

ASIAN DEVELOPMENT BANK

TAR: BAN 36268

TECHNICAL ASSISTANCE
(Financed by the Japan Special Fund)

TO THE

PEOPLE'S REPUBLIC OF BANGLADESH

FOR

PROMOTING PRIVATE SECTOR PARTICIPATION IN THE ENERGY SECTOR

December 2004

CURRENCY EQUIVALENTS

(as of 30 November 2004)

Currency Unit	–	taka (Tk)
Tk1.00	=	\$0.0167
\$1.00	=	Tk60.05

ABBREVIATIONS

ADB	–	Asian Development Bank
BCIC	–	Bangladesh Chemical Industries Corporation
EA	–	executing agency
ERC	–	Energy Regulatory Commission
GTCL	–	Gas Transmission Company Limited
MPEMR	–	Ministry of Power, Energy, and Mineral Resources
PGCB	–	Power Grid Company of Bangladesh
PSRB	–	Power Sector Reforms in Bangladesh
RPGCL	–	Rupantarita Prakritik Gas Company Limited
TA	–	technical assistance
USAID	–	United States Agency for International Development

TA CLASSIFICATION

Targeting Classification	–	General intervention
Sector	–	Energy
Subsector	–	Energy sector development
Theme	–	Private-sector development
Subtheme	–	Public-private partnerships

NOTES

- (i) The fiscal year (FY) of the Government and its agencies ends on 30 June. "FY" before a calendar year denotes the year in which the fiscal year ends; e.g., FY2003 ends on 30 June 2003.
- (ii) In this report, "\$" refers to US dollars.

This report was prepared by N. Tas-Anvaripour.

I. INTRODUCTION

1. During the Country Program Confirmation Mission between 2 to 22 November 2003, the Government of Bangladesh (the Government) renewed its request that the Asian Development Bank (ADB) provide assistance¹ for enhancing private-sector participation in its gas sector to support sustainable development. ADB conducted a fact-finding mission from 7 to 15 July 2004. A consultation mission² (the Mission) visited Bangladesh from 4 to 10 November 2004 to finalize and reach an understanding with the Government on the objective, scope, cost estimates, financing, implementing arrangements, and the consultants' terms of reference of the proposed technical assistance (TA). The TA framework is in Appendix 1.

II. ISSUES

2. Natural gas accounts for almost 70% of commercial energy and also provides the source for about 90% of electricity generation in Bangladesh. Although Bangladesh has been producing natural gas for more than three decades, its major fields are underdeveloped and have not been properly delineated because public resources cannot provide adequate support for essential investments. Gas sector performance has fallen short of its potential because of limited extraction and domestic use. The sector's operational performance has been affected by high system losses and, to some extent, by infrastructure constraints. Gas system losses were 6.3% of total production in FY2003, compared with 5.3% in the early 1990s. Bangladesh's natural gas is also under priced in relation to the long-term marginal cost. This leads to a high opportunity cost in terms of foregone resources that could have been mobilized to support investment within and outside the sector. As a result, constrained gas production causes supply shortages and disrupts activities in power generation and industrial production.

3. **Regulatory Framework.** There are several major players in the gas sector with overlapping and conflicting responsibilities. The Energy and Mineral Resources Division of Ministry of Power, Energy and Mineral Resources (MPEMR) has overall responsibility for the country's energy sector, with policy formulation, regulation, and investment decisions under its control. Petrobangla, a statutory body, also plays a dominant role in policy formulation and enforcement of production-sharing contracts (PSCs) with international oil companies. Petrobangla is the business partner, purchaser of gas, and enforcer of the PSCs. A hydrocarbon unit has been established at Petrobangla to assume regulatory functions for upstream activities, but its responsibilities remained limited to some technical issues. The Energy Regulatory Commission (ERC) was created in 2003 to oversee the energy and power sectors, in accordance with ERC Act 2003, government policies, and other laws. Nevertheless, the government plans to continue regulating upstream activities in the gas sector and transferring regulation of downstream activities to ERC. In order to encourage private-sector participation in the gas sector, a regulatory framework that provides comfort in terms of pricing and services provided is critical. This could be ensured through an independent regulatory commission with appropriate staff and explicit power. It is also essential to separate the Government's policy and regulatory functions, and to remove any policymaking tasks from state-owned enterprises.

