

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
MINISTRY OF LOCAL GOVERNMENT RURAL DEVELOPMENT AND COOPERATIVES
LOCAL GOVERNMENT ENGINEERING DEPARTMENT

Program for Supporting Rural Bridges (SupRB)

TERMS OF REFERENCE (TOR)

FOR

CONSULTANT FOR REGION

(Survey & Supervision Consultant)

(Khulna Division)

(Package No. SD-15)

February 2019

**Terms of Reference (ToR)
for
Consultant for Region (Survey & Supervision Consultant)
(National Consultant)
(Khulna Division)**

1. Background of the Program

Bangladesh has an extensive roads network out of which about 94% in length covers the rural roads. Upazila roads (UZRs) and Union roads (UNRs) composed of respectively 11% and 12% of the rural road network. Over a quarter (30%) of the rural road network is paved, with 89% and 70% of the UZR and UNRs, respectively, are paved. The current inventory envisages that a bridge is required for every 4.5km of UZR and UNRs. Over four-fifths of these gaps now have structures, leaving a fifth of them to be bridged. But currently, the Government does not have any dedicated bridge construction and maintenance program. Nonetheless, none of the Development Partners are involved in rural bridge maintenance and rehabilitation activities.

At present, Local Government Engineering Department (LGED) has launched the premeditated initiative to improve the quality of the local road network through countrywide 'Rural Roads and Culvert Maintenance Program' as well as been strengthening the governance processes so that field officials of LGED are themselves able to effectively plan, design, implement and maintain their road networks.

Due to a shortage of funds, significant backlog exists in the maintenance of bridges on rural roads. Although the rural road maintenance budget has been steadily increased in the last ten years, it was not sufficient to manage the entire maintenance needs including bridge maintenance. In this context, the Government of Bangladesh has received a loan from the World Bank (WB) toward the cost of the program titled "Program for Supporting Rural Bridges (SupRB)".

The program will be implemented by the Local Government Engineering Department (LGED) through the Project Director's Office and contract administration of civil works will be carried out by LGED District/Upazila offices. The program will be implemented in total 61 districts out of 64 districts of the country, except three hill districts. World Bank has a commitment to contribute in reducing the maintenance backlog of rural bridges by funding the proposed Program for Supporting Rural Bridges (SupRB).

The program Components include Major and minor maintenance of 85,000 meters of bridges, rehabilitation of 24,000 meters of bridges, Capacity Expansion (Widened) of 5000 meters of rural bridges, replacement or newly construction of 20,000 meters of bridges, technical, fiduciary, procurement, social and environmental capacity improvement of LGED including design and implementation of climate resilient bridges and establishment and operationalize of Grievance Redress System (GRS). The bridge is identified in the prioritized annual work plan generated through the Rural Bridge Information Management System (RuBIMS).

The Program will support the LGED's strategy for the sustainable development and maintenance of rural bridges. The main strategic elements include undertaking the creation of new bridge assets and the preservation of existing assets comprehensively to enhance and preserve rural

connectivity, objective and competitive selection of rural bridge interventions under budget constraints that will ensure an optimum balance between creation and preservation of assets; replacing rural bridges that surpassed their economic lives and making unsafe bridges safer; and improving institutional capacity and core business processes including the creation of a Rural Bridge Information Management System (RuBIMS) to help in informed rural bridge decision making to aid in the planning, design, construction, and management of bridges sustainably.

However, to achieve the desired output of the Program, LGED intends to procure consultancy services at its regional level for supporting the implementation activities under the Program.

