



পাওয়ার গ্রিড কোম্পানি অফ বাংলাদেশ লিঃ
POWER GRID COMPANY OF BANGLADESH LTD.
(An Enterprise of Bangladesh Power Development Board)



PGCB Bhaban, Avenue-3, Jahurul Islam City, Aftabnagar, Badda, Dhaka-1212
No. 27.21.0000.101.07.055.21.513

web: www.pgcb.gov.bd

Date: November 14, 2021

Request for Expression of Interest (EOI)

Consultancy Service for Land Acquisition Project for Construction of Grid Substations for Reliable Supply of Electricity

1. Power Grid Company of Bangladesh Limited (PGCB) will execute a Land Acquisition Project for Construction of Grid Substations for Reliable Supply of Electricity. The main objective of this project is to acquire suitable and adequate lands for constructing 13 (thirteen) new substations at different locations of Bangladesh. The areas of this project include Dhaka, Gopalganj, Munshiganj, Narayanganj, Gazipur, Cox's Bazar, Rajshahi, Bogura, Satkhira, Pirojpur. The scope of the consultancy service includes suitable site selection of substation areas, preparation of layout drawing for the land, preparation of proper compensation details for rehabilitation and resettlement works. Detail scope of works is included within ToR.
2. The consulting firm will be selected under the Quality and Cost Based Selection (QCBS 80:20) procedures.
3. PGCB invites eligible consulting firms to express their interests in providing the above-mentioned consulting service. This invitation, the draft ToR is available at www.pgcb.gov.bd. Interested consultants may obtain additional information from the office at the address below during office hours i.e. 0900 to 1700 hours, Sunday to Thursday.
4. Consultants may associate to enhance their qualifications, but should mention whether the association is in the form of a "joint venture" or "sub-consultancy". In the case of an association, all members of such "association" should have real and well-defined inputs to the assignment and it is preferable to limit the total number of firms including their associates to a maximum of three.
5. Interested consultants must provide information indicating that they are qualified to perform the services (brochures, description of similar assignments, experience in similar conditions, availability of appropriate skills among staff, etc). Documentary evidence like completion certificate with scope or contract agreement including scope etc. must be provided for the projects submitted by the firm as their competency in EoI. The EoIs would be reviewed based on the following:
 - a) Registration of firm,
 - b) Background with brochures showing their experience, facilities, and areas of expertise,
 - c) Experience of Feasibility Study, Topographic Survey and Resettlement Action Plan assignments,
 - d) Availability of appropriate professional qualifications and experiences among staff and resources to carry out the assignment,
 - e) History of litigation,
 - f) Adequate solvency certificate.
 - g) Other documents as mentioned in the EoI.
6. Expression of Interest (EOI) shall be submitted in one original and one copy in a sealed envelope to the office of the Chief Engineer (Project Monitoring), NLDC Building, 6th Floor, A/2 Jahurul Islam Avenue, Aftabnagar, Badda, Dhaka-1212, Bangladesh by **December 01, 2021 at 1700 hours** Bangladesh Standard Time (BST) and **be marked with:** "Expression of Interest for Consultancy Service for Land Acquisition Project for Construction of Grid Substations for Reliable Supply of Electricity".
7. Any application submitted later than the specified date and time or submitted through telex/fax/email will not be entertained.

A.K.M Gause Mohiuddin Ahmed
Chief Engineer (Project Monitoring)

TERMS OF REFERENCE (TOR)

FOR

Consultancy Services for the project titled “Land Acquisition Project for construction of Grid Substations for Reliable Supply of Electricity”.

1.0 Background

Power Grid Company of Bangladesh Limited is the only licensee and Government owned Power Transmission Company in Bangladesh. It was registered as a public limited company from the register of joint stock companies & firms in 1996 to alleviate severe power crisis of the country. PGCB has constructed 861 ckt km of 400 kV line, 3658 ckt km of 230 kV line and 8069 ckt km of 132 kV line throughout Bangladesh and 152 substations at different voltage (400kV, 230 kV, 132 kV) levels. At present, PGCB is transmitting about 13,000 MW of electricity at peak hours from different power generating stations of Bangladesh. PGCB has significant experience in project implementation and operation & maintenance of substations over the years.

