

# Climate and Disaster Risk Screening Report for Hypothetical Water Supply and Sanitation Services Project in

**Table 1: Project Information**

<b>Project Title:</b>	Hypothetical Water Supply and Sanitation Services Project
<b>Project Number:</b>	P12345
<b>Assessment completed by:</b>	Cristina
<b>Estimated timeline for PCN Year:</b>	2017
<b>Estimated timeline for PCN Quarter:</b>	Q3
<b>Screening Tool Used:</b>	Rapid Screening Assessment

The Climate and Disaster Risk Screening Tool provides high-level screening to help consider short- and long-term climate and disaster risks at an early stage of project design. The tool applies an Exposure-Impact-Adaptive capacity framework to characterize risks (Annex 1). Potential risks are identified by connecting information on climate and geophysical hazards with users' subject matter expertise of project components (both physical and non-physical) and understanding of the broader sector and development context.

The tool does not provide a detailed risk analysis. Rather, it is intended to help inform the need for further consultations, dialogue with local and other experts and analytical work at the project location to strengthen resilience measures in the course of project design.

<sup>1</sup> This is the output report from applying the World Bank Group's Climate and Disaster Risk Screening Project Level Tool (Global website: [climatescreeningtools.worldbank.org](https://climatescreeningtools.worldbank.org); World Bank users: [wbclimatescreeningtools.worldbank.org](https://wbclimatescreeningtools.worldbank.org)). The findings, interpretations, and conclusions expressed from applying this tool are those of the individual that applied the tool and should be in no way attributed to the World Bank, to its affiliated institutions, to the Executive Directors of The World Bank or the governments they represent. The World Bank does not guarantee the accuracy of the information included in the screening and this associated output report and accepts no liability for any consequence of its use.

## Summary Climate and Disaster Risk Screening Report

1. Exposure of the project location: This step assesses the current and future exposure of the project location to relevant climate and geophysical hazards as an aggregate.

### Exposure Rating

High

### Climate and geophysical hazards that are likely to be relevant to the project location both in present and in the future

Extreme Temperature

Extreme Precipitation and Flooding

Drought

Geophysical Hazards

2. Impacts on the project's physical infrastructure and assets: This step assesses the current and future impacts of identified climate and geophysical hazards on the project's physical infrastructure and assets as currently designed.

### Impact Rating

Moderate

### Relevant project subsectors

Water Supply

Wastewater

3. Modulation of risks by the project's development context: This step assesses how the project's soft components as currently designed, together with the project's broader development context, modulate potential impacts from climate and geophysical hazards. This step also considers particularly vulnerable groups, namely women, migrants and displaced populations.

### Modulation of risks by soft components



Reduce Risk

Capacity Building, Training and Outreach

Emergency Planning

Maintenance and Operations

Data Gathering, Monitoring and Information Management Systems

### Modulation of risks by the project's development context



Increase Risk

### Women identified as particularly vulnerable to impacts from climate and geophysical hazards



Components designed to help alleviate the risks to women from climate and geophysical hazards



4. Risk to the outcome/service delivery of the project: This step assesses the level of risk to the outcome/service delivery that the project is aiming to provide based on previous ratings.

### Outcome / Service Delivery Rating

Moderate

## Notes from the Screening Process

### 1. Exposure of the project location

Exposure Rating

High

This step provides information on exposure to climate and geophysical hazards at the project location. **The Exposure rating is High. The project location has experienced climate and geophysical hazards in the past and is expected to experience these in the future with high intensity, frequency, or duration.** The rating is based on climate information drawing on global, quality controlled data sets from the [Climate Change Knowledge Portal](#). It is useful, for example to understand the temperature range and the rate of annual or decadal increase in a region; or precipitation patterns for historical and future time frames and seasonality shifts. Understanding the trends of hazards is important as they act individually and collectively on project components/subsectors.

The following guiding questions are used to assess exposure:

- What have been the historical trends in temperature, precipitation and drought conditions?
- How are these trends projected to change in the future in terms of intensity, frequency and duration?
- Has the location experienced strong winds, sea level rise, storm surge, and/or geophysical hazards in the past that may occur again in the future?