¹ The technical assistance (TA) was included in the Asian Development Bank's (ADB) country strategy program of Bangladesh for 2004–2007. The TA first appeared in *ADB Business Opportunities* (Internet edition) on 2 July 2004.

² The Mission comprised Neside Tas Anvaripour, Senior Energy Specialist (Finance), team leader, Energy Division, South Asia Department (SAEN); P. Abeygunawardena, Principal Project Economist, SAEN; and Shamsuddin Ahmed, Head, Energy, ADB Bangladesh Resident Mission.

4. **Unbundling of Gas Sector Entities.** Gas sector reforms have been slow because of the industry's structure and size. Although Petrobangla has been organized along functional lines, it is still a government agency in the form of a corporation. The National Energy Policy (NEP) envisions converting Petrobangla into a holding company under the Companies Act 1994 with necessary organizational and financial restructuring.³ In order to improve management efficiency, the NEP envisages managing production, transmission, and distribution as separate cost and profit centers. Under ADB's Dhaka Clean Fuel Project, assets of transmission and distribution companies were transferred to GTCL to create a national gas grid company. The Government plans but has yet to segregate TGTDC's distribution business and Bakhrabat Gas Transmission and Distribution Company Limited into two independent companies. Some retail supply could be transferred to the private sector, provided the necessary regulations and a strategic timebound plan.

5. **Corporate Governance.** Corporate governance is another important policy issue. The Government has allowed full autonomy to gas subsector entities, but autonomy has yet to be fully exercised. Gas sector entities have been established as limited liability companies and are governed in principle by their boards of directors. In practice, however, the powers of the boards of directors are limited when it comes to making decisions on prices and investments. It is important for companies to interact with one another and with customers in a commercial manner. Some directors sit on multiple boards, precluding real independence of one company from another. Board directors often lack knowledge of commercial operations. Reports on operations at Petrobangla and its subsidiaries are not published annually. Policies and procedures governing Petrobangla and its subsidiaries need to be reviewed and updated to reflect the recent developments in corporate governance.

6. **Pricing Framework.** The Government establishes domestic gas prices and determines taxes for all gas sector companies as well as the distribution margins for gas transmission and distribution companies. At present, taxes amount to 55% of tariffs. Following policy dialogue with ADB and other development partners, the Government has taken steps to move away from administered gas tariffs to a flexible and transparent mechanism under which gas prices would be linked to the cost of supply for each category of consumer and adjusted periodically. In 2003, the Government adopted an interim pricing framework that allows formula-based frequent tariff adjustments in line with international market prices. The Government was to implement initial price adjustments based on these principles, resulting in an increase of about 6% in three phases (September 2003, March 2004, and September 2004). The adjustments expected in September 2003 were only introduced in July 2004, however. The prices for transmission and distribution do not reflect the size of the pipeline, volume of gas transported, length of pipelines, or return on investment. The transmission and distribution companies receive margins for the volume of gas transmitted and sold to consumers that are hardly sufficient to cover operation and maintenance or debt servicing.

7. **Private-Sector Participation.** There is some private-sector involvement in the gas sector through international oil companies, which operate in gas exploration/production, and through small companies that distribute liquefied petroleum gas and compressed natural gas. Public-sector resources are insufficient for essential investments such as increasing exploration, expanding transmission pipelines, and reactivating abandoned gas fields. The scale of the required investments in exploration means a significant potential role for the private sector provided the right incentives and business environment. In gas transmission, operational

³ Issues related to Petrobangla will be addressed under the TA 4332 (ADB, 2005. *Gas Sector Development Project*. Manila).

efficiency could be improved through various forms of private-sector participation. GTCL could enter into a long-term strategic partnership with an international gas transmission companies or consider other forms of private–sector partnership such as build-own-maintain or build-own-transfer. Future funds for investment could also come from a stock flotation or equity placement. Similar options could be exercised in distribution and production companies. Private-sector provision of gas services will bring modernization opportunities, as well as customer responsiveness, efficiency, and accountability. Substantial rehabilitation of existing facilities by private investors would also add value to poorly performing assets and expedite their potential for privatization.

