

# Environmental Assessment and Review Framework (Update)

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## India: Assam Power Sector Enhancement Investment Program

Prepared by the Assam Electricity Grid Corporation Limited and the Assam Power Distribution Company Limited for Asian Development Bank

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## **A. Introduction**

1. The Government of Assam (GoA) through the Government of India (GoI) has requested the Asian Development Bank (ADB) for a multitranche financing facility (MFF) to fund the power sector investment program in Assam. The investment program will cover physical investments in transmission, distribution, energy efficiency, and related non-physical investments. The MFF was approved in 2009. At the time of approval of the MFF, GoA and the Assam Electricity Board (ASEB) were the Executing Agencies (EAs).

2. However, the GoA unbundled ASEB into three companies: Assam Power Generation Corporation Limited (APGCL), Assam Electricity Grid Corporation Limited (AEGCL), and Assam Power Distribution Company Limited (APDCL). ASEB was legally dissolved in 2013 and subsequent to this action AEGCL and APDCL were designated as EAs of the MFF.

3. The investments to be supported by ADB will (i) facilitate increased power transfers to accommodate increased demand and economic growth; (ii) improve supply-side energy efficiency by system de-bottlenecking and reducing technical losses; (iii) reduce the intensity of greenhouse gas (GHG) and other emissions through improved systems efficiency; (iv) support expanded private sector participation in distribution system operations and other energy services; and (v) facilitate poverty reduction through an improved electricity services and economic growth. The power sector enhancement investment program will sustain the reforms agenda established with earlier ADB support, and is expected to help to attract other long-term financiers to the sector.<sup>1</sup>

4. With ADB funding of the MFF, the investment program is subject to compliance with its safeguard policies which require the preparation of an environmental assessment and review framework (EARF). The EARF is applicable to all investments funded by the MFF particularly to projects included in any subsequent tranches which have not yet been fully defined. The EARF outlines the policy, procedures, and institutional requirements to be followed in identifying and selecting the projects in subsequent tranches. An EARF for the MFF was prepared in May 2009 when ADB-financed projects are required to comply with its Environment Policy 2002. This EARF is updated to be consistent with the current Safeguard Policy Statement (SPS) 2009 and Public Communications Policy (PCP) 2011 of ADB. AEGCL and APDCL, as the current EAs of the MFF, will be responsible for preparing the required environmental assessments and in obtaining ADB concurrence before implementation of the projects. These approvals must be secured before contracts are finalized and start of construction work.

## **B. Environmental Regulatory and Policy Framework for Subproject Selection**

5. The environment policies and procedures of GoI and ADB apply to all projects funded by the MFF. In India, transmission and distribution projects are not included in the list of projects that require environmental impact assessment (EIA) and environmental clearances from the MoEF.<sup>2</sup>

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<sup>1</sup> ADB. 2003. Loan 2036/2037-IND: Assam Power Sector Development Program. Manila.

<sup>2</sup> MoEF updated the environmental assessment procedures prescribed in the Environment (Protection) Rules 1986 through a notification published on 14 September 2006 in the Gazette of India, extraordinary, Part-II, and Section 3, Sub-section (ii). Transmission systems are not included in the list of projects subject to the notification and environmental impact assessment clearance requirements. GoI regulations consider transmission and distribution systems to be non-polluting activities, and as such, do not require environmental assessments or prior regulatory

6. ADB screens the project they financed according to the significance of its potential environmental impacts and is assigned to one of the following four categories:

- (i) **Category A.** Projects could have significant adverse environmental impacts. An environmental impact assessment (EIA) is required to address significant impacts.
- (ii) **Category B.** Projects could have some adverse environmental impacts, but of lesser degree or significance than those in category A. An initial environmental examination (IEE) is required to determine whether significant environmental impacts warranting an EIA are likely. If an EIA is not needed, the IEE is regarded as the final environmental assessment report.
- (iii) **Category C.** Projects are unlikely to have adverse environmental impacts. No EIA or IEE is required, although environmental implications are reviewed.
- (iv) **Category FI.** Projects involve a credit line through a financial intermediary or an equity investment in a financial intermediary. The financial intermediary must apply an environmental management system, unless all Projects will result in insignificant impacts.

7. Power transmission and distribution projects are generally classified by ADB as Category B but could become a Category A if they are located in environmentally-sensitive areas.<sup>3</sup> For each tranche after January 2010 (i.e., Tranche 2 onwards) and classified by ADB as Category B, an IEE will be prepared for the project following the SPS 2009 and relevant regulations of the Gol and GoA. The IEE will be disclosed publicly at the ADB website as required by SPS 2009 and PCP 2011 of ADB. For Category A, the EIA will be posted to the ADB website at least 120 days prior to Board consideration (for the first tranche) and before approval of the Periodic Financing Request (PFR) by ADB Management for the subsequent tranches.