For enhancement of dispatching capacity and achieving the target of the Power System Master Plan and Sustainable Development Goals (SDG); Power Grid Company of Bangladesh Limited (PGCB) is executing 25 development projects to expand the power transmission network to supply adequate and quality electricity throughout the country. PGCB has taken initiatives for 8 new upcoming projects for further strengthening of the network. In relation to this, PGCB has determined to construct 13 (thirteen) new substations at different voltage levels at various districts of Bangladesh. The areas have been identified through a comprehensive study by PGCB. PGCB has identified about 160 acres of land at different districts (Dhaka, Gopalganj, Munshiganj, Narayanganj, Gazipur, Cox's Bazar, Rajshahi, Bogura, Satkhira, Pirojpur) for constructing 13 new substations.

2.0 Objective of the Services

The main objective of this project is to acquire suitable and adequate lands for constructing 13 (thirteen) new substations at different locations of Bangladesh. The areas of this project include: Dhaka, Gopalganj, Munshiganj, Narayanganj,

Gazipur, Cox's Bazar, Rajshahi, Bogura, Satkhira, Pirojpur. As there is a great possibility of large industrialization and urbanization at the mentioned areas, it may become almost impossible to acquire suitable lands for constructing substations at the time of implementation. From previous experience of PGCB, it has been observed that the formation of DPP, approval process from concerned authority and tendering process requires at least 12 to 18 months. Due to this unavoidable time delay, the selected lands are often found occupied by other parties for residential/commercial or industrial purpose. As a result, the project progress hampers severely. In this regard, it is a pragmatic decision to acquire adequate lands at earlier stage so that during the substation construction period, no land acquisition related problem arises. This will facilitate and accelerate the construction of substation and associated lines in the targeted areas. Therefore, it will improve the power transmission capability significantly, solve low voltage problem at remote places, meet the growing demand successfully and trigger the national economic development through industrialization. The scope of the consultancy service includes suitable site selection of substation areas, preparation of layout drawing for the land, preparation of proper compensation details for rehabilitation and resettlement works for the project titled **“Land Acquisition for construction of Grid Substations for Reliable Supply of Electricity”**.

3.0 Duration of the consultancy service: The consultancy service shall cover the duration of 5 months, starting from commencement of consulting service to the completion of the project.

4.0 Scope of work of the Consultancy services

The consultant will undertake tasks including but not limited to the following:

- a. Identification of suitable lands at provided locations (considering nearest transmission line and approach road facility) for the construction of substations including survey, showing land areas (with geo-coordinates) with proper scaling on Mouza maps indicating Dag and Khatian number and land owner information details in appropriate format to be submitted at respective DC offices. It is noted that for land development side slope (1V:2H) shall be provided. Due to provision of 1V:2H slope, additional land is also required. So,

considering this issue consultant will select the total land amount for specific substation.

- b. Preparation of detailed drawing layout of the land. (including contour map)
- c. Recommendation on possible approach road to the substation with at least 1V:2H slope upto formation level with slope protection (if needed) i.e. for 8m wide (at top level) approach road including 1m shoulder at both sides should be considered.
- d. Preparation of proper compensation details i.e. identification of entitled persons (EPs) including their owned land portion and prepare inventory of losses.
- e. Collect NOC from related local government offices for land acquisition.
- f. Consultation with other utilities for avoiding conflict of interest.
- g. Any other services related to the works.

5.0 Preparation and Submission of Report and Documentation

The Consultant has to prepare the following reports/documents:

1. Consultant shall generate report for **Feasibility Study**.
2. **Inception Report:** It shall describe within 10-20 pages detailing the work plan, expected challenges in the implementation stages (if any) and the power supply situation encountered in the project area. Consultant shall submit **Inception Report** in hard Copy (Three copies) and soft copy/ Digital format (One copy) **within 30 days** from the effective of the contract.
3. **Draft Feasibility Study:** Firm shall submit draft feasibility study report in hard Copy (Three copies) and soft copy/ Digital format (One copy) within 120 days from the effective of the contract.

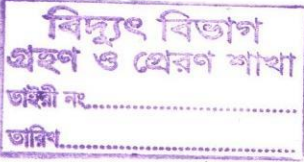
4. **Final Feasibility Study:** Firm shall submit final feasibility Study report in hard Copy (five copies) and soft copy/ Digital format (One copy) within 150 days from the effective of the contract.
5. **Finally Submit All Reports in** Digital format in USB Memory.
6. **FeasibilityStudy** report shall be submitted as per attached format (Attachment-1)

6.0 QualificationandExperience

Educationalqualifications, experiences and responsibilities oftheprofessional staffsforthe serviceshouldbeasfollows:

