

GOVERNMENT OF KERALA
REBUILD KERALA INITIATIVE
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**INVITING EXPRESSION OF INTEREST FOR ENGAGEMENT OF DESIGN AND
CONSTRUCTION SUPERVISION CONSULTANTS (DSC) FOR LSGD ROADS IN
KERALA**

NAME OF PROJECT: Resilient Kerala Development Program

Reference No. RKI-3/LSGD-DSC/01

Date: 09.03.2019

The Government of Kerala (GoK), has applied for financing from the World Bank toward the cost of the Kerala State Transport Project-II (KSTP-2) and intends to apply part of the proceeds for consulting services.

The consulting services (“the Services”) include appointment of a Design, Construction and Supervision Consultants (DSC) to assist the Additional Chief Secretary (ACS), Local Self Government Department (LSGD), GoK, for preparation of detail project reports (DPRs), design, procurement, management, construction supervision monitoring & evaluations of road works in various Panchayats in Kerala, to achieve the objective of “Nava Keralam” vision. The scope of the assignment shall include but not limited to the aforesaid activities, for a period of two years. An indicative Terms of Reference (ToR) for this assignment is available at: **at: www.kerala.gov.in and www.rebuild.kerala.gov.in.**

The Rebuild Kerala Initiative (RKI), Government of Kerala (GoK) now invites eligible consulting firms (“Consultants”) to indicate their interest in providing the Services. Interested Consultants should provide information demonstrating that they have the required qualifications and relevant experience to perform the Services. The shortlisting criteria are:

- i. At least 10 years’ experience in managing similar and or largescale projects in rural and urban road sectors;
- ii. Experience in working in Kerala - will be an advantage;
- iii. The firm should have successfully completed at least three such consultancy assignments – design, Construction & Supervision of PMGSY standards roads in India, with at least each contract not less than Rs. 5 crore in the past 5 years;
- iv. Successful completion of consultancy assignments for projects/programs financed by multilateral funding agencies – will be preferred;
- v. Experience in procurement and financial management and implementation of environment and social safeguards in accordance to guidelines multi-lateral financing institutions - is a must;
- vi. Extensive experience in development of IT applications for project management required;

- vii. Experience in application of latest hybrid GIS spatial & GPR survey applications with Asset inventory management systems for piloting implementation in all LSGD roads, data collection, processing, monitoring and evaluation – is a must;
- viii. Availability of appropriate skills among core agency staff.

The attention of interested Consultants is drawn to paragraph 3.14 of the World Bank's Procurement Regulations for IPF Borrowers, *Procurement in Investment Project Financing Goods, Works, Non-Consulting and Consulting Services, July 2016*, setting forth the World Bank's policy on conflict of interest.

Consultants may associate with other firms in the form of a joint venture or a sub-consultancy to enhance their qualifications.

A Consultant will be selected in accordance with the Quality and Cost Based Selection (QCBS) method set out in the Consultant Guidelines.

Further information can be obtained at the address below during office hours between 1000 to 1700 hours.

Expressions of interest must be delivered in a written form to the address below (in person, or by post) by **April 30, 2019** up to **3.00 pm**.

“Chief Executive Officer (RKI), Government of Kerala, 1st Floor,
North Block, Government Secretariat, Thiruvananthapuram, Kerala–
695001”

RKI reserves the right to accept or reject any or all offers in full/part without assigning any reasons whatsoever.

Sd/-

Dr. Venu V. I.A.S
Chief Executive Officer, RKI
Government of Kerala.