**User Notes:** Temperatures are projected to be warmer by approximately 2C by 2060. especially during the dry months of May, June and July. The wet scenario forecast an average temperature increase of 1.55C and the dry scenario shows a temperature increase of 2.4C. The wet scenario for annual mean precipitation shows an increase of 22%. Dry days are expected to increase by 6-7 days and cold days show a decreasing trends of 2-12 days. Winters are projected to be drier and summers wetter, which could result in increased floods and droughts. The risk is rated as High since projections clearly indicate an increase in extreme temperature and precipitation as well as intensified droughts in future decades.

### 2. Impacts on the project's physical infrastructure and assets

Impact Rating

Moderate

This step provides an indication of the potential impacts of climate and geophysical hazards on the project's physical infrastructure and assets as currently designed under relevant subsectors. **The Impact rating is Moderate. Climate and geophysical hazards are likely to impact the structural integrity, materials, siting, longevity and overall effectiveness of your investments.** The impact rating is based on the exposure rating and the understanding of the project's sensitivity by the user. Please note that for this step the tool is helping judge the effect these impacts may have on the investment, and the ability of the project to sustain and enhance physical infrastructures and assets under a changing climate. Understanding where risks may exist and identifying where further work may be required to reduce or manage these risks can help inform the process of dialogue, consultation and analysis during project design.

The following guiding questions are used to assess potential impacts:

- Does the project design take into account recent trends and future projected changes in identified climate and geophysical hazards?
- Does the project design consider how the structural integrity, materials, siting, longevity and overall effectiveness of health infrastructure, if applicable, may be impacted?
- In particular, does the design "lock in" certain decisions for the future?

**User Notes:** Projections for increased water scarcity in the project location due to future droughts will pose a challenge for the improvement of water and wastewater services in the project location. Given these projections, the potential impact is set to Moderate.

### 3. Modulation of risks by the project's soft components and development context

This step provides information on how the potential impact on key components/subsectors due to exposure from hazards is modulated by the project's soft components and broader development context. In doing this, this step also takes into account particularly vulnerable groups including women, migrants and displaced populations.

Modulation of risks by the project's soft components



Modulation of risks by the project's development context



Reduce Risk

This rating reflects how the project's soft components (enabling and capacity building activities) can modulate risks. The right kind of capacity building measures could increase preparedness and long-term resilience and reduce risk.

**User Notes:** The project has a significant focus on capacity enhancement, institutional strengthening, emergency preparedness for extreme weather events amongst other contingency plans and early warning systems. The project also includes the introduction and improvement of information management systems, hydraulic and hydrological models to assist in making utilities more climate resilient. Combined, these features will reduce the anticipated risks from climate and geophysical hazards.

Increase Risk

This rating reflects how the larger development context, including sector context and other social, economic and political factors can modulate risks.

**User Notes:** In the project country's water sector, the spatial distribution of water resources does not match the population distribution throughout the country, resulting in significant water scarcity in the Altiplano and inter-Andean valley where two thirds of the country's population resides. In addition, water quality has deteriorated significantly in recent years. Even though the access to municipal water services has increased over the past decade, the quality of water service delivery remains a challenge, especially in areas facing water scarcity as measured in intermittent supplies. Combined, these factors increase the risks posed by climate and geophysical hazards.

**4. Risk to the outcome/service delivery of the project**

Outcome Rating

Moderate

This step provides an indication of the level of risk to the outcome/service delivery that the project is aiming to provide. **The risk to the outcome/service delivery of your project is Moderate.** This rating is derived from hazard information, subject matter expertise, contextual understanding of the project, and modulated on the basis of the project's soft components and broader development context. Keep in mind that in considering resilience measures for risk management, each element of risk should be taken into account, not just the collective risk rating at the outcome/service delivery level.

**User Notes:** This step provides an indication of the level of risk to the outcome/service delivery that the project is aiming to provide. The risk to the outcome of your project is Moderate. The level of risk at the Impact level is Moderate and it is somewhat decreased by the modulating effect of soft components but the project location's water sector, together with other social and economic factors increase it again. This rating is derived from hazard information, subject matter expertise, contextual understanding of the project and modulated on the basis of the project's soft components and broader development context.

## Guidance on Managing Climate Risks through Enhanced Project Design

By understanding which of your project components are most at risk from climate change and other natural hazards through initial screening, you can begin to take measures to avoid impacts by:

- Enhancing the consideration of climate and disaster risks early in project design.
- Using your risk screening analysis to inform follow-up feasibility studies and technical assessments.
- Encouraging local stakeholder consultations and dialogue to enhance resilience measures and overall success of the project.

