

Project Administration Manual

Project Number: 45203-006
October 2016

People's Republic of Bangladesh: Natural Gas
Infrastructure and Efficiency Improvement Project

ABBREVIATIONS

ADB	–	Asian Development Bank
AIIB	–	Asian Infrastructure Investment Bank
BAPEX	–	Bangladesh Petroleum Exploration and Production Company Limited
BERC	–	Bangladesh Energy Regulatory Commission
BGFCL	–	Bangladesh Gas Fields Company Limited
EMRD	–	Energy and Mineral Resources Division
FSRU	–	floating storage and regasification unit
GTCL	–	Gas Transmission Company Limited
IMED	–	Implementation Monitoring and Evaluation Division
km	–	kilometer
LNG	–	liquefied natural gas
mmbtu	–	million British thermal unit
MMCFD	–	million cubic feet per day
NCB	–	national competitive bidding
PAM	–	project administration manual
Petrobangla	–	Bangladesh Oil, Gas and Mineral Corporation (Petrobangla)
PIU	–	project implementation unit
psig	–	pounds per square inch gauge
QCBS	–	quality- and cost-based selection

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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 the policies and procedures of the government and Asian Development Bank (ADB). The PAM includes references to all available templates and instructions either through linkages to relevant URLs or directly incorporated in the PAM.

The Bangladesh Gas Fields Company Limited (BGFCL) and the Gas Transmission Company Limited (GTCL) are wholly responsible for the implementation of the ADB-financed projects, as agreed jointly between the borrower and ADB, and in accordance with the policies and procedures of the government and ADB. ADB staff is responsible for supporting implementation including compliance by BGFCL and GTCL of their obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.

At loan negotiations, the borrower and ADB shall agree to the PAM and ensure consistency with the loan agreement. Such agreement shall be 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.

I. PROJECT DESCRIPTION

1. In Bangladesh, indigenous natural gas supply has not kept pace with demand growth. To combat the gas crisis, there is an urgent need to accelerate gas exploration, augment production from domestic sources and improve transmission infrastructure. The government has allocated substantial funds to enable Bangladesh Petroleum Exploration and Production Company Limited (BAPEX), a state gas company (SGC), to undertake extensive exploration programs onshore. At the same time, the government has engaged international oil companies to undertake offshore exploration. Bangladesh Oil, Gas and Mineral Corporation (Petrobangla) is actively pursuing a program for increasing recovery from existing gas fields by workovers of producing wells and also by installing wellhead gas compressors.

2. The present infrastructure coverage is not able to serve key market areas in the country as most of gas supply points are in the northeast and central regions, while delivery points are located in the central, south and west. Installation of gas compressors under Asian Development Bank (ADB) ongoing loan¹ enhanced gas transmission capability to a great extent. However, the Chittagong area is still suffering from shortfall of gas supply due to full capacity attainment of the existing 24-inch Bakhrabad-Chittagong gas transmission pipeline. To enhance the throughput capabilities and facilitate transmitting required gas, it is essential to expand the gas transmission network to accommodate the upcoming diversified gas supply sources from imports and offshore discoveries.

3. The impact of the project will be increased energy sector contribution to sustainable economic growth which is aligned with the Government of Bangladesh's Seventh Five-Year Plan (FY2016-FY2020). The outcome of the project will be improved efficiency in gas production and expanded gas transmission pipeline capacity.

4. The project will comprise two outputs: (i) increased and sustained wellhead gas delivery pressure at location-A of Titas gas field to maintain the current gas production level to gas transmission pipeline system; and (ii) expanded capacity of Chittagong-Feni-Bakhrabad transmission pipeline to transmit additional gas to the national network.

5. The first output is to install seven wellhead gas compressors (5 operating and 2 stand-by) at Titas gas field (location A) in Brahmanbaria District, about 100 kilometer (km) north-east of Dhaka City, to maintain the gas wellhead pressure of the nine producing gas wells at 1,250 pounds per square inch gauge (psig) and enable recovery of additional gas from the reserves to sustain longer production level. The cooling of the compressors will be done through air cooling and cooling of the engine will be done through water by radiator system. Project management training and capacity building for installation of project facilities will be carried out under the component. Land acquisition is not required for implementing this component as Titas gas field is owned and operated by the Bangladesh Gas Fields Company Limited (BGFCL).

6. The second output is to construct about 181 km, 36-inch gas transmission pipeline which will traverse Chittagong through Feni to Bakhrabad. The proposed transmission pipeline will run parallel to the existing 24-inch, Bakhrabad-Chittagong transmission pipeline. It will begin from the compressor and metering station at Chittagong. The proposed transmission pipeline consists of two city gate stations (i.e. site at which a gas distribution company receives gas from a gas transmission company or gas transmission system), sectionalizing valve stations (i.e.,

¹ ADB, 2010, Report and Recommendation of the President to the Board of Directors for the *Natural Gas Access Improvement Project*. Manila

capable of starting and stopping the flow of gas in a segment of a pipeline). This component will be implemented and owned by the Gas Transmission Company Limited (GTCL).

II. IMPLEMENTATION PLANS

A. Project Readiness Activities

Figure 1: Project Readiness Activities

Indicative Activities	2016												2017			Responsibility
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
Advance contracting actions					X											BGFCL/GTCL
Retroactive financing actions											X	X				BGFCL/GTCL
Establish project implementation arrangements					X											BGFCL/GTCL
Approval of DPP										X						EMRD/PC/ECNEC
ADB Board approval											X					ADB
Loan signing												X				ERD/EMRD/ADB
Government legal opinion provided													X			EMRD/ERD
Government/executing agencies budget inclusion							X									BGFCL/GTCL/PB/EMRD
Loan effectiveness														X		EMRD/ERD/ADB

ADB = Asian Development Bank, BGFCL = Bangladesh Gas Fields Company Limited, DPP = development project proforma, ECNEC = Executive Committee of the National Economic Council, EMRD = Energy and Mineral Resources Division, ERD = Economic Relations Division, GTCL = Gas Transmission Company Limited, PC = Planning Commission, PB = Petrobangla.

Source: Asian Development Bank.

B. Overall Project Implementation Plan

Figure 2: Overall Implementation Plan

Activities	2016			2017				2018				2019				2020				2021			
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
A. Production Efficiency Improvement (BGFCL)																							
1. Implementation Consultant																							
Bidding			■																				
Proposal evaluation and award				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Fielding of consultants				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2. Installation of Wellhead Compressors																							
Bidding						■	■																
Bid evaluation and award							■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Implementation								■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
3. Human Resource Development																							
Bidding							■	■															
Proposal evaluation and award								■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Implementation									■	■	■	■	■	■	■	■	■	■	■	■	■	■	
B. Transmission Capacity Expansion (GTCL)																							
1. Land acquisition and requisition	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
2. Land development				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
3. Other buildings and structures							■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
4. Procurement of Goods and Materials for Pipeline																							
Bidding		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Bid evaluation and awards			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Delivery				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
5. Pipeline Construction																							
Bidding			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Bid evaluation and award				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Implementation					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
6. River Crossings (including HDD)																							
Bidding			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Bid evaluation and award				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Implementation					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
7. Installation of TBSs and Metering Station																							
Bidding				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Bid evaluation and award					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Implementation						■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
8. Installation of SCADA Facilities																							
Bidding							■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Bid evaluation and award								■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Implementation									■	■	■	■	■	■	■	■	■	■	■	■	■	■	
9. Installation of CP system																							
Bidding																							
Bid evaluation and award																							
Implementation																							
COMPLETION REPORT																						■	

BGFCL = Bangladesh Gas Fields Company Limited, CP = cathodic protection, GTCL = Gas Transmission Company Limited, HDD = horizontal directional drilling, SCADA = supervisory control and data acquisition, TBS = town border station.

Source: Bangladesh Gas Fields Company Limited, Gas Transmission Company Limited.

III. PROJECT MANAGEMENT ARRANGEMENTS

A. Project Implementation Organizations – Roles and Responsibilities

7. The role and responsibilities for the management and implementation of the project is outlined in Table 1.

Table 1: Project Stakeholders: Roles and Responsibilities

Project Implementation Organizations	Management Roles and Responsibilities
MOF ERD and Finance Division	<ul style="list-style-type: none"> • Signing project agreements and loan agreements; • Monitoring the project activities, and providing respective coordination and facilitation; • Allocating and releasing of counterpart funds; • Endorsing to ADB the authorized staff with approved signatures for withdrawal application processing; and • Processing and submitting to ADB any request, when required, for reallocating the loan proceeds.
Steering Committee	<ul style="list-style-type: none"> • Chaired by Secretary, EMRD, and consisting of representatives from Petrobangla, Managing Directors of BGFCL and GTCL, and representatives from ERD, Finance Division, Planning Commission and IMED; • Overall responsibility for execution of the project; • Monitor and coordinate different agency activities; and • Review and endorse any proposed changes in project scope.
Executing Agency	<ul style="list-style-type: none"> • Establish project implementation unit; • Responsible for project implementation; • Timely provision agreed counterpart funds for project activities; • Involve beneficiaries and civil society organizations at all stages of project design and implementation; • Hire an implementing NGO to assist in the implementation of the resettlement plan and capacity building of EA; • Engage external monitoring agency for the resettlement monitoring one month prior to the compensation effective date; • Disclose project outputs to public; • Assure the quality of works and services of consultants and counterpart staff; • Establish strong financial management system and submit timely withdrawal applications to ADB, conduct timely financial audits as per agreed timeframe and take recommended actions; • Comply with all loan covenants including social and environmental safeguards, financial, economic and others; and • Ensure project's sustainability during post implementation stage and report to ADB on the assessed development impacts.
PIU	<ul style="list-style-type: none"> • Finalize survey, detailed design, bidding documents and contract awards; • Recruit consultants; • Monitor and evaluate project activities and outputs, including periodic review, prepare review reports and identify issues and action plans; • Prepare regular progress reports, semi-annual safeguards monitoring reports during construction phase and annual safeguards monitoring reports during operation phase and project completion reports, and ensure their timely submission to ADB; • Review and approve construction management plan prepared by contractors and ensure that relevant provisions are consistent with IEEs/EMPs and RP; • Confirm that IEEs/EMPs/RP are updated following detailed designs and are included in bidding documents and civil works contracts; • Oversee day-to-day implementation of EMPs and environmental and

Project Implementation Organizations	Management Roles and Responsibilities
	resettlement monitoring by contractors; <ul style="list-style-type: none"> • Address any grievance raised by affected persons through the grievance redress mechanism in a timely manner; • Confirm compliance to all applicable government rules and regulations on environmental, health and safety clearances and resettlement; • Ensure that project brief (e.g., one-page flyer) are made available to the public at the project site offices; • Conduct orientation/briefing to contractors and workers prior to start of construction works on compliance to environmental and resettlement requirements of the government and ADB, and implementation of grievance redress mechanism; • Set up appropriate record keeping system; • Take corrective action in the event of unanticipated environmental and resettlement impacts; and • Organize consultation opportunities to project stakeholders together with representatives from contractors such as schedule of earthworks, projects' waste management, and resettlement etc.

