

Project Administration Manual

Project Number: 47101-003
Loan Number: TBD
November 2015

India: Assam Power Sector Investment Program
(Tranche 2)

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Project Administration Manual Purpose and Process

The project administration manual (PAM) describes the essential administrative and management requirements to implement the project on time, within budget, and in accordance with Government and Asian Development Bank (ADB) policies and procedures. The PAM includes references to all available templates and instructions either through linkages to relevant URLs or directly incorporated in the PAM.

The Government of Assam (GOA) and the Assam Power Distribution Company Ltd. (APDCL) are wholly responsible for the implementation of ADB financed projects, as agreed jointly between the borrower and ADB, and in accordance with Government and ADB's policies and procedures. ADB staff is responsible to support implementation including compliance by APDCL of their obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.

At Loan Negotiations the borrower and ADB have agreed to the PAM and ensured consistency with the Framework Financing Agreement (FFA). Such agreement is reflected in the minutes of the Loan Negotiations. In the event of any discrepancy or contradiction between the PAM and the Loan Agreement, the provisions of the Loan Agreement shall prevail.

After ADB Board approval of the project's report and recommendations of the President (RRP) changes in implementation arrangements are subject to agreement and approval pursuant to relevant Government and ADB administrative procedures (including the Project Administration Instructions) and upon such approval they will be subsequently incorporated in the PAM.

Abbreviations

ADB	=	Asian Development Bank
AEC	=	Assam Engineering College
AFS	=	audited financial statements
AEGCL	=	Assam Electricity Grid Corporation Ltd
AERC	=	Assam Electricity Regulatory Commission
APDCL	=	Assam Power Distribution Company Ltd.
APGCL	=	Assam Power Generation Corporation Ltd
APSEIP	=	Assam Power Sector Enhancement Investment Program
CAAA	=	Controllers of Aide Accounts and Audits
CAG	=	Comptroller and Auditor General
DEA	=	Department of Economic Affairs
DMF	=	design and monitoring framework
DPR	=	Detailed project report
EARF	=	environmental assessment and review framework
EMP	=	environmental management plan
EPC	=	Engineering Procurement Construction
ERP	=	enterprise resource planning
ESMU	=	Environmental and Social Management Unit
FFA	=	financing framework agreement
FMA	=	Financial Management Assessment
GOA	=	Government of Assam
GOI	=	Government of India
GRC	=	Grievance redress committee
GRM	=	grievance redress mechanism
ICB	=	international competitive bidding
IEE	=	initial environmental examination
IT	=	Information technology
km	=	kilometer
kV	=	kilovolt
LDC	=	Load Dispatch Center
LIBOR	=	London interbank offered rate
MBC	=	metering, billing and collections
MFF	=	multi-tranche financing facility
MOU	=	Memorandum of Understanding
MVA	=	Megavolt ampere
NCB	=	national competitive bidding
OAI	=	Office of Anticorruption and Integrity
OCR	=	ordinary capital resources
O&M	=	operation and maintenance
PAM	=	project administration manual
PCSS	=	procurement contract summary sheet
PFR	=	periodic finance request
PIU	=	project implementation unit
PMU	=	project management unit
SCADA	=	supervisory control and dispatch acquisition
SLDC	=	State Load Dispatch Center
SOE	=	statement of expenditures

I. PROJECT DESCRIPTION

1. APDCL has previously had some success in reducing system losses, but the progress with loss reduction has stagnated in the past three years owing to providing of new power connections without upgrading the system, inadequate investments, and poor management practices. The sub-transmission (33 kV and 11 kV) and distribution (400 V) losses of the APDCL network were 25.4%, 26.3% and 25.2% for FY2011,¹ FY2012 and FY2013, respectively. The target established by Assam Electricity Regulatory Commission (AERC) for FY2013 was 19.6%.² Although some improvements are visible over FY2012 to FY2013, loss figures are high and measures for loss reduction have to be sustained on a priority basis. Improvements to the sub transmission network are necessary for reduction of technical losses, and to ensure delivery of power to distribution transformers at the required voltage levels. These improvements are imperative to meet the projected growth in demand and they have to be undertaken in a planned and systematic manner. Unless the voltage regulation levels of 11 kV feeders are maintained within limits, measures for reducing losses and maintaining service quality in the low voltage system will not produce the desired result. Therefore, system improvement measures at the medium voltage levels of 33 kV and 11 kV should be taken up side by side with loss saving measures at low voltage level.

2. A load flow study up to the 11 kV bus of the 33/11kV substation proposed in this project, along with load flow studies on the existing 33 kV, 11 kV and low voltage lines proposed for rehabilitation, refurbishment/re-conductoring, have been carried out to examine the service quality and losses in the existing system, and to examine options for improvement. Results indicate the need to strengthen the existing distribution network at sub-transmission levels with new 33 kV circuits, and re-conductoring some existing lines with larger conductors. Studies indicate a loss reduction of about 5.40%³ up to 11 kV and low voltage network upon implementation of the total requirement.

3. For the first time in APDCL, for the improvement of safety around busy public places in urban areas, this project includes the replacement of oil-filled distribution transformers with dry type transformers. Additionally, this project includes the replacement of existing overhead lines at two busy congested commercial locations in Guwahati, with underground lines. Oil-filled transformers removed from such locations will be tested and subsequently used in on-going distribution expansion projects in rural areas, where adequate space and safety clearances can be provided.

4. Setting-up of one independent meter testing laboratory at Assam Engineering College (AEC), Guwahati, the first Engineering College established by Govt. of Assam, is included in this project. This independent and third party meter testing laboratory is required to address consumer grievances in case of disputes on meter accuracy and integrity. When a consumer complains about meter inaccuracy or when APDCL discovers an inaccuracy, and if any party disputes such assessment, the independent meter testing laboratory managed by AEC would provide an independent assessment using the meter testing laboratory provided under this project. Such a report would enable APDCL to swiftly address the issues on meter inaccuracy, which will progressively contribute to the reduction of commercial losses as well as contribute to good governance. Furthermore, consumers would be confident that the independent tests have been conducted on their defective meters. The meter testing laboratory will be managed by

¹ FY2013 means the financial year ending on 31 March 2013.

² Tariff Order FY2012- FY2013 and FY2013-FY2016, Assam Electricity Regulatory Commission.

³ Detailed Project Report and load flow analysis prepared by APDCL

AEC on the basis of an MOU to be signed between APDCL and AEC.

5. An Information Technology (IT) module for centralized uniform metering, billing, collection (MBC) application for 1.2 million consumers of APDCL is included in this project. Presently, entry of metering records, billing and revenue management for customers is done in 2 different systems. One system uses a higher degree of IT for a fully automated system, while some customers in the same general area are metered and billed through a manual system. The new IT module proposed will unify the meter recording, billing and revenue management system throughout the urban areas. The system will access meter readings through remote reading, generate invoices, update payment records, generate disconnection notices for non-payment and generate information useful for a wide range management functions on APDCL.

6. With the increasing demand and the need to improve the quality of supply, better load management in the distribution network in coordination with the State Load Dispatch Centre (SLDC) is important for maintaining grid discipline as well as discipline in the distribution network. Presently, there is no load dispatch center (for 33 kV and 11 kV levels) available in APDCL. This project includes establishing two Load Dispatch Centers (LDCs) with supervisory control and data acquisition (SCADA) facility, one each at Guwahati and Jorhat. Each LDC would enable close supervision and control of the power distribution network; attend to faults early, and to conduct energy management and auditing in the efforts to control losses. The Guwahati LDC will monitor and manage the 33 kV and 11 kV network in the area, which has 36 primary substations. Similarly, the Jorhat LDC will manage its network and 20 primary substations. To enable improved communication of the system status upstream of the APDCL network, a separate server and display system connecting the SLDC control room for viewing the condition of the ASEB/NERLDC⁴ grid has been included in both the LDC control rooms.

A. Impact and Outcome

7. The Project's impact will be enhanced quality and expanded service delivery of electricity in Assam. The outcome of the project will be increased efficiency and capacity of power distribution system in Assam by reducing distribution losses in project areas from 21% in 2015 to 18% in 2020.

B. Outputs

8. The proposed Tranche 2 project has two outputs:

Output 1: Expanded and upgraded power distribution system includes:

- (i) construction of one new 33/11 kV substation, install the associated terminal equipment, and associated 33 kV (4 km) and 11 kV (6 km) lines;
- (ii) construction of 137 km of 33 kV lines;
- (iii) construction of 33 kV railway line crossings and river crossings;
- (iv) construction of 11 new 33 kV bays to serve new 33 kV lines at 33/11 kV substations and grid substations;
- (v) construction of 7 km of 11 kV lines for the segregation of the rural and agricultural feeders;
- (vi) re-conductoring and refurbishment of 955 km of 33 kV lines;
- (vii) re-conductoring and refurbishment of 1000 km of 11 kV lines;
- (viii) re-conductoring and refurbishment 1555 km of low voltage lines;

⁴ North-east Regional Load Dispatch Centre.

- (ix) construction of 6 new 33 kV bays to serve existing 33 kV lines
- (x) replacement of 204 existing oil-filled distribution transformers with dry-type transformers; and
- (xi) replacement of existing 14 km of overhead 11 kV and low voltage line with underground cable.

Output 2: Strengthening institutional capacity of APDCL includes:

- (i) setting up of one independent meter testing laboratory;
- (ii) establishing one IT module to expand the centralized uniform revenue billing system for 1.2 million customers;
- (iii) establishing two area load dispatch centers; and
- (iv) project management, supervision and implementation support.

II. IMPLEMENTATION PLANS

A. Project Readiness Activities (Status as of 31 August 2015)

Readiness Criteria	Target Date	Status	Responsibility
1. Government project approval	Done	Done	GOA/GOI
2. Project Management			
a. Project management units for projects	Done	Done	EA
b. Staffing	Done	Done	EA
3. Allocation of counterpart funding	Approved	Approved	GOA
4. Mobilization of project preparatory consultants	June 2015	Completed	EA/ADB
5. Procurement			
a. Procurement plan	November 2014	Completed	EA/ADB
b. Issuance of bidding documents	March to September 2015	Work in progress	EA/ADB EA/ADB
c. Award of contract(s)	November to December 2015	Expected	EA/ADB
6. Financial Management			
a. Financial management system	In place	Done	EA
b. Auditing arrangements	In place	Done	EA
7. Project-specific (as appropriate)			
a. Land acquisition	Not required*	Done	EA
b. Resettlement plan	November 2014	Completed	EA
c. Initial Environmental Examination	November 2014	Completed	EA
8. Loan Negotiations	October 2015	Expected	ADB/EA/GOA/GOI
9. Loan Signing	December 2015	Expected	ADB/EA/GOA/GOI

ADB = Asian Development Bank, EA = executing agency, GOA = Government of Assam, GOI = Government of India.

* Land allotted by Guwahati Metropolitan Development Authority (GMDA)

B. Overall Project Implementation Plan

9. The project will be implemented over a period of 40 months after the loan effectiveness, including procurement and construction activities.

Figure 1: Implementation Schedule

Item	2014				2015				2016				2017				2018				2019															
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Tranche 2																																				
Output 1: Expanded and upgraded power distribution system																																				
(i) construction of one new 33/11 kV substation, install the associated terminal equipment, and associated 33 kV (4 km) and 11 kV (6 km) lines;																																				
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(iii) construction of 33 kV railway line crossings and river crossings;																																				
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Output 2: Strengthening institutional capacity of APDCL and APGCL																																				
(i) setting up of one independent meter testing laboratory;																																				
(ii) establishing one IT module to expand the centralized uniform revenue billing system for 1.2 million customers;																																				
(iii) establishing two area load dispatch centers; and																																				
(iv) project management, supervision and implementation support.																																				
Reviews																																				

BP = bid preparation, BA = bid advertisement, BE = bid evaluation, CA = contract awards, CW = commencement of works.

III. PROJECT MANAGEMENT ARRANGEMENTS

A. Project Implementation Organizations – Roles and Responsibilities

Project implementation organizations	Management Roles and Responsibilities
Government of Assam (GOA)	<ul style="list-style-type: none">➤ Act as an oversight body with day-to-day coordinating functions. Supports policy and budgetary related issues, and interaction with central government agencies.
Executing Agency Assam Power Distribution Company Ltd. (APDCL)	<ul style="list-style-type: none">➤ Overall responsibility for: (i) project management, (ii) coordinate implementation, and (iii) function as project implementation unit to assist in day-to-day project implementation;➤ Preparing overall project implementation plan and consolidated annual work plan;➤ Preparing standard bid documents to comply with ADB guidelines;➤ Procuring equipment and services;➤ Ensuring project compliance with loan covenants, including safeguards requirements;➤ Coordinating with ADB on matters related to disbursements;➤ Maintaining project documents and submitting timely reports (QPRs, environmental and social monitoring reports) to ADB and the Government; and➤ Obtain necessary clearances, as required.
Project Management Unit (PMU)	<ul style="list-style-type: none">➤ Responsible for project coordination and administration among the EAs, DEA and ADB.
ADB	<ul style="list-style-type: none">➤ To conduct regular project reviews and facilitate the implementation of the project;➤ Monitor and review overall implementation in consultation with the executing agencies/ implementing agencies including: project implementation schedule, actions required with reference to the summary of poverty reduction & social strategy, environment management plan, and resettlement plan if applicable, timeliness of budgetary allocations and counterpart funding, project expenditure progress with procurement and disbursement, statement of expenditure when applicable, compliance with loan covenants, and likelihood of attaining project development objectives.