2. Objective of the Assignment

The objective of the assignment is to deliver the best preventive measures of rural bridges through structural review including preparing and monitoring the implementation of bridge maintenance activities and work programs as well as collect representative data through equipment based survey work for the framework of Asset Management of rural roads, bridges and buildings in LGED's jurisdiction. To achieve the foregoing, the engagement of the consultancy services shall seek to achieve the following:

- (i) Identifying the best practices in Bridge Maintenance works and sharing knowledge among concerned engineers, working at regional and district level of LGED through the conduct of training activities and workshops under the Project;
- (ii) Conducting all sorts of engineering survey work to enrich rural roads, bridges and buildings related data depository and training program on Asset Management of rural roads, bridges and buildings among concerned engineers, working at regional and district level of LGED;
- (iii) Build capabilities and cascade learning through the development and distribution of knowledge products, such as the Bridge Maintenance Management Manuals and Bridge Asset Management training modules and tools;
- (iv) Develop capacities of LGED Officials at field level and contractors through other interventions necessary towards adoption by Bridge Management Unit (BMU) of Bridge Asset Management principles and practices;
- (v) Assist LGED regional and district level officials to prepare and implement bridge maintenance work programs with annual updates; and
- (vi) Assist LGED regional and district level officials to develop LGED's technical and planning capabilities at field level to prepare the bridge maintenance work programs.

3. Scope of the Assignment

In accordance with the Act / Rules & Regulation / Guidelines/ Operational Directives (ODs) / Operational Policies (OPs) of the Government of Bangladesh and the World Bank, the Consultants shall carry out their tasks with accepted professional standards, utilizing sound international engineering and economic practices. The Consultant shall deliver timely sound and diligent services.

Any monetary loss incurred owing to their sub-standard services will be compensated from the consultant through penalizing as per conditions of the contract. In conducting this work, the Consultants shall cooperate fully with Government officials related to the project who will provide the data and requirements; the Consultants shall be solely responsible, for the analysis and interpretation of all data received and for the conclusions and recommendations contained in their reports. The Consultant will carry out the following main tasks but not necessarily be limited to:

- (i) Conducting necessary engineering surveys and investigation including subsoil investigation, hydrological and morphological study, if required for preparation of detailed engineering report with coordination of LGED officials;
- (ii) Providing engineering support in designing various components (including road safety) required for execution of the project, based on surveys and investigations and detailed engineering drawings. The design and drawings shall be prepared based on standards of LGED and awareness of latest international practice in rural bridge design, including software and formats to be adopted by LGED;
- (iii) Assisting in reviewing and checking of engineer's estimates with remedial measures overcoming the environmental & social risks as per approved guidelines under the project;
- (iv) Assisting the PMU and LGED officials & consultants at field level in preparing for devising a suitable & appropriate Asset Management System of road, bridge & buildings through field inspection for use by the LGED;
- (v) Assisting the PMU and LGED officials & consultants at field level in preparing and implementing project activities, including planning, scheduling, procuring works, goods and services, setting methodologies, and training LGED staff for sustainable operations and maintenance of improved infrastructure, as well as quality control at all stages;
- (vi) Assisting the PMU and LGED officials & consultants at field level in planning, monitoring, reporting and managing finances, including project framework techniques for planning, training and financial monitoring during project implementation;
- (vii) Supporting in field supervision of civil works, developing and implementing procedures for regular on-site checking, quality control, testing and monitoring of works execution;
- (viii) Assisting and advising the PMU and LGED officials & consultants at field level in administration of contracts;
- (ix) Assisting to develop procedures for laboratory and field tests for materials quality control in consultation with Regional Quality Control Engineer;
- (x) Assisting the PMU in planning and implementing land donation scheme, where applicable, and reporting and documenting such; identifying and reporting adverse environmental and social impacts by carrying out initial environmental examination and initial social assessment for the subproject, recommending to modify designs and practices to avoid land acquisition and mitigate the impacts of environmental & social risks as per ESMF provisions;
- (xi) Preparing monthly, quarterly and final reports including the draft project completion report that include a section on safeguards monitoring; and preparing semi-annual safeguards monitoring reports;
- (xii) Assisting the PMU and LGED officials & consultants at field level in updating the monitoring system through smartphone-based inspection application;
- (xiii) Assisting the PMU in planning and implementing a training program including developing training manuals, preparing a training budget, and preparing training reports;
- (xiv) Assisting the PMU and regional Superintending Engineer in organizing review meetings of the project;