### C. Environmental criteria for additional subproject selection

8. Specific environmental criteria for project/subproject selection are:

- (i) Projects/subprojects will not be located within national parks, wildlife sanctuaries and nature reserves, or wetlands, unless unavoidable for technical reasons.
- (ii) Monuments of cultural or historical importance will be avoided.
- (iii) An environmental management plan (EMP) with adequate budget will be developed for each tranche.
- (iv) Category A (if any) must comply with ADB's 120 days public disclosure of the EIA before the approval of the PFR.
- (v) Potential environmental impacts will be minimized by routing and siting to avoid environmentally-sensitive areas. Re-alignment or selection of alternative sites may be

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approval from the Ministry of Environment and Forests. State- and central-level regulatory approval is required for right-of-way and sites located in reserved forests, wildlife preserves, national parks, and other designated sensitive areas. The following relevant acts, laws, rules and guidelines may be applicable to the tranches in the investment program: (i) Air Prevention and Control of Pollution Act 1981; (ii) Water Prevention and Control of Pollution Act 1974; (iii) Forest Conservation Act, 1980 and its amendments; (iv) Forest Conservation Rules, 2003 and its amendments; (v) Wildlife Protection Act 1972; (vi) Wildlife Protection Amendment Act 2002; (vii) Hazardous Wastes Management Handling and Transboundary Movement Rules 2008, (viii) Batteries Management and Handling Rules 2001, (ix) Noise Pollution Regulation and Control Rules 2000, and (x) Indian Standard Codes and the Central Pollution Control Board Guidelines for monitoring and analysis of air, water, soil, etc.

<sup>3</sup> MoEF designates environmentally-sensitive areas to include national parks, wildlife sanctuaries, bio-reserve zones, nature reserves, or wetlands, and areas declared as heritage sites by the Assam Department of Environment and Forests. The proposed investments will not be sited in any of these areas unless absolutely required due to technical constraints.

- required.
- (vi) Clearing of any existing forest resources will be avoided if possible, and where unavoidable, will be minimized and compensated as per GOI regulatory criteria.
  - (vii) New equipment/facilities specifications shall follow international standards and best practices to avoid use of chemicals causing greenhouse gas (GHG) emissions. All equipment procured shall be free from polychlorinated biphenyl (PCBs).

## **D. Environmental assessment and review procedures of additional subprojects**

### **1. Application of selection criteria**

9. Proposed projects will be screened for compliance with selection criteria listed above prior to additional analysis. The applicable sectoral Rapid Environmental Assessment (REA) Checklists by ADB will be used to determine the most likely environment category based on SPS 2009. Design changes may be suggested or required by ADB, GoA, and Gol for proposed projects that initially do not meet the selection criteria and to ensure compliance to the requirements.

### **2. Preparation of IEEs and EIAs**

10. After categorization, the IEE (or EIA for category A projects) including an EMP with implementation budget will be prepared. For a tranche that is Category C, no environmental assessment is required but environmental implications need to be reviewed.

11. Consultations with local community and persons who may be potentially affected by the projects will be conducted as early as possible (or as the national regulations allow). Consultations can be done during the IEE preparation the same time as the project site visits. For a tranche that is Category A, public consultations will be conducted at the early stage of EIA field work, when the draft EIA report is available during project preparation, and before project appraisal or before submission of the EA of the relevant PFR to ADB. The IEE or EIAs will be reviewed and approved by ADB, GoA, and Gol.

### **3. Responsibilities/Authorities of various agencies**

12. AEGCL and APDCL will be responsible for the implementation of the EARF. This include, among others, ensuring that the selection criteria are adhered to strictly, the preparation of IEE and EIAs be done in a timely and adequate manner, environmental monitoring and institutional requirements be fully met while public consultations be carried out satisfactorily and in accordance with SPS 2009. AEGCL and APDCL, as the EAs of the MFF, will submit the REA checklist used to determine the environment category of the tranche, the environmental assessment report (i.e., IEE or EIA), and the environmental monitoring reports to ADB for review.

13. AEGCL and APDCL will also be responsible for obtaining regulatory approval and/or clearances of the relevant regional environmental protection agency (as needed) according to the regulatory requirements of GOI and GoA.