8. ADB has been involved in the gas sector in Bangladesh with eight loans totaling \$446 million. The Third Natural Gas Development Project⁴ was completed in October 2003. Major initiatives taken under the Third Natural Gas Development Project were (i) the establishment of the Hydrocarbon Unit in the MPEMR, (ii) adoption of a gas pricing framework linked to international fuel oil prices, and (iii) regulatory framework that led to the creation of the Energy Regulatory Commission.⁵ ADB is further addressing regulatory, policy, and capacity strengthening measures in the gas sector through the Dhaka Clean Fuel Project⁶ and the proposed Gas Sector Development Project.⁷

9. The Government has been preparing a roadmap for gas sector reforms covering the next 3 years and outlining its vision for matters including restructuring, ownership, private-sector participation, and regulation. Following the preparation of the roadmap, the Government will begin implementing gas sector reforms through a sequence of structural changes over the next 2 to 3 years. Medium-term reforms proposed for the gas sector would include restructuring of gas-sector entities, ensuring good governance through providing more autonomy to the companies, further refinement of the gas price framework, operationalization of a new regulatory framework, and offloading shares in some companies. The gas sector, with its large potential in contributing to economic development, would have to be effectively managed to maximize its role in poverty reduction. The Government recognizes that it should focus on planning, structuring, and regulation while the private sector should specialize in investment, construction, financing, and management. Private-sector participation is needed to meet gas sector's critical need for rehabilitation and expansion. The proposed TA will help the Government improve the framework for private-sector participation and eventual privatization of gas sector activities to the extent feasible and assuring sustainable development. The proposed TA will also implement selected gas sector reforms identified in the NEP and the Government's draft roadmap and broaden private-sector participation by identifying additional opportunities for private-sector investments.

⁴ ADB. 1993. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the People's Republic of Bangladesh for the Third Natural Gas Development Project*. Manila.

⁵ ADB. 1993. *Technical Assistance for the Preparation of a Gas System Development Plan and the Strengthening of the Organizational and Regulatory Framework for the Oil and Gas Sector*. Manila; ADB. 1997. *Support to the Gas Regulatory Authority Project*. Manila; ADB. 1998. *Support for the Energy Regulatory Authority Project*. Manila.

⁶ ADB. 2002. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the People's Republic of Bangladesh for the Dhaka Clean Fuel Project*. Manila.

⁷ ADB. 2004. *Technical Assistance to the People's Republic of Bangladesh on Preparing the Gas Sector Development Project*. Manila.

III. THE TECHNICAL ASSISTANCE

A. Purpose and Output

10. The TA will address issues constraining sector development through continuing policy reform, institutional restructuring and priority investments that would facilitate private sector participation. The TA will help the Government in promoting private-sector participation and assuring sustainable development in the gas sector.

B. Methodology and Key Activities

11. A detailed examination of sector structure, unbundling of transmission and distribution companies, and investment planning will be undertaken to meet the reform objectives and to facilitate greater private-sector participation for sustainable development of the gas sector. Advice on policy matters and stakeholder communication will be provided throughout TA implementation.

12. The key TA activities are grouped into five components:

- (i) Component A: Assessing the adequacy of the existing policy and regulatory framework for private-sector participation in the gas sector. The assessment will include recommendations for improvement and suggestions for better enforcement of the framework.
- (ii) Component B: Examining the corporate structure of gas-sector entities and preparing a corporate strengthening plan. Developing policies and procedures for gas companies that reflect recent developments in corporate governance arrangements in more developed countries.
- (iii) Component C: Analyzing gas transmission and distribution pricing framework to evaluate how these prices are reflecting the size of the pipeline, volume of gas transported, distance or length of pipelines, and return on investment. Developing recommendations for adequate pricing framework for these business segments.
- (iv) Component D: Examining unbundling options for gas transmission and distribution entities, identifying major issues to be addressed, and defining steps to achieve this unbundling.
- (v) Component E: Designing an investment package covering transmission and distribution business segments of gas sector that would facilitate additional private-sector investment.

