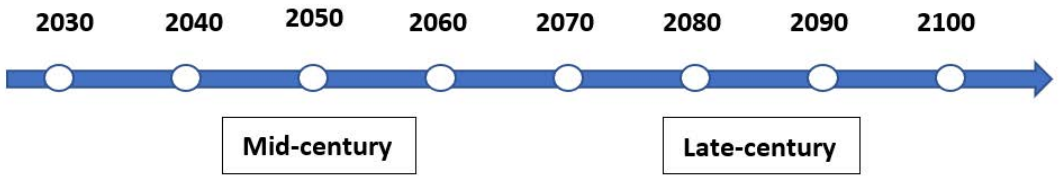
- **Water Infrastructure Examples:** Emergency Generators, Water Treatment Facility, Buildings, Electrical System, Storage Tanks, Pipes
- **Heat Reduction Examples:** Trees, HVAC System, Buildings
- **Transportation Infrastructure Examples:** Light Rail Cars, Tracks, Passenger Station Shelters, EV Charging Stations, Electrical Equipment

Project Component

Step 2: Identification of Project Lifetime

How long are you planning for your completed project to be operational?

Project Lifetime:
(Insert Year Ranges or End Year)



Note: Mid-century and late-century timeframes are often centered around 2050 and 2085, respectively (Source: OMB Memo M-24-03).

Step 3: Identify Adaptive Capacity and Define Baseline Risk Tolerance

This step focuses on your project and considers its ability to tolerate failure and adapt to changing conditions. One can qualitatively determine the project's risk tolerance by considering if the failure of a project component would compromise functionality of the entire project or system. (Evaluation of the magnitude and likelihoods of climate hazards will occur later in the worksheet—this step is simply asking how much risk the project is able to tolerate). Depending on your project, you may find it helpful to think about adaptive capacity and risk tolerance of your entire project system in the boxes below, or to consider for each project component.

Note: Risk tolerance and adaptive capacity levels are listed below as the qualitative relative indicators – high, medium, and low. If helpful, you may customize the level or add definitions to each level as relevant to your situation. For example, low risk tolerance might mean that the project is unable to endure threats posed by climate risk without compromising system functionality, medium risk tolerance might mean that the project may be able to experience some level of threats without compromising system functionality, and high risk tolerance might mean that the project may be able to experience most threats and even experience failure without compromising system functionality.

Question 1: What degree of climate impacts can this project and its components endure without compromising functionality? (High degree of climate impacts before failure → Higher risk tolerance). To what degree would component failure impact the entire system of interest? (High impact of component failure to system → Lower risk tolerance).

Baseline Risk Tolerance:
(High, medium, low)

Example: Emergency generators are low risk tolerance as failure of this infrastructure during an emergency will

Question 2: To what degree is the project (and its components) able to adjust to changing climate conditions (i.e., adaptive capacity)?

Adaptive Capacity:
(High, medium, low)

Example: The site uses drought-resistant plants for a vegetated soil cap for long-term erosion control.

Question 3: Does the project's (or its components') adaptive capacity change your overall risk tolerance? (If adaptive capacity is high, adjusted risk tolerance can be higher).

Adjusted Risk Tolerance
(High, medium, low)

Step 4: Screening for Relevant Climate Hazards

Use this step to determine if your project location is or will be prone to the listed climate hazards (to account for additional hazards relevant to your specific project and/or project location, see the Supplemental list of additional hazards at the end of this worksheet).

In making this determination, you should draw on high quality data and information sources about present and potential future climate hazards:

- Browse the "Climate Hazard Screening" tool category on EPA's Climate Risk Assessment Resources for a list of U.S. federal government tools that can help you screen for present-day climate hazards and projections of future climate hazards.
- If the information you need to fully screen for relevant hazards is not available from these resources, you may wish to draw on high quality data and information from other appropriate sources (e.g., state or local sources).
- Traditional Knowledge or local cultural knowledge may also be relevant in this step, depending on relevance and program guidelines.
- When consulting projections of potential future climate hazards, use your project component's lifetime to choose mid-century or end-of-century timeframes.
- It may be important, particularly when your project risk tolerance identified in Step 3 is low, to not only rely on "best-case" or "most likely" future projections, but also projections that exhibit larger magnitudes (i.e., extent) of future climate change to better anticipate important potential risks over the full anticipated lifetime of the project.

	Sea Level Rise	Extreme Precip.	Extreme Heat	Wildfire	Flooding	Drought	Other: List* (Examples: Wildfire smoke, permafrost thaw, groundwater levels, strong winds)
For each hazard, as relevant, describe whether the hazard may be a concern at your location—either currently or in the future. You may draw on EPA's Climate Risk Assessment Resources for this step.							
If the hazard has the potential to impact your project, check the appropriate box(es) in this row to carry over into Steps 5 and 6.	☐	☐	☐	☐	☐	☐	☐

** If there are multiple hazards in the "Other" Category, you can use the table in the Supplemental Section (below) to continue the assessment instead of listing them here.*

Step 5: Identification of Linkages Between Climate Hazards and Project Components

In this step, you will briefly describe the current or projected impact of the climate hazard on each project component and will assess how sensitive this project component is to the hazard(s), linking climate hazards to project components.

