



नेपाल सरकार
भौतिक पूर्वाधार तथा यातायात मन्त्रालय
(पूर्वाधार निर्माण तथा यातायात महाशाखा)

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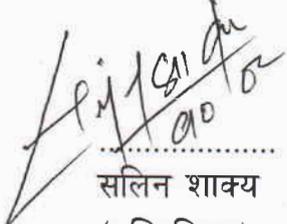
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मिति: २०७५/१०/०८

विषय: “Norms for Estimate of Consultancy Services related to Road and Bridge Works-2075” सम्बन्धमा।

श्री सडक विभाग,
चाकुपाट, ललितपुर।

उपरोक्त सम्बन्धमा तहाँ विभागबाट पेश भइ आएको “Norms for Estimate of Consultancy Services Related to Road and Bridge Works-2075” नेपाल सरकार (मन्त्रीस्तर) को मिति २०७५/१०/०४ को निर्णयानुसार स्वीकृत भएकोले आदेशानुसार जानकारी गराइन्छ।


सलिन शाक्य
(इन्जिनियर)



Government of Nepal

Ministry of Physical Infrastructure and Transport

**NORMS
FOR
ESTIMATE
OF
CONSULTANCY SERVICES
RELATED TO ROAD AND
BRIDGE WORKS**

2075



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Norms for Rate Analysis

Feasibility study of Roads

Unit = Km (for 10 km of Road)

1 Manpower

	Professional/Supporting Staff	Unit	Desk Study	Travel	Field work	Report Preparation	Total
A	Key Staff						
1	Team Leader (Highway/ Transportation Engineer)	day	3	1	2	5	11
2	Environmental/ Forestry Specialist/ Ecologist)	day	1			2	3
3	Geologist/Eng.Geologist/ Geo-Technical Engineer	day	1	1	2	2	6
4	Hydrologist	day	1			2	3
5	Socio-Economist/ Transport Economist	day	1			1	2
	Legal expert	day					
B	Support Staff						
1	Draft person/ Cad operator	day				2	2
2	Computer operator	day				5	5
3	Surveyor/ Sub engineer	day	1	1	2	5	9
4	Account/ admin staff/ Supervisor	day				2	2
5	Support staff /helper	day	2		6	5	13

* Adjust travel time in above table as per location of work site as ; 1 day for Kathmandu Valley, 2 day with in state no 3 and 3 days out side of State no 3.

- | | | |
|------------------------------------|----|--------------------------------|
| 2) Transportation of personals | Ls | 10 % cost of manpower required |
| 3) Tools and equipment | Ls | 5 % cost of manpower required |
| 4) Stationary and logistic support | Ls | 5 % cost of manpower required |

Note:

- a) In case of Terai road determine manpower requirement of field work component as 80 percent of above mention value .
- b) for other than 10 km length , determine per km manpower requirement and modify as follows;
- I) If $L < 10$ km, determine per km manpower requirement and deduct @ 80 % of md per km except travel and calculate total cost accordingly after adjustment in (a) above. [for example in case of 6 km road, for team leader in above, find manpower for 10 km ie desk study=3, travel= 1, field work= 2, report preparation= 5 , total 11 md , for field work 2/10 md per km; for 6 km it will be $11 - 4 \times 2/10 \times 0.8 = 10.84$ md. in Kathmandu Valley]
- II) If $L > 10$ km, determine per km manpower requirement and add @ 80 % of md per km on and calculate total cost accordingly after adjustment in (a) above. [for example in case of 12 km road, for team leader in above, find manpower for 10 km ie desk study=3, field work 2, report preparation 5 = 10 md / 10 = 1 md per km (excluding travel; for 12 km it will be $10 + 2 \times 10/10 \times 0.8 = 11.6$ and travel time 1 day ie total time in Kathmandu will be 12.6 md.]
- c) for more than one road, in a package ; consider longest road first and add cost after applying road factors as 80 % of cost with in 10 km distance and 90 % of cost for outside of 10 km distance for each additional road.



Scope of work Include:

- 1 Desk study including planning of work and collection of secondary information,
- 2 Socio- economic studies
 - Demographic information
 - Landuse pattern
 - Trade industry and commerce
 - Health facilities
 - Education facilities
 - Transportation and communication facilities
 - Administrative facilities
- 4 Traffic Studies including traffic forecast
- 5 Selection of feasible option of road
 - Alternative alignment
 - Typical cross section to compare alternative
 - Key calculation and cost benefit analysis of each option
 - Economic and Financial analysis
- 6 Preliminary alignment survey
 - Alignment map at least 1: 5000 scale for all alternative
 - Description of major crossing
- 7 Geometric characteristics and Terrain classification
 - Road element
 - Construction material
 - Geological/ Geotechnical Survey
 - Hydrological Studies
- 8 Suggestion of typical road element
- 9 Preparation of typical cost Estimate
- 10 Required area for land acquisition, Resettlement issues etc.

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Norms for Rate Analysis

Detailed Engineering Survey and Design of Roads

Unit = Km (for 10 km of Road)

1 Manpower

	Professional/Supporting Staff	Unit	Desk Study	Travel *	Field work	Report Preparation	Total
A	Key Staff						
	Team Leader (Highway/ Transportation Engineer)	day	7	1	10	12	30
	Environmental/ Forestry Specialist/ Ecologist)	day	2	1	4	4	11
	Geologist/Eng.Geologist/ Geo-Technical Engineer	day	2	1	2	4	9
	Structural Engineer	day	1			6	7
	Hydrologist	day	2	1	2	2	7
	Socio-Economist	day	2	1	4	7	14
	Legal expert	day				4	4
B	Support Staff						
	Draft person/ Cad operator	day				10	10
	Computer operator	day				10	10
	Surveyor/ Sub engineer	day	4	1	20	10	35
	Account/ admin staff/ Supervisor	day		1	20	5	26
	Support staff /helper/ camp worker	day	2		100	20	122

* Adjust travel time in above table as per location of work site as ; 1 day for Kathmandu Valley, 2 day with in state no 3 and 3 days out side of State no 3.

- | | | |
|------------------------------------|----|--------------------------------|
| 2) Transportation of personals | Ls | 10 % cost of manpower required |
| 3) Tools and equipment for survey | Ls | 10 % cost of manpower required |
| 4) Stationary and logistic support | Ls | 5 % cost of manpower required |

Note:

- a) In case of Terai road determine manpower requirement of field work component as 80 percent of above mention value .
- b) for other than 10 km length , determine per km manpower requirement and modify as follows;
- I) If $L < 10$ km, determine per km manpower requirement and deduct @ 80 % of md per km except travel and calculate total cost accordingly after adjustment in (a) above. [for example in case of 6 km road, for team leader in above, find manpower for 10 km ie desk study=7, travel= 1, field work =10, report preparation= 12 , total= 30 md , for field work 10/10 md per km; for 6 km it will be $30 - 4*10/10*0.8 = 26.8$ md. in Kathmandu Valley]
- II) If $L > 10$ km, determine per km manpower requirement and add @ 80 % of md per km on and calculate total cost accordingly after adjustment in (a) above. [for example in case of 12 km road, for team leader in above, find manpower for 10 km ie desk study=7, field work =10, report preparation =12 , ie $29 / 10 = 2.9$ md per km excluding travel; for 12 km it will be $29 + 2*2.9*0.8 = 33.64$ and travel time 1 day ie total time in Kathmandu will be 34.64 md.]
- c) for more than one road, in a package ; consider longest road first and add cost after applying road factors as 80 % of cost with in 10 km distance and 90 % of cost for outside of 10 km distance for each additional road.
- d) If lane width of Road is more than 2 lane Add additional 10 % of cost for each lane width.

2



Scope of work Include:

- 1 Desk study including planning of work and collection of secondary information,
- 2 Preliminary site visit
 - walkover survey to get information about existing road condition.
 - to decide alternative route and tentative road length Ls
- 3 Socio- economic studies
 - Demographic information
 - Land use pattern
 - Trade industry and commerce
 - Health facilities
 - Education facilities
 - Transportation and communication facilities
 - Administrative facilities
- 4 Traffic Studies including traffic forecast
- 5 Selection of feasible option of road
 - Alternative alignment
 - Typical cross section to compare alternative
 - Key calculation and cost benefit analysis of each option
 - Economic and Financial analysis
- 6 Detail Engineering survey of selected alignment
 - Topographical survey at least 1 point per 25 sqm
 - Preparation of map in 1: 1000 scale and cross section at 10 - 25 m interval, minimum 25 m strip
- 7 Engineering study and Inventory survey
 - Road element
 - Construction material
 - Geological/ Geotechnical Survey
 - Hydrological Studies
- 8 Design of Road and Plotting of Drawing
 - Road element (L- section, X- section, curve, pavement, drainage, structures etc.)
 - Engineering Drawings (Plan 1: 1000, H . Profile 1: 1000, V. Profile 1: 200, Cross section 1: 200)
- 9 Preparation of Engineering cost Estimate
- 10 Preparation of Bill of Quantities
- 11 Preparation of construction Program, Project Objective, and Scope.

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Norms for Rate Analysis

Junction improvement survey and design

Unit = Km (for 2 km)

1 Manpower

	Professional/Supporting Staff	Unit	Desk Study	Travel *	Field work	Report Preparation	Total
A	Key Staff						
1	Team Leader (Road safety expert / Transportation Engineer)	day	2	1	1	7	11
2	Highway Engineer	day	1	1	1	2	5
B	Support Staff						
1	Draft person/ Cad operator	day				7	7
2	Computer operator	day				7	7
3	Surveyor/ Sub engineer	day	1	1	2	7	11
4	Account/ admin staff/ Supervisor	day				1	1
5	Support staff /helper	day	1		6	7	14

* Adjust travel time in above table as per location of work site as ; 1 day for Kathmandu Valley, 2 day with in state no 3 and 3 days out side of State no 3.

- | | | |
|------------------------------------|----|--------------------------------|
| 2) Transportation of personals | Ls | 10 % cost of manpower required |
| 3) Tools and equipment for survey | Ls | 10 % cost of manpower required |
| 4) Stationary and logistic support | Ls | 5 % cost of manpower required |

Note:

a) for other than 2 km length , determine per km manpower requirement and modify as follows;

I) If $L < 2$ km, determine per km manpower requirement and deduct @ 80 % of md per km except travel and calculate total cost accordingly [for example in case of 1.5 km total junction length, for team leader in above, find manpower for 2 km ie desk study= 2 , travel= 1, field work= 1, report preparation =7 , total= 11 md , for field work 1/2 md per km; for 1.5 km it will be $11 - 0.5 \times 1/2 \times 0.8 = 10.75$ md.]