13. Petrobangla has identified several gas sector projects, and preparation of feasibility reports is underway. Component E will evaluate whether these feasibility reports are consistent with a least-cost development plan for the gas sector and select suitable projects to develop an investment package to facilitate private-sector participation in the gas sector.

C. Cost and Financing

14. The total cost of the TA is estimated at \$625,000 equivalent, of which \$370,000 is the foreign exchange cost and \$255,000 equivalent the local currency cost. ADB will finance \$500,000 on a grant basis from the Japan Special Fund, funded by the Government of Japan, consisting of the entire foreign exchange cost of \$370,000 and \$130,000 of the local currency cost. The Government will finance the remaining local currency cost of \$125,000 equivalent. Detailed cost estimates and financing plan are in Appendix 3.

D. Implementation Arrangements

15. The Executing Agency will be MPEMR, which will provide overall supervision through its energy division. MPEMR will be the Implementing Agency for components A to D, and Petrobangla will implement Component E. A TA steering committee will be established and chaired by the energy secretary. The Implementing Agencies will provide (i) office accommodation and facilities, Internet access, and secretarial support; and (ii) land transportation within Dhaka for consultants. The Implementing Agencies will appoint directors for the TA management offices. Consultants will pay for international communications connected with TA implementation. MPEMR will buy office equipment in accordance with ADB's *Guidelines for Procurement*. The Implementing Agencies will guide consultants in data gathering, preliminary analysis, and report writing, and will provide them with all necessary guidance in liaising with other government ministries and agencies. MPEMR, Petrobangla, and the consultants will jointly organize dissemination workshops for counterpart staff and other stakeholders. The executing and Implementing Agencies will coordinate closely with the consultants in ADB's ongoing project preparatory TAs in the gas sector. Consultants will be accountable to both ADB and MPEMR.

16. The TA will require about 10 person-months of international and 20 person-months of domestic consulting services. Appendix 4 sets out terms of reference for consultants. The TA will be implemented over 6 months from April 2005 to October 2005. ADB will engage a consulting firm or consortium of firms in accordance with its *Guidelines on the Use of Consultants* or other arrangements satisfactory to ADB for the engagement of domestic consultants. Recruitment of consultants will be under the quality- and cost-based selection procedures, and simplified technical proposals will be requested. The consultant team will be fielded when the steering committee is established and counterpart staff has been nominated.

17. The consultants will submit an inception report focusing on the work program no later than two weeks after the commencement of their services. An interim report and a draft final report will be submitted 10 and 16 weeks after inception, respectively. The consultants will prepare monthly status reports for their specific scope of work, highlighting any issues that could become critical to the timely completion of the TA. Tripartite meetings will be held in Dhaka to discuss the inception, interim, and draft final reports. Within 3 weeks after the tripartite meeting to discuss the draft final report, the consultants will submit a final report to the Government and ADB incorporating all comments received from the Government and ADB.

IV. THE PRESIDENT'S DECISION

18. The President, acting under the authority delegated by the Board, has approved the provision of technical assistance not exceeding the equivalent of \$500,000 on a grant basis to the Government of Bangladesh for Promoting Private Sector Participation in the Energy Sector, and hereby reports this action to the Board.

TECHNICAL ASSISTANCE FRAMEWORK

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
<p>Goal Facilitate sustainable development through private-sector participation in the gas sector.</p>	<p>Increased economic growth in Bangladesh through provision of energy in a sustainable manner.</p>	<p>Increased energy supply and better corporate governance.</p>	
<p>Purpose Remove or reduce constraints to gas sector development through policy reform, institutional restructuring, and priority investments to facilitate private-sector participation.</p>	<p>Policy, investment, and institutional strengthening package for the development of the gas sector.</p>	<p>Associated assessments, reports, review missions, and policy dialogue.</p>	<p>Government's willingness to engage in dialogue and commitment to implement necessary policy changes.</p>
<p>Outputs An action plan for unbundling of transmission and distribution entities.</p> <p>Corporate governance procedures for gas sector entities.</p> <p>Institutional/corporate strengthening package for gas sector entities.</p> <p>An investment package that will facilitate private sector participation.</p> <p>Policy and regulatory reform package.</p>	<p>An analysis of reasons, methods, and outcome of transmission and distribution entities within 2 months of TA commencement.</p> <p>Prepare a corporate governance procedure manual for the gas sector entities within 2 months of TA commencement.</p> <p>Develop a corporate strengthening plan within 3 months of TA commencement.</p> <p>Prepare an investment package within 5 months of TA commencement.</p> <p>Develop a policy and regulatory reform package within 3 months of TA commencement.</p>	<p>Associated assessments, reports, review missions, and policy dialogue.</p>	<p>Data is available and capable consultants are recruited.</p> <p>The government and agencies are committed for the development of the energy sector.</p>