B. Key Persons Involved in Implementation

Executing Agency

Government of Assam
Mr. H. K. Sharma, IAS
Commissioner and Secretary
Power Department , Government of Assam
Tel.: +91 361 223 7317
Email: hemangakishore@gmail.com

APGCL/AEGCL/APDCL
Mr. K. V. Eapen, IAS
Chairman
Tel.: +91 361 273 9522
Email: cmdapdcl@gmail.com

APDCL
Mr. R. L. Baruah
Managing Director
Tel.: +91 361 273 9516
Email: md.apdcl@apdcl.gov.in

PMU
Mr. A. K. Das
Director
Tel.: +91 94 35 346055 (M)
Email: pmu.assampower@gmail.com

ADB

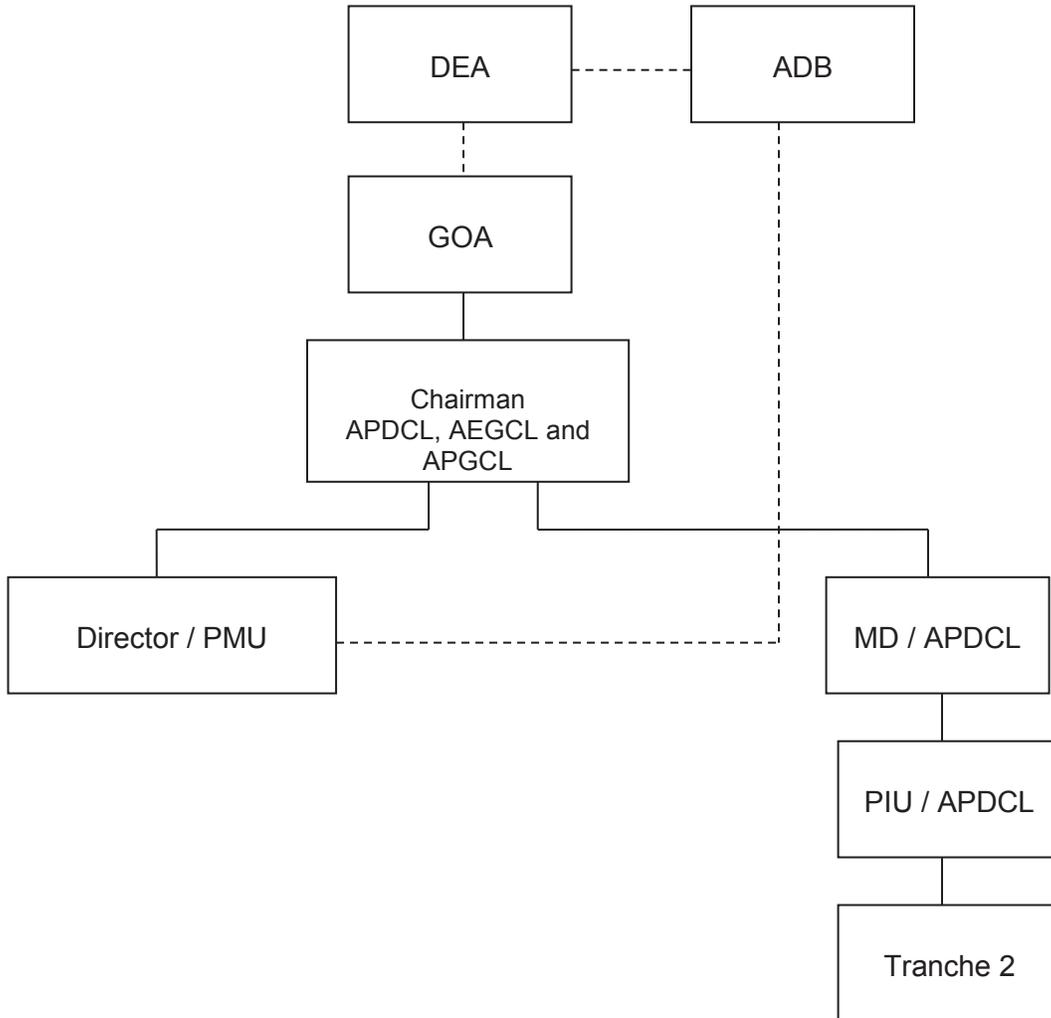
Energy Division,
South Asia Department
Anthony J. Jude
Director, Energy Division
South Asia Department
Tel.: +63 2 632 6301
Email: ajude@adb.org

Mission Leader
Aziz Yusupov
Energy Specialist, Energy Division
South Asia Department
Tel.: +63 2 632 6707
Email: ayusupov@adb.org

C. Project Organization Structure

10. The key organizations involved in implementation of the project are shown below:

Figure 2: Organization Structure



IV. COSTS AND FINANCING

11. The total cost of the project 2 is estimated at \$60 million, including physical and price contingencies, financing charges during the implementation, and taxes and duties. The investment plan is summarized in Table 1. ADB will provide a loan from its ordinary capital resources (OCR) of up to \$48 million and the Government of Assam (GOA) will contribute \$12 million in counterpart financing (Table 2). ADB will finance supply, erection and commissioning of equipment and associated civil works, consulting services, and contingencies as necessary. GOA will be responsible for funding all other items. Detailed cost estimates by expenditure category is presented in Table 3, detailed cost estimates by financier is presented in Table 4, detailed cost by year is presented in Table 5, and detailed cost estimates by output is presented in Table 6.

Table 1: Tranche Investment Plan
(\$ million)

Item	Amount ^a
A. Base Cost^b	
1. Expansion and up-gradation of the distribution system	36.60
2. Strengthening institutional capacity of APDCL	18.86
Subtotal (A)	55.46
B. Contingencies^c	3.38
C. Financing Charges During Implementation^d	1.16
Total (A+B+C)	60.00

^a Includes taxes and duties to be financed from government resources.

^b In Q4 2014 prices.

^c Physical contingencies computed at 3% of the base cost. Price contingencies computed using ADB's forecasts of international and domestic inflation. Includes provision for potential exchange rate fluctuation under the assumption of a purchasing power.

^d Interest during implementation has been computed at a base rate of 1.66% plus a spread of 0.5% and a maturity premium of 0.1%. Commitment charges have been computed at 0.15% of undrawn funds.

Sources: Asian Development Bank and Assam Power Distribution Company Ltd.

12. The Government of India has requested a loan of \$48 million from the ADB's ordinary capital resources (OCR) to help finance the project. The project is expected to be completed by 30 June 2019 and the loan closing date will be 31 December 2019. The MFF availability period ends by 30 June 2024. The proposed loan will have a 25-year term, including a grace period of 5 years, straight-line repayment method, an annual interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility,⁵ a commitment charge of 0.15% per year, and such other terms and conditions set forth in the draft loan and project agreements. Based on this, the average loan maturity is 15.25 years and the maturity premium payable to ADB is 0.10% per annum.

Table 2: Financing Plan

Source	Amount (\$ million)	Share of Total (%)
Asian Development Bank (OCR)	48.00	80.00
Government	12.00	20.00
Total	60.00	100.00

ADB=Asian Development Bank, OCR=Ordinary Capital Resources,
GOA=Government of Assam.

Source: Asian Development Bank estimates.

⁵ The interest includes a maturity premium of 10 basis points. This is based on the above loan terms and the government's choice of repayment option and dates.

A. Detailed Cost Estimates by Expenditure Category

Table 3: Cost Estimates by Expenditure Category

Item	(Rs million)			(\$ million)			% of Base Cost
	Foreign Exchange	Local Currency	Total Cost	Foreign Exchange	Local Currency	Total Cost	
A. Investment Costs^a							
1. Civil works	0.00	513.06	513.06	0.00	9.32	9.32	17
2. Equipment	1,504.25	658.83	2,162.60	27.35	11.97	39.32	71
3. Consultants							
a. Project management and supervision	74.25	8.25	82.50	1.35	0.15	1.50	3
Subtotal (A)	1,578.50	1,179.66	2,758.16	28.7	21.44	50.14	90
B. Other Costs^a							
1. Land and preparatory works	0.00	19.95	19.95	0.00	0.36	0.36	1
2. Environmental and social mitigation	0.00	33.00	33.00	0.00	0.60	0.60	1
3. Project management ^b	0.00	239.93	239.93	0.00	4.36	4.36	8
Subtotal (B)	0.00	292.88	292.88	0.00	5.32	5.32	10
Total Base Cost	1,578.50	1,472.54	3,051.04	28.70	26.76	55.46	100
C. Contingencies							
1. Physical ^c	49.50	41.8	91.3	0.90	0.76	1.66	3
2. Price ^d	45.65	48.95	94.6	0.83	0.89	1.72	3
Subtotal (C)	95.15	90.75	185.9	1.73	1.65	3.38	6
D. Financing Charges During Implementation							
1. Interest during implementation ^e	72.57	0.00	72.57	1.11	0.00	1.11	2
2. Commitment charges	2.35	0.00	2.35	0.05	0.00	0.05	0
Subtotal (D)	74.92	0.00	74.92	1.16	0.00	1.16	2
Total Project Cost (A+B+C+D)	1,748.57	1,563.29	3,311.86	31.59	28.41	60.00	108

^a In Q1 2014 prices.

^b EA overhead costs capitalized to project account.

^c Computed at 3% of base costs.

^d Computed using ADB's forecasts of international and domestic inflation. Includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

^e Interest during implementation has been computed at a base rate of 1.66%, a spread of 0.5% and maturity premium of 0.1%. Commitment charges have been computed at 0.15% undrawn funds.

Source: APDCL and ADB estimates.

B. Allocation and Withdrawal of Loan Proceeds

13. Except as ADB may otherwise agree, withdrawals shall be made from the loan proceeds as follows:

CATEGORY			ADB FINANCING BASIS
Number	Item	Total Amount Allocated for ADB Financing (\$)	Percentage and Basis for Withdrawal from the Loan Account
1	Equipment	36,150,000	100% of total eligible expenditure claimed*
2	Civil works	7,820,000	100% of total eligible expenditure claimed*
3	Consultants	1,400,000	100% of total eligible expenditure claimed*
4	Unallocated	2,630,000	
	TOTAL	48,000,000	

*Exclusive of taxes and duties within the territory of the Borrower.

C. Detailed Cost Estimates by Financier

Table 4: Cost Estimates and Financing Plan by Financier

Item	Cost	(\$ million)			
		ADB		Government	
		Amount	% of Cost Category	Amount	% of Cost Category
A. Investment Costs^a					
1. Civil works	9.32	7.82	84	1.50	16
2. Equipment	39.32	36.15	92	3.17	8
3. Project management and supervision consultants	1.50	1.40	93	0.10	7
Subtotal (A)	50.14	45.37	90	4.77	10
B. Other Investment Costs					
1. Land and preparatory works	0.36	0.00	0	0.36	100
Environmental and social					
2. mitigation	0.60	0.00	0	0.60	100
3. Project management	4.36	0.00	0	4.36	100
Subtotal (B)	5.32	0.00	0	5.32	100
Total Base Cost	55.46	45.37	82	10.09	18
C. Contingencies					
1. Physical	1.66	0.91	55	0.75	45
2. Price	1.72	1.72	100	0.00	0
Subtotal (C)	3.38	2.63	78	0.75	22
D. Financing Charges During Implementation					
1. Interest during implementation	1.11	0.00	0	1.11	100
2. Commitment charges	0.05	0.00	0	0.05	100
Subtotal (D)	1.15	0.00	0	1.16	100
Total Project Cost (A+B+C+D)	60.00	48.00	80	12.00	20

^a Incidental costs including bank charges, local transport and insurance are eligible for ADB financing. A total investment cost of \$4.77 million to be financed by the government is taxes and duties.

Source: APDCL and ADB estimates.

D. Detailed Cost Estimates by Year

Table 5: Detailed Cost Estimates by Year

Item	Total Cost	(\$ million)		
		2016	2017	2018
A. Investment Costs				
1. Civil works	9.33	4.66	4.66	0.00
2. Equipment	39.32	19.66	19.66	0.00
3. Consultants				
a. Project management and supervision	1.50	0.75	0.75	0.00
Subtotal (A)	50.15	25.07	25.07	0.00
B. Other Costs				
1. Land and preparatory work	0.36	0.18	0.18	0.00
2. Environmental and social mitigation	0.60	0.30	0.30	0.00
3. Project management	4.36	2.18	2.18	0.00
Subtotal (B)	5.32	2.66	2.66	0.00
Total Base Cost	55.47	27.73	27.73	0.00
C. Contingencies				
1. Physical	1.66	0.83	0.83	0.00
2. Price	1.72	0.68	1.04	0.00
Subtotal (C)	3.38	1.51	1.87	0.00
D. Financing Charges During Implementation	1.15	0.31	0.84	0.00
Total Project Cost (A+B+C+D)	60.00	29.55	30.44	0.00
% Total Project Cost	100.00	49%	51%	0.00

Source: APDCL and ADB estimates.