ADB = Asian Development Bank, BGFCL = Bangladesh Gas Fields Company Limited, EA = executing agency, EMP = environmental management plan, EMRD = Energy and Mineral Resources Division, ERD = Economic Relations Division, GTCL = Gas Transmission Company Limited, IEE = initial environmental examination, IMED = Implementation, Monitoring and Evaluation Division, MOF = Ministry of Finance, NGO=non-government origination, PIU = project implementation unit, RP = resettlement plan.

Source: Asian Development Bank.

B. Key Persons Involved in Implementation

Executing Agencies

BGFCL

Md. Kamruzzaman
 Managing Director
 Email address: mdbgfcl@yahoo.com
 Office Address: Birashar, Brahmanbaria 3400, Bangladesh

GTCL

Md. Mahbub Sarwar
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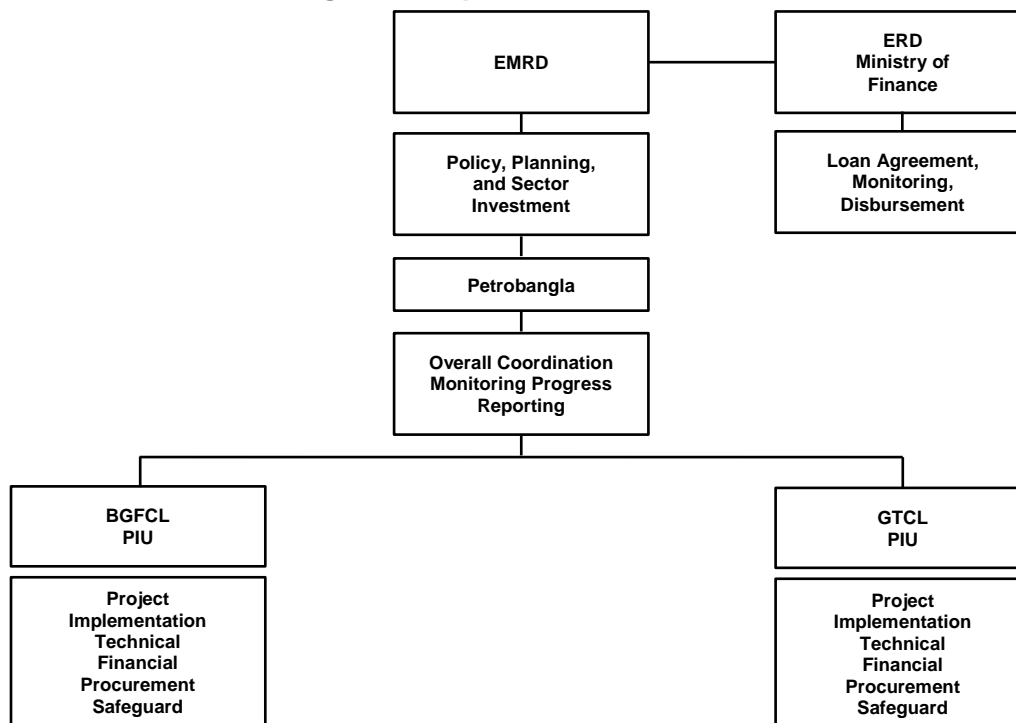
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C. Project Organization Structure

8. Bangladesh Gas Fields Company Limited (BGFCL) and Gas Transmission Company Limited (GTCL) are the executing agencies (EAs) responsible for the implementation of the respective components. The implementation structure of the project is in Figure 3.

Figure 3: Implementation Structure



BGFCL = Bangladesh Gas Fields Company Limited, EMRD = Energy and Mineral Resources Division, ERD = Economic Relations Division, GTCL = Gas Transmission Company Limited, Petrobangla = Bangladesh Oil, Gas and Mineral Corporation, PIU = project implementation unit.

9. Project implementation units (PIUs) will be established within each executing agency to carry out day-to-day project implementation work including (i) overall coordination, project management and monitoring; (ii) annual budget preparation and monitoring utilization of loan proceeds; (iii) progress reporting, including reports on financial management, safeguard compliance, and project impact; and (iv) ensuring compliance with loan covenants. The PIUs will also be responsible for administration, and financial and technical supervision of the project, including procurement of goods and services, engagement of consultants, engineering and construction contractors, and monitoring project operation and performance.

IV. COSTS AND FINANCING

A. Cost Estimates Preparation and Revisions

10. The cost estimates have been prepared by the respective executing agencies based on similar projects implemented by them recently including those financed by ADB. The costs have been reviewed by ADB, and would be reviewed during implementation and updated annually.

B. Key Assumptions

11. The following key assumptions underpin the cost estimates and financing plan:
- (i) Exchange rate: Tk79.00 = \$1.00
 - (ii) Price contingencies based on expected cumulative inflation over the implementation period are in Table 2.
 - (iii) The government will make the foreign loan proceeds available to the executing agencies in accordance with its policies (current relending interest rate is 5%). Local currency loans from the government will be provided at an interest rate of 4%.²

Table 2: Escalation Rates for Price Contingency Calculation

Item	2016	2017	2018	2019	2020	Average
Foreign rate of price inflation	1.50%	2.90%	4.50%	6.00%	7.60%	4.51%
Domestic rate of price inflation	5.90%	12.36%	19.44%	26.96%	34.96%	19.92%

Source: Asian Development Bank.

12. The project is estimated to cost \$453 million (Table 3), including physical and price contingencies, financing charges during implementation, and taxes and duties.

Table 3: Project Investment Plan
(\$ million)

Item	Amount ^a
A. Base Cost^b	
1. Installation of seven wellhead compressors	113
2. Construction of 181 km, 36-inch parallel gas transmission pipeline	276
Subtotal (A)	389
B. Contingencies^c	25
C. Financing Charges During Implementation^d	39
Total (A+B+C)	453

ADB = Asian Development Bank, km = kilometer.

^a Includes taxes and duties of \$55 million to be financed from government resources through cash contribution.

^b In mid-2016 prices.

^c Physical contingencies computed at 2% of base costs. Price contingencies computed using ADB's forecast of international and domestic inflation rate including provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

^d Includes interest, commitment fee and other charges from all financing sources. Interest and commitment fees on ADB and Asian Infrastructure Investment Bank (AIIB) loans will be capitalized and charged to the respective loan account. The interest on the ADB OCR loan has been computed at the 5-year forward London interbank offered rate plus a spread of 0.5% and 0.1% maturity premium. Commitment fee is charged at 0.15% on OCR loan on undisbursed balance over the project period. The interest on the ADF loan is calculated at 2% p.a. The interest on the AIIB loan is calculated at its published rates. As per the Government of Bangladesh regulations, the government relends proceeds from ADB and AIIB to executing agencies at 5% p.a. In addition, the government also lends the counterpart share in project cost at 4% p.a. to the executing agencies. The interest charged by the government to GTCL and BGFCL shall be borne out of the executing agencies' resources and has been allocated to the executing agencies.

Sources: Asian Development Bank, Bangladesh Gas Fields Company Limited and Gas Transmission Company Limited estimates.

² Bangladesh Ministry of Finance circular dated 17 March 2004.

C. Detailed Cost Estimates by Expenditure Category

Table 4: Detailed Cost Estimates by Expenditure Category

Item	Tk million			\$ million			% of Total Base Cost
	Foreign Exchange	Local Currency	Total Cost	Foreign Exchange	Local Currency	Total Cost	
A. Investment Costs							
1. Land acquisition, requisition and development	0	5,627	5,627	0	68	68	18
2. Civil works	1,732	4,360	6,092	20	51	71	18
3. Mechanical and equipment	15,949	4,480	20,429	183	52	235	61
4. Consultants							
a. Project management	174	9	182	2	0	2	1
Subtotal (A)	17,855	14,475	32,330	205	171	376	97
B. Other Costs							
1. Environment and social mitigation	0	664	664	0	8	8	2
2. Project management and overhead	0	324	324	0	4	4	1
3. Training	67	0	67	1	0	1	0
Subtotal (B)	67	988	1,056	1	12	12	3
Total Base Cost	17,922	15,464	33,386	206	183	389	100
C. Contingencies							
1. Physical Contingency	359	309	668	4	4	8	2
2. Price Contingency	460	1,045	1,505	5	12	17	4
Subtotal (C)	819	1,354	2,173	9	16	25	6
D. Financing Charges During Implementation							
1. Interest during construction	1,014	2,499	3,513	11	28	39	10
2. Commitment charges and front end fee	35	0	35	0	0	0	0
Subtotal (D)	1,049	2,499	3,548	12	28	39	10
Total Project Cost (A+B+C+D)	19,790	19,317	39,107	227	226	453	117

^a In mid-2016 prices.

^b Computed at 2% of base costs.

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

^d Includes interest, commitment fee and other charges from all financing sources. Interest and commitment fees on ADB and AIIB loans will be capitalized and charged to the respective loan account. The interest on the ADB OCR loan has been computed at the 5-year forward London interbank offered rate plus a spread of 0.5% and 0.1% maturity premium. Commitment fee is charged at 0.15% on OCR loan on undisbursed balance over the project period. The interest on the ADF loan is calculated at 2% p.a. The interest on the AIIB loan is calculated at their published rates. As per the Government of Bangladesh regulations, the government relends proceeds from ADB and AIIB to executing agencies at 5% p.a. In addition, the government also lends the counterpart share in project cost at 4% p.a. to the executing agencies. The interest charged by the government to GTCL and BGFCL shall be borne out of the executing agencies' own resources and has been allocated to the executing agencies.

Sources: Asian Development Bank, Bangladesh Gas Fields Limited and Gas Transmission Company Limited estimates.

D. Allocation and Withdrawal of Loan Proceeds

13. The allocation of loan proceeds from the ordinary capital resources and Special Funds resources are in Table 5 and Table 6.

Table 5: Allocation and Withdrawal of Loan Proceeds (ADB)

Number	Item	Total Amount Allocated for ADB Financing ^a (\$)		Basis for Withdrawal from the Loan Account ^b
		Category	Subcategory	
1	Works – GTCL	8,900,000		44% of total expenditure claimed
2	Equipment and Materials	81,180,000		
2A	BGFCL		38,980,000	44% of total expenditure claimed
2B	GTCL		42,200,000	44% of total expenditure claimed
3	Training – BGFCL	340,000		44% of total expenditure claimed
4	Consulting – BGFCL	890,000		44% of total expenditure claimed
5	Interest During Construction	4,590,000		100% of amounts due
6	Unallocated	4,100,000		
	Total	100,000,000		

ADB = Asian Development Bank, BGFCL = Bangladesh Gas Fields Company Limited, GTCL = Gas Transmission Company Limited.