II) If $L > 2$ km, determine per km manpower requirement and add @ 80 % of md per km on and calculate total cost accordingly [for example in case of 4 km road, for team leader in above, find manpower for 2 km ie desk study= 2, field work= 1, report preparation =7, ie $10 / 2 = 5$ md per km excluding travel; for 4 km it will be $10 + 2 \times 5 \times 0.8 = 18$ md and travel time 1 day ie total time will be 19 md.]

b) for more than one junction, in a package ; consider longest junction first and add cost after applying junction factors as 80 % of cost with in 10 km distance and 90 % of cost for outside of 10 km distance for each additional junction .

c) Above Cost is excluding cost of Traffic count, for traffic count add additional cost as specified in traffic count norms.



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Norms for Rate Analysis



Scope of work Include:

- 1 Dessk study including planning of work and collection of secondary information,
- 4 Traffic Studies including traffic forecast
- 3 Selection of feasibile option of crossing
 - Alternative crossing type
 - Typical cross section to compare alternative
 - Key calculation and cost benefit analysis of each option
 - Economic and Financial analysis
- 4 Detail Engineering survey of crossing
 - Topographical survey at least 1 point per 25 sqm
 - Praperation of map in 1: 1000scaleand cross section at 10 - 25 m interval, minimum 25 m strip
- 5 Engineering study and Inventory survey
 - Road junction element
 - Construction material
 - Geological/ Geotechnical Survey
- 6 Design of junction improvement and Ploting of Drawing
 - junction element (L- section, X- section, curve, drainage structures etc)
 - Engineering Drawings (Plan 1: 1000, H . Profile 1: 1000, V. Profile 1: 200, Cross section 1: 200)
- 7 Preparation of Engineering cost Estimate
- 8 Preparation of Bill of Quantities

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Norms for Rate Analysis

Rapid Roads safety Audit/ Road safety inspection (Black spot analysis)/ traffic safety studies

Unit = Km (for 10 km of Road)

1 Manpower

	Professional/Supporting Staff	Unit	Desk Study	Travel *	Field work	Report Preparation	Total
A	Key Staff						
1	Team Leader (Road safety expert))	day	1	1	1	3	6
2	Highway/Transportation Engineer	day	0	1	1	1	3
	Civil Engineer	day	0	1	1	1	3
B	Support Staff						
1	Draft person/ Auto cad operator	day				2	2
2	Support staff /helper	day			2		2

* Adjust travel time in above table as per location of work site as ; 1 day for Kathmandu Valley, 2 day with in state no 3 and 3 days out side of State no 3.

- | | | |
|------------------------------------|----|--------------------------------|
| 2) Transportation of personals | Ls | 10 % cost of manpower required |
| 3) Tools and equipment for survey | Ls | 5 % cost of manpower required |
| 4) Stationary and logistic support | Ls | 5 % cost of manpower required |

Note:

a) In case of Terai road determine manpower requirement of field work component as 80 percent of above mention value .

b) for other than 10 km length , determine per km manpower requirement and modify as follows;

I) If $L < 10$ km, determine per km manpower requirement and deduct @ 80 % of md per km except travel and calculate total cost accordingly after adjustment in (a) above. [for example in case of 6 km road, for team leader in above, find manpower for 10 km ie desk study=1 travel= 1, field work= 1, report preparation 3 , total= 6 md , for field work 1/10 md per km; for 6 km it will be $6 - 4 * 1/10 * 0.8 = 5.68$ md. in Kathmandu Valley]

II) If $L > 10$ km, determine per km manpower requirement and add @ 80 % of md per km on and calculate total cost accordingly after adjustment in (a) above. [for example in case of 12 km road, for team leader in above, find manpower for 10 km ie desk study=1, field work 1, report preparation =3 , ie $5 / 10 = 0.5$ md per km excluding travel; for 12 km it will be $6 + 2 * 0.5 * 0.8 = 6.8$ and travel time 1 day ie total time in Kathmandu will be 7.8 md.]

c) for more than one road, in a package ; consider longest road first and add cost after applying road factors as 80 % of cost with in 10 km distance and 90 % of cost for outside of 10 km distance for each additional road.

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Norms for Rate Analysis



Scope of work Include:

- 1 Desk study including planning of work and collection of secondary information,
- 2 Carry out Road safety inspection/ Safety Audit based on to determine general safety issues:
 - Suggest general safety for all road users (including pedestrians (especially children), cyclists, and motorcyclists) in all weathers and lighting conditions
 - MANAGE speeds as per road environment
 - CONTROL the driver's passage through conflict points and other difficult sections
 - FORGIVE the driver's mistakes or inappropriate behaviour.
- 3 Data collection and report including :
 - Safety concerns regarding general aspects of the design such as design speed, cross-section, superelevation, speed management, signing, etc.
 - Safety concerns regarding features at specific locations , such as an awkward bend, or a dangerous junction.
 - follow and be realistic and practical (though they should not be too concerned about costs, as it is for the client to decide whether the cost can be justified)keep to road safety aspects
 - check compliance with approved standards and guidelines whilst remembering that compliance with standards does not guarantee that the road will be safe.

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Ministry of Physical Infrastructure and Transport
Norms for Rate Analysis

Roads safety Audit/ Road safety inspection (Black spot analysis)/Traffic safety studies

Unit = Km (for 10 km of Road)

1 Manpower

	Professional/Supporting Staff	Unit	Desk Study	Travel *	Field work	Report Preparation	Total
A Key Staff							
1	Team Leader (Road safety expert/ Transportation Engineer)	day	2	1	2	7	12
2	Highway Engineer	day	1	1	2	4	8
3	Civil Engineer	day	1	1	2	4	8
B Support Staff							
1	Draft person/ Auto cad operator	day				4	4
2	Computer operator	day				7	7
3	Account admin staff/ Supervisor	day				1	1
4	Support staff /helper	day	2		4	7	13

* Adjust travel time in above table as per location of work site as ; 1 day for Kathmandu Valley, 2 day with in state no 3 and 3 days out side of State no 3.

- | | | |
|------------------------------------|----|--------------------------------|
| 2) Transportation of personals | Ls | 10 % cost of manpower required |
| 3) Tools and equipment for survey | Ls | 5 % cost of manpower required |
| 4) Stationary and logistic support | Ls | 5 % cost of manpower required |

Note:

a) In case of Terai road determine manpower requirement of field work component as 80 percent of above mention value .

b) for other than 10 km length , determine per km manpower requirement and modify as follows;

- I) If $L < 10$ km, determine per km manpower requirement and deduct @ 80 % of md per km except travel and calculate total cost accordingly after adjustment in (a) above. [for example in case of 6 km road, for team leader in above, find manpower for 10 km ie desk study=2 travel= 1, field work =2, report preparation= 7, total = 12md , for field work $2/10$ md per km; for 6 km it will be $12 - 4 * 2/10 * 0.8 = 11.36$ md. in Kathmandu Valley]
- II) If $L > 10$ km, determine per km manpower requirement and add @ 80 % of md per km on and calculate total cost accordingly after adjustment in (a) above. [for example in case of 12 km road, for team leader in above, find manpower for 10 km ie desk study=2, Field work 2, report preparation =7 , ie $11 / 10 = 1.1$ md per km excluding travel; for 12 km it will be $11 + 2 * 1.1 * 0.8 = 12.76$ and travel time 1 day ie total time in Kathmandu will be 13.76 md.]

c) for more than one road, in a package ; consider longest road first and add cost after applying road factors as 80 % of cost with in 10 km distance and 90 % of cost for outside of 10 km distance for each additional road.

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Norms for Rate Analysis



Scope of work Include:

1 Desk study including planning of work and collection of secondary information,

2 Carry out Road safety inspection/ Safety Audit based on key principles of Auditing:

PROVIDE safety for all road users (including pedestrians (especially children), cyclists, and motorcyclists) in all weathers and lighting conditions

MANAGE speeds by careful design of the road environment

ENSURE that there are no nasty surprises GUIDE, INFORM and WARN the driver about the road ahead

BE CONSISTENT in the way roads and junctions are designed and signed

CONTROL the driver's passage through conflict points and other difficult sections

FORGIVE the driver's mistakes or inappropriate behaviour.

3 Data collection and report including :

Safety concerns regarding general aspects of the design such as design speed, cross-section, superelevation, speed management, signing, etc.

Safety concerns regarding features at specific locations , such as an awkward bend, or a dangerous junction.

follow and be realistic and practical (though they should not be too concerned about costs, as it is for the client to decide whether the cost can be justified)keep to road safety aspects

check compliance with approved standards and guidelines whilst remembering that compliance with standards does not guarantee that the road will be safe.

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Norms for Rate Analysis

Feasibility Study of the bridge

Unit = Nos (for 1 (one) bridge)

1 Manpower

	Professional/Supporting Staff	Unit	Desk Study	Travel *	Field work	Report Preparation	Total
A Key Staff							
1	Team Leader (Bridge/Structural Engineer)	day	2	1	1	7	11
2	Geologist/Eng.Geologist/ Geo-Technical Engineer	day	2	1	1	2	6
3	Hydrologist	day	2	1	1	1	5
B Support Staff							
1	Draft person/ Auto cad operator	day				5	5
2	Computer operator	day				7	7
3	Surveyor/ Sub engineer	day	1	1	20	10	32
4	Account admin staff/ Supervisor	day		1	5	5	11
5	Support staff /helper	day	4		20	66	90

* Adjust travel time in above table as per location of work site as ; 1 day for Kathmandu Valley, 2 day with in state no 3 and 3 days out side of State no 3.

- | | | |
|------------------------------------|----|--------------------------------|
| 2) Transportation of personals | Ls | 10 % cost of manpower required |
| 3) Tools and equipment for survey | Ls | 5 % cost of manpower required |
| 4) Stationary and logistic support | Ls | 5 % cost of manpower required |

Note:

- a. for more than one bridge in a package ; select highest category of bridge first and determine required manpower then add additional manpower after applying bridge factors as 80 % of within 10 km distance and 90 % for outside of 10 km distance for each additional bridge on manpower component .