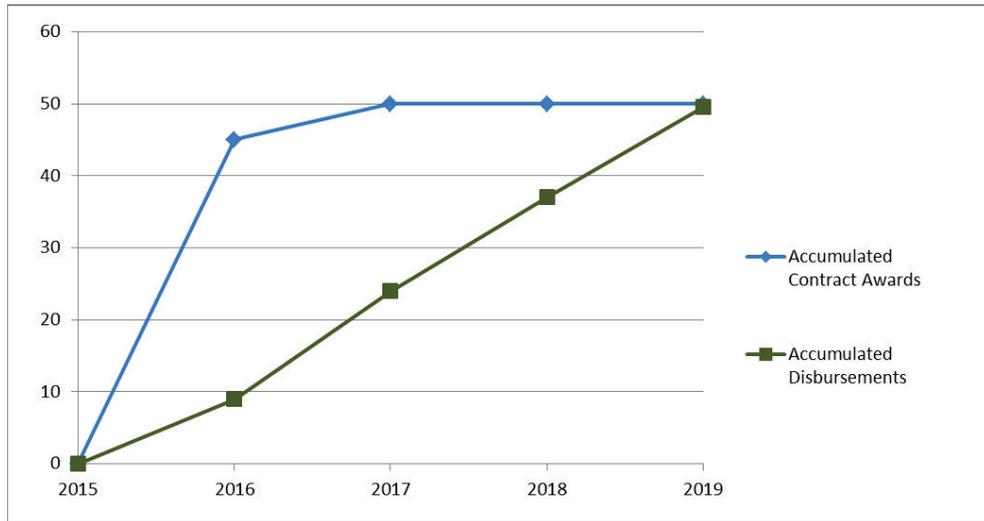
E. Detailed Cost Estimates by Outputs

Table 6: Cost Estimates by Outputs

Item	Total Cost	(\$ million)	
		Output 1	Output 2
A. Investment Costs			
1. Civil works	9.32	2.62	6.70
2. Equipment	39.32	30.25	9.07
3. Consultants			
a. Project management and supervision	1.50	0.00	1.50
Subtotal (A)	50.14	32.87	17.27
B. Other Costs			
1. Land and preparatory work	0.36	0.27	0.09
2. Environmental and social mitigation	0.60	0.60	0.00
3. Project management	4.36	2.86	1.50
Subtotal (B)	5.32	3.73	1.59
Total Base Cost	55.46	36.6	18.86
C. Contingencies			
1. Physical	1.66	1.1	0.56
2. Price	1.72	1.13	0.58
Subtotal (C)	3.38	2.23	1.14
D. Financing Charges During Implementation	1.15	0.76	0.39
Total Project Cost (A+B+C+D)	59.99	39.59	20.39
% Total Project Cost	100.00	66.03	33.97

Source: APDCL and ADB estimates.

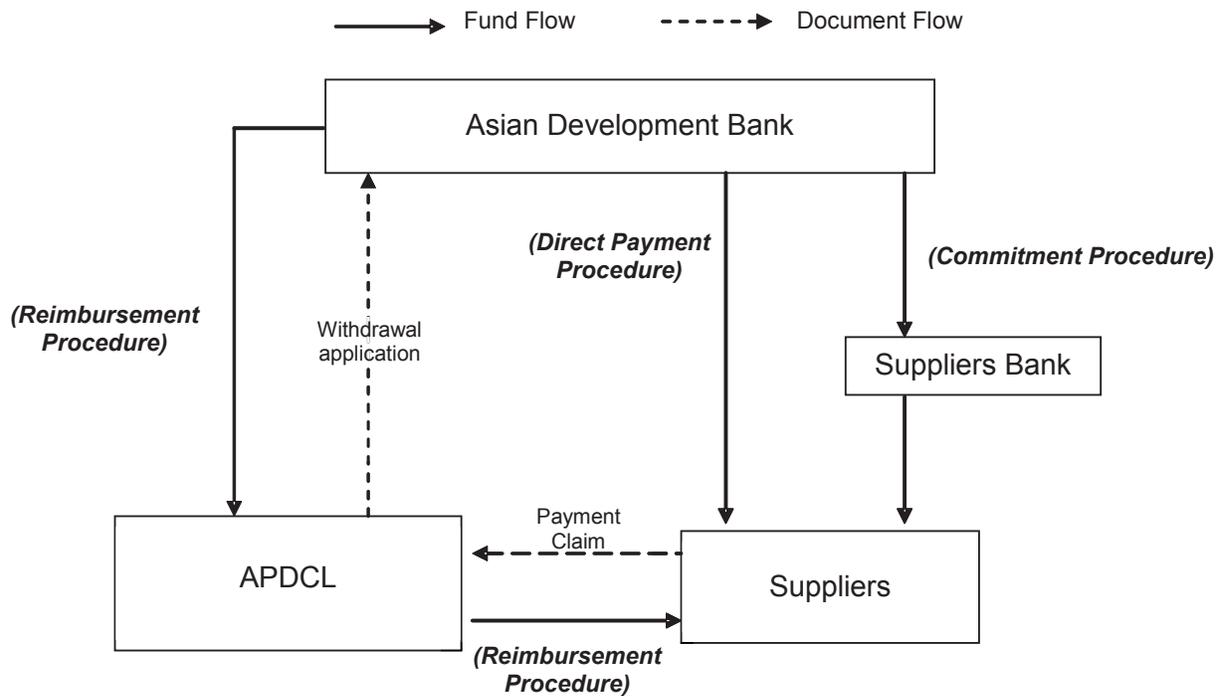
F. Contract Award and Disbursement S-curve



G. Fund Flow Diagram

14. Figure 3 shows how the funds flow from ADB, and the Borrower to implement the project.

Figure 3: Funds Flow Diagram



V. FINANCIAL MANAGEMENT

A. Financial Management Assessment

15. Project specific governance risks have been identified through financial management and procurement assessments of the APDCL in accordance with ADB's Guidelines for the Financial Management and Analysis of Projects.⁶ The financial due diligence was carried out in accordance with ADB's Financial Due Diligence: ADB Methodology Note⁷ was followed focusing on fund flows, staffing, accounting policies and procedures, internal controls, financial reporting and monitoring, and internal and external audit. The assessment draws lessons learned from the implementation of ongoing loans under the MFF: Assam Power Sector Enhancement Investment Program (APSEIP), the findings and recommendations arising from TA 7378 - Capacity Development of the Assam Power Sector Utilities, as well as face-to-face interviews with APDCL staff. For the country level assessment, the financial management assessment (FMA) also refers to India country partnership strategy (draft 2013–2017) and India Public Financial Management Performance Assessment Report (2010).

16. Overall, financial management capacity is assessed as low, and financial management risk was assessed as high. These assessments identified a number of weaknesses, including: (i) weak internal controls over fixed assets, cash management and payroll; (ii) weak internal audit; (iii) out-of-date accounting manuals and handbooks; and (iv) manual accounting and financial management system.

17. Weaknesses in financial management, accounting and internal audit remain in APDCL. ADB previously supported a diagnostic study on capacity development for APDCL under TA 7378. A comprehensive action plan with different timelines for each activity was proposed. However, these recommendations, which included appointment of a regular finance director at board level, appointment of cost auditor and installation of cost accounting system, formation of accounting application committee, strengthening internal control system, development of standard format for the Statement of Non Adherence/Part Adherence of accounting policies, development of risk management framework and adoption of computerized inventory management systems, have not been fully implemented. ADB will assist in addressing some of these critical areas through the design of the capacity development component under the MFF. Undertakings in the FFA and specific covenants in loan agreement were included to address financial management risks.

18. The FMA noted that finance and accounting staff within APDCL have clearly defined responsibilities, and there is satisfactory separation of function and delegation of authority within each entity. APDCL has institutional experience in managing ADB funded projects.⁸ The entity has staff seconded to the PMU presently established for implementation of the ongoing MFF - APSEIP. Financial reports are prepared according to the Indian Accounting Standards and is subject to annual audit conducted by chartered accountants appointed by Comptroller and Auditor General of India.

⁶ ADB. 2005. *Financial Management and Analysis of Projects*. Manila. Available at: <http://www.adb.org/Documents/Guidelines/Financial/default.asp>

⁷ ADB. 2009. *Financial Due Diligence: A Methodology Note*. Manila.

⁸ ADB. 2009. *Report and Recommendation of the President to the Board of Directors: Proposed Multitranche Financing Facility and Technical Assistance Grant Assam Power Sector Enhancement Investment Program in India*. Manila

19. The financial management risk mitigation measures includes: (i) capacity building component of the investment program that specifically targets the weaknesses of the utilities' financial management; (ii) implementation of time-bound action plans provided by APDCL to address major financial management shortcoming highlighted by the statutory auditors; (iii) full implementation of financial management module of ERP; (iv) specific covenants on financial management aspects in the loan agreements; and (v) use of direct payment method to expedite the disbursement process and ease the administrative burden imposed on APDCL.

B. Disbursement

20. The Loan proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2015, as amended from time to time),⁹ and detailed arrangements agreed upon between the Government and ADB.

21. Before the submission of the first withdrawal application, APDCL should submit to ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on behalf of APDCL, together with the authenticated specimen signatures of each authorized person. The minimum value per withdrawal application is \$100,000 equivalent. Individual payments below this amount should be paid by the borrower and subsequently claimed to ADB through reimbursement. Withdrawal applications and supporting documents should demonstrate, among other things that the goods, and/or services were produced in or from ADB member countries, and are eligible for ADB financing.

22. ADB's direct payment, statement of expenditure (SOE) and reimbursement procedures may be adopted for disbursement of the loan proceeds. However, DEA's prior endorsement must be obtained in case the executing agency prefers direct payment procedure. PMU will prepare disbursement projections, collect supporting documents, and prepare and send withdrawal applications to ADB. The executing agency will ensure necessary budgetary allocations for counterpart funds. Basic requirements for direct payment and SOE procedures are as follows:

Responsible Person/Unit	Activity
A. Direct Payment – The Borrower may request ADB to pay the supplier/contractor directly. Expenditure being claimed for ADB financing should be charged to Procurement Contract Summary Sheet (PCSS). Accordingly, before submitting the withdrawal application, APDCL to ensure that PCSS Number is obtained from ADB.	
Borrower	<ul style="list-style-type: none"> • Completes the withdrawal application, summary sheet and supporting documents and forwards them to ADB for processing
ADB	<ul style="list-style-type: none"> • Receives the completed forms, review and if in order, proceed with payment
B. Statement of Expenditures (SOE) ¹⁰ – The ceiling of the SOE procedure is the equivalent of \$100,000 per individual payment. Supporting documents and records for expenditures claimed under the SOE should be maintained and made available for review by ADB's disbursement and review mission, upon ADB's request for submission of supporting documents on a sampling basis, and for independent audit.	

⁹ Available at: http://www.adb.org/Documents/Handbooks/Loan_Disbursement/loan-disbursement-final.pdf.

¹⁰ SOE form is available in Appendix 9B of ADB's Loan Disbursement Handbook (2015, as amended from time to time).

Reimbursement of individual payments in excess of the SOE ceiling should be supported by full documentation when submitting the withdrawal application to ADB. Expenditure being claimed for ADB financing should be charged to Procurement Contract Summary Sheet (PCSS). Accordingly, before submitting to CAAA, APDCL to ensure that PCSS number is obtained from ADB.

Borrower through the executing agency	<ul style="list-style-type: none"> • Completes SOE forms instead of the usual supporting documents and summary sheet • The Borrower certifies that expenditures have been incurred and paid for in accordance with the terms and conditions of the loan agreement • Records are maintained and are available for inspection and examination by ADB review missions and independent auditors, if required.
ADB	<ul style="list-style-type: none"> • Receives the completed forms, reviews and if in order, proceeds with payment.

C. Accounting

23. APDCL will maintain separate project accounts and records by funding source for all expenditures incurred on the Project. Project financial statements will follow accounting principles and practices prescribed under the Companies Act, 2013, the Electricity Act, 2003, and any other applicable law or regulation prevailing in India, which are consistent with international accounting principles and practices. Project financial statements should be prepared on an accrual basis of accounting, consistent with APDCL's own accounting framework. Template financial statements provided in the Standardized Terms of Reference for audit of ADB assisted projects, agreed with the Comptroller and Auditor General of India, the DEA and ADB can be referred to as a guide for maintaining accounts.

D. Auditing

24. APDCL will cause the project financial statements to be audited in accordance with relevant international auditing standards, or national equivalent, as the case may be, by an independent auditor whose qualifications, experience and terms of reference are acceptable to ADB. The audited project financial statements together with the auditors' opinion will be submitted in the English language to ADB at the earliest, but in any case within 6 months of the end of the fiscal year.

25. APDCL will also cause its entity-level financial statements to be audited in accordance with the Indian audit regulations, by an independent auditor acceptable to ADB. The audited entity-level financial statements, together with the auditors' report and management letter, will be submitted in the English language to ADB within one month after their approval by the competent authority. Based on the entity level financial statements, the statutory or project auditor shall also provide assurance on the level of compliance for each financial covenant contained in the legal agreements for the project.

26. The annual audit report for the project financial statements will include audit opinions which cover: (i) whether the project financial statements present a true and fair view or are presented fairly, in all material respects, in accordance with the applicable financial reporting framework; (ii) whether loan proceeds were used only for the purposes of the project or not; and (iii) whether statement of expenditure procedures were appropriately applied. If the auditor issues a management letter, a copy will also be submitted to ADB.

27. The Government and the APDCL have been made aware of ADB's approach to delayed

submission,¹¹ and the requirements for satisfactory and acceptable quality of the audited accounts. ADB reserves the right to verify the project's financial accounts to confirm that the share of ADB's financing is used in accordance with ADB's policies and procedures. Compliance with financial reporting and auditing requirements will be monitored by ADB review missions and during normal project supervision, and followed up regularly with all concerned, including the external auditor.

28. Public disclosure of the project financial statements, including the audit report on the project financial statements, will be guided by ADB's Public Communications Policy (2011).¹² After review, ADB will disclose the project financial statements for the project and the opinion of the auditors on the financial statements within 30 days. The management letter and entity level financial statements will not be disclosed.