- (xv) Preparing a Final Evaluation Report on the operation of the Project;
- (xvi) Assisting the PMU in undertaking traffic survey, developing economic profile, undertaking economic and financial evaluation and all tasks related to a study of transport economics under the project;
- (xvii) Assisting the PMU in implementing the gender action plan and the grievance redress system including compliance monitoring; and preparing all social and gender related reports and other technical report as necessary;
- (xviii) For smooth implementation of the project, the Consultant is expected to perform any additional tasks/duties identified and assigned by the Project Director.

4. Time Schedule

The assignment is expected to commence in July 2019 and continue upto about 48 (forty eight) months.

5. Duty Station

Duty station of the each team comprising 03 (three) Bridge Maintenance Engineer and 03 (three) Survey Specialist will be at LGED office of Khulna region, Jashore region and Kushtia region.

6. Reporting Requirements

The reporting requirement shall be as per below:

Inception Report: The Consultant shall submit and present an **inception report** within one month after signing the contract. The report will include the consultant's proposals of the detailed project implementation arrangements and the planned activities for different components based on the initial assessment. The report will also include the detailed work program and approach towards the assignment. The report needs to be finalized within 15 days after receiving the comments from LGED.

Monthly Report: The consultant will submit a monthly report which must reflect all the activities undertaken during the month of the reporting period. The report must contain the targets and achievements.

Quarterly Report: The consultant shall furnish quarterly progress reports on physical and financial progress and on implementation progress, including achievements and problems faced, if any, and the measures to overcome the constraints. The report will also focus on asset information of roads, bridge and buildings under LGED's jurisdiction. The quarterly reports shall be factual and concise with recommendations for the subsequent quarter.

Annual Report: The consultant shall furnish to LGED an annual report covering all activities in the last 12 months. In addition to summarizing key facts and issues presented in the 4 quarterly reports for the reporting period, the annual report shall include the Consultant's views on the strengths and weaknesses of the project implementation arrangements and remedial actions to be taken if any. The report shall include, among other requirements, the traffic related survey on the roads on which bridges will be implemented under the project.

Midterm Report: The report will summarize the progress of achieving the physical and financial targets. It will recommend actions to fill the gaps, if any. It will also review the project's compliance with environment and social requirements.

Draft Project Completion Report: This report is to be submitted after completion of services but within the completion period. This report will include the project performance on technical and financial components including social and environmental issues.

Project Completion Report: The consultant shall prepare a comprehensive completion report of all components of the project including civil works and consulting services. The report shall incorporate summaries of the methods of construction, the construction supervision performed, problems encountered and solutions undertaken thereon and recommendations for future projects of similar nature to be undertaken by LGED. The report shall also contain final evaluation report of the construction and maintenance-related aspect for the relevant packages.

7. PROFESSIONAL STAFFING INPUTS

Consultant's personnel shall be fluent in (i.e. writing, reading and speaking) the contract language, which is English. In addition, the key staff described herein, shall be computer literate regarding word processing, spread sheets and engineering software operation.

The Consultant shall provide competent personnel for the services, who shall be managed by the Dhaka based Consultant Team and who will represent the Consultant in performing the services. The team shall comprise the following experts showing Table 1 but not be limited to:

Table 1: National Key Experts (To be Evaluated)

Sl. No.	Position	Qualifications & Experience	Number of Position	Person-Month per Position	Person-Months
1	Bridge Maintenance Engineer	(a) Educational Qualifications: - At least B. Sc in Civil Engineering from any reputed University. Preference will be considered for M. Sc in Civil Engineering. (b) Experience: - Minimum 12(twelve) years of overall experiences, out of which 10 (ten) years progressive relevant international or local experience rural bridge maintenance work; - He should have work skills in multi-disciplinary and multi-cultural team environments, excellent report preparation skills with computer literacy; - With experience in writing manuals, policy papers, training modules and/or other technical writing work; - Has demonstrated capacities in providing technical assistance on Rural Bridge Maintenance and Management System; - Excellent written and oral communication	3	36	108

