



Government of Nepal
Ministry of Physical Infrastructure and Transport
Department of Roads
Planning and Monitoring Branch
**Highway Management Information System-Information & Communication Technology
(HMIS-ICT) Unit**
Chakupat, Lalitpur

Expression of Interest

Notice No. : DORHMISICT/77/78/01

Contract Identification Number: DORHMISICT/337310113/078/79-01

First Date of Publication: 2nd July, 2021 (18th Ashad, 2078)

1. The Department of Roads (DoR) invites experienced and eligible local consultants to submit Expression of Interest (EoI) to provide consultancy services for **Consulting Services on Traffic Survey, Road Roughness Survey and Surface Distress Survey on National Highways (NH)**.
2. Further information and documents regarding the above mentioned service can downloaded from the website: : www.dor.gov.np or www.bolpatra.gov.np/egp
3. Expression of interest shall be delivered online through e-GP system www.bolpatra.gov.np on or before **12:00 Noon 18th July, 2021 (3rd Shrawan, 2078)** and opening shall be on **13:00pm 18th July, 2021 (3rd Shrawan, 2078) within office hours**.

Unit Chief

Terms of Reference (ToR)


Ministry of Physical Infrastructure & Transport
Government of Nepal
Department of Roads
HMIS-ICT Unit

Terms of Reference (ToR) for Consulting Services on Traffic, Surface Distress and Road Roughness Surveys on National Highways (NH)

1.0 Introduction and Background

Government of Nepal, Ministry of Physical Infrastructure and Transport (MOPIT), Department of Roads (DOR/Client) has been carrying out Traffic Count, Surface Distress and Road Roughness Surveys regularly on National Highways (NH) through consultants.

The end goal of DOR is “The reduction of total road transport cost”. Total transport cost includes construction costs, maintenance costs and road user costs. In order to achieve its goal, DOR needs to have regular access to updated road data in a compiled database system and records so as to facilitate the network planning. It is important that investment priorities in the road sector should be based on road data such as road condition & roughness, traffic volume and strategic importance of Roads. Highway Management Information System-Information and Communication Technology (HMIS-ICT) Unit has been playing a vital role in collecting, storing and updating these data for facilitating the decision makers at DOR for setting priorities on investment in maintenance and development requirements of roads and future network planning and extensions.

2.0 Objective

The objective of the Consultancy Services is to Carryout Surface Distress, Road Roughness Survey and Traffic Count and Vehicle Classification Surveys on National Highways (NH).

3.0 Scope of Works

During the execution of the Services, the consultant, among other aspects, shall undertake the following tasks:

3.1 Surface Distress

- Review of the relevant documents and familiarization with the theory and practice of surface distress and road roughness management. The distress survey is also aimed at providing the division a tool for estimating the recurrent needs and monitoring of the recurrent works.
- Carry out surface distress surveys and measure the major and minor distresses in the appropriate formats compatible to DOR- Road Network Database (RNDS) system. During the field survey 100% sampling survey will be done and all pavement distress (potholes/ cracks etc) should be captured.
- The formats and methodology for the surveys and distress recording should be developed and submitted for approval during submission of inception reports. The distresses will be taken to suit the HDM database format.
- The survey should be done using stabilized HD camera (at least 1080p, 30 fps) mounted on the same vehicle as the Roughometer. Onboard the vehicle, a GPS equipment with at least accuracy of 1m (Post Kinematic Processing with reference to GPS Base Station can be used) and 1 second recording interval should be used to capture the coordinates of the video recording.
- Use a four wheel drive vehicle suitable for equipment in perfect condition.
- Processing should be done to capture the coordinates and chainages of each of the distresses locations based on the video recording along with the GPS coordinates and the chainages from the Roughometer.

- A GIS database should be prepared and submitted showing the distresses and the location along with the attribute (e.g linkno, coordinates, chainage size of pothole etc). In order to make the coordinate compatible with the HMIS database, Modified UTM as per the Department of Survey Grid System with central meridian of 84 deg shall be used.
- Based on the GIS database of the distresses, Surface Distress Index (SDI) should be computed for a distance of 1m interval.
- Analyze image based camera data and classify roads (Good, Fair, Poor) on the basis of pothole size and number per 100m Length.
- The consultant shall submit the video for each of the links with chainage sub-titles along with an interactive software to view the video by chainage/coordinate and by distress location list (e.g pothole locations).
- Consult with Division Road Offices and Road Projects and study completion reports and update the surfacing age and rehabilitation/ construction age and type of surfaces link wise and chainage-wise. During distress measurement, the standard links will be divided into sub-links depending upon the surface types, urban stretches and landslide stretches.