Terms of Reference

REBUILD KERALA INITIATIVE

DESIGN AND CONSTRUCTION SUPERVISION CONSULTANTS (DSC) FOR LSGD ROADS IN KERALA

Reference No. RKI-3/LSGD-DSC/01

1- Background

Government of Kerala (GoK) intend to empanel and engage consultants for undertaking task of preparation of Detail project report (DPR) and supervision consultancy for the road works in various Villages Panchayats, using best possible alignment, rehabilitation and resilient recovery post 2018 floods and landslides. The road shall conform to standards of IRC and shall be constructed following the MoRD specifications and IRC standard. The duration of empanelment is for three years which can be increased /decreased. This works are to be taken up under Rebuilt Kerala Initiative (RKI) proposed to be funded with World Bank Loan through Restructured Kerala State Transport Project (KSTP-II). A Project Implementation Unit (PIU) headed by Chief Engineer Level Officer supported by team of Executive and Assistant Engineers and MIS specialist has been formalized in LSGD for implementing this project.

2- Project Information

The proposed roads are located in the 8 Districts of Kerala. The project summary is presented below and the details of roads are given in Annexure 1.

Objective

The objective of the assignment is Resilient Recovery of the LSGD roads designed and constructed based on a life cycle cost approach to ensure compliance to standards established for Pradan Mantri Gram Sadak Yojna (PMGSY) roads, for long term resilience and sustenance of the investments.

Brief Description of Project/Investment (including key components/elements)	Districts	No of Roads	Estimated Outlay in INR Crs.	Timeline for Preparation	Likely Contract Type/Timeline for Implementation
Reconstruction and Rehabilitation of LSGD Roads using PMGSY standards covering 8 Districts. Construction contracts shall have 4-year maintenance period.	Alappuzha	76	49.48	6 Months for DPR preparation, bid document preparation and contracting	1 Year construction period + 4 Years Maintenance
	Ernakulam	50	26.35		
	Idukki	58	48.89		
	Kottayam	20	13		
	Palakkad	3	6.5		
	Pathanamthitta	66	43.29		
	Thrissur	23	30.88		
	Wayanad	34	29.55		

3- Objective-

The main objective of the empanelment is as under –

- (i) To carry out the engineering, economic and initial environmental and social studies of the proposed road.
- (ii) To carry out the detailed engineering design of proposed road and bridge works and prepare cost estimates for obtaining sanction of the project.

4- Scope of the Consultancy Services: -

The scope of the consultancy services is to:

- (i) DPR is to be made according to the DPR template issued vide NRRDA'S letter no P 14011/1/2011-Tech dated 16th November 2011. Consultants should adhere to the circulars issued by competent authorities and submit the documentation accordingly. Should there be any deviation, the same should be submitted in writing to the employer for waivers/clearances/acceptance on a case to case basis;
- (ii) The Rural Roads Constructed under the PMGSY must meet the technical specifications and geometric design standards given in the Rural Roads Manual of the IRC (IRC:SP:20-2002) and also where required the Hill Road Manual (IRC:SP:48-2002);
- (iii) Conduct preliminary and detailed survey including reconnaissance, preliminary survey, pegging and trace cutting, final survey etc. as per IRC:52-2001 and IRC:SP: 48-2002;
- (iv) Collect inventory data and to conduct condition survey of roads, bridges culverts etc. as per IRC SP:19-2001 and RC SP:13-2004 in respect of surveys for rivers /streams;
- (v) Prepare strip plan showing the existing road land width, utility services (both above and below ground level), trees, electric poles, telephone poles, water pipeline, sewer line, bridges, culverts, junctions, adjoining land use, encroachment etc. digitize these for computer storage;
- (vi) Collect socio economic data of the project area;
- (vii) Soil sample collection and testing- soil samples should be collected along and around the road alignment at three (3) location per km, from the adjoining borrow areas, as well

as one sample is collected from the existing road, soil classification tests like green size analysis and Atterberg's limit should be conducted for all the samples collected. Standard proctor test and the corresponding 4 day soaked CBR test should be conducted either for a minimum of one test per km for soil samples of same group or more tests due to variation of soil type. The following tests are required to be conducted as detailed below:

- Green size analysis as per IS:272(part 4)-1985
 - Atterberg's limit as per IS :2720(part 5)-1985
 - Standard proctor density test as per IS:2720(part 7)-1980
 - 4 days soaked CBR test as per IS:2720(part 16)-1985
- (viii) Determine the composition and thickness of existing pavement in case of DPR of up gradation work.
- (ix) Collect information about hydrology e.g. catchment characteristics, rainfall, stream/channel characteristics, design discharge, linear water way, scour depth etc., for all cross drainage works and bridges. For bridge the project work shall comply with the IRC SP No. 54 "*project preparation manual for bridges*" and IRC:83-2002(part-III) and other relevant IRC codes.
- (x) Do drainage studies indicating general drainage pattern, HFL, water level, seepage flow, etc and prepare drainage design as per IRC guidelines.
- (xi) Do investigate for naturally occurring materials for achieving economy in construction and protection of environment and identify suitable quarries for these materials.
- (xii) Conduct tests for the physical strength characteristics of aggregate materials as per relevant IRC standard.
- (xiii) Trial pit should be dug at each culvert location as per IRC SP:13.
- (xiv) Carry out geo-technical investigation and sub surface exploration at all the proposed location of bridge (generally on boring may be done at each location of abutment and also at pier as per IRC :78).
- (xv) Carry out studies for environmental clearance requirement as per the guidelines of MOEF and IRC SP-19-2001, and assist the department by providing the data required like environmental clearance required, forest clearance required with numbers of trees to be cut etc.
- (xvi) Prepare detailed design of road in all respect including the geometric design of road, pavement, culverts and bridges.
- (xvii) Prepare detailed working drawing good for construction, prepared in international standard using CAD, containing all details required for execution of the project.
- (xviii) Prepare bill of quantities and estimate on current SOR.
- (xix) Conduct economic analysis and sensitivities test for the project.

5- Detailed Scope of the Consultancy service:

5.1 Scope of work for Preparation Detailed Project Reports

Transect walk and Screening of flood damages: The consultant shall carry out a transect walk after having done the topographic sheet work with the PIU regarding the alignment of the road. The main objectives of transect walk is to identify the obligatory points and to collect the views, consent and recommendation of villagers/LSGI. Minutes of the meeting and transect walk shall be recorded by the consultant and signed by the public representatives of concerning

LSGI. Consultant shall arrange for the photographs of the transect walk. As part of transect work walk, an overall assessment of damages from 2018 flood and landslides shall be made. The roads which are assessed not to be sufficiently damaged from the 2018 natural disaster should be informed to the PIU and excluded from further studies.

Joint Inspection: Consultant shall to arrange for the joint inspection with the Engineers from LSGIs and Block Panchayats. The observation of the joint inspection shall be recorded and duly signed. The purpose of the joint inspection is the identification of land details, tree details, muck disposal areas and substitution tree plantation areas. Consultant shall have presented all the data in GIS map (1:50000 scale). Land acquisition to be avoided

Detailed Survey:

- **Traffic Survey:** Consultant shall appoint personals at entry and exit points of the road so as to ensure traffic count and traffic pattern
- **Material Survey:** Consultant shall make a survey for the availability of material and quality of material for road construction and shall submit a report so as to enable the PIU to decide for cartage of materials.
- **Lab Tests:** Consultant shall arrange for the CBR tests/Km of the road including tests for liquid limit, plastic limit and plasticity index.
- **Detailed survey:** Consultant shall make detailed survey on the approved alignment with the help of Total station or any other similar suitable digital survey instrument as per requirement of the work and site & Geo positioning of the surveyed road on digital map of survey of India of scale 1:50000 capable to generate the accuracy of ± 10 cm including giving the co-ordinates (Longitude, Latitude, Elevation) of start/end & midway prominent points including marking of existing as well as proposed protection work, cross drainage structures, road furniture's and also plan of painted surface including position of curves, extra widening and passing places. Consultant shall arrange for the L-sections of the road and marking of provisions for L-section corrections (if required), existing and proposed Cross drainage structures including their levels and cross sections at places where passing places are being provided or if there is any correction in Geometrics is required.

Preparation of Proposals: Consultant shall prepare proposals for land transfer cases for.