^a Subject to the condition for withdrawal described in paragraph 7 of Schedule 3.

^b Exclusive of all duties and taxes imposed within the territory of the Borrower.

Source: Asian Development Bank estimates.

Table 6: Allocation and Withdrawal of Loan Proceeds (ADF)

Number	Item	Amount Allocated for Financing ^a (SDR)		Basis for Withdrawal from the Loan Account ^b
		Category	Subcategory	
1	Works – GTCL	4,265,000		30% of total expenditure claimed
2	Equipment and Materials	38,882,000		
2A	BGFCL		18,626,000	30% of total expenditure claimed
2B	GTCL		20,256,000	30% of total expenditure claimed
3	Training – BGFCL	157,000		30% of total expenditure claimed
4	Consulting – BGFCL	429,000		30% of total expenditure claimed
5	Interest Charges	2,086,000		100% of amounts due
6	Unallocated	2,051,000		
	Total	47,870,000		

BGFCL = Bangladesh Gas Fields Company Limited, GTCL = Gas Transmission Company Limited.

^a Subject to the condition for withdrawal described in paragraph 7 of Schedule 3.

^b Exclusive of all duties and taxes imposed within the territory of the Borrower.

Source: Asian Development Bank estimates.

E. Detailed Cost Estimates by Financiers

Table 7: Detailed Cost Estimates by Financiers

Item	ADB (OCR)		AIIB		ADB (SF)		Total Foreign Financing		Government		Total Govt Financing		Total EA Financing			
	Amount	% of Cost Category	Amount	% of Cost Category	Amount	% of Cost Category	Amount	Foreign as % of Total	Non tax	Taxes	Total Amount	Govt as % of Total	Amount	EA Funding as % of Total Cost	Total Financing	
A. Investment Costs^a																
1. Land acquisition, requisition and development	0	0	0	0	0	0	0	0	68	0	68	100	0	0	68	
2. Civil works	9	44	5	26	6	30	20	28	44	7	51	72	0	0	71	
3. Mechanical and equipment	81	44	48	26	54	30	183	78	4	48	52	22	0	0	235	
4. Consultants																
a. Project management	1	44	1	26	1	30	2	95	0	0	0	5	0	0	2	
Subtotal (A)	91	44	53	26	61	30	205	55	116	55	171	45	0	0	376	
B. Other Costs																
1. Environment and social mitigation	0	0	0	0	0	0	0	0	8	0	8	100	0	0	8	
2. Project management and overhead	0	0	0	0	0	0	0	0	4	0	4	100	0	0	4	
3. Training	0	44	0	26	0	30	1	100	0	0	0	0	0	0	1	
Subtotal (B)	0	44	0	26	0	30	1	6	12	0	12	94	0	0	12	
Total Base Cost	91	44	54	26	61	30	206	53	128	55	183	47	0	0	389	
C. Contingencies																
1. Physical Contingency ^b	2	44	1	26	1	30	4	53	4	0	4	47	0	0	8	
2. Price Contingency ^c	2	44	1	26	2	30	5	30	12	0	12	70	0	0	17	
Subtotal (B)	4	44	2	26	3	30	9	37	16	0	16	63	0	0	25	
D. Financing Charges During Implementation^d	5	40	4	34	3	26	12	30	0	0	0	0	28	70	39	
Total Project Cost (A+B+C+D)	100	44	60	26	67	30	227	50	144	55	198	44	28	6	453	
% Total Project Cost	22		13		15		50				44		6		100	

^a In mid-2016 prices.

^b Computed at 2% of base costs.

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

^d Includes interest, commitment fee and other charges from all financing sources. Interest and commitment fees on ADB and AIIB loans will be capitalized and charged to the respective loan account. The interest on the ADB OCR loan has been computed at the 5-year forward London interbank offered rate plus a spread of 0.5% and 0.1% maturity premium. Commitment fee is charged at 0.15% on OCR loan on undisbursed balance over the project period. The interest on the Asian Development Fund loan is calculated at 2% p.a. The interest on the AIIB loan is calculated at their published rates. As per the Government of Bangladesh regulations, the government relends proceeds from ADB and AIIB to executing agencies at 5% p.a. In addition, the government also lends the counterpart share in project cost at 4% p.a. to the executing agencies. The interest charged by the government to GTCL and BGFCL shall be borne out of the executing agencies' own resources and has been allocated to the executing agencies.

Sources: Asian Development Bank, Bangladesh Gas Fields Limited and Gas Transmission Company Limited estimates.

F. Detailed Cost Estimates by Components

Table 8: Detailed Cost Estimates by Components

Item	Total Cost	Component 1: BGFCL		Component 2: GTCL	
		Amount	% of Cost Category	Amount	% of Cost Category
A. Investment Costs^a					
1. Land acquisition, requisition and development	68	0	0	68	21
2. Civil works	71	0	0	71	22
3. Mechanical and equipment	235	107	82	129	40
4. Consultants					
A. Project management	2	2	2	0	0
Subtotal (A)	376	109	84	267	83
B. Other Costs					
1. Environment and social mitigation	8	0	0	8	2
2. Project management and overhead	4	3	2	1	0
3. Training	1	1	1	0	0
Subtotal (B)	12	4	3	9	3
Total Base Cost	389	113	87	276	85
C. Contingencies					
1. Physical Contingency ^b	8	2	2	6	2
2. Price Contingency ^c	17	7	5	11	3
Subtotal I	25	9	7	16	5
D. Financial Charges During Implementation^d					
1. Interest during construction	39	8	6	31	10
2. Commitment charges and front end fee	0	0	0	0	0
Subtotal (D)	39	8	6	31	10
Total Project Cost (A+B+C+D)	453	130	100	323	100

^a In mid-2016 prices.

^b Computed at 2% of base costs.

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

^d Includes interest, commitment fee and other charges from all financing sources. Interest and commitment fees on ADB and AIIB loans will be capitalized and charged to the respective loan account. The interest on the ADB OCR loan has been computed at the 5-year forward London interbank offered rate plus a spread of 0.5% and 0.1% maturity premium. Commitment fee is charged at 0.15% on OCR loan on undisbursed balance over the project period. The interest on the ADF loan is calculated at 2% p.a. The interest on the AIIB loan is calculated at their published rates. As per the Government of Bangladesh regulations, the Government relends proceeds from ADB and AIIB to executing agencies at 5% p.a. In addition, the government also lends the counterpart share in project cost at 4% p.a. to the executing agencies. The interest charged by the Government to GTCL and BGFCL shall be borne out of the executing agencies' own resources and has been allocated to the executing agencies.

Sources: Asian Development Bank, Bangladesh Gas Fields Limited and Gas Transmission Company Limited estimates.

G. Detailed Cost Estimates by Year**Table 9: Detailed Cost Estimates by Year
(\$ million)**

Item	Total Cost	Year 1	Year 2	Year 3	Year 4
A. Investment Costs^a					
1. Land acquisition, requisition and development	68	68	0	0	0
2. Civil works	71	8	57	6	0
3. Mechanical and equipment	235	90	70	37	39
4. Consultants					
a. Project management	2	1	1	1	0
Subtotal (A)	376	166	128	44	39
B. Other Costs					
1. Environment and social mitigation	8	4	4	0	0
2. Project management and overhead	4	1	1	1	1
3. Training	1	0	0	0	0
Subtotal (B)	12	5	5	1	1
Total Base Cost	389	171	133	46	39
C. Contingencies					
1. Physical Contingency ^b	8	3	3	1	1
2. Price Contingency ^c	17	3	8	3	3
Subtotal (C)	25	7	10	4	4
D. Financial Charges During Implementation^d					
Subtotal (D)	39	3	9	12	15
Total Project Cost (A+B+C+D)	453	181	152	62	58
% Total Project Cost	100	40	34	14	13

^a In mid-2016 prices.

^b Computed at 2% of base costs.

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

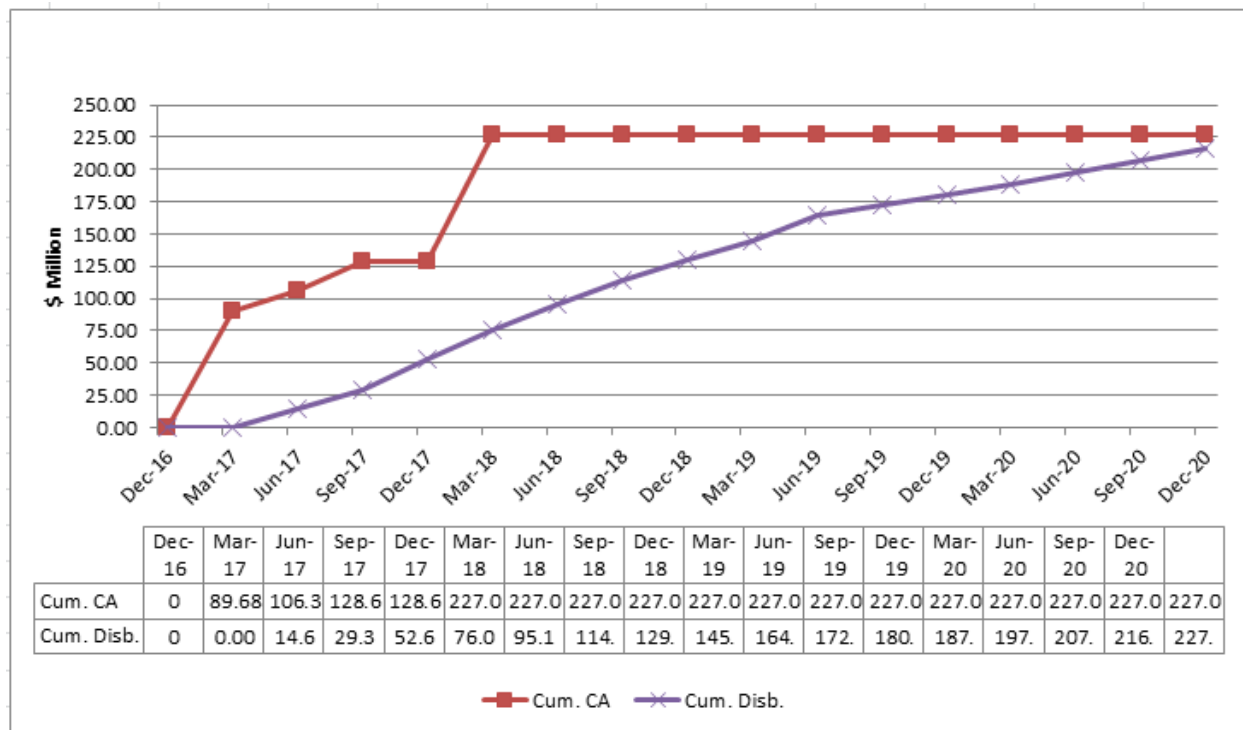
^d Includes interest, commitment fee and other charges from all financing sources. Interest and commitment fees on ADB and AIIB loans will be capitalized and charged to the respective loan account. The interest on the ADB OCR loan has been computed at the 5-year forward London interbank offered rate plus a spread of 0.5% and 0.1% maturity premium. Commitment fee is charged at 0.15% on OCR loan on undisbursed balance over the project period. The interest on the ADF loan is calculated at 2% p.a. The interest on the AIIB loan is calculated at their published rates. As per the Government of Bangladesh regulations, the government relends proceeds from ADB and AIIB to executing agencies at 5% p.a. In addition, the Government also lends the counterpart share in project cost at 4% p.a. to the executing agencies. The interest charged by the Government to GTCL and BGFCL shall be borne out of the EAs own resources and has been allocated to the executing agencies.