VI. PROCUREMENT AND CONSULTING SERVICES

A. Advance Contracting and Retroactive Financing

29. All advance contracting and retroactive financing will be undertaken in conformity with ADB's Procurement Guidelines (2015, as amended from time to time)¹³ and ADB's Guidelines on the Use of Consultants (2013, as amended from time to time).¹⁴

30. **Advance contracting.** To expedite project implementation, the government and GOA have requested advance contracting actions for all works, goods and consulting services, as has been the case for the previous tranche of the investment program. The government and APDCL have been advised that approval of advance contracting does not necessary commit ADB to neither approve the loan nor finance the cost of the project.

31. **Retroactive financing.** Except as otherwise agreed with ADB, the expenditures incurred for supply, erection and commissioning of equipment, and associated civil works, and consulting services will be eligible for retroactive financing, provided that these are incurred before the effectiveness of the related loan agreement, but not earlier than 12 months preceding the signing of the related loan agreement, and as long as they do not exceed an amount of 20% of the loan.

B. Procurement of Goods, Works and Consulting Services

32. All procurement of goods and works will be undertaken in accordance with ADB's

¹¹ ADB approach and procedure on delayed submission of audited project financial statements:

- When audited project financial statements are not received by the due date, ADB will write to the executing agency advising that (i) the audit documents are overdue; and (ii) if they are not received within the next six months, requests for new contract awards and disbursement such as processing of new reimbursement, and issuance of new commitment letters will not be processed.
- When audited project financial statements have not been received within 6 months after the due date, ADB will withhold processing of requests for new contract awards and disbursement such as processing of new reimbursement, and issuance of new commitment letters. ADB will (i) inform the executing agency of ADB's actions; and (ii) advise that the loan may be suspended if the audit documents are not received within the next six months.
- When audited project financial statements have not been received within 12 months after the due date, ADB may suspend the loan.

¹² Available at: <http://www.adb.org/sites/default/files/pcp-2011.pdf>.

¹³ Available at: <http://www.adb.org/Documents/Guidelines/Procurement/Guidelines-Procurement.pdf>.

¹⁴ Available at: <http://www.adb.org/Documents/Guidelines/Consulting/Guidelines-Consultants.pdf>.

Procurement Guidelines.

33. International competitive bidding procedures will be followed for the equipment contract.
34. An 18-month procurement plan indicating threshold and review procedures, goods, works, and consulting service contract packages and national competitive bidding guidelines is in Section C.
35. All consultants will be recruited according to ADB's Guidelines on the Use of Consultants. The terms of reference for all consulting services are detailed in Section D. Consulting firms will be engaged using the Quality- Cost Based Selection (QCBS) method and individual consultants will be engaged using the biodata method.

C. Procurement Plan

Basic Data

Project Name: Assam Power Sector Investment Program – Tranche 2	
Project Number: 47101	Approval Number: TBD
Country: India	Executing Agency: APDCL
Project Financing Amount: \$60.0 million ADB Financing: \$48.0 million Non-ADB Financing: \$12.0 million	Implementing Agency: APDCL
Date of First Procurement Plan: 12 November 2014	Date of this Procurement Plan: 28 October 2015

Methods, Thresholds, Review and 18-Month Procurement Plan

1. Procurement and Consulting Methods and Thresholds

36. Except as the Asian Development Bank (ADB) may otherwise agree, the following process thresholds shall apply to procurement of goods and works.

Procurement of Goods and Works	
Method	Threshold
International Competitive Bidding (ICB) for Works	\$1,000,000 or more
International Competitive Bidding (ICB) for Goods	\$1,000,000 or more
National Competitive Bidding (NCB) for Works	Less than \$1,000,000
National Competitive Bidding (NCB) for Goods	Less than \$1,000,000
Shopping for works	\$100,000 and below
Shopping for goods	\$100,000 and below
Consulting Services	
Method	Comments
Quality and Cost Based Selection (QCBS)	QCBS will be used for recruitment of consulting firms
Quality Based Selection	Not applicable for Tranche 2
Consultants' Qualifications Selection	Not applicable for Tranche 2
Least-Cost Selection	Not applicable for Tranche 2
Fixed Budget Selection	Not applicable for Tranche 2
Single Source Selection	Not applicable for Tranche 2
Individual Consultant Selection	Biodata

2. Goods and Works Contracts Estimated to Cost \$1 Million or More

37. The following table lists goods and works contracts for which the procurement activity is either ongoing or expected to commence within the next 18 months.

Package Number	General Description	Estimated Value (\$ million)	Procurement Method	Review	Bidding Procedure	Advertisement Date (quarter/year)	Comments
1	Construction of (i) 33/11 kV Substation and associated lines; (ii) 11 kV and 33 kV lines and river/railway crossings; (iii) 33 kV terminal bays	6.1	ICB (Plant)	Prior	1S2E	Q2/2015	Turnkey Contract Financed by ADB & GOA
2 ¹⁵	R&M and re-conductoring of 11 kV and 33 kV lines and replacement of DTRs	27.3	ICB (Plant)	Prior	1S2E	Q2/2015	Turnkey Contract Financed by ADB & GOA
3	Replacement of overhead 11 kV line by underground cable in Guwahati city	5.1	ICB (Plant)	Prior	1S2E	Q2/2015	Turnkey Contract Financed by ADB & GOA
4	Setting up of: (i) area load dispatch center at Guwahati and Jorhat; and (ii) meter testing laboratory at Assam Engineering College	1.4	ICB (Plant)	Prior	1S2E	Q2/2015	Turnkey Contract Financed by ADB & GOA
5	Installation of IT modules to introduce centralized uniform revenue billing system for 1.2 million customers	9.6	ICB (Goods)	Prior	1S2E	Q4/2015	Turnkey Contract Financed by ADB & GOA

¹⁵ Package 2 consists of 3 lots geographically divided.

3. Consulting Services Contracts Estimated to Cost \$100,000 or More

38. The following table lists consulting services contracts for which the recruitment activity is either ongoing or expected to commence within the next 18 months.

Package Number	General Description	Estimated Value (\$ million)	Recruitment Method	Review (Prior / Post)	Advertisement Date (quarter/year)	Type of Proposal	Comments
1	Project Management, Supervision and Implementation Support	1	QCBS	Prior	Q2 2015	Full Technical Proposal	International; Quality-cost ratio of 80:20
2	Supplemental Environmental Assessment for Lower Kopili Hydropower project ¹⁶	0.5	QCBS	Prior	Q4 2015	Full Technical Proposal	International; Quality-cost ratio of 80:20

4. Goods and Works Contracts Estimated to Cost Less than \$1 Million and Consulting Services Contracts Less than \$100,000 (Smaller Value Contracts)

39. Goods and works less than \$1 million and Consulting Services less than \$100,000 will not be required under Tranche 2.

Indicative List of Packages Required Under the Project

40. No other packages are required over the life of the project, other than those mentioned in previous sections.

List of Awarded and On-going, and Completed Contracts

41. There are no on-going contracts or any completed contracts under this tranche.

Non-ADB Financing

42. All goods, works, and consulting services contracts over the life of the project will be financed jointly by ADB and GOA sources.

D. Consultant's Terms of Reference

43. Detailed Terms of Reference for two consulting services assignments are provided in Annex 1 of this document.

¹⁶ Supplemental Environment Assessment for Lower Kopili Hydropower Project is a consulting services assignment to undertake necessary due diligence for tranche 3 of Assam Power Sector Investment Program.

VII. SAFEGUARDS

44. The Tranche 2 project is classified as category B on environment, category B on involuntary resettlement, and category C on indigenous peoples according to ADB's Safeguard Policy Statement (2009). APDCL will have primary responsibility to implement environmental and social safeguards requirements defined in the Initial Environmental Examination (IEE) including the environmental management plan (EMP) and Resettlement Plan. An indigenous peoples plan is not required. APDCL has primary responsibility for EMP and resettlement plan implementation, monitoring, reporting, and any location or design changes which may require an update of the IEE and resettlement plan, ongoing stakeholder consultation, and grievance redress mechanism. APDCL will obtain all applicable government clearances before the start of construction, and will ensure that bidding and contract documents incorporate the EMP.

45. No significant air, water, noise, or soil pollution will result from the project and the potential adverse environmental impacts are envisaged to be temporary and minimal. Any adverse impacts can be readily mitigated using standard construction engineering practices, proper planning and adherence with Environmental Management Plan (EMP). Engineering, Procurement, Construction (EPC) contractor(s) are required to comply with the EMP during pre-construction and construction stage and the PMU and PIU of APDCL will monitor compliance. Relevant clearances from GOI and GOA will be obtained prior to start of any construction works. Consultations with project stakeholders will continue through the pre-construction, construction, and operation stages.

46. Resettlement impacts have been minimized at the design stage by selection of substation site at government land which does not require any resettlement and scheduling construction of distribution lines during crop off-season. Total land required for proposed new substation is 0.13 hectare (ha) which is government land. Temporary impacts on loss of crops on the right-of-way of distribution lines and underground cabling work are foreseen with minimum impacts. Compensation payments and other entitlements and restoration activities shall be implemented in accordance with the updated Resettlement Framework and Resettlement Plan as noted in Schedule 5 of the Loan Agreement. The PMU will confirm that the key milestones specified in Table 10 of the resettlement plan are achieved prior to commencement of civil works.

47. A grievance redress mechanism (GRM) will be established by the PMU and the offices of 18 electrical circle of APDCL to deal with complaints covering environmental and social issues during implementation. The APDCL will formulate procedures to implement GRM. Details of PMU staff to be contacted when filing a complaint and the GRM will be disclosed to affected people and communities in the local language (Assamese and Hindi) before the EPC contractors are mobilized and start of any construction works. The affected person(s) or APs will be able to seek redress of their grievance at three levels: (i) the PMU / PIU of APDCL, (ii) the grievance redress committee (GRC), and (iii) the appropriate courts of law. A GRC will be set up by the PMU of APDCL as soon as the project commences and will function as such from construction to operation. The PMU of APDCL will ensure the representation of women on the members of GRC which will consist of representatives from the local Panchayat, a District revenue officer/ Sub-district magistrate or their nominee, representative from the EPC contractor(s) during construction phase only, Assistant General Manager (AGM) of Environmental and Social Management Unit (ESMU) at APDCL, Project Head, PMU, and a witness of the Affected Person (AP). GRC will ensure equal representation of women in its members, resolve grievances in a timely manner, and will keep a record of the complaints received and the actions taken to resolve them. The GRC will resolve grievances in a timely

manner, and will keep a record of the complaints received and the actions taken to resolve them.

48. The IEE, resettlement plan, environmental and social monitoring reports will be disclosed on the ADB website as required by Safeguard Policy Statement and Public Communications Policy 2011. Any update in the IEE and resettlement plan resulting from a change in project scope and design will be similarly disclosed. APDCL will prepare environmental and social monitoring reports and provide these reports to ADB, GOA, and GOI on a semi-annual basis. Pursuant to Safeguard Policy Statement,¹⁷ ADB funds may not be applied to the activities described on the ADB Prohibited Investment Activities List set forth at Appendix 5 of the Safeguard Policy Statement.

VIII. GENDER AND SOCIAL DIMENSIONS

49. The project has been classified as “no gender elements” with respect to gender and other social dimensions, and is expected to have a positive impact on peoples’ access to energy from the grid across the state/country, as well as potential employment opportunities for people living in the direct area of influence of the project and increased economic growth and investment in the broader project area. As there will be potential job opportunities for skilled and unskilled laborers during the construction period, APDCL will include specific provisions in the contracts to ensure gender equality and compliance with labor standards and law including child labor.

50. In accordance with the assurances and loan conditions, APDCL and EPC contractors are expected to take specific action to inform, educate and prevent workers from contracting and the spread of HIV/AIDs. A “no tolerance” policy on human trafficking and child labor is expected of APDCL and its contractors.

51. Monitoring, stakeholder engagement, and disclosure will be implemented in accordance with the safeguards action plans (IEE and resettlement plan), as discussed above in Section VII and as described below in Section IX.

¹⁷ Available at: <http://www.adb.org/Documents/Policies/Safeguards/Safeguard-Policy-Statement-June2009.pdf>.

IX. PERFORMANCE MONITORING, EVALUATION, REPORTING AND COMMUNICATION

A. Project Design and Monitoring Framework

Impacts the Project is aligned with:
Enhanced quality and expanded service delivery of electricity in Assam.

Project Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting	Risks
Outcome Increased efficiency and capacity of power distribution system in Assam.	By 2020: a. Distribution loss reduced in project areas to 18% (2015 baseline: 21%); b. 152,000 tons of carbon dioxide emissions per annum avoided from 2018.	a–b APDCL annual report AERC annual reports	Power generation capacity does not increase sufficiently to match expanded distribution system
Outputs 1. Distribution system expanded and upgraded.	By 2020: 1a. One 33/11 kV substation with associated lines built; (2014 baseline: 308) 1b. 144 km of 33 kV and 11 kV lines built; (2014 baseline: 55,500 km of 11 kV and 6,500 km of 33 kV) 1c. 17 terminal bays (33 kV) constructed; (baseline: N/A) 1d. 1955 km of 33 kV and 11 kV lines, 1555 km of low voltage lines rehabilitated; (baseline: N/A) 1e. 204 distribution transformers replaced; (baseline: N/A) 1f. 14 km of overhead lines replaced by underground cable; (baseline: 0)	1a–1f GOA certification APDCL annual reports; Quarterly progress reports from PMU and PIU; ADB review mission report.	Unexpected increase in prices of equipment and raw materials, and construction delays impact the work
2. Institutional capacity of APDCL strengthened.	2a. One meter testing laboratory operational by June 2018; (2014 baseline: 3)	2a–2c GOA certification APDCL annual reports;	

	<p>2b. Centralized uniform billing to 1.2 million customers operational by June 2019. (2014 baseline: 650,000 customers)</p> <p>2c. Two area load-dispatch centers operational.</p>	<p>Quarterly progress reports from PMU and PIU;</p> <p>ADB review mission report.</p>	
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Key Activities with Milestones

1. Distribution system expanded and upgraded

- 1.1 Issue bid documents (April-May 2015) and award contracts (November-December 2015).
- 1.2 Construct a new 33/11 kV substation, 33 and 11 kV lines, and 33 kV terminal bays (June 2019).
- 1.3 Re-conductor existing 33 kV, 11kV and low voltage lines (June 2019).
- 1.4 Replace distribution transformers (June 2019).
- 1.5 Install underground cable (June 2019).
- 1.6 Commission (June 2019–July 2019).

