

CLIMATE CHANGE IMPACTS

BASIC PROJECT INFORMATION			
Project Title: Madhya Pradesh Power Transmission and Distribution System Improvement Project – India		Sector: Energy	
Location: Spread across various locations in Madhya Pradesh		Estimated ADB Financing: \$ 350 Million	
Brief Description:		Implementation Period: April 2014 –December 2018	
<p>The objective of the project is to increase capacity and operational efficiency of the transmission and distribution system to meet the growing demand. The project will have three outputs: (i) transmission system upgraded and expanded, (ii) distribution system upgraded and expanded, and (iii) capacity building for executing agency staff. Output 1 includes augmentation of sub-station capacity and line lengths across all the voltage levels. For the 220 kV and 400 kV voltage levels, the focus is to upgrade the transformer capacity at the existing sub-stations. For the 132 kV transmission network, the target is to create more sub-stations to feed the distribution network while improving the overall quality and reliability of supply. About 1,800 circuit km of transmission line is proposed to be constructed under the project. A total of 32 substations comprising two 400 kV, four 220 kV and twenty six 132 kV substations are proposed. Output 2 includes the construction of new 33/11 kV sub-stations, bifurcation of overloaded 33 kV feeders, additions/ augmentation of power transformers, installation of distribution transformers and capacitor banks. Approximately 3125 circuit kilometers of distribution lines are proposed to be constructed. Output 3 includes developing training center in Bhopal to provide training.</p>			
Climate Change Classification: (ADB PCS: <i>Mitigation or Adaptation Classification</i>) Mitigation			
<p>SUMMARY of CLIMATE RISK SCREENING (<i>Screening will be done using GIS and Remote Sensing techniques built through three sets of databases: Geological, Climate and Knowledge base. Other climate change assessment reports or databases can be used provided they are from reputable sources and appropriate scope.</i>)</p>			
<u>A. Projected changes under A2 scenario</u>			
Temperature (°C) From: To: Increase of around 2.5 ^o -2.8 ^o Celsius by 2050	Precipitation (mm) From: To: Marginal increase of 30 mm by 2050	Sea Level Rise (masl): NA	Others: None
<u>B. Climate Risks</u>			
<ol style="list-style-type: none"> 1. Flood 2. Landslides due to heavy precipitation 3. Drought 4. Minor increase in technical losses 	<ol style="list-style-type: none"> 1. Flood risks may be escalated due to projected increase in monsoon precipitation 2. Risks of landslide will not be elevated due to the gently rolling slopes 3. The risk of drought may elevate to high level over the entire region 4. This risk is insignificant 		
<u>C. Recommendations</u>			
<p>Activities: 1. Madhya Pradesh is prone to natural disasters. Project design must therefore take into account of these disasters, particularly for flood. All planned substations were located in minimum or no flood risks areas.</p>		<p>Requirements for TOR: 1. Results of the preliminary assessments do not warrant a climate change specialist to be engaged in the project implementation as long as the impacts of climate change as well as risks of natural disasters are taken into consideration and incorporated into project design.</p>	

Risk Classification: (<i>Low, Medium and High Risk</i>): Low
<p style="text-align: center;">DUE DILIGENCE (Enumerate the type of analytical or fact finding activities conducted during project preparation)</p>
Activities: <ol style="list-style-type: none">1. In order to assess the climate change risks screening was undertaken.2. In order to assess the mitigation impacts, energy savings by the project were estimated and carbon emission reductions were also estimated.
<p style="text-align: center;">PROJECT DESIGN CHANGE OR ADAPTATION RESPONSE (Describe key action items and budgetary allocations, and other response measures relevant to the project)</p>
Examples: Substations and transmission towers locations were decided considering the flood risks.