Scope of work Include:

1 Desk study including planning of work and collection of secondary information,

2 Feasibility study

- Technical Feasibility study:

Reviewing and analysis of secondary and primary data including (i) Topography

(ii) Nature and structure of the surface soil

(iii) Nature and structure of local as well as regional geology

(iv) Other information as needed

-Bridge Site Selection

Most suitable site among alternative sites

Topographical Survey

Hydrological Study

Seismological Study:

3 Concept Design of Bridge

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Norms for Rate Analysis

Feasibility Study, Detailed Engineering Survey, Soil Investigation, Hydrological Study and Detailed Design of the bridge

Unit = Nos (for 1 (one) bridge)

1 Manpower

	Professional/Supporting Staff	Unit	Desk Study	Travel *	Field work	Report Preparation	Total
A	Key Staff						
1	Team Leader (Bridge/Structural Engineer)	day	4	1	4	33	42
2	Environmentalist/ Forestry Specialist/ Ecologist)	day	1	1	1	2	5
3	Geologist/Eng.Geologist/ Geo-Technical Engineer	day	2	1	2	9	14
4	Road / Highway Engineer	day	1	1	2	4	8
5	Hydrologist	day	2	1	2	2	7
6	Socio-Economist	day				2	2
7	Legal expert	day				2	2
B	Support Staff						
1	Draft person/ Auto cad operator	day				10	10
2	Computer operator	day				10	10
3	Surveyor/ Sub engineer	day	1	1	20	10	32
4	Account admin staff/ Supervisor	day		1	5	5	11
5	Support staff /helper	day	4		20	66	90

* Adjust travel time in above table as per location of work site as ; 1 day for Kathmandu Valley, 2 day with in state no 3 and 3 days out side of State no 3.

- | | | |
|------------------------------------|----|--------------------------------|
| 2) Transportation of personals | Ls | 10 % cost of manpower required |
| 3) Tools and equipment for survey | Ls | 5 % cost of manpower required |
| 4) Stationary and logistic support | Ls | 5 % cost of manpower required |

- 5) Detail soil investigation (Drilling of bore hole and Laboratory Test) As per Requirement
(Refer Section 500 and 3000 of Norms for Road and Bridge Works - 2073)

Note:

- a For minor Bridge use manpower as above
- b For Medium bridge multiple above manpower by 1.20
- c For Major bridge multiple above manpower by 1.40
- d For Special Bridge multiple above manpower by 1.6
- e.

for more than one bridge in a package ; select highest category of bridge first and determine required manpower then add additional manpower after applying bridge factors as 80 % of with in 10 km distance and 90 % for outside of 10 km distance for each additional bridge on manpower component .



Scope of work Include:

- 1 Desk study including planning of work and collection of secondary information,
- 2 Feasibility study
 - Technical Feasibility study:
Reviewing and analysis of secondary and primary data including (i) Topography
(ii) Nature and structure of the surface soil
(iii) Nature and structure of local as well as regional geology
(iv) Other information as needed
 - Bridge Site Selection
Most suitable site among alternative sites
Topographical Survey
Hydrological Study
Environmental Study
Seismological Study:
- 3 Design of Bridge
 - Test pits and auguring
 - Bore-holes, field tests and laboratory tests
 - Undisturbed Soil Sampling
 - Standard Penetration Test
 - Grain size analysis
 - Hydrometer analysis
 - Moisture content
 - Bulk and dry density
 - Unconfined compression test
 - Consolidation test
 - Direct shear test
- 4 Analysis of Data, Conclusion and Recommendation of Design Parameters.
- 5 Use of Standard Design(s)

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Norms for Rate Analysis

Detailed Engineering Survey, Soil Investigation, and Detailed Design of the bridge

Unit = Nos (for 1 (one) bridge)

1 Manpower

	Professional/Supporting Staff	Unit	Desk Study	Travel *	Field work	Report Preparation	Total
A	Key Staff						
1	Team Leader (Bridge/ Structural Engineer)	day	2	1	2	35	40
2	Geologist/Eng.Geologist/ Geo-Technical Engineer	day	1	1	2	7	11
3	Road / Highway Engineer	day	1	1	2	4	8
4	Hydrologist	day	1	1	2	7	11
5	Socio-Economist	day				2	2
6	Legal expert	day				2	2
B	Support Staff						
1	Draft person/ Auto cad operator	day				14	14
2	Computer operator	day				10	10
3	Surveyor/ Sub engineer	day	1	1	4	10	16
4	Account admin staff/ Supervisor	day				4	4
5	Support staff /helper	day	4		4	10	18

* Adjust travel time in above table as per location of work site as ; 1 day for Kathmandu Valley, 2 day with in state no 3 and 3 days out side of State no 3.

- | | | |
|---|----|--------------------------------|
| 2) Transportation of personals | Ls | 10 % cost of manpower required |
| 3) Tools and equipment for survey/ drilling | Ls | 5 % cost of manpower required |
| 4) Stationary and logistic support | Ls | 5 % cost of manpower required |

5 Detail soil investigation (Drilling of bore hole and Laboratory Test) As per Requirement
(Refer Section 500 and 3000 of Norms for Road and Bridge Works - 2073)

Note:

- a For minor Bridge use manpower as above
- b For Medium bridge multiple above manpower by 1.20
- c For Major bridge multiple above manpower by 1.40
- d For Special Bridge multiple above manpower by 1.6
- e for more than one bridge in a package ; select highest category of bridge first and determine required manpower then add additional manpower after applying bridge factors as 80 % of with in 10 km distance and 90 % for outside of 10 km distance for each additional bridge on manpower component .



Scope of work Include:

- 1 Desk study including planning of work and collection of secondary information,
- 2 Feasibility study

- Technical Feasibility study:

- Reviewing and analysis of secondary and primary data including (i) Topography
(ii) Nature and structure of the surface soil
(iii) Nature and structure of local as well as regional geology
(iv) Other information as needed

-Bridge Site Selection

Most suitable site among alternative sites

Topographical Survey

Hydrological Study

Environmental Study

Seismological Study:

- 3 Site assessment to collect following information:

Test pits and auguring

Bore-holes, field tests and laboratory tests

Undisturbed Soil Sampling

Standard Penetration Test

Grain size analysis

Hydrometer analysis

Moisture content

Bulk and dry density

Unconfined compression test

Consolidation test

Direct shear test

- 4 Analysis of Data, Conclusion and Recommendation of Design Parameters.

- 5 Design of bridge / Use of Standard Design(s)



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Special Inspection and Design of Maintenance / Repair Works

Unit = Nos (for 1 (one) bridge)

1 Manpower

Bridge Type	Length of Bridge	Professional/Supporting Staff	Unit	Desk Study	Travel *	Field work	Report Preparation	Total
RCC / Arch bridge	upto 25m	Team leader/ Br. Engineer	day	1	1	1	7	9
		Structural Engineer	day	1	1	1	7	9
		Geo - Technical Engineer	day	1	1	1	2	4
		Hydrologist	day	1	1	1	2	4
		Support staff (2 nos)	day	1		4	7	11
Note:	for more than 25 m length additional component of mandays per m will be as follows;							
	a.	0.005 md of each professional (excluding support staff) for desk study						
	b.	0.01 md of each type of manpower for Field work						
	c.	0.008 md of each professional (excluding support staff) forReport preparation.						

SteelTruss/ Cable Bridge	upto 50m	Team leader/ Br. Engineer	day	0.5	1	3	10	14.5
		Structural Engineer	day	0.5	1	3	10	14.5
		Geo - Technical Engineer	day	0.5	1	3	4	8.5
		Hydrologist	day	0.5	1	3	3	7.5
		Support staff (2 nos)	day	1		6	10	17

*** Adjust travel time in above table as per location of work site as ; 1 day for Kathmandu Valley, 2 day with in state no 3 and 3 days out side of State no 3.**

Note:	for more than 50 m length additional component of mandays per m will be as follows;							
	a.	0.005 md of each professional (excluding support staff) for desk study						
	b.	0.01 md of each type of manpower for Field work						
	c.	0.008 md of each professional (excluding support staff) forReport preparation.						

- | | |
|---|-----------------------|
| 2 Transportation of inspection tools, equipment and personals | 10 % cost of manpower |
| 3 Tools and equipment for inspection | 10 % cost of manpower |
| 4 Stationary and logistic support | 5 % cost of manpower |

Note:

- a. for more than one bridge in a package ; select highest catagory of bridge first and determine required manpower then add additional manpower after applying bridge factors as 80 % of with in 10 km distance and 90 % for outside of 10 km distance for each additional bridge on manpower component .

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Scope of work Include:

- 1 Bridges Inspection and Recording
- 2 Preparation of General Arrangement of the Bridge
- 3 Bridge Condition Assessment and Evaluation
- 4 Preparation of Maintenance Design and Drawings
- 5 Preparation of Cost Estimate including Bill of quantities
- 6 Miscellaneous work as per site condition to decide maintenance need

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Norms for Rate Analysis

Initial Environmental Examination (IEE) of Bridge

Unit = Nos (for 1 (one) bridge)

1 Manpower

	Professional/Supporting Staff	Unit	Desk Study	Travel	Field work	Report Preparation	Total
A	Key Staff						
1	Team Leader (Environmentalist/ Forestry Specialist/ Ecologist)	day	2	1	2	10	15
2	Highway/Transportation Engineer/ Bridge Engineer	day	1	1	2	7	11
3	Geologist/Eng.Geologist/ Geo-Technical Engineer	day	1	1	2	4	8
4	Hydrologist	day	1	1	2	4	8
5	Socio-Economist	day	1	1	2	4	8
6	Legal expert	day					
B	Support Staff						
1	Technical Assistance (Physio-Chemical)	day		1	3	4	8
2	Technical Assistance (Biological)	day		1	3	4	8
3	Technical Assistance (Socio-Economic)	day		1	3	4	8
4	Account admin staff	day	1			4	5
5	Computer operator	day	2			4	6
6	Surveyor	day			3	2	5
7	Support staff /helper	day	2		4	10	16

* Adjust travel time in above table as per location of work site as ; 1 day for Kathmandu Valley, 2 day with in state no 3 and 3 days out side of State no 3.

- | | | |
|---|----|--------------------------------|
| 2 Transportation of personals | Ls | 10 % cost of manpower required |
| 3 Tools and equipment for data collection | Ls | 5 % cost of manpower required |
| 4 Stationary and logistic support | Ls | 5 % cost of manpower required |

Note:

a) Man days for one bridge used same mandays

b) for more than one bridge in a package ; calculate cost of a bridge and add additional cost after applying bridge factors as 80 % of cost with in 10 km distance and 90 % of cost for outside of 10 km distance for each additional bridge.