2. Institutional capacity of APDCL strengthened

- 2.1 Issue bid documents (June–September 2015) and award contracts (December 2015).
- 2.2 Build meter testing laboratory (June 2018).
- 2.3 Install communication hardware (June 2019).
- 2.4 Operate two area load dispatch centers (June 2019).
- 2.5 Mobilize Consultants for Supplemental Environmental Assessment for Lower Kopili Hydropower project (July 2016).
- 2.6 Mobilize Project Management, Supervision and Implementation Support Consultants (January 2016).

Inputs

ADB:	\$48,000,000
Government:	\$12,000,000

Assumptions for Partner Financing

Not applicable

ADB = Asian Development Bank, AERC = Assam Electricity Regulatory Commission, APDCL = Assam Power Distribution Company Ltd., GOA = Government of Assam, km = kilometer, kV= kilovolt, LV = low voltage, PIU = project implementation unit, PMU = project management unit.

Source: Asian Development Bank.

B. Monitoring

52. **Project performance monitoring.** ADB shall field an inception mission within 3 months of the approval of the Project. ADB shall review the implementation and operation of the Project based on the quarterly progress reports and meet with the executing agency semi-annually to discuss the progress of the Project and any changes to implementation arrangements or remedial measures required to be undertaken towards achieving the objectives of the Project, and the Facility under the Investment Program.

53. Executing agency through the PMU shall establish for the Project a Project performance monitoring system (PPMS). The performance reports for the Project will be compiled for preparing Facility level performance reporting.

54. Without limiting the generality of Section 2.08 of the Project Agreement, the progress report submitted by executing agency under the said Section shall also include project expenditures for the year to date and total expenditure to date. Executing agency shall undertake periodic project performance review under each loan under the Facility, as also for the Facility to evaluate the scope, implementation arrangements, progress and achievements of objectives of the Project and the overall Facility. Performance shall be evaluated based on indicators and targets stipulated in the Design and Monitoring Framework for the Facility included as Appendix to the PFR.

55. Without limiting the generality of Section 2.09 of the Project Agreement, executing agency shall coordinate with the PMU in order to support executing agency to furnish to ADB, a Facility completion report within 6 months of physical completion of the Facility. These reports shall cover a detailed evaluation of projects and the Facility respectively, covering the design, costs, contractors' and consultants' performance, social, environmental and economic impact, economic rate of return, and other details for each project and the Facility as may be requested by ADB.

56. A midterm review shall be carried out 2 years after the loan effectiveness for the Project and also for the Facility, focusing on the engineering, resettlement, environmental and social aspects, and reviewing its financial status. The review will allow for any necessary midcourse corrections to ensure successful Project implementation and achievement of objectives of the overall Facility and the Investment Program.

57. **Compliance monitoring:** APDCL ensures that all project facilities are designed, implemented, operated, and maintained in accordance with all applicable laws and regulations of GOI and GOA, Safeguard Policy Statement, and the EARF. Contractors will have primary responsibility for implementing environmental, health, and safety requirements of the IEE and EMP. APDCL has primary responsibility for oversight and determining that IEE and EMP requirements are fulfilled, and implementing any corrective actions deemed necessary.

58. **Environmental safeguards monitoring:** APDCL will prepare and implement the necessary IEE (with budget) in accordance with the EARF. During project implementation, the environmental categorization and assessment procedures defined in the EARF will be followed. APDCL will monitor, audit, and submit environmental monitoring reports to ADB twice a year beginning loan effectivity. The environmental monitoring reports, which will be disclosed to the ADB website, will cover progress of EMP implementation, complaints dealt with by the GRC and actions taken, compensation paid for damages, as needed, compliance to specific provisions on environment from the Loan Agreement, corrective actions in the event of non-compliance, or

any unanticipated impacts. APDCL will ensure that all associated projects will be constructed and commissioned in compliance with the laws and regulations of GOI and GOA.

59. **Social safeguards monitoring:** Subject to compliance with the relevant provision of the resettlement plans and updated resettlement framework and in accordance with all applicable laws and regulations of the Government (GOI and GOA), APDCL will acquire or make available the land and rights to land free from any encumbrances, and clear the utilities, trees, and any other obstruction from such land, required for commencement of construction activities in accordance with the schedule agreed under the related civil works contract.

60. GOA and APDCL will ensure that all land and rights-of-way required by the project will be made available in a timely manner and that the provisions of the resettlement plans, including compensation and entitlements for affected households and persons, will be implemented in conformity with all applicable laws and regulations of the GOI, GOA, Safeguard Policy Statement, and the agreed resettlement plan.

61. APDCL will ensure that affected people, if any, under each project are provided compensation in a timely manner in accordance with the related resettlement plans, and applicable laws and regulations of the GOI and GOA. GOA and APDCL will provide adequate budgetary support to cover the costs of land transfer and resettlement. APDCL will submit progress and completion reports on land transfer and resettlement under the quarterly progress reports for the project.

62. APDCL will ensure that prior to land acquisition and any resettlement under the project, the related resettlement plan including its update based on consensus of affected people, is disclosed with all necessary information made available to people affected by the project and confirm that it is disclosed in the ADB's web site. APDCL will ensure that essential communal property that may be affected under land acquisition and resettlement is replaced as appropriate in an expeditious manner in accordance with the resettlement plans.

63. Compensation should be awarded in case construction activities result in crop damage, block pathways/ footpaths/ pedestrian walkways and /or deprive some people of their livelihood temporarily. Further, APDCL would ensure that all compensation programs are completed as outlined in resettlement plans prior to the commencement of civil works.

64. APDCL will implement construction contracts containing binding requirements for construction contractors to prepare and implement traffic management plan for underground cabling work and to fully reinstate / re-build roads or pathways, other local infrastructures, and agricultural land to at least their pre-project condition upon construction completion. Provision should be made for adequate recording of the condition of roads, agricultural land, and other infrastructure prior to transport of material and construction commencement.

65. **Gender and social dimensions monitoring.** Tranche 2 is categorized as 'no gender elements', therefore no specific monitoring will be required for gender. However, other social dimensions during the project construction need to be monitored. APDCL will ensure that civil works contracts under the Project follow all applicable labor laws of the Borrower and the State and that these further include provisions to the effect that contractors (i) carry out HIV/AIDS awareness programs for labor and disseminate information at worksites on risks of sexually transmitted diseases and HIV/AIDS as part of health and safety measures for those employed during construction; and (ii) follow and implement all statutory provisions on labor (including not employing or using children as labor, equal pay for work of equal value), health, safety, welfare,

sanitation, and working conditions. Such contracts shall also include clauses for termination in case of any breach of the stated provisions by the contractors.

C. Evaluation

66. ADB will field regular review missions every six months at the minimum to review status of overall project implementation, contract awards, disbursements, physical progress, and implementation of the environmental management plan and resettlement plans. Within 6 months of physical completion of the Project APDCL will submit a project completion report to ADB.¹⁸

Evaluation Methodology

Evaluation Activity	Purpose	Methodology	Who responsible and involved
Review Mission	Review the progress of the projects and provide guidance to facilitate implementation	Site visits and meetings with executing agency officials, contractors, consultants at least twice a year	GOI/GOA/APDCL/ADB
Mid Term Review	Comprehensive review of the project	2 years after the loan effectiveness, focusing on the engineering, resettlement, and environmental aspects of the project preparatory works under the project, and reviewing the financial status of APDCL	GOI/GOA/APDCL/ADB
Project completion report	Evaluate the overall output of the project and its relevance and suitability	Site visits and meetings with APDCL officials, contractors, and consultants	GOI/GOA/APDCL/ADB

ADB = Asian Development Bank, APDCL = Assam Power Distribution Company Ltd., GOA = Government of Assam, GOI = Government of India.

D. Reporting

67. APDCL will provide ADB with (i) quarterly progress reports in a format consistent with ADB's project performance reporting system and submit these to ADB within 30 days of the end of each quarter. These reports will include (a) a narrative description of progress made during the period; (b) changes in the implementation schedule; (c) problems or difficulties encountered; (d) work to be carried out during the next period; (e) progress on environmental and social compliance; (f) a report on implementation of the EMPs and resettlement plan for all environment and social "category B" projects; and (g) compliance with conditions of loan and project agreements. The progress reports will include project expenditures during the period and total expenditures to date. Performance will be evaluated on the basis of indicators and targets stipulated in the design and monitoring framework for the tranche; (ii) consolidated annual reports including (a) progress achieved by output as measured through the indicator's performance targets, (b) key implementation issues and solutions; (c) updated procurement plan and (d) updated implementation plan for next 12 months; and (iii) a project completion report within 6 months of physical completion of the Project. To ensure projects continue to be both viable and sustainable, project accounts and the executing agency audited financial

¹⁸ Project completion report format is available at: https://eboard.adb.org/docs_refs/index.php

statements (AFSSs), together with the associated auditor's report, should be adequately reviewed.

E. Stakeholder Communication Strategy

68. The Stakeholder Communications Strategy is described in the following table. APDCL will post all relevant information on their websites.

Table 7: Stakeholder Communication Strategy

Project information to be communicated	Means of Communication	Responsibility	Audience	Frequency
Periodic Financing Request Report with linked documents (including safeguards frameworks and plans)	ADB website	ADB	ADB, GOI/GOA, Development Partners, Civil Society, Individuals	Once
Project information while planning/ designing	Discussions and stakeholder consultations	APDCL	Project beneficiaries	Regular intervals during planning and design
Draft Safeguards Documents (i.e., IEE and resettlement plan) and any update during implementation	Websites of ADB and APDCL	APDCL and ADB	ADB, GOI/GOA, Development Partners, Civil Society, Individuals	Once before implementation and as needed, during implementation
Status of implementation during construction	Information boards at site	APDCL/ Contractors	Project beneficiaries	All the time at construction sites
Project Performance Reports and Project Information Documents	ADB website	ADB	ADB, GOI/GOA, Development Partners, Civil Society, Individuals	Quarterly
Safeguards Monitoring During Implementation (i.e., Environmental and Social Monitoring Report)	ADB website	ADB and APDCL	ADB, GOI/GOA, Development Partners, Civil Society, Individuals	Semi-annually
Quarterly progress reports	ADB website	APDCL	ADB, GOI/GOA, Civil Society, Individuals	Quarterly
Project completion report	ADB website	ADB	ADB, GOI/GOA, Civil Society, Individuals	Once

ADB = Asian Development Bank, APDCL = Assam Power Distribution Company Ltd., GOA = Government of Assam, GOI = Government of India.

X. ANTICORRUPTION POLICY

69. The Government, State Government, and APDCL are advised of ADB's Anticorruption Policy (1998, as amended to date). Consistent with its commitment to good governance, accountability and transparency, implementation of the Project shall adhere to ADB's Anticorruption Policy. ADB reserves the right to review and examine, directly or through its agents, any alleged corrupt, fraudulent, collusive, or coercive practices relating to the Project. In this regard, investigation of government officials, if any, would be requested by ADB to be undertaken by the government.

70. To support these efforts, relevant provisions of ADB's Anticorruption Policy are included in the Loan Regulations, Agreements, and the bidding documents. In particular, all contracts financed by ADB shall include provisions specifying the right of ADB to audit and examine the records and accounts of the State and APDCL, and all contractors, suppliers, consultants, and other service providers as they relate to the Project. Individuals/entities on ADB's anticorruption debarment list are ineligible to participate in ADB-financed activity and may not be awarded any contract under the Project.¹⁹

71. ADB's Anticorruption Policy designates the Office of Anticorruption and Integrity²⁰ (OAI) as the point of contact to report allegations of fraud or corruption among ADB-financed projects or its staff. OAI is responsible for all matters related to allegations of fraud and corruption. For a more detailed explanation refer to the Anticorruption Policy and Procedures. Anyone coming across evidence of corruption associated with the project may contact the Anticorruption Unit by telephone, facsimile, mail or email at the following numbers/addresses:

Office of Anticorruption and Integrity (OAI)
Asian Development Bank
6 ADB Avenue
Mandaluyong City
1550 Metro Manila, Philippines
Email: integrity@adb.org or anticorruption@adb.org
Tel: +63 2 632 5004
Fax: +63 2 636 2152

*For postal mail, please mark correspondence Confidential

XI. ACCOUNTABILITY MECHANISM

72. People who are, or may in the future be, adversely affected by the project may submit complaints to ADB's Accountability Mechanism. The Accountability Mechanism provides an independent forum and process whereby people adversely affected by ADB-assisted projects can voice, and seek a resolution of their problems, as well as report alleged violations of ADB's operational policies and procedures. Before submitting a complaint to the Accountability Mechanism, affected people should make a good faith effort to solve their problems by working with the concerned ADB operations department. Only after doing that, and if they are still dissatisfied, should they approach the Accountability Mechanism.²¹

¹⁹ ADB's Integrity Office web site is available at: <http://www.adb.org/integrity/unit.asp>.