3.2 Road Roughness Survey

- Roughness survey will be carried out by the equipment provided by the HMIS-ICT Unit as per the included equipment related guideline.
- Maintain a constant loading on the vehicle during testing and field measurements.
- Maintain the recommended speed (less than 35 kmph, preferably 32 kmph) and tire pressure during calibration and field measurements.
- Record results of the road roughness survey on the "Roughness Measurement" forms developed by the consultant and approved by DOR.
- Use a four wheel drive vehicle suitable for the equipment in perfect condition.
- Based on the reports of past few years the consultant shall recommend a new criteria for the categorization of roads (Good, Fair, Poor) based on the IRI data, especially roads that are on the hilly regions and for Otta Seal Roads.
- Submit the results of the surveys in a format approved by DOR along with copies of the raw survey data and summarize the processed data and enter the data in RNDS database of DOR.

3.3 Traffic Volume and Vehicle Classification Surveys

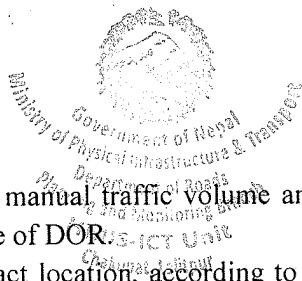
For the purposes of geometric design and for evaluation of economic benefits, the volume, composition and loading for current and future traffic on the road need to be known. All traffic forecasts, except in case of new roads, requires the knowledge of existing traffic and a combination of reliable historical traffic information as well as information on local and national traffic growth.

The surveys will be carried out at pre-determined 160 stations of NH. During the execution of the Services, the consultant, among other aspects, shall undertake the following tasks.

- Review the previous reports and familiarize with the theory and practice of carrying out manual traffic volume and classification surveys.
- Carry out the manual classified traffic count surveys for 72 hours periods. The traffic count shall be carried out on normal situation and local vehicle counting will be excluded.

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- Record and submit the results of the manual traffic volume and classification surveys on the data formats suitable to the RNDS database of DOR.
- The consultant will determine the exact location, according to the DOR Road Referencing System and get approval for each survey location and submit this information as part of his final report. The location should be fixed in such a way that the local vehicles are not entered into the records sheet.
- Surveys will be carried out in the location of previous surveys, which were carried out by the DOR/ previous Consultant but excluding urban stretches. In case of new locations, the consultant is advised to take the approval of Division Road Office as well as person in charge of the DOR.
- During the selection of new stations, the consultant will undertake a reconnaissance of the site so as to choose the most suitable location taking account of:
 - The safety of both drivers and survey personnel
 - The site distance required for carrying out the survey
 - Environmental concerns regarding setting up a temporary camp where necessary.
 - To avoid, the multiple counting of local traffic and abnormal construction traffic.
- The consultant shall have sufficient number of enumerators in order to facilitate the recording of the bi-directional traffic volume. All enumerators should be able to read and write English and all enumerators should have, or be provided with, a watch while on duty. During the survey the consultant will ensure that all enumerators are alert and working diligently and safely. He will ensure that all data sheets have the correct location, reference number, date and time and signatures of the enumerators. At the end of the shift he will ensure that the sheets are arranged serially for each direction, tagged, and stored safely.
- The consultant shall arrange a reliable transport facility and provide at least one civil/ highway engineer capable of supervision four to six survey stations conducted simultaneously and verifying the field data recorded by the enumerators.

Surface Distress Index (SDI), International Roughness Index (IRI) and Traffic Count and Classification Survey Networks for the FY 2078/79

SN	Name of Survey	Road Length (Km)
1	Surface Distress Index	6500
2	International Roughness Index	6500

S.N	Name of Survey	No. of Station for FY 2078/79
1	Traffic Volume and Vehicle Classification	160

Further details to be provided after signing of agreement.

4.0 Consultant's Facilities

It should be noted that the consultant should provide all the technical and support staff required to carry out their services. The consultant shall also be responsible for providing all other necessary facilities and logistic support for its staff, including accommodation, transportation, office equipment, communication, utilities, office supplies and other miscellaneous requirements.