Scope of work Include:

- 1 Preparation of Site/ Project specific Terms of Reference Document as per EPA 1997 and EPR
- 2 Carry out topographical map study, alignment assessment, geological assessment, necessary laboratory testing to prepare ToR and IEE report, which shall incorporate all the priority issues of work by categorizing them into physical, biological, socio-economic, and cultural aspects of both Beneficial and Adverse types, for both construction, operational and maintenance stages, as per EPA 1997 and EPR 1997 with amendments
- 3 Data collection and examination related to:
 - Physical parameters - walkthrough survey, inventory, literature review (including
 - Biological parameters - identification of species including protected species along the alignment, sampling and estimation on influence area
 - Socio-economic parameters - Semi-structured interview with key informants, asset survey (Project Affected Families), questionnaire, map interpretation and walkthrough survey
 - Cultural and Religious parameters - interview, walkthrough survey
- 4 Impact identification, Impact prediction, Determination of significant impacts
- 5 Preparation of Environmental Management Action Plan
- 6 Information on the land within the Right of Way
- 7 Preparation of IEE Report as per approved Terms of Reference

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Environmental Impact Assessment (EIA) of Bridge

Unit = Nos (for 1 (one) bridge)

1 Manpower

	Professional/Supporting Staff	Unit	Desk Study	Travel	Field work	Report Preparation	Total
A	Key staff						
1	Team Leader (Environmentalist/ Forestry Specialist/ Ecologist)	day	2	1	3	28	34
2	Highway/Transportation Engineer/ Bridge Engineer	day	1	1	3	10	15
3	Geologist/Eng.Geologist/ Geo-Technical Engineer	day	1	1	3	7	12
4	Hydrologist	day	1	1	3	7	12
5	Socio-Economist	day	1	1	3	7	12
6	Legal expert	day				7	7
B	Support Staff						
1	Technical Assistance (Physio-Chemical)	day		1	3	4	8
2	Technical Assistance (Biological)	day		1	3	4	8
3	Technical Assistance (Socio-Economic)	day		1	3	4	8
4	Account admin staff	day	1			4	5
5	Computer operator	day	2			14	16
6	Surveyor	day			3	4	7
7	Support staff /helper	day	2		12	28	42

* Adjust travel time in above table as per location of work site as ; 1 day for Kathmandu Valley, 2 day with in state no 3 and 3 days out side of State no 3.

- | | | |
|---|----|--------------------------------|
| 2 Transportation of personals | Ls | 10 % cost of manpower required |
| 3 Tools and equipment for data collection | Ls | 5 % cost of manpower required |
| 4 Stationary and logistic support | | 5 % cost of manpower required |
| 5 Publication of notice , Public hearing etc. | Ls | 10 % cost of manpower required |

Note:

- a) Man days for one bridge used same mandays
- b) for more than one bridge in a package ; calculate cost of a bridge and add additional cost after applying bridge factors as 80 % of cost with in 10 km distance and 90 % of cost for outside of 10 km distance for each additional bridge.



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Scope of work Include:

- 1 Preperation of Site/ Project specific Terms of Reference and Scoping Document as per EPA 1997 and EPR 1997 with amendments.
- 2 Carry out topographical map study, alignment assessment, geological assessment, necessary laboratory testing to prepare ToR and IEE report, which shall incorporate all the priority issues of work by categorizing them into physical, biological, socio-economic, and cultural aspects of both Beneficial and Adverse types, for both construction, operational and maintenance stages, as per EPA 1997 and EPR 1997 with amendments
- 3 Data collection and examination related to:
 - Physical parameters - walkthrough survey, inventory, literature review (including feasibility study and previous works), map study, national level databases,
 - Biological parameters - identification of species including protected species along the alignment, sampling and estimation on influence area
 - Socio-economic parameters - Semi-structured interview with key informants, asset survey (Project Affected Families), questionnaire, map interpretation and walkthrough survey
 - Cultural and Religious parameters - interview, walkthrough survey
- 4 Impact identification, Impact prediction and Analysis of impacts
- 5 Preparation of Impact evaluation matrix (with magnitude, extent and duration)
- 6 Preparation of Environmental Management Action Plan
- 7 Information on the land within the Right of Way
- 8 Preperation of EIA Report as per approved Terms of Reference

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Initial Environmental Examination (IEE) of Road

Unit = Km (for upto 10 km of Road)

1 Manpower

	Professional/Supporting Staff	Unit	Desk Study	Travel	Field work	Report Preparation	Total
A	Key Staff						
1	Team Leader (Environmentalist/ Forestry Specialist/ Ecologist)	day	7	1	2	14	24
2	Highway/Transportation Engineer/ Bridge Engineer	day	2	1	2	7	12
3	Geologist/Eng.Geologist/ Geo-Technical Engineer	day	2	1	2	4	9
4	Hydrologist	day	1	1	2	4	8
5	Socio-Economist	day	2	1	2	7	12
6	Legal expert	day				2	2
B	Support Staff						
1	Technical Assistance (Physio-Chemical)	day		1	3	4	8
2	Technical Assistance (Biological)	day		1	3	4	8
3	Technical Assistance (Socio-Economic)	day		1	3	4	8
4	Account admin staff	day	1			4	5
5	Computer operator	day	2			5	7
6	Surveyor	day			3	4	7
7	Support staff /helper	day	2		12	14	28

* Adjust travel time in above table as per location of work site as ; 1 day for Kathmandu Valley, 2 day with in state no 3 and 3 days out side of State no 3.

- | | | |
|---|----|--------------------------------|
| 2 Transportation of personals | Ls | 10 % cost of manpower required |
| 3 Tools and equipment for data collection | Ls | 5 % cost of manpower required |
| 4 Stationary and logistic support | Ls | 5 % cost of manpower required |

Note:

- a) In case of Terai road determine manpower requirement of field work component as 80 percent of above mention value .
- b) for other than 10 km length , determine per km manpower requirement and modify as follows;
- I) If $L < 10$ km, determine per km manpower requirement and deduct @ 80 % of md per km except travel and calculate total cost accordingly after adjustment in (a) above. [for example in case of 6 km road, for team leader in above, find manpower for 10 km ie desk study=7, travel= 1, field work 2, report preparation 14 = 24 md , for field work 2/10 md per km; for 6 km it will be $24 - 4 \times 2 / 10 \times 0.8 = 23.36$ md. in Kathmandu Valley]
- II) If $L > 10$ km, determine per km manpower requirement and add @ 80 % of md per km on and calculate total cost accordingly after adjustment in (a) above. [for example in case of 12 km road, for team leader in above, find manpower for 10 km ie desk study= 7, field work= 2, report preparation =14, total 23 md, $23 / 10 = 2.3$ md per km excluding travel; for 12 km it will be $23 + 2 \times 23 / 10 \times 0.8 = 26.68$ and travel time 1 day ie total time in Kathmandu will be 27.68 md.]
- c) for more than one road, in a package ; consider longest road first and add cost after applying road factors as 80 % of cost with in 10 km distance and 90 % of cost for outside of 10 km distance for each additional road.

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Scope of work Include:

- 1 Preparation of Site/ Project specific Terms of Reference Document as per EPA 1997 and EPR 1997 with amendments.
- 2 Carry out topographical map study, alignment assessment, geological assessment, necessary laboratory testing to prepare ToR and IEE report, which shall incorporate all the priority issues of work by categorizing them into physical, biological, socio-economic, and cultural aspects of both Beneficial and Adverse types, for both construction, operational and maintenance stages, as per EPA 1997 and EPR 1997 with amendments
- 3 Data collection and examination related to:
 - Physical parameters - walkthrough survey, inventory, literature review (including feasibility study and previous works), map study, national level databases,
 - Biological parameters - identification of species including protected species along the alignment, sampling and estimation on influence area
 - Socio-economic parameters - Semi-structured interview with key informants, asset survey (Project Affected Families), questionnaire, map interpretation and walkthrough survey
 - Cultural and Religious parameters - interview, walkthrough survey
- 4 Impact identification, Impact prediction, Determination of significant impacts
- 5 Preparation of Environmental Management Action Plan
- 6 Information on the land ownership within the Right of Way
- 7 Preparation of IEE Report as per approved Terms of Reference

Environmental Impact Analysis (EIA) of Road

Unit = Km (for upto 10 km of Road)

1 Manpower

	Professional/Supporting Staff	Unit	Desk Study	Travel	Field work	Report Preparation	Total
A	Key Staff						
1	Team Leader (Environmentalist/ Forestry Specialist/ Ecologist)	day	3	1	4	28	36
2	Highway/Transportation Engineer/ Bridge Engineer	day	1	1	4	10	16
3	Geologist/Eng.Geologist/ Geo-Technical Engineer	day	1	1	4	7	13
4	Hydrologist	day	1	1	4	7	13
5	Socio-Economist	day	1	1	4	7	13
6	Legal expert	day				7	7
B	Support Staff						
1	Technical Assistance (Physio-Chemical)	day		1	6	6	13
2	Technical Assistance (Biological)	day		1	6	6	13
3	Technical Assistance (Socio-Economic)	day		1	6	6	13
4	Account admin staff	day	1			3	4
5	Computer operator	day	2			14	16
6	Surveyor	day			6	6	12
7	Support staff /helper	day	2		16	28	46

* Adjust travel time in above table as per location of work site as ; 1 day for Kathmandu Valley, 2 day with in state no 3 and 3 days out side of State no 3.

- | | | |
|---|----|--------------------------------|
| 2 Transportation of personals | Ls | 10 % cost of manpower required |
| 3 Tools and equipment for data collection | Ls | 5 % cost of manpower required |
| 4 Stationary and logistic support | Ls | 5 % cost of manpower required |
| 5 Publication of notice , Public hearing etc. | Ls | 10 % cost of manpower required |

Note:

a) In case of Terai road determine manpower requirement of field work component as 80 percent of above mention value .

b) for other than 10 km length , determine per km manpower requirement and modify as follows;

I) If $L < 10$ km, determine per km manpower requirement and deduct @ 80 % of md per km except travel and calculate total cost accordingly after adjustment in (a) above. [for example in case of 6 km road, for team leader in above, find manpower for 10 km ie desk study=7, travel= 1, field work= 4, report preparation =28, total = 40 md , for field work 4/10 md per km; for 6 km it will be $40 - 4*4/10*0.8 = 38.72$ md in Kathmandu Valley]

II) If $L > 10$ km, determine per km manpower requirement and add @ 80 % of md per km on and calculate total cost accordingly after adjustment in (a) above. [for example in case of 12 km road, for team leader in above, find manpower for 10 km ie desk study= 7, field work= 4, report preparation =28, total 39 md, $39 / 10 = 3.9$ md per km excluding travel; for 12 km it will be $39 + 2*39/10*0.8 = 45.24$ and travel time 1 day ie total time in Kathmandu will be 46.24 md.]

c) for more than one road, in a package ; consider longest road first and add cost after applying road factors as 80 % of cost with in 10 km distance and 90 % of cost for outside of 10 km distance for each additional road.