Designati on of the consultan t	Qualification	Responsibilities
TeamLea der	i. He/sheshall beatleastBachelor in CivilEngineering. ii. He/sheshallhaveexperienceof 10yearsinsimilarnature ofworks. He/shemusthave provenrecordsofleavingandworkin gwithmulti- disciplinaryandmulti- culturalteams. (experience with power utilities will be preferred)	His/ her tasks and responsibilities shall include but not limited to: (i) shall maintain liaison with the sponsor and other concerned agencies; (ii) guide and co-ordinate all project activities; (iii) Check collected various data required for the project authentication (iv) Checking of final drawing layout;(v) Preparation of detail work schedule; (vi) Engage proper manpower for preparation of documents and supervision; (vii) Preparing of Progress Report (viii) Monitoring of activities of team members and direction; (ix) attend meetings with the client as and when required.

Designation of the consultant	Qualification	Responsibilities
Surveyor	i. He/she shall have at least Diploma degree in Civil/ Geology. ii. He/she shall have experience of 02 years in similar nature of works; 05 years of experience will carry maximum credit.	His/her tasks and responsibilities shall include but not limited to: (i) review of literature on intervention of geotechnical activities related with the substations; (ii) collect Mouza maps indicating Dag and Khatian and Land Owner Information details; (iii) preparation of proper compensation details identifying entitled persons; (iv) assist the Team Leader in preparation of the reports at different stages of the study; (iii) others as necessary.
AutoCAD Operator	i. He/she shall have at least a Bachelor degree in relevant field. ii. Minimum 2 years working experience requirement in GIS Mapping and AutoCAD.	His/her tasks and responsibilities shall include but not limited to: (i) prepare all types of maps and drawings required for the study; (preferably GIS mapping) (ii) shall have close co-ordination with all other members of the team for preparation of the maps and drawings of the study; (iii) others as necessary.



(একই তারিখ ও স্মারকে স্থলাভিষিক্ত)
গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
পরিকল্পনা মন্ত্রণালয়
পরিকল্পনা বিভাগ
এনইসি-একনেক ও সমন্বয় অনুবিভাগ
একনেক শাখা-১
www.plandiv.gov.bd

অতি জরুরি

স্মারক: ২০.০০.০০০০.৪১১.১৪.০৫৩.২০-২৪০

তারিখ: ২৮ ভাদ্র ১৪২৮
১২ সেপ্টেম্বর ২০২১

বিষয়: উন্নয়ন প্রকল্পের সম্ভাব্যতা সমীক্ষা প্রতিবেদনের বাংলা ও পরিমার্জনকৃত ইংরেজি ফরম্যাট প্রেরণ।

সূত্র: ২০.০০.০০০০.৪১১.১৪.০৫৩.২০-৩৪, তারিখ: ৩১.০১.২০২১।

উপর্যুক্ত বিষয় ও সূত্রস্থ পত্রের পরিপ্রেক্ষিতে জানানো যাচ্ছে যে, উন্নয়ন প্রকল্পের জন্য সম্ভাব্যতা সমীক্ষা প্রতিবেদনের ইংরেজি ফরম্যাট ৩১.০১.২০২১ তারিখ জারি করা হয়েছে। উক্ত ফরম্যাটের বাংলা সংস্করণ প্রণয়ন করা হয়েছে (কপি সংযুক্ত)। ফরম্যাটের বাংলা সংস্করণের সাথে সামঞ্জস্য রেখে ইংরেজি ফরম্যাট কিছুটা পরিমার্জন করা হয়েছে (কপি সংযুক্ত)।

২। বর্ণিতাবস্থায়, উন্নয়ন প্রকল্পের সম্ভাব্যতা সমীক্ষা প্রতিবেদনের বাংলা ফরম্যাট ও পরিমার্জনকৃত ইংরেজি ফরম্যাট পরবর্তী প্রয়োজনীয় ব্যবস্থা গ্রহণের জন্য নির্দেশক্রমে এতদসঙ্গে প্রেরণ করা হলো।

সংযুক্তি: বর্ণনামতে বাংলা ০৭ (সাত) ও ইংরেজি ০৭ (সাত) পৃষ্ঠা।



অতিরিক্ত দপ্তর (বিদ্যুৎ বিভাগ)	
অতিঃ সচিব (পারিকল্পনা)	• জরুরি ভিত্তিতে ব্যবস্থা নিন
অতিঃ সচিব (প্রশাঃ)	• নথিতে উপস্থাপনা করুন
অতিঃ সচিব (উন্নয়ঃ)	• তদন্ত পূর্বক প্রতিবেদন দিন
অতিঃ সচিব (সমন্বয়)	• পরীক্ষাভে মতামত উপস্থাপন করুন
অতিঃ সচিব (বিধি ও ন.জা.)	• আলোচনা করুন
অতিঃ সচিব (সুওক্ষ)	
যুগ্ম-সচিব (বাজেট)	
পি.এস.	
নথরঃ	
তারিখঃ	

