

PROJECT CLIMATE RISK ASSESSMENT AND MANAGEMENT REPORT

I. Basic Project Information

Project Title: Madhya Pradesh Urban Services Improvement Project
Project Budget: \$276 million from ADB
Location: 64 small towns in Madhya Pradesh in India
Sector: Water and other urban infrastructure and services
Theme: Inclusive economic growth, environmental sustainability, and gender equity
Brief Description: The project adopts a sector approach for developing sustainable, inclusive, and climate-resilient water supply in 64 small and medium-sized towns, and integrated storm water and sewage infrastructure in two national heritage tourist towns in Madhya Pradesh state. It includes (i) Water supply infrastructure in 64 project towns and integrated storm water and sewage infrastructure in two tourist towns improved; (ii) Systems to ensure sustainable urban infrastructure operations and management established in all the project towns; and (iii) Capacity of Madhya Pradesh Urban Development Company Limited, Urban Local Bodies, and consumers in 64 project towns improved.

II. Summary of Climate Risk Screening and Assessment

A. Sensitivity of project component(s) to climate/weather conditions and sea level	
(i) Annual mean temperature in Madhya Pradesh is projected to increase by 2.76°Celsius by 2050; and (ii) Annual precipitation is projected to increase by 78.6 mm or 7.8%. Extreme climate events would exacerbate water resource problems in Madhya Pradesh, which is already facing infrastructure deficit even under the current climate. Sea-level rise will not be a major issue as project locations are not located in low-lying coastal areas.	
<i>Project component</i>	<i>Sensitivity to climate/weather conditions and sea level</i>
1. Water supply infrastructure in 64 project towns and integrated storm water and sewage infrastructure in two tourist towns improved; 2. Systems to ensure sustainable urban infrastructure operations and management established in all the project towns, and 3. Capacity of Madhya Pradesh Urban Development Company Limited, Urban Local Bodies, and consumers in 64 project towns improved.	1. Intensity and frequency of heavy rainfall events, and 2. Increase in temperature.
1. Climate Risk Screening	
Risk topic	Description of the risk
1. Increasing risks of flooding, 2. Higher Temperature increase, and 3. Decreased Water availability.	1. The water intakes and drainage systems may not be able to accommodate the risks; and 2. Water infrastructure may be damaged due to flooding.
Climate Risk Classification: Medium	
2. Climate Risk Assessment	
Climate model projections suggest that risk of seasonal flooding and heat waves will be medium to high in the project location. Climate change is projected to influence the water resource in both quantity and quality and the frequency and intensity of flood events. Existing engineering designs need to take into consideration the impact of climate change on the risks from flooding and water scarcity.	

III. Climate Risk Management Response within the Project

1. "Design considerations for adapting to climate change risks" have been included in part F of subproject selection criteria (Appendix 1 of Project Administration Manual). The considerations include (i) use of cement concrete for roads vulnerable to frequent waterlogging; (ii) additional free-board allowance for key facilities such as production tube wells, water intakes, pump houses, and water treatment plant; (iii) at least 15% extra reinforcement of overhead tanks to stand more intense cyclones and heavy winds; (iv) 10% additional capacity in drainage systems to accommodate additional runoff due to increased rainfall intensity. These will be incorporated into the preliminary and detailed engineering designs; and (v) necessary measures will be taken to mitigate risks (particularly from water scarcity), such as selection of appropriate water intake location, elevation of base of the facilities, and protection by embankment.
2. Control of development activities will be strengthened during implementation, with support from the consultants. Encroachment into public lands, including rivers and canals, will be prevented to keep the outflow capacity and reduce disaster risks.