²⁰ ADB's Integrity Office web site is available at: <http://www.adb.org/integrity/unit.asp>.

²¹ For further information see: <http://www.adb.org/Accountability-Mechanism/default.asp>.

Secretary
Compliance Review Panel
Asian Development Bank
6 ADB Avenue, Mandaluyong City
1550 Metro Manila, Philippines
Telephone: +63-2-632-4149
Fax: +63-2-636-2088
Email: crp@adb.org
Web: www.compliance.adb.org

XII. RECORD OF PAM CHANGES

73. To be inserted as and when any changes are necessary and agreed by both parties.

Date	Changes made to the PAM

India: Assam Power Sector Investment Program (Tranche 2)

Terms of Reference

Project Management, Supervision and Implementation Support for Tranche 2

1. Background

1. The Government of India has applied for financing from the Asian Development Bank (ADB) in the form of a loan toward the cost of Assam Power Sector Investment Program – Tranche 2 (the Project). The Project objective is to expand and upgrade power distribution system in Assam, India in order to ensure a reliable and efficient power supply to customers.

2. The proposed Tranche 2 has two components: (i) expansion and up-gradation of the distribution system; and (ii) strengthening institutional capacity of Assam Power Distribution Company Ltd. (APDCL). Expansion part of component 1 includes construction of one new 33 kilovolt (kV)/11 kV substation, medium voltage lines, railway line and river crossings, and etc. Up-gradation part includes, re-conductoring and refurbishing of low and medium voltage lines, replacement of oil-filled distribution transformers, and replacement of overhead lines with underground cables. Component 2 includes establishing two area load dispatch centers, setting up of one independent meter testing laboratory; and establishing one IT module to expand the centralized uniform revenue billing system for 1.2 million customers. The project completion is expected in June 2019.

3. APDCL will be responsible for the overall execution of the Project and will act as an executing agency, whereas Project Implementation Unit established under APDCL will undertake day to day project implementation and will act as an implementing agency (IA). The project, management unit (PMU) formed under APDCL will function for overall project coordination. The PMU will be responsible for implementing, monitoring, and reporting the progresses of project implementation to ADB, the Government of India (GOI), and Government of Assam (GOA).

4. APDCL intends to recruit a firm of Project Management and Supervision Consultants (the Consultants) for implementation of the Project. The Consultants will be responsible for review existing designs, support APDCL in procurement of turnkey contractors, supervise the works of the suppliers and contractors and ensure successful commissioning of the Project. The Consultants will be recruited using quality and cost based selection (QCBS) method with a quality: cost ratio of 90:10 under full technical proposal, following ADB Guidelines on the Use of Consultants.

2. Objectives of the assignment

5. An international consulting firm with national experts experienced in power distribution and supervisory control and data acquisition (SCADA) projects is required to provide assistance on tendering, evaluation and contract award to the successful Bidder, project management and supervision including review and audit the detailed engineering design, procurement, construction, erection, testing and commissioning, environmental safeguards monitoring, issue of necessary progress reports, and improve the agency's project management capacity. The Consultants will ensure that the Project is built on schedule in a satisfactory manner to the required standards within budget. The Consultants will provide project management and supervision services for the duration of the entire Project.

6. A total of 14 international person-months and 85 national person-months of consulting services will be required under the assignment. The team composition of the key international and national consultants along with their estimated person-months is provided in Table below.

3. Scope of services, tasks (components) and expected deliverables

7. The primary place of assignment is Guwahati, Assam state, India. The Consultants will work within the project management office based in Guwahati as well as the project offices on sites, and be responsible for inspection and supervision of the construction works, installation of equipment and testing, in order to ensure that the works are implemented and goods supplied in accordance with the designs, specifications and terms and conditions of the relevant civil works and supply contracts. The Consultants would ensure that procurement of goods, services, and civil works contracts are in accordance with ADB's procedures and guidelines. The services to be provided by the Consultants include but are not limited to, the following:

- (i) Assist APDCL in project tendering;
- (ii) Assist APDCL during tender phase and prepare answers to potential queries of the bidders;
- (iii) Assist APDCL in the evaluation of the bids, and prepare the bid evaluation report in accordance with ADB's guidance and requirements;
- (iv) Assist APDCL in contract negotiations and contract award;
- (v) Organization of and participation in initial kick-off meetings with contractors and relevant stakeholders;
- (vi) Support to APDCL for management of contracts awarded under this project;
- (vii) Assistance in handing over of sites and facilitation of site access;
- (viii) Advising APDCL in timely provision of required permits as required by contractor;
- (ix) Arranging with contractors reconstruction of missing drawings necessary for project implementation;
- (x) Convening and conducting site and periodic coordination meetings;
- (xi) Checking and approval of designs, plans, technical calculations and drawings submitted by contractor;
- (xii) Review and approval of programs for manufacturers and delivery of materials for site construction;
- (xiii) Preparing, maintaining and monitoring project master schedule;
- (xiv) Establishing and maintaining cost control and monitoring cost, issuing of payment certificates;
- (xv) Quality control during manufacturing of equipment and witnessing of selected factory tests;
- (xvi) Supervision of dismantling and construction works to ensure required quality and progress of the Project;
- (xvii) Assist APDCL in overall implementation of the environmental management plan (EMP), resettlement plan and monitoring contractor's implementation of environmental mitigation measures as outlined in the EMP;
- (xviii) Assessment of contractors' claims and related claim management;
- (xix) Provide capacity building to the APDCL in environmental safeguards. Assist APDCL in preparing semi-annual safeguard monitoring reports and to provide early warning and reporting of any potential safeguard risks with detailed description of the event and proposed corrective actions;

- (xx) Approval of methods and procedures for commissioning tests to be submitted by contractors;
- (xxi) Witnessing of contractor's tests on completion and commissioning;
- (xxii) Preparation and follow-up of deficiency lists for contractors;
- (xxiii) Assistance in issuing of provisional taking over certificates;
- (xxiv) Compilation and checking on correctness of contractors' final technical documentation and operation and maintenance manuals;
- (xxv) Provision of home office support for the assistance to APDCL in the relevant technical matters;
- (xxvi) Review of project progress and preparation of quarterly progress reports;
- (xxvii) Preparation of Final Project Completion Report; and
- (xxviii) Provide on-the job training to APDCL's staff during all phases of the project. Training (based on a training needs assessment of the target staff) shall include technical design, procurement, contract administration, disbursement, financial management, safeguards, O&M, etc.

4. Team composition and qualification requirements for the key experts

8. **Qualification of the firm.** The firm shall have experience in project management and supervisory work on power distribution projects of 33/11 kV and above of at least 10 years. The firm shall have the international and national consultants with expertise in design and operation of 33/11 kV and above substations, protection, control, SCADA and communication, project management and implementation. The firm's experience in developing countries in the region will be an advantage.

9. The team composition of the key international and national consultants along with their estimated person months is provided in table below and the the required qualification of the international and national key experts are provided in following paragraphs:

Positions	Number	Key Person-Month
International	1	14
Power Engineer/Team Leader	1	14
National	5	85
Distribution Engineer	1	24
SCADA Expert	1	24
IT Expert	1	24
Civil Engineer	1	5
Environment and Social Safeguard Specialist	1	8
Total	6	99

10. **Power Engineer/ Team Leader (international, 14 person-months over a period of 30 months).** The qualified engineer shall preferably have a bachelor or higher degree in engineering and at preferably 5 years of team leadership and preferably 10 years' experience in designing 33/11 kV substations and above including secondary systems and medium voltage lines. The Engineer's previous experience in procurement, engineering, business administration; knowledge of international organizations/agencies; previous work experience in projects financed by international financial organization, especially associated knowledge of ADB financed project, disbursement and monitoring procedures will be advantage. The

Engineer will manage the Consultant's team as team leader. Previous experience in developing countries in the region is preferable. Power Engineer/Team Leader will undertake the following, but not limited to:

- (i) **Team Leadership:** Overall responsibility of supervising the team of consultants, coordinating and communicating with APDCL and preparing regular project reports;
- (ii) **Project Preparation:** Review the project management (including administration) procedures of the APDCL for the implementation of sub-projects and, as appropriate recommend changes and or new procedures in keeping with ADB and modern international best practices;
- (iii) **Preparation of sub-projects:** Advice and assist, at a project management level, in the review of each sub-project (network studies, investigations, designs, specifications and drawings, contract conditions, commercial conditions, Bill of Quantities, quality control of equipment and works) to properly define the work;
- (iv) **Procurement:** Review existing tender documents and assist in preparation of new tender documents, as required, in accordance with ADB's standard procedures and guidelines, with special attention to international best practices in quality of material, equipment and works. Assist with advertisement, pre bid meetings, evaluation of technical and financial bids, preparation of bid evaluation reports, contract negotiations and preparation of documents for contract signing, and advice on submission of documents to ADB for review and approval;
- (v) **Contract Management:** Advice and assist APDCL in management of the contracts for works, and plant and equipment. Advice on quality control programs, check design details of plant and civil construction (submitted by contractors) and speedily advice on acceptability of such designs, suggest corrective measures to be undertaken, and ensure revisions are implemented;
- (vi) **Design Checking and Clarification:** Check equipment structures, buildings, and foundations related to substation subprojects. Provide recommendations for approval of all civil, structural designs and drawings pertaining to substations;
- (vii) **Project Scheduling and Monitoring:** Review project schedules submitted by the contractors, analyze progress and suggest corrective measures at management level to ensure project progress on the schedule agreed with the Contractors;
- (viii) **Monitoring Project Disbursement:** Prepare quarterly updates and comparative reports on overall project disbursement, and advise APDCL on rescheduling of budget against subprojects; and
- (ix) **The Team Leader/Power Engineer** should assist APDCL in the implementation of underground cabling system, including review of design and drawings of the underground cable.

11. **Distribution Engineer (national, 24 person-months over a period of 30 months).** The Engineer shall preferably have a bachelor or higher degree in engineering and preferably 10 years of relevant experience in applying design and application of electrical/control and instrumentation system for substations at 11 kV and above. Previous experience in developing countries in the region is preferable. The Engineer will undertake the following, but not limited to:

- (i) Assist the Team Leader in monitoring, supervising, coordinating overall activities of other experts in the team;
- (ii) In coordination with other team members help team leader to develop a detailed work plan and implementation schedule;
- (iii) Conduct site visits; verify required voltage, distribution area, number of connection, capacity of the system, etc.;
- (iv) Identify technical problems of the present distribution network, advice remedial technical solutions, and propose appropriate replacement schemes.
- (v) Assist APDCL during the tendering period, including but not limited to organization of site visits, assistance during the pre-bid meeting, clarification of tender documents, bid opening and bid evaluation;
- (vi) Assist APDCL in preparation of contract documents;
- (vii) Assist APDCL in review for equipment structures, civil buildings, and foundations related to substation subprojects. Provide recommendation for approval of all civil, structural designs and drawings pertaining to substations;
- (viii) Assist APDCL in supervising the construction of the project distribution networks and provide guidance to the contractors so as to conform to the specifications;
- (ix) The Distribution Engineer should assist the Team Leader and APDCL in the implementation of the underground cabling system as required, and also assist the Team Leader and APDCL in review of design and drawings of the underground cable;
- (x) Identify any problem during project implementation, propose remedial actions and promptly report any outstanding issues to APDCL;
- (xi) Advice APDCL on any contractual or technical disputes that may arise between the contractor and APDCL during the implementation phase;
- (xii) Undertake project monitoring and evaluation during project implementation; and
- (xiii) Provide input on the field of responsibility to required monthly, quarterly progress reports and other reports as may be required.

12. **The SCADA Expert (national, 24 person-months over a period of 30 months).** The qualified engineer shall preferably have a bachelor or higher degree in engineering and preferably 10 years of relevant experience in design and implementation of SCADA systems. The experts' previous experience in procurement, engineering, business administration; knowledge of international organizations/agencies; previous work experience in projects financed by international financial organization, especially associated knowledge of ADB financed project will be advantage. Previous experience in developing countries in the region is preferable. The SCADA Expert will undertake the following, but not limited to:

- (i) Review of the tender document for Area Load Dispatch Centers, and advice APDCL for any modifications required to the tender document in accordance with ADB guidelines;
- (ii) Assist APDCL during the tendering period, including but not limited to organization of site visits, assistance during the pre-bid meeting, clarification of tender documents, bid opening and bid evaluation;
- (iii) Assist APDCL in preparation of contract documents;

- (iv) Assist APDCL in review of the design and documents of the equipment submitted by the contractor;
- (v) Conduct site visit during the implementation of the project;
- (vi) Identify any problem during project implementation, propose remedial actions and promptly report any outstanding issues to APDCL;
- (vii) Assist APDCL in supervising the construction of the project, ensure quality control, and provide guidance to contractors so as to conform to the specifications;
- (viii) Advise APDCL on any contractual or technical disputes that may arise between contractor and APDCL during the implementation phase; and
- (ix) Provide inputs to monthly and quarterly progress reports, and other reports as may be required.