DOR will provide the consultants relevant details of the National Highways (NH) including reference numbers of each road and road link. On request, the consultants will be given access to any relevant

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information, including project information, held in the RNDS database. Assistance may be available from the DOR Division Road Offices and DOR Projects for data required for carrying out survey.

The consultant shall be responsible to acquire other necessities at the consultant's own cost and shall be included in the financial proposal. The client shall make the following equipment available to the consultant to carry out the intended services.

- 1 Road Roughness Measurement equipment to be provided by the client.
- 2 In case of any physical damage to the Road Roughness Measurement equipment during the survey works and before submitting to the client, the consultant shall be responsible for the damage. In that case the consultant shall repair or maintain to the previous condition before submission to the client.

5.0 Reporting and Deliveries

The consultant shall keep full records relating to all aspects of the services covered under this contract. Such records shall be available for inspection to DOR. During the course of the service, Consultants are required to submit the following reports in numbers stated below:

S.N.	Reports and Deliveries	No of Copies	Details	
1	Inception Report	3 (Three) hard copies within 15 days of contract agreement	Findings of reviews on reports and detailed proposed methodology, key personnel assignment for the survey works, work schedule in details.	
			Development and submission of table of contents required for reports related to Traffic Count, Surface Distress and Road Roughness Surveys for getting approval prior to field survey.	
			Development of formats required for survey works and get approval from the Client.	
			Detailed reasons for any deviation from the agreed program and proposals to attain the progress specified in the schedule of work	
			The consultant shall modify the inception reports incorporating the comments obtained from the Client.	
2	Field Report	3 (Three) hard copies and soft copies as per approved work schedule for each of the following survey works separately	Details of the Road Links/ stations, which are surveyed and the results thus obtained.	
			Details(name and position) of the team members who are involved in the completed portion and vehicle employed on the survey work	
			The initials of the involved team members and the dates should be mentioned in the field reports	
3	Draft Report	3 (Three) hard copies and soft copies as per approved work schedule for each of the following	The draft report shall include but not be limited to	
			Annual Surface Distress Survey	The full results of surveys, in the format approved by DOR.
			Road	Any relevant comments concerning

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S.N.	Reports and Deliveries	No of Copies	Details						
		survey works separately	<table border="1"> <tr> <td>Roughness Survey</td> <td>the results of the surveys and on the methodology employed by the consultant, Difficulties encountered and how they were overcome would be of interest.</td> </tr> <tr> <td>Traffic volume and vehicle classification surveys</td> <td>Comments regarding the accuracy of the equipment and methods of measurement as well as recommendations for improving the survey procedure in general.</td> </tr> <tr> <td>Draft reports shall be presented at DOR for DOR Engineers/ Higher Management</td> <td>A list showing the locations according to the DOR road referencing system, of each Survey station where applicable as well locating the stations in the map of Nepal.</td> </tr> </table>	Roughness Survey	the results of the surveys and on the methodology employed by the consultant, Difficulties encountered and how they were overcome would be of interest.	Traffic volume and vehicle classification surveys	Comments regarding the accuracy of the equipment and methods of measurement as well as recommendations for improving the survey procedure in general.	Draft reports shall be presented at DOR for DOR Engineers/ Higher Management	A list showing the locations according to the DOR road referencing system, of each Survey station where applicable as well locating the stations in the map of Nepal.
Roughness Survey	the results of the surveys and on the methodology employed by the consultant, Difficulties encountered and how they were overcome would be of interest.								
Traffic volume and vehicle classification surveys	Comments regarding the accuracy of the equipment and methods of measurement as well as recommendations for improving the survey procedure in general.								
Draft reports shall be presented at DOR for DOR Engineers/ Higher Management	A list showing the locations according to the DOR road referencing system, of each Survey station where applicable as well locating the stations in the map of Nepal.								
5	Final Report	<p>The consultant shall modify the draft report incorporating the comments obtained from the client and submit Five (5) copies of Main Report and Three(3) copies other final field Data Reports within the stipulated time frame as under:</p> <table border="1"> <tr> <td>a) Surface Distress Index Survey Reports</td> </tr> <tr> <td>b) Road Roughness Survey Reports</td> </tr> <tr> <td>c) Traffic Volume and Vehicle classification survey Reports</td> </tr> </table> <p>The consultant must submit digital copy of the final reports of the data entered in specified formats and recorded videos for SDI in external hard disk. The consultant must enter the all data in RNDS database of DOR.</p>		a) Surface Distress Index Survey Reports	b) Road Roughness Survey Reports	c) Traffic Volume and Vehicle classification survey Reports			
a) Surface Distress Index Survey Reports									
b) Road Roughness Survey Reports									
c) Traffic Volume and Vehicle classification survey Reports									

Notes: All the reports submitted under this contract must be signed by all of the consultant's key personnel.