- 1- Forest land (Reserved forest, van Panchayat and Civil land with forest type plantation)
- 2- Civil land without forest type plantation.
- 3- Private land.
- 4- Substitution plantation land.

Consultant shall arrange for all the signatures, certificates and recommendations of all the concerning persons and submission of the proposals including removal of all of the objection/ observations at any level till they are cleared by the sanctioning authorities. Land acquisition to be avoided unless necessary.

Design of Road: Consultant shall design the road and prepare the drawing docket relevant IS code, IRC guidelines specification and directions of engineering representatives from LSGI, District Panchayat and PIU of LSGD. The design of the road with all drawing shall be submitted to the PIU for checking before preparation of the DPR. The drawing shall have the

road plan including marking existing (if there is any) as well as proposed protection work, cross drainage structures, road furniture's along with all geometric features i.e. details and position of curves, extra widening and passing places besides land mark along the road e.g. habitations, buildings or any other prominent geological/geographical/vegetative feature. The L-section of the road must also geometric features i.e. chain age length, grade of road, and must include marking existing (if there is any) and proposed cross drainage structures beside land marks along the road e.g. habitations, buildings or any other prominent geological/geographical/vegetative feature as shown also plan.

Submission of DPR: Consultant shall submit a draft DPR for checking of the engineering representatives from LSGI, District Panchayat and PIU of LSGD-. After the checking final DPR shall be submitted in hard copy (3 NOS) as well as digital soft copies (3 Nos) consultant shall arrange for the checking of the DPR and removal of any objection /observation at all levels till the DPR is approved by PIU. However, in case if there is some objection/observation at NRRDA level, the consultant shall have to rectify the same at his own cost. Consultant shall arrange for all MIS entries as directed by engineer in charge. DPR's shall be prepared in accordance to the guideline or directions of NRRDA/World bank as given to PIU during the work.

5.1.2 Work Schedule for Preparation of Stage-Detailed Project Reports.

Sl. No.	Particular	Time (Days) ¹
1.	Transect Walk	10 days since D.O.S
2.	Doing Online MIS Project Monitoring System ² (OMMAS) of transect walk and submission of transect walk's report	3 days after event 1
3.	Preliminary survey	3 days after event 1
4.	Submission to alignment report	5 days after event 3
5.	Sanctioning of alignment report	5 days after event 4
6.	Detailed survey	17 days after event 5
7.	Joint Inspection	5 days after event 7
8.	Submission of Forest, Non forest, Private and substitution plantation Land Proposal to PIU, if required	25 days after event 8
9.	Submission of Design and Drawing docket of Road to PIU, engineering representatives from LSGI, District Panchayat	15 days after event 7
10.	Checking of Design and Drawing docket of Road by PIU, engineering representatives from LSGI, District Panchayat and retuning back to consultant with recommendations.	3 days after event 10
11.	Submission of Draft DPR including Bill of Quantities to PIU, engineering representatives from LSGI, District Panchayat	10 days after event 11
12.	Checking of Draft DPR by PIU, engineering representatives from LSGI, District Panchayat and retuning back to consultant with recommendations.	3 days after event 12
13.	Submission of Forest Land proposal to DFO, if required	10 days after event 9
14.	Submission of Forest and proposals to Nodal Officer, Forest	15 days after event 14

¹ The timelines given here are in accordance to those adopted for PMGSY.

² An Online MIS Project Monitoring system developed by PIU of LSGD with a provision for the consultants to upload up to 10 photos from each roads. This platform needs to be developed quickly

	Depts. And resubmission after any corrections as required by them, if any	
15.	Submission of Non-Forest Land proposal and substitution plantation to D.M	10 days after event 9
16.	Submission of Final DPR including Bill of Quantities to PIU, engineering representatives from LSGI, District Panchayat	7 days after event 13
17.	Approval of DPR by PIU based on inputs from engineering representatives from LSGI, District Panchayat	
18.	Preparation of Bidding Documents based on FIDIC based Harmonized Version (Pink Book). The roads in each block should be preferably combined into one Work Package. Ensure that all the environmental, health, safety and its mitigation measures required to be implemented are incorporated in the contract documents;	7 days after event 17