13. **IT Expert (national, 24 person-months over a period of 30 months).** The expert shall preferably have a bachelor degree or higher in IT-related sphere and preferably 10 years of experience in applying design and application of IT systems related to energy sector projects. Experience in database development will be advantage. Previous experience in developing countries in the region is preferable. The IT Expert will undertake the following, but not limited to:

- (i) Fully support APDCL in implementation of IT components of the Project;
- (ii) Review of the tender document for Centralized uniform Revenue Billing System and advice APDCL for any modifications required to the tender document in accordance with ADB guidelines;
- (iii) Assist APDCL during the tendering period, including but not limited to organization of site visits, assistance during the pre-bid meeting, clarification of tender documents, bid opening and bid evaluation;
- (iv) Assist APDCL in preparation of contract documents;
- (v) Assist APDCL in review of the design and documents of the equipment submitted by the contractor;
- (vi) Conduct site visit during the implementation of the project and exercise quality control and quality management;
- (vii) Identify any problem during project implementation, propose remedial actions and promptly report any outstanding issues to APDCL;
- (viii) Assist APDCL in supervising the construction of the project and provide guidance to the contractors so as to conform to the specifications;
- (ix) Advise APDCL on any contractual or technical disputes that may arise between contractor and APDCL during the implementation phase; and
- (x) Provide inputs to monthly, quarterly progress reports and other reports as may be required.

14. **Civil Engineer (national, 5 person-months over a period of 30 months).** The engineer should preferably have a bachelor or higher degree in civil engineering and preferably 10 years of relevant experience in design and implementation of power distribution projects. Previous experience in developing countries in the region is preferable. The IT Expert will undertake the following, but not limited to:

- (i) Review and confirm the contractor's design submissions;
- (ii) Review and confirm sub-transmission and distribution line towers, poles, structures, civil buildings, foundations related to distribution lines and substations subprojects;
- (iii) Provide recommendations for approval of all civil and structural designs and drawings pertaining to sub-transmission lines and substations;
- (iv) Conduct site visits during construction phase to verify quality of civil works, identify any problems during project implementation, propose remedial actions and promptly report any outstanding issues to APDCL;
- (v) Advise APDCL on any contractual or technical disputes that may arise between the contractor and APDCL related to civil construction during the implementation phase.

15. Environment and Social Safeguard Specialist (national, 8 person-months over a period of 30 months). The specialist should preferably have a bachelor or higher degree in environmental management and preferably 10 years of relevant experience in power distribution related projects. Knowledge and experience on social safeguard matter are preferable and will be an advantage. Previous experience in developing countries in the region is preferable. The specialist will assist in the following, but not limited to:

- (i) Update the Initial Environment Examination (IEE) and Resettlement Plan as well as associated Environment Management Plan (EMP in accordance with ADB's Safeguard Policy Statement and government's regulations;
- (ii) Assist APDCL that any adverse environmental and social impacts are minimized by implementation of the mitigating measures and monitoring program as detailed in the EMP in the IEE;
- (iii) Support and report the progress of implementation of the EMP to APDCL and ADB twice a year;
- (iv) Report any violation of standard environmental and social safeguards and measures taken to restore compliance twice a year to APDCL and ADB;
- (v) Assist APDCL with capacity building on environment and social safeguard;
- (vi) The consultant will review the available literature, visit the project area and consult APDCL and other line departments to establish the baseline conditions in terms of physical and biological environment and socio-economic conditions in the project area;
- (vii) The consultant will analyze sitting of medium and low voltage lines and substations in terms of their environmental and social impacts and benefits. The analyses should include the sitting process, based on the description of the selected route;
- (viii) The consultant will identify project stakeholders and hold consultations with them to delineate the appropriate boundaries of the environmental assessment and to screen potential adverse environmental and social issues;
- (ix) The Consultants will identify potential environmental and social issues of distribution lines in terms of their nature, magnitude, extent and location, and timing and duration. These impacts may relate to the project design stage, construction stage and/or the project operation and decommissioning stage. Based on impact prediction methods and as the result of public consultations, the consultant will screen adverse environmental impacts for inclusion in mitigation measures and environmental management plan. The same process

will be followed for identification of social Impacts and the feedback of impacts from stakeholder's viewpoint will be provided through public consultations;

- (x) The consultant will propose appropriate mitigation measures for the adverse environmental and social impacts;
- (xi) Preparation of quarterly reports on the implementation activities on both RAP and EMMP;
- (xii) Preparation of annual report on the implementation activities on both RAP and EMMP;
- (xiii) Preparation of mid-term evaluation of implementation activities on both RAP and EMMP;
- (xiv) Preparation of end-term evaluation of implementation activities on both RAP and EMMP;
- (xv) Assist the executing agency with social and environmental issues that may arise during the construction stage; and
- (xvi) Assist the executing agency in conflict resolution on social and environmental issues during executing stage of the project; and any other support as may be relevant for the executing agency during the project execution stage of the project.

5. Reporting requirements and time schedule for deliverables

16. **Inception Report.** Within 2 months of startup, the consultants will prepare an inception report that would include the work plan and implementation schedule with priority actions and milestones.

17. The Consultants shall prepare various reports/documents at the time and with pertinent number of copies for printed versions as indicated below.

Report/Document	Number of copies	Deliverables
Monthly Progress Report	2 hard copies duly signed by the Team Leader, and electronic version (in PDF format) to PIU team	Every month after the effective date of the contract, within 10 working days from the end of the month
Quarterly Progress Report	2 hard copies duly signed by the Team Leader, and electronic version (in PDF format) to PIU team	Every three month after the effective date of the contract, within 10 working days from the end of each quarter
Site Supervision and Monitoring Report	2 hard copies duly signed by the Team Leader, and electronic version (in PDF format) to PIU team	Within 10 days after each site visit
Minutes of Progress Meetings	Scanned copy of the minutes signed by the parties to PMU and PIU members	Within 5 working days from each progress meeting
Final Project Report	3 hard copies duly signed by the Team Leader, 3 CD ROMs and electronic version (in PDF format) to PIU team	One month after the completion of the project

18. The detailed contents of the reports on the status of project implementation will be discussed and agreed with PIU. However, the project progress reports are proposed to contain the following topics:

- Summary of main issues and obstacles, including recommended corrective action;
- Project description including time schedule and project value;
- Progress and activities of the contractors;
- Progress of manufacturing;
- Progress of deliveries;
- Actual progress of construction versus original schedule;
- Actual status of deliveries/works in percentages;
- Planned activities for the next reporting period;
- Changes in the scope of the Project and scope of services, including the list of issued change orders, if any;
- Contractors' site office activities and works accomplished;
- List of invoices issued by the contractors and their status;
- Progress of contractors' design, preparation of drawings, calculations and documents received by the Consultants and their status of approval;
- Actual status of implementation of EMP and RAP;
- Status of physical disbursements of payment to the contractors; and
- Annexes (plans, schedules, progress photographs).

19. **Environmental Safeguards** The Consultants shall assist APDCL to prepare a bi-annual environmental and social safeguard monitoring report on the implementation of the EMMP and RAP, to ensure that the preparation, design, construction implementation, operation and commissioning of the Project comply with (a) ADB's Safeguard Policy Statement and all applicable laws and regulations of India relating to environment, social health and safety; (b) the Environmental Safeguards; (c) all measures and requirements set forth in the IEE, the EMP, resettlement plan and any corrective or preventive actions set forth in a safeguards monitoring report, and (d) any violation of environmental and social standards under this Project. The bi-annual report shall be submitted within 2 weeks by end of June and December of each year. The monitoring results will also be included in the quarterly progress reports.

20. **Project Completion Report** The consultants shall assist APDCL to prepare a project completion report within 3 month of physical completion of the Project. The project completion report format is available on ADB website.

6. Client's input and counterpart personnel

21. APDCL will provide and make available to the consultants, free of charge, the following facilities, services, equipment, materials, documents and information as required by the consultants for carrying out the assignment:

- (i) Office space: sufficient office space for the consultant team, with national and international telephone lines, electricity and air conditioning/heating, and internet connections;
- (ii) Office furniture: desks, office chairs, and bookshelves/cabinets adequate to accommodate the full complement of international and local consultants;
- (iii) Organizational support: assistance in all arrangements for workshops, meetings, and field visits; and access to required data, maps and other relevant information.

22. APDCL will not be providing any professional and/or support counterpart personnel to the Consultant's team.

23. APDCL will not be providing any inputs, project data and reports to facilitate preparation of the Proposals.

India: Assam Power Sector Investment Program (Tranche 2)

Terms of Reference

Supplemental Environmental Assessment for Lower Kopili Hydropower Project

1. Introduction

1. The Kopili River is a major left bank tributary of the Brahmaputra River originating from the Borail range in Meghalaya state. The Brahmaputra River, along with the Barak River, is the principal river basin of the northeast region consisting of seven states: Assam, Arunachal Pradesh, Meghalaya, Manipur, Mizoram, Nagaland, and Tripura.

2. The Kopili Hydro Electric Project (HEP) started operations in 1984 and has an installed capacity of 275 MW. It is owned and operated by the North Eastern Electric Power Corporation Limited (NEEPCO). It consists of two dams (Umrong and Khandong), two reservoirs (Umrong and Khandong), and three powerhouses (Umrong, Khandong and Kopili) in Umrongso, North Cachar Hills, Assam.

3. The Lower Kopili Hydro Electric Project (LKHEP) with a design capacity of 120 MW is planned to be built downstream of the existing Kopili HEP in the districts of Karbi Anglong and Dima Hasao. LKHEP will utilize the water discharged from the existing Kopili HEP, releases from Khandong and Umrong Dam, and the flows from the immediate catchment, which will create a reservoir with a gross head of 114 m. LKHEP is being developed and will be owned and operated by the Assam Power Generation Corporation Ltd. (APGCL), the state-owned electric power generation utility of Assam.

4. The EIA is being prepared pursuant to Indian regulatory requirements. The terms of reference (TOR) for the preparation of the environmental impact assessment (EIA) for LKHEP was approved by the Assam Expert Appraisal Committee for River Valley and Hydroelectric Projects of the Union Environment and Forest Ministry in their 69th Expert Appraisal Committee Meeting on 11-12 November 2013. India's Ministry of Environment and Forest (MoEF) issued pre-construction clearance and additional TOR for the EIA on 30 January 2014 which included cumulative impact of operation of the LKHEP and existing HEP facilities, assessment of impacts related to hydrological changes due to reservoir operations, and identification of measures to protect LKHEP assets from acidic drainage originating in the neighboring state of Meghalaya. The EIA is being conducted by a qualified Indian firm (WAPCOs); the draft EIA is expected to be available by mid-2015.

5. In order to fulfill Asian Development Bank requirements for sustainable hydropower development, supplemental environmental assessment work is anticipated including (i) updating the integrated water resources management plan (IWRMP) of the Kopili River basin, (ii) strengthening the cumulative impacts assessment consistent with international best practices, and (iii) identification and assessment of water quality restoration options related to upstream acidic drainage. These 3 related assessment activities will be conducted by a consulting firm in coordination with other consultants assisting ADB and APGCL in feasibility assessments and due diligence of the LKHEP for possible ADB financing. The consulting firm will provide a team

comprising 3 international experts and 3 national experts (1 international expert and 1 national expert for each activity) to conduct the activities described below. The deliverables will be in the form of appendices to the EIA and environmental management plan (EMP) prepared by WAPCOs. The scope of work outlined below is subject to change going forward based on the EIA findings, and agreement between ADB, APGCL, and other relevant agencies.

CUMULATIVE IMPACTS ASSESSMENT

2. Rationale

6. Given that LKHEP is part of a cascade-type hydropower development program along the Kopili River, there is a need to conduct a cumulative impacts assessment (CIA) in addition to the LKHEP project EIA. CIA is important to determine the impacts caused by development projects in the past, present, and future. One of the major concerns for LKHEP is the ongoing threats from acid contamination of the Kopili River resulting from upstream illegal mining operations. The acidity of the Kopili River has disrupted operations of the Kopili HEP since 2006; a 2014 decision by the National Green Tribunal has reportedly resulted in curtailment of illegal mining upstream with concomitant improvements in water quality.

7. The ADB'S Safeguard Policy Statement (2009) sets out the requirements for environmental safeguard that applies to all the projects considered for financing. Under Safeguard Policy Statement, impacts and risks of projects are analyzed within the context of a project's area of influence (para. 6, Appendix 1, p31) as follows:

- (i) primary project sites and related facilities that the Borrower develops or controls;
- (ii) associated facilities that will not be funded as part of the project but whose viability depends exclusively on the project and whose goods and services are needed for the successful operation of the project considered for financing;
- (iii) areas and communities potentially affected by cumulative impacts from planned developments, other sources of similar impacts in the geographical area, any existing project or condition, and other project-related developments defined at the time of assessment; and
- (iv) areas including communities potentially affected by impacts from unplanned but predictable developments caused by the project that may occur later or at a different location.

8. Following this requirement, LKHEP requires an assessment of reasonably foreseeable cumulative and induced impacts attributable to the ADB-funded investments.

3. Objectives

- The CIA aims to determine if the combined impacts of LKHEP, the operations of Kopili HEP, and the activities further upstream such as coal mining operations will cause impairment to the valued ecosystem components or valued environmental and social components (VECs) such as water resources, biodiversity, agricultural and forest lands; and,
- To identify management measures needed to avoid or minimize any unacceptable condition of the VECs.