Scope of work Include:

- 1 Preparation of Site/ Project specific Terms of Reference and Scoping Document as per EPA 1997 and EPR 1997 with amendments.
- 2 Carry out topographical map study, alignment assessment, geological assessment, necessary laboratory testing to prepare ToR and IEE report, which shall incorporate all the priority issues of work by categorizing them into physical, biological, socio-economic, and cultural aspects of both Beneficial and Adverse types, for both construction, operational and maintenance stages, as per EPA 1997 and EPR 1997 with amendments
- 3 Data collection and examination related to:
 - Physical parameters - walkthrough survey, inventory, literature review (including feasibility study and previous works), map study, national level databases,
 - Biological parameters - identification of species including protected species along the alignment, sampling and estimation on influence area
 - Socio-economic parameters - Semi-structured interview with key informants, asset survey (Project Affected Families), questionnaire, map interpretation and walkthrough survey
 - Cultural and Religious parameters - interview, walkthrough survey
- 4 Impact identification, Impact prediction and Analysis of impacts
- 5 Preparation of Impact evaluation matrix (with magnitude, extent and duration)
- 6 Preparation of Environmental Management Action Plan
- 7 Information on the landownership within the Right of Way
- 8 Preparation of EIA Report as per approved Terms of Reference

Reaettlement Action plan/ Social Action Plan for Road/ Bridge

Unit: Km/no (for upto 10 km of Road or a bridge)

1 Manpower

	Professional/Supporting Staff	Unit	Desk Study	Travel *	Field work	Report Preparation	Total
A	Key Staff						
1	Team Leader (Sociologist/ Anthropologist)	day	7	1	2	14	24
2	Highway/Transportation Engineer/ Bridge Engineer	day	2	1	2	7	12
3	Legal expert	day				4	4
4	Survey officer/ engineer	day	1	1	2	7	11
B	Support Staff						
1	Technical Assistance (Socio-Economic)	day		1	3	4	8
	Surveyer (Amin)	day	4	1	30	10	45
2	Account admin staff	day				4	4
3	Computer operator	day				5	5
4	Support staff /helper	day	2		6	14	22

* Adjust travel time in above table as per location of work site as ; 1 day for Kathmandu Valley, 2 day with in state no 3 and 3 days out side of State no 3.

- | | | |
|--|----|--------------------------------|
| 2 Transportation of personals | Ls | 10 % cost of manpower required |
| 3 Tools and equipment for data collection | Ls | 5 % cost of manpower required |
| 4 Stationary and logistic support | Ls | 5 % cost of manpower required |
| 5 Deed transfer (District land Revenue office and Land survey office) | Ls | Rs 400 per kitta |
- (for Fy 2073/074 and update as per NRB index)

Note:

a) for other than 10 km length , determine per km manpower requirement and modify as follows;

I) If $L < 10$ km, determine per km manpower requirement and deduct @ 80 % of md per km except travel and calculate total cost accordingly after adjustment in (a) above. [for example in case of 6 km road, for team leader in above, find manpower for 10 km ie desk study=7, travel= 1, field work =2, report preparation= 14, total 24 md , for field work $2/10$ md per km; for 6 km it will be $24 - 4 * 2/10 * 0.8 = 23.36$ md. in Kathmandu Valley]

II) If $L > 10$ km, determine per km manpower requirement and add @ 80 % of md per km on and calculate total cost accordingly after adjustment in (a) above. [for example in case of 12 km road, for team leader in above, find manpower for 10 km ie desk study= 7, field work= 2, report preparation =14, total 23 md, $23 / 10 = 2.3$ md per km excluding travel; for 12 km it will be $23 + 2 * 23/10 * 0.8 = 26.68$ and travel time 1 day ie total time in Kathmandu will be 27.68 md.]

c) for more than one road, in a package ; consider longest road first and add cost after applying road factors as 80 % of cost with in 10 km distance and 90 % of cost for outside of 10 km distance for each additional road.

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Scope of work Include:

- 1 Preparation of Site/ Project specific Resettlement Plan as per Environmental and Social management framework.
- 2 Review available cadastal map and mapping system in concerned district
- 3 Carry out cadastal survey (showing plot number, sheet number,ownership of plot) and measurement of structures/ property and listing of asset.
- 4 Carryout socio-economic survey and study cultural aspect in surrounding area.
- 5 Data collection and examination related to:
 - Socio-economic parameters - Semi-structured interview with key informants, asset survey (Project Affected Families), questionnaire, map interpretation and walkthrough survey
 - Cultural and Religious parameters - interview, walkthrough survey
- 6 Preparation of cadastal survey report showing required area to be acquired from each land owner for deed transfer as per government rules.
- 7 Verifation and endorsement of cadastal survey report from district cadastal surveyeer.
- 8 Preperation of Resettlement Action Report

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Rapid Geo-technical study of road side slopes

Unit = KM (for 50 Km)

1 Manpower

	Professional/Supporting Staff	Unit	Desk Study	Travel *	Field work	Report Preparation	Total
A Key Staff							
1	Team Leader (Eng.Geologist/ Geo-Technical Engineer)	day	7	1	2	7	17
2	Highway/Transportation Engineer/ Bridge Engineer	day	2	1	2	7	12
3	Geologist	day	7	1	2	7	17
B Support Staff							
1	Support staff /helper	day				4	4

* Adjust travel time in above table as per location of work site as ; 1 day for Kathmandu Valley,
2 day with in state no 3 and 3 days out side of State no 3.

- | | | |
|------------------------------------|----|--------------------------------|
| 2) Transportation of personals | Ls | 10 % cost of manpower required |
| 3) Tools and equipments | Ls | 5 % cost of manpower required |
| 4) Stationary and logistic support | Ls | 5 % cost of manpower required |

Note:

a) In case of Terai road determine manpower requirement of field work component as 80 percent of above mention value .

b) for other than 50 km length , determine per km manpower requirement and modify as follows;

I) If $L < 50$ km, determine per km manpower requirement and deduct @ 80 % of md per km except travel and calculate total cost accordingly after adjustment in (a) above. [for example in case of 40 km road, for team leader in above, find manpower for 50 km ie desk study=7, travel= 1, field work =2, report preparation =5 total = 17 md , for field work 2/50 md per km; for 40 km it will be $17 - 10*2/50*0.8 = 16.68$ md. in Kathmandu Valley]

II) If $L > 50$ km, determine per km manpower requirement and add @ 80 % of md per km on and calculate total cost accordingly after adjustment in (a) above. [for example in case of 60 km road, for team leader in above, find manpower for 50 km ie desk study=7, field work 2, report preparation =7, total 16 md excluding travel ; for 60 km it will be $16 + 10*16/50*0.8 = 18.56$ and travel time 1 day ie total time in Kathmandu will be 19.56 md.]

c) for more than one road, in a package ; consider longest road first and add cost after applying road factors as 80 % of cost with in 10 km distance and 90 % of cost for outside of 10 km distance for each additional road.

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Scope of work Include:

- 1 Collection and review of topographical maps, air photos, geological maps, and other related reports.
- 2 Contact relevent government department, stakeholders to acquire secondary data. Study the Geomorphologic characteristics , Geological/ geotechnical .
- 3 Recording data related to stability of slopes on the base map , preparation of Engineering geological mapping (free hand sketch) on the identified major landslide.

Engineering Geological sketch map shall contain containing Scars, cracks, upheavals, and shall collapses, water spring points, swampy area, seepage area etc, soil rock type at the surface, artifical slope cutting, irrigation channel road building etc..

- 4 Report chainagewise condition of slope stability and suggest precurationary measures/ mitigation measures.

Preliminary Geo-technical study and Design for road slope disaster management

Unit = sqm (for 1 0,000 sqm)

1 Manpower

	Professional/Supporting Staff	Unit	Desk Study	Travel *	Field work	Report Preparation	Total
A	Key Staff						
1	Team Leader (Eng.Geologist/ Geo-Technical Engineer)	day	2	1	4	10	17
2	Highway/Transportation Engineer/ Bridge Engineer	day	2	1	4	4	11
3	Geologist	day	2	1	4	10	17
B	Support Staff						
1	Draft person/ Auto cad operator	day				10	10
2	Computer operator	day				10	10
3	Account admin staff/ Supervisor	day				2	2
4	Support staff /helper	day			4	10	14

* Adjust travel time in above table as per location of work site as ; 1 day for Kathmandu Valley, 2 day with in state no 3 and 3 days out side of State no 3.

- | | | |
|---|----|--------------------------------|
| 2) Transportation of personals | Ls | 10 % cost of manpower required |
| 3) Tools and equipment for survey/ drilling | Ls | 5 % cost of manpower required |
| 4) Stationary and logistic support | Ls | 5 % cost of manpower required |

5) Laboratory Test and test pit

As per site Requirement

(Refer Section 500 of Norms for Road and Bridge Works)

Note:

- a) In case of Terai road determine manpower requirement of field work component as 80 percent of above mention value .
- b) for other than 10,00 sqm , determine per sqm manpower requirement and modify as follows;
 I) If Area < 10,000 sqm , determine per sqm manpower requirement and deduct @ 80 % of md per km except travel and calculate total cost accordingly after adjustment in (a) above. [for example in case of 8000 sqm area, for team leader in above, find manpower for 10,000 sqm ie desk study=2, travel= 1, field work =4, report preparation = 10 total = 17 md , for field work 4/10000 md per sqm; for 8000 sqm it will be 17 - 4/10000*2000*0.8= 15.36 md. in Kathmandu Valley]
- II) If A > 10,000 sqm, determine per km manpower requirement and add @ 80 % of md per sqm on and calculate total cost accordingly after adjustment in (a) above. [for example in case of 12000 sqm, for team leader in above, find manpower for 10000 ie desk study= 2, field work =4, report preparation =10, total 16 md excluding travel ; for 12000 sqm it will be 16 + 2000*16/10000*0.8= 18.56 and travel time 1 day ie total time in Kathmandu will be 19.56 md.]
- c) for more than one slide, in a package ; consider largest slide first and add cost after applying landslide factor as 80 % of cost with in 10 km distance and 90 % of cost for outside of 10 km distance for each additional landslide.



Scope of work Include:

- 1 Obtain geologic and geotechnical information on the project site, and provide preliminary recommendations regarding the feasibility of the proposed development.
- 2 Collection and review of topographical maps, air photos, geological maps, and other related reports.
- 3 Site assessment to collect following information:
 - a General Slope Inspection
 - b Slope Hazard Assessment
 - c Geological Study
- 4 Preliminary Engineering/Geologic Evaluation
- 5 Preliminary Design of mitigation measures

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Ministry of Physical Infrastructure and Transport
Norms for Rate Analysis

**Geo-technical Investigation and Design of mitigation Measure for road side
slope disaster management**

Unit = sqm (for 1 0,000 sqm)

1 Manpower

	Professional/Supporting Staff	Unit	Desk Study	Travel *	Field work	Report Preparation	Total
A	Key Staff						
1	Team Leader (Eng.Geologist/ Geo-Technical Engineer)	day	2	1	6	15	24
2	Highway/Transportation Engineer/ Bridge Engineer	day	2	1	3	10	16
3	Bio engineering Expert/ Forestry Specialist/ Ecologist	day	2	1	3	7	13
4	Hydrologist	day	2	1	3	7	13
5	Geologist	day	2	1	6	7	16
B	Support Staff						
1	Draft person/ Auto cad operator	day				15	15
2	Computer operator	day				30	30
3	Surveyor/ Sub engineer	day	1	2	14	10	27
4	Account admin staff/ Supervisor	day		2	5	5	12
5	Support staff /helper	day			42	20	62

* Adjust travel time in above table as per location of work site as ; 1 day for Kathmandu Valley, 2 day with in state no 3 and 3 days out side of State no 3.