Sources: Asian Development Bank, Bangladesh Gas Fields Limited and Gas Transmission Company Limited estimates.

H. Contract Award and Disbursement S-Curve

14. The projections for contract award and disbursement for the project are in Figure 4.

Figure 4: Contract Award and Disbursement S Curve

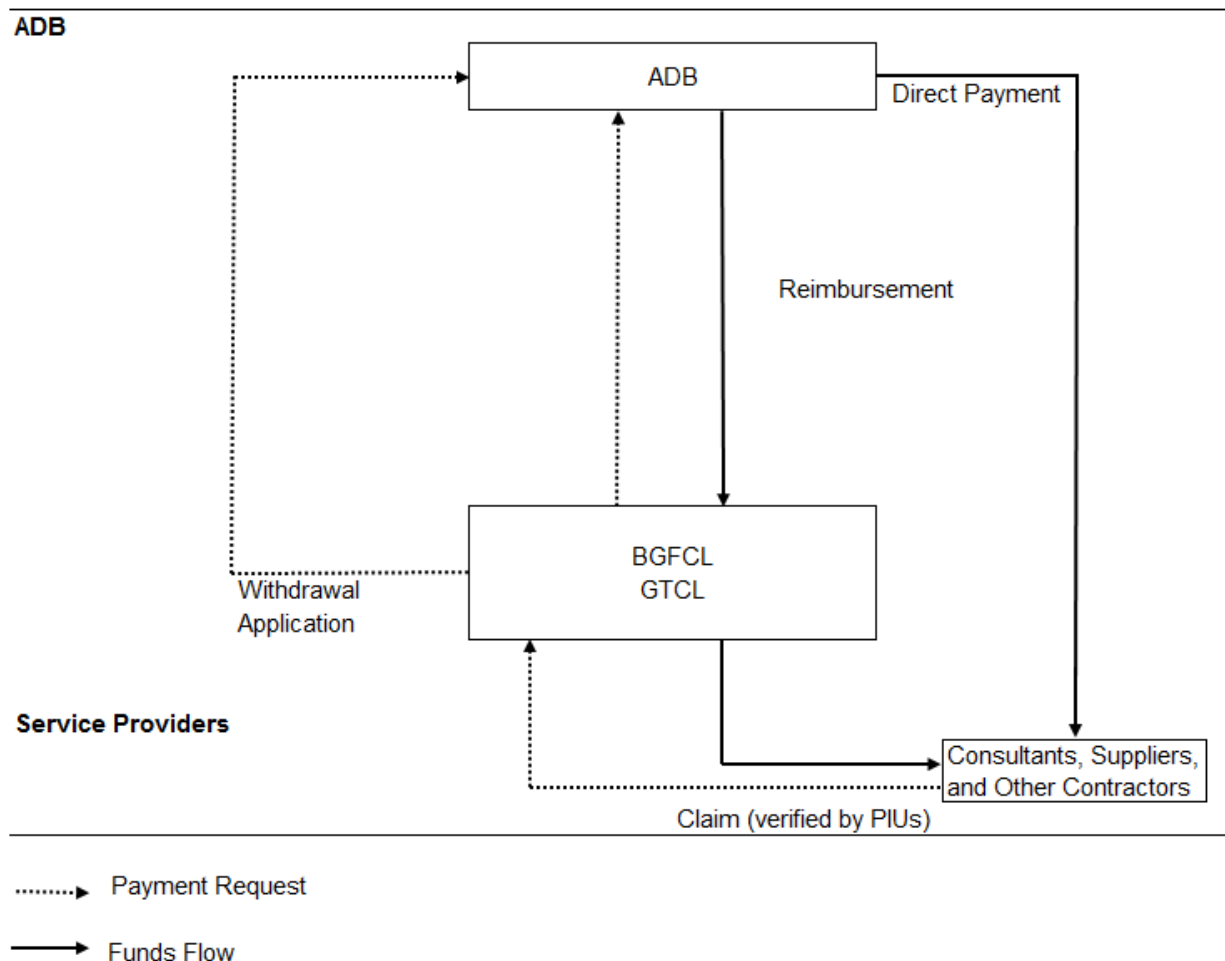


Source: Asian Development Bank, Bangladesh Gas Fields Company Limited and Gas Transmission Company Limited.

I. Fund Flow Diagram

15. The flow of fund is indicated in Figure 5.

Figure 5: Fund Flow Diagram



ADB = Asian Development Bank, BGFCL = Bangladesh Gas Fields Company Limited, GTCL = Gas Transmission Company Limited, PIU = project implementation unit.

Source: ADB.

Note: ADB's direct payment and commitment letter procedures will be used for large scale payments. In such cases, the direct payment will be made from ADB to contractors or commitment letter reimbursement will go to a nominated bank of a supplier on the basis of withdrawal applications submitted to ADB by the executing agencies.

V. FINANCIAL MANAGEMENT

A. Financial Management Assessment

16. The full-fledged financial management assessment (FMA)³ was conducted in February 2016 in accordance with ADB's Guidelines for the Financial Management and Analysis of Projects (2005), ADB's Financial Due Diligence: A Methodology Note (2009) and the Technical Guidance Note - Financial Management Assessment (2015). The FMA considered the capacity of the executing agencies, including funds-flow arrangements, staffing, accounting and financial reporting systems, financial information systems, and internal and external auditing

³ Financial management assessment (accessible from the list of linked documents in Appendix 2).

arrangements. Based on the assessment, the key financial management risks identified are (i) lack of staffing in finance division, (ii) strengthening information system, and (iii) improving reporting and monitoring practices. It is concluded that the overall financial management risks of BGFCL and GTCL are moderate. The executing agencies have agreed to implement an action plan as key measures to address the deficiencies. The financial management action plan is provided in Table 10.

Table 10: The Financial Management Action Plan

Risk Description	Mitigation Measures or Risk Management Plan
Staffing: BGFCL and GTCL reported staffing issues in terms of unfilled positions in finance function. It was noted that while some of these have approved number of positions, however, the functions remain understaffed due to delays in identifying and appointing new staff.	Executing agencies will identify augmentation needs and prepare a staffing plan by December 2017.
Internal audit: BGFCL and GTCL have internal audit teams headed by GM/DGM directly reporting to a senior official (normally Managing Director). While there is internal audit function, it is responsible for more review on transactional basis and doesn't cover review of detailed review of reporting systems and processes.	Executing agencies will review and redefine scope and coverage of internal audit function and accordingly strengthen internal audit function as required by December 2017.
Reporting and monitoring: While EAs have established structure for reporting and monitoring, it might require some strengthening in terms of notification of standard practices and norms to form common standard for all to review and comply. While in general, BGFCL and GTCL follow standards established by the government, there are few internal process manuals or procedures to systematically manage finance and accounting operations.	Executing agencies will put in place internal manuals to ensure staff systematically following a common set of practices by December 2017.
Information systems: BGFCL and GTCL have been utilizing local software. In some cases these is limited backup or backup by manual means. Also, the systems are limited in terms of being standalone and being exposed to manual interventions and entries.	Executing agencies will review setting up automated backup of data or disaster management systems for managing information security. Also, the manual interventions and manual transfer of project data needs to be reviewed for more reliable automated means through proper authentication measures. BGFCL and GTCL should prepare an information system improvement plan respectively by December 2017.

BGFCL = Bangladesh Gas Fields Company Limited, DGM = deputy general manager, EA = executing agency, GM = general manager, GTCL = Gas Transmission Company Limited.

17. BGFCL and GTCL have well established organization structure, set up and staff for the required operations in regard of the respective business. All the two executing agencies have well prepared structure for various key functions—planning, operations, technical, accounts, human resources, etc. The accounts of each executing agency are prepared on accrual basis as per provisions of the governing statutes. Accounting policies are followed as per Companies Act 1994 and auditing requirements as per the standards of the Institute of Chartered Accountants of Bangladesh and are in line with International Accounting Standards.

18. Financial accounting systems are computerized but not fully automatic or integrated. Accounting records and monthly management reports are prepared on a timely basis. Each executing agency has been using customized general ledger software provided by local companies for accounting systems. BGFCL and GTCL have past experience in implementing ADB and World Bank projects and are conversant with project accounting procedures and reporting requirements. Both BGFCL and GTCL have internal audit departments and also have appointed external auditors. Executing agencies' corporate accounts are audited by the Office of the Comptroller and Auditor General. A separate audit for externally funded projects is

undertaken by Foreign Aided Project Audit Department.

19. In BGFCL and GTCL, while the organization structure is in place, the finance division is understaffed. Both have been operating at levels below the approved staff requirement (for finance function) and there is a significant lag in recruitment. While executing agencies follow government norms, there are hardly any internal process manuals or replicable procedure notifications with regards to project reporting. BGFCL and GTCL have rooms for improvement on information systems, reporting and monitoring practices. Both executing agencies still need to setup integrated systems and back up facilities to avoid data loss and maintain data consistency. Manual interventions currently followed need to be automated for accurate data recording.

B. Disbursement

20. **ADB and ADB-administered cofinancier funds.** The loan proceeds including ADB-administered cofinancier funds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2015, as amended from time to time), and detailed arrangements agreed upon between the government and ADB. Online training for project staff on disbursement policies and procedures is available.⁴ Project staff is encouraged to avail of this training to help ensure efficient disbursement and fiduciary control. The Asian Infrastructure Investment Bank financing will be utilized and disbursed on pro rata basis in conjunction with those financed by ADB for the procurement of goods, works and consulting services in all project components.