২২.০৯.২০২১
(নিশাত জাহান)
উপপ্রধান
ফোন: ৯১৮০৮৮৩

বিতরণ (জ্যেষ্ঠতার ক্রমানুসারে নয়):

০১. মন্ত্রিপরিষদ সচিব, মন্ত্রিপরিষদ বিভাগ, বাংলাদেশ সচিবালয়, ঢাকা।
০২. মুখ্য সচিব, প্রধানমন্ত্রীর কার্যালয়, পুরাতন সংসদ ভবন, তেজগাঁও, ঢাকা।
০৩. মুখ্য সমন্বয়ক (এসডিজি), প্রধানমন্ত্রীর কার্যালয়, তেজগাঁও, ঢাকা।
০৪. সিনিয়র সচিব/সচিব, ... মন্ত্রণালয়/বিভাগ।
০৫. সদস্য, ... বিভাগ, পরিকল্পনা কমিশন।

সদয় অবগতি জন্য অনুলিপি (জ্যেষ্ঠতার ক্রমানুসারে নয়):

০১. প্রধান, ... বিভাগ, পরিকল্পনা কমিশন।
০২. যুগ্মপ্রধান এনইসি, একনেক ও সমন্বয় অনুবিভাগ, পরিকল্পনা বিভাগ, শেরে বাংলা নগর, ঢাকা।
০৩. মাননীয় মন্ত্রীর একান্ত সচিব, পরিকল্পনা মন্ত্রণালয়, শেরে বাংলা নগর, ঢাকা।
০৪. মাননীয় প্রতিমন্ত্রীর একান্ত সচিব, পরিকল্পনা মন্ত্রণালয়, শেরে বাংলা নগর, ঢাকা।
০৫. সচিব মহোদয়ের একান্ত সচিব, পরিকল্পনা বিভাগ, শেরে বাংলা নগর, ঢাকা।

Pl. send copy to all agencies for nk.

যুগ্ম সচিব (পরিকল্পনা) এর দপ্তর	
উপ সচিব-পরি-১	ব্যবস্থা নিন
উপ সচিব-পরি-২	জরুরি ভিত্তিতে ব্যবস্থা নিন
সিসস/সস-পরিকল্পনা-১	নথিতে উপস্থাপন করুন
সিসস/সস-পরিকল্পনা-২	সংস্থার মতামত সহ উপস্থাপন করুন
সিসস/সস-পরিকল্পনা-৩	তদন্ত পূর্বক প্রতিবেদন দিন
পার্সোনাল অফিসার	পরীক্ষাভে মতামত উপস্থাপন করুন
অফিস সহকারী	আলোচনা করুন

অতিরিক্ত সচিব (পরিকল্পনা) এর দপ্তর	
বিদ্যুৎ বিভাগ	
১	যুগ্ম-সচিব (পরিকল্পনা-১)
২	যুগ্ম-সচিব (পরিকল্পনা-২)
৩	উপ-সচিব (পরিকল্পনা-১)
৪	উপ-সচিব (পরিকল্পনা-২)
৫	সিঃ সহকারী সচিব (পরিকল্পনা-১)
৬	সিঃ সহকারী সচিব (পরিকল্পনা-২)
৭	সিঃ সহকারী সচিব (পরিকল্পনা-৩)
৮	সিঃ সহকারী সচিব (পরিকল্পনা-৪)
৯	ব্যক্তিগত কর্মকর্তা



Ministry of -----
Government of the People's Republic of Bangladesh

Feasibility Study for -- (Name of the Project/Projects)

----- (Month) 20--

Executive Summary

Summarise the key findings of the Feasibility Study and recommendations.

A handwritten signature in black ink, appearing to read 'George', is located at the bottom right of the page.