5.2 Scope of work for Construction Supervision

- i. Administer the contractors work in accordance with the FIDIC Conditions of Contract harmonized edition as “Engineer” to the Contract.
- ii. Supervise the contractors work and certify the works in accordance with contract conditions. Ensure that the construction methods proposed by the contractor for carrying out the works are satisfactory.
- iii. Review and approve contractors working drawings, method statements, programs, and any other documents.
- iv. Develop quality assurance systems, inspection and testing plan.
- v. Inspect Contractor’s construction equipment, results of material and soil tests, safety of the works, property and personnel. Inspect and test all materials and works to ensure compliance with specifications and giving immediate notice to the Contractor to remedy in the event that such materials and works fail to comply with the specifications.
- vi. Recommend to the Employer-LSGI Assistant Engineers/District Executive Engineers of the rates for any unscheduled items of work that may arise.
- vii. Measurement, validation, verification, and certification and process interim and final payments of the Contractors.
- viii. Establish efficient procedures for verifying Contractor performance and control reports, quality survey records, request for variation or change orders, requests for time extension, and Contractor’s claims and invoices.
- ix. Process the IPCs to the Employer’s representative and centralized payment by PIU
- x. Check “as built” drawings prepared by the Contractors. Keep and record a complete set of as built drawings in paper and electronic formats for archiving in the Employers repository.
- xi. Monitor Contractor’s conformity with traffic control and road safety action plan and work zone safety during construction.
- xii. Assist in provisional and final hand over of works by the contractors.
- xiii. Ensure that the Project is complying with WB Safeguards Policy Statement.
- xiv. Assist and guide to ensure compliance of environmental and social safeguards.
- xv. Help the PIU in establishing a Grievance Redress Mechanism (GRM) and in its proper functioning and management with relation to the roads undertaken for rehabilitation under the project.
- xvi. Monitor the implementation of gender action plan and ensure activities are carried out as planned and relevant baseline and monitoring database collected.

- xvii. Supervise and monitor the implementation of environmental management plan (EMP);
- xviii. Monitor Contractors compliance with and performance of required actions regarding HIV/AIDS, human trafficking, and labor core standards in accordance with the contract documents, such as awareness and education of laborers and workers.

5.3 Key Experts Required

5.3.1 DPR Stage

Team Leader cum Road Engineer

- (a) Graduate in Civil Engineering from recognized university.
- (b) Total Professional Experience of 15 years.
- (c) At least 5 years' experience in PMGSY projects
- (e) He should have handled as Team Leader or similar capacity in project Preparation of major rural road Projects of minimum aggregate length of 200 kms.
- (e) He should have experience in supervision of rural road projects

Traffic cum Safety Engineer

- (a) Post Graduate Degree in Traffic Transportation/Safety Engineering/Transport Planning.
- (b) Professional Experience of 10 years
- (c) Minimum 10 years' experience in Road Safety works, traffic survey and analysis of rural roads
- (d) Experience in Road Safety Audit of rural road

Quality cum Material Engineer

- (a) Graduate in Civil Engineering from a recognized University.
- (b) Professional Experience of 15 years.
- (c) Experience of at least 5 years as Senior Quality/ Material Expert or in similar capacity in Construction /Construction Supervision /major highway projects
- (d) Experience as Senior Quality/ Material Expert or in similar capacity in handling
- (e) of at least 2 similar highway projects having aggregate length 200 Km.

Pavement Engineer

- (a) Graduate in Civil Engineering from a recognized University.
- (b) Professional Experience of 10 years in Bridge Design/Culvert Design and Supervision.
- (c) Experience of pavement designing of rural and urban road
- (d) Experience of Supervision of pavement works for rural road projects

Bridge and Structural Engineer

- (a) Graduate in Civil Engineering from a recognized University.
- (b) Professional Experience of 10 years in Bridge Design/Culvert Design and Supervision.
- (c) Experience of designing of rural and urban road CD Structures, retaining structures
- (d) Experience of Supervision of rural road projects

Drainage Engineer

- (a) Graduate in Civil Engineering from a recognized University.
- (b) Professional Experience of 10 years in road side drainage and hydraulic analysis
- (c) Experience of Supervision of rural road projects

Contract Specialist

- (a) Graduate in Civil Engineering/MBA from a recognized University.
- (b) Professional Experience of 15 years.
- (c) Experience of at least 10 years in preparation and execution of contracts relating to road projects
- (d) Experience as Contract Specialist for FIDIC based input contracts

Quantity Surveyor

- (a) Graduate in Civil Engineering from a recognized University with a professional experience of 10 years OR Diploma in Civil Engineering with a professional experience of 15 years
- (b) Minimum five years in Preparation of Bill of Quantities, Contract documents and documentation for rural road projects

Social and Environmental Expert

- (a) Graduate in Civil Engineering from a recognized University with a professional experience of 10 years
- (b) Minimum five years in Preparation of ESH documents, LA,
- (c) Exposure to World Bank funded engagements added advantage

Support Personnel

- (a) Diploma Engineer with 5 years' experience (as many required)

5.3.1 Construction Supervision Stage (1 Year Construction and 1 months of Maintenance period)

Team Leader cum Road Engineer (Full Time) from DPR Stage

Team Leader shall be overall in charge of the work package and shall be responsible for coordinating with his district teams and LSGD-PIU.

Residential Engineer (One for Each District)

- (a) Resident Engineer shall be in-charge of all roads of the package and shall be responsible for supervising the works of roads to be constructed by the Contractor for this project. He shall also inspect the pavement, rehabilitation and repair works to be undertaken by the Contractor
- (b) The position requires a graduate in Civil Engineer. He should have a minimum of 15 years of Professional Engineering experience in supervision of road projects, including 5 years in similar capacity for major rural road projects implemented on FIDIC based input contracts. He should have handled at least 2 projects in similar capacity.

Deputy Residential Engineer (One for Each District)

- (a) Deputy Resident Engineer shall be responsible for supervising the works of road projects to be constructed by the Contractor for this project.
- (b) He shall also inspect the pavement rehabilitation and repair works along with resilient measures using local, marginal and latest value engineering trends to be undertaken by the Contractor
- (c) The position requires a graduate in Civil Engineering with minimum of 10 years of professional experience or a Diploma in Civil Engineering with minimum 15 years' experience
- (d) Experience of supervision of rural projects including 5 years in similar capacity for major highway projects.
- (e) He should have handled at least two PMGSY projects

Quantity Surveyor (One for Each District)

- (b) Graduate in Civil Engineering from a recognized University with a professional experience of 10 years OR Diploma in Civil Engineering with a professional experience of 15 years
- (b) Minimum five years in Preparation of Bill of Quantities, Contract documents and documentation for rural road projects

Field Engineer (One for Each District)

- (a) Field Engineer shall be responsible for supervising the works of road projects to be constructed by the Concessionaire for this project. He shall also inspect the pavement rehabilitation and repair works to be undertaken by the Concessionaire.
- (b) The position requires a diploma in Civil Engineer, He should have a minimum of 5 years of professional experience with experience in supervision of highway projects or rural projects

Quality Control Engineer (One for Each District)

He should be Diploma in Civil engineering. with three 5 relevant experience. Relevant experience means experience as Lab Technician on Highway Projects, quality control of works.

The following experts from DPR stage shall part time inputs during implementation as listed below:

- a) Traffic cum Safety Engineer (3 Months)
- b) Quality cum Material Engineer (3months)
- c) Pavement Engineer (3 Months)
- d) Bridge and Structural Engineer (3 Months)
- e) Drainage Engineer (3 Months)
- f) Contract Specialist (3 Months)
- g) Quantity Surveyor (3 Months)
- h) Social and Environmental Expert (3 Months)