21. ADB's direct payment, commitment letter and reimbursement procedures will be utilized.

22. BGFCL and GTCL will prepare and send withdrawal application to ADB. ADB and AIIB finance eligible expenditures up to 100% of every claim received. BGFCL and GTCL will be responsible for maintaining contract ledger(s) including payments by fund sources.

23. **Statement of expenditure procedure.** ADB's Statement of Expenditure (SOE) procedures may be used for reimbursement. Supporting documents and records for the expenditures claimed under the SOE should be maintained and made readily available for review by ADB's disbursement and review missions, upon ADB's request for submission of supporting documents on a sampling basis, and for independent audit.

24. Before the submission of the first withdrawal application, the government should submit to ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on behalf of the government, together with the authenticated specimen signatures of each authorized person.

25. Each project director under BGFCL and GTCL will be responsible for: (i) preparing disbursement projections, (ii) requesting budgetary allocations for counterpart funds, (iii) collecting supporting documents, and (iv) preparing withdrawal applications.

26. Pursuant to ADB's *Safeguard Policy Statement* (2009) (SPS), ADB and AIIB funds may not be applied to the activities described on the ADB Prohibited Investment Activities List set forth in Appendix 5 of the SPS.

27. **Counterpart funds.** Government counterpart funds will be used to finance civil works,

⁴ Disbursement eLearning. http://wpqr4.adb.org/disbursement_elearning.

installations and the remaining miscellaneous works, and services. All executing agencies will follow the relevant disbursement and liquidation procedures for government funds. Local taxes and duties under the project will be financed by the government through cash contribution.

28. **Condition for withdrawal from loan account.** Notwithstanding any other provision of the loan agreement, no withdrawals shall be made from the loan account until the subsidiary loan agreements between the government and the executing agencies in form and substance satisfactory to ADB, have been duly authorized and ratified, and executed and delivered on behalf of the government and the executing agencies, and is legally binding upon the parties thereto in accordance with their terms.

C. Accounting

29. BGFCL and GTCL will maintain, or cause to be maintained, separate books and records by funding source for all expenditures incurred under the project. The accounts will follow International Financial Reporting Standards. BGFCL and GTCL will prepare project financial statements in accordance with Bangladesh accounting laws and regulations which are consistent with international accounting principles and practices.

D. Auditing and Public Disclosure

30. BGFCL and GTCL will cause the detailed project financial statements to be audited in accordance with International Standards on Auditing or the government's audit regulations, by an independent auditor acceptable to ADB. The audited project financial statements together with the auditor's opinion will be presented in the English language to ADB within 6 months from the end of the fiscal year by BGFCL and GTCL respectively.

31. The audited entity financial statements, together with the auditor's report and management letter, will be submitted in the English language to ADB within 1 month after their approval by the relevant authority.

32. The audit report for the project financial statements will include a management letter and auditor's opinions, which cover (i) whether the project financial statements present an accurate and fair view or are presented fairly, in all material respects, in accordance with the applicable financial reporting standards; (ii) whether the proceeds of the loans were used only for the purposes of the project; and (iii) whether the government or the executing agencies were in compliance with the financial covenants contained in the legal agreements.

33. Compliance with financial reporting and auditing requirements will be monitored by review missions and during normal program supervision, and followed up regularly with all concerned parties including the external auditor.

34. The government, BGFCL and GTCL have been made aware of ADB's approach to delayed submission, and the requirements for satisfactory and acceptable quality of the audited project financial statements.⁵ ADB reserves the right to require a change in the auditor (in a

⁵ ADB's approach and procedures regarding delayed submission of audited project financial statements:

- (i) When audited project financial statements are not received by the due date, ADB will write to the executing agency advising that (a) the audit documents are overdue; and (b) if they are not received within the next 6 months, requests for new contract awards and disbursement such as issuance of new commitment letters will not be processed.

manner consistent with the constitution of the government), or for additional support to be provided to the auditor, if the audits required are not conducted in a manner satisfactory to ADB, or if the audits are substantially delayed. ADB reserves the right to verify the project's financial accounts to confirm that the share of ADB and AIIB's financing is used in accordance with ADB's policies and procedures.

35. Public disclosure of the audited project financial statements, including the auditor's opinion on the project financial statements, will be guided by ADB's Public Communications Policy 2011.⁶ After the review, ADB will disclose the audited project financial statements and the opinion of the auditors on the project financial statements no later than 14 days of ADB's confirmation of their acceptability by posting them on ADB's website. The management letter, additional auditor's opinions, and audited entity financial statements will not be disclosed.⁷

VI. PROCUREMENT AND CONSULTING SERVICES

A. Advance Contracting and Retroactive Financing

36. All advance contracting and retroactive financing will be undertaken in conformity with ADB Procurement Guidelines (2015, as amended from time to time) and ADB's Guidelines on the Use of Consultants (2013, as amended from time to time). The issuance of invitations to bid under advance contracting and retroactive financing will be subject to ADB approval. The government, BGFCL and GTCL have been advised that approval of advance contracting and retroactive financing does not commit ADB to finance the project.

37. **Advance contracting.** The government has requested ADB's approval of advance contracting for recruitment of consultants and procurement of goods and related services including inviting and receiving bids for contracts that might be approved for implementation prior to loan effectiveness. The issuance of invitations to bid under advance contracting will be subjected to ADB approval. The BGFCL and GTCL have already initiated preparation of bidding documents for consulting service package and procurement packages.

38. **Retroactive financing.** Withdrawals from the relevant loan account may be made for reimbursement of eligible expenditures incurred under the relevant project before the effective date of the loan agreements (but not earlier than 12 months before the date of the loan agreement), subject to a maximum amount equivalent to 20% of the amount of the loan. ADB and AIIB will reimburse eligible expenditure incurred for retroactive financing to the executing agencies. BGFCL and GTCL will provide sufficient evidence satisfactory to ADB of having incurred the expenditures to be eligible to claim amounts to be retroactively financed.

B. Procurement of Goods, Works, and Consulting Services

39. All procurement of goods and works will be undertaken in accordance with ADB's Procurement Guidelines (2015, as amended from time to time). Given that ADB is also

(ii) When audited project financial statements are not received within 6 months after the due date, ADB will withhold processing of requests for new contract awards and disbursement such as issuance of new commitment letters. ADB will (a) inform the executing agency of ADB's actions; and (b) advise that the loan may be suspended if the audit documents are not received within the next 6 months.

(iii) When audited project financial statements are not received within 12 months after the due date, ADB may suspend the loan.

⁶ Public Communications Policy: <http://www.adb.org/documents/pcp-2011?ref=site/disclosure/publications>.

⁷ This type of information would generally fall under public communications policy exceptions to disclosure. ADB. 2011. *Public Communications Policy*. Paragraph 97(iv) and/or 97(v).

administering loan from AIIB, universal procurement will apply to all procurement packages to be financed by ADB resources, and AIIB resources.

40. A procurement plan for the entire duration of the project indicating threshold and review procedures, goods, works, and consulting service contract packages and national competitive bidding guidelines is given in Section C.

C. Procurement Plan

PROCUREMENT PLAN

Basic Data

Project Name: Natural Gas Infrastructure and Efficiency Improvement Project	
Project Number: 45203-006	Approval Number: xxx
Country: BANGLADESH	Executing Agency: Bangladesh Gas Fields Company Limited (BGFCL) Gas Transmission Company Limited (GTCL)
Project Financing Amount: \$453 million ADB Financing: \$167million (OCR: \$100 million; ADF: \$67 million) Cofinancing (ADB Administered): Asian Infrastructure Investment Bank: \$60 million Non-ADB Financing: \$226 million	
Date of First Procurement Plan: 3 October 2016	Date of this Procurement Plan: 3 October 2016

A. Methods, Thresholds, Review and Procurement Plan

1. Procurement and Consulting Methods and Thresholds

41. 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	Comments
International Competitive Bidding (ICB) for Works	\$15,000,000	
International Competitive Bidding for Goods	\$2,000,000	
National Competitive Bidding (NCB) for Works	Beneath that stated for ICB, Works	
National Competitive Bidding for Goods	Beneath that stated for ICB, Goods	
Shopping for Works	Below \$100,000	
Shopping for Goods	Below \$100,000	
Consulting Services		
Method	Comments	
Quality- and cost-based selection for Consulting Firm (QCBS)		

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

42. The following table lists goods and works contracts for which the procurement activity is either ongoing or expected to commence during the entire duration of the project.

Package Number	General Description	Estimated Value (US\$ million)	Procurement Method	Review [Prior / Post/Post (Sample)]	Bidding Procedure	Advertisement Date (quarter/year)	Comments
BGFCL							
Package 1	Wellhead compressors with associated equipment & facilities including installation and commissioning	88.05	ICB	Prior	1S2E	Q3/2017	ADB's SBD Plant, Estimated value excludes taxes and duties
GTCL							
Package 1	36" Line pipe - 181km and other pipes	82.21	ICB	Prior	1S2E	Q3/2016	ADB's SBD Goods Estimated value excludes taxes and duties
Package 2	Lot A: 36' ND, 8D Radius Induction Bends	4.11	ICB	Prior	1S2E	Q3/2016	ADB's SBD Goods, Estimated value excludes taxes and duties
	Lot B: Ball Valves, Gate valves & Plug Valves	3.69	ICB	Prior	1S2E	Q3/2016	
	Lot C: Butt Weld fittings, Tee's elbows, gauges, insulation joints, anchor flanges and Pig Traps	3.00	ICB	Prior	1S2E	Q3/2016	
	Lot D: TEG, CP and coating materials	2.28	ICB	Prior	1S2E	Q3/2016	
Package 3	Construction of River crossing 36-inch by HDD method (4 No of river)	7.18	ICB	Prior	1S2E	Q4/2016	ADB's SBD Plant. Estimated value excludes taxes and duties

Package Number	General Description	Estimated Value (US\$ million)	Procurement Method	Review [Prior / Post/Post (Sample)]	Bidding Procedure	Advertisement Date (quarter/year)	Comments
Package 4	Design, Supply, and Installation of 2 Nos. Town Border Station (TBS) 1 No. Metering Station Capacity TBS: 120 MMSCFD, 200MMSCFD & Metering Station: 800 MMSCFD	11.44	ICB	Prior	1S2E	Q1/2017	ADB's SBD Plant. Estimated value excludes taxes and duties
Package 5	Design, Supply and Installation of SCADA Facilities on EPC basis	1.51	ICB	Prior	1S2E	Q1/2017	ADB's SBD Plant, Estimated value excludes taxes and duties

1S2E = one stage two envelope, BGFCL = Bangladesh Gas Fields Company Limited, EPC = engineering, procurement and construction, ICB = international competitive bidding, GTCL = Gas Transmission Company Limited, MMSCFD = million standard cubic feet per day, Q = quarter, SCADA = supervisory control and data acquisition, SBD = standard bidding documents, TBS = town base station.