Project Feasibility Study Report

Section 1: Basic Information

1.	Name of the Project	:	
2.	(a) Sponsoring Ministry/Division (b) Implementing Agency	:	
3.	Project Objectives (Project to be taken based on the study)	:	
4.	Estimated Project Cost (Taka in Crore)	:	
5.	Sector & Sub-Sector	:	
6.	Project Category (Based on Environment Conservation Rules 1997)	:	
7.	Project Geographic Location (a) Countrywide (b) Division (c) District (d) Upazila (e) Others (City Corporation/Pourashva)	:	
8.	Project Duration	:	

Section 2: Introduction

Describe the following:

- Project Background: Rationale and genesis (Mention the sources of information through reviewing the relevant documents);
- Objectives of the feasibility study;
- Approach and methodology of the feasibility study; and
- Organization of the feasibility study.

Section 3: Market/Demand Analysis

This section assesses the need for public investments and involves the elements listed below:

- Problem Statement:** Provide an explicit definition of the problem to be addressed, identify the likely causes (both direct and indirect) of the problem and give a brief insight of the likely consequences if no intervention in public sector is made.
- Relevance of the Project Idea:** Justify the need for the proposed project by linking the project(s) goals, outcomes and outputs to Global/National Development Plans/Policies and Sector Strategic objectives.
- Proposed Project Interventions:** Describe the interventions (project inputs & outputs) that need to be undertaken by the government through the proposed project to address the problem, describe the interventions undertaken earlier to solve this problem by this organization or other organizations (if any).

- (d) **Stakeholders:** Identify the key stakeholders that are likely to be associated with the project interventions.
- (e) **Demand Analysis:** Identify the need for public investments by assessing:
 - (i) Current demand (based on statistics provided by service providers/regulators/ ministries/national & regional statistical offices for the various types of users);
 - (ii) Future demand (based on reliable demand forecasting models) in both the scenarios with and without the project; and
 - (iii) Various constraints and means to meet the demand including government regulations, technological developments etc.
- (f) **SWOT Analysis:** Identify the Strengths, Weaknesses, Opportunities and Threats to the project.

Section 4: Technical/Technological & Engineering analysis

A summary of the proposed project shall be presented with the following headings:

- (a) **Location:** description of the location of the project including a geographical illustration (map and/or geo-coordinates) with justification. Availability of land is a key aspect; evidence should be provided that the land is owned (or can be accessed) by the organization, which has the full title to use it, or has to be purchased (or rented) through acquisition/requisition process. Besides, it should address if any kind of utility shifting is required. Identify the issues of disaster risks (existing and future) in the proposed location along with project site on hazard map.
- (b) **Technical design:** description of the main components, technology adopted, design, standards and specifications. Key output indicators should be defined as the key physical quantities produced (e.g. meters, sq. meters, kilometers, numbers, manmonths, etc.). If the project is in disaster prone areas and has the probability of climate change impact, disaster and climate change risks related information should be integrated in technical design in order to address the impact of hazards on the project.
- (c) **Output plan:** description of the output and the expected utilization rate. These elements describe the service provision from the supply side in the context of the forecasted demand.
- (d) **Costs estimates:** estimation of the financial needs for project design, implementation and operations, componentwise cost estimates should be provided based on evidence.
- (e) **Implementation timeline:** considering the volume of works, capacity of implementing agency, budget flow (MTBF ceiling), project priority etc. a realistic project timeline along with the implementation schedule should be provided (for example, a Gantt chart with the work plan).



Section 5: Environmental Sustainability, Climate Resilience and Disaster Risk Analysis

5.1 Environmental, Climate Change and Disaster Risk Analysis

Specify and describe the economic effects/impacts of environmental, disaster and climate change and possible compensations for ecological damages. Key issues to be addressed:

- (a) What are the likely environmental, disasters and climate change impacts or risks from the project (any impact of project to increase the existing disaster and climate change related risks and/or contribute to create new risks)?
- (b) What counter measures are taken to reduce these impacts?
- (c) What is the cost for reducing/mitigating the negative impacts?
- (d) Are there alternative ways of delivering the required services or goods without incurring these environmental costs? What are the costs of these alternatives?
- (e) What types of assessments are required for the project (e.g. EIA/DIA)?
- (f) Are there any resettlements issues to be addressed? If yes, provide resettlement modality in details.

5.2 Assessment of Disaster Resilience of the Project

This section assesses the resilience and address about uncertainties. Key indicators need to be discussed:

- (a) Contingency Plan for Emergency Disaster Management: Describe the evacuation plan if required, institutional arrangement for shutting down of utility services, and general procedures to be followed by individuals during disasters (Fire, Earthquake, Flood, Cyclone etc.);
- (b) Business Continuity Plan: Outline the key response and recovery priorities. This plan will detail out how different utility services will be rendered to support the overall Emergency Management Plan;
- (c) Time of Recovery: Required time for rehabilitation after a disaster; and
- (d) Reporting of residual risks: Reporting of remaining risks after recognition and put in place adequate risk reduction measures.