14. ADB will be responsible for regular project review during implementation, timely confirmation/approval of the REA checklists and information on environment category, updated

IEE (if any) or new IEE in the event of project scope, if any (e.g., location); and environmental monitoring reports. Technical guidance will be provided by ADB to AEGCL and APDCL, as needed. ADB will also be responsible for disclosing the EARF, IEE, EIA, and the environmental monitoring reports to its website.

#### **4. Preparation of detailed design**

15. Detailed design work for each additional subproject will follow the recommendations of the IEE. AEGCL and APDCL will review detailed designs before contracts are finalized and modifications will be incorporated if considered necessary. Certification to ADB that the detailed designs comply with IEE (including EMP) recommendations will be required before contracts can be made effective.

#### **5. Preparation of construction contracts**

16. Early in the project implementation, model construction contract language will be prepared incorporating general environmental safeguards and practices. APDCL and AEGCL will ensure that individual contracts will include general and specific conditions of environmental protection measures consistent with the IEE or the EIA, and the EMP.

#### **6. Monitoring during the construction phase**

17. APDCL and AEGCL will monitor project implementation during construction. Monitoring will consist of confirming that construction activities meet contractual requirements, check the implementation of grievance redress mechanism, determine conditions of workers at camps and construction sites, spot checking of affected persons and/or local community to determine how the project(s) is affecting them, and to determine the status of implementing the mitigation measures. Environmental monitoring reports will be submitted to ADB semi-annually. Reporting to relevant government regulatory agencies will be submitted according to their requirements.

#### **7. Monitoring during operation phase**

18. APDCL and AEGCL will submit environmental monitoring reports to ADB once a year during the operation phase.

#### **E. Environmental Management Plan**

19. An environmental management plan (EMP) will be prepared for each tranche together with the IEE or the EIA. The EMP consists of identified potential environmental impacts resulting from project activities, proposed measures to mitigate the identified impacts, and estimated costs for the mitigation measures.

20. Environmental monitoring will consist of routine systematic checking that the EMP has been implemented effectively during each stage of the project. **Table 1** presents a general summary monitoring plan for projects to be funded by the MFF. **Table 2** presents the indicative estimated costs for EMP implementation of the first tranche projects.

**Table 1 Minimum Provision for Environmental Monitoring<sup>4</sup>**

Project Stage	Mitigation Measure	Parameters to be Monitored	Location	Measurements	Frequency	Responsibility	Cost
Pre-construction	Route survey to define alternative alignments	Possible encroachment on reserved forests	All transmission and substation sites	Field mapping with Global Positioning System (GPS) equipment	1-time survey to finalize design	PMU/AEGCL/APDCL through route survey contractor	n/a
	Dust, equipment emissions, erosion, and noise control Waste management	Incorporation of appropriate clauses in construction contracts	All construction contracts for all substation and transmission sites	Field inspection to ensure that appropriate measures are implemented and facilities are installed	1 time per month	PMU/AEGCL/APDCL to include in bidding documents. ADB to verify through review of bidding documents. <sup>5</sup>	Included in construction contract (estimated at < 0.5% of total contract value)
Construction	Dust, equipment emissions, and erosion control Waste management	Suspended particulate matter (SPM)  Noise  Water: pH, dissolved oxygen (DO), biochemical oxygen demand (BOD), total suspended solids (TSS) <sup>6</sup>  Solid waste generation and disposal	All substation sites and selected transmission lines	"Grab" samples for air and water Spot check for noise using portable monitoring device Spot check for solid waste generation and disposal	Every 6 months, beginning with initial activity, for total of 18 months Monitoring will be extended if necessary Spot checks for solid waste activities	Contractors to implement, PMU/AEGCL/APDCL staff to provide oversight via regular field inspections; ADB to verify or check during project review missions  PMU has responsibility for solid waste management	See details in table 2.
Operations and Maintenance	Dust, equipment emissions, and erosion control Waste management	Same parameters as during construction period	All substations and transmission lines	Spot checks based on visual inspections and any complaints	As necessary based on inspections and complaints	AEGCL/APDCL through PMU  ADB to verify and/or check during project review missions	

**Table 2 Summary of Estimated Costs for EMP Implementation**

Activity	Units	Unit cost (\$)	Total Cost (\$) <sup>a</sup>
Transmission Route Survey	262 km	521	136,502
Civil works	8 sites	n/a	61,657
Utilities and sewage	8 sites	n/a	43,651
Drainage controls	8 sites	n/a	163,690
Site access controls	8 sites	n/a	147,322
Fire safety and suppression	8 sites	n/a	47,917

<sup>4</sup> Monitoring of issues related to compensation of landowners for land acquisition will be included in the resettlement plan.