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

43. The following table lists consulting services contracts for which the recruitment activity is either ongoing or expected to commence during the entire duration of the project.

Package Number	General Description	Estimated Value (US\$ million)	Recruitment Method	Review (Prior / Post)	Advertisement Date (quarter/year)	Type of Proposal	Comments
BGFCL							
Package 1	Project implementation consultants	2.01	QCBS	Prior	Q3/2016	FTP	International, Quality-Cost Ratio: 90:10 Estimated value excludes taxes and duties
Package 2	Human resources development consultant (training)	0.755	QCBS	Prior	Q4/2017	STP	International, Quality-Cost Ratio: 90:10 Estimated value excludes taxes and duties

BGFCL = Bangladesh Gas Fields Company Limited, FTP = Full Technical Proposal, QCBS = quality- and cost-based selection, Q = quarter, STP = simplified technical proposal.

B. Non-ADB Financing

44. The following table lists goods, works and consulting services contracts over the life of the project, financed by Non-ADB sources.

Goods and Works				
General Description	Estimated Value (US\$ million)	Estimated Number of Contracts	Procurement Method	Comments
BGFCL				
Locally Procured Machinery, Equipment Spares etc.	0.01	1	NCB	Source of financing-the Government of Bangladesh
Vehicles	0.22	2	NCB	Source of financing- the Government of Bangladesh
Office Equipment and Supplies	0.02	6	RFQ	Source of financing- the Government of Bangladesh
Construction of site office	0.06	1	NCB	Source of financing- the Government of Bangladesh
Construction of ware house	0.13	1	NCB	Source of financing- the Government of Bangladesh
Environment Monitoring	0.04	1	RFQ/NCB	Source of financing- the Government of Bangladesh
GTCL				
Construction of 179.7km, 36-inch dia. Pipeline	46.63	8	NCB	Source of financing- the Government of Bangladesh
Installation of CP System	0.13	1	NCB	Source of financing- the Government of Bangladesh
Soil and sub-surface investigation	0.05	1	NCB	Source of financing- the Government of Bangladesh. (Contract to be awarded in August 2016 and work to be completed in February 2017).
Land development with mechanical compaction	0.33	1	NCB	Source of financing- the Government of Bangladesh
Other building and structures	1.13	1	NCB	Source of financing- the Government of Bangladesh
Vehicles	0.32	1	NCB	Source of financing- the Government of Bangladesh
Office Equipment and Supplies	0.02	7	RFQ	Source of financing- the Government of Bangladesh
Consulting Services				
General Description	Estimated Value (US\$ million) (cumulative)	Estimated Number of Contracts	Recruitment Method	Comments
Route Survey, IEE, EIA & RAP (GTCL)	0.06	1	Direct Recruitment	Recruitment of CEGIS (a semi-government agency) was done in November 2015. Draft report has already been prepared by the consultant
NGO/voluntary organization for assisting implementation of RAP (GTCL)	0.15	1	QCBS	Process to initiate in Q1/2017

BGFCL = Bangladesh Gas Fields Company Limited, CP = cathodic protection, EIA = environmental impact assessment, IEE = initial environmental examination, NCB = National Competitive Bidding, QCBS = quality- and cost-based selection, RAP = resettlement action plan, RFQ = request for qualification.

C. National Competitive Bidding

1. Regulation and Reference Documents

45. The procedures to be followed for national competitive bidding shall be those set forth for the National Open Tendering Method in *The Public Procurement Rules, 2008* (as updated and pursuant to *The Public Procurement Act, 2006* issued by the Government of Bangladesh) with the clarifications and modifications described in the following paragraphs required for compliance with the provisions of the Procurement Guidelines.

2. Procurement Procedures

a. Eligibility

46. The eligibility of bidders shall be as defined under section I of the Procurement Guidelines; accordingly, no bidder or potential bidder should be declared ineligible for reasons other than those provided in section I of the Guidelines, as amended from time to time.

b. Advertising

47. The posting of NCB specific notices for contracts valued at less than \$1 million on ADB's website is not required but is highly recommended.

c. Location of Bid Submission

48. Submission of bids to 'primary' and 'secondary' locations, or 'multiple droppings' of bids, shall not be required or allowed. Advertisements and bidding documents shall specify only one location for delivery of bids.

d. Bid Prices and Percentage of Estimate

49. Bids shall not be invited on the basis of percentage above or below the estimated cost, and contract award shall be based on the lowest evaluated bid price of responsive bid from eligible and qualified bidder.

e. Lottery

50. A lottery system shall not be used to determine a successful bidder, including for the purpose of resolving deadlocks.

f. Rejection of All Bids and Rebidding

51. Bids shall not be rejected and new bids solicited without ADB's prior concurrence.

C. Bidding Documents

1. Anti-Corruption

52. Definitions of corrupt, fraudulent, collusive and coercive practices shall reflect the latest ADB Board-approved Anti-Corruption Policy definitions of these terms and related additional provisions (such as conflict of interest, etc.).

2. Qualification Requirements

53. Qualification criteria and specific requirements must be explicitly stated in the bidding documents and applied consistently during bid evaluation.

3. Rejection of Bids

54. A bid shall not be rejected on the grounds that its bid price is not within a percentage range above or below the contract estimate.

4. ADB Policy Clauses

55. A provision shall be included in all NCB works and goods contracts financed by ADB and AIIB requiring suppliers and contractors to permit ADB and AIIB to inspect their accounts and records and other documents relating to the bid submission and the performance of the contract, and to have them audited by auditors appointed by ADB.

56. A provision shall be included in all bidding documents for NCB works and goods contracts financed by ADB and AIIB stating that the Borrower shall reject a proposal for award if it determines that the bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive or obstructive practices in competing for the contract in question.

57. A provision shall be included in all bidding documents for NCB works and goods contracts financed by ADB and AIIB stating that ADB will declare a firm or individual ineligible, either indefinitely or for a stated period, to be awarded a contract financed by ADB and AIIB, if it at any time determines that the firm or individual has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive or obstructive practices or any integrity violation in competing for, or in executing, ADB-financed contract.

58. All consultants will be recruited according to ADB's Guidelines on the Use of Consultants (2013, as amended from time to time).⁶

D. Consultants' Terms of Reference

59. The consultants' terms of reference are provided in **Annex 1**.

VII. SAFEGUARDS

60. The project is classified category B for environment and A for involuntary resettlement. Initial environmental examination (IEE) and resettlement plan of the project components have been prepared by BGFCL and GTCL in accordance with ADB's *Safeguard Policy Statement 2009 (SPS)*. Relevant Bangladesh environmental regulations were also considered in the preparation of the IEEs and the resettlement plan. Safeguards documents will be disclosed on the ADB website. An environmental audit of the existing BGFCL facility has been conducted and results have been integrated in the IEE. The PIU of BGFCL and GTCL will require the contractors to comply with the IEE and environmental management plans (EMP) and relevant provisions in the resettlement plan. Designated staff of contractors should be appointed to

⁶ Checklists for actions required to contract consultants by method available in e-Handbook on Project Implementation at: <http://www.adb.org/documents/handbooks/project-implementation/>.

oversee the compliance to IEEs and EMPs and the resettlement plan. Prior to start of construction works, PIU of BGFL and GTCL will conduct an orientation or briefing to the contractors and their workers in terms of their responsibility for safeguards compliance, implementation of the grievance redress mechanism (GRM), and the required reporting. BGFCL and GTCL will set up a GRM on or prior to initiate environmental and resettlement activities and establish a grievance redress committee represented by the PIU, contractor, local government unit, etc. The contact person for the GRM will be made to the public through billboards or notices at the project sites and in the websites of BGFCL and GTCL. The IEEs and resettlement plan will be updated following the final survey and design by BGFCL and GTCL. Semi-annual safeguards monitoring reports will be submitted by BGFCL and GTCL during construction phase and annually during operation phase. During implementation, if unanticipated environmental impacts occurred, BGFCL and GTCL will prepare a corrective action plan (CAP) to address and mitigate them. If unanticipated involuntary resettlement impacts occurred, GTCL will conduct a social impact assessment and update the resettlement plan.

61. The project is not expected to cause significant adverse impacts on air, water, or noise and is not located within or adjacent to cultural sites, national parks, sanctuaries or protected areas. Associated environmental impacts can be readily mitigated by technology and design. The existing BGFCL facility at Titas Gas Field is considered an industrial area and settlements are located relatively far from it. The seven gas compressors will be installed within an existing BGFCL facility and will be housed in a building to provide noise attenuation. Gas compressors are designed to be remotely operated continuously in a separate and centralized computer control room and workers that will be involved in occasional physical inspection will be required to use earplugs/muffs. One of the causes of noise and vibration is dirty and worn out components, inadequate lubrication, etc. Preventive maintenance of the compressors will be employed to prevent this. Noise generated by the compressors will be minimized by the use of engineered noise-suppression devices such as silencers, baffles and absorbent liners. Water requirements will be for the closed recirculating cooling water system of the compressors and will be supplied by the existing BGFCL facility. Make-up water will be needed only when leakage has occurred. BGFCL will require suppliers of compressors to have guaranteed emissions that meet the limits set by the Department of Energy and the World Bank and International Finance Corporation Environmental, Health and Safety (WB/IFC EHS) General Guidelines 2007 (or any update). Contractors will implement a Construction Management Plan approved by BGFCL and GTCL.

62. The gas transmission pipeline route has been carefully designed to minimize land acquisition and involuntary resettlement. The right-of-way (RoW) of the gas transmission pipeline is 8-meters wide and approximately 148.8 hectare of private land will be permanently acquired for the pipeline and related facilities. The number of households or persons affected by the project is 1,382 households or 5,693 persons. Additionally, 15 meters of RoW will be used on a temporary basis during construction as requisition (temporary occupied) area and the size of the area is 271.0 hectares. Budgetary provisions are in place and the estimated indicative cost is included in the counterpart financing to compensate affected people in a timely manner. An implementing nongovernment organization (NGO) will be hired to support GTCL and build its capacity. The implementation of the resettlement plan will be monitored and supervised by GTCL and external monitoring agency, and monitoring reports will be submitted to ADB semiannually.

63. The project is classified under indigenous people category C. According to social assessments, no indigenous peoples are expected to be affected by the proposed project. Thus, preparation of Indigenous Peoples Plan is not required.