Continued on next page

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
<p>Activities</p> <p>A. Assess the adequacy of the existing policy framework for private-sector participation in the gas sector.</p> <p>B. Develop corporate governance procedures for gas sector companies.</p> <p>C. Analyze gas transmission and distribution pricing framework.</p> <p>D. Examine unbundling options for gas transmission and distribution entities.</p> <p>E. Design an investment plan that would facilitate additional private-sector investment.</p>	<p>Develop a set of recommendations to improve the existing regulatory arrangements.</p> <p>Corporate governance procedures for gas sector entities.</p> <p>Recommendations to improve transmission and distribution pricing framework.</p> <p>A timebound action plan that details steps for unbundling.</p> <p>Develop an investment package using technical, financial, and economic criteria.</p>	<p>Technical assistance (TA) outputs and review missions.</p>	<p>Information is available, consultants are capable, and stakeholders are involved.</p>
<p>Inputs</p> <p>Consulting services</p> <p>Total cost</p> <p>Financing</p>	<p>International consulting services for 10 person-months.</p> <p>Domestic consulting services for 20 person-months.</p> <p>Estimated total cost of \$625,000 equivalent, comprising \$370,000 in foreign exchange and \$255,000 in equivalent local currency.</p> <p>ADB will finance \$500,000 equivalent on a grant basis; Government's contribution is \$125,000 equivalent.</p>	<p>Consultants' reports and review missions.</p> <p>Consultants will be fielded after the steering committee is established.</p>	<p>Capable consultants with the requisite mix of skills are engaged.</p> <p>Domestic consultants will provide required expertise and support.</p>

ADB = Asian Development Bank, TA = technical assistance.
Source: Asian Development Bank.

INITIAL POVERTY AND SOCIAL ANALYSIS (IPSA)

A. Linkages to the Country Poverty Analysis

Is the sector identified as a national priority in country poverty analysis?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the sector identified as a national priority in country poverty partnership agreement?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<p>Contribution of the sector or subsector to reduce poverty in Bangladesh</p> <p>Developing Bangladesh's natural gas sector is key to promoting sustainable, pro-poor economic growth. Natural gas, largely available in Bangladesh, is a cleaner source of energy than oil and other fossil fuels, and air quality will improve with wider use of this resource. However, there is the need to increase production, transmission, and distribution, particularly to poor consumers. Government investments alone will be insufficient to optimize sector development, and the substantial investment requirements to upgrade gas infrastructure can best be met via public-private partnerships. Lifeline gas pricing to poor consumers can be maintained with public-private partnerships so that the poorest consumers will benefit from expected improvements in distribution quality and reliability. Better quality and greater reliability of gas supply shall help both agriculture and industry, agriculture through a greater supply of fertilizers and industry through a better energy supply. Improvements are expected to lead to pro-poor economic growth and job creation.</p>			

B. Poverty Analysis

Targeting Classification: General intervention

<p>What type of poverty analysis is needed?</p> <p>At this stage, no social impact and poverty reduction assessment is required for the TA.</p> <p>This TA will provide complementary social and poverty analysis to support preparation of the proposed Bangladesh Gas Sector Development project and the Bangladesh Power Sector Development II project as included in the country program for 2005 and 2006, respectively. Social and poverty analyses are required during preparation and appraisal of these new projects so that appropriate social interventions are integrated in project design.</p>	<p>Economic growth</p>
---	------------------------