Sl. No.	Position	Qualifications & Experience	Number of Position	Person-Month per Position	Person-Months
		skills in English fluently. (C) Appropriateness: • Computer skill (MS word, Excel, Power point, etc), • Recent Training Certificate in relevant areas, • Experience with load rating, non-destructive test analysis and bridge inspection is preferred, • Experience with setting up and managing of Rural Bridge Maintenance and Management System, • Experience with developing training materials and providing training as well as conducting Training Needs Assessments,			
2	Survey Specialist	(c) Educational Qualifications: • At least B. Sc in Civil Engineering from any reputed University (d) Experience: • Minimum 12(twelve) years of overall experiences, out of which 10 (ten) years progressive relevant international or local experience in engineering survey practices; • He should have work skills in multi-disciplinary and multi-cultural team environments, excellent report preparation skills with computer literacy; • With experience in writing manuals, policy papers, training modules and/or other technical writing work; • Has proven and high level experience with digital surveying systems using digital technologies including but not limited to Total Station technology, • Prior experience in leading multi-disciplinary and multi-national teams/	3	48	144

Sl. No.	Position	Qualifications & Experience	Number of Position	Person-Month per Position	Person-Months
		engineering institution/organizations and trainings on digital surveying using digital technology (preferably Total Station technology), • Excellent written and oral communication skills in English fluently. (C) Appropriateness: • Computer literacy of MS Office, AutoCAD, Software used in Total Station survey, Software used in Total Station Data processing (like Softtree), • Recent Training Certificate in relevant areas, • Experience with developing training materials and providing training as well as conducting Training Needs Assessments.			

8. Position Based Tasks/Responsibility

The position-based tasks specified for each of the positions mentioned in Table 1 above are indicated in the Table 2 below. Consultants should note that the position-based tasks and responsibilities in Table 4 are only indicative and that the consultant needs to propose its own working arrangements as a team based on the overall requirements in the TORs.

Table 2: Position Based Tasks/Responsibility

Sl. No.	Position	Task/Responsibilities
1.	Bridge Maintenance Engineer	‡ Identify the nature of defects by structural review of bridges through field inspection and prepare recommendations for any proposed bridge replacement, minor/major repairs, rehabilitation and provision of capacity expansion/new bridges including reviews of environmental, ecological, hydrological and social impacts of the proposals; • Perform all duties associated with implementation work to ensure that only the best construction & maintenance practice is followed and is executed in full compliance with the specifications. ‡ Check that the contractor follows safe working practices in all operations and immediately draw attention to any instances where this policy is not followed, advising the contractor to carry out all such works deemed necessary in case of emergency/ affecting the safety