- 2) Transportation of personals Ls 10 % cost of manpower required
- 3) Tools and equipment Ls 5 % cost of manpower required
- 4) Stationary and logistic support Ls 5 % cost of manpower required
- 5) Detail soil investigation (Drilling of bore hole and Laboratory Test), test pit and auguring
As per site Requirement

(Refer Section 500 and 3000 of Norms for Road and Bridge Works)

Note:

a) In case of Terai road determine manpower requirement of field work component as 80 percent of above mention value .

b) for other than 10,000 sqm , determine per sqm manpower requirement and modify as follows;

I) If Area < 10, 000 sqm , determine per sqm manpower requirement and deduct @ 80 % of md per km except travel and calculate total cost accordingly after adjustment in (a) above. [for example in case of 8000 sqm area, for team leader in above, find manpower for 10,000 sqm ie desk study=2, travel= 1, field work =6, report preparation = 15 total = 24 md , for field work 6/10000 md per sqm; for 8000 sqm it will be 24 - 6/10000*2000*0.8= 23.04 md. in Kathmandu Valley]

II) If A > 10,000 sqm, determine per km manpower requirement and add @ 80 % of md per sqm on and calculate total cost accordingly after adjustment in (a) above. [for example in case of 12000 sqm, for team leader in above, find manpower for 10000 ie desk study= 2, field work =6, report preparation =15, total 23 md excluding travel ; for 12000 sqm it will be 23 + 2000*23/10000*0.8= 26.68 and travel time 1 day ie total time in Kathmandu will be 27.68 md.]

c) for more than one slide, in a package ; consider largest slide first and add cost after applying landslide factor as 80 % of cost with in 10 km distance and 90 % of cost for outside of 10 km distance for each additional landslide.

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Scope of work Include:

- 1 Collection and review of topographical maps, air photos, geological maps, and other related reports.
- 2 Undertaking of geotechnical site investigations including: borehole drilling, test pit excavation, cone penetration tests, dynamic cone penetrometer testing, and laboratory testing.
- 3 Documenting the geotechnical information on the subsurface conditions along the proposed site.
- 4 Site assessment to collect following information:
 - a. General Slope Inspection
 - Slope Hazard Assessment
 - b Geological Study
 - c Seismological Study
 - d Assessment of Risk Level
- 3 Analysis of Data
- 4 Design of mitigation measures

Government of Nepal
Ministry of Physical Infrastructure and Transport
Norms for Rate Analysis
Preparation of road inventory

Unit = Km (for upto 10 km of Road)

1 Manpower

	Professional/Supporting Staff	Unit	Desk Study	Travel*	Field work	Report Preparation	Total
A	Key Staff						
1	Highway/Transportation Engineer	day	2	1	1	2	6
2	GPS Expert/ Engineer	day	2	1	1	2	6
B	Support Staff						
1	Draft person/ Auto cad operator/ GIS Technician	day				2	2
2	Computer operator	day				2	2
3	Surveyor/Sub engineer	day	1			1	2
4	Account admin staff/ Supervisor	day	2			1	3
5	Support staff /helper	day			4		4

* Adjust travel time in above table as per location of work site as ; 1 day for Kathmandu Valley, 2 day with in state no 3 and 3 days out side of State no 3.

- 2) Transportation of personals Ls 10 % cost of manpower required
- 3) Tools and equipment for inspection (GPS/ Tablet etc.) Ls 5 % cost of manpower required
- 4) Stationary and logistic support Ls 5 % cost of manpower required

Note:

- a) In case of Terai road determine manpower requirement of field work component as 80 percent of above mention value .
- b) for other than 10 km length , determine per km manpower requirement and modify as follows;
 - I) If $L < 10$ km, determine per km manpower requirement and deduct @ 80 % of md per km except travel and calculate total cost accordingly after adjustment in (a) above. [for example in case of 6 km road, for team leader in above, find manpower for 10 km ie desk study=2, travel= 1, field work= 1, report preparation= 2 total 6 md , for field work 1/10 md per km; for 6 km it will be $6 - 4 * 1/10 * 0.8 = 5.68$ md. in Kathmandu Valley]
 - II) If $L > 10$ km, determine per km manpower requirement and add @ 80 % of md per km on and calculate total cost accordingly after adjustment in (a) above. [for example in case of 12 km road, for team leader in above, find manpower for 10 km ie desk study= 2, field work= 1, report preparation =2, total 5 md, $5 / 10 = 0.5$ md per km excluding travel; for 12 km it will be $5 + 2 * 5/10 * 0.8 = 5.16$ and travel time 1 day ie total time in Kathmandu will be 6.16 md.]
- c) for more than one road, in a package ; consider longest road first and add cost after applying road factors as 80 % of cost with in 10 km distance and 90 % of cost for outside of 10 km distance for each additional road.

(Signature)

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Ministry of Physical Infrastructure and Transport
Norms for Rate Analysis



Scope of work Include:

- Locate road centerline using Differential Global Positioning System (DGPS) with Recording Interval not greater than 1 second and driving at speed not more than 30 km/hr. GPS with external antenna need to be deployed. Clean the centerline data using GIS software and with reference to Google earth imagery where available and update the links based on the HMIS-ICT defined links codes. The coordinates of start and end node of each link need to be captured and uploaded into the system.
- Each road link is to be divided into a number of segments (with maximum 4-5 km. length each wherever applicable) through the establishment of Location Referencing Points (LRP). LRP may be a temple, bridge, culvert, fueling station, kilo meter post or junction or other suitable location. LRPs must be defined by both chainage and GPS co-ordinates. LRPs should be identified to an accuracy of ± 1 m or better.
- Digital image and coordinate of each node and LRP is to be provided.
- The GPS data should also contain the GPS elevation values for each location.
- Prepare pavement inventory and history from the available information with the Division
- Prepare inventory of side drain type, sections, conditions, photographs, start and end
- Prepare inventory of retaining walls with type, height, conditions, photographs, start and
- Prepare inventory of Cross Drainage Structure (except Bridges) along with type, spans,
- Prepare inventory of the road formation width, pavement widths, and surface type,
- Prepare Inventory and position of road junctions, overhead bridges, median separators,
- Prepare inventory of the road furniture like barriers, road signs, road marking, and road
- Prepare inventory of the land use type along with its start and end positions as well as
- Prepare inventory of the road geometry both horizontal alignment ($^{\circ}/\text{km}$, radius of curve)
- Classify terrain through which roads pass based on Nepal Road Standard and curvature
- Locate heavy rainfall/ landslide area in consultation with concerned road offices.
- Field Data taken from the tablet (compatible to RISS Tablet software of DOR) shall be

Traffic Count (72 hour manual Traffic count and vehicle classification survey on SRM)

Unit = station (for upto 4 station)

1 Manpower

	Professional/Supporting Staff	Unit	Desk Study	Travel*	Field work	Report Preparation	Total
A	Key Staff						
1	Highway/Transportation Engineer	day	7	1	1	6	15
2	Civil Engineer	day	7	1	3	6	17
B	Support Staff						
1	Technical assistance (Enumerator)(4*2nos)	day		8	24	24	56
2	Computer operator	day				4	4
3	Surveyor/ Sub Engineer	day					
4	Account admin staff/ Supervisor	day				1	1
5	Support staff /helper	day	1		24	6	31

* Adjust travel time in above table as per location of work site as ; 1 day for Kathmandu Valley, 2 day with in state no 3 and 3 days out side of State no 3.

- | | | |
|------------------------------------|----|--------------------------------|
| 2) Transportation of personals | Ls | 10 % cost of manpower required |
| 3) Tools and equipment | Ls | 5 % cost of manpower required |
| 4) Stationary and logistic support | Ls | 5 % cost of manpower required |

(9)

Scope of work Include:

1. Review the previous reports and familiarize with the theory and practice of carrying out manual traffic volume and classification surveys.
2. 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.
3. Record and submit the results of the manual traffic volume and classification surveys on the data formats suitable to the RNDS database of DOR.
4. 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.
5. 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.
6. 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.
7. 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.
8. 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.



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Norms for Rate Analysis

Road Roughness Survey

Unit = Km (for upto 1000 km of Road)

1 Manpower

	Professional/Supporting Staff	Unit	Desk Study/ calibration	Field work	Report Preparation	Total
A	Key Staff					
1	Highway/Transportation Engineer	day	7	15	15	37
2	Civil Engineer	day	7	15	15	37
B	Support Staff					
1	Technical assistance (Enumerator)	day			15	15
1	Support staff /helper	day	7	15	15	37

- 2 Transportation of personals Ls 10 % cost of manpower required
- 3 Tools and equipment for inspection (Rougho
meter, Camera etc.) Ls 5 % cost of manpower required
- 4 Stationary and logistic support Ls 5 % cost of manpower required

Note:

- a If only Road roughness , excluding Video SDI need to be carried out add additional 10 % cost of manpower for transportation in above value.



Scope of work Include:

1. Roughness survey will be carried out by the equipment provided by the HMIS-ICT Unit as per the included equipment related guideline.
2. Maintain a constant loading on the vehicle during testing and field measurements.
3. Maintain the recommended speed (less than 35 kmph, preferably 32 kmph) and tyre pressure during calibration and field measurements.
4. Record results of the road roughness survey on the "Roughness Measurement" forms developed by the consultant and approved by DOR.
5. Use a four wheel drive vehicle suitable for the equipment in perfect condition.
6. 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.
7. 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.

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Scope of work Include:

1. Roughness survey/ Video recording will be carried out by the equipment provided by the HMIS-ICT Unit as per the included equipment related guideline.
2. Maintain a constant loading on the vehicle during testing and field measurements.
3. Maintain the recommended speed (less than 35 kmph, preferably 32 kmph) and tyre pressure during calibration and field measurements.
4. Record results of the road roughness survey on the "video camera" .
5. Use a four wheel drive vehicle suitable for the equipment in perfect condition.
6. Analyze image based on camera data and classified roads (Good, Fair, Poor) on the basis of pot hole size and number per 100 m length .
7. Submit the results of the surveys/ analysis 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.