C. Participation Process

Is there a stakeholder analysis?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Is there a participation strategy?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

D. Gender Development

<p>Strategy to maximize impacts on women:</p> <p>At this stage it is not possible to identify any gender-specific intervention. Specific strategies will be assessed at later stages</p>		
Has an output been prepared?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

E. Social Safeguards and Other Social Risks

Item	Significant/ Not Significant/ None	Strategy to Address Issues	Plan Required
Resettlement	<input type="checkbox"/> Significant <input type="checkbox"/> Not significant <input checked="" type="checkbox"/> None	A resettlement framework or plan will be prepared at the design stage if any of the potential issues are found significant.	<input type="checkbox"/> Full <input type="checkbox"/> Short <input checked="" type="checkbox"/> None
Affordability	<input checked="" type="checkbox"/> Significant <input type="checkbox"/> Not significant <input type="checkbox"/> None	Gas and electric power pricing to include lifeline tariffs for poor consumers.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Labor	<input type="checkbox"/> Significant <input checked="" type="checkbox"/> Not significant <input type="checkbox"/> None	To be defined by consultants during TA. Expansion of gas and power development will create demand for semiskilled and skilled labor	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Indigenous Peoples	<input type="checkbox"/> Significant <input type="checkbox"/> Not significant <input checked="" type="checkbox"/> None	A development plan for indigenous peoples will be required at the design stage if any potential issues are found significant.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Other Risks and/or Vulnerabilities	<input type="checkbox"/> Significant <input type="checkbox"/> Not significant <input checked="" type="checkbox"/> None	None identified at this stage	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

COST ESTIMATES AND FINANCING PLAN
(\$'000)

Item	Foreign Exchange	Local Currency	Total Cost
A. Asian Development Bank (ADB) Financing^a			
1. Consultants			
a. Remuneration and Per Diem			
i. International Consultants	255	0	255
ii. Domestic Consultants	0	70	70
b. International and Local Travel	15	10	25
c. Reports and Communications	5	0	5
2. Equipment ^b	15	0	15
3. Training, Seminars, and Conferences	0	30	30
4. Representative for Contract Negotiations	5	0	5
5. Contingencies	75	20	95
Subtotal (A)	370	130	500
B. Government Financing			
1. Office Accommodation and Transport	0	105	105
2. Remuneration and Per Diem of Counterpart Staff	0	10	10
3. Others ^c	0	10	10
Subtotal (B)	0	125	125
Total	370	255	625

^a Financed by ADB from the Japan Special Fund, funded by the Government of Japan.

^b Includes office hardware (photocopier, desktop computers, and a printer and computer software for word processing, spreadsheet analysis, and Internet access).

^c To provide for unforeseen expenses such as data acquisition, data processing, and map preparation.

Source: ADB estimates.

OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

1. The consultant's terms of reference will include but not be limited to the following.

A. Component A

2. Assessing the adequacy of the existing policy and regulatory framework for private-sector participation in the gas sector. The assessment will include recommendations for improvement and suggestions for better enforcement of the framework.

1. International Gas-Sector Development Specialist (1 person-month)

- (i) Study existing policies, the legal and regulatory environment, and issues and constraints facing the entry and exit of private firms, including foreign investors, into the gas sector by specifying how these policies and the legal and regulatory framework encourage or impede private firms. Include successes and failures of the Government's policy and programs to involve the private sector.
- (ii) Examine the Government's policy stance regarding private-sector participation and successes and failures of the Government's policies and programs that have had implications for private-sector participation in the gas sector.
- (iii) Investigate and assess macroeconomic issues such as financing, taxation, and employment generation and their impact on gas-sector development.
- (iv) Prepare recommendations for developing an alternative policy package and improving the regulatory framework in order to establish adequate incentives for private firms to initiate gas sector investments.
- (v) Advice on policy matters and stakeholder communication.
- (vi) Prepare a report that summarizes findings on the issues above; organize seminars and workshops on the outputs of this component in collaboration with the Asian Development Bank (ADB), the Executing Agency, and the Government; and act as a resource person for such seminars and workshops in Dhaka.