For climate information on impacts and linkages, refer to "Understanding Impacts" tools contained in EPA's Climate Risk Assessment Resources, as applicable.

Project Component *Input specific project components currently, or projected to be, impacted by climate hazards.*	 Sea Level Rise	 Extreme Precip.	 Extreme Heat	 Wildfire	 Flooding	 Drought	 Other (List)	**Link Between Component and Hazard(s)** *Briefly describe the current or projected impact of the climate hazard(s) on a specific project component. If the hazard affects the component, assess how sensitive this component is to the hazard(s).*
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Step 6: Overall Climate Impact Assessment

In Steps 1-3 you articulated the components of your project, assessed the project's lifetime and each components' value to the overall project, and articulated the project's risk tolerance and adaptive capacity. In Step 4, you screened for climate hazards that are now impacting or may impact your project's location in the future. In Step 5, you assessed how those climate hazards may impact each component of your project, and how sensitive your components are to those hazards.

Next, you'll think through all these steps you've completed so far and evaluate the magnitude (i.e., extent) of risk that climate change poses to your project. Assessing the impact of climate risk on your project will help you to determine which project components may benefit from actions to enhance their resilience or adaptive capacity in Step 7.

Assess the level of potential risk (high, medium, or low) that the current or future projected climate hazard(s) pose to each specific component. Consider all steps so far in your evaluation of risk, including your linkages and sensitivities outlined in Step 5, adaptive capacity and risk tolerance in Step 3, and changes to climate hazards in Step 4. In this step, consider not only the presence or absence of the given hazard both now and in the future, but also the magnitude of potential impact on the project components. In addition, you may want to consider worst-case scenarios—not only what is "most likely" to happen but also "how bad could things get?" This is an inherently qualitative step, and characterizations of high versus medium versus low risk will depend on your project context.

Project Component	Climate Impact Assessment
Input components of the project currently, or projected to be, impacted by climate hazards.	**Climate Risk Assessment (check one):** High ☐ Medium ☐ Low ☐ *Assess the level of potential risk (high, medium, or low) that the current or future projected climate hazard(s) pose to the component. Consider all steps so far in your evaluation of risk, including your outlined impact linkages and sensitivities in Step 5, adaptive capacity and risk tolerance in Step 3, and changes to climate hazards in Step 4.*
	High ☐ Medium ☐ Low ☐
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Step 7: Connection to Adaptation Measures

Project Component	Linkage of Component and Hazard(s)	Risk Level	Project's Adaptation Actions
Input the project components that are currently, or projected to be, impacted by or exposed to climate hazards.	*Briefly describe the current or projected impact of and/or exposure to climate hazard (e.g., decreased productivity due to extreme heat).*	High ☐ Medium ☐	*For every component with high or medium climate risk, describe the actions that you will take to enhance your project's resilience and/or adaptive capacity.*
		High ☐ Medium ☐	
		High ☐ Medium ☐	
		High ☐ Medium ☐	
		High ☐ Medium ☐	
		High ☐ Medium ☐	
		High ☐ Medium ☐	

Supplemental Information

Additional Hazard List

Hazards: Increasing Water Temperatures, Seasonality Shifts, Extreme Weather Events, Ocean Acidification

Impacts: Public Health Impacts, Air Quality Degradation (Indoor), Air Quality Degradation (Outdoor/Ambient), Ecosystem Impacts, Biodiversity Loss, Algal Bloom Increases, Infrastructure Damages or Stress, Food System Impacts, Subsistence Resource Loss, Cultural Resource Loss, Water Management Challenges, Water Utility Operations Impacts, Water Quality Impacts, Waste Management Challenges, Emergency Response Challenges, Contaminated Site Management Challenges, Disaster Debris Management Challenges, Economic Impacts

Supplemental Worksheet Components

Use these extra worksheets to help you assess risked posed by multiple other hazards not listed in the table in Step 4.

Step 4 Supplemental Worksheet

	Other Hazard	**Other Hazard**	**Other Hazard**	**Other Hazard**	**Other Hazard**	**Other Hazard**
For each hazard, as relevant, describe whether the hazard may be a concern at your location—either currently or in the future. You may draw on EPA's Climate Risk Assessment Resources for this step.						

Step 5 Supplemental Worksheet

Project Component *Input the specific project components currently, or projected to be, impacted by or exposed to climate hazards.*	Other Hazard	Other Hazard	Other Hazard	Other Hazard	Other Hazard	Other Hazard	Other Hazard	**Link Between Component and Hazard(s)** *Briefly describe the current or projected impact of the climate hazard(s) on a specific project component. If the hazard affects the component, assess how sensitive this component is to the hazard(s).*
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