<sup>5</sup> ADB will review documents and provide "no objection" at each stage of bidding, contract evaluation, and contract award.

<sup>6</sup> These parameters will be monitored if warranted based on visual observations or complaints.

Activity	Units	Unit cost (\$)	Total Cost (\$) <sup>a</sup>
Subtotal - Design & Construction <sup>7</sup>			600,739
Test of Environmental parameters	lump sum		65,000
Environmental Training	lump sum	-	15,000
Consultant Services (remuneration)	16 p-m	5,000	80,000
Consultant Services (per diem)	Per month	3,450	55,200
Consultant Services (transportation)	Per month	1,875	30,000
ESMC Staff (8 person-months)	Per month	2,500	20,000
Report/Communication	Lump sum	-	5,000
Subtotal – environmental services			270,200
Contingency (10 %)			27,020
Total			897,959

<sup>a</sup> Estimated costs are indicative only for expected implementation effort as per assumptions and have been depicted for Tranche 1 only.

Assumptions:

- Design and construction costs: route survey @ 100% of DPR estimate; civil works @ 33% of DPR estimate; utilities and sewage @ 33% of DPR estimate; drainage controls @ 100% of DPR estimate; site access controls @ 50% of DPR estimate; fire safety & suppression @ 100% of DPR estimates. Total = 0.9% of total project cost.
- Air and noise sampling/testing at substations @ Rs 5000 per sample and Rs 3000 per sample. Air and water sampling at construction camps @ Rs 5000/per sample and Rs 5000/per sample respectively. Total of 60 samples each (of air, noise, and water) x 4 events. Testing frequency proposed at commencement of construction, and every 6 months afterward for the following 18 months, for a total of 4 testing events.
- Environmental monitoring and compliance training for ESMC personnel estimated at 2 person-months domestic consultants @\$5000/month + \$5000 associated costs (travel, per diem, document preparation, seminar rooms, etc.)
- Consultant services for total of 4 person-months per monitoring event x 4 events spread over initial 18 month implementation period; domestic consulting @ \$5000/p-m
- ESMC Staff to conduct field inspections; 2 people x 4 months during the 18 month project period; 8 p-m @ \$2500/p-m
- Exchange rate: \$1 = INR 48
- Total environmental services = 15% of design and construction cost = 0.14% of total project cost

Source: ADB staff and consultants estimates.

## F. Institutional Arrangements

21. The existing Project Management Unit (PMU) will assume primary responsibility for updating the IEE (or EIA) after detailed design and the implementation of EMPs. An environmental and social management cell (ESMC), responsible for environment, resettlement, and any other social development obligations, will be established at the PMU. Counterpart personnel with responsibility for environmental management issues will be assigned within AEGCL and APDCL.

22. The duties of the ESMC will include at minimum: (i) oversight of construction contractors for monitoring and implementing the EMP and the environmental monitoring plan; (ii) preparing and implementing environment policy guidelines and environmental good practices; (iii) ensure that the grievance redress mechanism is working properly; (iv) providing awareness training/orientation to relevant project staff of AEGCL and APDCL, Contractor(s) and the workers on environmental and social issues related to power transmission and distribution projects; and (v) preparing the environmental monitoring reports to be submitted to ADB semi-annually during construction and annually during operation.

23. Consulting services will be mobilized as necessary to assist in initial operations, to ensure

<sup>7</sup> Contingency costs are included within

that the ESMC will be self-sufficient for EMP implementation, submission of environmental monitoring reports to ADB, and preparation of environmental assessment for subsequent tranches. Additional third-party services may be employed by the AEGCL and APDCL, as needed.

#### **G. Disclosure, Consultation and Grievances**

24. The IEE (or EIA) and EMP for each tranche will be translated into local language (Assamese) and made available to the public. A grievance redress mechanism (GRM) to deal with relevant complaints from affected people will be set up prior to construction works in accordance with SPS 2009. The affected people and the local community will be informed of the GRM. The GoI Right to Information Act (2005) provides an additional legal channel for affected people to obtain information about the proposed Project. Consultation with project stakeholders will continue throughout the project cycle.

25. AEGCL and APDCL will be responsible for internal monitoring of EMP implementation and will submit semi-annual environmental monitoring reports to ADB during construction phase and annually during the operation phase. The environmental monitoring reports will cover the status of EMP implementation and compliance, and the corrective action for non-compliance to EMP. Consultations done during project implementation will be included in the environmental monitoring reports.

26. The EARF, IEE (or the EIA) and the environmental monitoring reports will be publicly disclosed in ADB website as required by SPS 2009 and PCP 2011.