### India: Bihar Power System Improvement Project

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Bihar Power System Improvement Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Number</td>
<td>41626-013</td>
</tr>
<tr>
<td>Country</td>
<td>India</td>
</tr>
<tr>
<td>Project Status</td>
<td>Active</td>
</tr>
<tr>
<td>Project Type / Modality of Assistance</td>
<td>Loan</td>
</tr>
<tr>
<td>Source of Funding / Amount</td>
<td>Loan 2681-IND: Bihar Power System Improvement Project</td>
</tr>
<tr>
<td></td>
<td>Ordinary capital resources</td>
</tr>
</tbody>
</table>

#### Strategic Agendas
- Environmentally sustainable growth
- Inclusive economic growth

#### Drivers of Change
- Governance and capacity development

#### Sector / Subsector
- Energy - Electricity transmission and distribution

#### Gender Equity and Mainstreaming
- No gender elements

#### Description
The project will upgrade the electric power system, increase efficiency, reliability and quality of supply through physical investments in the power infrastructure of the state of Bihar, coupled with a capacity development component. Project investments include installation of new, and renovation and modernization (R&M) of existing transmission substations; installation of new, and reinforcement of existing transmission lines; and improving of distribution systems in seven towns (Bihar Sharif, Mothari, Bettiah, Samastipur, Begusarai, Ara and Buxar) in Bihar.

#### Project Rationale and Linkage to Country/Regional Strategy
Bihar's power sector is in need of investment. Insufficient capacity of its transmission network affects reliability, quality, and stability of power supply. Bihar's electricity distribution network has failed to keep pace with the demand growth. Power transformer capacity is inadequate to meet demand on 11 kilovolt (kV) feeders in many areas, 33 kV and 11 kV feeders are being loaded above thermal limits, and failure rates for distribution transformers are about 19%. Under-sized conductors, long low-voltage circuits, and overloaded distribution transformers further impair quality of supply. Overall, system losses exceed 40%. This is a considerable drag on sector finances and sustainability. There is, thus, a need to upgrade the transmission and distribution system in Bihar, and the Project helps address this need. The Project is in line with the government's strategy, and with ADB’s Country Partnership Strategy (CPS) for India.

#### Impact
A more sustainable state power sector providing better services to end users

### Project Outcome

#### Description of Outcome
Improved and expanded transmission and distribution (T&D) capacity, increased T&D system efficiency, and enhanced quality and reliability of service in Bihar.

#### Progress Toward Outcome
Project implementation activities are on-going.

#### Implementation Progress

**Description of Project Outputs**

1. Transmission expansion:
   a. Expansion of transmission substation capacity
   b. Construction of new transmission lines.
2. Distribution rehabilitation and expansion:
   a. Increased distribution system capacity in the 7 towns in Bihar (via installation and R&M of distribution substations and distribution transformers)
   b. Increased distribution line capacity (via re-conductoring of over-loaded 33 kV and 11 kV lines and installation new lines)
   c. Increased consumer metering.
3. Non-Physical Investments
   a. Project implementation support
   b. Institutional and/or capacity development of BSEB