2. Local Legal Counsel (2 person-months)

- (i) Analyze related laws and regulations, perspective on state of crucial laws and their key elements such as related to property rights, contractual rights, law of associations, and others.
- (ii) Analyze costs of doing business and transactions; the capacity and quality of the public institutions responsible for planning and implementing the policy, laws, and regulations; perspective on state of crucial laws and their key elements such as related to property rights, contractual rights, law of associations, and others.
- (iii) Examine sector-related governance issues and prepare recommendations.

- (iv) Assist the international consultant in preparing a report that summarizes findings on the issues above; organizing seminars, workshops on the outputs of this component.

B. Component B

3. Examining the institutional structure of gas-sector entities and developing a corporate strengthening plan. Developing policies and procedures for gas companies that reflect recent developments in corporate governance in the developed markets.

International Corporate Governance Expert (1 person-month)

- (i) Evaluate the constraints on the institutional structures of gas sector entities to attract more private investment.
- (ii) Develop policies and procedures for gas companies that reflect recent developments in corporate governance arrangements in more developed countries.
- (iii) Analyze the institutional profile of private and public companies in the energy sector from the perspective of corporate governance and develop an institutional strengthening plan.
- (iv) Examine the institutional structure of gas sector entities and develop an institutional strengthening plan.
- (v) Advise on stakeholder communication.
- (vi) Prepare a report that summarizes findings on the issues above; organize seminars, workshops on the outputs of this component in collaboration with ADB, the Executing Agency, and the Government; and act as a resource person for such seminars and workshops in Dhaka.

Local Institutional Strengthening Specialist (2 person-months)

- (i) Determine the best organizational and ownership structure to address the constraints and meet the objectives of improving sector efficiency and attracting private-sector participation, taking into account proposed reforms in relevant sectors of the economy.
- (ii) Outline possible approaches for institutional restructuring of gas sector entities, including roles of national and local agencies and proper corporatization plans. Share the information with the international consultants.
- (iii) Assist the international consultant in preparing a report that summarizes findings on the issues above; organize seminars and workshops on the outputs of this component.

C. Component C

4. Analyzing gas transmission and distribution pricing framework to evaluate how these prices reflect the cost of operations and return on investment on the related assets.

1. International Gas Sector Economist (1 person-month)

- (i) Analyze and evaluate how the interim price work adopted in September 2003 for production, transmission, and distribution is implemented.
- (ii) Develop recommendations to improve the gas transmission and distribution pricing framework to reflect the size of the pipeline, volume of gas transported, distance or length of pipelines, and return on investment.
- (iii) Prepare recommendation on regulating and monitoring gas prices for all business segments of gas sector.
- (iv) Provide advice on policy matters and stakeholder communication.

2. Local Gas Sector Economist (2 person-months)

- (i) Assist the international consultant in analyzing the interim price framework in the gas sector and developing a gas transmission and distribution framework that reflects the size of the pipeline, volume of gas transported, distance or length of pipelines, and return on investment.
- (ii) Based on the reviews and analyses, and in consultation with the team leader and the other members of the team, provide inputs to the policy matrix for gas sector reforms and development.

D. Component D

5. Examining unbundling options for gas transmission and distribution entities, identifying major issues to be addressed and defining steps to achieve this unbundling. Assess the adjustment costs that may arise from recommendations of Components A to D. Such adjustment costs may include labor retrenchment, institutional strengthening, assets valuation, and financial restructuring.

1. International Gas Sector Restructuring Specialist (3 person-months)

- (i) Analyze the profiles of private and public companies in gas sector, the size and dimensions of these companies, and performance-related problems.
- (ii) Prepare an unbundling plan for TITAS Gas Transmission and Distribution Company Limited (TGTDCL) and Bakhrabad Gas Transmission and Distribution Company Limited (BGSL).
- (iii) Develop options for a sector structure after further unbundling of TGTDCL and BGSL and reconfiguration of distribution.