6.0 Time Frame

The time to complete the assignment shall be 6 months for the jobs.

7.0 Team Composition and Key staff Inputs

The assignment is expected to require the inputs of following key personnel together with adequate supporting manpower:

- Team Leader/ Senior Highway Engineer – 1 no.
- Highway Engineer -2 nos
- Civil Engineer – 2 nos

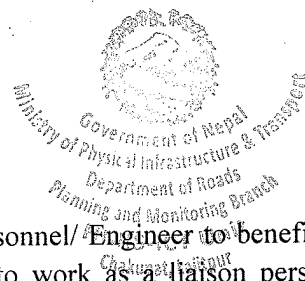
Note:

The above key staff composition is DOR's suggestion. The consultants are free to propose their own staff input requirement for efficient performance of their job as per TOR.

If proposed Person has to be replaced, this could be done only after approval of the client.

Shivam Singh

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8.0 Supervising Engineer

The Client may depute Supervising Personnel/ Engineer to benefit from the know-how transfer, for close supervision and monitoring and to work as a liaison personnel between the client and the Consultant.

9.0 Contractual and Implementing Arrangements

The consultant's contract will be with Government of Nepal, DOR (Client) and will be based on a contract agreement. The consultant will make all the reporting and consultations with DOR, HMIS-ICT Unit regarding the implementation of the project.

10.0 Consulting Services, Qualification & Responsibilities of Consultant's Key Personnel

The consulting firm/s shall have experience in survey, design and construction supervision of roads. Further experience of the firm/s in pavement condition survey, traffic count survey are preferable. The qualifications and responsibilities of consultant's key personnel will include, but not necessarily be limited to the following:

1	Team Leader/ Senior Highway Engineer		
	i	Educational Qualification	M.Sc. In Highway/Transportation Engineering or equivalent
	ii	Experience	
		General Experience	Experience in Civil Engineering projects
Specific Experience	Experience in Team building as Resident Engineer / Highway Engineer/Project Manager in Traffic vehicle classification and count survey/ SDI Survey/ IRI Survey		
iii	Job Description	<ul style="list-style-type: none"> • Overall responsibility for the execution of works in accordance with the ToR • Co-ordination of all professional units • Liaison with the client to make sure that the contract is implemented in accordance with the government's policies 	

2	Highway Engineer- 2 Nos		
	i	Educational Qualification	M.Sc. In Highway/Transportation Engineering or equivalent
	ii	Experience	
		General Experience	Experience in Civil Engineering projects
Specific Experience	Experience in Traffic vehicle classification and count survey/ SDI Survey/ IRI Survey		
iii	Job Description	<ul style="list-style-type: none"> • Carry out surface distress index survey and road roughness survey • Assist Team Leader in processing of field data • Assist Team leader in preparation of various documents 	

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3	Civil Engineer -2 Nos	
	i	Educational Qualification B.E. in Civil Engineering or equivalent
	ii	Experience General Experience Experience in Civil Engineering projects Specific Experience Experience in Traffic vehicle classification and count survey/ SDI Survey/ IRI Survey
	iii	Job Description <ul style="list-style-type: none"> • Carry out manual traffic volume and vehicle classification surveys • Assist Team Leader in processing of field data • Assist Team leader in preparation of various documents

11.0 Method of Payments

Method of payment will be as follows.

- a) There shall be no mobilization or demobilization payment.
- b) The client shall pay 20% of the contract amount after submission of the inception report.
- c) The client shall pay 40% of the contract amount after submission of the field report.

The payment against field report can be made in proportion of three main items of the work completed (Road Roughness Survey, Surface Distress Survey & Traffic Volume & Vehicle Classification Survey) Based upon their weightage in BOQ.