Table 1 provides some general guidance based on the risk ratings for Outcome/Service Delivery, and Table 2 lists some climate risk management measures for your consideration. Visit the "Screening Resources" page of the tool for additional guidance and a list of useful resources

Note: Please recall that that this is a high-level screening tool, and that the characterization of risks should be complemented with more detailed work.

**Table 1: General Guidance Based on Risk Ratings for Exposure, Impact and Outcome/Service Delivery**

Insufficient Understanding	Gather more information to improve your understanding of climate and geophysical hazards and their relationship to your project.
No/Low Risk	If you are confident that climate and geophysical hazards pose no or low risk to the project, continue with project development. However, keep in mind that this is a high-level risk screening at an early stage of project development. Therefore, you are encouraged to monitor the level of climate and geophysical risks to the project as it is developed and implemented.
Moderate Risk	For areas of Moderate Risk, you are encouraged to build on this screening through additional studies, consultation, and dialogue. This initial screening may be supplemented with a more detailed risk assessment to better understand the nature of the risk to the project.
High Risk	For areas of High Risk, you are strongly encouraged to conduct a more detailed risk assessment and to explore measures to manage or reduce those risks.

**Table 2: Types of Climate Risk Management Measures for Typical Water Projects**

OBJECTIVE	EXAMPLES
Increase water availability	<ul style="list-style-type: none"> <li>• Develop redundant services to increase water capture and storage options, including rainwater harvesting and storage</li> <li>• Explore natural resource management approaches to increase storage in the watershed or break waves, such as establishment of mangroves</li> <li>• Develop new sources of water including reclaimed water</li> <li>• Integrate infrastructure for multiple uses at the household level to improve resilience to decreased rainfall from climate change and variability</li> <li>• Improve water-use efficiency by recycling water</li> <li>• Develop water conservation programs</li> <li>• Expand use of economic incentives including metering and pricing to encourage water conservation</li> <li>• Expand use of water markets to reallocate water to highly valued uses</li> </ul>
Secure water quality	<ul style="list-style-type: none"> <li>• Develop a source water protection strategy/plan that accounts for the impacts of low flow on the ability of natural systems to dilute and absorb pollutants</li> <li>• Investigate land use and waste management policies to improve source water quality</li> <li>• Develop a coastal aquifer protection strategy</li> <li>• Evaluate treatment options to improve water quality</li> </ul>
Accommodate/Manage	<ul style="list-style-type: none"> <li>• Develop redundant structures or services that can be relied upon if structures fail</li> <li>• Plan back-up power systems for treatment and pumping facilities</li> <li>• Increase inspection frequency to ensure structures are enduring climate change pressures</li> <li>• Design food risk-management plans with both ecosystem- and construction-based adaptation options</li> </ul>

Protect/Harden	<ul style="list-style-type: none"> <li>• Update design standards to integrate projected sea level rise and storm surge</li> <li>• Improve distribution system infrastructure</li> <li>• Update zoning codes for coastal land to establish natural buffer zones</li> </ul>
Retreat/Relocate	<ul style="list-style-type: none"> <li>• Evaluate improving, elevating, or moving treatment facilities to prevent overflows and inundation</li> <li>• Plan for community relocation</li> </ul>
Build information collection and management systems	<ul style="list-style-type: none"> <li>• Strengthen climate information systems, building on existing regional and national networks</li> <li>• Build capacity of national governments to harmonize data across regions</li> <li>• Build relevant national and/or regional research programs on the links between climate and water supply and sanitation (e.g. vulnerability index)</li> </ul>
Strengthen policies, planning and systems	<ul style="list-style-type: none"> <li>• Integrate climate information into system planning</li> <li>• Improve coordination of policies and programs across government agencies to address the additional pressures imposed by climate change</li> <li>• Foster integrated resource management with agriculture and energy</li> <li>• Improve finance for water systems that are more adaptive and better designed for a changing climate, including through private sector investment and incentives; ensure consideration of climate risk in financing approaches</li> <li>• Strengthen disaster planning and response for water infrastructure and water services</li> <li>• Improve training, education and outreach efforts and programs related to watershed protection, water demand, water sanitation, and other factors relevant to water-related climate impacts and adaptation</li> </ul>

Sources: [USAID Climate Risk Screening and Management Tools: Water Supply and Sanitation Annex](#); [USAID Addressing Climate Impacts on Infrastructure](#); [IPCC Technical Paper on Climate Change and Water](#)