64. The due diligence for three associated facilities, namely, the Maheshkhali-Anwara gas transmission pipeline and the Anwara-Faujdarhat transmission pipeline of GTCL and the private sector's LNG terminal at Maheshkhali have been conducted. Following applicable national laws and regulations of Bangladesh, environmental impact assessments (EIA), including EMPs for these associated facilities were prepared to mitigate the potential environmental impacts, which are generally in line with ADB's SPS 2009. The government and GTCL will ensure that the design, construction, implementation and operation of the project and the associated facilities comply with all applicable national laws and regulations relating to environment, health and safety.

65. **Prohibited investment activities.** Pursuant to ADB's Safeguard Policy Statement (2009), 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 (2009).

VIII. GENDER AND SOCIAL DIMENSIONS

66. The project is classified as "No Gender Elements", because of the limited opportunities for gender mainstreaming. The loan agreements will include a standard assurance related to compliance with labor standards for contractors, including provisions to ensure equal pay for work of equal value, and the provision of awareness training on sexually transmitted infections (including HIV) forced/bonded labor and human trafficking. Dialogue and communication (both written and verbal) with stakeholders will be carried out in a gender-specific and culturally sensitive manner and in local languages, as required.

IX. PERFORMANCE MONITORING, EVALUATION, REPORTING, AND COMMUNICATION

A. Project Design and Monitoring Framework

Impact the project is aligned with: Energy sector contribution to sustainable economic growth increased (Bangladesh Seventh Five-Year Plan, FY2016–FY2020) ^a			
Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting	Risks
<p>Outcome</p> <p>Efficiency in gas production improved and gas transmission pipeline capacity expanded</p>	<p>By 2021:</p> <p>a. Average annual wellhead pressure drop reduced to 50–60 psig (2016 baseline: average annual pressure drop at 90 psig)</p> <p>b. Gas production sustained at 230 MMCFD (2016 baseline: 230–235 MMCFD)^b</p> <p>c. Natural gas transmission and delivery capacity expanded to 3,500 MMCFD (2016 baseline: 2,700 MMCFD)</p> <p>d. CO₂ emission reduction maintained at 703,522 tons per year during 2021–2031 (2016 baseline: 9.8 million tons)</p>	<p>a–b. Annual reports of Petrobangla and BGFCL</p> <p>a–c. BGFCL and GTCL quarterly reports to EMRD and IMED</p> <p>c. Annual reports of Petrobangla and GTCL</p> <p>d. MOEF and BPDB reports</p>	<p>Non-cost reflective gas price and tariffs impact project financial viability and executing agencies' sustainability.</p> <p>Import of LNG or pipeline gas does not materialize, affecting full use of the transmission pipeline in the short term.</p>
<p>Outputs</p> <p>1. Wellhead gas delivery pressure at location A of Titas gas field increased and sustained</p> <p>2. Capacity of Chittagong–Feni–Bakhrabad gas transmission pipeline expanded</p>	<p>By 2020:</p> <p>1a. Seven wellhead gas compressors at location A of Titas gas field installed (2016 baseline 0)</p> <p>1b. Wellhead gas delivery pressure maintained at 1,250 psig (2016 baseline: 1,250 psig)</p> <p>2a. 181 km, 36-in parallel gas transmission pipeline traversing Chittagong through Feni to Bakhrabad constructed (2016 baseline: 175 km, 24-in Bakhrabad–Chittagong transmission line)</p>	<p>1a–b. Annual reports of Petrobangla and BGFCL</p> <p>1a–2a. BGFCL and GTCL quarterly reports to EMRD and IMED</p> <p>2a. Annual reports of Petrobangla and GTCL</p>	<p>Delay in government counterpart funds release affects land acquisition or requisition and other project activities.</p>

Key Activities with Milestones
<p>1. Wellhead gas delivery pressure at location A of Titas gas field increased and sustained</p> <p>1.1 Initiate recruitment of design consultants (Q4 2016). 1.2 Mobilize the consultants (Q1 2017). 1.3 Prepare engineering design (Q1–Q2 2017). 1.4 Prepare bidding documents (Q3 2017). 1.5 Award contract for goods, works, and services (Q1 2018). 1.6 Procure, construct, install, and commission seven gas wellhead compressors (Q1 2018–Q4 2019). 1.7 Make compressors operational (Q1 2020).</p> <p>2. Capacity of Chittagong–Feni–Bakhrabad gas transmission pipeline expanded</p> <p>2.1 Prepare bidding document for procurement of line pipes and associated materials (Q2–Q4 2016). 2.2 Award contracts for line pipes and associated materials (Q4 2016) 2.3 Submit land acquisition proposal to the government for approval and complete land acquisition (Q3 2016–Q4 2017) 2.4 Construct 181 km pipeline (Q4 2017–Q2 2018). 2.5 Construct pipeline for river crossing by horizontal directional drilling (Q4 2016–Q4 2017). 2.6 Install two town border stations (Q2 2017–Q2 2018). 2.7 Complete construction of 181 km, 36-in parallel gas transmission pipeline (Q2 2019).</p>
<p>Inputs</p> <p>ADB: \$167 million (loan) AIB: \$60 million (loan) Government and executing agencies: \$226 million</p>
<p>Assumptions for Partner Financing</p> <p>Not applicable.</p>

ADB = Asian Development Bank; AIB = Asian Infrastructure Investment Bank; BGFCL = Bangladesh Gas Fields Company Limited; BPDB = Bangladesh Power Development Board; CO₂ = carbon dioxide; EMRD = Energy and Mineral Resources Division; GTCL = Gas Transmission Company Limited; IMED = Implementation Monitoring and Evaluation Division; in = inch; km = kilometer; LNG = liquefied natural gas; MMCFD = million cubic feet per day; MOEF = Ministry of Environment and Forest, Ministry of Planning; psig = pounds per square inch gauge; Q = quarter.

^a Government of Bangladesh, Ministry of Planning, 2015. *Bangladesh Seventh Five-Year Plan, FY2016–FY2020*. Dhaka.

^b Daily production of 525 MMCFD from the Titas gas field would reduce by 230–235 MMCFD once the wellhead pressure declines below 1,200 psig, resulting in suspension of production from the wells. Upon completion of the project facilities, the production from the wells would be sustained during the project's operating life.

Source: ADB.

B. Monitoring

67. **Project performance monitoring.** BGFCL and GTCL will undertake overall monitoring of the project in terms of progress. ADB, BGFCL and GTCL will conduct semiannual reviews throughout the implementation of the project. The review will monitor the (i) project output quality, (ii) implementation arrangements, (iii) implementation progress, and (iv) disbursements. Performance will be monitored based on indicators and targets stipulated in the design and monitoring framework. BGFCL and GTCL will prepare quarterly progress reports to ADB. These quarterly reports will provide information necessary to update ADB's project performance reporting system.⁷

68. **Compliance monitoring.** The loans and project agreements specify undertakings and covenants that will be monitored through regular review missions and on a quarterly basis in discussion with BGFCL and GTC. Compliance with undertakings and loan covenants, social

⁷ ADB's project performance reporting system is available at:
<http://www.adb.org/Documents/Slideshows/PPMS/default.asp?p=evaltool>

and environmental safeguards, and financial and economic aspects will be jointly monitored by BGFCL and GTCL and ADB through quarterly updates provided by the PIU. In this respect, the PIU will submit to ADB a status report on the covenants summary with the explanation and time-bound actions on partly or non-complied covenants.

69. **Safeguards monitoring.** Once the loan has become effective, BGFCL and GTCL will submit separate environmental and social monitoring reports to ADB semi-annually during construction phase and annually during operation phase. In addition, GTCL will retain an experienced and qualified external expert or NGO on involuntary resettlement to verify their social monitoring information and will advise GTCL on compliance to social safeguards of ADB. The social monitoring reports will describe implementation progress of resettlement activities and compliance issues. In the event of any unanticipated environmental or social impacts during implementation, BGFCL and GTCL will submit to ADB a time-bound CAP. The environmental and social monitoring reports and the CAP, if required will be posted to ADB website.

70. **Gender and social dimensions monitoring.** The social indicators included in the preparation and implementation of resettlement plans will be monitored through the external monitoring reports on resettlement. In addition, the inclusion and compliance with labor standards, health and gender aspects will be monitored through review of bidding documents, contract awards, and progress reports.

C. Evaluation

71. ADB will conduct regular semi-annual review missions to review, discuss progress, and report on the project performance. A midterm review will be carried out in the third year after effectiveness of the loan. Within 6 months of physical completion of the project, the respective executing agencies will submit a project completion report to ADB.⁸ To ensure the viability and sustainability of the project, project accounts and annual financial statements of the executing agencies, together with the associated auditor's report, will be adequately reviewed.

72. BGFCL and GTCL will establish a project performance monitoring system respectively. ADB through the project performance reporting (PPR) system will rigorously monitor the overall performance of the project. The executing agency will refine the monitoring system within 12 months from project commencement and collect and update baseline data for performance monitoring. The key indicators and targets, assumptions, and risks outlined at the impact, outcome, and output levels in the project's design and monitoring framework will be the primary data required for analysis. For this purpose, ADB inception mission will provide to BGFCL and GTCL a checklist of the above data, which will be updated in track changes and reported twice a year through executing agencies' quarterly progress reports and after each ADB review mission. These bi-annual reports will provide information to regularly update ADB's project performance reporting system.

D. Reporting

73. BGFCL and GTCL will provide ADB with (i) quarterly progress reports in a format consistent with ADB's project performance reporting system; (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

⁸ Project completion report format is available at: <http://www.adb.org/Consulting/consultants-toolkits/PCR-Public-Sector-Landscape.rar>

(d) updated implementation plan for next 12 months; and (iii) a project completion report within 6 months of physical completion of the project.

E. Stakeholder Communication Strategy

74. The Stakeholder Communications Strategy is summarized below. The executing agencies will post all relevant information on its website. The website will include at minimum information regarding the bidding process, bidders, contract awards, use of funds disbursed under the project and physical progress. The project will also follow the ADB's Public Communications Policy 2011⁹ and its guidelines on the disclosure and exchange of information.

Project Documents	Means of Communication	Responsible Party	Frequency
1. Project Administration Manual	ADB Website	ADB	Loan Approval
2. Social and Environmental Monitoring Reports	ADB Website	BGFCL and GTCL	Bi-annually (during construction phase) Annually (during operation phase)
3. Safeguards Corrective Action Plan	ADB website	BGFCL and GTCL	As needed
4. Procurement Plan update	ADB Website	ADB	Annually
5. Change in Scope (Major), if required			Two weeks after Board/ Management approval
6. Project Completion Report	ADB Website	ADB	Two weeks after Board/ Management approval
7. Evaluation Reports	ADB Website	ADB	Routinely disclosed

ADB = Asian Development Bank, BGFCL = Bangladesh Gas Fields Company Limited, GTCL = Gas Transmission Company Limited.