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Norms for Rate Analysis

Providing Support Services including Operation and Maintenance of various software Application and ICT System

Unit = per software support per year

1 Manpower

	Professional/Supporting Staff	Unit	Desk Study	operation	Report Preparation	Total
A	Key Staff					
1	Team leader / Senior programmer	md	7	24	3	34
2	IT Expert Engineer (Developer/ Software Programmer)	md	1	96	1	98
3	IT Expert Engineer (Database Engineer)	md	1	96	1	98
4	IT Expert Engineer (Software Debugger)	md	1	24	1	26
5	IT Technician (software Support Engineer)	md	7	365	3	375
6	Dummy Database Set up	job	2	days allocated for training (n)	2	n+4

2) Stationary and logistic support Ls 2 % cost of manpower required

* The operation of the key staff may change according to the complexity of software module.



Scope of work Include:

1.0 Scope of Work

The scope of work for the Service Provider whose support is being sought by DoR is thus support service. The major works responsibility of the Service Provider shall be as follows:

a) Creation of User Accounts and data entry:

- The Service Provider shall be responsible for creating and managing user accounts in the projects so that whenever a new user is required this new user can log into the system and
- The Service Provider shall be responsible for basic data entry as needed by the client.

b) Modification in system:

- The Service Provider shall make **minor modification** in the software coding as per the
- The Service Provider shall provide the upgraded source code with necessary modifications
- The Service Provider shall make the necessary changes to the databases to incorporate

c) Training:

- The Service Provider shall provide the training to the officials of HMIS-ICT unit and Accountants

d) System analysis, System debugging, System Security:

- The Service Provider shall prompt response the client to debug any problems raised in
- The Service Provider shall provide the details of the work flow of source code, database
- The Service Provider shall design and implement both application and database level security running under DoR.
- The Service Provider shall monitor software applications and their related databases, detect our data discrepancies, abnormal data, their cause etc. and report to the Unit Chief of the

e) Provide support for the smooth operation and maintenance of the FMIS and CMS:

- **The Service Provider shall deploy one full time support staff to DoR who can debug minimum qualification of the staff shall be of bachelor level.**
- **In unavoidable situation, the Service Provider shall replace the personnel with one otherwise the payment shall be deducted on the daily basis.**
- The Service Provider shall deploy support personnel as per required in DoR's server set required for the support. The support personnel should be available within an hour to the client
- The Service Provider shall be responsible for full-fledged support in managing the FMIS for 12 months.
- The Service Provider shall provide installation, maintenance and operation support of the
- The Service Provider shall assist and support to HMIS-ICT unit in the operation and maintenance use in Department for smooth operation of different day to day activities.

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Ministry of Physical Infrastructure and Transport
Norms for Rate Analysis

Providing Support Services Including Operation and Maintenance of Servers,
Switches, Routers and Other ICT Equipments

Unit = per software support per year

1 Manpower

	Professional/Supporting Staff	Unit	Desk Study	operation	Report Preparation	Total
A	Key Staff					
1	Team leader / Senior programmer	md	7	48	24	79
2	IT Expert Engineer I (System Engineer)	md	1	96	0	97
3	IT Expert Engineer II (Network Engineer)	md	1	96	0	97
4	IT Expert Engineer III (Database Engineer)	md	1	24	0	25
5	IT Technician (Support Engineer)	md	1	365	0	366
6	IT Technician (Support Staff)	md	1	365	0	366

2) Stationary and logistic support

Ls 2 % cost of manpower required

Scope of work Include:

The consulting service includes but is not limited to the followings:

1. The consultant shall ensure the availability and smooth running of all the ICT systems in DoR.
2. The consultant shall be responsible for the Installation, Deployment, Configuration, Management, Maintenance, Operation and support of Servers, Routers, Firewall, Switches, (Operation System) OS, Network, Network Operating System (NOS) , IP Camera e.t.c.
3. The consultant shall provide support in Networking, Storage, Security, Availability & Recovery, Management, Hybrid Cloud Integration , Guest OS support, Application support, Vendor Licensing Support e.t.c
4. The consultant shall provide Necessary troubleshooting, tuning, backup and recovery, maintenance of related equipment.
5. The consultant has to bear the necessary shipment (including movement) and communication expenses regarding maintenance.
6. **If any preventive maintenance and emergency call visit are required for at least Three Regular visits per year for such visit expenses shall also be borne by the contractor.**
7. The consultant shall also be responsible for the installation and maintenance of equipment and systems in new equipment purchased during the contract period within the same budget.
8. The consultant shall also be liable for the Installation, Maintenance, Configuration and Support of all the equipments and systems in Data Recovery Centre (DRC).
9. The consultant shall be responsible for the High Availability, Data Redundancy, Data backup between Data Centre and Data Recovery site.
10. The consultant shall be responsible for monitoring the Optical fiber link between Data Center and Data Recovery Site and shall also coordinate with the Optical support team working under DOR.
11. The consultant shall mount or unmounts any equipments as per requirement after the approval of HMIS-ICT unit or the ICT Personnel's under HMIS-ICT Unit.
12. **During the maintenance of any equipment if any accessory needed to be replaced and which cost (rate) is up to NRs 10,000 (excluding VAT) per item, shall be paid by the consultant. After replacement of accessories, consultant should inform to the HMIS-ICT section and HMIS-ICT Section from DoR will audit the quality of the new accessories.**
13. Any equipment must be repaired within three days after receiving the problem report form otherwise the equipment must be replaced by the consultant within 7 days for the temporary solution until the equipment is not repaired. On failure to provide the service on time, the service can be taken from other vendors and the change levied thereof should be paid by the consultant otherwise charge will be deducted from the monthly bill of the consultant.
14. The consultant has to manage the hotline services regarding the end user support.
15. The consultant shall Install, configure Anti-Virus in all systems and monitor them if necessary as per requirement.
16. The Consultant shall prepare action plan for the System security, Network security and Internet security and monitor on the regular basis.
17. The consultant shall be liable to support the above-mentioned services to any increasing number of equipment, system software in DoR and offices under DoR in the same budget.
18. **The consultant shall assigned two dedicated technicians for full time support ;one Support Engineer at DC site (for monitoring both DC site and DR Site) and Other IT technician at DoR (for monitoring IT related works, Hardware, Networking e.t.c at DoR).**
19. The consultant shall be responsible for carrying on installation and configuration of Server operating systems (windows, Linux etc.) and server related application maintenance and management. The consultant shall also be responsible for the virtualization as per requirement and shall ensure the availability, authenticity and Authorization of application of Data and application.
20. The consultant shall be responsible for maintenance and management of all the equipment's (servers, switches, routers, UPS e.tc) for smooth operation.

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Norms for Rate Analysis

Consulting Services for Providing Support Redundant Link support between
Data Center and Data Recovery Site

Unit = per link support per year

1 Manpower

	Professional/Supporting Staff	Unit	Desk Study	operation	Report Preparation	Total
A	Key Staff					
1	Optical fiber expert (Surveyor)	md	1	96	12	109

2) Stationary and logistic support

Ls 2 % cost of manpower required

* The operation of the key staff may change according to the requirement in maintenace of data center and electrical system..

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Scope of work Include:

- i. Ensure the availability and smooth running of all the 12 core links of redundant Optical fibre established in between Data Centre and Data Recovery Site.
- ii. The support team shall be at any time in hour of need on phone call.
- iii. The Consultant shall work in coordination with the hardware support team under Department.
- iv. The consultant shall be responsible for carrying on installation Equipment box and shall carry on necessary support activities if any issues arises in between the
- v. The consultant shall be responsible for maintenance and management of all the optical fibre core for smooth operation.
- vi. The consultant shall inform to the hardware support team if any irrevocable issues arises like replacement of optical fibre cable.
- vii. The Consultant shall provide all related information as required and requested by client.
- viii. The consultant shall work in coordination with the hardware support consultant team in Department.
- ix. The consultant shall provide the full support and maintenance as well as 24*7 link up Connectivity between Data Centre and Data Recovery Site.
- x. The consultant shall bring his/her own instruments for the support and maintenance of the optical fibre link.



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Consulting Services for Providing Support Services Including Operation and
Maintenance of Data Center and Electrical System of Data Center

Unit = per software support per year

1 Manpower

	Professional/Supporting Staff	Unit	Desk Study	operation	Report Preparation	Total
A	Key Staff					
1	Data Center expert	md	1	96	12	109
2	Electrical Expert	md	1	96		97

2) Stationary and logistic support

Ls 2 % cost of manpower required

* The operation of the key staff may change according to the requirement in maintenance of data center and electrical system..



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Scope of work Include:

- i. The consultant shall ensure the availability and smooth running of all the ICT systems in Data Center.
- ii. The consultant shall be responsible for the Installation and maintenance of Different equipments as mentioned above 2.3 data Center and IP camera within data center.
- iii. The consultant shall be responsible for necessary troubleshooting, tuning, backup and recovery, maintenance of related equipments and electrical system of Data Center.
- iv. The consultant has to bear the necessary shipment (including movement) and communication expenses regarding maintenance.
- v. The consultant shall also be responsible for the installation and maintenance of equipment and systems in new equipment purchased during the contract period within the same budget.
- vi. The consultant has to manage the hotline services regarding the end user support.
- vii. Prepare action plan for the System security, Network security and Internet security and monitor on the regular basis.
- viii. The consultant shall be liable to support the above-mentioned services to any increasing number of equipment, system software in DoR and offices under DoR in the same budget.
- ix. The consultant shall be responsible for carrying on installation, configuration, maintenance and management of DCIM and other Data Center Equipments as mentioned
- x. The consultant shall be responsible for maintenance of UPS and AC. The consultant shall be responsible for the cost of distilled water required in battery. The water shall be refilled as per requirement.
- xi. The Consultant shall provide all the admin credentials and other related information as required and requested by client.
- xii. The consultant shall work in coordination with the hardware consultant and different vendors in DoR.
- xiii. The consultant shall provide the full support and maintenance as well as installation, Configuration, deployment and upgradation of DCIM in Data centre as per requirement.
- xiv. The consultant shall have his/her own required box or instrument for the support.
- xv. The consultant shall provide the regular services from 10 to 12 am on offices days. In case of any Equipments related problem/issues arising, the Consultant shall attend the Data Center within 1(one) hour and report to the HMIS-ICT Unit and resolve the problem/issue.