		of personnel, works and adjacent property. Ensure that the minimum obstruction is caused to the flow of traffic and that safe acceptable detours are provided and maintained at all times; ‡ Assist LGED for updating Rural Bridge Information Management System (RuBIMS), Identifying various issues in implementation of RuBIMS and preparing possible solutions to those issues; ‡ Assist to set Process Performance Indicator (PPI) for measuring the performance of RuBIMS and developing a performance mechanism including four types measures Input, Output, Outcome and Efficiency both qualitatively and quantitatively (Inspection, Data Collection, Data storage, Data Management, Analyses and Reporting); ‡ Assist in preparation and pilot-test the Bridge Maintenance manual, training modules and tools on Bridge Maintenance for LGED under Rural Bridge Infrastructure Maintenance framework; ‡ Ensure road safety measures duly performed in accordance with design and specification. Assist client to improve performance and understanding on road safety issues; ‡ Establish a systematic construction procedure for different civil works set out in the specification following the GoB/Bank's environmental and social safeguards through demonstrating and conducting on the job training to the contractor and LGED officials. S/he will also establish procedures for systematic on-site checking and monitoring of quality and quantities of all work items, including field checks to confirm integrity of survey data, application of improved methods for embankment, pavement maintenance and construction & maintenance of bridge/culvert. The quality control works may include performing laboratory and field tests; ‡ Assist technical personnel at field level regarding the Contractor's setting out of the Works and preparation for the Works, prior to issuing approval to construct the Works; ‡ Assist PMU/Dhaka based consultant to develop a code of practice for road and bridge maintenance management by district/Upazila Engineering Offices; ‡ Assist PMU/Dhaka based consultant to prepare Annual maintenance program during project period for minor maintenance, major maintenance, rehabilitation, capacity expansion, replacement and new construction of Rural.; ‡ Assist LGED regarding improvements to the BMS especially regarding prioritizing maintenance needs due to budget constraint; ‡ Assist in arrangement and conduction of trainings and related activities to build capacities on Bridge Maintenance; ‡ Assist in arrangement and conduction of workshops and related activities to consolidate learning, suggestions and proposed enhancements on the manual, modules and tools on Bridge Maintenance;
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		‡ Provide support the concerned official in effective and timely response to emergency situations involving bridges (floods, cyclones, earthquakes and collapses); ‡ Carry out principle inspections on bridges constructed by others (including special projects) and reporting on their acceptability for inclusion in the LGED bridge stock; ‡ Assist in checking Variation Order (VOs) in light of contract agreement and recommend for approval, if required. In this case proper attention should have to be paid so that the numbers of Variations could be kept minimum. S/he will comment on technical justification forwarded by the contractor for variation; ‡ Assist in reviewing the progress reports collected from district office under the concerned region and identify the weakness related to execution of contract and recommend to overcome the weakness; ‡ Assist in carrying out construction materials investigations in collaboration with LGED as necessary or advisable to minimize overhaul, to optimize the use of available resources, to enhance economy etc; ‡ Routinely inspect the Works for compliance with the Specifications and the agreed method of working, as a basis for payment and notice to LGED officials at region and district level if any problem; ‡ Verify keeping and maintaining up-to-date detailed Daily Site order book, complaint register and detailed records (making them available for inspection by LGED when requested to do so) of all contractual correspondence and data; all work stoppages or delays; accidents on Site; official visitors to Site; weather records; all activities in progress at any time on site showing the start and end time and full details of the resources employed per activity; ‡ Verify keeping and maintaining detailed records (and make available for inspection) of the Contractor's equipment on Site and its precise date of arrival or removal from Site, its date of manufacture, previous hours worked and condition, the date commissioned to commence work, its availability, and utilization. Establish equipment availability figures for each category of equipment; ‡ Assist to Continuous monitor the Contractor's progress against programme and his method of working in respect of each and all construction & maintenance activities and produce a resource analysis against production needs. Advise the Contractor when additional resources or revised methods of working or revised programme of the works are deemed to be required; ‡ Assist in reviewing the Contractor's proposed working drawing/plans and associated calculations. Recommend approve or reject the proposals accordingly and identify any changes required; ‡ Take digital color progress photographs throughout the duration of the Contract, keep and maintain an official photographic record (available for inspection) of monthly progress at set locations and
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		also of any construction activity of technical or contractual interest at any time. Each photograph to be captioned with: reference number, time, date, precise location, subject, and points of particular note. All digital negative data should be stored on diskette in a record system, together with copies of the captions;
2.	Survey Specialist	‡ Organize and conduct the survey work with efficient manner and accordingly assist to update Rural Bridge Information Management System (RuBIMS) during project period, Identify various issues in implementation of RuBIMS and prepare possible solutions to those issues; ‡ Assist PMU/Dhaka based consultants in review LGED's current capabilities for road inventory and asset management of concerned region and the methodologies and systems that are in use and identify weaknesses and strengths; ‡ Assist PMU/Dhaka based consultants to review the usefulness, appropriateness of LGED Assets Management System (AMS), and assisting PMU/Dhaka based consultant to set standards for implementation of a modern Road Infrastructure Asset Management System (IT and modern Software base); ‡ Assist in Identifying various issues in implementation of Asset Management System (AMS) and possible solutions to those issues; ‡ Assist to set Process Performance Indicator (PPI) for measuring the performance of AMS and develop a performance mechanism including four types measures Input, Output, Outcome and Efficiency both qualitatively and quantitatively (Data Collection, Data storage, Data Management, Analyses and Reporting); ‡ Assist PMU/Dhaka based consultant to prepare a road, bridge and building asset management manual for LGED under asset management framework; ‡ Assist LGED to review the Traffic Safety Plan and the accident statistics of the project area (district/upazila), and carry out detailed road traffic safety inspection and design works to meet the project objectives; • Organize and conduct the survey team under the project to carry out roughness survey on rural roads annually throughout the project period; • Supervise the road safety works implemented in the project area and collect impact information; • Assist the PMU/PIU in planning, coordinating and monitoring project implementation for all project activities; • Assist PMU/PIU to assess, select and prepare the priority list of bridges for improvement based on set criteria and detailed bridge condition survey; • Conduct the engineering survey (Topographical Survey and Detailed Road and bridge condition Survey) and data collection for all rural infrastructure improvement activities, including sample site inspections, and recommend remedial actions to the PMU where