X. ANTICORRUPTION POLICY

75. ADB reserves the right to investigate, directly or through its agents, any violations of the Anticorruption Policy relating to the project.¹⁰ All contracts financed by ADB and AIIB shall include provisions specifying the right of ADB to audit and examine the records and accounts of the executing agency and all project contractors, suppliers, consultants, and other service providers. Individuals and/or entities on ADB's anticorruption debarment list are ineligible to participate in ADB-financed activity and may not be awarded any contracts under the project.¹¹ To support these efforts, relevant provisions are included in the loan and project agreements and the bidding documents for the project.

XI. ACCOUNTABILITY MECHANISM

76. 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 an effort in good faith 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.¹²

⁹ ADB. 2011. *Public Communications Policy 2011, Disclosure and Exchange of Information*. Manila.

¹⁰ Anticorruption Policy: <http://www.adb.org/Documents/Policies/Anticorruption-Integrity/Policies-Strategies.pdf>

¹¹ ADB's Integrity Office web site: <http://www.adb.org/integrity/unit.asp>

¹² Accountability Mechanism: <http://www.adb.org/Accountability-Mechanism/default.asp>.

XII. RECORD OF CHANGES TO THE PROJECT ADMINISTRATION MANUAL

77. All revisions and/or updates during the course of implementation will be retained in this section to provide a chronological history of changes to implemented arrangements recorded in the PAM, including revision to contract awards and disbursement s-curves.

TERMS OF REFERENCE

Outline Terms of Reference for Consulting Services

BGFCL Component

A. Scope of Work

1. The Bangladesh Gas Fields Company Limited (BGFCL) will implement component 1 of the project and intend to recruit consultants who will assist BGFCL in preparing technical specifications including basic design and bidding documents; bidding and bid evaluation process; and oversight of construction, testing and commissioning of wellhead compressor facilities.

2. BGFCL intends to undertake the project on a turnkey basis, with the contractor to be responsible for the detailed design, supply, delivery, erection, testing, and commissioning of the wellhead compressor facilities. The role of the consultant in this process is to assist BGFCL in assuring that all steps are undertaken properly, so that the completed compressor facilities will deliver the performance, reliability, and operational flexibility specified. The assistance covers preparing technical specifications and bidding documents; support of the tendering process and bid evaluation; oversight of construction from the owner's perspective; and oversight of the testing and commissioning of the compressor from the owner's perspective; and its handing over including issuance of provisional acceptance certificates and final acceptance certificates; and preparation of project completion report.

B. Terms of Reference

1. Preparation of Technical Specifications and Bidding Documents

3. The consultant will prepare a conceptual design of wellhead gas compressor facilities and assist BGFCL in preparation of bidding documents. The consulting services will include, but not be limited to the following:

- (i) determine the detailed scope of work for wellhead gas compressor facilities at Titas gas field;
- (ii) prepare a detailed layout dividing the total site into main salient sub-areas, viz. plant area, control room area, cooling area, power generation facility area etc. along with approach and internal roads, etc.;
- (iii) survey the inlet and outlet gas line routes to determine the point of tapping for gas supply to the compressors and to make a plan for delivery of compressed gas to the gas processing facility;
- (iv) establish design criteria for (a) foundation and civil design, (b) performance specification for electrical and mechanical systems, and (c) environmental requirements;
- (v) prepare technical specifications and performance specifications for the compressors, major equipment, auxiliaries, and gas pipe lines; and
- (vi) prepare bidding documents for the compressor and associated facilities as per approved engineering reports, technical specifications, performance specifications, schedules, and drawings for bidding of the compressor facilities on a turn-key basis.

2. Support in the Bidding Process

4. The consultant will review BGFCL's approach and schedule for the bidding process and provide comments and recommendations on the approach, activities, schedule, organization, and responsibilities. The consultant will assist BGFCL through the bidding process including but not limited to the following activities:

- (i) assist BGFCL in clarifying queries from prospective bidders during the bidding period;
- (ii) carry out technical and financial evaluation of bids received and submit bid evaluation reports to BGFCL; and
- (iii) assist BGFCL in contract negotiations and finalize the contract documents.

3. Construction Supervision

5. The turnkey contract will cover construction of the gas compressor facilities. The consultant will provide oversight of all aspects of the construction to assure that it is conducted properly. This includes assisting in developing and implementing a quality assurance program for construction, review and approval of detailed design prepared by the contractor, monitoring schedule, inspection of materials upon arrival and upon erection, review of documents to assure quality of delivered goods, comparison of as-built drawings to design, and addressing shortcomings in any of these areas.

4. Testing and Commissioning

6. Nearly all of the main components of the facility will be subject to an acceptance test to demonstrate their capability to meet warranted design criteria. For each component subject to test, the consultant will review the contractor's test procedures for compliance with manufacturers' requirements and design criteria. The consultant will witness the tests and review the test results. If test results are not satisfactory, the consultant will require that the problem causing failure is addressed and that the equipment be re-tested.

7. When the gas compressor facilities are ready to operate, BGFCL will initiate operational activities. The contractor will provide training to BGFCL staff on the operation of the compressors and all its systems. The consultant will assist BGFCL in this phase of the project and coordinate with the contractors in addressing any issues with the facilities that affect operation adversely. At the end of this period, and when all acceptance tests have been completed to the consultant's satisfaction, the consultant will advise BGFCL that the construction is complete and the facility is ready to be declared fully operational.

8. The consultant will also prepare and recommend a provisional taking over certificate whenever due for the works of the contractor and alert BGFCL of work deficiencies, if any. The consultant will also confirm the remedial measures taken by the contractor, and recommend a final taking over certificate after expiry of the warrantee period.

C. Estimated Person-Months

9. It is expected that about 36 person-months of international consulting services will be needed from a firm specializing in construction supervision from technical specification through commissioning, with consultants expertise in mechanical and electrical equipment, civil structures, environmental, and commissioning. The consultant will be supported by about 66

person-months of national consulting services with expertise in similar areas. Table 1 shows the indicative positions and their person-months.

Table 1: Indicative Positions and Person-months

Particular	International Consultants	National Consultants
Team Leader/ Mechanical or Instrument Engineer	14 PM	28 PM
Civil/Structural Engineer	14 PM	14 PM
Electrical Engineer	8 PM	10 PM
Process/Piping Engineer	-	14 PM
Total	36 PM	66 PM

PM = person-months

**Outline Terms of Reference for Consulting Services
GTCL Component – Implementing NGO**

A. Scope of Work

1. The responsibility for the effective, timely and efficient execution of the resettlement activities will lie with the implementing non-government organization (INGO). The general scope of work for the selected INGO will include but not limited to the following:

- (i) recruit, deploy and train the headquarters and field staff;
- (ii) conduct information and communications campaign;
- (iii) assist in collecting cash compensation under law;
- (iv) carry out additional census and inventory of losses (IOL), if required for verification;
- (v) prepare supplementary land acquisition plan during implementation for any “left out” land/plots or disputed area required for project implementation;
- (vi) computerize data (calculation sheet, DC Award, share determination);
- (vii) identify entitled persons;
- (viii) participate in grievance redress committee (GRC);
- (ix) prepare entitled persons file, entitlement card and payment statement;
- (x) disburse resettlement benefit;
- (xi) provide resettlement-related technical services, if required by the executing agency; and
- (xii) prepare monitoring and supervision reports to executing agency as agreed in the contract.

B. Terms of Reference

2. The general tasks and responsibilities for the selected implementing NGO during three consecutive stages of the process for resettlement plan implementation, i.e. preparatory stage, relocation stage and rehabilitation stage, will be as follows:

1. Preparatory Stage

- (i) carry out census or and verify inventory of losses;
- (ii) collect award and create inventory of losses;
- (iii) prepare or update entitled person file;
- (iv) prepare or update entitlement card;
- (v) conduct information campaign in the project affected areas to inform the affected

- persons;
- (vi) conduct information dissemination and collect feedback.

2. Implementation Stage

- (i) identify entitled persons and issue identification card;
- (ii) prepare or update payment statement;
- (iii) disburse resettlement benefit;
- (iv) participate in grievance redress;
- (v) assist affected persons in the process of resettlement.

3. Monitoring and Evaluation Stage

- (i) develop tools for implementation;
- (ii) conduct monitoring and supervision;
- (iii) prepare monthly progress reporting in resettlement plan implementation,
- (iv) provide technical services, such as, prepare software for reconciliation of data bases.

Outline Terms of Reference for Consulting Services GTCL Component - External Monitoring Expert

A. Scope of Work:

- (i) Review and verify the executing agencies' monitoring information and the progress of resettlement as stipulated in the latest resettlement plan.
- (ii) Assess the effectiveness of the executing agency and implementing NGOs in updating the resettlement plans and implementing its requirements, and advise the executing agency about required improvements.
- (iii) Monitor and advise the executing agency on carrying out full and meaningful consultation on the latest resettlement plan.
- (iv) Assess whether the objectives of the updated resettlement plan, particularly the restoration and enhancement of living standards of titled and non-titled displaced persons, have been achieved.
- (v) Assess whether all compensation and mitigation measures for all vulnerable and non-vulnerable titled and non-titled displaced persons have been implemented in accordance with the requirements of the latest resettlement plan.
- (vi) Advise the executing agency on any social safeguards compliance issues and design corrective actions in cooperation with the executing agency and consultation with the affected persons.
- (vii) Monitor and assess the implementation of these corrective actions.
- (viii) Prepare semi-annual external social monitoring reports, and submit these to the executing agency and ADB.

B. Detailed Tasks and/or Expected Output

- (i) Monitor the process of resettlement plan implementation by the executing agency according to the agreed and already established monitoring indicators. Improve the established monitoring indicators if deemed necessary.
- (ii) Carry out verification of internal monitoring information on resettlement plan by the executing agency through review of documents and field investigations with affected persons and other relevant stakeholders.
- (iii) Document the implementation of compensation, relocation and livelihood

restoration measures stipulated in the updated resettlement plan and assess whether these have been carried out in full.

- (iv) Assess the effectiveness of consultation, participation and grievance redress by reviewing the relevant documentation and consulting the key stakeholders.
- (v) Prepare detailed corrective action plans to remedy any non-compliance with the updated resettlement plans and monitor their implementation.
- (vi) Once the latest resettlement plan have been fully implemented, assess whether the standard of living of the affected persons has been maintained, restored or enhanced and suggest necessary actions to ensure that the standard of living of all affected persons is restored and improved, particularly in the case of vulnerable affected persons.