Section 6: Cost-Benefit Analysis

6.1 Financial Analysis

Describe the components of costs and benefits at market prices including option analysis.

- (a) Identify the components of cost & benefit;
- (b) Transfer them in monetary value;
- (c) Construct cash flow;
- (d) Identify the Key Assumptions considered in exercises; then
- (e) Compute the following indicators and interpret the results:
 - (i) Financial Net Present Value (FNPV)
 - (ii) Financial Benefit Cost Ratio (FBCR)
 - (iii) Financial Internal Rate of Return (FIRR)



6.2 Economic Analysis

Economic adjustments from financial data using standard conversion factor; after that costs and benefits are appraised from the point of view of the entire economy.

- (a) Identify the direct, indirect and associated cost and benefit components;
- (b) Adjust them where necessary;
- (c) Convert the value of cost and benefit components into economic price by using Standard Conversion Factor (SCF) determined by the Government;
- (d) Construct the cash flow;
- (e) Mention the Assumption;
- (f) Compute the following indicators and interpret the results:
 - (i) Economic Net Present Value (ENPV)
 - (ii) Economic Benefit Cost Ratio (EBCR)
 - (iii) Economic Internal Rate of Return (EIRR)

Section 7: Human Resources and Administrative Support Analysis (During Implementation and Post Implementation of the project)

Point out the functional structure and institutional capacity of the Agency (in terms of both Technical & Financial) required for implementation and operational stages of the project(s), sources of the workforce & financing are needed to be identified. Key issues to be addressed:

- (a) What types of managerial and skilled workforces are needed during implementation and operational phases of the project?
- (b) Does the project entity have ability to provide the managerial and skilled workforces needed for implementation of the project? If not, provide suggestions specifically.
- (c) Does the implementing agency have institutional capacity (financial & technical) to retain the project output functional? If not, provide specific suggestions.
- (d) Is the project entity equipped with skilled & experienced workforces to operate the project output? If not, provide specific suggestions.
- (e) Does the entity have adequate fund under its recurring budget to incur the operational expenditure of the project output? If not, provide specific suggestions.
- (f) Is timing of project consistent with organizational capacity (in terms of quantity and other)? A comparative statement should be provided in light of experience of the entity in project implementation.

Section 8: Institutional and Legal Analysis

Illustrate the legal restrictions (if any) that may obstruct or impede the project during its implementation and functional stage of the project outputs, key issues are:

- (a) Does the project match with the legal boundary (allocation of business or mandate) of the project entity?
- (b) Are the capabilities and physical facilities of the agency being properly utilized?
- (c) Is there any need for adjustment (reforms) in the policy and/or institutional setup?

- (d) What adjustments may be required before the project is implemented?
- (e) Do the institutions have suitable skills and capacity in line with the project requirements?
- (f) Are there any incentives or penalties in place to ensure the project delivery on time and within the budget?
- (g) Are there any critical governance issues that may affect implementation? If yes, state briefly.
- (h) Are there any challenges related to cross-cutting issues to be addressed? If yes, a mitigation strategy would be suggested.
- (i) Others (if any).

Section 9: Risk (Uncertainty) and Sensitivity Analysis

The flow of costs and benefits throughout the project life is uncertain. Given that uncertainty, Considerations have to be given to the costs that risks imply. The objective of this module is to simulate various scenarios and generate guidance on how to reduce the risk exposure through relevant contractual clauses. The questions that need to be answered are:

- (a) What are the major risks that may affect project?
- (b) How will the project be affected if the risk event materialized?
- (c) What are the possible mitigation measures needed?
- (d) How sensitive are the assumptions used in the financial and economic models in an environment that differs significantly?
- (e) Are there any risks, legal and regulatory obligations that could increase costs or decrease the benefits? If there any, how much project implementation may be hampered or benefit of the project may be reduced?

Section 10: Alternative/Options Analysis

Option Analysis with recommendations & justifications. Technology and strategy recommended to achieve the goals and objectives of the proposed project should be described along with advantages and disadvantages considering various technologies and strategies applicable.

Section 11: Recommendation and Conclusion

Illustrate the solutions specifically to overcome the critical issues that may hinder the project implementation and that would be supported by different sections of analysis.

Section 12: Annexes

Attach detailed technical and engineering designs, plant prototypes designs etc. Financial & Economic models and any supporting documents.