- (iv) Assess the adjustment cost that may arise from recommendations of Components A to D of Phase I. Such adjustment costs will include labor retrenchment, institutional strengthening, assets valuation, and debt restructuring.
- (v) With domestic consultants, based on findings and recommendations of Phase I, recommend policy reforms, including (i) segregation and reassignment of policymaking, regulatory, and ownership functions; (ii) pricing based on cost of service; and (iii) sector restructuring and private-sector participation. Identify short-, medium-, and long-term reform targets beyond the 3-year plan being developed by the Government.
- (vi) Develop recommendations for TGTDC and BGS in (a) developing a strategy for communication with stakeholders, including employees and consumers; (b) organizing workshops and seminars to build awareness of reform among stakeholders and reflect their views in the reform process, including reduction of nontechnical losses; (c) organizing workshops and seminars with the employees and outside stakeholders to disseminate the outputs of the TA and information about the reform program.
- (vii) Prepare a report that summarizes findings on the issues above, organizing seminars and workshops on the outputs of this component.

2. Local Gas Sector Restructuring Specialist (4 person-months)

- (i) Assist international gas restructuring specialist in developing recommendations for TGTDC and BGS.
- (ii) Organize workshops and seminars to build awareness of reform and reflecting TGTDC and BGS's in the reform process, including reduction of nontechnical losses.
- (iii) Organize workshops and seminars with the employees of TGTDC and BGS and outside stakeholders to disseminate the outputs of the TA and information about the reform program and preparing report that summarizes findings on the issues above, organizing seminars, workshops on the outputs of this component.
- (iv) Develop a timebound action plan to implement recommendations developed.

E. Component E

6. Design an investment plan covering transmission and distribution business segments of gas sector that would facilitate additional private investment.

1. International Gas Sector Development Specialist (4 person-months)

- (i) Review medium-term investment plans for gas sector and identify priority projects to facilitate private-sector participation.
- (ii) Assess financial and economical viability of projects that for feasibility studies reviewed by local financial analyst and examine their suitability for inclusion in

the investment package. Confirm that feasibility studies are consistent with a least-cost development plan for the gas sector.

- (iii) Identify and analyze project components according to technical perspective and operating conditions.
- (iv) Review estimates for the scope, capital, and operating costs, as well as the implementation schedule and contracting and implementation arrangements. Prepare procurement packages for the proposed investment package.
- (v) Work with the economist to review current natural gas pricing policies and their impact on the investment package.
- (vi) Assess and finalize the financial return of the investment package, as well as options for structuring the investment package to attract private investment.
- (vii) Identify the specific sources and projection of revenue from the investment projects to indicate the financial viability of the investment subprojects, taking into account the reduction of system losses and any improvements in operational efficiency. Develop a financial projection model and prepare 10-year financial projections for all gas sector entities, including income statements, balance sheets, and cash flow statements. The projections should take the investment and restructuring actions into account.
- (viii) Review and update cost estimates, including physical and price contingencies and interest during construction.

2. Local Gas Sector Economist (5 person-months)

- (i) Provide the economic rationale for the investment package, including an analysis of alternatives.
- (ii) Assess the economic feasibility of components of the investment package.
- (iii) Estimate the economic capital and operating costs, and carry out least-cost, viability, and beneficiary analyses of the investment packages. Include sensitivity analysis according to ADB's *Guidelines for the Economic Analysis of Projects*.
- (iv) Undertake an economic benefit-cost analysis to confirm the overall viability of the proposed project in terms of economic internal rates of return.

3. Local Financial Analyst (5 person-months)

- (i) Work closely with gas companies in reviewing prefeasibility studies of energy projects for possible private-sector participation.
- (ii) Assist the international consultant in reviewing the detailed project cost estimates for various components of the investment package.

- (iii) Prepare summary cost tables for the component of investment package based on 2004 prices expressed in foreign exchange and local currencies and share them with the project team.
- (iv) Assist the international consultant in developing a suitable financing plan for the components of the investment package, including financing available from domestic sources.
- (v) Support sensitivity analyses of the components' financial evaluation, considering key factors that could affect their viability.
- (vi) Assist the international consultant in developing a financial projection model and prepare a 10-year financial projection for all gas sector entities covering income statements, balance sheets, and cash flow statements. The projections should take investment and restructuring actions into account.