		problems arise; ‡ Assist in preparation the maintenance plans and works programs for road, bridge and building assets maintained by the district offices under concerned region and integrating all maintenance plans, works programs etc; ‡ Assist in preparation and pilot-test the asset management manual, training modules and tools on asset management for LGED; ‡ Assist in arrangement and conduction of trainings and related activities to build capacities on asset management to be participated by LGED's field level engineers and other identified participants; ‡ Assist in arrangement and conduction of workshops and related activities to consolidate learning, suggestions and proposed enhancements on the manual, modules and tools on asset management; ‡ Assist in co-ordination of all aspects of the program with project stakeholders to inform and ensure that the program in complementary to achieve durable road infrastructure; ‡ Support the ACE (Maintenance) in strengthening maintenance management systems to improve reliable road connectivity; • Assist to monitor the progress and quality control of the implementation activities administered by LGED District and Upazila Offices; • Undertake regular field visits to the project area to review implementation and supervision of the civil works, and contribute to resolving any issues arose; • Assist PMU to monitor the progress of land acquisition or land donation with MOU; ‡ Contribute to the preparation of monthly, quarterly, annual, midterm report, Draft Project Completion report and Final Project Completion report.
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9. Support Staff

The consultant may propose minimum number of support staff to carry out their tasks and fulfill their responsibilities effectively and efficiently within the stipulated time.

10. Counterpart Support

- The existing staff of LGED at Division, Region, District, and Sub-district level will work as the counterpart staff.
- The executing agency (LGED) will provide the consultants with suitable office space and necessary office support staff, if available, only. LGED will provide project data and reports available with it to the consultant.
- Office furniture, hardware and software, lighting, electricity including consumption bill, air conditioning and other consumables will be at the cost of the consultant.

- LGED may provide Computer/Laptop, printer, necessary consumables. The consultant will include cost for vehicles and communication services for the effective implementation of their assignment including operation and maintenance cost of those in the financial proposal.
- Any non-consumable items purchased under this consultancy package shall be handed over to LGED after completion of the contract.

11. Institutional arrangement

The Bridge maintenance Engineer of region at divisional head quarter will act as a team leader of the regional consulting firms under that division. The Consultants of each region will work directly with the Project director of the “Program for Supporting the Rural Bridge program” under supervision of the Superintending Engineer of the concerned region of LGED and support the consultants & officials of LGED at PMU, LGED Headquarters and field level in order to achieve the objectives of the program.