4. Scope of work

9. The framework for assessment of cumulative impacts for LKHEP includes the following:
- (i) Scoping
 - (ii) Establish/describe the existing condition of the VECs
 - (iii) Assess the cumulative impacts on VECs
 - (iv) Assess the significance of anticipated cumulative impacts
 - (v) Design and implementation of management measures

5. Detailed tasks

10. Based on best international practices in conducting CIA and Safeguard Policy Statement, undertake the following tasks:

- Scoping
 - (i) define the project activities;
 - (ii) identify the project's area of influence (PAI) and temporal extent (i.e., set spatial and temporal boundaries);
 - (iii) identify and select the VECs to be included in the assessment; and,
 - (iv) identify other previous, existing, and future or planned projects and human activities that affect or may affect the VECs to be included in the assessment, such as upstream hydropower and industrial activities, and nearby transport links.
- Establish/describe the existing condition of the selected VECs
 - (i) Complete the collection of available data and information on the effects of other existing activities and/or projects on the condition of the VECs within the PAI; and,
 - (ii) Collect data on trends in the condition of VECs and regional thresholds.
- Assess the cumulative impacts on VECs
 - (i) Determine the indicators to describe the VEC condition;
 - (ii) Assess impacts of LKHEP on the VECs;
 - (iii) Estimate or predict the future condition of the VECs as affected by Kopili HEP, upstream activities along Kopili River, and planned activities (if any) or developments downstream of LKHEP within the PAI; and,
 - (iv) Estimate the combined impacts of LKHEP, Kopili HEP, upstream activities along Kopili River, and planned activities on the VECs.
- Assess the significance of anticipated cumulative impacts
 - (i) Compare results against thresholds and evaluate the significance of anticipated cumulative impacts on the VEC;
 - (ii) In the absence of thresholds or limits of acceptable change, recommend/suggest an appropriate threshold; and,
 - (iii) Consult with various stakeholders, government agencies, and technical experts on the appropriate threshold.

- Design and implementation of management measures
 - (i) identify measures (other than those identified in the EIA of LKHEP) to reduce the estimated unacceptable cumulative impact on a VEC to an acceptable level following the mitigation hierarchy;
 - (ii) Identify the need for additional mitigation of other existing and/or planned projects;
 - (iii) Identify the potential for regional strategies that could keep the acceptable condition of the VECs; and,
 - (iv) identify efforts/initiatives on how to engage stakeholders in implementing the management measures that may be beyond capacity of APGCL as well as NEEPCO.

6. Reporting requirements

- Cumulative Impact Assessment Report including a template of cumulative impacts monitoring report.
- The report should be completed within 6 months of commencement of the assignment.

7. Minimum qualification requirements

11. The level of effort anticipated is 2 person-months from an international expert and 4 person-months from a national expert input over a period of 6 calendar months.

12. The Environment Specialist (International) should have a Master's degree in environmental science, environmental engineering, environmental management or natural resources management together with 10 years of work experience in conducting environment impact assessment and/or cumulative impacts assessment of power development projects.

Minimum General Experience	7 years
Minimum Specific Experience (relevant to assignment)	10 years
Regional/Country Experience	Required

13. The Environment Specialist (national) should have a Master's degree in environmental science, environmental engineering, environmental management or natural resources management together with 10 years of work experience in conducting environment impact assessment and/or cumulative impacts assessment of power development projects.

Minimum General Experience	7 years
Minimum Specific Experience (relevant to assignment)	10 years
Regional/Country Experience	Required

UPDATING OF THE INTEGRATED RIVER BASIN WATER RESOURCES MANAGEMENT PLAN FOR KOPILI RIVER BASIN, ASSAM

1. Rationale

14. Recognizing the importance of sustainable water resources development in Assam, the current master plan of the Kopili River is to be updated by 2016. The current plan emphasizes erosion and flood control. This update should be consistent with integrated water resources

management objectives as elucidated in India's National Water Policy 2012, and should incorporate emerging issues such as climate change, hydropower development, and other developments (e.g., large-scale biomass power) which may affect water use. Updating and upgrading the master plan to an integrated water resources management plan (IWRMP) is warranted to promote and advance the river basin planning concept in the region and to avoid and minimize conflicts in water use and to support the provision of water equitably for livelihood development and to maintain ecosystem services.

2. Objectives

15. The main objective of the assignment is to assist the Government of India and Government of Assam agencies in update the current master plan of the Kopili River to incorporate IWRMP considerations consistent in order to provide a robust direction for sustainably managing and developing the Kopili River for multisectoral needs, and to mainstream approaches for mitigating and/or adapting to effects of climate change and other potential threats to water availability.

The updated IWRMP will provide a framework for improving the livelihoods of the people living in the Kopili River basin through equitable, environmentally and socially sound options for management and development of water resources for maximum economic benefit.

3. Scope of work

16. The updated IWRMP will cover development of the Kopili River for multiple purposes including hydropower, irrigation, drinking water supply, etc., through the assessment of water supply and demand within the basin with due consideration of downstream flow requirements and overall sustainability. The IWRMP will outline appropriate mechanisms to manage and maintain the Kopili River system for multiple purposes in a sustainable manner.

4. Detailed tasks

17. The Consultant will carry out, but not be limited to, the following tasks:

- (i) Review available Kopili River basin plans including sub-basin and sectoral plans prepared by other government agencies, non-government organizations (NGOs), and other entities as provided by GOA/APGCL/APDCL;
- (ii) Examine the existing institutional and regulatory arrangements on river basin management;
- (iii) Review the existing plans on natural resources conservation in Assam and identify the gaps in relation to sustainable management of Kopili River basin;
- (iv) Review national and state-level policies, legislations, and the current institutional framework on water resources development and management;
- (v) Collect available information and data on existing, identified potential and planned irrigation, water supply, flood control, and hydropower including all sites licensed for hydropower development, and other water use systems prepared and proposed by different government agencies, NGOs, private sector, etc. for Kopili River system or other adjacent river basin that may affect the Kopili River basin;

- (vi) Study and analyze the power development plans of Assam, and hydropower-related policy principles and programs such as the Assam Small Hydropower Development Policy 2007;
- (vii) Review irrigation plans and all available documents related to irrigation policy, irrigation development options, water requirements and water use efficiency improvements, water conservation initiatives, etc.;
- (viii) Analyze the water supply plans, policies and programs on water supply, prepared by the Government of Assam, Government, of India, NGOs, and other relevant agencies provided by GOA/APGCL/APDCL;
- (ix) Identify and assess current land use and development in the Kopili River basin, map the areas of soil erosion, deforestation, and other types of land degradation; and areas suitable for agriculture;
- (x) Assess current use and potential water development in the Kopili River basin in relation to existing, planned, or estimated water use based on at least 20-year planning horizon. Include potential water uses such as domestic, industry, hydropower projects, agriculture and irrigation, religious, cultural, recreation or tourism, environmental use, and other existing and/or potential beneficial uses.
- (xi) Identify and assess the water development and management options for the Kopili River basin;
- (xii) Review any policies or legal requirements on environment, biodiversity conservation or climate change requiring water from the Kopili River basin;
- (xiii) Prepare a current and future water balance of the Kopili River and major tributaries (or perennial feeders) at every confluence to another river and at other appropriate locations such as water diversion point; and,
- (xiv) Provide recommendations on the management, regulatory, monitoring requirements, and essential actions such as capacity-building needs for the sustainable implementation of the updated IWRMP.

5. Output/reporting requirements

18. Updated IWRMP consisting of reports, technical notes and annexes, information and tools for plan implementation and monitoring, plan revision and update as needed.

6. Inputs and minimum qualification requirements

19. The level of effort anticipated is 4 person-months from an international expert and 8 person-months from a national expert input over a period of 10 calendar months.

20. The international expert should have an advanced degree in water resources engineering and management or natural resources management with a minimum 15 years of experience in the water resources sector and comprehensive knowledge of river basin planning and management.

Minimum General Experience	10 years
Minimum Specific Experience (relevant to assignment)	15 years
Regional/Country Experience	Required

21. The national expert should have an advanced degree in water resources engineering and management or natural resources management with a minimum 10 years of experience in

the water resources sector and comprehensive knowledge of river basin planning and management.

Minimum General Experience	10 years
Minimum Specific Experience (relevant to assignment)	10 years
Regional/Country Experience	Required

WATER QUALITY RESTORATION PLAN FOR THE LOWER KOPILI HYDROPOWER PROJECT

1. Rationale

22. The upper reaches of the Kopili River in Assam have been adversely affected by acid drainage from illegal mining in upstream areas. As part of a broader effort to ensure sustainable water resources development in Assam, this assignment will identify engineered options to restore river water quality upstream of existing Kopili Hydro Electric Plant (HEP) operations and the proposed Lower Kopili Hydro Electric Plant (LKHEP). Increased acidity of Kopili River water has disrupted operations of the Kopili HEP since 2006. A decision in 2014 by the National Green Tribunal has reportedly resulted in curtailment of illegal mining upstream with concomitant improvements in water quality. In addition to these regulatory controls, a systematic approach is needed to ensure continued water quality restoration and to protect the integrity of hydropower and other water infrastructure assets. The assignment will be executed in coordination with parallel assignments for cumulative impacts assessment and integrated water resource management planning (IWRMP) under the LKHEP project. The IWRMP will outline appropriate mechanisms to manage and maintain the Kopili River system for multiple purposes in a sustainable manner.

2. Objectives

23. The main objective of the assignment is to identify the extent of acid mine drainage affecting the Kopili River, and contribute to the Catchment Area Treatment Plan for the LKHEP to include discharge controls at mining areas if possible and inflow controls upstream of the diversion structure and reservoir. The outputs of the assignment will include a preliminary engineering plan for acid mine drainage control, so that pH is restored and controlled in the range of 6.0 – 8.0.

3. Scope of work

24. The assignment will identify regulatory requirements and technical options for water quality control and management, including controls on discharge from mining operations and engineered water treatment systems for maintaining water quality in the areas of the LKHEP and Kopili HEP. In addition, it is anticipated that the best engineering design for acid mine drainage is one that requires minimal maintenance, and operates well with variations in acid mine drainage flows and varying acidity. For this project, an anoxic limestone drainage (ALD) system coupled with passive wetland polishing treatment is expected to provide the least costly and most robust treatment of acidic drainage flowing into the reservoir. ALD/wetland systems will work well when iron is present in the system, but not recommended as a treatment option

when aluminum is present. Therefore, an evaluation of existing water quality data is necessary prior to choosing the ALD option.

4. Detailed tasks

25. The Consultant will carry out, but not be limited to, the following tasks:

Task 1: Site Characterization - Data collection and analysis

26. The Upper Kopili site must be characterized and information collected to provide data for use in design of engineered water quality controls. The influent design basis characterization (number of sites, influent water chemistry, design flow rates, treatment goals) includes the following:

- (i) Review the environmental impact assessment (EIA) prepared for the LKHEP project and any relevant information from the Kopili HEP operations which will contribute to the Catchment Area Treatment Plan for LKHEP.
- (ii) Collect and analyze water quality data for the affected area including pH, conductivity, major ions (e.g., Cl, K, Na), metals (especially Al and Fe), sulfur (sulfide, sulfate), total dissolved solids;
- (iii) Identify the distance from acid drainage sources to the LKHEP and Kopili HEP reservoirs;
- (iv) Identify drainage basin dimensions (catchment area and drainages) and flow gradients;
- (v) Collect precipitation data and flow rates (minimum, median, and maximum) from affected catchment areas to understand typical conditions;
- (vi) Examine the existing regulatory framework on water quality and river basin management, and identify any necessary augmentation to the regulatory system to ensure water quality restoration and maintenance.

Task 2: Preliminary Engineering Design

27. Identify water treatment options and select a maximum of two alternatives for preliminary engineering, based on the following:

- (vii) Identify options for controlling upstream acid drainage before it enters the Khandong, Umrang, and LKHEP reservoirs. Source mitigation measures can include, but not be limited to: capping mine waste and overburden and surface water diversion away from potentially acid-producing material.
- (viii) Develop a conceptual design comprising (a) passive treatment with anoxic limestone drains (ALDs) to adjust pH of incoming water to a minimum of 4.0 – 4.5 before entering the reservoir, and (b) passive treatment in the reservoir area using constructed wetlands;
- (ix) The design should incorporate adequate ALD capacity based on identified water volumes and flow rates, as identified in Task 1. Operational and maintenance controls will be incorporated into ALD design to ensure optimal water treatment with minimal impact to the ALD system due to metals armoring.
- (x) Prepare conceptual design for constructed wetlands to “polish” the effluent from the ALDs; the wetlands will be located in the reservoirs and configured to account for seasonal variation in water levels;
- (xi) Identify local sources of limestone, organic matter, piping, labor and equipment;
- (xii) Prepare cost estimates, schedule, and management plan for implementing the proposed design.

5. Output/reporting requirements

28. The required output is a report to be integrated into the LKHEP Catchment Area Treatment Plan. The report shall include: data compiled from Task 1; and preliminary engineering design, cost estimates and management plan from Task 2. The reports should be completed within 12 calendar months of commencement of the assignment.

6. Inputs and minimum qualification requirements

29. The level of effort anticipated is 6 person-months from an international expert and 10 person-months from a national expert input over a period of 12 calendar months.

30. The international expert should have an advanced degree in environmental engineering or related discipline with a minimum 10 years of experience in water pollution control and specific experience in acid mine drainage control and water quality restoration projects.

Minimum General Experience	10 years
Minimum Specific Experience (relevant to assignment)	10 years
Regional/Country Experience	Preferred but not required

31. The international expert should have an advanced degree in environmental engineering or related discipline with a minimum 10 years of experience in water pollution control and specific experience in acid mine drainage control and water quality restoration projects.

Minimum General Experience	10 years
Minimum Specific Experience (relevant to assignment)	10 years
Regional/Country Experience	Preferred but not required