- d) The client shall pay 20% of the contract amount after submission of the draft final report
- e) The remaining 20% will be paid by the client after the acceptance of the final report

The consultant is expected to complete all the survey work as specified in the TOR and the BOQ. If the consultant for some unavoidable reason is unable to carry out total quantity of survey work as agreed in the BOQ, proportional amount will be reduced and adjusted during the final payment. The final payment against work completed by the consultant shall be computed on the following item rate basis.

As per quoted rates for "per km" for the following survey works.

- i. Surface Distress Index Survey
- ii. Road Roughness Survey

As per quoted rates for "per station" for the following survey work.

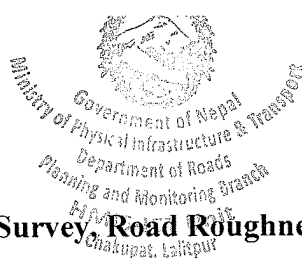
- iii. Traffic Volume and Vehicle Classification Surveys on NH

The rate for each of the surveys must include all staff, vehicle and equipment charges as well as all recording, reporting, overheads and profit. The client will not pay any other charges over and above the accepted rates per km and per station of survey and LS for procurement.

G. Prasad

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EOI Evaluation Criteria



Consulting Services on Traffic Survey, Road Roughness Survey and Surface Distress Survey on National Highway (NH)

FY:- 078-79

ELIGIBILITY AND QUALIFYING CRITERIA

Eligibility Criteria:

S.N.	Eligibility Criteria	Compliance	Status
1	Corporate Registration	Yes/No	Pass/Fail
2	Tax Clearance for upto last fiscal year	Yes/No	Pass/Fail
3	VAT/PAN Registration	Yes/No	Pass/Fail
4	Year of Standing min. 5 year (At least one firm in case of JV)	Yes/No	Pass/Fail
5	JV Agreement in case of Firms in JV	Yes/No	Pass/Fail
6	Adherence to code of Ethics and Anti-Corruption Policy	Yes/No	Pass/Fail

Note 1 : Consulting Firms can form a Joint Venture (JV). The EOI of Short List must clearly mention the name of the leading firm with financial liabilities.

Note 2: Maximum no of JV Firms : 3 (Three)

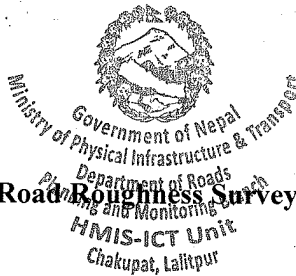
Note 3: The firm/jv shall have to submit separate sealed EOI for each package.

Note 4: The same firm shall not be allowed to submit EoI individually and in JV for same package. ("Example 1: EOI for Firm A and Firm A JV Firm B" - Not Allowed) ("Example 2: EOI for Firm A JV with Firm B and Firm B JV with Firm C" - Not Allowed)

Prepared By:

Checked By:

Approved By:



Consulting Services on Traffic Survey, Road Roughness Survey and Surface Distress Survey on National Highway (NH)

FY:- 078-79

Details of Qualifying Criteria

Description of Criteria	Marks out of 100	Minimum Marks to be obtained under each criteria
A) Firm's Capacity	50	30
1) Financial Capacity of Firm	10	
2) Resource of Firm	40	
(a) Resource Personnel	35	
(b) Office Equipment and Facility	5	
B) Experience of Firm	50	30
1) General Experience of the Firm	10	
2) Specific Experience of the Firm	40	

A) Firm's Capacity

Maximum 50 Marks

1) Financial Capacity of Firm

Maximum 10 Marks

Average Annual Turnover of best 3 year of last five fiscal year	Marks
<NRs. 0.1A	1
>NRs. 1.5A	10
For Value in between, points will be awarded in prorate basis.	

A= Estimated Amount excluding VAT and Contingency

Note 5: The firm and/or JV shall have to submit Notary Public attested Tax Clearance Certificate of each fiscal year, supposed to be counted for EOI evaluation. Submission of Audit report or any another compiled tables shall not be considered for EOI evaluation. Notary Public signature shall be verified, if required.

Note 6: In case of JV business, the firm and/or JV shall have to submit Notary Public attested Tax Clearance Certificate of each fiscal year along with the JV agreement of that business, supposed to be counted for EOI evaluation.