**Status of Implementation Progress (Outputs, Activities, and Issues)**

1. Transmission expansion:
   a. Construction of three substations (220/132 kV at Pusauli, 132/33 kV at Dhanha and 132/33 kV at Gangwara) - completed.
   b. Construction of seven transmission lines i.e. (i) LILO of 132 kV Pandaul line to Gangwara; (ii) 132 kV Sasaram-Kudra line at Pusauli; (iii) 132 kV Pusauli to Mohania line; (iv) 132 kV Pusauli to Kochas line; (v) 132 kV Lakhisarai to Sheikhpura line; (vi) 33 kV Gangwara to Alipaththan line; and (vii) 220 kV LILO of one circuit of Sasaram Ara line at Pusauli - completed.
   c. Extension of two numbers 220 kV bays at Dehri GSS and one number 132 kV bay at Bettiah, Mohania, Lakhisarai, Sheikhpura, Kochas and Pusauli GSS - completed.
   d. Construction of 4 numbers 33 kV bays - completed.
   e. Capacity augmentation of seven existing GSS - completed.
   f. 33 kV bay extensions at 83 GSS and replacement of existing transformers with higher capacity transformer at five GSS - completed.
   g. Enterprise resource planning (ERP) system models developed and under implementation.
   h. Construction of two transmission i.e. (i) 220 kV Dehri to Pusauli line and (ii) 132 kV Bettiah to Dhanha line balanced works are under implementation and will be completed by EA from its own funds.
   i. Reconductoring of 17 existing transmission lines: re-conductoring of two transmission lines namely (i) 132 kV Ramnagar to Valmikinagar to Suryajpura transmission line; and (ii) 132 kV D/C Sonenagar to Garhwa Transmission Line up to Bihar border near Nabinagar are under implementation and will be completed by EA from its own funds.
   j. Distribution rehabilitation and expansion projects have been completed.
2. Non-Physical Investments: Under capacity development component, EA has undertaken training activities.

#### Geographical Location
Arrah, Begusarai, Bettiah, Bihar, Bihar Sharif, Buxar, Darbhanga, Dehri, Mothari, Pusauli, Samastipur

#### Safeguard Categories
Arrah, Begusarai, Bettiah, Bihar, Bihar Sharif, Buxar, Darbhanga, Dehri, Mothari, Pusauli, Samastipur
Environmental Aspects
The project is classified under environment category ‘B’. Initial environmental examinations have been prepared in accordance with ADB’s Safeguard Policy Statement (2009), and disclosed on ADB website. There are adequate budgetary provisions for implementation of the environment management and monitoring plans (EMMP) agreed for the Project. The EMMP is part of the bidding and contract documents, and the executing agency is supervising the EMMP implementation.

Involuntary Resettlement
The project is classified under involuntary resettlement category ‘B’. Resettlement plan (RP) was prepared in accordance with ADB’s Safeguard Policy Statement, which is disclosed on ADB website. The executing agency is supervising the RP implementation.

Indigenous Peoples
The project is classified under indigenous people’s category ‘C’.

Stakeholder Communication, Participation, and Consultation
During Project Design
During Project Implementation

Business Opportunities
Consulting Services
TBD
Procurement
TBD

Responsible ADB Officer
K. Vallabha Rao
Responsible ADB Department
South Asia Department
Responsible ADB Division
India Resident Mission
Executing Agencies
Bihar State Electricity Board (BSEB)
State of Bihar, India

Timetable
Concept Clearance -
Fact Finding
17 Jun 2010 to 25 Jun 2010
MRM
10 Aug 2010
Approval
19 Oct 2010
Last Review Mission -
PDS Creation Date
16 Nov 2007
Last PDS Update
27 Jun 2019

Loan 2681-IND

<table>
<thead>
<tr>
<th>Approval</th>
<th>Signing Date</th>
<th>Effectivity Date</th>
<th>Closing</th>
</tr>
</thead>
</table>

Financing Plan

<table>
<thead>
<tr>
<th>Total (Amount in US$ million)</th>
<th>Date</th>
<th>ADB</th>
<th>Others</th>
<th>Net Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Cost</td>
<td>153.90</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADB</td>
<td>132.20</td>
<td>19 Oct 2010</td>
<td>116.84</td>
<td>0.00</td>
</tr>
<tr>
<td>Counterpart</td>
<td>21.70</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cofinancing</td>
<td>0.00</td>
<td>19 Oct 2010</td>
<td>114.28</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Project Page
https://www.adb.org/projects/41626-013/main

Request for Information

Date Generated
01 January 2020

ADB provides the information contained in this project data sheet (PDS) solely as a resource for its users without any form of assurance. Whilst ADB tries to provide high quality content, the information are provided “as is” without warranty of any kind, either express or implied, including without limitation warranties of merchantability, fitness for a particular purpose, and non-infringement. ADB specifically does not make any warranties or representations as to the accuracy or completeness of any such information.