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Consulting Services For the Development of software application [small assignment]

Unit = per software

1 Manpower

	Professional/Supporting Staff	Unit	Desk Study	operation	Report Preparation	Total
A	Key Staff					
1.1	Team leader	md	7	25		32
1.2	IT Engineer 1 [Software Programmer]	md	1	25		26
1.3	IT Engineer 2 [Designer]	md	1	6		7
1.4	IT Engineer 3 [Quality Analyst]	md	1	6		7
1.5	IT Engineer 4 [Software Tester]	md	1	5		6
1.6	IT Engineer 5 [Database Administrator]	md	1	15		16
1.7	Documentation Expert	md	1	3		4

2) Stationary and logistic support Ls 2 % cost of manpower required

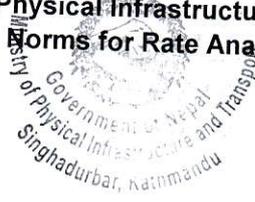
* The operation of the key staff may change according to the complexity of software module.



Government of Nepal
Ministry of Physical Infrastructure and Transport
Forms for Rate Analysis

Scope of work Include:

1. Development of software



A handwritten signature or mark, possibly a stylized 'B' or similar character, located at the bottom left of the page.

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Norms for Rate Analysis

**Consulting services for Installation, Migration, Configuration & Deployment of
the software Applications [small assignment]**

Unit = per replacement

1 Manpower

	Professional/Supporting Staff	Unit	Desk Study	operation	Report Preparation	Total
A	Key Staff					
1	Team leader / Senior programmer	md	2		1	3
2	IT engineer 1 (System Engineer)	md	1	6	1	8
3	IT Engineer 2 (Software developer /Programmer)	md	1	3	1	5
4	IT Engineer 3 (Database Expert / Database Engineer)	md	1	2	1	4
5	IT Engineer 4 (Operation and Support)	md	1	36	1	38

2) Stationary and logistic support Ls 2 % cost of manpower required

* The operation of the key staff may change according to the compexity of software module.

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Scope of work Include:

- 1 Migration: Accounts & System Settings:
- 2 Deployment: Web server Installation & Configuration , Data server installation &
- 3 Web ap-plication Site Set Up:
- 4web application Data base Set Up:
- 5 Testing, Demonstration & Feedback Integration



Rate of Professional / Supporting Staff (For Reference)

SN	Professional / Support Staff (National)	Unit	Recommended basic Rate Rs/day for 2073/074
1	Highway Engineer, Transport Engineer, Bridge Engineer, Structure Engineer, Procurement Specialist, Civil Engineer/ Office engineer, Road Safety Specialist ,	Man /Day	4472
2	Geo- technical Engineer / Engineering Geologist	Man /Day	4472
3	Hydrologist	Man /Day	4472
4	System Analyst / GIS Expert	Man /Day	4472
5	Environmentalist/ Forestry Specialist, Ecologist, Environmental Engineer (Team Leader)	Man /Day	4793
6	Environmentalist/ Environmental Engineer	Man /Day	4472
7	Sociologist, Socio-Economist, Economist, Botanist	Man /Day	3199
8	Social Development/ Resettlement Specialist	Man /Day	4472
9	Senior Programmer	Man /Day	4472
10	IT expert Engineer (Developer/ software programmer/ Database engineer/ software debugger)	Man /Day	4472
11	IT technician (software support engineer)	Man /Day	1540
12	Technical Assitantce (Physical, Biological, Chemical, Socio-Economist etc.)	Man /Day	2546
13	Sub Engineer/ Surveyor	Man /Day	2396
14	Draft person / CAD operator, Computer operator, account/ Admin staff	Man /Day	1540
15	Support staff, Chain man, Labour, Runner , Peon, helper , Watch man, Camp worker	Man /Day	As per district rate

SN	Professional / Support Staff (National)	Unit	Recommended basic Rate Rs/monthfor 2071/072
A	Team Leader	Month	based on experience 10 percent more than professional staff
B	Professional staff		
1	Required experience more than 15 year		240,000.00
2	Required experience 10- 15 year		190000
3	Required experience 5-10 year		150000
4	Required experience upto 5 year		110000
C	Technical support staff		70000
D	Administrative support staff		50000
E	Peon, Watchman, Runner, Survey helper, Supervisor etc.		20000

Note:

1. Based on market availability, and Price escalation factor Department shall decide rate of National consultant and Internal expert. Above rates are for Reference only.

2.Add 50 percent of basic rate as field allowance to the Consultant (incase of hiring of Consultant)or Survey Allowance (incase of Government staff) during Field work (including Travel) ,

आज मिति २०७१।१२।१६ गतेको दिन श्रीमान् महानिर्देशक ज्यूको कार्यकक्षमा निम्न व्यक्तिहरुको उपस्थितिमा विशेषज्ञहरुको दररेट सम्बन्धमा निम्न बमोजिम निर्णय गरियो ।

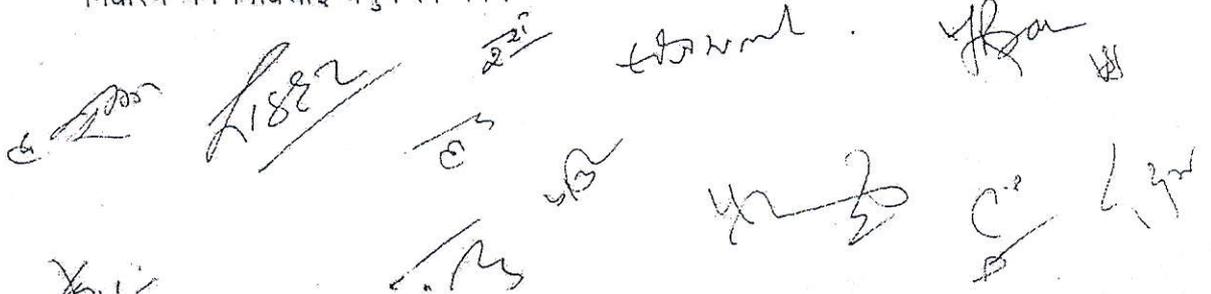
उपस्थिति : -

- | | |
|-------------------------------------|--|
| श्री माधव कुमार कार्की | - महानिर्देशक, सडक विभाग |
| श्री उमेश भ्वा, | - उप-महानिर्देशक, स.वि., योजना तथा डिजाईन महाशाखा |
| श्री केशव कुमार शर्मा, | - उप-महानिर्देशक, स.वि., संभार महाशाखा । |
| श्री संजय कुमार श्रेष्ठ, | - उप-महानिर्देशक, स.वि., वैदेशिक महाशाखा । |
| श्री सरोज कुमार प्रधान, | - उप-महानिर्देशक, स.वि., पुल महाशाखा । |
| श्री हरिराम आचार्य, | - उप-महानिर्देशक, स.वि., यान्त्रिक महाशाखा । |
| श्री गोपाल प्रसाद सिग्देल, | - आयोजना प्रमुख, स.वि. सम्पति व्यवस्थापन, ठेक्का व्यवस्थापन तथा गुणस्तर नियन्त्रण आयोजना । |
| श्री प्रमिला देवी शाक्य बज्राचार्य, | - प्रोजेक्ट कोअर्डिनेटर, स.वि., सडक सुधार आयोजना । |
| श्री चन्द्र नारायण यादव, | - आयोजना निर्देशक, स.वि., हुलाकी राजमार्ग आयोजना । |
| श्री राजेन्द्र राज शर्मा, | - सिनियर डिभिजनल इन्जिनियर, स.वि., आयोजना निर्देशनालय ए.डी.वी. । |
| श्री अजय कुमार मुल, | - सिनियर डिभिजनल इन्जिनियर, स.वि., वैदेशिक महाशाखा । |
| श्री रुपक राजभण्डारी, | - सिनियर डिभिजनल इन्जिनियर, स.वि., वैदेशिक महाशाखा । |
| श्री नरेशमान शाक्य, | - सिनियर डिभिजनल इन्जिनियर, स.वि., पुल महाशाखा । |
| श्री लक्ष्मीदत्त भट | - सिनियर डिभिजनल इन्जिनियर, स.वि., यो.तथा डि. महाशाखा । |
| श्री प्रकाश उपाध्याय | - रि.डि.ई., स.वि., सडक सुधार योजना |
| श्री विजय कुमार महतो | - रि नियर डिभिजनल इन्जिनियर, स.वि., भू वातावरण तथा सामाजिक शाखा । |

निर्णय,

सडक विभागको २०७१।०९।२२ को निर्णयानुसार विशेषज्ञहरुको दररेट सम्बन्धमा राय पेश गर्नको लागि उप समिति गठन गरिएकोमा सो उप समितिबाट "Consultancy Services को लागि Professional /Support staff को Rate" सम्बन्धमा मिति २०७१।१२।०५ मा प्रतिवेदन पेश भएकोमा सो को परिमार्जन गरि पूनः पेश गर्ने निर्णय गरिएको मा आज मिति २०७१।१२।१६ मा उप समितिबाट पेश गरिएको प्रतिवेदनमा छलफल गरी निम्न अनुसार निर्णय गरियो ।

- उप समितिबाट पेश गरीएको प्रतिवेदन अनुसारको Professional/ Support staff (National) को Rate निर्धारण गर्ने विधिलाई अनुमोदन गर्ने ।



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२. Consultancy Services को लागि Professional/ Support staff (National) को तपसिल अनुसारको Monthly Rate चालु आ.व बाट लागु गर्ने निर्णय गरियो ।

(क) Team Leader	: (अनुभवका आधारमा Corresponding Professional Staff को तलवमानमा १० प्रतिशत थप गरिने)
(ख) Professional Staff:	
Required Experience more than 15 Years	: 2,40,000.00
Required Experience 10- 15 Years	: 1,90,000.00
Required Experience 5-10 Years	: 1,50,000.00
Required Experience 0-5 Years	: 1,10,000.00
(ग) Technical Support Staff	: 70,000.00
(घ) Administrative Support Staff	: 50,000.00
(ङ) Peon, Watchman, Runner, Survey Helper, Supervisor etc.	: 20,000.00

३. यसै गरि Out of Station Allowance को हकमा Team Leader र Professional Staff को लागि रु ४०००.०० प्रतिदिन र अन्यको लागि रु २०००.०० प्रतिदिन तोक्ने ।

४. एक महीना भन्दा कम समयको लागि परामर्श सेवा लीनु पर्दा माथी उल्लेखित दर रेटलाई १.५० ले गुणनगरी प्रति दिनको हुन आउने दरले दिनको संख्यालाई गुणन गरी कायम गर्ने ।

५. कन्सल्टेन्सी सेवा लिदा Output तथा Performance Indicator हरु स्पष्ट उल्लेख गरी बारंबार गरिने Replacement हरु लाई निरुत्साहित गर्ने कुरा सम्झौतामा उल्लेख गर्ने ।

६. कन्सल्टेन्सी कार्य समाप्त भएपछी Performance Evaluation को प्रावधान राख्ने ।

७. Professional/ Support staff (National) दर रेट प्रत्येक दुई वर्षमा Review गर्ने ।

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