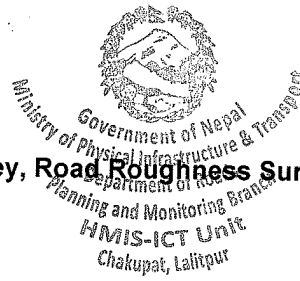
Note 7: In case of JV, average annual turnover of the JV shall be evaluated taking account the % of Financial liability as stated in the JV Agreement for the EOI. If the JV agreement shall not clear about % of Financial liability, the marks for Financial Capacity shall be evaluated to Zero.

Note 8: For the evaluation of Financial capacity, Inflation Adjustment Factor (wholesale price index: overall index of NRB) shall be considered.

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Consulting Services on Traffic Survey, Road Roughness Survey and Surface Distress Survey on National Highway (NH)

Details of Qualifying Criteria

FY:- 078-79

2) Resource of Firm(s)

Maximum 40 Marks

a) Resource Personnel

Maximum 35 Marks

Professional Key Personnel	Maximum Marks	Minimum experience after Bachelor Degree	Education Required	Marks for Specific Experience as mentioned in TOR
<i>Team Leader / Senior Highway Engineer -1</i>	10	6	M.Sc. In Highway/Transportation Engineering or equivalent	2.5 marks for each job
<i>Highway Engineer - 2</i>	15 (7.5 Marks for each)	4	M.Sc. In Highway/Transportation Engineering or equivalent	3.75 mark for each job
<i>Civil Engineer - 2</i>	10 (5 Marks for each)	4	B.E. in Civil Engineering or equivalent	2.5 mark for each job
Total=	35			

Note 9: CV of each professional key personnel shall be submitted with signature of professional and authorized representative of the firm/JV.

Note 10: Proposed professional key personnel shall not be repeated by the same firm/JV and/or another firm/JV. In case of repetition of professional key personnel, the Unit shall ask via letter/email the person for physical presence within three days to declare him/herself the firm/JV to whom he/she shall want to be associated.

Note 11: CV of personnel's shall clearly mention his/her e-mail address and mobile number.

Note 12: The firm/JV shall have to submit the NEC registration certificate for engineer professionals.

Note 13: The firm/JV shall also have to submit any certificate as evidence of his/her education (degree) as required above with Notarized Academic certificate of manpower.

b) Office Equipment and Facility

Maximum 5 Marks

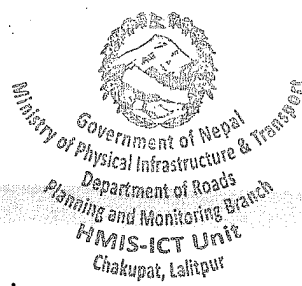
List of Space, Survey Equipment's and Vehicle available with and owned by the firm(s). Lease or hire agreements/proposals are not accepted.

Equipment/Facilities	Maximum marks	Marks Obtained	Remarks
Vehicle	5	5 Points	Must Submit Ownership evidence with Notary Public Attested

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**B) Experience of Firm/JV****Maximum 50 Marks****B1) General Civil Engineering Experience****Maximum 10 Marks**

Work Experience	As consultant
Completion of Civil Engineering related Service (Service Cost more than NRs. 25 Lakhs excluding VAT)	2.0 points for each job

B2) Specific Experience**Maximum 40 Marks**

Work Experience	As consultant
Traffic Count Survey	4.0 points for each job (Maximum 2 jobs)
SDI Survey	8.0 points for each job (Maximum 2 jobs)
IRI Survey	8.0 points for each job (Maximum 2 jobs)

Note 14:-The firm and/or JV shall have to submit Notary Public attested Experience Certificates. No marks shall be given for the experience of the firm if the certificate of completion is not attached. If the firm has completed more than one job in a single package each job shall be considered.

Note 15: The services for Govt of Nepal (GoN) organizations (Fully or Semi/Partially Owned) shall only be evaluated as firm/JV experiences for the Proposal. The Consultants Specific experience as JV partners shall be provided full marks and any specific experiences by the firm as "In association with" shall also be considered during evaluation.

Note 16: Any sub-lated Service for Govt of Nepal (GoN) organizations (Fully or Semi/Partially Owned) by a firm or JV from another private firm/JV shall not be evaluated as firm/JV experience for the EoI .

Note 17: Any service experience older than 7 year (counted from the last date of submission of EoI) shall not be evaluated as firm/JV experience for the EoI. Each experience certificate shall clearly indicate the description of service, service amount (in/excluding VAT) and date of completion.

Prepared By:

Checked By:

Approved By: