Project Administration Manual

Project Number: 52097-001
Loan Number: LXXXX
Technical Assistance Number: TAXXXX
August 2018

Nepal: South Asia Subregional Economic Cooperation Highway Improvement Project

ABBREVIATIONS

ADB	–	Asian Development Bank
COBP	–	country operations business plan
CPS	–	country partnership strategy
DOR	–	Department of Roads
EWH	–	East–West Highway
FMA	–	financial management assessment
GESI	–	gender equality and social inclusiveness
GDP	–	gross domestic product
km	–	kilometer
MOPIT	–	Ministry of Physical Infrastructure and Transport
PAM	–	project administration manual
SAARC	–	South Asian Association for Regional Cooperation
SASEC	–	South Asia Subregional Economic Cooperation
SDR	–	special drawing rights
TA	–	technical assistance

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ATTACHMENTS

A. Procurement Plan
B. Design and Monitoring Framework
C. Terms of Reference for Construction Supervision Consultants
D. Terms of Reference for Road Safety Implementation Consultants
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F. Terms of Reference for Project Implementation Consultants (Individual) and Contract Management Specialists (International and National)
G. Terms of Reference for Nongovernmental Organization for Human Trafficking Prevention and HIV/AIDS Awareness

Project Administration Manual Purpose and Process

The project administration manual (PAM) describes the essential administrative and management requirements to implement the project on time, within budget, and in accordance with the policies and procedures of the government and Asian Development Bank (ADB). The PAM should include references to all available templates and instructions either through linkages to relevant URLs or directly incorporated in the PAM.

The Ministry and Physical Infrastructure and Transport (MOPIT) and the Department of Roads (DOR) are wholly responsible for the implementation of ADB-financed projects, as agreed jointly between the borrower and ADB, and in accordance with the policies and procedures of the government and ADB. ADB staff is responsible for supporting implementation including compliance by MOPIT and DOR of their obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.

At loan negotiations, the borrower and ADB shall agree to the PAM and ensure consistency with the loan agreement. Such agreement shall be reflected in the minutes of the loan negotiations. In the event of any discrepancy or contradiction between the PAM and the loan agreement, the provisions of the loan agreement shall prevail.

After ADB Board approval of the project's report and recommendations of the President (RRP), changes in implementation arrangements are subject to agreement and approval pursuant to relevant government and ADB administrative procedures (including the Project Administration Instructions) and upon such approval, they will be subsequently incorporated in the PAM.

I. PROJECT DESCRIPTION

1. The project will rehabilitate and upgrade the capacity, quality, and safety of about 87 kilometers (km) of the East–West Highway (EWH) between Kanchanpur and Kamala in southeastern Nepal. The EWH is the main domestic and international trade corridor of Nepal and forms part of the South Asia Subregional Economic Cooperation (SASEC) corridor 4 linking Kathmandu to Dhaka and Chittagong through India.[1] The project will promote economic growth and contribute to enhancing the competitiveness of Nepal's exporting industries by (i) improving interprovincial, national, and regional connectivity; (ii) providing greater access to social services, markets, and employment opportunities; (iii) supporting the development of the agriculture, industry, energy, and tourism sectors; and (iv) easing growing traffic congestion. The project will also improve road safety and road maintenance on the 1,027 km-long EWH corridor, and strengthen the capacity of the executing and implementing agencies in road safety and road maintenance.

2. The outcome of the project will be the improved efficiency and safety of the road transport system. The project is aligned with the following impacts: (i) transport connectivity within Nepal and with neighboring countries improved,[2] and (ii) physical connectivity and multimodal linkages for land-based transport along major trade routes enhanced.[3]

3. The outputs of the project will be:

(i) **Output 1: Road network upgraded and maintained.** The loan will rehabilitate and upgrade about 87 km of road between Kanchanpur and Kamala on the EWH to a four-lane standard, and include a 5-year performance-based maintenance period after completion of construction.[4]

(ii) **Output 2: Planning and management for road safety strengthened.** The loan will finance (i) civil works and equipment packages for road safety mitigation measures on the 1,027 km-long EWH; (ii) safety improvements for the project road, particularly for pedestrians, and bicycles and motorcycle users; and (iii) a road safety awareness campaign. The attached technical assistance (TA) will support (i) the preparation of a national road safety policy and action plan, (ii) the strengthening of the road safety council, (iii) a road safety assessment for the EWH, and (v) the implementation of gender equality and social inclusion (GESI) guidelines of the Ministry of Physical Infrastructure and Transportation (MOPIT).[5]

(iii) **Output 3: Facilities and project readiness of Project Directorate (ADB) improved.** The loan will finance (i) the preparation of detailed engineering design for pipeline road projects along the EWH, and (ii) the construction of a modern office for the Project Directorate (ADB). The attached TA will support a prefeasibility study and the preparation of design standards for service areas along the EWH.

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[1] SAARC Secretariat. 2006. *SAARC Regional Multimodal Transport Study*. Kathmandu; and SASEC Secretariat. 2016. *Operational Plan 2016–2025.* Manila.

[2] Government of Nepal, National Planning Commission. 2016. *Fourteenth Plan, FY2017–2019*. Kathmandu.

[3] SASEC Secretariat. 2016. *Operational Plan 2016–2025.* Manila.

[4] Maintenance after completion of construction includes a one-year defect liability period and five years of performance-based maintenance.

[5] MOPIT. 2017. *Gender Equality and Social Inclusion Operational Guidelines.* Kathmandu. Released in March 2018.

4. The detailed scope of the attached TA for Institutional Strengthening of Road Safety and Gender Equality includes the following outputs:

(i) road safety policy and action plan developed, including the review of the current institutional and legal framework for road safety, the strengthening of the operation of the National Road Safety Council, the preparation of a gender-inclusive road safety policy, strategy for 2021–2030, and investment plan for 2021–2023, and the recommendation of a road safety assessment framework;[6]

(ii) road safety of the EWH improved, which includes a road safety assessment for the 1,027 km EWH corridor, the identification of safety blackspots, and a feasibility study for service areas along the EWH. Civil works packages are provided under the loan to mitigate safety blackspots on the EWH;

(iii) road safety awareness increased, including the preparation of an interagency coordination plan, road safety campaign materials, and a pilot campaign;

(iv) gender equality and social inclusion guidelines implemented, including support to promulgate the GESI operational guidelines in MOPIT.[7]

II. IMPLEMENTATION PLANS

A. Project Readiness Activities

Table 1: Project Readiness Activities

Indicative Activities	2018							Responsible Individual/Unit/Agency/ Government
	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Advance contracting actions								DOR
Establish project implementation arrangements								DOR, MOPIT
ADB Board approval								ADB
Loan signing								ADB, MOF
Government legal opinion provided								MOF
Government budget inclusion								MOF
Loan effectiveness								ADB

ADB = Asian Development Bank; DOR = Department of Roads; MOF = Ministry of Finance; MOPIT = Ministry of Physical Infrastructure and Transport.
Source: Asian Development Bank estimates.

[6] Examples are the international road assessment program (iRAP) or other data- or evidence-based framework.
[7] Government of Nepal, MOPIT. 2017. *Gender Equality and Social Inclusion Operational Guidelines.* Kathmandu.

B. Overall Project Implementation Plan

Table 2: Project Implementation Plan

Activities	2018		2019				2020				2021				2022				2023				2024				2025				2026				2027			
Quarter	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
A. DMF																																						
1a. 87 km of roads upgraded																																						
1b. PBM contracts implemented																																						
2a. Road safety policy, action plan and investment program developed																																						
2b. Road safety council strengthened																																						
2c. Project Directorate (ADB) office reconstructed																																						
2d. Road safety assessment for 1,024 km of highway completed, and 20 accident blackspots eliminated																																						
2e. 20 road safety features installed on project road																																						
2f. Prefeasibility study and designs for service areas along the EWH																																						
2g. Road safety awareness campaign																																						
2h. MOPIT trained on GESI																																						
B. Management Activities																																						
Award CSC contract																																						
Award PPC contract																																						
Award works contracts for project road																																						
Award contracts for the construction of Project Directorate office																																						
Complete construction of project road																																						
Recruit TA consultants																																						
Establish project implementation units under the Project Directorate (ADB)																																						
Ensure counterpart fund availability																																						
Conduct gender action plan activities																																						
Project completion report																																						

ADB = Asian Development Bank; CSC = construction supervision consultants; DMF = design and monitoring framework, DOR = Department of Roads; EWH = East–West Highway; GESI = gender equality and social inclusion; km = kilometer; MOPIT = Ministry of Physical Infrastructure and Transport; PBM = performance-based maintenance; PPC = project preparatory consultants; TA = technical assistance.
Note: Maintenance after completion of construction includes a one-year defect liability period and 5 years of performance-based maintenance.
Source: Asian Development Bank and Department of Roads.

III. PROJECT MANAGEMENT ARRANGEMENTS

A. Project Implementation Organizations: Roles and Responsibilities

Table 3: Roles and Responsibilities

Project Implementation Organizations	Management Roles and Responsibilities
Executing agency	MOPIT • Overall coordination of project implementation • Interagency coordination • Compliance with all loan covenants (social and environmental safeguards, financial, economic, and others) • Providing funds and staffing as per the commitments or assurances on the institutional development component • Overseeing the performance of the project implementation unit • Ensuring project sustainability during post-implementation stage and reporting to ADB on the assessed development impacts
Project steering committee	MOPIT, DOR, Department of Transport Management, Nepal Traffic Police, Roads Board Nepal, and other key agencies. • Interagency coordination related to the road safety component of the project
Implementing agency	DOR, through Project Directorate (ADB) • Day-to-day project management • Consultant recruitment and procurement of works • Preparation of withdrawal applications • Maintaining project financial statements and complete loan financial records • Monitoring and evaluation of project activities and outputs, including periodic review, and preparation of review reports reflecting issues and time-bound actions taken (or to be taken) • Involving beneficiaries or representatives in all stages of project development and implementation • Public disclosure of project outputs • Compliance with all loan covenants (social and environmental safeguards, financial, economic, and others) • Preparing regular periodic progress reports, and project completion reports, and their timely submission to ADB
ADB	• Monitoring and reviewing overall implementation of the project in consultation with the executing agency and/or implementing agency, including the project implementation schedule, poverty reduction, environmental impacts, and resettlement plans • Reviewing all documents that require ADB approval • Ensuring timeliness of budgetary allocations and counterpart funding, project expenditures, progress with procurement and disbursement, statement of expenditure, compliance with particular loan covenants, and the likelihood of attaining the project's immediate development objectives • Conducting periodic loan review missions, a midterm review, and a completion mission

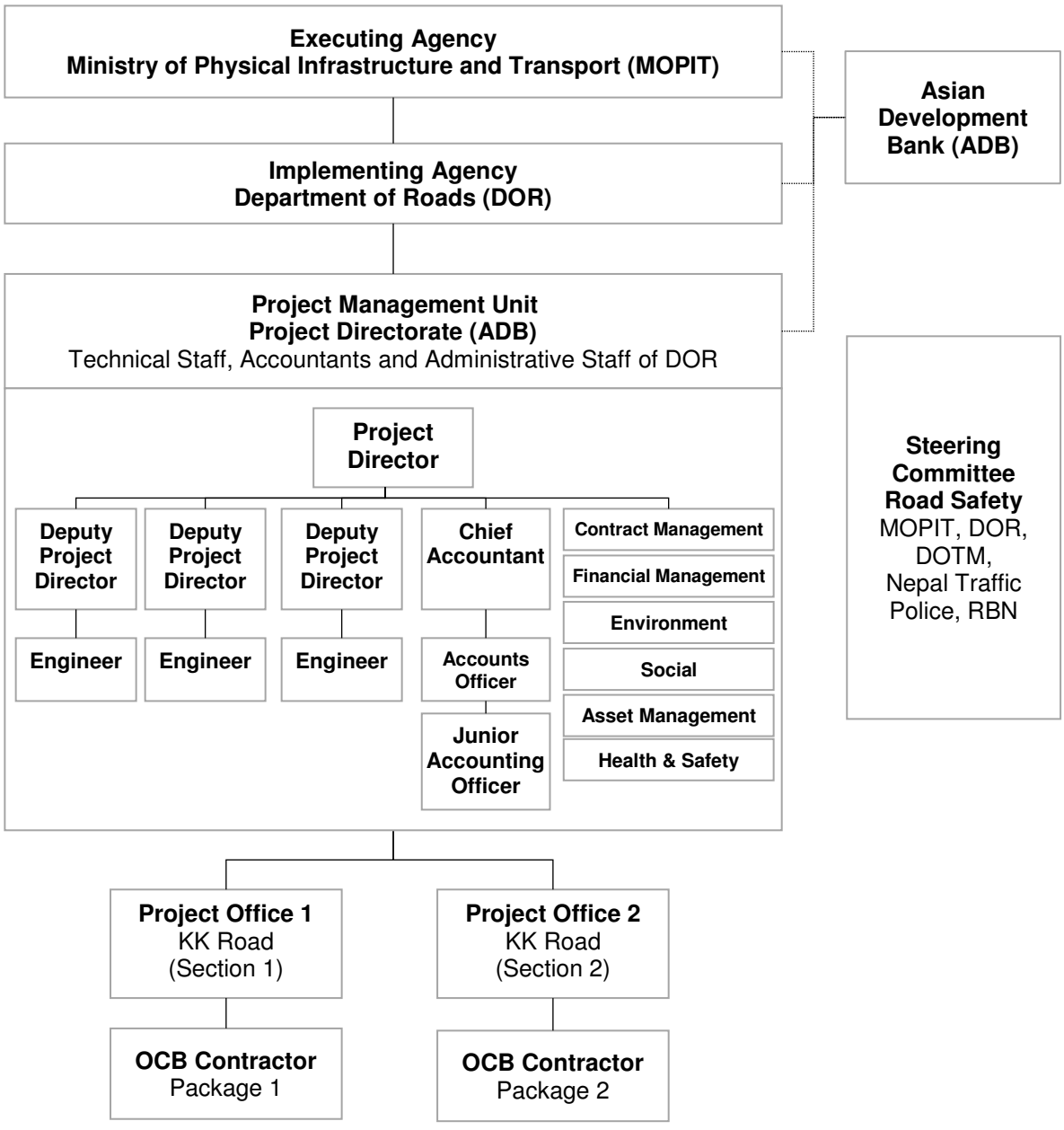
ADB = Asian Development Bank; DOR = Department of Roads; MOPIT = Ministry of Physical Infrastructure and Transport.
Source: Asian Development Bank.

B. Key Persons Involved in Implementation

Executing Agency	
Ministry of Physical Infrastructure and Transport (MOPIT)	Mr. Madhusudan Adhikari Secretary Telephone: +977 1 421 1782 Fax No: +977 1 421 1720
	Mr. Keshab Kumar Sharma Joint Secretary, Foreign Cooperation Telephone: +977 1 421 1782 Fax No: +977 1 421 1720
Implementing Agency	
Department of Roads (DOR)	Mr. Rabindra Nath Shrestha Director General Telephone: +977 1 443 7492 Fax No: +977 1 443 7488
	Mr. Saroj Kumar Pradhan Project Director Project Directorate (ADB) Telephone: +977 1 443 7492 Fax No: +977 1 443 7488 Email address: pdadb@wlink.com.np
Asian Development Bank	
Transport and Communications Division, South Asia Department (SATC)	Mr. Ravi Peri Director Telephone: +63 2 632 1771 Email address: rperi@adb.org
	Mr. Johan Georget Project Officer/Mission Leader Transport Specialist Telephone: +63 2 683 1702 Email address: jgeorget@adb.org
Nepal Resident Mission	Mr. Bhupendra Bhatt Project Officer (Transport) Telephone: +977 1 400 5120 Email address: bbhatt@adb.org

C. Project Organization Structure

Figure 1: Project Organization Structure



ADB = Asian Development Bank; DOTM = Department of Transport Management; KK = Kanchanpur–Kamala; OCB = open competitive bidding; RBN = Roads Board Nepal.

Notes:

a. The Project Management Unit requires the fielding of one additional deputy project director and one additional engineer. Six individual national consultants are required to support the implementation of ongoing projects, including on environment, social safeguards, contract management, financial management, road asset and maintenance management, and occupational health and safety.

b. Each Project Office is headed by a project manager, who is supported by one engineer, one accountant, one administrative staff, one computer operator, two support staff, and two drivers.

Sources: Asian Development Bank and Department of Roads.

IV. COSTS AND FINANCING

5. **Investment plan.** The project is estimated to cost $256.40 million, including taxes and duties for works and equipment, physical and price contingencies, and interest during implementation. In addition to financing a proportionate share for the project components, the government will finance all costs related to (i) land acquisition, (ii) relocation and resettlement, (iii) operation and maintenance works, and (iv) project management. Cost estimates are summarized in Table 4.

Table 4: Summary Cost Estimates
($ million)

Item			Amount[a]
A.	**Base Cost**[b]		
	1.	Road network upgraded and maintained	196.24
	2.	Planning and management for road safety strengthened	15.82
	3.	Facilities and project readiness of Project Directorate (ADB) improved	7.52
		Subtotal (A)	**219.58**
B.	**Contingencies**[c]		**31.97**
C.	**Financial Charges During Implementation**[d]		**4.85**
		Total (A+B+C)	**256.40**

[a] Includes taxes and duties of $23.84 million. Such amount does not represent an excessive share of the project cost. The government and Asian Development Bank will finance taxes and duties for civil works and for road safety works and equipment, with ADB financing $16.52 million, and the government financing $7.32 million by cash contribution.
[b] In mid-2018 prices as of 13 August 2018.
[c] Physical contingencies computed at 10% for civil works and consulting services. Price contingencies computed at an average of 4.5% on foreign exchange costs and 13.8% on local currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.
[d] Includes interest during construction calculated on the annual basis of 1.0% of the disbursed balance, and cofinancing charges calculated as 0.2% of the cofinancing amount.
Source: Asian Development Bank estimates.

6. **Loan terms.** The government has requested a concessional loan of $180.0 million from ADB's ordinary capital resources to help finance the project. The loan will have a 32-year term, including a grace period of 8 years; an interest rate of 1.0% per year during the grace period and 1.5% per year thereafter; and such other terms and conditions set forth in the draft loan agreement.

7. **Financing plan.** The financing plan is in Table 5.

Table 5: Financing Plan

Source	Amount ($ million)	Share of Total (%)
Asian Development Bank		
Ordinary capital resources (concessional loan)	180.00	70.20
Government of Nepal	76.40	29.80
Total	**256.40**	**100.00**

Source: Asian Development Bank estimates.

A. Cost Estimates Preparation and Revisions

8. Cost estimates were prepared by DOR and ADB, with information for the investment costs extracted from the consultants' detailed project reports prepared under supervision of DOR.[8] The cost estimates were based on August 2018 prices. During implementation, the schedule of rates (if any), along with the then current normalized bid rates, will be updated by DOR on an annual basis, and used for assessing project estimates and bid responses.

B. Key Assumptions

9. The following key assumptions underpin the cost estimates and financing plan:

(i) Exchange rate: NRs110.30 = $1.00 (as of 11 August 2018).

(ii) Price contingencies based on expected cumulative inflation over the implementation period are as follows:

Table 6: Escalation Rates for Price Contingency Calculation

(%)

Item	2018	2019	2020	2021	2022	2023	Average
Foreign rate of price inflation	-0.4	3.8	8.7	14.0	19.5	25.3	3.7
Domestic rate of price inflation	-0.2	1.3	2.9	4.5	6.1	7.8	11.8

Source: Asian Development Bank.

[8] ADB. Nepal: Transport Project Preparatory Facility; and ADB. Nepal: South Asia Subregional Economic Cooperation Road Connectivity Project. ADB provided assistance to the Government of Nepal to prepare the feasibility and detailed design of the project road, through a transport project preparatory facility (Grant 0227-NEP), and through loan savings of an ongoing project (Loan 3012-NEP).

C. Detailed Cost Estimates by Expenditure Category

Table 7: Cost Estimates by Expenditure Category
($ million)

Item		Total Cost	% of Total Base Cost
A.	**Investment Costs**		
	1. Civil works	182.43	71.15
	2. Performance-based maintenance	2.87	1.12
	3. Road safety works	13.56	5.29
	4. Road safety equipment	2.26	0.88
	5. Project Directorate building	3.39	1.32
	6. Land acquisition and resettlement[a]	1.62	0.63
	7. Construction supervision consultancy services	7.19	2.81
	8. Detailed design consultancy services	4.13	1.61
	9. Implementation support	1.00	0.39
	Subtotal (A)	**218.45**	**85.20**
B.	**Recurrent Costs**		
	1. Project management costs	1.13	0.44
	Subtotal (B)	**1.13**	**0.44**
	Total Base Cost	**219.58**	**85.64**
C.	**Contingencies**		
	1. Physical	22.05	8.60
	2. Price	9.92	3.87
	Subtotal (C)	**31.97**	**12.47**
D.	**Financial Charges During Implementation**		
	1. Interest during construction	4.85	1.89
	Subtotal (D)	**4.85**	**1.89**
	Total Project Cost (A+B+C+D)	**256.40**	**100.00**

Notes: Numbers may not sum precisely because of rounding.
[a] Environment and social mitigation includes all costs associated with implementing relevant safeguards, gender, and social dimension action plans.
Source: Asian Development Bank.

D. Allocation and Withdrawal of Loan Proceeds

10. Table 8 summarizes the allocation and withdrawal of loan proceeds for ADB financing.

Table 8: Allocation and Withdrawal of Loan Proceeds
($ million)

No.	Item	Total Amount Allocated for ADB Financing ($)	Basis for Withdrawal from the Loan Account
1	Works	132,300,000	71.22% of total expenditure claimed
2	Works and equipment (road safety)	11,300,000	71.22% of total expenditure claimed
3	Consulting services	8,800,000	71.22% of total expenditure claimed*
4	Unallocated	27,600,000	
	Total	**180,000,000**	

* Exclusive of taxes and duties imposed within the territory of the Borrower
Source: Asian Development Bank.

E. Detailed Cost Estimates by Financier

Table 9: Cost Estimates by Financier
($ million)

Item	ADB (COL) Amount (A)	ADB (COL) % of Cost Category (A/C)	GON Amount (B)	GON % of Cost Category (B/C)	Total Cost Amount (C)	Total Cost Taxes and Duties (D)
A. Investment Costs						
1. Civil works	129.92	71.22	52.51	28.78	182.43	(20.99)
2. Performance-based maintenance	-	-	2.87	100.00	2.87	(0.33)
3. Road safety works	9.66	71.22	3.90	28.78	13.56	(1.56)
4. Road safety equipment	1.61	71.22	0.65	28.78	2.26	(0.26)
5. Project Directorate building	2.41	71.22	0.98	28.78	3.39	(0.39)
6. Land acquisition and resettlement	-	-	1.62	100.00	1.62	(0.19)
7. Construction supervision consultants[a]	5.12	71.22	2.07	28.78	7.19	-
8. Detailed design consultancy services[a]	2.94	71.22	1.19	28.78	4.13	-
9. Implementation support[a]	0.71	71.22	0.29	28.78	1.00	-
Subtotal (A)	**152.38**	**69.76**	**66.07**	**30.24**	**218.45**	**(23.71)**
B. Recurrent Costs						
1. Project management costs	-	-	1.13	100.00	1.13	(0.13)
Subtotal (B)	**-**	**-**	**1.13**	**100.00**	**1.13**	**(0.13)**
Total Base Cost (A+B)	**152.38**	**69.40**	**67.20**	**30.60**	**219.58**	**(23.84)**
C. Contingencies						
1. Physical	15.70	71.22	6.35	28.78	22.05	(2.68)
2. Price	7.06	71.22	2.85	28.78	9.92	(1.22)
Subtotal (C)	**22.77**	**71.22**	**9.20**	**28.78**	**31.97**	**(3.90)**
D. Financial Charges During Implementation						
1. Interest during construction	4.85	100.00	-	-	4.85	-
Subtotal (D)	**4.85**	**100.00**	**-**	**-**	**4.85**	**-**
Total Project Cost (A+B+C+D)	**180.00**	**70.20**	**76.40**	**29.80**	**256.40**	**(27.75)**

ADB = Asian Development Bank; COL = concessional ordinary lending; GON = Government of Nepal.
Note: Numbers may not sum precisely because of rounding. Taxes and Duties (D) are included in the total project amount (C).
[a] Exclusive of taxes and duties imposed within the territory of the Borrower.
Source: Asian Development Bank.

F. Detailed Cost Estimates by Outputs

Table 10: Cost Estimates by Outputs
($ million)

Item		Total Cost	Road Network Upgraded and Maintained		Planning and Management for Road Safety Strengthened		Facilities and Project Readiness of Project Directorate (ADB) Improved	
			Amount	% of Cost Category	Amount	% of Cost Category	Amount	% of Cost Category
A.	**Investment Costs**							
	1. Civil works	182.43	182.43	100.00	-	-	-	-
	2. Performance-based maintenance	2.87	2.87	100.00	-	-	-	-
	3. Road safety works	13.56	-	-	13.56	100.00	-	-
	4. Road safety equipment	2.26	-	-	2.26	100.00	-	-
	5. Project Directorate building	3.39	-	-	-	-	3.39	100.00
	6. Land acquisition and resettlement	1.62	1.62	100.00	-	-	-	-
	7. Construction supervision consultancy services	7.19	7.19	100.00	-	-	-	-
	8. Detailed design consultancy services	4.13	-	-	-	-	4.13	100.00
	9. Implementation support	1.00	1.00	100.00	-	-	-	-
	Subtotal (A)	**218.45**	**195.11**	**89.32**	**15.82**	**7.24**	**7.52**	**3.44**
B.	**Recurrent Costs**							
	1. Project management costs	1.13	1.13	100.00	-	-	-	-
	Subtotal (B)	**1.13**	**1.13**	**100.00**	**-**	**-**	**-**	**-**
	Total Base Cost (A+B)	**219.58**	**196.24**	**89.37**	**15.82**	**7.20**	**7.52**	**3.42**
C.	**Contingencies**							
	1. Physical	22.05	19.51	88.48	1.58	7.17	0.96	4.34
	2. Price	9.92	8.67	87.43	0.98	9.86	-	-
	Subtotal (C)	**31.97**	**28.18**	**88.15**	**2.56**	**8.01**	**0.96**	**3.00**
D.	**Financial Charges During Implementation**							
	1. Interest during construction	4.85	4.41	90.87	0.24	4.87	0.58	11.98
	Subtotal (D)	**4.85**	**4.41**	**90.87**	**0.24**	**4.87**	**0.58**	**11.98**
	Total Project Cost (A+B+C+D)	**256.40**	**228.83**	**89.25**	**18.62**	**7.26**	**9.06**	**3.53**

Note: Numbers may not sum precisely because of rounding.
Source: Asian Development Bank

G. Detailed Cost Estimates by Year

Table 11: Cost Estimates by Year
($ million)

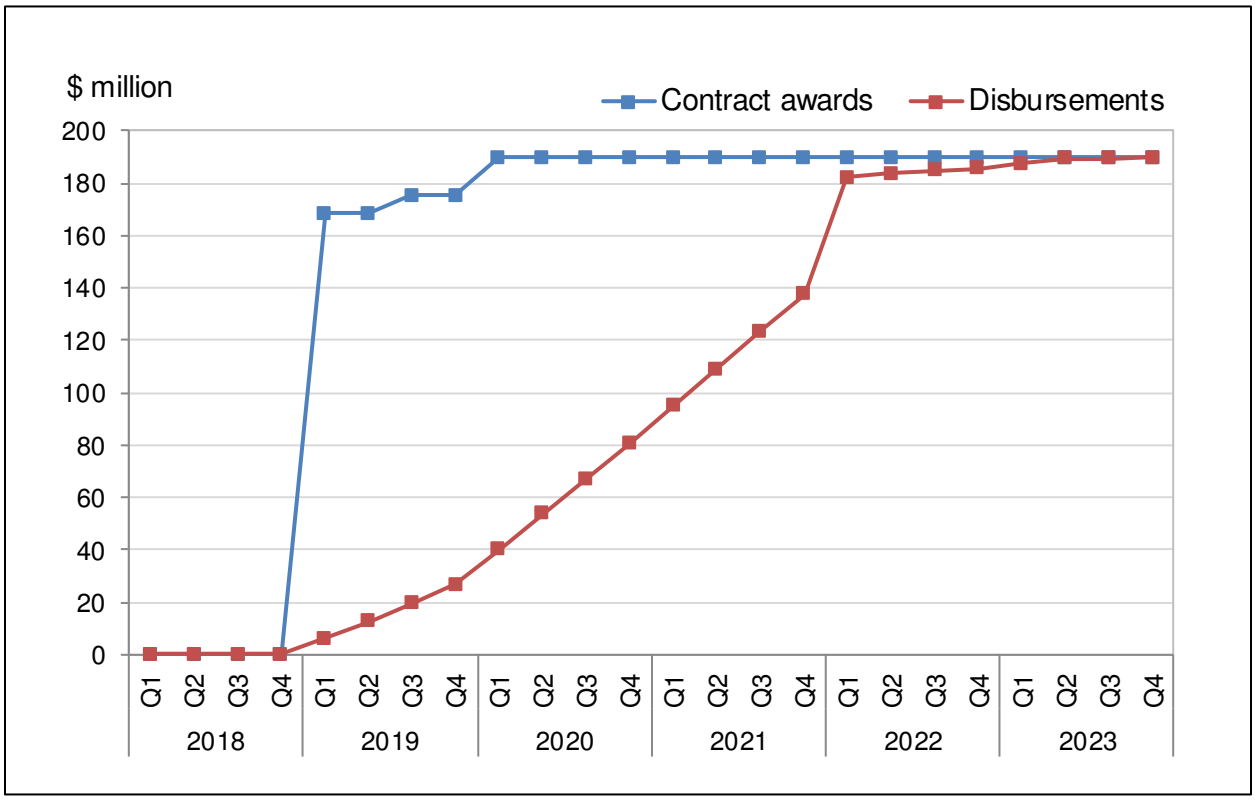
Item	Total Cost	2019	2020	2021	2022	2023	2024	2025	2026	2027
A. Investment Costs										
1. Civil works	182.4	27.3	54.7	54.7	45.6	-	-	-	-	-
2. Performance-based maintenance[a]	2.87	-	-	-	0.43	0.57	0.57	0.43	0.43	0.43
3. Road safety works	13.56	-	1.36	4.07	4.07	4.07	-	-	-	-
4. Road safety equipment	2.26	-	0.57	1.13	0.57	-	-	-	-	-
5. Project Directorate building	3.39	0.68	1.19	1.02	0.51	-	-	-	-	-
6. Land acquisition and resettlement	1.62	0.97	0.32	0.32	-	-	-	-	-	-
7. Construction supervision consultants	7.19	1.44	1.80	1.80	2.16	-	-	-	-	-
8. Detailed design consultancy services	4.13	1.36	1.36	1.40	-	-	-	-	-	-
9. Implementation support	1.00	0.20	0.20	0.20	0.20	0.20	-	-	-	-
Subtotal (A)	**218.4**	**32.0**	**61.5**	**64.6**	**53.5**	**4.84**	**0.57**	**0.43**	**0.43**	**0.43**
B. Recurrent Costs										
1. Project management costs[a]	1.13	0.20	0.20	0.20	0.20	0.20	0.03	0.03	0.03	0.03
Subtotal (B)	**1.13**	**0.20**	**0.20**	**0.20**	**0.20**	**0.20**	**0.03**	**0.03**	**0.03**	**0.03**
Total Base Cost (A+B)	**219.5**	**32.2**	**61.7**	**64.8**	**53.7**	**5.05**	**0.60**	**0.46**	**0.46**	**0.46**
C. Contingencies										
1. Physical[a]	22.05	3.27	6.22	6.54	5.35	0.48	0.06	0.04	0.04	0.04
2. Price[a]	9.92	0.48	1.94	3.18	3.62	0.43	0.06	0.06	0.07	0.07
Subtotal (C)	**31.97**	**3.75**	**8.16**	**9.72**	**8.98**	**0.92**	**0.12**	**0.10**	**0.11**	**0.12**
D. Financial Charges During Implementation										
1. Interest during construction	4.85	0.12	0.50	1.01	1.49	1.73	-	-	-	-
Subtotal (D)	**4.85**	**0.12**	**0.50**	**1.01**	**1.49**	**1.73**	**-**	**-**	**-**	**-**
Total Project Cost (A+B+C+D)	**256.4**	**36.0**	**70.3**	**75.6**	**64.2**	**7.70**	**0.72**	**0.56**	**0.57**	**0.58**
% Total Project Cost	100.0	14.1	27.5	29.5	25.0	3.0	0.3	0.2	0.2	0.2

Note: Numbers may not sum precisely because of rounding.
[a] Performance-based maintenance costs, and related project management costs and contingencies beyond the ADB loan closing date, are borne by the Government of Nepal.
Source: Asian Development Bank.

H. Contract and Disbursement S-Curve

11. The following figure and table show expected contract awards and disbursements for the allocated amounts for ADB financing over the life of the project.

Figure 2: Contract Awards and Disbursements S-Curve



Source: Asian Development Bank.

Table 12: Quarterly Contract Awards and Disbursements

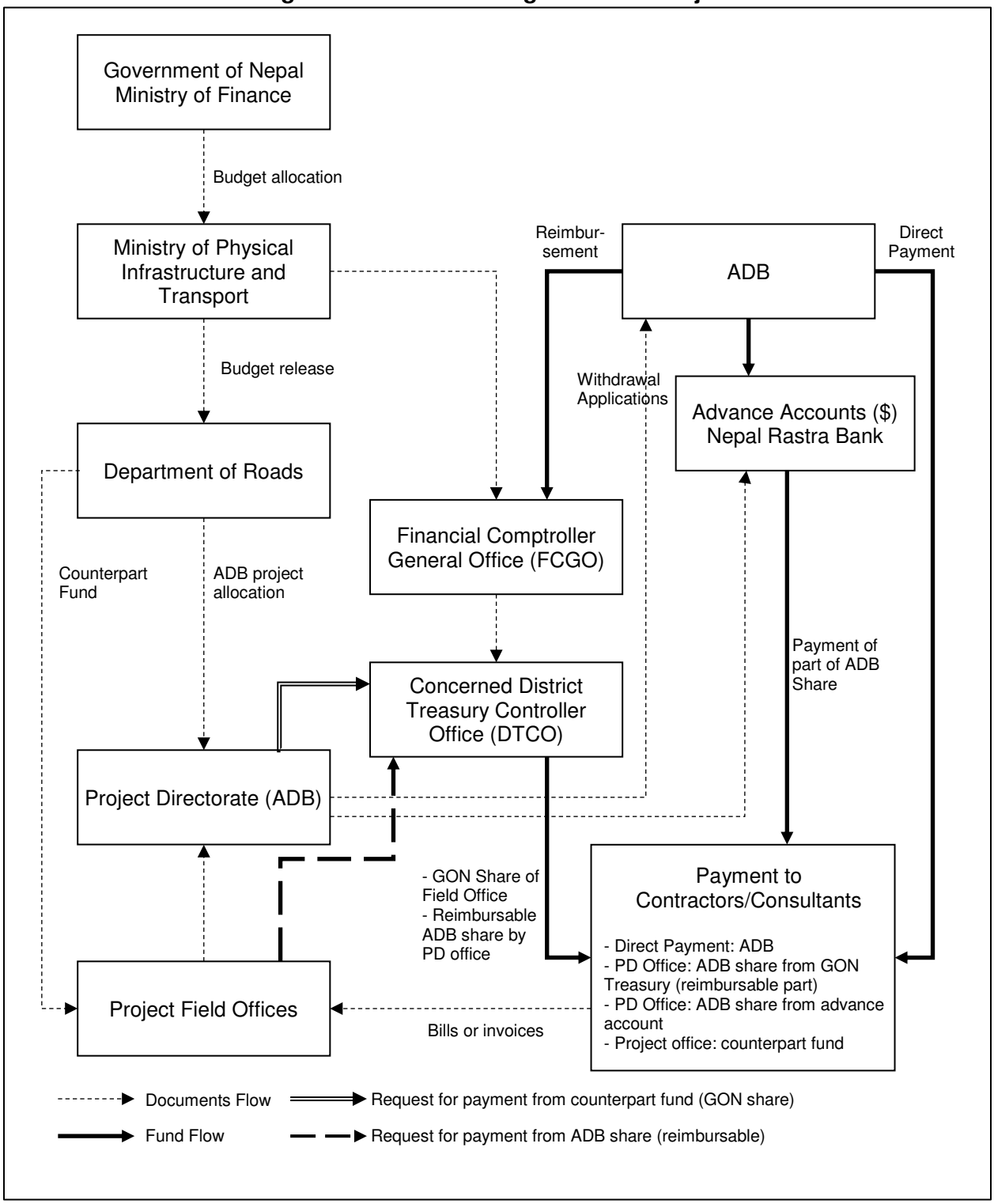
($ million)

Year	Contract Awards						Disbursements					
	Q1	Q2	Q3	Q4	Total	Cum.	Q1	Q2	Q3	Q4	Total	Cum.
2018	-	-	-	-	-	-	-	-	-	-	-	-
2019	155.8	-	6.3	-	162.0	162.0	5.8	5.8	6.6	6.6	24.8	24.8
2020	13.1	-	-	-	13.1	175.1	12.4	12.4	12.4	12.4	49.5	74.3
2021	-	-	-	-	-	175.1	13.2	13.2	13.2	13.2	52.9	127.2
2022	-	-	-	-	-	175.1	41.2	1.3	0.9	0.9	44.3	171.5
2023	-	-	-	-	-	175.1	1.8	1.8	0.0	0.0	3.6	175.1

Cum = cumulative; Q = quarter.
Source: Asian Development Bank.

I. Fund Flow Diagram

Figure 3: Fund Flow Diagram of the Project



ADB = Asian Development Bank; DOR = Department of Roads; GON = Government of Nepal; PD = Project Directorate.
Source: Asian Development Bank.

V. FINANCIAL MANAGEMENT

A. Financial Management Assessment

12. The financial management assessment (FMA) was conducted in April 2018 in accordance with ADB's guidelines on financial management.[9] The FMA considered the capacity of MOPIT and DOR, including funds-flow arrangements, staffing, accounting and financial reporting systems, financial information systems, and internal and external auditing arrangements. The purpose of this updated FMA is to ensure that adequate financial management arrangements are in place for the proposed SRIP. The Project Directorate (ADB) under DOR is responsible for the implementation of the project. The FMA draws on lessons learned during the implementation of past and existing projects, various sector level governance assessments, and interviews with the Project Directorate (ADB) and other relevant staff.

13. The overall premitigation financial management risk of MOPIT and DOR is considered *moderate.*[10] The implementing agency has experience with and sufficient capacity for advance accounting and statement of expenditures (SOE) procedures. Based on the assessment, the key financial management risks identified at Project Directorate (ADB) level are (i) the internal audit function is weak; (ii) project financial records are maintained manually, and the financial management information system (FMIS) software for ADB projects is not fully utilized; and (iii) human resource capacity requires to be supplemented by more training in ADB policies and procedures.

14. Risk mitigating measures to partially manage the weaknesses in the financial management process include:

(i) department training of project implementation staff on financial and procurement rules and guidelines of both the Government of Nepal and ADB before the start of the project;
(ii) establishment of an independent and effective internal audit function or outsourcing the quarterly internal audit;
(iii) ensuring more rigorous follow-up of resolution of audit issues on an ongoing basis;
(iv) customizing the unified web-based project monitoring and FMIS established in the DOR by incorporating ADB requirements to promote transparency and reduce administrative burden; and
(v) establishment of a new field office with support staff before start of the project.

15. Despite the issues noted above, DOR is successfully implementing ongoing ADB-funded projects. Audited ADB project financial statements are submitted on time, and the statutory auditor has been issuing clean, unqualified audit opinions. Established accounting, reporting and budgeting procedures are in place in line with government regulations with adequate accounting staff.

16. The financial management risks and action plan are provided in Table 13.

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[9] ADB. 2005. *Financial Management and Analysis of Projects.* Manila; and ADB. 2015. *Financial Management and Analysis of Projects and the Financial Due Diligence: A Methodology Note.* Manila.

[10] The overall financial mitigation risk was earlier assessed *moderate* for the FMA of L3478-NEP: SASEC Roads Improvement Project conducted in 2016, and substantial for the financial management assessment (FMA) of L3260/G0529-NEP: Earthquake Emergency Assistance Project conducted in 2015. Stable release of funds to the projects and completion of project level audits substantiate the improvement of the financial management risks.

Table 13: Financial Management and Internal Control Risk Assessment

Risk	Risk Assessment	Risk Description	Mitigation Measures or Action Plans
Inherent Risk			
1. Country-specific	Substantial	Absorption capacity of the government departments for capital expenditure and adequacy of O&M budget	Close monitoring of the activities will reduce the country-specific risk in the project.
2. Entity-specific	Moderate	Experience of the DOR as project implementing agency	DOR has experience in implementing ADB-financed projects. A separate Project Directorate (ADB) was established within DOR, and the establishment of a separate field office with support staff will reduce the entity-specific risk in managing the project.
3. Project-specific	Low	None	Not applicable.
Overall Inherent Risk	**Moderate**		
Control Risk			
1. Implementing entity	Moderate	DOR is proposed to manage and implement the project.	Field office with sufficient staff must be in place before the start of the project.
2. Fund flow	Low	Timely release of counterpart fund	This is a high priority project with government commitment, and therefore delays in allocation and release of funds are not expected. Government assurance is required to release the counterpart funds on a timely basis to DOR, and direct payment mechanism is to be used as well.
3. Staffing	Moderate	Dedicated finance and accounting staff for the DOR	The Project Directorate (ADB), established within DOR at the central level will be the implementing agency. A separate field office with support staff will be established at the regional level. A construction supervision consultant to be engaged will act as the engineer for the construction contracts.
4. Accounting policies and procedures	Moderate	Properly documented policies and procedures and scope for improvement in the implementation of PEFA recommendations	Existing government policies and procedures are followed. The government is in the process of implementing the PEFA recommendations on a phased basis. The compliance status of project loan covenants will be reported and assessed through the quarterly progress reports and verified by ADB review missions.
5. Internal audit	Substantial	Internal audit function generally weak	Internal audit is generally weak. Full-time ongoing accounting support and outsourcing of the internal audit function in the Project Directorate (ADB) are recommended. Until such an arrangement is in place, a thorough pre-audit of vouchers may be done by a trained financial expert at the Project Directorate (ADB) before making payment.
6. External audit	Low	Timely completion of external audit function	OAG has the constitutional mandate to conduct external audits of donor-funded projects. Annual project audit reports are to be produced within 6 months at the end of the financial year.

Risk	Risk Assessment	Risk Description	Mitigation Measures or Action Plans
7. Reporting and monitoring	Moderate	Financial reports and disbursement reports need to form part of the quarterly progress report	DOR will be required to report in accordance with the ADB requirements with inherent adequate control mechanisms. Financial Reports with variance analysis of physical and financial progress and disbursement reports need to form part of the quarterly progress report.
8. Information systems	Moderate	Optimal use of technology in the finance and accounts wing for accounts preparation and reporting requirements	The project will use the existing financial management information system software in addition to the existing use of spreadsheet. Possibility of integrating ADB reports in the existing software will be considered. The project also uses CGAS government accounting software developed by the FCGO for government transactions.
Overall Control Risk	**Moderate**		

ADB = Asian Development Bank; CGAS = computerized government accounting system; DOR = Department of Roads; FCGO = Financial Comptroller General Office; MOPIT = Ministry of Physical Infrastructure and Transport; OAG = Office of the Auditor General; O&M = operation and maintenance; PEFA = Public Expenditure Financial Accountability; PIU = project implementing unit.
Sources: Asian Development Bank and Department of Roads.

17. The disbursement and budgeting mechanisms are adequate. However, the overall financial management risk is rated *moderate* due to lack of internal audit function, lack of detailed accounting and financial reporting, and less effective use of the accounting and monitoring software. The financial management risk for ADB-financed projects at the country level is considered *moderate.*

B. Disbursement

1. Disbursement Arrangements for ADB Funds

18. The loan proceeds will be disbursed in accordance with ADB's Loan Disbursement Handbook (2017, as amended from time to time), and detailed arrangements agreed upon between the government and ADB.[11] Online training for project staff on disbursement policies and procedures is available.[12] Project staff are encouraged to avail of this training to help ensure efficient disbursement and fiduciary control.

19. DOR will be responsible for (i) preparing disbursement projections, (ii) requesting budgetary allocations for counterpart funds, (iii) collecting supporting documents, and (iv) preparing and sending withdrawal applications to ADB. The project is funded by ADB on advance account basis, reimbursement basis, and direct payment. DOR will be responsible for preparing and submitting withdrawal applications to ADB, and collecting and retaining supporting documents. Contractors, consultants, and suppliers will be primarily paid through the advance account procedure, with direct payment for larger payments.

20. **Advance fund procedure.** Immediately after loan effectiveness, DOR will establish an advance account for the loan at the Nepal Rastra Bank. The currency of the advance accounts is the US dollar. The advance account is to be used exclusively for ADB's share of eligible expenditures. The implementing agency, DOR, who administers the advance account is

[11] ADB. 2017. *Loan Disbursement Handbook.* Manila.
[12] Disbursement eLearning.

accountable and responsible for proper use of advances to the advance account including advances to any sub-accounts.

21. The total outstanding advance to the advance account should not exceed the estimate of ADB's share of expenditures to be paid through the advance account for the forthcoming 6 months. DOR may request for initial and additional advances to the advance account based on an estimate of expenditure sheet setting out the estimated expenditures to be financed through the account for the forthcoming 6 months.[13] For every liquidation and replenishment request of the advance account, the borrower will furnish to ADB (i) a statement of account (bank statement) issued by the bank where the advance account is maintained, and (ii) the advance account reconciliation statement (AARS) reconciling the above-mentioned bank statement against Ministry of Finance's (MOF) records.[14] Supporting documents should be submitted to ADB or retained by DOR in accordance with ADB's *Loan Disbursement Handbook* (2017, as amended from time to time) when liquidating or replenishing the advance accounts.

22. **Statement of expenditure procedure**.[15] The SOE procedure will be used for reimbursement of eligible expenditures or liquidation of advances to the advance account. As the financial management assessment shows DOR has adequate capacity, no ceiling is imposed on the amount of expenditure that may be submitted to ADB using the SOE procedure for reimbursing and liquidating the advance account. Supporting documents and records for the expenditures claimed under the SOE should be maintained and made readily available for review by ADB's disbursement and review missions, upon ADB's request for submission of supporting documents on a sampling basis, and for independent audit. DOR will be responsible for preparing liquidation and replenishment of the advance fund. Procedures for establishing and operating the advance account and SOE procedures are detailed in the ADB's *Loan Disbursement Handbook* (2017, as amended from time to time).

23. DOR will submit to ADB annual contract awards and disbursement projections before the start of each calendar year using ADB's standard templates. DOR is responsible for (i) requesting budgetary allocations for counterpart funds, (ii) collecting supporting documents for the project, and (iii) preparing and sending withdrawal applications to ADB. All disbursements under government financing will be carried out in accordance with regulations of the Government of Nepal and ADB procedures will be followed for the ADB component.

24. Before the submission of the first withdrawal application, the borrower should submit to ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on behalf of the government, together with the authenticated specimen signatures of each authorized person. The minimum value per withdrawal application is stipulated in the ADB's *Loan Disbursement Handbook* (2017, as amended from time to time) and is presently set at $200,000. Individual payments below such amount should be paid (i) by MOPIT and/or DOR and subsequently claimed to ADB through reimbursement, or (ii) through the advance fund procedure, unless otherwise accepted by ADB. The borrower should ensure sufficient category and contract balances before requesting disbursements. Use of ADB's Client Portal for Disbursements system is encouraged for submission of withdrawal applications to ADB.[16]

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[13] Estimate of Expenditure sheet is available in Appendix 8A of ADB's *Loan Disbursement Handbook* (2017, as amended from time to time),

[14] Follow the format provided in Appendix 8B of ADB's *Loan Disbursement Handbook*.

[15] Statement of Expenditure forms are available in Appendix 7B and 7D of ADB's *Loan Disbursement Handbook* (2017, as amended from time to time).

[16] The Client Portal for Disbursements facilitates online submission of withdrawal application to ADB, resulting in faster disbursement. The forms to be completed by the Borrower are available online.

2. Disbursement Arrangements for Counterpart Fund

25. All disbursements under government financing will be carried out in accordance with the regulations of the Government of Nepal and accounting principles acceptable to ADB.

C. Accounting

26. MOPIT will maintain, or cause to be maintained, separate books and records by funding source for all expenditures incurred on the project. DOR will prepare project financial statements in accordance with the government's accounting laws and regulations which are consistent with international accounting principles and practices for cash-based accounting. Project financial statements shall include, at a minimum, a statement of receipts and payments with accompanying notes and schedules. Project financial statements shall include all expenditures incurred under the project, including loan and government counterpart funds. These shall be prepared in accordance with Nepal Public Sector Accounting Standards and Government of Nepal's Financial Procedures, Act and Rules. The detailed statement of audit needs shall be provided during implementation.

D. Auditing and Public Disclosure

27. MOPIT will cause the detailed project financial statements to be audited in accordance with the International Organization of Supreme Audit Institutions Fundamental Auditing Principles by an independent auditor acceptable to ADB. The audited project financial statements, together with the auditor's opinion, will be presented in the English language to ADB within 6 months from the end of the fiscal year by MOPIT.

28. The annual audit report will include a separate audit opinion, which will cover (i) whether the project financial statements present a true and fair view or are presented fairly, in all material respects, in accordance with the applicable financial reporting framework; (ii) whether the loan proceeds were used only for the purposes of the project; and (iii) the level of compliance for each financial covenant contained in the legal agreements for the project. A management letter shall also be provided.

29. Compliance with financial reporting and auditing requirements will be monitored by review missions and during normal program supervision, and followed up regularly with all concerned, including the external auditor.

30. The government, MOPIT, and DOR have been made aware of ADB's approach to delayed submission, and the requirements for satisfactory and acceptable quality of the audited project financial statements.[17] ADB reserves the right to require a change in the auditor (in a manner

[17] ADB's approach and procedures regarding delayed submission of audited project financial statements:

(i) When audited project financial statements are not received by the due date, ADB will write to the executing agency advising that (a) the audit documents are overdue; and (b) if they are not received within the next 6 months, requests for new contract awards and disbursement such as new replenishment of advance accounts, processing of new reimbursement, and issuance of new commitment letters will not be processed.

(ii) When audited project financial statements are not received within 6 months after the due date, ADB will withhold processing of requests for new contract awards and disbursement such as new replenishment of advance accounts, processing of new reimbursement, and issuance of new commitment letters. ADB will (a) inform the executing agency of ADB's actions; and (b) advise that the loan may be suspended if the audit documents are not received within the next 6 months.

consistent with the constitution of the borrower), or for additional support to be provided to the auditor, if the audits required are not conducted in a manner satisfactory to ADB, or if the audits are substantially delayed. ADB reserves the right to verify the project's financial accounts to confirm that the share of ADB's financing is used in accordance with ADB's policies and procedures.

31. Public disclosure of the audited project financial statements, including the auditor's opinion on the project financial statements, will be guided by ADB's Public Communications Policy 2011.[18] After the review, ADB will disclose the audited project financial statements and the opinion of the auditors on the project financial statements no later than 14 days of ADB's confirmation of their acceptability by posting them on ADB's website. The management letter, additional auditor's opinions, and audited entity financial statements will not be disclosed.[19]

(iii) When audited project financial statements are not received within 12 months after the due date, ADB may suspend the loan.

[18] Public Communications Policy.

[19] This type of information would generally fall under public communications policy exceptions to disclosure. ADB. 2011. *Public Communications Policy*. Paras. 97(iv) and/or 97(v).

VI. PROCUREMENT AND CONSULTING SERVICES

A. Advance Contracting

32. All advance contracting will be undertaken in conformity with ADB's Procurement Policy (2017, as amended from time to time) and Procurement Regulations for ADB Borrowers (2017, as amended from time to time).[20] The issuance of invitations to bid under advance contracting will be subject to ADB approval. The borrower, MOPIT, and DOR have been advised that approval of advance contracting does not commit ADB to finance the project.

33. Advance action for procurement of works and recruitment of consultants was approved in 5 April 2018 when the concept paper of the project was approved. This expedited the consultant selection process, including finalization of the terms of reference of consulting services and issuance of requests for proposal, and the tendering process of the works, including preparation of the bidding documents for civil works and call for tender. MOPIT and DOR have not requested approval for retroactive financing considering the project timelines.

B. Procurement of Goods, Works, and Consulting Services

34. All procurement of goods and works will be undertaken in accordance with ADB's Procurement Policy (2017, as amended from time to time) and Procurement Regulations for ADB Borrowers (2017, as amended from time to time) (footnote 21).

35. Open competitive bidding (OCB) procedures will be used for all civil works contracts with provision for domestic preference. Requests for quotations will be used for procurement of works and goods estimated to cost less than $100,000.

36. All procurement activities will be the responsibility of the Project Director of the project implementation unit (PIU), who will be supported by his/her staff and consultants. ADB will closely monitor all major project implementation activities. Civil works contracts will comprise two OCB packages for the project road, two to three OCB packages for the road safety component, and one OCB package for the Project Directorate office. Before the start of any procurement, ADB and the government will review the public procurement laws of the central and state governments to ensure consistency with ADB's Procurement Regulations.

37. An 18-month procurement plan indicating threshold and review procedures, goods, works, and consulting service contract packages and national competitive bidding guidelines is in Appendix A (Procurement Plan). All consultants and nongovernment organizations (NGOs) will be recruited according to ADB's Procurement Regulations (2017, as amended from time to time).[21] The terms of reference for all consulting services are detailed in Attachment C to F.

38. A firm of international consultants in association with domestic consultants will support the PIU in (i) contract administration and construction supervision for the road construction component, and (ii) implementation of resettlement plans and social aspects such as HIV/AIDS awareness and human trafficking prevention. The consultants will also support the road sector institutions in the fields of road technologies, road safety, and project management. About 147

[20] ADB. 2017. *ADB Procurement Policy: Goods, Works, Nonconsulting and Consulting Services*. Manila; and ADB. 2017. *Procurement Regulations for ADB Borrowers: Goods, Works, Nonconsulting and Consulting Services.* Manila.
[21] Checklists for actions required to contract consultants by method available in e-Handbook on Project Implementation.

person-months for international consultants and 1,300 person-months for national consultants will be required.

39. A second firm of national consultants will be recruited to provide engineering supervision for construction of the road safety component and blackspots elimination as prepared by the TA consultant under the project, in the western section of EWH from Butwal to Gadda Chowki. About 306 person-months for national consultants are estimated to be required. Outline terms of reference are prepared; detailed terms of reference will be finalized after the completion of the road safety assessment by the TA consultants.

40. A third firm of international and national consultants will be recruited to carry out feasibility and detailed design and to support DOR in preparing future projects, notably on the EWH. About 90 person-months of international consultants and 421 person-months for national consultants will be required.

41. All firms will be recruited using ADB's quality- and-cost-based selection (QCBS) under full technical proposal (FTP) and a standard quality–cost ratio of 90:10. Individual international and national consultants will be engaged for project management support and capacity building of the project implementation unit. About 16 person-months for international and 240 person-months for national consultants will be required.

42. DOR will also hire an NGO specializing in community awareness and referral campaigns for HIV/AIDS and human trafficking prevention. The campaign will take place along the road corridor no later than a year after the start of the civil works. A number of NGOs specializing in this sector were identified during project preparation and several have local chapters in the project area. About 100 person-months for national consultants will be required.

C. Procurement Plan

43. The procurement plan is in Attachment A, and describes all procurement of goods and works to be undertaken for the project by the executing agency.

44. The consultants' terms of reference are provided in the following attachments:

Construction Supervision Consultants	Attachment C
Road Safety Implementation Consultants	Attachment D
Detailed Design Consultants	Attachment E
Project Implementation Consultants (Individual)	Attachment F
Non-governmental Organization for HIV/AIDS and Human Trafficking	Attachment G

VII. SAFEGUARDS

45. **Prohibited investment activities.** Pursuant to ADB's Safeguard Policy Statement (2009), ADB funds may not be applied to the activities described on the ADB Prohibited Investment Activities List set forth at Appendix 5 of the Safeguard Policy Statement (2009).

A. Environment

46. The project is classified *B* in accordance with ADB's Safeguard Policy Statement (2009) as no significant and irreversible environmental impacts are expected from the project components. Two initial environmental examination (IEE) reports, including an environmental management plan (EMP) and environmental monitoring plan (EMOP) have been prepared for the Kanchanpur–Kamala road and Project Directorate (ADB) building, and disclosed on the ADB website in June 2018.[22] Budget estimates have been provided for both plans.

47. The Kanchanpur–Kamala road requires an IEE clearance from MOPIT while the Project Directorate (ADB) building subproject does not require any IEE clearance. Approval of the IEE for the Kanchanpur–Kamala road will be secured by the DOR project implementation unit before the start of construction works.

48. The EMP outlines measures to mitigate all anticipated environment impacts during project construction and operation and will be included in the contract agreement with the respective civil works contractor. Specific mitigation measures with details on location, time, and the responsible agency for implementation are given in the EMP. The EMOP specifies procedures for checking various environment quality parameters and the effectiveness of the EMP. It comprises activities on testing the quality of air, water, and noise through laboratory tests and physical monitoring of problems of soil erosion, tree plantations, and occupational health and safety issues.

49. **Implementation arrangements.** The responsibilities of various agencies and parties for implementing environment safeguards are provided below.

50. **Project Directorate, Department of Roads**. DOR will be responsible for ensuring the implementation of environment safeguards under the project as required in the IEEs and respective EMP in accordance with the ADB Safeguard Policy Statement and environmental and health and safety regulations of the Government of Nepal. DOR will ensure timely processing and securing of all statutory clearances and permits, such as the environmental clearance, tree cutting permits and others. The Project Directorate has one environmental officer who will also be responsible for managing the overall implementation of environment safeguards under the project. Quarterly and semi-annual or annual environmental monitoring reports submitted by the construction supervision consultant (CSC) will be reviewed, verified, and endorsed. The semi-annual or annual environmental monitoring report will be forwarded to ADB for disclosure on the ADB website.

51. **Construction supervision consultant**. The CSC will be responsible for supervising the implementation of the EMP and EMOP by the contractor for the Kanchanpur–Kamala road and Project Directorate (ADB) building. The CSC will include an environmental expert. Site-level environmental focal persons will be appointed within the CSC's on-site team for daily supervision

[22] ADB. 2018. Nepal: SASEC Highway Improvement Project Initial Environmental Examination for Kanchanpur–Kamala Road. Manila; and ADB. 2018. Nepal: SASEC Highway Improvement Project Initial Environmental Examination ADB Project Directorate Office Building Subproject. Manila.

and monitoring of on-site EMP implementation. All sub-plans such as construction camp layout, waste management, borrow area management, traffic management, tree plantation and others, prepared by the contractor, will be reviewed and approved by the CSC. Quality testing of air, water and noise as required in the EMOP will be conducted by the CSC. The environmental expert will review and verify monthly or quarterly environmental reports prepared by the contractor for both the Kanchanpur–Kamala road and Project Directorate (ADB) building. Based on site inspections and monthly environmental reports from the contractor, the environmental expert will prepare quarterly and semi-annual and/or annual environmental monitoring reports for review and approval by the Project Directorate. The semi-annual and/or annual environmental monitoring reports for both the Kanchanpur–Kamala road and Project Directorate (ADB) building will be submitted to the Project Directorate for their endorsement and submission to ADB for disclosure on the ADB website. The CSC will also carry out capacity building activities on implementation of environment safeguards through training workshops and on-site training for relevant staff of DOR and the contractor.

52. **Contractor**. The contractor will implement the EMP and EMOP. The contractor will recruit qualified environmental health and safety experts within 30 days of contract signing. These personnel will be present in all construction and campsites and ensure day-to-day implementation of the EMP throughout the construction stage. Monthly environmental monitoring reports will be prepared for review and approval by the CSC.

B. Grievance Redress Mechanism

53. DOR will establish a grievance redress mechanism to voice out and resolve social and environmental concerns linked to the project and to ensure greater accountability of the project authorities towards all affected persons. This mechanism is not intended to bypass the government's own legal process, but to provide a time-bound and transparent mechanism that is readily accessible to all segments of the affected people and road residents. All costs involved in resolving the complaints (meetings, consultations, communications, and reporting or information dissemination) will be borne by the project.

Table 14: Grievance Redress Mechanism

Field-Level Committee	Local-Level Committee	Project-Level Committee
• Social mobilizers • Contractor Environmental or social focal point	• DOR site engineer • Urban and rural municipality committee representative • CSC social mobilizer • 2 representatives designated by the affected community at the local level (man/woman)	• PM DOR • Chief district officer • Local development officer • CSC resettlement expert • CSC environmental expert

CSC = construction supervision consultant; DOR = Department of Roads.
Source: Asian Development Bank.

C. Involuntary Resettlement and Indigenous Peoples

54. The project is categorized *B* for involuntary resettlement given its moderate resettlement impacts. The project does not require private land acquisition and will mostly have minor impacts on 479 non-titled households. A total of 25 households are significantly impacted, as they will have to rebuild their residence or commercial structure outside the corridor of impact. The remaining households will bear minor impacts.

55. A resettlement plan was prepared for the project and disclosed on the ADB website in June 2018.[23] It includes an entitlement matrix that outlines the compensation and resettlement assistance to affected persons and includes: (i) compensation at replacement cost for structures and trees; (ii) shifting and reconstruction assistance; (iii) specific relocation and loss of income assistance for moveable kiosks; (iii) 3 months minimum salary as subsistence allowance for households who have to rebuild their residence; (iv) 2 months of loss income for households who have to rebuild their commercial structures; and (v) additional financial assistance and skill enhancement training for vulnerable households. More details on the entitlement matrix can be found in the resettlement plan (footnote 23). The total budget estimated for the resettlement plan is $763,074, which will be borne by the Government of Nepal.

56. The Project Directorate will be responsible for the implementation of the resettlement plan. The project manager will be responsible for implementing and supervising resettlement activities at the field level and coordinating with other relevant line agencies. They will be supported by the supervision consultant team dedicated to resettlement activities, which will include: a national resettlement expert (20 person-months), a social development expert (24 person-months) and four field staff (120 person-months). In addition, a resettlement specialist will be recruited to support DOR at the Project Directorate and field level to guide and review the work conducted by the construction supervision consultant and to support the preparation of safeguard documents to be submitted to ADB.

57. The project is categorized *C* for impact on indigenous people. The project does not affect tribal or customary land.

VIII. GENDER AND SOCIAL DIMENSIONS

58. **Poverty reduction and social impact.** The project road crosses nine municipalities[24] and three rural municipalities[25] located in the two districts of Saptari and Siraha and covers a direct zone of influence with a population of 522,206. The project is expected to improve access to economic opportunities and social services and contribute to the reduction of intra-regional disparities in Nepal.

59. **Gender.** The poverty and social analysis included a gender assessment based on the socioeconomic characteristics of 2,479 women and consultations with 60 women. Overall, women were supportive of the project and viewed it as a way to facilitate their access to economic opportunities and services.

60. **Gender equality and social inclusion action plan.** The project is categorized *effective gender mainstreaming*. The social due diligence identified gender-specific issues and social risks related to the project in addition to resettlement impacts. They are presented in the report and recommendation of the president (RRP) to the ADB Board and the summary poverty reduction and social strategy. To address these issues, a GESI action plan has been developed with proactive gender-mainstreaming and mitigation measures.[26]

61. The Project Directorate of DOR will be responsible for the implementation of the GESI action plan with the support of the CSC, the TA consultant and a specialized NGO. The GESI

[23] ADB, 2018. Nepal: SASEC Highway Improvement Project Resettlement Plan Kanchanpur–Kamala Road. Manila.
[24] Kanchrup, Shambhunath, Khadak, Surunga, Lahan, Dhangadhimai, Golbazar, Mirchaiya, and Karjanha.
[25] Agnisair Sabran, Rupani, and Naraha.
[26] GESI Action Plan (accessible from the list of linked documents of the Reports and Recommendations of the President to the Board of Directors).

team in the CSC will consist of a national gender expert (20 months), a social development officer (24 months), social mobilizers (60 months), and an outsourced road safety community awareness expert and trainers in entrepreneurship, financial management and specific trades to be identified during implementation. In addition, the TA consultant will include a gender expert (20 months). Moreover, DOR will hire an NGO specializing in human trafficking prevention and HIV/AIDS community awareness campaigns. More information on the GESI implementation arrangements can be found in the gender action plan (footnote 26). GESI implementation arrangements are specified in Table 15 below.

Table 15: Implementation Arrangements for the GESI Action Plan

	Responsible entity	Key responsibilities
1	DOR	• Supervises and approves all GESI activities • Recruits and supervises NGO responsible for HIV/AIDS & human trafficking prevention community awareness campaign (item 4) • Approves and submits GESI and social monitoring report
2	CSC GESI Team ▪ national gender expert (20 months) ▪ social development expert (24 months) ▪ Social mobilizers (60 months) Outsourced trainers: ▪ Road safety community awareness expert ▪ Entrepreneurship, financial management and specific trades training experts	• Implements the pilot capacity-building program for women's groups: 2 collectives in different municipalities created with a total of 12 women groups; 12 women groups trained in entrepreneurship and management skills; 12 seed grants of $1,000 provided to 12 women groups upon training completion and approval of financial proposal, from provisional sums of construction supervision consultancy services contract • Conduct orientation and follow-up training sessions for contractors and subcontractors on all GESI activities pertinent to their work • Actively support contractors and subcontractors in hiring women for unskilled labor • Conduct road safety community awareness campaign on the corridor: target 1,000 road residents; 5,000 students (50% girls); 400 teachers; 600 professional drivers. • Monitor all GESI activities and report their progress in the GESI and social monitoring report. This includes but is not limited to (i) women's participation in construction activities and tree plantation; (ii) compliance of contractors and subcontractors with core labor standards; (iii) implementation of HIV/AIDS and human trafficking prevention awareness campaign (item 4); (iv) implementation of road safety community awareness campaign; (v) the dissemination of GESI operational guidelines; (vi) the inclusion of gender-friendly design features in service areas studies; (vii) gender mainstreaming best practices in the development of the national policy on road safety and interagency coordination plan • Submit semi-annual GESI and social monitoring reports
3	Technical Assistance Consultant	• Disseminate GESI operational guidelines: target 100 staff from all divisional and regional offices of MOPIT trained • Mainstream gender best practices in the preparation of the national policy on road safety policy and action plan as well as interagency coordination plan • Include gender-friendly design features in prefeasibility design of 20 service areas for EWH
4	NGO specialized in HIV/AIDS & human trafficking prevention community awareness	• Target: outreach to 2,000 community residents on human trafficking prevention (75% women) and informed about referral services • Target: outreach 1,000 community residents about HIV/AIDS prevention (40% women)

Source: Asian Development Bank.

62. **Labor.** Provisions will be included in the bidding and contractual documents for the contractors and subcontractors to ensure that all the civil works comply with core labor standards (e.g. no child labor; no bonded labor; no work discrimination regardless of gender, race, and ethnicity; and freedom of association and collective bargaining). This will be monitored by the supervision consultant and findings will be included in the social monitoring reports.

63. **HIV/AIDS and human trafficking**. DOR will hire an NGO specializing in community awareness and referral campaigns for HIV/AIDS and human trafficking prevention. The campaign will take place along the road corridor no later than a year after the start of the civil works. During the poverty and social analysis preparation, some NGOs specializing in this sector were identified (e.g. WOREC, SABAL, etc.) and many have local chapters in the project area. Outline terms of reference are provided in Appendix F.

64. **Road safety community awareness**. The project includes many activities related to road safety, foremost among which are the (i) development of a road safety national policy and action plan; and (ii) interagency coordination plan for road safety awareness and pilot campaigns; will be mostly financed under the Institutional Strengthening of Road Safety and Gender Equality TA.[27] The TA includes a national gender expert who will ensure gender best practices are incorporated into these activities. In addition, a road safety community awareness campaign specific to the project road area will also be conducted. The CSC will hire a road safety community awareness expert and field staff to conduct the campaign for the road project. Initial targets are awareness building of 1,000 road residents, 5,000 students, and 400 teachers, and 600 professional drivers. The poverty and social analysis has already identified initiatives from the local chapter of the Red Cross in the project area.

65. **Other gender activities.** The project includes the dissemination of the GESI operational guidelines throughout all DOR divisional and regional offices. This activity will be financed by the TA (TA Report).

[27] TA Report (accessible from the list of linked documents of the Reports and Recommendations of the President to the Board of Directors).

IX. PERFORMANCE MONITORING, EVALUATION, REPORTING, AND COMMUNICATION

A. Project Design and Monitoring Framework

66. The design and monitoring framework (DMF) is in Appendix 1 of the RRP.

B. Monitoring

67. **Project performance monitoring.** The achievement of the project performance targets will be assessed following the DMF. DOR, assisted by the CSC, will establish a project performance management system. Indicators to be monitored include (i) traffic volume, (ii) bus and freight transport fares, (iii) travel time or riding speed, (iv) vehicle operating costs, (v) surface roughness, and (vi) road accidents. In addition, socioeconomic secondary data will be obtained at the divisional level, including (i) number of businesses, (ii) household income, (iii) vehicle ownership, (iv) unemployment rate, (v) land value, (vi) average travel time to schools, and (vii) average travel time to hospitals. These indicators will be monitored before and after construction, both on the project roads and on some control roads. In addition, every year during the project period, DOR will also monitor the (i) road maintenance budget; (ii) staff–kilometer ratio of strategic road network roads; and (iii) road maintenance cost per kilometer. Achievement of the capacity development activities will also be monitored. For civil works, progress will be monitored and reported monthly by the CSC. The project beneficiaries' satisfaction will be surveyed during and after project implementation. Disaggregated baseline data for output and outcome indicators gathered during project processing will be updated and reported through the quarterly progress reports from DOR, and after each ADB review mission. These quarterly reports will provide information necessary to update ADB’s project performance reporting system.

68. **Compliance monitoring.** Compliance with covenants will be monitored through (i) ADB's project administration missions–including the project inception mission to discuss and confirm the timetable for compliance with the loan covenants; (ii) project review missions to assess the government's compliance with particular loan covenants and, where there is any noncompliance or delay, discuss proposed remedial measures with the government; and (iii) mid-term review mission, if necessary, to assess whether the covenants are still relevant or need to be changed, or waived due to changing circumstances.

69. **Involuntary resettlement monitoring.** DOR, with the support of the resettlement team of the construction supervision consultant, will set up an internal monitoring system with a set of process, outcome and impact baseline indicators. They will prepare semi-annual resettlement monitoring reports that will be submitted to ADB. The resettlement specialist assisting DOR will verify the supervision consultant resettlement information through field work, data verification and consultations, and provide separate bi-annual reports to DOR and ADB. ADB will also assess the progress of resettlement activities during review missions. An external monitor consultant will be engaged by DOR to monitor the implementation of resettlement activities.

70. **Environment safeguard monitoring.** Monthly reports on implementation of the mitigation measures onsite will be maintained by the contractor for both the Kanchanpur and Kamala roads and the Project Directorate (ADB) building. Based on these records and site inspections, the CSC environmental expert will prepare quarterly and semi-annual and/or annual environmental monitoring reports for review and approval by the Project Directorate. The semi-annual and/or annual environmental monitoring reports for both subprojects will be submitted for

review and approval by the Project Directorate and for further submission to ADB for disclosure on ADB's website. If there are any changes in the design or alignment or unanticipated environmental impacts, the EMP will be updated to account for any additional or new environmental impacts. Further, the need to revise the IEE report during project construction will also be reviewed and confirmed in discussion with ADB.

71. **Gender and social dimensions monitoring.** GESI activities will be monitored by the GESI team of the construction supervision consultant and will be included in the (i) GESI report and (ii) semi-annual reports submitted to ADB. ADB will assess the progress of these activities during review missions.[28]

C. Evaluation

72. The project inception mission will be fielded soon after the legal agreements for the project are declared effective; thereafter, regular reviews will follow, at least annually. Special loan administration missions and a midterm review mission will be fielded as necessary, under which any changes in scope or implementation arrangement may be required to ensure achievement of project objectives. DOR will monitor project implementation in accordance with the schedule and time-bound milestones, and keep ADB informed of any significant deviations that may result in the milestones not being met. Within 6 months of physical completion of the Project, DOR will submit a project completion report to ADB.[29]

D. Reporting

73. MOPIT, through DOR Project Directorate, will provide ADB with (i) quarterly progress reports in a format consistent with ADB's project performance reporting system; (ii) consolidated annual reports including (a) progress achieved by output as measured through the indicator's performance targets, (b) key implementation issues and solutions, (c) updated procurement plan, (d) updated implementation plan for the next 12 months; and (iii) a project completion report within 6 months of physical completion of the project. To ensure that projects will continue to be both viable and sustainable, project accounts and the executing agency's audited financial statements together with the associated auditor's report should be adequately reviewed.

E. Stakeholder Communication Strategy

74. A total of 355 persons (17% women) were consulted during the preparation of the poverty and social analysis (180 persons) and resettlement plan (175). They were informed about the project impacts, design, construction timeline and resettlement assistance. In addition, 15 NGOs and civil society organizations were consulted. Overall, consultations showed a high level of support for the project. Key concerns raised during consultations related to road safety, pedestrian requirements and concerns over affected assets. These concerns have been integrated into the road design and the resettlement plan. During implementation, the supervision consultant resettlement team along with field-based DOR staff will conduct an information and dissemination campaign to inform the affected persons about the land acquisition and resettlement timeline, entitlements and contact information to submit grievances. This will be done through the distribution of simple one-page leaflets in the local language along the corridor, posting signs in strategic locations, and conducting stakeholder consultation meetings. Moreover, a summary of

[28] ADB's Handbook on Social Analysis: A Working Document; Staff Guide to Consultation and Participation; and CSO Sourcebook: A Staff Guide to Cooperation with Civil Society Organizations.
[29] Project completion report format.

the resettlement plan and the whole entitlement matrix will be translated into the local language and made available locally in the offices of all village development committees and municipalities concerned with the project. The consultation activities undertaken during the implementation of the resettlement process will be documented in the monitoring reports.

75. Concerned stakeholders including local communities, local forestry officials, relevant government agencies and NGOs have been consulted on environmental issues during project preparation. Technical recommendations on project design and biodiversity conservation provided by them have been included in the project. These stakeholders will continue to be consulted during project implementation and the early stages of project operation through semi-annual stakeholder consultation workshops.

76. Several participation plans will be developed during implementation as part of the resettlement plan, community awareness, and other ad hoc activities. Information dissemination and participation plans will be prepared for the following:

Purpose	Responsible Agency	Audience	Methods
Resettlement activities	DOR CSC team	Affected persons	Public consultation meetings Focus group discussion One-on-one consultations
Human trafficking prevention	Specialized NGO	Road residents Vulnerable groups	To be defined by the NGO
HIV/AIDS	Specialized NGO	Road residents Vulnerable groups	To be defined by the NGO
Road safety community Awareness	CSC team	Road residents Vulnerable groups	To be defined by CSC
GESI operational guidelines	TA Consultant	MoPIT officials	To be defined by TA Consultants

CSC = construction supervision consultant, DOR = Department of Roads, GESI = gender equality and social inclusion, MOPIT = Ministry of Physical Infrastructure and Transport, NGO = nongovernment organization, TA = technical assistance.
Source: Asian Development Bank.

77. Project information will be disclosed to the general public and concerned stakeholders in accordance with Table 16.

Table 16: Documents for Public Disclosure

Project Document	Means of Communication	Frequency	Audience
Project data sheet	ADB website	Initial data sheet no later than 30 calendar days from concept approval; quarterly updates afterwards	Public
Initial environmental examination for Kanchanpur–Kamala Road and Project Directorate (ADB) Building	ADB website	Post fact-finding mission	Public, project-affected people in particular
Resettlement Plan	ADB and DOR websites	Post fact-finding mission	Public, project-affected people in particular
Summary poverty reduction and social strategy	ADB website	Post fact-finding mission	Public, project-affected people in particular

Project Document	Means of Communication	Frequency	Audience
Legal agreements	ADB website	No later than 14 days of Board approval of the project	Public
Project administration manual	ADB website	After loan negotiations	Public
Social monitoring report (which includes detailed of RP implementation and summary of GESI activities)[30]	ADB and DOR websites	Semi-annual	Public
Environment monitoring reports	ADB and DOR websites	Semi-annual	Public
Resettlement completion report	ADB and DOR websites	Upon completion of resettlement activities	Public
GESI report	Internal	Semi-annual	Public

ADB = Asian Development Bank; DOR = Department of Roads.
Source: Asian Development Bank and Department of Roads.

[30] A template of the Social Monitoring Report is included as Appendix to the RP (accessible from the list of linked documents of the Report and Recommendations of the President)

X. ANTICORRUPTION POLICY

78. The government, MOPIT, and DOR were advised of ADB's Anticorruption Policy (1998, as amended to date). Consistent with its commitment to good governance, accountability and transparency, ADB reserves the right to investigate any alleged corrupt, fraudulent, collusive, or coercive practices relating to the project. All contracts financed by ADB shall include provisions specifying the right of ADB to review and examine the records and accounts of the executing agency and all project contractors, suppliers, consultants and other service providers. Individuals or entities on ADB's anticorruption debarment list are ineligible to participate in ADB-financed activity and may not be awarded any contracts under the project.

79. To support these efforts, relevant provisions are included in the loan agreement or regulations and the bidding documents for the project.

80. The government will publish pertinent information relating to the project on DOR's website, including business opportunities associated with the project, and information in relation to procurement of goods, works, and consulting services.

XI. ACCOUNTABILITY MECHANISM

81. People who are, or may in the future be, adversely affected by the project may submit complaints to ADB's Accountability Mechanism. The Accountability Mechanism provides an independent forum and process whereby people adversely affected by ADB-assisted projects can voice, and seek a resolution of their problems, as well as report alleged violations of ADB's operational policies and procedures. Before submitting a complaint to the Accountability Mechanism, affected people should make an effort in good faith to solve their problems by working with the concerned ADB operations department. Only after doing that, and if they are still dissatisfied, should they approach the Accountability Mechanism.[31]

XII. RECORD OF CHANGES TO THE PROJECT ADMINISTRATION MANUAL

No.	Date	Revisions

[31] Accountability Mechanism.

PROCUREMENT PLAN

Basic Data

Project Name: South Asia Subregional Economic Cooperation Highway Improvement Project		
Project Number: 52097-001	**Approval Number:**	
Country: Nepal	**Executing Agency**: Ministry of Physical Infrastructure and Transport	
Project Procurement Classification: Category B	**Implementing Agency**: Project Directorate (ADB) - Department of Roads	
Project Procurement Risk: Medium		
Project Financing Amount: US$ 256,400,000 **ADB Financing:** US$ 180,000,000 **Cofinancing (ADB Administered):** **Non-ADB Financing:** US$ 76,400,000	**Project Closing Date:** 30 June 2024	
Date of First Procurement Plan: 21 May 2018	**Date of this Procurement Plan**: 21 May 2018	
Procurement Plan Duration (in months): 18	**Advance Contracting:** Yes	**e-GP:** No

A. Methods, Review and Procurement Plan

Except as the Asian Development Bank (ADB) may otherwise agree, the following methods shall apply to procurement of goods, works, and consulting services.

Procurement of Goods and Works	
Method	**Comments**
Open Competitive Bidding (OCB) for Goods	International and National Advertisements
Open Competitive Bidding (OCB) for Works	International and National Advertisements

Consulting Services	
Method	**Comments**
Quality- and Cost-Based Selection for Consulting Firm	
Competitive for Individual Consultant	

B. Lists of Active Procurement Packages (Contracts)

The following table lists goods, works, and consulting services contracts for which the procurement activity is either ongoing or expected to commence within the procurement plan duration.

Goods and Works							
Package Number	**General Description**	**Estimated Value (in US$)**	**Procurement Method**	**Review**	**Bidding Procedure**	**Advertisement Date** (quarter/year)	**Comments**
SHIP/NCP/ PD01	Project Directorate (ADB) Building	3,390,000.00	OCB	Prior	1S2E	Q1 / 2019	No. Of Contracts: 1 Prequalification of Bidders: No Domestic Preference Applicable: Yes Advance Contracting: No

							Bidding Document: Large Works
SHIP/OCB/ KK	Kanchanpur–Kamala Road	226,000,000.00	OCB	Prior	1S2E	Q3 / 2018	No. Of Contracts: 2 Prequalification of Bidders: No Domestic Preference Applicable: Yes Advance Contracting: Yes Bidding Document: Large Works
	Lot 1: Kanchanpur–Kamala Road 149+880–189+330 km	107,000,000.00					
	Lot 2: Kanchanpur–Kamala Road 189+300–236+703 km	119,000,000.00					

Consulting Services							
Package Number	**General Description**	**Estimated Value (in US$)**	**Selection Method**	**Review**	**Type of Proposal**	**Advertisement Date** (quarter/year)	**Comments**
CSC-01	Construction Supervision consultant	8,000,000.00	QCBS	Prior	FTP	Q2 / 2018	Type: Firm Assignment: International Quality-Cost Ratio: 90:10 Advance Contracting: Yes

							Comments: Expertise is Construction Supervision
Individual Consultants	Project Management Consultants	1,000,000.00	Competitive	Prior		Q3 / 2018	Type: Individual Assignment: International Expertise: Project Management Advance Contracting: Yes Comments: Type of Assignment is International and National
PPC-01	Project Preparatory Consultant	6,000,000.00	QCBS	Prior	FTP	Q3 / 2018	Type: Firm Assignment: International Quality-Cost Ratio: 90:10 Advance Contracting: Yes Comments: Expertise is Detailed Design

C. List of Indicative Packages (Contracts) Required Under the Project

The following table lists goods, works, and consulting services contracts for which procurement activity is expected to commence beyond the procurement plan duration and over the life of the project (i.e., those expected beyond the current procurement plan duration).

Goods and Works						
Package Number	**General Description**	**Estimated Value (in US$)**	**Procurement Method**	**Review**	**Bidding Procedure**	**Comments**
Goods 01	Supply and Installation of Equipment/Goods	2,000,000.00	OCB	Prior	1S2E	Advertising Type: International No. Of Contracts: 1 Prequalification of Bidders: No

						Domestic Preference Applicable: Yes Bidding Document: Plant Comments: Advance Contracting - No
Works 01-03	Road Safety Works	12,000,000.00	OCB	Prior	1S2E	Advertising Type: International No. Of Contracts: 1 Prequalification of Bidders: No Domestic Preference Applicable: Yes Bidding Document: Large Works Comments: Advance Contracting - No

Consulting Services						
Package Number	**General Description**	**Estimated Value (in US$)**	**Selection Method**	**Review**	**Type of Proposal**	**Comments**
NGO-01	Human Trafficking Prevention And HIV-AIDS	300,000.00	QCBS	Prior	STP	Type: Firm Advertising: National Quality-Cost Ratio: 90:10 Comments: Expertise is Human trafficking and HIV/AIDS
RSIC-01	Road Safety Implementation Consultant	1,000,000.00	QCBS	Prior	FTP	Type: Firm Advertising: National

						Quality-Cost Ratio: 90:10 Comments: Expertise is Construction Supervision

DESIGN AND MONITORING FRAMEWORK

Impacts the Project is Aligned with
(i) transport connectivity within Nepal and with neighboring countries improved (Fourteenth Plan FY2017–2019);[a] and
(ii) physical connectivity and multimodal linkages for land-based transport along major trade routes enhanced (SASEC Operational Plan 2016–2025)[b]

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting	Risks
Outcome Efficiency and safety of the road transport system improved	By 2024: a. Average travel time on the project road reduced by 33% (2018 baseline: 1.45 minutes per km) b. Average daily vehicle-km along the project road increased by 33% (2018 baseline: 747,000 vehicle-km) c. Total road fatalities per 100,000 vehicle-km travelled along the project road reduced by 20% (2018 baseline: to be determined)	a–b. Post-implementation measurement and survey by DOR c. Project performance monitoring system and annual traffic accident reports from the Traffic Police Division	Behavioral change towards road safety may extend beyond the project timeline.
Outputs 1. Road network upgraded and maintained	By 2023: 1a. 87 km of roads upgraded to four lanes and designed to 100 km per hour standard (2018 baseline: 0) 1b. 5-year performance-based road maintenance contracts implemented (2018 baseline: not applicable)	1a. PCR and monitoring reports by DOR 1b. Post-implementation survey by DOR	High turnover of project management staff may lower the priority given to road safety
2. Planning and management for road safety strengthened	By 2023: 2a. Gender-inclusive national road safety policy, action plan and investment program developed (2018 baseline: not applicable) 2b. Key positions of the national road safety council filled (2018 baseline: 0 positions filled) 2c. Road safety assessment for 1,027 km of national highway completed, with over 20 accident blackspots eliminated (2018 baseline: 0 km assessed) 2d. 140 road safety features and 42 km of footpaths friendly to elderly people, women, children, and people with disabilities installed at appropriate locations on project road[c] (2018 baseline: 0) 2e. At least 50 schools (50% of students and 75% of teachers) and 1,000 community members (including 40% women) reported improved road safety awareness (2018 baseline: not applicable)	2a–b. Annual report of MOPIT 2c–d. Post-implementation survey by DOR 2e–f. PCR and monitoring reports by DOR	

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting	Risks
	2f. 100 managers, engineers, and staff of MOPIT trained on gender equality and social inclusion operational guidelines (2018 baseline: 0)		
3. Facilities and project readiness of the Project Directorate (ADB) improved	By 2023: 3a. Project Directorate (ADB) office reconstructed and modernized (2018 baseline: not applicable) 3b. Feasibility and detailed design studies prepared for about 104 bridges and 247 km of road along the EWH (2018 baseline: 0) 3c. Prefeasibility study and standard designs prepared for over 20 service areas to be identified along the EWH, with inclusive features for elderly people, women, children, and people with disabilities (2018 baseline: 0)[d]	3a. Annual report of MOPIT 3b–c. PCR and monitoring reports by DOR	

Key Activities with Milestones

1. Road network upgraded and maintained

1.1 Award contract and mobilize construction supervision consultant by Q1 2019.
1.2 Award contracts for the upgrade of 87 km of road by Q1 2019.
1.3 Complete construction of 87 km of road by Q1 2022.
1.4 Start implementation of performance-based maintenance contracts by Q1 2023.

2. Planning and management for road safety strengthened

2.1 Recruit technical assistance consultants by Q2 2019.
2.2 Conduct road safety assessment and identify improvement measures by Q3 2020.
2.3 Complete implementation of road safety improvement measures by Q4 2021.
2.4 Initiate gender action plan and consultation and awareness-raising sessions with local communities, including women's association groups, by Q1 2019.

3. Facilities and project readiness of Project Directorate (ADB) improved

3.1 Award contracts for the construction of the Project Directorate (ADB) office by Q3 2019.
3.2 Award contract and mobilize project preparatory consultant by Q2 2019.

Project Management Activities

Ensure counterpart fund availability by Q3 2018.
Establish project implementation units under the Project Directorate (ADB) by Q4 2018.

Inputs

Asian Development Bank: $180 million (loan)
Technical Assistance Special Fund (TASF-6): $0.75 million (grant)
Government of Nepal: $76.4 million

Assumptions for Partner Financing

Not applicable

ADB = Asian Development Bank; DOR = Department of Roads; EWH = East–West Highway; km = kilometer; MOPIT = Ministry of Physical Infrastructure and Transport; PCR = project completion report; Q = quarter.

[a] Government of Nepal, National Planning Commission. 2016. *Fourteenth Plan, FY2017–2019*. Kathmandu.
[b] South Asia Subregional Economic Cooperation. 2016 *Operational Plan 2016–2025.* Manila.
[c] Features include footpaths, bus stops, shelters, marked pedestrian crossings and walkways, and safety signage.
[d] Service areas are roadside areas and may notably comprise restrooms, gas station, parking, shelter, restaurant, convenience store, or visitor information center facilities.

Source: Asian Development Bank.

TERMS OF REFERENCE FOR CONSTRUCTION SUPERVISION CONSULTANT FOR SASEC HIGHWAY IMPROVEMENT PROJECT (SHIP-CSC)

A. Background

1. Nepal is a landlocked country with more than 70% mountainous terrain. Land transport plays a major role in Nepal's economic and social development. Nepal's current road network has a total length of about 65,000 kilometers (km), of which about 15,000 km form the strategic road network that consists of national highways and feeder roads. The strategic road network carries most of the country's road traffic and provides linkages to major economic centers and neighboring countries. This network consists of three main East–West corridors and several North–South corridors. The East–West corridors include the 1,027 kilometer-long East–West Highway (EWH). This is the main artery in the country, which has the heaviest traffic into the Terai region. The Government of Nepal's Ministry of Physical Infrastructure and Transport plans to upgrade the existing EWH into a four-lane highway as set out in the 5-year Strategic Plan 2073–2078.

2. The Government of Nepal has applied for financial assistance from the Asian Development Bank (ADB) to implement the South Asia Subregional Economic Cooperation (SASEC) Highway Improvement Project (SHIP). Under the project, about 87 km road section of EWH from Kanchanpur to Kamala will be improved from the existing two-lane configuration to four lanes, with service lanes in selected areas.

3. In accordance with ADB guidelines, the government intends to apply a portion of the financial assistance to engage a firm of international consultants to provide engineering supervision for (i) the construction of the project roads and bridges, and (ii) maintenance work of the project roads under the performance based maintenance contract, which is built into the works contracts.

4. The Ministry of Physical Infrastructure and Transport is the executing agency and the Department of Roads (DOR) is the implementing agency (the employer or client) for the project.

5. This consulting service assignment will broadly include project management, supervision and monitoring, quality assurance, contract management and furnishing engineering decisions, verification of quantity, recording of measurements, and certifications of measurement and bills of the contractor during the construction and maintenance periods. The consulting service shall also include implementation and monitoring of social and environmental safeguard activities and supporting/assisting the client in obtaining the necessary clearances on a timely basis. The Construction Supervision Consultant (CSC) shall need to administer the project implementation to ensure successful and timely completion of civil works packages. The consultant shall assist the client and the contractor in incorporating the latest techniques and technological developments, especially on climate resilience designs and road safety standards, into the project roads.

6. The works will include the following, as required, largely on existing alignments:

(i) Subbase, base, and bituminous pavement
(ii) Widening and paving of shoulders
(iii) Widening and stabilizing of embankments

(iv) Improvements to geometrics and improvements to or replacement of cross-drainage structures
(v) Replacement of minor bridges and construction of major bridges
(vi) Realignments of roads as per requirements
(vii) Traffic safety features, including traffic control, traffic management, and diversions during construction
(viii) Road signs and markings
(ix) Environmental protection measures
(x) Social and resettlement measures
(xi) Gender equality and social inclusion, HIV/AIDS, and human trafficking awareness measures
(xii) Slope stability including construction of retaining walls and breast walls
(xiii) Ground stabilization and improvements measures
(xiv) Construction of the building for the Project Directorate office at Kathmandu

7. The works contract documents shall be based on the International Federation of Consulting Engineers (FIDIC) General Conditions of Contract, MDB edition 2010, as modified by the Particular Conditions of Contract.

8. The Project Director will be the representative of the client for the project. The project implementation units (PIU) for each civil works package shall be established for each contract package and shall represent the Project Director for proper project management/administration of each package.

9. The DOR (client) is preparing detailed project reports for each contract package under the project. As such, all detailed project reports for engineering designs, drawings, and relevant data necessary for the proper and timely supervision of the construction and maintenance works will be made available. The consulting firm, if desired, will be able to peruse the available detailed project report before submission of their proposal. A copy of detailed project reports and contracts for the civil works packages will be provided to the Construction Supervision Consultant after signing the CSC contract.

10. The following terms of reference broadly describe the consultant's scope of services, team composition, qualification requirements of its personnel, and the tentative implementation schedule of the project.

B. Objectives

1. The objectives of this consulting service are (i) to assist the DOR with the supervision of civil works construction and maintenance of SHIP roads; and (ii) to ensure that high quality construction is achieved in the scheduled time period within budget, and that the work is carried out in full compliance with the approved engineering designs and technical specifications under the terms and conditions of the contract documents and sound engineering practices.

2. The objectives of the CSC assignment are to implement the project as follows:

(i) Ensure high standards of quality assurance in the execution of work and completion of the works within the stipulated time limit.
(ii) Ensure full compliance with environmental and social safeguard requirements of the government and ADB and support the employer to obtain necessary statutory clearances on a timely basis.

(iii) Update environment and social safeguard planning documents when necessary.
(iv) Implement the resettlement action plan on social safeguard aspects.
(v) Provide comprehensive supervision of project implementation activities carried out by the civil works contractor and ensure complete compliance with the drawings, technical specifications, and various stipulations contained in the contract documents, with high standards of quality assurance in supervision and in the execution of work.
(vi) Provide efficient construction and maintenance supervision by personnel who are experienced in modern methods of construction, maintenance supervision, and contract management.
(vii) Review detailed project reports prior to implementation activities and propose revisions and constructive suggestions, if needed.
(viii) Monitor and advise on the preconstruction activities.
(ix) Assist in taking remedial actions to avoid slippages, cost overruns, and delays by the civil works contractor.
(x) Ensure safety during construction and adherence to all environmental management regulations prescribed under the contract.
(xi) Assist the client, if required, in bid evaluation of civil works contracts for project roads and make recommendations to the DOR on all contractual matters.
(xii) Ensure occupational and health safety measures are implemented properly.
(xiii) Ensure (a) road safety measures are properly taken during construction; (b) internal monitoring of road safety precautions; (c) road safety awareness program; and (d) incorporation of adequate safety features during the construction period, defect notification period, and defect liability period.

3. The main features of the contract management framework include the following:

(i) The civil construction contract will be based on the FIDIC MDB June 2010 version with appropriate amendments to incorporate local requirements.
(ii) The Department of Roads (DOR)/Project Directorate (ADB) will act as the “employer” for the civil works contract.
(iii) Project Managers (PM) appointed by the DOR for each of the contract packages will act as the employer’s representative for the respective contract package.
(iv) The Construction Supervision Consultant will act as the “Engineer” under FIDIC for the civil works contracts and have full responsibility for administering these contracts except for issues for which the civil works contract requires the Engineer to obtain the employer’s prior approval.

C. Scope of Services

1. Construction and Contract Management

4. The works will be executed under ADB’s standard bidding document and the FIDIC, MDB Harmonized edition 2010 for international competitive bidding contracts. The employer, the DOR, will be represented by the Project Director, Project Directorate (ADB) based in Kathmandu. The consultant will act as the “Engineer” for the contracts and assist the DOR in supervising the execution and implementation of all works in accordance with the conditions of contract. The consultant shall nominate the Senior Highway Engineer as Chief Resident Engineer who will act as the Team Leader/Engineer’s representative. Under the overall guidance of the Project Director (ADB), the Engineer shall work closely with the DOR Project Manager/Project In-Charge and

his/her staff.

5. The construction period for the individual construction contracts will be 36 months for both Kanchanpur and Kamala roads, including the 55 bridges under the project, and the defect liability period will be 12 months. The performance based maintenance period will be 60 months.

6. As the Engineer's representative, the consultant's Team Leader/Senior Highway Engineer will administer the civil works contracts and ensure that the works are constructed in accordance with its provisions. The consultant shall work in close coordination with the Project Managers in the execution of the project. The consultant will have all of those powers which are defined as being the Engineer under the civil works contract. However, the consultant shall seek and obtain the employer's specific approval prior to undertaking the following:

(i) issuing the order to commence the works;
(ii) issuing variation orders that have financial implications or are significant in quantities, as defined in the civil contract;
(iii) revising the time for completion of the works;
(iv) approving any subcontracting of any part of the works;
(v) fixing rates or prices; and
(vi) approval of proposals for provisional items.

7. The consultant's responsibilities will include, but not necessarily be limited to, the following:

(i) Carry out design review of the detailed design (prepared by the design consultant) provided to the consultant.
(ii) Approve the contractor's quality management plan, work program, method statements, material sources, staffing, equipment deployment, etc.
(iii) Ensure at all times the contractor works in strict compliance with the contractor's quality management plan, work plan, and contract specification, including instructions issued as per contract and non-compliance notification.
(iv) Provide all necessary setting out data to the civil works contractors and ensure correctness of the setting out at field.
(v) Prepare the supervision manual for supervision staff and provide orientation to them within 3 months of commencement of the service.
(vi) Carry out and recommend necessary adjustments in the design/drawing, if required, during construction due to site requirements/conditions.
(vii) Provide regular orientation to all supervising staff on drawings, specifications, work methodology, and safety aspects to ensure desired quality of works with highest level of safety.
(viii) Inspect and supervise the day-to-day operations and activities of the contractor to ensure quality of workmanship and compliance with the contract.
(ix) Review the contractor's organizational arrangements, key personnel, equipment and work plan, materials and their sources.
(x) Monitor progress of works against the baseline work plan and advise on measures to be taken to improve progress and quality.
(xi) Convene regular site meetings with the contractor to discuss issues and problems affecting the progress, keep minutes, and brief the employer accordingly.
(xii) In the event of variations to the works being required, prepare the necessary documents, negotiate these with the contractor, determine rates of works, advise

the employer on alternatives, and recommend these to the employer for approval.

(xiii) Supervise the contractor in all matters concerning safety and care of civil works, including provision of necessary lights, guardrails, fencing, security, and safety awareness in required frequency.

(xiv) Prepare and issue monthly and quarterly progress reports for the contracts and projects in the form acceptable to the employer. These reports will include details of the physical and financial status of the contract and project, details of delays and consequences, if any, comments and solutions on the quality of works in accordance with the contract.

(xv) Approve and/or issue working drawings and issue instructions to the contractor as required in accordance with the contract specification and the contractor's quality management plan.

(xvi) Maintain a daily diary of each contract package with all detailed records at the site, and submit the daily dairies on a monthly basis.

(xvii) Measure the completed works and keep detailed records of the measurements.

(xviii) Supervise the tests in field and in laboratory, analyze, and justify the results.

(xix) Undertake independent field and laboratory testing as may be required for verifying the results.

(xx) Prepare the non-conformity reports and propose the rectification work or solution.

(xxi) Maintain records, correspondence, detailed diaries, photographs, and other documents concerning relevant events and activities.

(xxii) Approve interim certificates for progress payments and verify the quantities for such certificates and recommend for payment to the employer.

(xxiii) Assess and make recommendations to the employer on the contractor's claims for additional payment, extension of time, and any other matters, based on the Engineer's interpretation of the contract as per the contractor's detailed submissions.

(xxiv) Assist the employer's representative with the maintenance of consolidated project accounts, and with the preparation of financial statements and withdrawal applications for submission to ADB.

(xxv) Certify completion of part or all of the works and issue the taking over certificate.

(xxvi) Inspect the works at appropriate intervals during the maintenance period and defect liability period.

(xxvii) Advise the employer's representative on all matters relating to the execution of the works, assess and recommend to the representative the processing of the contractor's possible claims, and advise on disputes.

(xxviii) Ensure implementation of and compliance with the environmental and social impact mitigation requirements of civil works contracts, including the environmental management plan and land acquisition and resettlement action plan; monitor the process of resettlement of people affected by the works; and provide information to the employer on those processes in the monthly progress reports.

(xxix) Implement some of the activities of the Gender Equality and Social Inclusion (GESI) Action Plan and monitor all its activities.

(xxx) At the completion of the works, undertake project monitoring and evaluation in the format acceptable to the employer and ADB, and assist in preparing a consolidated project completion report.

(xxxi) Check and certify as-built drawings for the works prepared by the contractors.

(xxxii) Carry out final inspections of the works and issue defect notification certificates.

(xxxiii) Approve the final accounts for contracts and recommend for payments.

(xxxiv) Provide the employer with complete records, and inception, monthly, and completion reports.
(xxxv) Recommend and report to the employer any appeal concerning the dispute resolution board, adjudication, arbitration, or litigation related to the civil works contracts.
(xxxvi) Provide any other specialized services as may be requested by the employer.
(xxxvii) Provide knowledge transfer on latest technologies, procedures, methods, etc. on road design and construction and current international practice on contract administration, contract management, disputes and its resolution, etc. Conduct the capacity development component.
(xxxviii) Provide on-site training, if required, to Ministry of Physical Infrastructure and Transport and DOR field officers/staff on quality assurance and contract administration.
(xxxix) Provide on-the-job training to 10 fresh civil engineering graduates for a minimum of 12 months on various aspects of construction and contract administration.
(xl) Comply with the audit requirements of the government.
(xli) Carry out inspections during the performance period and ensure that the indicators mentioned in the specifications for performance-based management are fully complied with.

2. Gender, Social, Involuntary Resettlement and Environmental Management

8. The consultant will be responsible for implementing and monitoring gender, social, and involuntary resettlement as well as the environmental aspects of the SASEC Highway Improvement Project. The consultant's responsibilities will include, but not necessarily be limited to, the following:

2.1 Activities related to the implementation and monitoring of the Gender and Social Inclusion (GESI) Action Plan

(i) Implement the pilot capacity-building program for women's groups: 2 collectives in different municipalities created; 12 women groups trained in entrepreneurship and management skills; seed grants provided to 12 women groups upon training completion and approval of the financial proposal.
(ii) Develop guidelines and monitoring mechanisms, and conduct orientation and follow-up training sessions for contractors and subcontractors on all GESI activities pertinent to their work, most notably on the definition of and compliance with core labor standards[1] and the need for contractors to conduct regular HIV/AIDS awareness sessions, and provide voluntary testing and guidance and referral services to its workforce.
(iii) Actively support contractors and subcontractors in hiring women for unskilled labor and the tree plantation program.
(iv) Conduct road safety community awareness campaign on the corridor: target 1,000 road residents, 5,000 students (50% girls), 400 teachers, and 600 professional drivers.
(v) Monitor all GESI activities and report their progress in the GESI and Social

[1] Core labor standards are defined as equal wages for work of equal value; prohibition of child labor; no bonded labor; no work discrimination regardless of gender, race, and ethnicity; and freedom of association and collective bargaining.

Monitoring Report. This includes but are not limited to the following: (a) report on the implementation progress of the construction of pedestrian-friendly design features;[2] (b) women's participation in construction activities and tree plantation; (c) compliance of contractors and subcontractors with core labor standards; (d) implementation of HIV/AIDS and human trafficking prevention awareness campaign to communities along the alignment, which will be implemented by a specialized NGO recruited by the DOR; (e) implementation of road safety community awareness campaign; (f) dissemination of GESI operational guidelines; (g) the gender activities implemented by the Technical Assistance (TA) Consultant, such as the inclusion of gender-friendly design features in service areas, studies and gender mainstreaming best practices in the development of the national policy on road safety and interagency coordination plan.

(vi) Monitor collection of sex-disaggregated data relevant to the project.
(vii) Submit semi-annual GESI and social monitoring reports.
(viii) Assist the project management unit in refining, implementing, and monitoring the GESI Action Plan.

2.2 Implementation and monitoring of resettlement activities

9. The consultant will assist the DOR in implementing the resettlement plan:

(i) Conduct the verification of the Detailed Measurement Survey (DMS), verify the resettlement plan, prepare the final resettlement impacts and income restoration components, and update Chapter II (Scope of Resettlement Impacts) of the resettlement plan whenever necessary.
(ii) Develop resettlement and rehabilitation information campaigns and community participation.
(iii) Assist the project affected persons (PAPs), especially from vulnerable groups, in resettlement and rehabilitation, including redressing grievances, and coordinate with local authorities and other relevant institutions.
(iv) Calculate detailed costs of income restoration and resettlement components.
(v) Update the database of PAPs and their entitlements for implementation and monitoring purposes.
(vi) Monitor and evaluate progress and achievement of resettlement objectives.

10. The administrative responsibilities of the consultant will include the following:

(i) Working in coordination with the DOR's Resettlement Officer and Project Manager.
(ii) The consultant shall help to promote good working relationships between the PAPs, the Project Manager, particularly the Resettlement Officer. This will be achieved through regular meetings with both the Resettlement Officer and the PAPs. Meetings with the Resettlement Officer will be held at least fortnightly, and meetings with the PAPs will be held monthly, during the entire duration of the assignment. All meetings and decisions taken shall be documented by the consultant.

[2] The pedestrian-friendly design features are the following: 46 zebra crossings with warning signs; 2 foot-over bridges in Lahan; 38.26 kilometers (km) of disabled-friendly footpaths (both sides) in built-up areas; 4 km of pedestrian footpaths in 54 new bridges; 68.5 km of service lanes segregating slow-moving vehicles; 97.47 km of improved drainage; and 92 sheltered bus stops.

(iii) Preparing monthly action plans with targets in consultation with the Resettlement Officer.
(iv) Assisting the Resettlement Officer in carrying out the implementation of the resettlement plans.
(v) Updating the database of PAPs and their entitlements.
(vi) In consultation with the PAPs, preparing micro-level plans indicating the categories of entitlement, alternative livelihood options, and relevant institutions for obtaining additional training and support. Ensure that compensations are provided in the name of both husband and wife whenever possible. Women's perceptions are important to be incorporated in the development of these plans.
(vii) Reporting to the Resettlement Officer on a monthly and quarterly basis. The report should include physical and financial progress, both in quantitative and qualitative terms. The report should prominently feature the problems and issues addressed and tackled with the PAPs and the solutions found. The report should have a separate chapter on women's issues, their problems and what has been done (within the framework of the resettlement plan) to ensure their participation in decision making as well as the options made available to them to access economic opportunities, marketing, and credit. The report should clearly indicate the number of field visits made by the consultant's staff and the outcome of consultations with people.

11. Identification of PAPs and verification of database from resettlement plans:

(i) The consultant shall establish rapport with PAPs, consult with, and provide information to them about the respective entitlements as proposed under the resettlement plans, and assist the employer in distributing identity cards to the eligible PAPs. The identity card should include a photograph of the PAP, the extent of loss suffered due to the project, and the choice of the PAP with regard to the mode of compensation and assistance.
(ii) During the identification and verification of the eligible PAPs from resettlement plans, the consultant shall ensure that each of the PAPs are contacted and consulted either in groups or individually. The consultant shall ensure consultation with women from the PAP families especially from women-headed households.
(iii) Participatory methods should be adopted in assessing the needs of the PAPs, especially with regard to the vulnerable groups of PAPs. The methods of contact may include village level meetings, gender participation through group interactions, individual meetings, and interactions.
(iv) The consultant shall verify the information already contained in the resettlement plans and make suitable changes if required. Verification shall include actual measurement of the extent of total property loss/damage, and valuation of the loss/damage along with the Resettlement Officer. The consultant shall display the list of eligible PAPs in prominent public places like villages, local administrative offices, schools, and the district headquarters.

12. Counseling the entitled persons:

(i) The consultant shall explain to the PAPs the provisions of the policy and the entitlements under the resettlement plan. This shall include communication to the roadside squatters and encroachers about the need for their removal, the time frame for their removal, and their entitlements.
(ii) The consultant shall disseminate information to the PAPs on the possible

consequences of the project on the communities' livelihood systems and the alternatives available to them.

13. Disbursing the resettlement assistance:

(i) The consultant shall assist the PAPs in ensuring a smooth transition (during the part or full relocation of the PAPs), and helping the PAPs to take salvaged materials and to shift. In close consultation with the PAPs, the consultant shall inform the Resettlement Officer about the shifting dates agreed with the PAPs in writing and the arrangements desired by the PAPs with respect to their entitlements.
(ii) The consultant shall assist the PAPs in opening bank accounts explaining the implications, the rules and the obligations of a joint account, and how he/she can access the resources he/she is entitled to.
(iii) The consultant shall ensure proper utilization of the resettlement and rehabilitation budget available for the package.
(iv) The consultant shall ensure that economic investment options be available to PAPs to restore their losses of land and other productive assets. The consultant shall advise the Project Manager to disburse the entitlements to the eligible persons/families in a manner that is transparent, and shall report to the Project Manager on the level of transparency achieved in the project.

14. Accompanying and representing the project affected persons at the grievance committee meetings:

(i) The consultant shall nominate a suitable staff member to be a member of the grievance redress committees (GRC) for the respective contract packages.
(ii) The consultant shall help the PAPs in filling the grievance application and also in clearing their doubts about the required procedures.
(iii) The consultant shall record the grievance and bring it to the notice of the GRCs within 7 days of receipt of the grievance from the PAPs. It shall submit a draft resolution with respect to the particular grievance of the PAP, suggesting multiple solutions, if possible, and deliberate on the same in the GRC meeting through the consultant's representative in the GRC.
(iv) The consultant shall accompany the PAPs to the GRC meeting on the decided date, help the affected persons to express his/her grievance in a formal manner if requested by the GRC, and inform the PAPs of the decisions taken by the GRC within 3 days of receiving a decision from the GRC.

15. Assisting eligible project affected persons to take advantage of existing government housing employment schemes, if available:

(i) Establish linkages with the district administration to ensure that the PAPs are benefited from the schemes available and those they are entitled to. The focus for this component of the consultant's work shall be the vulnerable PAPs for their income restoration. The consultant shall maintain a detailed record of such facilitation.
(ii) Identify, design, and conduct training programs on alternative methods of livelihood restoration using local skills and resources.

16. Inter-agency linkages for income restoration and other resettlement and rehabilitation services:

(i) The consultant shall be responsible for establishing linkages with financial institutions to assist the PAPs to access credit, if possible.
(ii) Link up with training institutes to impart skills and management training for enterprise creation and development.
(iii) Coordinate with the DOR project office to facilitate consultation on the rehabilitation of borrow areas.

17. Recommending improvement of resettlement and rehabilitation services:

(i) Recommend and suggest techniques and methods for improvement of services extended by the concerned government departments and other agencies and committees in disbursement/extension of resettlement and rehabilitation services in the project.
(ii) Discuss with the Project Manager about contingency management and other improvements for resettlement and rehabilitation services, within the project period.

18. Prepare the Social Monitoring Report semi-annually and any other documents requested:

(i) The Social Monitoring Report will be prepared on a semi-annual basis. It will include progress on the implementation of all involuntary resettlement activities and the GESI.
(ii) Prepare resettlement plan addendums with updates of verified impacts and the final list of affected persons and assets. If there are design changes and land acquisition is required, prepare resettlement plan update.
(iii) Prepare the resettlement plan completion report.

2.3 Environmental Management

(i) The consultant will ensure and monitor that the government's and ADB's safeguard policies on environment are adequately complied with at construction sites.
(ii) Monitor the implementation of the environmental management plan (EMP) and initial environmental examination (IEE) during the construction period.
(iii) Conduct periodic monitoring of air, noise, and water quality following national standards as given in the respective IEE.
(iv) Provide technical guidance and training to the civil works contractor as needed.
(v) In case of unexpected environmental impacts during the project implementation period, prepare remedial actions to handle such impacts and revise the IEE and environmental impact assessment (EIA) if necessary.
(vi) Prepare a reporting system on the implementation of the EMP/IEE/EIA, including quarterly and annual environmental monitoring reports, for review and approval by the Project Directorate. The consolidated annual environmental monitoring report will be submitted to ADB for disclosure on its website.
(vii) Prepare the supplementary IEE report if and when required.

3. Project Performance Monitoring System

19. The consultant will develop and implement the project performance management system

(PPMS) during the entire period of assignment. The consultant will collect and analyze a set of indicators for evaluating project performance against the set project impacts, outcomes, and outputs. A systematic baseline survey will be conducted at the beginning of the project implementation (within 4 months from commencement of the service) and follow-up surveys will be made at project completion, and 1 year after completion.

20. Data collected during and after implementation will be compared with the baseline data and the target values shall be established by the employer and ADB before the start. The main indicators to be monitored are (i) economic development and poverty indicators at each of the project districts; (ii) transport costs and time for specific types of vehicles and trips; (iii) transport services and charges; (iv) accident rates; (v) air quality; (vi) per capita income in the project districts; (vii) access to social services; (viii) living conditions of affected persons pre and post resettlement; (x) sex-segregated jobs created during the construction, tree plantation, and maintenance; and (xi) awareness level of residents along the alignment on road safety behavior, and HIV/AIDS and human trafficking prevention and referral services. Where relevant, indicators will be differentiated by gender and minority groups.

21. The data collection method shall consist of

(i) reviewing secondary data from respective district and village profiles,
(ii) conducting household socioeconomic sample surveys, and
(iii) developing participatory rural appraisal methods among the communities affected by the road construction/upgrading activities.

4. Road Safety Improvement for SASEC Highway Improvement project

22. The consultant's responsibilities will include, but not necessarily be limited to, the following:

(i) Carry out a public awareness campaign and prepare road safety materials for the campaign.
(ii) Review the road safety provisions in civil works contracts and modify where necessary.
(iii) Supervise/oversee/assist the supervision team and contractor in the implementation of safety provisions.
(iv) Review and design the public awareness campaign on road safety.
(v) Assist the DOR in conducting the road safety awareness program.
(vi) Develop a plan and manual on road safety awareness in coordination with the employer.
(vii) Arrange a workshop in the DOR on the road safety awareness program.
(viii) Comply with DOR's traffic safety manuals during construction supervision.
(ix) Conduct international road safety audit and discuss this with the DOR.
(x) Conduct road safety community awareness campaign on the corridor: target 1,000 road residents, 5,000 students (50% girls), 400 teachers, 600 professional drivers.

5. Capacity Development

23. The consulting services shall include organizing in-house and overseas training for capacity development of DOR personnel in different disciplines. The consultant shall organize, manage, and provide knowledge transfer on current practices and developments on construction

techniques, advanced contract management, dispute resolution, FIDIC, etc. for DOR personnel.

D. Team Composition and Qualification Requirements for the Key Experts

1. Team Composition

24. The consulting services will be carried out by an international consulting firm. Firms may associate with national consultants. The firms will have extensive experience in the supervision and maintenance of road and bridge works and will nominate personnel who have similar experience. The consultant should have experience in the fields of transport planning, highway, bridge, survey, slope protection, bioengineering, hydrology, materials study, economic evaluation, contract management, construction supervision, resettlement, environmental management, road safety, and social development.

25. It is anticipated that the consultant's organization will be as set out in staffing inputs, although in preparing their proposals, the consultants may propose alternative arrangements which in their opinion will provide supervision services of an equivalent quality.

26. A minimum of 147 person-months for international key experts in association with about 383 person-months for national key experts and 917 person-months for technical support staffs will be required to carry out construction supervision and maintenance services. The consulting services are expected to be completed over a period of 111 months. The person-months required for the assignment are enumerated under Table 1. The qualification requirements for evaluation of key experts are set out in Table 2.

Table 1: Staff Inputs
A. International Key Experts

Sl. No.	Position/Title	No. of Persons	PM Requirement During			Total Person-Months
			Const. Phase	DLP	PBM Period	
KI 1	Team Leader/Chief Resident Engineer	1	36	6	-	42
KI 2	Senior Materials Engineer/Pavement Engineer (Chief Quality Control Engineer)	1	34	2	-	36
KI 3	Senior Contract Specialist	1	24	2	5	31
KI 4	Senior Bridge/Structure Engineer	1	18	-	-	18
KI 5	Performance-Based Management Expert	1	-	-	20	20
	Total					**147**

Const. = construction, DLP = defect liability period, PBM = performance-based management, PM = person-month.

B. National Key Experts

Sl. No.	Position/Title	No. of Persons	PM Requirement During			Total Person-Months
			Const. Phase	DLP	PBM Period	
KN 1	Dy.Team Leader/Highway Engineer	1	36	12	60	108
KN 2	Resident Engineer (Road)	2	2x36	1x12	-	84
KN 3	Bridge Engineer	1	30	-	-	30
KN 4	Materials Engineer	2	2x33	1x6	-	72
KN 5	Road Safety Expert	1	9	2	5	16
KN 6	Transport Economist	1	6	2	4	12
KN 7	Environmental/Bioengineering Expert	1	18	3	-	21

KN 8	Social Resettlement Expert	1	20	-	-	20
KN 9	Gender, Social, and Livelihood Expert	1	20			20
	Total					**383**

Const. = construction, DLP = defect liability period, PBM = performance-based management, PM = person-month.

C. National Non-Key Experts

Sl. No.	Position/Title	No. of Persons	PM Requirement During			Total Person-Months
			Const. Phase	DLP	PBM Period	
NKN 1	Assistant Resident Engineer (ARE)	4	4x36	-	1x60	204
NKN 2	Office Engineer/CAD Engineer	1	36	-	-	36
NKN3	Social Development Officer	1	24	-	-	24
NKN 4	Road Safety Community Awareness Officer	1	12	-	-	12
NKN 5	Senior Inspector of Works (SIOW)	8	8x36	2x12	1x60	372
NKN 6	Senior Laboratory Technician	2	2x34	-	-	68
NKN 7	Social Mobiliser (Road Safety and Gender)	2	2x30	-	-	60
NKN 8	Surveyors/Social Mobilizers (Resettlement)	2	2x30	-	-	60
	Livelihood and Skill Enhancement Trainers	3	3x3			9
NKN 9	Assistant Resident Engineer (Building)	1	22	2	-	24
NKN 10	Quality Control Engineer (Building)	1	22	2	-	24
NKN 11	Senior Inspector of Works (Building)	1	22	2	-	24
	Total					**917**

Const. = construction, DLP = defect liability period, PBM = performance-based management, PM = person-month.

2. Position-Based Tasks and Responsibilities

Table 2: Position-Based Tasks and Responsibilities

S. No.	Position	Task Assignment
1.	Team Leader/Chief Resident Engineer	Shall be over-all responsible for the project *inter alia*, including but not limited to the following: • Mobilization • Approval of quality assurance plan • Review of data and documents • Reconnaissance • Design review • Site inspection • Start-up meeting and issuance of Commencement Report • Preparation of Construction and Supervision Manual • Setting out/cheek setting out • Construction management • Supervision of all construction work and quality assurance • Visit each contract package periodically to monitor progress and compliance with ADB's safeguard requirements • Review/approval of contractor's work program • Review/approval of contractor's construction methodologies • Review/approval of contractor's key personnel • Evolve and establish quality assurance system • Verification/certification of completed works • Road safety measures, operational health and safety and traffic management • Supervision/verification of acceptance tests • Certification of interim payment certificates and final payment

		certificate • Verification of as-built drawings • Examination of measurements • Progress monitoring • Maintenance works during construction period • Assist the DOR's Project Manager and project implementation consultants (PIC) in all aspects of project implementation • Assist in adjudication/dispute/arbitration • Defect correction • Documentation and submission of reports • Assist the Project Directorate (ADB) in preparing defense documents for adjudication, arbitration, and litigation whenever necessary • Assist the Project Directorate (ADB) in adjudication, arbitration, and litigation hearings whenever necessary • Mentoring national key and non-key staffs in project implementation and administration • Guiding/supervising the work of key personnel and support staff
2.	Senior Materials Engineer/ Pavement Engineer (Chief Quality Control Engineer)	Shall be responsible for overall guidance/supervision of the work of materials engineers and lab technicians, including but not limited to the following: • Assist the Team Leader/Chief Resident Engineer • Quality control of the project • Collection and review of data • Review/preparation of quality assurance plan • Training and technology transfer to counterpart staff • Material investigations • Site inspection • Inspection of sources of materials • Production of construction materials • Setting up of laboratory • Maintain test records • Supervision/verification of acceptance tests • Quality control of works • Material/machine management • Review of contractor's material and equipment schedule • Mentoring national key and non-key staffs in quality management, quality planning, quality assurance, and its implementation
3.	Senior Contracts Specialist	Shall be responsible for but not limited to the following: • Assist the employer and Team Leader in contract administration and management of the civil works contract • Assist in interpretation of the contract/agreement clauses and their implementation especially in instances of disputes • Interpretation of the technical specifications and contract documents • Review and ensure conformity of contractor's securities in approved formats • Ensure requisite insurances furnished by the contractor are contract compliant • Assist in finalization of bidding documents, if not already done • Assist the project implementation unit (PIU) in evaluating bids for contracts for civil works, if required • Assist the PIU in dispute resolution activities, if necessary, during the pendency of the contract

		• Measure quantities of work, record measurements, and verify bill of quantity items and work quantities executed in the contractor's monthly statement • Verify and examine interim payment certificates received from contractors • Track and record progress and compensation events • Assessment and preparation of variation documents • Assessment and preparation of extension of time documents • Assist in making engineer's determination • Assist in preparation of employer's claim • Assist with contract termination procedures, if required • Perform post-award functions to include modifying contracts, monitoring contract performance, and closing out contracts, etc. • Maintain a permanent record of all measurements for the work quantities
4.	Senior Bridge/Structural Engineer	Shall be responsible for overall guidance/supervision of the construction work of bridges under the project, including but not limited to the following: • Assist the Team Leader in supervision of bridge construction • Review and approval of quality assurance plan for bridges • Review of design, data, and documents of bridges • Review and approval of construction methodology • Preparation of work program • Review of detailed engineering design and contract documents • Review of construction drawings • Training and technology transfer to counterpart staff • Emergency activities • Setting out/check setting out • Construction management • Supervision of structural work and quality assurance • Review of contractor's construction methodology • Review of contractor's schedule • Site recording, etc. • Verification/certification of completed works • Supervision/verification of acceptance tests
5.	Performance-Based Maintenance (PBM) Expert	Shall be responsible for overall guidance/supervision of the maintenance work under the project, including but not limited to the following: • Act as Team Leader during performance-based management (PBM) phase • Supervision of all works during PBM phase • Visit each contract package periodically to monitor progress and compliance with ADB's safeguard requirements during the PBM phase • Review/approval of contractor's work program during the PBM phase • Monitor compliance with contract specifications by the contractor during the PBM phase • Review/approval of contractor's maintenance methodologies during the PBM phase • Review/approval of contractor's key personnel during the PBM phase • Verification/certification of completed works during the PBM phase • Certification of interim payment certificates and final payment

		certificates during the PBM phase
		• Knowledge transfer to DOR and mentoring national key and non-key staffs in project implementation and administration during the PBM phase
		• Reviewing and finalizing the maintenance manual as per the provisions of the PBM contract
		• Preparation of templates for monitoring maintenance work
		• Suggesting modification for maintenance requirement, if needed
		• Incorporating provisions, if needed, in the maintenance manual
6.	Dy. Team Leader/ Highway Engineer	Shall be responsible for but not limited to the following activities: • Assist the Team Leader in all tasks of the project during construction, defect liability period, and performance-based management maintenance phase
		• Coordinate and liaise with local agencies as required
7.	Resident Engineer	Shall be responsible for but not be limited to the following: • Assist the Team Leader/Chief Resident Engineer in contract administration
		• Cooperate with the Chief Quality Control Engineer in quality management
		• Surveying
		• Setting out
		• Construction management
		• Supervision of works and quality assurance
		• Site recording
		• Special tests of materials, etc.
		• Verification of completed works
		• Review of contractor's work program
		• Safety measures/occupational health and safety
		• Attending of measurements
		• Construction supervision during extended working hours
		• Analysis, evaluation, and monitoring progress of works
		• Inspect contractor's establishment
		• Maintenance of site records
		• Approval of measurement at site
		• Rectification of defect works
		• Review of contractor's schedule
		• Check contractor's invoices, claims, etc.
		• Issue Interim Payment Certificate
		• Settlement of final bill and accounts
		• Updating of cost estimates
		• Assist the employer in replying to audit observations
		• Cost revision
		• Documentation and submission of certificates
		• Assist the Procurement/Contract Management Specialist in arbitration/litigation cases
		• Assist the DOR's Project Manager and project implementation consultants (PIC) in all aspects of project implementation
		• Assist the project in resettlement, livelihood, gender, environmental safeguard implementation
		• Supervise maintenance on a regular basis during construction
		• Checking and monitoring condition
		• Inspect completed works during the defect liability period

8.	Pavement/Materials Engineer	Shall be responsible for but not be limited to the following: • Assist the Chief Quality Control Engineer in quality management • Collection and review of data • Preparation of quality assurance plan • Minor design modifications • Training and technology transfer to counterpart staff • Material investigations • Site inspection • Inspection of sources of material • Production of construction materials • Setting up of laboratory • Maintain test records • Supervision/verification of acceptance tests • Construction management • Quality control of works • Review of construction drawings • Preparation of right-of-way report • Conduct traffic survey • Utility relocation plan • Construction management • Preparation of work program • Materials/machine management • Review of contractor's schedule • Coordinate with safeguard personnel
9.	Bridge/Structural Engineer	Shall be responsible for but not be limited to the following: • Mobilization • Assist the International Bridge Construction Engineer • Preparation of work program • Review of detailed engineering design and contract documents • Review of construction drawings • Training and technology transfer to counterpart staff • Emergency activities • Setting out/check setting out • Construction management • Supervision of structural work and quality assurance • Review of contractor's construction methodology • Review of contractor's schedule • Site recording, etc.
10.	Road Safety Specialist	Shall be responsible for but not be limited to the following: • Conduct road safety audit of highway design • Conduct pre audit meetings with stakeholders • Prepare suitable road safety campaign materials • Conduct road safety awareness campaign with support of community awareness non-key expert • Training and technology transfer to counterpart staff • Conduct road safety audit during construction • Conducting post construction road safety audit • Coordinate with resident engineers, materials engineers, assistant resident engineers for project implementation • Identifying causes of accidents occurring in the project

		implementation period and developing road safety countermeasures to reduce risk of reoccurrence
11.	Transport Economist	Shall be responsible for but not be limited to the following: • Conduct baseline survey at the beginning • Data collection during and after the implementation • Development and monitoring the indicators of economic development • Preparing and implementing project performance management system (PPMS) and reporting
12.	Environmental/ Bioengineering Specialist	Shall be responsible for but not be limited to the following: • Assist the Team Leader/Chief Resident Engineer and resident engineers in safeguard implementation • Assist the Project Directorate, DOR's Project Manager, project implementation consultants (PIC), and Engineer in related matters • Updating of environmental management plan (EMP) • Periodical review of EMP during construction • Ensure compliance with the environmental impact assessment (EIA), initial environmental examination (IEE), and EMP • Preparation of remedial actions to handle unexpected environmental impacts • Reporting and preparing semi-annual report on implementation • Design of bioengineering works • Supervision of environmental protection and bioengineering works • Monitor the compensatory afforestation being carried out by the relevant Forestry Department to ensure that the mandatory 1:25 compensation is carried out during project implementation • Together with the Wildlife Expert, organize semi-annual stakeholder consultation workshops to discuss the progress of environmental safeguards implementation under the project. This consultation workshop will serve as an external monitoring mechanism for environmental safeguards under the project. • Coordinate with resident engineers, materials engineers, assistant resident engineers for project implementation • Training and technology transfer • Assist the Team Leader, resident engineers, etc. in EIA/EMP implementation
13.	Social Resettlement Specialist	Shall be responsible for but not be limited to the following: • Assist the Team Leader/Chief Resident Engineer and resident engineers in safeguard implementation • Assist the Project Directorate, DOR's Project Manager, project implementation consultants (PIC), and Engineer in social matters • Updating/verification of original project affected persons and resettlement plans • Development of resettlement and rehabilitation • Assessment of compensation • Access project affected areas • Explore high potential income generation activities • Conduct needs assessment and coordinate skill enhancement trainings to project affected persons for improving livelihood • Support the establishment of the grievance redress committees and document the grievance submissions and resolution process • Contribute to the preparation of the social monitoring report
14.	Gender, Social, and Livelihood Expert	Shall be responsible for but not be limited to the following: • Assist the Team Leader/Chief Resident Engineer and resident

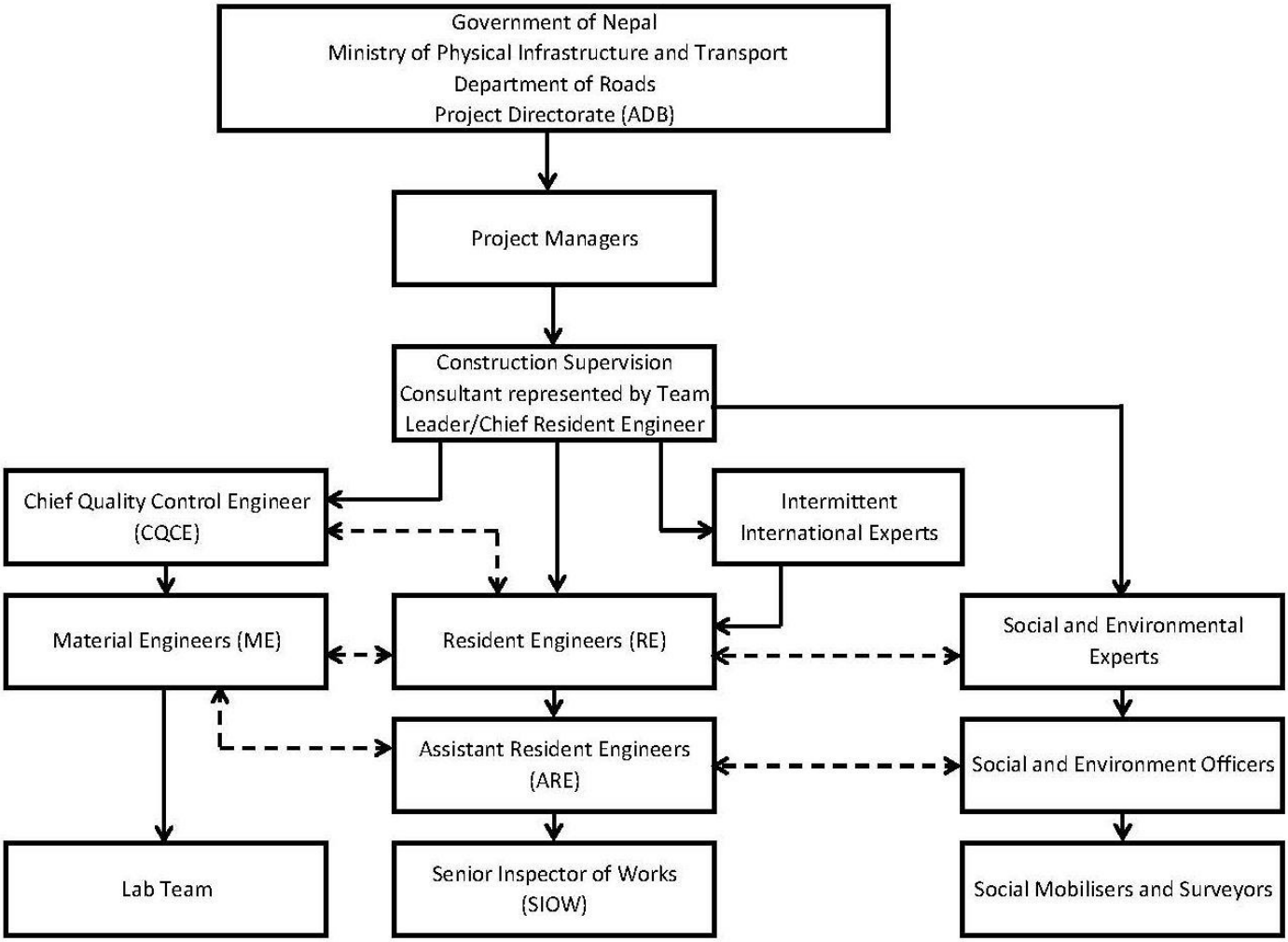
		engineers in gender equality and social inclusion (GESI) implementation
		• Assist the Project Directorate, the DOR's Project Manager, project implementation consultants (PIC), and Engineer in GESI matters
		• Design and implement the pilot capacity-building program for women's groups
		• Develop guidelines and monitoring mechanisms; conduct orientation and follow-up training sessions for contractors and subcontractors on all GESI activities pertinent to their work, most notably on the definition of and compliance with core labor standards and the need for contractors to conduct regular HIV/AIDS awareness sessions; and provide voluntary testing and guidance and referral services to its workforce
		• Actively support contractors and subcontractors in hiring women for unskilled labor
		• Prepare and implement the GESI action plan
		• Monitor all GESI activities and report their progress in the GESI and Social Monitoring Report. This includes but is not limited to the following: (i) women's participation in construction activities and tree plantation; (ii) compliance of contractors and subcontractors with core labor standards; (iii) implementation of HIV/AIDS and human trafficking prevention awareness campaign (no. 4 below); (iv) implementation of road safety community awareness campaign; (v) dissemination of GESI operational guidelines; (vi) inclusion of gender-friendly design features in service areas studies; and (vii) gender mainstreaming best practices in the development of the national policy on road safety and interagency coordination plan
		• Coordinate with resident engineers, materials engineers, assistant resident engineers for project implementation
		• Contribute to the preparation of the Social Monitoring Report
15.	Assistant Resident Engineer	Shall be responsible for but not be limited to the following: • Assist the Team Leader/Chief Resident Engineer and Resident Engineer
		• Cooperate with the Chief Quality Control Engineer and materials engineers
		• Surveying
		• Assist the project in resettlement, livelihood, gender, environmental safeguard implementation
		• Setting out
		• Construction management
		• Supervision of works and quality assurance
		• Site recording
		• Special tests of materials, etc.
		• Verification of completed works
		• Review of contractor's work program
		• Safety measures/occupational health and safety
		• Attending of measurements
		• Construction supervision during extended working hours
		• Analysis, evaluation, and monitoring progress of work
		• Inspect contractor's establishment
		• Maintenance of site records
		• Inspect completed works during defect liability period

		• Rectification of defect works • Updating of cost estimates • Assist the employer in replying to audit observations • Cost revision • Supervise maintenance on a regular basis during construction • Supervise maintenance during the defect liability period
16.	Office Engineer/CAD Engineer	Shall be responsible for but not be limited to the following: • Assist the Team Leader/Chief Resident Engineer and Chief Quality Control Engineer • Assist the Team Leader in checking designs and drawings • Prepare CAD drawings • Assist the Team Leader in checking interim payment certificates • Assist the Team Leader/Chief Resident Engineer and Chief Quality Control Engineer in report preparation • Coordinate with site staffs and safeguard staffs • Assistance in modifying drawings and preparing good-for-construction drawings
17.	Social Development Officer	Shall be responsible for but not be limited to the following: • Assist the Team Leader, Resident Engineer, and Assistant Resident Engineer • Assist the Social Resettlement Specialist for implementation of resettlement activities • Updating/verification of original project affected persons and resettlement plans • Development of resettlement and rehabilitation • Assessment of compensation • Explore high potential income generation activities • Provide trainings to project affected persons for improving livelihood • Access project affected areas
18.	Road Safety Awareness Officer	Shall be responsible for but not be limited to the following: • Assist the Team Leader, Resident Engineer, and Assistant Resident Engineer • Coordinate with the Design Safety Expert • Development and implement the road safety community awareness campaign • Access project affected areas
19.	Social Mobilizer (HIV/AIDS, Human Trafficking, and Gender)	Shall be responsible for but not be limited to the following: • Assist the Team Leader, Resident Engineer, and Assistant Resident Engineer • Assist the Road Safety Community Awareness Specialist and the Gender and Social Development Officer • Access project affected areas • Implement the road safety community awareness campaign • Support the gender expert in implementing the pilot program for women's groups • Provide trainings to project affected persons for improving livelihood • Assist the Social Development Officer in the implementation of gender equality and social inclusion (GESI) • Implementation of GESI action plan • Prepare mitigation plans at project influence areas • Preparing and reporting the project monitoring framework
20.	Senior Inspector of Works	Shall be responsible for but not be limited to the following:

	(SIOW)	• Assist resident engineers, materials engineers, assistant resident engineers for project implementation
		• Surveying and setting out
		• Occupational health and safety measures
		• Assist the project in resettlement, livelihood, gender, environmental safeguard implementation
		• Inspection of various items of works and ensure the work done as per laid down quality standards
		• Measurement of works at site
		• Supervise maintenance on a regular basis during the maintenance period
		• Supervise maintenance during the defect liability period
21.	Senior Lab Technicians	Shall be responsible for but not be limited to the following: • Assist the Team Leader, Resident Engineer, Materials Engineer, Assistant Resident Engineer, and Senior Inspector of Works for quality management
		• Various laboratory testing and analysis of various construction materials and contents in due course of construction and maintenance periods
22.	Surveyors/Social Mobilizers (Resettlement)	Shall be responsible for the following: • Assist the Social Safeguard Specialist, Resettlement Officer, and Livelihood Officer
		• Updating and verifying impacts and the list of project affected persons
		• Surveying and verification for social and environmental safeguard implementation
		• Conduct and document consultations with affected persons
		• Support the affected persons in accessing the grievance redress mechanism
23.	Assistant Resident Engineer (Building)	Shall be responsible for but not be limited to the following:
		• Assist the Team Leader/Chief Resident Engineer in contract administration
		• Cooperate with the Chief Quality Control Engineer in quality management
		• Setting out
		• Construction management
		• Supervision of works and quality assurance
		• Site recording
		• Special tests of materials, etc.
		• Verification of completed works
		• Review of contractor's work program
		• Safety measures/occupational health and safety
		• Attending of measurements
		• Construction supervision during extended working hours
		• Analysis, evaluation, and monitoring progress of works
		• Inspect the contractor's establishment
		• Maintenance of site records
		• Approval of measurement at site
		• Rectification of defect works
		• Review of contractor's schedule
		• Check contractor's invoices, claims, etc.
		• Prepare interim payment certificates

		• Settlement of final bill and accounts • Updating of cost estimates • Assist the employer in replying to audit observations • Cost revision • Documentation and submission of certificates • Assist the Procurement/Contract Management Specialist in arbitration/litigation cases • Assist the DOR's Project Manager and project implementation consultants (PIC) in all aspects of project implementation • Supervise maintenance on a regular basis during construction • Inspect completed works during the defect liability period
24.	Quality Control Engineer (Building)	Shall be responsible for but not be limited to the following: • Assist the Chief Quality Control Engineer in quality management • Collection and review of data • Preparation of quality assurance plan • Training and technology transfer to counterpart staff • Materials investigations • Site inspection • Inspection of sources of material • Production of construction materials • Laboratory tests and maintenance of test records • Supervision/verification of acceptance tests • Construction management • Quality control of works • Review of construction drawings • Construction management • Preparation of work program • Materials/machine management • Review of contractor's schedule • Coordinate with safeguard personnel
25.	Senior Inspector of Works (Building)	Shall be responsible for but not be limited to the following: • Assist the Assistant Resident Engineer (Building) and Quality ControlEngineer (Building) for project implementation • Surveying and setting out • Occupational health and safety measures • Daily supervision • Quality control • Works measurements and records • Inspection of various items of works and ensure the work done as per laid down quality standards • Measurement of works at site • Supervise maintenance on a regular basis during maintenance period • Supervise maintenance during the defect liability period

26. The overall indicative project structure will be as follows:



3. Qualification Requirements for Key and Non-Key Experts

27. Table 3 shows the qualification and experience requirements for key and non-key experts.

Table 3: Qualification Requirements
A. International Key Experts

1. Team Leader (Experience of the last 20 years will only be considered)

Educational Qualification	
• Preferred • Required	• Master's degree in transport engineering/highway engineering/construction management or related field • Graduate in civil engineering
Experience	
• Total experience • Experience in related field in the last 15 years • Experience in the proposed field of expertise in the last 10 years	• 20 years • 15 years in road works • 10 years' experience as a Team Leader and minimum experience in 2 road projects (of service duration of 2 years or more in each project) with construction supervision of size approximately $120 million each. Experience in FIDIC contract is desirable. • Experience in wide geographic regions
Language	Communicates fluently in English language

2. Chief Resident Engineer (Experience of the last 20 years will only be considered)

Educational Qualification	
• Preferred • Required	• Master's degree in transport engineering/highway engineering/construction management or related field • Graduate in civil engineering
Experience	
• Total experience • Experience in related field in the last 15 years • Experience in the proposed field of expertise in the last 10 years	• 20 years • 15 years in road works • 10 years' experience as Road Construction Expert/Chief Resident Engineer in construction supervision of road projects, with 2 road projects (of service duration of 2 years or more in each project) with construction supervision of size approximately $120 million in civil construction of each project. Experience in FIDIC contract is desirable. • Experience in wide geographic regions
Language	Communicates fluently in English language

3. Senior Material/Pavement Engineer (Chief Quality Control Engineer) (Experience of the last 20 years will only be considered)

Educational Qualification	
• Preferred • Required	• Master's degree in highway engineering/geotechnical engineering/engineering geology or related field • Graduate in civil engineering
Experience	

• Total experience • Experience in related field • Experience in the proposed field of expertise	• 20 years • 15 years in road works • 10 years' experience as a Quality Control Engineer or Geotechnical Engineer in construction supervision with experience in 2 road projects (of service duration of 2 years or more in each project) • Experience in wide geographic regions
Language	Communicates fluently in English language

4. Senior Contracts Specialist (Experience of the last 20 years will only be considered)

Educational Qualification	
• Preferred • Required	• Master's degree in construction management or related field • Graduate in civil engineering
Experience	
• Total experience • Experience in related field • Experience in the proposed field of expertise	• 20 years • 15 years in road works • 10 years' experience as a Contract Specialist with experience in 2 international competitive bidding road projects (of service duration of 2 years or more in each project). Experience in FIDIC contract. • Experience in wide geographic regions
Language	Communicates fluently in English language

5. Senior Bridge/Structural Engineer (Experience of the last 20 years will only be considered)

Educational Qualification	
• Preferred • Required	• Master's degree in bridge engineering/structural engineering or related field • Graduate in civil engineering
Experience	
• Total experience • Experience in related field • Experience in the proposed field of expertise	• 20 years • 15 years in road works • 10 years' experience as a Bridge Construction Engineer or Structural Engineer with experience in 2 bridge projects (of service duration of 2 years or more in each project) • Experience in wide geographic regions
Language	Communicates fluently in English language

6. PBM Expert (Experience of the last 20 years will only be considered)

Educational Qualification	
• Preferred • Required	• Master's degree in highway engineering/geotechnical engineering/engineering geology or related field • Graduate in civil engineering
Experience	
• Total experience • Experience in related field • Experience in the proposed field of expertise	• 20 years • 15 years in road works • 10 years' experience as a road construction/maintenance engineer, with experience in performance-based maintenance contract in 2 highway projects (of service duration of 2 years or more in each project). Experience in FIDIC contract. • Experience in wide geographic regions

Language	Communicates fluently in English language

B. National Key Experts

7. Deputy Team Leader/Highway Engineer (Experience of the last 15 years will only be considered)

Educational Qualification	
• Preferred • Required	• Master's degree in transport engineering/highway engineering/bridge engineering/construction management or related field • Graduate in civil engineering
Experience	
• Total experience • Experience in related field • Experience in the proposed field of expertise	• 15 years • 10 years in road works • 10 years' experience as a Road Construction Expert/ Resident Engineer/Team Leader/Deputy Team Leader, with experience in 2 highway projects (of service duration of 2 years or more in each project). Experience in FIDIC contract. • Experience in international organization infrastructure projects
Language	Communicates fluently in English language

8. Resident Engineer (Experience of the last 10 years will only be considered)

Experience	
• Preferred • Required	• Master's degree in transport engineering/highway engineering/ bridge engineering/construction management • Graduate in civil engineering
Educational Qualification	
• Total experience • Experience in related field • Experience in the proposed field of expertise	• 10 years • 7 years in road works • 4 years' experience as a Resident Engineer or 8 years as assistant resident engineer in road projects with experience in FIDIC contract • Experience in international organization infrastructure projects
Language	Communicates fluently in English language

9. Pavement/Materials Engineer (Experience of the last 10 years will only be considered)

Educational Qualification	
• Preferred • Required	• Master's degree in highway engineering/geotechnical engineering/engineering geology or related field • Graduate in civil engineering
Experience	
• Total experience • Experience in related field • Experience in the proposed field of expertise	• 10 years • 7 years in road works • 4 years' experience as a pavement, materials, or geotechnical engineer with experience in road projects or 8 years' experience as Assistant Resident Engineer • Experience in international organization infrastructure projects
Language	Communicates fluently in English language

10. Bridge/Structural Engineer (Experience of the last 10 years will only be considered)

Educational Qualification	
• Preferred • Required	• Master's degree in structural engineering/bridge engineering or related field • Graduate in civil engineering/structural engineering
Experience	
• Total experience • Experience in related field • Experience in the proposed field of expertise	• 10 years • 7 years in road works • 4 years' experience as a bridge engineer • Experience in international organization infrastructure projects
Language	Communicates fluently in English language

11. Road Safety Specialist (Experience of the last 10 years will only be considered)

Educational Qualification	
• Preferred • Required	• Master's degree in transport engineering/highway engineering/ traffic engineering or related field • Graduate in civil engineering
Experience	
• Total experience • Experience in related field • Experience in the proposed field of expertise	• 10 years • 7 years in road works • 4 years' experience in road projects as road safety specialist • Experience in international organization infrastructure projects.
Language	Communicates fluently in English language

12. Transport Economist (Experience of the last 10 years will only be considered)

Educational Qualification	
• Preferred • Required	• Master's degree in transport economics or related field • Graduate in civil engineering/economics/development economics/transport economics
Experience	
• Total experience • Experience in related field • Experience in the proposed field of expertise	• 10 years • 7 years in road works • 4 years' experience in road projects as transport economist • Experience in international organization infrastructure projects
Language	Communicates fluently in English language

13. Bioengineering/Environment Specialist (Experience of the last 10 years will only be considered)

Educational Qualification	
• Total experience • Experience in related field • Experience in the proposed field of expertise	• 10 years • 7 years in road works • 4 years' experience in road projects as environment specialist/bioengineer • Experience in international organization infrastructure projects
Experience	
• Total experience • Experience in related field • Experience in the proposed field	• 20 years • 15 years in road works • 10 years' experience as a quality control engineer or

of expertise	geotechnical engineer in construction supervision with experience in 2 road projects (of service duration of 2 years or more in each project) • Experience in wide geographic regions
Language	Communicates fluently in English language

14. Social Resettlement Specialist (Experience of the last 10 years will only be considered)

Educational Qualification	
• Preferred • Required	• Master's degree in social science/sociology • Graduate in social science
Experience	
• Total experience • Experience in related field • Experience in the proposed field of expertise	• 10 years • 7 years in road works • 4 years' experience in road projects as social development specialist/resettlement specialist • Experience in international organization infrastructure projects
Language	Communicates fluently in English language

15. Gender (HIV/AIDS, Livelihood) Specialist (Experience of the last 10 years will only be considered)

Educational Qualification	
• Preferred • Required	• Master's degree in social science/sociology • Graduate in social science
Experience	
• Total experience • Experience in related field • Experience in the proposed field of expertise	• 10 years • 7 years in road works • 4 years' experience in road projects as Gender Specialist/ HIV/AIDS Specialist • Experience in international organization infrastructure projects
Language	Communicates fluently in English language

C. National Non-Key Experts

16. Assistant Resident Engineer (Experience of the last 8 years will only be considered)

Educational Qualification	
• Preferred • Required	• Master's degree in transport engineering/highway engineering/bridge engineering/construction management • Graduate in civil engineering
Experience	
• Total experience • Experience in related field • Experience in the proposed field of expertise •	• 8 years • 4 years in road works • 2 years as an Assistant Resident Engineer or 4 years as Senior Inspector of Works (after completion of degree in civil engineering) in road projects • Experience in international organization infrastructure projects
Language	Communicates fluently in English language

17. Office Engineer/CAD Engineer (Experience of the last 8 years will only be considered)

Educational Qualification	
• Preferred	• Postgraduate degree/diploma in civil engineering/transport

• Required	engineering/highway engineering/construction management • Graduate in civil engineering
Experience	
• Total experience • Experience in related field • Experience in the proposed field of expertise •	• 8 years • 4 years in road works • 2 years as an Assistant Resident Engineer/Office Engineer or 4 years as Senior Inspector of Works (after completion of degree in civil engineering) in road projects. Knowledge of CAD is desirable. • Experience in international organization infrastructure projects
Language	Communicates fluently in English language

18. Social Development Officer (Experience of the last 8 years will only be considered)

Educational Qualification	
• Preferred • Required	• Master's degree in social science/sociology or related field • Graduate in social science
Experience	
• Total experience • Experience in related field • Experience in the proposed field of expertise	• 5 years • 2 years in road works • 2 years in resettlement activities • Experience in international organization infrastructure projects
Language	Communicates fluently in English language

19. Road Safety Community awareness officer (Experience of the last 8 years will only be considered)

Educational Qualification	
• Preferred • Required	• Master's degree in social science/sociology or related field • Graduate in social science
Experience	
• Total experience • Experience in related field • Experience in the proposed field of expertise	• 5 years • 2 years in road works • 2 years in road safety community awareness activities • Experience in international organization infrastructure projects
Language	Communicates fluently in English language

20. Senior Inspector of works (Experience of the last 8 years will only be considered)

Qualification	
• Preferred • Required	• Bachelor's degree in civil engineering or its related field • Diploma in civil engineering with 5 years' experience in road works
Language	Communicates fluently in English language

21. Senor Laboratory Technician (Experience of the last 8 years will only be considered)

Qualification	
• Preferred • Required	• Post diploma advance level certificate course in testing civil engineering materials • Diploma in civil engineering with 5 years' experience

Language	Communicates fluently in English language

22. Assistant Resident Engineer (Building) (Experience of the last 8 years will only be considered)

Educational Qualification	
• Preferred • Required	• Master's degree in structural engineering/civil engineering • Graduate in civil engineering
Experience	
• Total experience • Experience in related field • Experience in the proposed field of expertise	• 8 years • 4 years in building works • 2 years as Building Construction Engineer • Experience in international organization infrastructure projects
Language	Communicates fluently in English language

23. Quality Control Engineer (Building) (Experience of the last 8 years will only be considered)

Educational Qualification	
• Preferred • Required	• Master's degree in civil engineering/geotechnical engineering/ structural engineering or related subjects • Graduate in civil engineering
Experience	
• Total experience • Experience in related field • Experience in the proposed field of expertise	• 8 years • 4 years in building works • 2 years as a Quality Control Engineer (Building) in projects • Experience in international organization infrastructure projects
Language	Communicates fluently in English language

24. Senior Inspector of Works (Building) (Experience of the last 8 years will only be considered)

Qualification	
• Preferred • Required	• Bachelor's degree in civil engineering or its related field • Diploma in civil engineering with 5 years' experience in building works
Language	Communicates fluently in English language

25. On-the-Job Trainee Engineer

Qualification	
• Preferred • Required	• Freshly passed civil engineers • Appeared in final exam of BE Civil Engineering without any backlogs in previous semester's/year's exams
Language	Communicates fluently in English language

E. Reporting Requirements

1. Proprietary Rights

28. All original drawings, work sheets, field notes, computer programs, reports, and other documents relating to the study shall become the property of the Department of Roads. The consultant shall submit the following reports in the format approved by the client.

2. Inception Report

29. The consultant shall submit the Inception Report within 1 month of the commencement of services: 10 copies to the DOR Project Directorate and 2 copies to ADB. The Inception Report will include the consultants' detailed work program, including methodology and details of special investigation proposed and any revisions needed in the original proposal and the design criteria.

3. Construction Supervision Stage Reports

3.1 Progress Reports

30. The consultants shall submit progress reports every month and detailed quarterly reports on the progress of work: 10 copies to DOR and 2 copies to ADB, with electronic copies. Monthly reports shall be submitted within the 7th day of the successive month, and the quarterly report within the 10th day of the next month after the end of the quarter. The first report will be submitted on the 10th day of the month following the submission of the Inception Report. The reports will summarize the work performed during the reporting period, identifying the causes of significant delays and indicating the corrective actions taken or recommended.

31. Monthly reports, and other reports as applicable, are to include schedules of contract payments and variation orders; extension of time; graphical representations of progress against the program, based on the approved contract schedules; charts of physical progress on major items; relevant photographs; materials at site; equipment at site; personnel at site; daily diaries and details of impediments to the works and proposals for overcoming those problems; and a list of imported items and their utilization.

3.2 Semi-Annual Reports

32. The consultants shall submit semi-annual reports on social, resettlement, gender equality and social inclusion, and environmental implementation every 6 calendar months: 10 copies to DOR and 2 copies to ADB, with electronic copies in a format acceptable to the client. These reports shall be submitted within the 10th day of the next month after the end of the period. The reports will summarize the work performed during the reporting period, identifying corrective actions taken or recommended.

3.3 As-built Drawings

33. The consultants will approve the as-built drawings submitted by the civil works contractors and transmit to the government one set of as-built drawings for all civil works in digital form (AutoCAD compatible files) and six certified hard copies thereof in 1:500 scale within the time limit specified in the work contract.

3.4 Project Completion Report

34. Upon completion of the project, the consultants shall submit 15 copies (10 copies to DOR and 5 copies to ADB) of the comprehensive final completion report of the construction contract package after completion of the work. The report shall incorporate a summary of the method of construction, the construction supervision performed, as-built construction drawings, problems encountered and solutions undertaken thereon, and recommendations for future projects of similar nature to be undertaken by the client.

35. The consultant shall submit the self-appraisal report within the prescribed time summarizing the following details:

(i) Details of personnel including substitution made during the assignment
(ii) Details of variation orders issued
(iii) Details of extension of time granted to the contractor
(iv) Details of quality assurance system
(v) Quality observed at site by the consultant
(vi) Details of claims
(vii) Special preventive measures for maintenance suggested by the consultant

4. Roughness Survey Report

36. The roughness surveys shall be carried out at the completion of pavement construction as well as at the end of the defect liability period. The consultant is required to submit hard copies along with the electronic copy with the findings and data in this report.

5. Documents and Manuals Required

37. The consultants shall prepare and submit within 2 months of commencement of service, the following documents to be approved by the client for efficient contract administration and construction supervision. After approval of the documents, book-bound copies shall be distributed to DOR personnel and all site staff for implementation.

(i) Consultant implementation manual
(ii) Contract administration/construction manual
(iii) Quality control and assurance manual
(iv) Laboratory manual
(v) Environmental monitoring checklist

38. The consultant shall also prepare the maintenance manual for each of the road sections and bridges and submit within 60 days from issuance of the taking-over certificate.

39. All the reports, in addition to electronic copies, shall be submitted to the Project Director, Department of Roads, Project Directorate (ADB), Bishalnagar, Kathmandu (Nepal).

F. Clients Input and Counterpart Personnel

1. To be Provided by the Consultant

40. The consultants should provide the facilities and requirements for construction supervision and maintenance during the performance-based management period. These will include support staff and office/accommodation facilities, office equipment and supplies, furniture, logistics, vehicles, and communications for the Team Leader's office and the respective site offices. The specification of the facilities and vehicles are set out in Annexes 1 and 2. The consultant will set out these requirements in the technical proposal and provide estimated costs in the financial proposal.

2. To be Provided through the Civil Works Contract

41. During supervision of construction, survey equipment, lab equipment, and the laboratory will be provided to the consultant through the civil works contracts. However, the consultant will list in the technical proposal, and include in the financial proposal, all facilities, equipment, and support staff that he/she considers necessary to carry out the services. After review and negotiation, the agreed items will be procured and/or provided.

G. Client/Employer Inputs

42. The DOR (as employer) shall provide the following to the consultant during implementation of the consultancy service: office accommodation (Annex 1) and the necessary vehicles (Annex 2).

43. The government will provide the consultants with all available studies and reports and the relevant services, including feasibility study reports, ADB appraisal report, and results of previous vehicular traffic count and maps of the area as available at their disposal. In particular, the output reports from the Transport Project Preparatory Facility will be provided to the consultant. Any other studies or reports needed shall be obtained by the consultants themselves.

44. The government may permit temporary importation and subsequent exportation of equipment and materials, which are required but not available in the country for the proposed execution of the services for the duration of the project. Such items shall be exempted from levy of import duties or taxes as per prevailing rules and regulations of the Government of Nepal.

ANNEX 1

CONSULTANT'S OFFICES AND ACCOMMODATION

A. Provision of Offices and Accommodation for the Consultant

1. The facilities shall be subject to the approval of the Client.

1. General Requirements

2. The consultant shall acquire/rent/lease/buy and provide office space for the head office and the Resident Engineer's office at the Kanchanpur–Kamala sites, where appropriate. The consultant may erect prefabricated buildings as per requirements stated below. The consultant shall provide furniture, fittings, equipment, and materials, as required, to provide fully functioning and usable facilities and to provide the consultant's staff with the necessary resources for the administration, supervision, measurement, and approval of the works.

3. Offices shall be of two types designated as Office Type-1 and Office Type-2. Accommodation shall be for the Team Leader/Chief Resident Engineer and other international experts designated as Accommodation Type-1.

4. The complete office facilities shall include the provision of the land, covered parking facilities for vehicles, erection of the buildings, and all other necessary appurtenances such as drainage systems, fences, utilities, etc.

5. After providing the offices and equipment, the consultant shall maintain them for the duration of the consulting service.

2. Services

1. The consultant shall arrange, where possible, for the connection of water mains, drainage and sewerage, and mains electricity to all offices and accommodations, which shall be functional at all times. In circumstances where the location of offices makes such connections impracticable, the consultant shall provide and operate generators to supply adequate power, pumps to supply water from wells or storage tanks, with regular deliveries of potable water, and sewage disposal facilities that conform in full to the requirements for sewage disposal facilities. A standby generator with fuel of appropriate capacity shall be provided to each office and accommodation for use during load shedding and power failure.

2. Telephone services, including at least two direct lines and two mobile phones, shall be provided for Office Type-1, and at least one direct line and two mobile phones for each Office Type-2.

3. Rented Premises

1. In the case of rented accommodation, the requirements of this clause will not be enforced in detail. However, the basic numbers and sizes of rooms specified will require to be substantially satisfied. The total floor area requirements given herein will represent a minimum requirement, and the equipment requirements, together with the electricity, sanitary, and water supply requirements, will remain unchanged. Before rented accommodation is approved, the Client must be satisfied that the location is suitable, that the property proposed shall be available for the

required duration, and that the layout of the property is functionally equivalent to the requirements.

4. Office and Accommodation Buildings

1. The office and accommodation buildings shall provide the rooms described below as a minimum. Office room requirements are shown in Table C.1 below. Similar accommodation room requirements for Accommodation Type-1 is shown in Table C.2.

Table C.1: Office Room Requirements

Room Requirements	Office Type 1		Office Type 2	
	No. of Rooms	Area	No. of Rooms	Area
Chief Resident Consultant/Team Leader	1	Total floor area shall not be less than 300 sqm	0	Total floor area shall not be less than 250 sqm
Chief Quality Control Engineer	1		0	
Intermittent Professionals	2		1	
Resident Engineer	1		2	
Materials Engineer	1		2	
Assistant Resident Engineer	1		2	
Senior Inspector of Works	1		1	
Office Manager/Accountant	1		1	
Office Secretary/Administrator	1		1	
Conference Room	1		1	
Senior Materials and Lab Technician	1		1	
Toilet	2		2	
Store Room	1		1	
Kitchen	1		1	
Covered Parking Space/Vehicles	6 Vehicles		6 Vehicles	

Table C.2: Accommodation Type-1 for the Consultant

Description	No. Rooms Required	Area
Living/ Dining Room	1	Total floor area shall not be less than 120sqm
Office Room	1	
Bed Room	3	
Attached Toilets/ Bathroom	3	
Kitchen	1	
Pantry	1	
Servants Accommodation	1	
Servants Toilet	1	

2. Each room, including the conference room and the kitchen, shall be provided with adequate lighting and power outlets.

5. Furnishings and Equipment

1. The fittings, furnishings, and equipment to be provided in offices and accommodations shall be sufficient to run the project smoothly and shall be of good materials and standard acceptable to the employer. The furniture and equipment to be supplied and installed in the offices shall be new and of acceptable quality. The furniture may be steel, aluminium, wood, or a combination of these. The consultant should forward details of the items he/she intends to supply

and obtain prior approval from the Client.

2. In the event the consultant fails to provide acceptable quality and quantity of equipment or items, the payment for that period shall not be made.

B. Office Maintenance, Accommodation, and Provision of Supplies

1. General Requirements

1. The consultant shall maintain in good decorative and working order all the buildings and the contents thereof installed under the consulting service. The consultant shall be responsible for supplying all power, water, and telephone services to all the offices and accommodations. A standby generator (minimum 15 kVA) or equivalent equipment of appropriate capacity is required on each office and accommodation to ensure continuous supply of power during load shedding and power failure.

2. The maintenance of the consultant's offices and accommodation shall include daily cleaning and provision of toilet materials.

3. The consultant shall provide adequate security to guard and secure the buildings on 24 hours per day basis. The consultant shall also provide guard and security services for the Project Directorate office on 24 hours per day basis during the contract period.

4. A wireless internet facility shall be provided at every office to facilitate the transmission of project data and information.

5. Each room shall be fitted with adequate light fittings, ceiling fans with regulators, and two electric 5A outlets with ground connection. The kitchens shall have at least two 5A and one 15A electric outlets.

6. The office shall have two outside telephone lines—one shall be provided for the exclusive use of the chief officer in charge of the office, and the other line will be provided with necessary extensions for use in the various offices.

7. The consultant shall arrange for the offices to be connected with each other and the consultant's head office by an intercommunications telephone system to facilitate communications between the consultant's staff.

8. The consultant shall supply and keep replenished all consumable items.

ANNEX 2

VEHICLES FOR THE ENGINEER

1. The consultants shall provide themselves all necessary vehicles for implementation of the service, including driver, fuel, maintenance, etc. The type of vehicles the consultant is required to provide for their use shall be as shown below:

SN	Vehicle Type	Minimum Number Required	Remarks
1	Vehicle Type-1	4	
2	Vehicle Type-2	11	
3	Vehicle Type-3	24	

2. The consultant may propose for additional vehicles, if necessary, in their financial proposal.

Vehicle Type-1

3. New, or nearly new, five- or six-door station wagon (including one/two rear doors) with a diesel engine of at least 2.2 liter capacity, four-wheel drive, high and low ratio gear box with differential lock, minimum ground clearance (unladen) of 180 millimeters (mm), air bags, air-conditioner, cloth seats, seat belts, locking fuel cap, spare wheel, tool kit, tow rope, jump leads, fire extinguisher, and first aid kit.

Vehicle Type-2

4. New, or nearly new, “double cab” pick-up with a diesel engine of at least 2.0 liter capacity, four-wheel drive, minimum ground clearance (unladen) of 180 mm, air bags, air-conditioner, cloth seats, seat belts, locking fuel cap, spare wheel, tool kit, tow rope, jump leads, fire extinguisher, and first aid kit.

Vehicle Type-3 (Motorcycle)

5. New “off road” motorcycle with a four-stroke engine of at least 150 c.c., equipped with panniers and spare tool kit. Included shall be a motorcycle safety helmet meeting the Nepal Road Safety specifications.

6. “Nearly new” means less than 5 years old and with less than 50,000 km travelled, and in general good condition and to the satisfaction of the client.

7. All vehicles shall be of current manufacture and shall have a guarantee/warranty for a minimum period of 1 year.

8. Payment shall be made only to those vehicles which conform to the specification.

TERMS OF REFERENCE FOR ROAD SAFETY IMPLEMENTATION CONSULTANT FOR SASEC HIGHWAY IMPROVEMENT PROJECT (SHIP-RSIC)

A. Background

1. Nepal is a landlocked country with more than 70% mountainous terrain. Land transport plays a major role in Nepal's economic and social development. Nepal's current road network has a total length of about 65,000 kilometers (km), of which about 15,000 km form the strategic road network that consists of national highways and feeder roads. The strategic road network carries most of the country's road traffic and provides linkages to major economic centers and neighboring countries. This network consists of three main East–West corridors and several North–South corridors. The East–West corridors include the 1,027 kilometer-long East–West Highway (EWH), the main artery in the country, which has the heaviest traffic into the Terai region. The Government of Nepal's Ministry of Physical Infrastructure and Transport plans to upgrade the existing EWH into a four-lane highway as set out in the 5-year Strategic Plan 2073–2078.

2. The government has applied for financial assistance from Asian Development Bank (ADB) to implement the South Asia Subregional Economic Cooperation (SASEC) Highway Improvement Project. Under the project, a road section of about 87 km of the EWH from Kanchanpur to Kamala will be upgraded from the existing two-lane configuration to four lanes, with service lanes in selected areas, and road safety standards will be improved to eliminate blackspots or locations prone to accidents.

3. In accordance with ADB guidelines, the government intends to apply a portion of the financial assistance to engage a firm of national consultants to provide engineering supervision over the construction of the road safety component and blackspot elimination as prepared by the design consultant under the project in the western section of EWH from Butwal to Gadda Chowki.

4. The Ministry of Physical Infrastructure and Transport is the executing agency and the Department of Roads (DOR) is the implementing agency (the employer or client) for the project.

5. This consulting service assignment will broadly include project management, supervision and monitoring, quality assurance, contract management and furnishing engineering decisions, verification of quantity, recording of measurements, and certifications of measurement and bills of the contractor during the construction and maintenance periods. The consulting service shall also include implementation and monitoring of social and environmental safeguard activities and supporting/assisting the DOR in obtaining the necessary clearances on a timely basis. The Road Safety Implementation Consultant shall need to administer the project implementation to ensure successful and timely completion of civil works packages. The consultant shall assist the client and the contractor in incorporating the latest techniques and technological developments, especially on climate resilience designs and road safety standards, into the project roads.

6. The works contract documents shall be based on the International Federation of Consulting Engineers (FIDIC) General Conditions of Contract, MDB edition 2010, as modified by the Particular Conditions of Contract.

7. The Project Director will be the representative of the DOR for the project. The project implementation units (PIU) for civil works packages shall be established on-site and shall represent the Project Director for proper project management/administration of each package.

8. The design consultant shall be preparing detailed project reports for each contract package under the project. As such, all detailed project reports for engineering designs, drawings, and relevant data necessary for the proper and timely supervision of the construction and maintenance works will be made available. The consulting firm, if desired, will be able to peruse the available detailed project reports before submission of their proposal. A copy of the detailed project reports and the contracts for the civil works packages will be provided to the Road Safety Implementation Consultant (RSIC) after signing the RSIC contract.

9. The following terms of reference broadly describe the consultant's scope of services, team composition, qualification requirements of the RSIC's personnel, and the tentative implementation schedule of the project.

B. Objectives

1. The objectives of this consulting service are (i) to assist the DOR with the implementation and supervision of road safety and blackspot elimination works and its maintenance; and (ii) to ensure that high quality construction is achieved in the scheduled time period, within budget, and that the work is carried out in full compliance with the approved engineering designs and technical specifications within the terms and conditions of the contract documents and sound engineering practices.

10. The objectives of the RSIC are to implement the project as follows:

(i) Ensure high standards of quality assurance in the execution of work and completion of the works within the stipulated time limit.
(ii) Ensure full compliance with the environmental and social safeguard requirements of the Government of Nepal and ADB and to support the DOR in obtaining necessary statutory clearances on a timely basis.
(iii) Update environment and social safeguard planning documents when necessary.
(iv) Implement the resettlement action plan on social safeguard aspects, if required.
(v) Provide comprehensive supervision of project implementation activities carried out by the civil works contractor and ensure complete compliance with the drawings, technical specifications, and various stipulations contained in the contract documents, with high standards of quality assurance in supervision and execution of work.
(vi) Provide efficient construction and maintenance supervision by personnel who are experienced in modern methods of construction and in maintenance supervision and contract management.
(vii) Review detailed project reports prior to implementation activities and propose revisions and constructive suggestions, if needed.
(viii) Monitor and advise on the preconstruction activities.
(ix) Assist in taking remedial actions to avoid slippages, cost overruns, and delays by the civil works contractor.
(x) Ensure safety during construction and adherence to all environment management regulations prescribed under the contract.
(xi) Ensure occupational and health safety measures are implemented properly.
(xii) Ensure road safety measures are properly taken during construction, internal monitoring of road safety precautions, road safety awareness program, and ensure incorporation of adequate safety features during construction and the defects notification period and defects liability period.

11. The main features of the contract management framework include the following:

(i) The civil construction contract will be based on the FIDIC MDB June 2010 version with appropriate amendments to incorporate local requirements.
(xiii) The Department of Roads (DOR) Project Directorate (ADB) will act as the "employer" for the civil works contract.
(xiv) Project managers appointed by the DOR for each contract package will act as the employer's representative for the respective contract packages.
(xv) The RSIC will act as the "Engineer" under FIDIC for the civil works contracts and have full responsibility for administering these contracts except for issues for which the civil works contract requires the Engineer to obtain the employer's prior approval.

C. Scope of Services

1. Construction and Contract Management

13. The works will be executed under ADB's standard bidding documents and the FIDIC, MDB Harmonized Edition 2010 for international competitive bidding contracts. The employer, the DOR, will be represented by the Project Director of the Project Directorate (ADB) based in Kathmandu. The consultant will act as the "Engineer" for the contracts and assist the DOR in supervising the execution and implementation of all works in accordance with the conditions of contract. The consultant shall nominate the Senior Highway Engineer as Chief Resident Engineer who will act as the Team Leader/Engineer's representative. Under the overall guidance of the Project Director (ADB), the Engineer shall work closely with the DOR Project Manager/Project In-Charge and his/her staff.

14. The construction period for the individual construction contracts will be 18 months, and the defect liability period will be 12 months.

15. As the Engineer's representative, the consultant's Team Leader/Senior Highway Engineer will administer the civil works contracts and ensure the works are constructed in accordance with contract provisions. The consultant shall work in close coordination with the project managers for the execution of the project. The consultant will have all of those powers that are defined as being the Engineer's under the civil works contract. However, the consultant shall seek and obtain the DOR's (employer) specific approval prior to undertaking the following:

(i) issuing the order to commence the works;
(ii) issuing variation orders that have financial implications or significant quantities, as defined in the civil contract;
(iii) revising the time for completion of the works;
(iv) approving any subcontracting of any part of the works;
(v) fixing rates or prices; and
(vi) approval of proposals for provisional items.

16. The consultant's responsibilities will include, but not necessarily be limited to, the following:

(i) Carry out design review of the detailed design (prepared by the design consultant) provided to the consultant.
(vii) Approve contractor's quality management plan, work program, method

statements, material sources, staffing, equipment deployment, etc.

(viii) Ensure at all times the contractor's works are in strict compliance with the contractor's quality management plan, work plan, and contract specifications, including instructions issued as per contract and non-compliance notification.

(ix) Provide all necessary setting out data to the civil works contractors and ensuring correctness of the setting out at field

(x) Prepare the supervision manual for supervision staff and provide orientation to them within 3 months of commencement of the service.

(xi) Carry out and recommend necessary adjustments in the design/drawing, if required, during construction due to site requirements/conditions.

(xii) Provide regular orientation to all supervising staff on drawings, specifications, work methodology, and safety aspects to ensure the desired quality of works with the highest level of safety.

(xiii) Inspect and supervise the day-to-day operations and activities of the contractor to ensure quality of workmanship and compliance with the contract.

(xiv) Review the contractor's organizational arrangements, key personnel, equipment, work plan, materials, and their sources.

(xv) Monitor progress of works against the baseline work plan and advise on measures to be taken to improve progress and quality.

(xvi) Convene regular site meetings with the contractor to discuss issues and problems affecting progress; keep minutes, and brief the employer accordingly.

(xvii) In the event of variations to the works being required, prepare the necessary documents, negotiate these with the contractor, determine rates of works, advise the employer on alternatives, and recommend these to the employer for approval.

(xviii) Supervise the contractor in all matters concerning safety and care of civil works, including provision of necessary lights, guardrails, fencing, and security, including safety awareness.

(xix) Prepare and issue monthly and quarterly progress reports for the contracts and projects in the form acceptable to the employer. These reports will include details of the physical and financial status of the contract and project, details of delays and consequences, if any, comments, and solutions regarding the quality of works in accordance with the contract.

(xx) Approve and/or issue working drawings and issue instructions to the contractor as required in accordance with the contract specifications and the contractor's quality management plan.

(xxi) Maintain a daily diary of each contract package with all detailed records at the site, and submit the daily diaries on a monthly basis.

(xxii) Measure the completed works and keep detailed records of the measurement.

(xxiii) Supervise the tests in the field and in the laboratory, analyze, and justify the results.

(xxiv) Undertake independent field and laboratory testing as may be required for verifying the results.

(xxv) Prepare the non-conformity reports and propose the rectification work or solution.

(xxvi) Maintain records, correspondence, detailed diaries, photographs, and other documents concerning relevant events and activities.

(xxvii) Approve interim certificates for progress payments, verify the quantities for such certificates, and recommend for payment to the employer.

(xxviii) Assess and make recommendations to the employer on the contractor's claims for additional payment, extension of time, and any other matters, based on the Engineer's interpretation of the contract as per contractor's detailed submissions.

(xxix) Assist the employer's representative with the maintenance of consolidated

project accounts and with the preparation of financial statements and withdrawal applications for submission to ADB.

(xxx) Certify completion of a part or all of the works and issue the taking-over certificate.

(xxxi) Inspect the works at appropriate intervals during the maintenance period and defects liability period.

(xxxii) Advise the employer's representative on all matters relating to the execution of the works, and assess and recommend processing of the contractor's possible claims and disputes.

(xxxiii) Ensure compliance with the environmental and social impact mitigation requirements of civil works contracts, including the environmental management plan and land acquisition and resettlement action plans; monitor the process of resettlement of people affected by the works; and provide information to the employer on those processes in the monthly progress reports.

(xxxiv) At the completion of the works, undertake project monitoring and evaluation in the format acceptable to the employer and ADB, and assist in preparing a consolidated project completion report.

(xxxv) Check and certify as-built drawings for the works prepared by the contractors.

(xxxvi) Carry out final inspections of the works and issue defect notification certificates.

(xxxvii) Approve the final accounts for contracts and recommend for payments.

(xxxviii) Provide the employer with complete records, and inception, monthly, and completion reports.

(xxxix) Recommend and report to the employer any appeal concerning the dispute resolution board, adjudication, arbitration, or litigation related to the civil works contracts.

(xl) Provide any other specialized services as may be requested by the employer.

(xli) Provide knowledge transfer on the latest technologies, procedure, methods, etc. on road design and construction and current international practice on contract administration, contract management, disputes, and their resolution, etc. Carry out the capacity development component.

(xlii) Comply with the audit requirements of the government.

2. Social and Environmental Management

17. The consultant will be responsible for implementing and monitoring the social and environmental aspects of the SASEC Highway Improvement Project. The consultant's responsibilities will include, but not necessarily be limited to, the following;

2.1 Land Acquisition and Resettlement

18. The consultant will assist the DOR in implementing resettlement plans and other social mitigation plans of project roads, which include the following:

(i) Assist the DOR and Chief District Officer (CDO) for land acquisition.

(ii) Conduct detailed measurement survey, verify the resettlement plans, prepare the final land and structures acquisition, income restoration and resettlement components, and update the resettlement plans whenever necessary.

(iii) Develop resettlement and rehabilitation information campaigns and community participation.

(iv) Assist the project affected persons, especially from indigenous people and vulnerable groups, in resettlement and rehabilitation, including redressing grievances and coordination with local authorities and other relevant institutions.
(v) Calculate detailed costs of all land acquisition, income restoration, and resettlement components.
(vi) Update the database of project affected persons and their entitlements for implementation and monitoring purposes.
(vii) Monitor and evaluate progress and achievement of resettlement objectives.

19. The administrative responsibilities of the consultant include the following:

(i) Working in coordination with the Resettlement Officer, Project Manager, and Chief District Officer.
(ii) The consultant shall help promote good working relationships between the project affected persons, the Project Manager, particularly the Resettlement Officer. This will be achieved through regular meetings with both the Resettlement Officer and the project affected persons. Meetings with the Resettlement Officer will be held at least fortnightly, and meetings with the project affected persons will be held monthly, during the entire duration of the assignment. All meetings and decisions taken shall be documented by the consultant.
(iii) Preparing monthly action plans with targets in consultation with the Resettlement Officer.
(iv) Assisting the Resettlement Officer in carrying out the implementation of the resettlement plans.
(v) Updating the database of project affected persons and their entitlements.
(vi) In consultation with the project affected persons, preparing micro-level plans indicating the categories of entitlement, alternative livelihood options, and relevant institutions for obtaining additional training and support. Women's perceptions are important to be incorporated in the development of these plans.
(vii) Reporting to the Resettlement Officer on a monthly and quarterly basis. The report should include physical and financial progress, both in quantitative and qualitative terms. The report should prominently feature the problems and issues addressed and tackled with the project affected persons and the solutions found. The report should have a separate chapter on women's issues, their problems, and what has been done (within the framework of the resettlement plan) to ensure their participation in decision making as well as the options made available to them to access economic opportunities, marketing, and credit. The report should clearly indicate the number of field visits made by the consultant's staff and the outcome of consultations with people.

20. Identification of project affected persons and verification of database from resettlement plans:

(i) The consultant shall establish rapport with project affected persons, consult with them, and provide information to them about the respective entitlements as proposed under the resettlement plans, and assist the employer in distributing identity cards to the eligible project affected persons. The identity card should include a photograph of the project affected persons, the extent of loss suffered due to the project, and the choice of the project affected persons with regard to the mode of compensation and assistance.

(ii) During the identification and verification of the eligible project affected persons from resettlement plans, the consultant shall ensure that each of the project affected persons is contacted and consulted either in groups or individually. The consultant shall ensure consultation with women from the families of project affected persons, especially from women-headed households.

(iii) Participatory methods should be adopted in assessing the needs of the project affected persons, especially with regard to the vulnerable groups of project affected persons. The methods of contact may include village level meetings, gender participation through group interactions, individual meetings, and interactions.

(iv) The consultant shall verify the information already contained in the resettlement plans and make suitable changes if required. Verification shall include actual measurement of the extent of total property loss or damage, and valuation of the loss, damage, or effect, together with the Resettlement Officer. The consultant shall display the list of eligible project affected persons in prominent public places like villages, local administrative offices, schools, and the district headquarters.

21. Counseling the entitled persons:

(i) The consultant shall explain to the project affected persons the provisions of the policy and the entitlements under the resettlement plan. This shall include communication with the roadside squatters and encroachers about the need for their removal, the timeframe for their removal, and their entitlements.

(ii) The consultant shall disseminate information to the project affected persons on the possible consequences of the project on the communities' livelihood systems and the alternatives available to them.

22. For disbursing the resettlement assistance:

(i) The consultant shall assist the project affected persons in ensuring a smooth transition (during the part or full relocation of the project affected persons), helping the project affected persons to take salvaged materials and to shift location. In close consultation with the project affected persons, the consultant shall inform the Resettlement Officer about the shifting dates agreed with the project affected persons in writing and the arrangements desired by the project affected persons with respect to their entitlements.

(ii) The consultant shall assist the project affected persons in opening bank accounts, and explain the implications, rules and obligations of a joint account, and how they can access the resources they are entitled to.

(iii) The consultant shall ensure proper utilization of the resettlement and rehabilitation budget available for the package.

(iv) The consultant shall ensure that economic investment options be available to project affected persons to restore their losses of land and other productive assets. The consultant shall advise the Project Manager to disburse the entitlements to the eligible persons/families in a manner that is transparent, and shall report to the Project Manager on the level of transparency achieved in the project.

23. Accompanying and representing the project affected persons at the grievance committee meetings:

(i) The consultant shall nominate a suitable staff member to be a member of the

grievance redress committees (GRCs) for the respective contract packages.

(ii) The consultant shall help the project affected persons in filling the grievance application and also in clearing their doubts about the required procedures.

(iii) The consultant shall record the grievance and bring it to the notice of the GRCs within 7 days of receipt of the grievance from the project affected person. The consultant shall submit a draft resolution with respect to the particular grievance of the project affected person, suggesting multiple solutions if possible, and deliberate on the same in the GRC meeting through the consultant's representative in the GRC.

(iv) The consultant shall accompany the project affected persons to the GRC meeting on the decided date, help the affected persons to express his/her grievance in a formal manner if requested by the GRC, and again inform the project affected persons of the decisions taken by the GRC within 3 days of receiving a decision from the GRC.

24. Assisting eligible project affected persons to take advantage of the existing government housing employment schemes, if available.

(i) Establish linkages with the district administration to ensure that the project affected persons are benefited from the schemes available and those they are entitled to. The focus for this component of the consultant work shall be the vulnerable project affected persons for their income restoration. The consultant shall maintain a detailed record of such facilitation.

(ii) Identify, design, and conduct training programs on alternative methods of livelihood restoration using local skills and resources.

25. Inter-agency linkages for income restoration and other resettlement and rehabilitation services:

(i) The consultant shall be responsible for establishing linkages with financial institutions to assist the project affected persons to access credit, if possible.

(ii) Link with training institutes to impart skills and management training for enterprise creation and development.

(iii) Coordinate with the DOR project office to facilitate consultation on the rehabilitation of borrow areas.

26. Recommending improvement of resettlement and rehabilitation services:

(i) Recommend and suggest techniques and methods for improvement of services extended by the concerned government departments and other agencies and committees in disbursement/extension of resettlement and rehabilitation services in the project.

(ii) Discuss with the Project Manager contingency management and other improvements of resettlement and rehabilitation services within the project period.

2.2 Environmental Management

(i) The consultant will ensure and monitor that the government's and ADB's safeguard policies on environment are adequately complied with at construction sites.

(ii) Monitor the implementation of the environmental management plan (EMP), initial environmental examination (IEE), and environmental impact assessment (EIA) during the construction period.
(iii) In case of unexpected environmental impacts during the project implementation period, prepare remedial actions to handle such impacts and revise the IEE/EIA if necessary.
(iv) Prepare a reporting system on the implementation of the EMP/IEE/EIA and a semi-annual report on implementation for submission to ADB and DOR.
(v) Prepare a supplementary EIA/IEE report if and when required.

3. Project Performance Monitoring System

27. The consultant will develop and implement the project performance management system (PPMS) during the entire period of assignment. The consultant will collect and analyze a set of indicators for evaluating project performance against the set of project impacts, outcomes, and outputs. A systematic baseline survey will be conducted at the beginning of the project implementation (within 4 months from commencement of the service) and follow-up surveys made at project completion and 1 year after completion. Data collected during and after implementation will be compared with the baseline data and the target values shall be established by the employer and ADB before the start of project implementation. The main indicators to be monitored include (i) economic development and poverty indicators at each of the project districts, (ii) transport costs and time for specific types of vehicles and trips, (iii) transport services and charges, (iv) accident rates, (v) air quality, (vi) per capita income in the project districts, (vii) access to social services, and (viii) jobs created during the construction and maintenance periods. Where relevant, indicators will be differentiated by gender and minority groups.

28. The data collection method shall consist of

(i) reviewing secondary data from respective district and village profiles,
(ii) conducting household socioeconomic sample surveys, and
(iii) developing participatory rural appraisal methods among the communities affected by the road construction and upgrading activities.

4. road safety awareness campaign

29. The consultant's responsibilities will include, but not necessarily be limited to, the following:

(i) Carry out a public awareness campaign and prepare road safety materials for the campaign.
(ii) Review the road safety provisions in the civil works contract and modify these where necessary.
(iii) Supervise/oversee/assist the supervision team and contractor in the implementation of safety provisions.
(iv) Review and design a public awareness campaign on road safety.
(v) Assist the DOR in conducting the awareness program.
(vi) Develop a plan and manuals to conduct awareness in coordination with the DOR.
(vii) Arrange a workshop in the DOR on the awareness program.
(viii) Comply with DOR's traffic safety manuals during construction supervision.

5. Capacity Development

30. The consulting services shall include organizing training for capacity development of DOR personnel on road safety and blackspot elimination.

D. Team Composition and Qualification Requirements for the Key Experts

1. Team Composition

31. The consulting services will be carried out by a national consulting firm. The firm will have extensive experience in the supervision and maintenance of road and bridge works and will nominate personnel who have similar experience. The consultant should have experience in the fields of transport planning, highway, bridge, survey, slope protection, bioengineering, hydrology, materials study, economic evaluation, contract management, construction supervision, resettlement, environmental management, road safety, and social development.

32. It is anticipated that the consultant's organization will be as set out in the staffing inputs, although in preparing their proposals, the consultants may propose alternative arrangements which, in their opinion, will provide supervision services of an equivalent quality.

33. Minimum 150 person-months for national key experts and 156 person-months for non-key experts will be required to carry out construction supervision and maintenance services. The consulting services are expected to be completed over a period of 33 months. The person-month required for assignment is enumerated under Table 1. The qualification requirements for evaluation of key experts are set out in Table 2.

Table 1: Staff Inputs
A. National Key Experts

S. No.	Position/Title	No. of Persons	Construction Phase	Defects Liability Period	Total Person-Months
KN 1	Team Leader/Highway Engineer	1	18	12	30
KN 2	Resident Engineer/Road Safety Specialist	1	18	6	24
KN 3	Quality Engineer	1	16	-	16
KN 4	Assistant Resident Engineer (ARE)	3	3x17	1x6	57
KN 5	Environmental/Bioengineering Expert	1	10	3	13
KN 6	Social Resettlement Expert	1	10	-	10
	Total				**150**

B. National Non-Key Experts

S. No.	Position/Title	No. of Persons	Construction Phase	Defects Liability Period	Total Person-Months
NKN 1	Office Engineer/CAD Engineer	1	18	2	30
NKN2	Senior Inspector of Works (SIOW)	3	3x17	x12	63
NKN 3	Road Safety Engineer	1	12	-	12
NKN 4	Senior Laboratory Technician	3	3x17	-	51
	Total				**156**

2. Position-Based Tasks and Responsibilities

Table 2: Position-Based Tasks and Responsibilities

S. No.	Position	Task Assignment
1.	Team Leader/Chief Resident Engineer	Shall be overall responsible for the project *inter alia*, including but not limited to the following: (i) Approval of Quality Assurance Plan (ii) Review of data and documents (iii) Reconnaissance (iv) Design review (v) Site inspection (vi) Start-up meeting/issuance of Commencement Report (vii) Preparation of Construction and Supervision Manual (viii) Setting out/cheek setting out (ix) Construction management (x) Supervision of all construction work and quality assurance (xi) Visit each contract package periodically to monitor progress and compliance with ADB's safeguard requirements (xii) Review/approval of contractor's work program (xiii) Review/approval of contractor's construction methodologies (xiv) Review/approval of contractor's key personnel (xv) Evolve and establish a quality assurance system (xvi) Verification/certification of competed works (xvii) Road safety measures, operational health and safety and traffic management (xviii) Supervision/verification of acceptance tests (xix) Certification of interim payment certificates and final payment certificated (xx) Verification of as-built drawings (xxi) Examination of measurements (xxii) Progress monitoring (xxiii) Maintenance works during construction period (xxiv) Assist the DOR's project managers and project implementation consultants in all aspects of project implementation (xxv) Assists in adjudication, dispute, and arbitration (xxvi) Defect correction (xxvii) Prepare project performance management system (PPMS) reports (xxviii) Documentation and submission of reports (xxix) Assist the Project Directorate (ADB) in preparing defense documents for adjudication, arbitration, and litigation whenever necessary (xxx) Assist the Project Directorate (ADB) in adjudication, arbitration, and litigation hearings whenever necessary (xxxi) Mentoring national key and non-key staff in project implementation and administration (xxxii) Guiding/supervising the work of key personnel and support staff (xxxiii) Coordinate and liaise with local agencies as required
2.	Resident Engineer/Road Safety Specialist	Shall be responsible for but not be limited to the following: (i) Assist the Team Leader/Chief Resident Engineer in contract administration (ii) Surveying (iii) Setting out (iv) Construction management (v) Supervision of works and quality assurance (vi) Site recording (vii) Special tests of materials, etc. (viii) Verification of completed works (ix) Review of contractor's work program (x) Safety measures/occupational health and safety (xi) Attending of measurements (xii) Construction supervision during extended working hours

		(xiii) Analyze, evaluation, and monitoring progress of works (xiv) Inspect contractor's establishment (xv) Maintenance of site records (xvi) Approval of measurement at site (xvii) Rectification of defect works (xviii) Review of contractor's schedule (xix) Check contractor's invoices, claims, etc. (xx) Issue interim payment certificate (xxi) Settlement of final bill and accounts (xxii) Updating of cost estimate (xxiii) Assist the employer in replying to audit observations (xxiv) Cost revision (xxv) Documentation and submission of certificates (xxvi) Prepare PPMS reports (xxvii) Prepare suitable road safety campaign materials (xxviii) Conduct road safety awareness campaign (xxix) Training and technology transfer to counterpart staff (xxx) Conduct road safety audit during construction (xxxi) Assist in arbitration and litigation cases (xxxii) Assist the DOR's project managers and project implementation consultants in all aspects of project implementation (xxxiii) Assist the project in resettlement, livelihood, gender, environment safeguard implementation (xxxiv) Supervise maintenance on a regular basis during construction (xxxv) Checking and monitoring conditions (xxxvi) Inspect completed works during defects liability period
3.	Quality Engineer	Shall be responsible for but not be limited to the following: (i) Assist the Team Leader/Chief Resident Engineer and resident engineers in quality management (ii) Collection and review of data (iii) Preparation of quality assurance plan (iv) Minor design modifications (v) Training and technology transfer to counterpart staff (vi) Material investigations (vii) Site inspection (viii) Inspection of sources of materials (ix) Production of construction materials (x) Setting up of laboratory (xi) Maintain test records (xii) Supervision/verification of acceptance tests (xiii) Construction management (xiv) Quality control of works (xv) Review of construction drawings (xvi) Preparation of right-of-way report (xvii) Conduct traffic survey (xviii) Utility relocation plan (xix) Construction management (xx) Preparation of work program (xxi) Material/machine management (xxii) Review of contractor's schedule (xxiii) Coordinate with safeguard personnel
4.	Assistant Resident Engineer	Shall be responsible for but not be limited to the following: (i) Assist the Team Leader/Chief Resident Engineer and resident engineers (ii) Cooperate with Chief Quality Control Engineer and materials engineers (iii) Surveying

		(iv) Assist the project in resettlement, livelihood, gender, environment safeguard implementation (v) Setting out (vi) Construction management (vii) Supervision of works and quality assurance (viii) Site recording (ix) Special tests of materials, etc. (x) Verification of completed works (xi) Review of contractor's work program (xii) Safety measures and occupational health and safety (xiii) Attending of measurements (xiv) Construction supervision during extended working hours (xv) Analyze, evaluation, and monitoring progress of work (xvi) Inspect contractor's establishment (xvii) Maintenance of site records (xviii) Inspect completed works during defects liability period (xix) Rectification of defect works (xx) Updating of cost estimate (xxi) Assist the employer in replying to audit observations (xxii) Cost revision (xxiii) Supervise maintenance on regular basis during construction (xxiv) Supervise maintenance during defects liability period
5.	Environmental/ Bioengineering Specialist	Shall be responsible for but not be limited to the following: (i) Assist the Team Leader/Chief Resident Engineer and resident engineers in safeguard implementation (ii) Assist the Project Directorate, DOR's project managers, project implementation consultants, and the Engineer in social matters (iii) Updating of environment management plan (EMP) (iv) Periodical Review of environmental management plan during construction (v) Ensure compliance with EIA/IEE and EMP (vi) Preparation of remedial actions to handle unexpected environmental impacts (vii) Reporting and preparing semi-annual report on implementation (viii) Design of bioengineering works (ix) Supervision of environmental protection and bioengineering works (x) Monitor the compensatory afforestation being carried out by the relevant forestry department to ensure that the mandatory 1:25 compensation is carried out during project implementation (xi) Together with the Wildlife Expert, organize semi-annual stakeholder consultation workshops to discuss the progress of environment safeguards implementation under the project. This consultation workshop will serve as an external monitoring mechanism for environment safeguards under the project. (xii) Coordinate with resident engineers, materials engineers, and assistant resident engineers for project implementation (xiii) Training and technology transfer (xiv) Assist the Team Leader, resident engineers, etc. in EIA/EMP implementation
6.	Social Resettlement Specialist	Shall be responsible for but not be limited to the following: (i) Assist the Team Leader/Chief Resident Engineer and resident engineers in safeguard implementation (ii) Assist the Project Directorate, DOR's project managers, project implementation consultants, and the Engineer in social matters (iii) Updating/verification of original project affected persons and resettlement plans (iv) Development of resettlement and rehabilitation

		(v) Assessment of compensation (vi) Access project affected areas (vii) Explore high-potential income-generation activities (viii) Provide trainings to project affected persons for improving livelihood
7.	Office Engineer/CAD Engineer	Shall be responsible for but not be limited to the following: (i) Assist the Team Leader/Chief Resident Engineer and resident engineers (ii) Assist the Team Leader in checking designs and drawings (iii) Prepare CAD drawings (iv) Assist the Team Leader in checking interim payment certificates (v) Assist the Team Leader/Chief Resident Engineer in report preparation (vi) Coordinate with site staffs and safeguard staffs (vii) Assistance in modifying drawings and preparing good-for-construction drawings
8.	Road Safety Engineer	Shall be responsible for but not be limited to the following: (i) Assist the Team Leader, Resident Engineer, and assistant resident engineers (ii) Prepare suitable road safety campaign materials (iii) Conduct road safety awareness campaign (iv) Training and technology transfer to counterpart staff (v) Conduct road safety audit during construction (vi) Conducting post construction road safety audit
9.	Senior Inspector of Works	Shall be responsible for but not be limited to the following: (i) Assist resident engineers, materials engineers, and assistant resident engineers in project implementation (ii) Surveying and setting out (iii) Occupational health and safety measures (iv) Inspection of various items of works and ensure the work is done as per laid down quality standards (v) Measurement of works at site (vi) Supervise maintenance on a regular basis during the construction period (vii) Supervise maintenance during the defects liability period
10.	Senior Lab Technicians	Shall be responsible for but not be limited to the following: (i) Various laboratory testing and analysis of various construction materials and contents in due course of construction and maintenance periods

3. Qualification Requirements

34. Table 3 shows the qualification and experience requirements of key experts and non-key experts.

Table 3: Qualification Requirements
A. Key Experts

1. Team Leader (Experience of the last 15 years will only be considered)

Educational Qualification	
• Preferred • Required	• Master's degree in transport engineering/highway engineering/ bridge engineering/construction management or related field • Graduate in civil engineering
Experience	
• Total experience • Experience in related field • Experience in the proposed field of expertise	• 15 years • 10 years in road works • 10 years of experience as a road construction expert/resident engineer/team leader/deputy team leader, with experience in 2 highway projects (of service duration of 2 years or more for

	each project). Experience in FIDIC contract. • Experience with international organizations in infrastructure projects
Language	Communicates fluently in English language

2. Chief Resident Engineer (Experience of the last 15 years will only be considered)

Educational Qualification	
• Preferred • Required	• Master's degree in transport engineering/highway engineering/construction management or related field • Graduate in civil engineering
Experience	
• Total experience • Experience in related field in the last 15 years • Experience in the proposed field of expertise in the last 10 years	• 15 years • 10 years in road works • 10 years of experience as road construction expert/chief resident engineer in construction supervision of road projects with 2 road projects (of service duration of 18 months or more for each project) construction supervision. Experience in FIDIC contract is desirable. • Experience with international organizations in infrastructure projects
Language	Communicates fluently in English language

3. Resident Engineer/ Road Safety Specialist (Experience of the last 10 years will only be considered)

Experience	
• Preferred • Required	• Master's degree in transport engineering/highway engineering/traffic engineering or related field • Graduate in civil engineering
Educational Qualification	
• Total experience • Experience in related field • Experience in the proposed field of expertise	• 10 years • 7 years in road works • 4 years of experience in road projects as road safety specialist • Experience with international organizations in infrastructure projects
Language	Communicates fluently in English language

4. Quality Engineer(Experience of the last 10 years will only be considered)

Educational Qualification	
• Preferred • Required	• Master's degree in highway engineering/geotechnical engineering/engineering geology or related field • Graduate in civil engineering
Experience	
• Total experience • Experience in related field • Experience in the proposed field of expertise	• 10 years • 7 years in road works • 4 years of experience as a pavement, materials, or geotechnical engineer with experience in road projects or 8 years of experience as assistant resident engineer • Experience in international organizations' infrastructure projects
Language	Communicates fluently in English language

5. Assistant Resident Engineer (Experience of the last 8 years will only be considered)

Educational Qualification	
• Preferred • Required	• Master's degree in transport engineering/highway engineering/bridge engineering/construction management • Graduate in civil engineering
Experience	
• Total experience • Experience in related field • Experience in the proposed field of expertise	• 8 years • 4 years in road works • 2 years as an assistant resident engineer or 4 years as senior inspector of works (after completion of civil engineering degree) in road projects • Experience with international organizations in infrastructure projects
Language	Communicates fluently in English language

6. Environment Specialist/Bioengineering (Experience of the last 10 years will only be considered)

Educational Qualification	
• Preferred • Required	• Master's degree in environment-related field • Graduate in related field
Experience	
• Total experience • Experience in related field • Experience in the proposed field of expertise	• 10 years • 7 years in road works • 4 years of experience in road projects as environment specialist/bioengineer • Experience in international organization's infrastructure projects
Language	Communicates fluently in English language

7. Social Resettlement Specialist (Experience of the last 10 years will only be considered)

Educational Qualification	
• Preferred • Required	• Master's degree in social science/sociology • Graduate in social science
Experience	
• Total experience • Experience in related field • Experience in the proposed field of expertise	• 10 years • 7 years in road works • 4 years of experience in road projects as social development specialist/resettlement specialist • Experience in international organization's infrastructure projects
Language	Communicates fluently in English language

B. Non-Key Experts

8. Office Engineer/CAD Engineer (Experience of the last 8 years will only be considered)

Educational Qualification	
• Preferred • Required	• Postgraduate degree in civil engineering/transport engineering/highway engineering/ construction management • Graduate in civil engineering
Experience	

• Total experience • Experience in related field • Experience in the proposed field of expertise	• 8 years • 4 years in road works • 2 years as an assistant resident engineer/office engineer or 4 years as senior inspector of works (after completion of degree in civil engineering) in road projects. Knowledge of CAD is desirable. • Experience with international organizations in infrastructure projects
Language	Communicates fluently in English language

9. Road Safety Engineer (Experience of the last 8 years will only be considered)

Educational Qualification	
• Preferred • Required	• Postgraduate degree or diploma in civil engineering/transport engineering/highway engineering/construction management • Obtained training from the South Asia Subregional Economic Cooperation Highway Improvement Project TA consultant on road safety • Graduate in civil engineering
Experience	
• Total experience • Experience in related field • Experience in the proposed field of expertise	• 8 years • 4 years in road works • 2 years as a road safety engineer or assistant resident engineer or 4 years as senior inspector of works (after completion of degree in civil engineering) in road projects • Experience with international organization in infrastructure projects
Language	Communicates fluently in English language

10. Senior Inspector of Works (Experience of the last 8 years will only be considered)

Educational Qualification	
• Preferred • Required	• Bachelor's degree in civil engineering or its related field • Diploma in civil engineering with 5 years of experience in road works
Language	Communicates fluently in English language

11. Senior Lab Technician (Experience of the last 8 years will only be considered)

Qualification	
• Preferred • Required	• Post diploma advance level certificate course in testing civil engineering materials • Diploma in civil engineering with 5 years of experience
Language	Communicates fluently in English language

E. Reporting Requirements

1. Proprietary Rights

35. All original drawings, worksheets, field notes, computer programs, reports, and other documents relating to the study shall become the property of the Department of Roads. The consultant shall submit the following reports in the format approved by the client, the DOR.

2. Inception Report

36. The consultant shall submit the Inception Report (10 copies to DOR Project Directorate and 2 copies to ADB) within 1 month of the commencement of services. The Inception Report will include the consultants' detailed work program (including methodology and details of special investigation proposed and any revision needed in the original proposal and the design criteria).

3. Construction Supervision Stage Reports

3.1 Progress Reports

37. The consultants shall submit progress reports every month and detailed quarterly reports on the progress of work (10 copies to DOR and 2 copies to ADB) with electronic copies. Monthly reports shall be submitted within the 7th day of the successive month and the quarterly report within the 10th day of the next month after the end of the quarter. The first report will be submitted on the 10th day of the month following the submission of the Inception Report. The reports will summarize the work performed during the reporting period, identifying the causes of significant delays and indicating the corrective actions taken or recommended.

38. Monthly reports, and other reports as applicable, are to include schedules of contract payments and variation orders; extension of time; graphical representations of progress against the program, based on the approved contract schedules; charts of physical progress on major items; relevant photographs; materials at site; equipment at site; personnel at site; daily diaries and details of impediments to the works and proposals for overcoming those problems; and a list of imported items and their utilization.

3.2 Semi-Annual Reports

39. The consultants shall submit semi-annual reports on social, resettlement, and environmental implementation every 6 calendar months: 10 copies to DOR and 2 copies to ADB, with electronic copies in a format acceptable to the client. These reports shall be submitted within the 10th day of the next month after the end of the period. The reports will summarize the work performed during the reporting period, identifying corrective actions taken or recommended.

3.3 As-Built Drawings

40. The consultants will approve the as-built drawings submitted by the civil works contractors and transmit to the government one set of as-built drawings for all civil works in digital form (AutoCAD compatible files) and six certified hard copies thereof in 1:500 scale, within the time limit specified in the works contract.

3.4 Project Completion Report

41. Upon completion of the project, the consultants shall submit 15 copies (10 copies to DOR and 5 copies to ADB) of the comprehensive final completion report of the construction contract package after completion of the work. The report shall incorporate the summary of the method of construction, the construction supervision performed, as-built construction drawings, problems encountered and solutions undertaken thereon, and recommendations for future projects of similar nature to be undertaken by the client.

42. The consultant shall submit the self-appraisal report within the prescribed time summarizing the following details:

(i) Details of personnel including substitution made during the assignment
(ii) Details of variation orders issued
(iii) Details of extension of time granted to the contractor
(iv) Details of quality assurance system
(v) Quality observed at site by the consultant
(vi) Details of claims
(vii) Special preventive measures for maintenance suggested by the consultant

4. Documents and Manuals Required

43. Within 2 months of commencement of service, the consultants shall prepare and submit the following documents to be approved by the client for efficient contract administration and construction supervision. After approval of the documents, book-bound copies shall be distributed to DOR personnel and all site staff for implementation.

(i) Contract administration/construction manual
(ii) Quality control and assurance manual
(iii) Laboratory manual
(iv) Environmental monitoring checklist

44. The consultant shall also prepare a maintenance manual for each road section and submit within 60 days from the issuance of the taking-over certificate.

45. All the reports in addition to electronic copies shall be submitted to the Project Director, Department of Roads, Project Directorate (ADB), Bishalnagar, Kathmandu (Nepal).

F. Client Inputs and Counterpart Personnel

1. To be Provided by the Consultant

46. The consultants themselves should provide the facilities and requirements for construction supervision and maintenance period. These will include support staff and office/accommodation facilities, office equipment and supplies, furniture, logistics, vehicles, and communications for the Team Leader's office and for the respective site offices. The specifications of the facilities and vehicles are set out in Annexes 1 and 2. The consultant will set out these requirements in the technical proposal and provide estimated costs in the financial proposal.

2. To be Provided through the Civil Works Contract

47. During supervision of construction, the survey equipment, lab equipment, and laboratory will be provided to the consultant through the civil works contracts. However, the consultant will list in the technical proposal, and include in the financial proposal, all facilities, equipment, and support staff that it considers necessary to carry out the services. After review and negotiation, the agreed items will be procured and/or provided.

G. Client/Employer Inputs

48. The DOR (client) will provide inputs, project data, and reports to facilitate preparation of the proposals.

49. The DOR (as employer) shall provide the following to the consultant during implementation of the consultancy service: office accommodation (Annex 1), and the necessary vehicles (Annex 2).

50. The government will provide the consultants with all available studies and reports relevant to the services, including feasibility study reports, ADB appraisal report, results of previous vehicular traffic count, and maps of the area as available at their disposal. In particular, the output reports from the TA consultant will be provided to the consultant. Any other studies or reports needed shall be obtained by the consultants themselves.

ANNEX 1

PROVISION OF OFFICES FOR THE CONSULTANT

1. The office facilities shall be subject to the approval of the client.

1. General Requirements

2. The consultant shall acquire/rent/lease/buy and provide office space for the head office and the Resident Engineer's (RE) office at the Butwal–Gaddachowki sites, where appropriate. The consultant may erect prefabricated buildings as per requirements stated below. The consultant shall provide furniture, fittings, equipment, and materials as required to provide fully functioning and usable facilities and to provide the consultant's staff with the necessary resources for the administration, supervision, measurement, and approval of the works.

3. Offices shall be of two types designated as Office Type-1 and Office Type-2.

4. The complete office facilities shall include the provision of the land, covered parking facilities for vehicles, erection of the buildings, and all other necessary appurtenances such as drainage systems, fences, utilities, etc.

5. After providing the offices and equipment, the consultant shall maintain them for the duration of the service.

2. Services

6. The consultant shall arrange, where possible, for the connection of water mains, drainage and sewerage, and mains electricity to all offices, which shall be functional at all times. In circumstances where the location of offices makes such connections impracticable, the consultant shall provide and operate generators to supply adequate power, pumps to supply water from wells or storage tanks, with regular deliveries of potable water, and sewage disposal facilities that conform in full to the requirements for sewage disposal facilities. A standby generator with fuel of appropriate capacity shall be provided to each office for use during load shedding and power failure.

7. Telephone services, including at least two direct lines and two mobile phones, shall be provided for Office Type-1, and at least one direct line and two mobile phones for each Office Type-2.

3. Rented Premises

8. In the case of rented space, the requirements of this clause will not be enforced in detail. However, the basic numbers and sizes of rooms specified will require to be substantially satisfied. The total floor area requirements given herein will represent a minimum requirement and the equipment requirements, together with the electricity, sanitary, and water supply requirements, will remain unchanged. Before rented space is approved, the client must be satisfied that the location is suitable, that the property proposed shall be available for the required duration, and that the layout of the property is functionally equivalent to the requirements.

4. Office Buildings

9. The office buildings shall provide the rooms described in the table below as a minimum. Office room requirements are shown below.

Room Requirements	Office Type 1		Office Type 2	
	No. of Rooms	Area	No. of Rooms	Area
Chief Resident Consultant/Team Leader	1	Total floor area shall not be less than 200 sqm	0	Total floor area shall not be less than 150 sqm
Resident Engineer	1		0	
Quality Engineer	1		0	
Assistant Resident Engineer	1		1	
Senior Inspector of Works	1		1	
Office Manager/Accountant	1		1	
Office Secretary/Administrator	1		1	
Conference Room	1		0	
Senior Materials and Lab Technician	1		1	
Toilet	2		2	
Store Room	1		1	
Kitchen	1		1	
Covered Parking Space/Vehicles	6 Vehicles		3 Vehicles	

10. Each room, including the conference room and the kitchen, shall be provided with adequate lighting and power outlets.

5. Furnishings and Equipment

11. The fittings, furnishings, and equipment to be provided in offices shall be sufficient to run the project smoothly and shall be of good materials and standard acceptable to the employer. The furniture and equipment to be supplied and installed in the offices shall be new and of acceptable quality. The furniture may be steel, aluminium, wood, or a combination of these. The consultant should forward details of the items he/she intends to supply and obtain prior approval from the client.

12. In the event the consultant fails to provide acceptable quality and quantity of the equipment or item, the payment for that period shall not be made.

H. Office Maintenance and Provision of Supplies

1. General Requirements

13. The consultant shall maintain in good decorative and working order all the buildings and the contents thereof installed under the service. The consultant shall be responsible for supplying all power, water, and telephone services to all the offices. A standby generator (minimum 15 kVA) or equivalent equipment of appropriate capacity is required on each office to ensure continuous supply of power during load shedding and power failure.

14. The maintenance of the consultant's offices shall include daily cleaning and provision of toilet materials.

15. The consultant shall provide adequate security to guard and secure the buildings on a 24 hours per day basis.

16. A wireless internet facility shall be provided at every office to facilitate the transmission of project data and information.

17. Each room shall be fitted with adequate light fittings, ceiling fans with regulators, and two electric 5A outlets with ground connection. The kitchens shall have at least two 5A and one 15A electric outlets.

18. The office shall have two outside telephone lines—one shall be provided for the exclusive use of the chief officer in charge of the office, and the other line will be provided with necessary extensions for use in the various offices.

19. The consultant shall arrange for the offices to be connected with each other and the consultant's head office by an intercommunications telephone system to facilitate communications between the consultant's staff.

20. The consultant shall supply and keep replenished all consumable items.

ANNEX 2

VEHICLES FOR THE ENGINEER

1. The consultant shall provide themselves all necessary vehicles for implementation of the service, including driver, fuel, maintenance, etc. The type of vehicles the consultant is required to provide for their use shall be as shown below:

S.N.	Vehicle Type	Minimum Number Required	Remarks
1	Vehicle Type-2	7	
2	Vehicle Type-3	8	

2. The consultant may propose for additional vehicles, if necessary, in their financial proposal.

1. Vehicle Type 2

3. New or nearly new “double cab” pick-up with a diesel engine of at least 2.0 liter capacity, four-wheel drive, a minimum ground clearance (unladen) of 180 mm, air bags, airconditioner, cloth seats, seat belts, locking fuel cap, spare wheel, tool kit, tow rope, jump leads, fire extinguisher, and first aid kit.

2. Vehicle Type 3 (Motorcycle)

4. New “off road” motorcycle with a 4-stroke engine of at least 150 cc, equipped with panniers and spare tool kit. Included shall be a motorcycle safety helmet meeting the Nepal Road Safety specifications.

5. “Nearly new” means less than 5 years old, with less than 50,000 kilometers travelled, in general good condition, and is to the satisfaction of the client.

6. All vehicles shall be of current manufacture and shall have a guarantee/warranty for a minimum period of 1 year.

7. Payment shall be made only to those vehicles which conform to the specification.

TERMS OF REFERENCE FOR CONSULTING SERVICES OF THE PROJECT PREPARATORY CONSULTANT UNDER SASEC HIGHWAY IMPROVEMENT PROJECT (SHIP-PPC)

A. Background

1. The Government of Nepal has applied for a loan from the Asian Development Bank (ADB) for the South Asia Subregional Economic Cooperation Highway Improvement Project. A portion of the loan will be used to engage a firm of international consultants in association with domestic consultants to undertake preparatory activities for the processing of new loan or grant projects for funding by ADB or other bilateral or multilateral development institutions.

B. Objectives of the Assignment

2. The main objective of the consulting services is to carry out a feasibility study and detailed engineering design of roads and bridges as shown in Table 1 below.

Table 1: List of Project Roads

S.N.	Description	Length (km)	Number of Lanes	Remarks
1	Kakarbhitta–Laukahi	120	4	
2	Kamala–Dhalkebar	20.57	4	
3	Pathlaiya–Hetauda-Narayanghat	106	4	
4	Bridges in the above roads as listed in Annex 1 to the TOR		2/4	As per condition survey report
5	Road safety improvement and blackspot elimination in EWH	1,027		

EWH = East–West Highway, km = kilometer, TOR = terms of reference.
Source: Asian Development Bank.

3. The overall study consists of the following:
   (i) appropriate condition surveys;
   (ii) engineering design, specification, bill of quantities, cost estimates;
   (iii) economic analysis;
   (iv) social and environmental assessment in accordance with ADB's Safeguard Policy Statement (2009), ADB's Environmental Assessment Guidelines (2003) as well as government regulations and policies;
   (v) Road safety improvement and blackspot elimination in the East–West Highway based on identification and recommendations by the technical assistance (TA) consultant;
   (vi) bidding documents for the improvement works;
   (vii) procurement assistance; and
   (viii) other assistance as may be required by ADB's Nepal Resident Mission for loan processing.

C. Scope of Services

1. General Scope of Services

4. The consulting service will include, but not necessarily be limited to, the following:

(i) Investigate the alignments, including bridges, tunnels, and other road-related structures in terms of socioeconomic factors of the influence area, traffic, topography, geology, environmental aspects, soil, and other related factors along the alignment, with maps and sketches, wherever necessary for the feasibility study.
(ii) Prepare an inventory of existing road sections, including bridges and structures, geometric features, type, and condition of drainage structures, with an estimate of their load-carrying capacity, pavements, and other major features.
(iii) Carry out engineering surveys as required for preparing detailed engineering designs as appropriate to enable construction quantities to be calculated with reasonable accuracy (±10%).
(iv) Prepare designs based on the typical pavement sections, bridges, and tunnel sections, applying sound engineering practice and giving due regard to environmental and social safeguard aspects in accordance with ADB's Safeguard Policy Statement (2009) and the government's related regulations and policies.
(v) Investigate the suitability of local construction materials and, where necessary, locate new quarries and borrow pits, and assess the quality and quantity of materials and hauling distance.
(vi) Study the hydrological regime in detail based on an analysis of rainfall and flood records, supplemented by engineering field investigations, to establish the adequacy of road embankment levels, culverts, and side ditches, and design bed and slope protection for the drainage structures and bridges.
(vii) Assess cross-drainage requirements and proposed new structures (bridges, culverts, and causeways as appropriate) or improvements for structurally unsound structures.
(viii) Conduct detailed geotechnical investigation along the road and potential quarry sites.
(ix) Prepare practical and cost-effective geometric (horizontal, vertical, intersection, etc.) pavement and structural designs on the basis of projected traffic levels, pavement structure studies, and axle-load considerations, as determined from activities (i) to (vi) and from previous studies, traffic safety, environmental assessments, and other relevant inputs.
(x) Determine the most cost-effective improvement option for each project road section. Where new pavements are to be provided, they will be designed using an internationally recognized procedure for a 20-year life, with provision for overlays during or at the end of that period to extend the life to 25–30 years.
(xi) Prepare engineering technical specifications for each work item, taking into account relevant specifications in use in the country and elsewhere for similar works.
(xii) Prepare an inventory of geologically sensitive areas like slip-prone areas and areas subject to landslides, rock fall, snow drifts, erosion, avalanche activity, etc.
(xiii) Prepare a detailed plan for slope stabilization of existing landslide areas and potential landslide areas, with detailed engineering using civil engineering structures and bio-engineering, calculate costs estimates, and include them in the bills of quantities.
(xiv) Prepare surface and sub-surface investigation and testing, detail the survey and design of slope protection, and seismic analysis of subsurface investigations.
(xv) Prepare seismic analysis and liquefaction assessment of bridges.
(xvi) Carry out a hydrographic survey, if needed, as well as utility survey, identification

of underground structures and other obstacles, and a structure preconstruction survey.

(xvii) Identify faults in rock strata and impact of faults, including geological details of rock strata.

(xviii) Conduct road safety audits with the use of ADB's Operational Toolkit on Road Safety Audit for Road Projects or similar procedures acceptable to ADB. Provisions for managing road safety aspects appropriately during construction will be included in all bidding documents.

(xix) Prepare detailed engineering designs of roads, pavements, bridges and structures, and bills of quantities, and calculate engineering cost estimates for civil works.

(xx) Study the possibility of service areas; prepare detailed requirements, design and estimate of service areas, including land acquisition.

(xxi) Prepare design and drawings for grade separated intersections at major intersections.

(xxii) Prepare detailed design for road safety improvements and blackspot elimination in the western section of the East–West Highway (west of Butwal) based on the identification and recommendation made by the TA consultant. The consultant shall prepare comprehensive detailed design road safety improvements and blackspot elimination covering all sections of S.N. 1–4 in Table 1 of the TOR.

(xxiii) Prepare bidding documents (minimum 25 sets for each contract package) for the procurement of works, goods, and services in accordance with the latest ADB standard bidding documents template available on ADB website.

(xxiv) Prepare contract packages taking into account (a) the location of the project roads, size of contracts and other project specific factors, (b) ADB's procurement regulations, and (c) the aim of supporting the development of strong, competitive domestic private sector capacity in the construction industry.

(xxv) Prepare a project management report for each contract package with detailed analysis and graphical representation showing critical activities and floats using the critical path method and program evaluation and review technique (CPM/PERT) and work breakdown structure, which shall justify the project duration of each contract package.

(xxvi) Prepare engineering project implementation schedules for each kilometer using MS Project or equivalent project management software showing anticipated progress of works with required resources breakdown for each contract package. The schedules will reflect seasonal climatic effects at the work sites and take into account typical outputs on earlier ADB-financed road projects.

(xxvii) Prepare engineering drawings as per client's requirements.

(xxviii) Prepare quality assurance and quality control (QA & QC) plans and safety manuals for the respective construction sites to enforce adequate quality assurance and quality control, as well as safety of construction workers, engineers, and citizens.

(xxix) Prepare traffic management plans with estimation for widening works, replacement of culverts, bridges, etc., such that the traffic is not interrupted for more than one hour at any time.

(xxx) Prepare traffic studies and traffic forecasts, and carry out economic analysis.

(xxxi) Prepare the resettlement framework and resettlement plans for each subproject as per ADB guidelines and government policies.

(xxxii) Prepare an environmental assessment, including environmental impact assessment or initial environmental examination for each subproject, and climate risk and vulnerability assessment as per ADB guidelines and government rules and regulations.

(xxxiii) Provide knowledge transfer on latest technologies, procedures, methods, etc. on road/bridge design and construction and current international practice on contract administration, contract management, disputes and their resolution, etc. Conduct the capacity development component.
(xxxiv) Make presentations on the details adopted for design of roads and bridges to DOR personnel and other relevant personnel before the designs are approved.
(xxxv) Provide on-the-job trainings to ten fresh civil engineering graduates for a minimum of 12 months on surveying, layout, various site investigations, feasibility study, detailed design of pavement, cross-drainage, bridges, and structures.
(xxxvi) The consultant shall, in consultation with the client, divide the detailed design works in three groups and complete the detailed design in phases as mentioned in Table 6: Reports and Submissions.

2. Detailed Survey and Design of Roads, Bridges, and Other Structures

2.1 Details of Surveys and Studies

2.1.1 Topographical Survey and Mapping

5. The topographical survey shall collect adequate data to show the following details in the subsequent topographical map:

(i) Topography with details such as trees, forests, water bodies, existing infrastructures, and other land features.
(ii) Existing road details such as formation width, paved area, access roads, bus bays, footpaths, parking places, traffic signs, islands, signals, and right-of-way (ROW) limits (buildings, *taharas*, shops, etc.)
(iii) Details of existing cross-drainage structure details such as length, width and heights of culverts, bridges, details about bridge spans, pier, abutment, railing and vertical clearances, existing access under the bridge, river training works, and river bank structure details
(iv) Existing power line details such as high-tension poles, low-tension poles, transformers, substations, streetlight poles, underground electrical supply (if any), etc.
(v) Existing telecommunication details such as telephone lines, poles, cabinets, towers, and underground lines (if any).
(vi) Existing water supply line details such as supply mains, distribution lines, valves, valve chambers, underground water storage, fire hydrants, etc.
(vii) Existing sewer line details such as trunk sewers, branches, manholes, location/position of septic tank and soak pit of the adjacent building on both sides of the road within the ROW.
(viii) Existing building details such as religious shrines, government buildings, residential buildings, type of foundation, and tentative depth of foundation of the building.
(ix) Survey and production of a map of 100-meter wide road corridor in 1:500 scale and with 1.0-meter contour interval, and clearly showing the centerline of existing roads.

2. While conducting survey works, the survey team should be accompanied by a highway engineer. The consultant shall acquire the reference coordinate points from the Department of Surveys and referencing of all the survey works shall be made on these references. It should

establish inter-visible benchmarks within the ROW at a distance of not more than 200 meters (m) along the road and on both sides of the riverbanks in case of bridges.

6. While conducting the topographical survey for bridge design, the survey area should cover a minimum distance of 500 m upstream, 500 m downstream, and 200 m from the river banks on either sides of the river at the proposed bridge site. In case of the topographical survey of the bridge site, the topographic map should show the following:

(i) Contours at 0.20 m intervals
(ii) Flood lines on either sides of the river in the entire area surveyed
(iii) Both banks of the river
(iv) River cross-section at 25 m intervals
(v) Details of government and/or public establishments on the river banks, details of existing river training works (if any)
(vi) Traverse lines, benchmarks reference lines, and/or points with respect to which the present topographic map is prepared
(vii) The angle and direction of skew, if the bridge is proposed to be aligned skew
(viii) The foundation type and zone of influence of the existing foundation of the bridge or any other structures adjacent to the proposed bridge site
(ix) Other information relevant to design, construction, and/or maintenance of the bridge

2.1.2 Hydrological Survey

7. For determination of all design data, the consultant shall carry out a detailed hydrological survey and study of the river and bridge site, which shall include the following:

(i) Catchment area of the river up to the bridge site
(ii) Nature, size, and quantities of debris carried by the river
(iii) Intensity, duration, and distribution of rain in the catchment
(iv) Existing bridge or other hydraulic structures across the river in the vicinity of the proposed bridge site, with their details as much as possible
(v) General slope of the river from the critical point (origin) of the river up to the bridge site and general slope of the catchment in both sides of the river
(vi) Cross-sections covering 100 m on either side; beyond flood lines of the river at proposed bridge site, at about 500 m u/s and about 500m d/s, the highest flood level (HFL), lowest water level (LWL), lowest bed level (LBL), area of the cross-section, wetted perimeter, and geological profile with silt factor of each strata (at proposed bridge site only) shall be indicated. (Horizontal and vertical scales of the cross-section shall be the same.)
(vii) Bed slope of the river, which must start from 100 m up of the u/s cross section and end at 100 m down of the d/s cross-section
(viii) Maximum discharge calculated by established formulas with different return periods and the peak discharge observed over a period of 100 years
(ix) Velocity and depth of flow at the time of survey
(x) Shifting of the river in the past at proposed bridge site and in its vicinity
(xi) Other information required for river control, design, construction, and maintenance of the bridge

8. The hydrological survey shall collect secondary data, preferably from government sources, to determine the following:

(i) Unit hydrograph for the catchment of river for bridge construction
(ii) Size of the opening and location of cross-drainage structure
(iii) Minimize modification to the natural drainage pattern

9. After the selection of the proposed bridge site with alternatives and preparation of topographic maps, the consultant shall discuss the collected hydrological and other data and decide the following points with the client for final decision on the bridge site:

(i) Design discharge
(ii) Scour depth, maximum scour depth
(iii) Linear waterway needed to be provided
(iv) Anticipated soil condition for foundation
(v) The most feasible proposed bridge site
(vi) River training and approach roads
(vii) Type of proposed foundation, substructure, and superstructure

10. The consultant shall also carry out a detailed hydrological survey and study along the road alignments and identify catchment, discharge in drain, cross-drainage, seepage area, etc.

2.1.3 Geotechnical Survey

11. For the pavement design, structures, and buildings, the following geotechnical tests should be performed as per site requirements:

(i) Determine the subsoil condition through pitting (1m x 1m x 1m) and dynamic cone penetration (DCP) tests at two locations each of 100 m of the road alignment.
(ii) Determine the subsoil condition through 2-meter deep pitting and DCP test at each 25 m where a retaining wall of height more than 3 m is required.
(iii) Determine the stability of the cut slopes using appropriate stability analysis or through study, field surveys, and investigation of materials at the site.
(iv) Conduct other tests as required by the geological and geotechnical survey and study.

12. For the design of the bridges, the consultant should conduct subsurface exploration. The subsurface exploration shall include the following:

(i) **Test pits and augering.** Test pits and auger holes shall be made in the riverbed to a depth as required by the site condition or scouring criteria of the river, and the required samples shall be taken for lab testing.
(ii) **Boreholes, field tests, and laboratory tests.** The properties of the underlying soil shall be determined by field and laboratory tests of the soil samples obtained from the boreholes drilled to a depth as mentioned in the next paragraph. As far as possible, the locations of the boreholes shall be under each abutment and piers. Generally, the following tests in Table 2 should be conducted for determination of soil properties:

Table 2: Type of Tests and Sampling Frequency

S.N.	Type of Tests	Sampling Frequency
1	Undisturbed soil sampling	At least 2 at each borehole
2	Standard penetration test	As required but the interval not less than 1.5 meter
3	Grain size analysis	At least 2 at each borehole
4	Hydrometer analysis	At least 2 at each borehole
5	Moisture content	At least 2 at each borehole
6	Bulk and dry density	At least 2 at each borehole
7	Unconfined compression test	At least 2 at each borehole
8	Consolidation test	At least 2 at each borehole
9	Direct shear test	At least 2 at each borehole

Source: Asian Development Bank.

(iii) **Depth of soil exploration.** The depth of soil exploration from ground level shall be as follows in Table 3.

Table 3: Tentative Depths of Soil Exploration

SN	Type of soil	Governing Depth
1	Silty, sandy, clayey soil	3 times the design scour depth, or 1.5 times the least dimension of the foundation footing, or 20 m, whichever is maximum
2	Granular soil (gravels, boulders)	Dimension of the foundation footing, or 16 m, whichever is maximum
3	Rocks (soft or hard)	Not exceeding 8 m and minimum 5 m

m = meter.
Source: Asian Development Bank.

The abovementioned depths are indicative. The consultant shall decide the actual required depth of soil investigation according to the field condition and design parameters. If rock is found at the beginning or at mid-depth, then the drilling works shall not exceed the depth as mentioned in Table 3 above.

(iv) **Changes in soil strata.** During the boring, if there is any change of soil strata, the number of sampling of soils for different tests will be increased and the consultant shall carry out the entire test required for each layer of soil. No additional payments will be made for such tests.

(v) **Soil exploration works to be certified.** The client, if required, may ask the consultant to submit the soil/rock samples obtained from the drilling works in core boxes and/or a bore-log certified by the concerned personnel at site. The consultants shall take site photographs, videos, or other documentation as appropriate for all site investigation, surveys, and studies.

2.1.4 Seismological Study

13. The consultants shall collect and refer to the available data regarding the seismic records of the area. The consultant shall conduct seismic vulnerability analysis as well as seismic liquefaction assessment of all structures and incorporate the findings in the design. While considering seismic forces on the bridge design, the Indian Standard Criteria for Earthquake Resistant Design of Structures, IRC: 6 along with other international codes may be followed.

2.1.5 Materials Availability Survey

14. The consultant shall conduct the materials availability survey and study. It shall determine the quality and quantity of the materials required for construction. The availability of the necessary materials shall be surveyed to determine the following:

(i) Suitable quarry site for boulder, sub-base/base/pavement aggregates, concrete aggregates, sand, fill materials
(ii) Materials to be transported from elsewhere
(iii) Materials to be imported from outside Nepal, their source, and route of transport
(iv) Source of water for construction and location of boring if groundwater is to be used

15. The consultant shall conduct a study on the availability of construction materials such as sand, gravel, boulders, timber, etc. with their engineering properties and quantities, and lead up to the bridge site. Quarry site of materials with their available quantities should be shown on a sketch plan with reference to the bridge/road construction site.

2.1.6 Traffic Study and Analysis, Axle Load Survey

16. For design purpose, the traffic study at the critical points and intersection shall be made. The consultant shall make traffic demand estimates and establish possible traffic growth rates in respect of all categories of vehicles, taking into account the past trends, annual population, and real per capita growth rate, elasticity of transport demand in relation to income, estimated annual production increase, socioeconomic development plans and the land use patterns of the region having impact on traffic growth, the projections of vehicle and manufacturing industry in the country, development plans for other modes of transport, and commodity movement behavior. All these should also be taken into account while working out the traffic demand estimates.

17. Axle load surveys in both directions shall be carried out at suitable location(s) in the project road stretch on a random sample basis, and deduce the results.

18. While selecting the location(s) of axle load survey station(s), the locations of existing bridges with load restrictions, if any, should be taken into account and such sites should be avoided.

19. The consultant shall ascertain from local inquiries about the exceptional live loads that have used the highway in the past to assess the suitability of existing bridges to carry such loads.

20. Based upon the abovementioned studies and investigations, the consultants shall make the best use of their technical know-how and professional skills to arrive at a conclusion and recommend the most sustainable and cost-effective design parameters. The consultant shall discuss in detail all possible options and shall recommend the most appropriate option.

2.1.7 Condition Surveys for Bridges, Culverts, and Structures

21. The consultants shall thoroughly inspect the existing bridges, culverts, and structures and shall prepare a report about their condition, including all the parameters in the approved format. The condition and structural assessment survey of the bridges, culverts, and structures shall be carried out by senior experts of the consultants for the bridges identified to be in a distressed condition based upon the visual condition survey and supplementary testing. Selection of tests may be made based on the specific requirements for the structure.

2.1.8 Inventory Survey of Road and Roadside Structures

22. The consultants shall thoroughly survey existing alignment of roads and prepare a detailed inventory report. The consultant shall prepare detailed drawings of the existing alignments showing plan, profile, drainage, structures, cross-section, and other details.

2.1.9 Miscellaneous Studies/Investigations

23. If not covered by the aforesaid, the consultants shall perform other studies, explorations, test surveys, calculations, etc. required to produce full and complete set of working drawings, specifications, bills of quantities, requirement of materials, and complete cost estimates for the bridge/s, including related works based upon which construction activities can be started for completion without further study and/or reference to them.

2.2 Details of Design Works

2.2.1 Design of Roads

24. Design of roads shall include the following:

(i) Design of the vertical and horizontal alignment for design speeds appropriate as per NRS 2070, and subsequent revision if any, and per Asian Highway Standard.
(ii) Design of highway cross-section at minimum of 1 m interval
(iii) Design of cut and fill slopes at minimum of 1 m interval
(iv) Structural design of retaining structures (reinforced cement concrete [RCC], plum concrete, reinforced earth, etc.)
(v) Structural design of all RCC structures, including bridges, grade separated interchanges, and underpasses
(vi) Slope protection and bio-engineering
(vii) Service lanes along settlement areas and bus bays
(viii) Identification and design of road crossings for pedestrians and vehicles from one side of the road to another side
(ix) Identification and design of animal underpass/overpass (if necessary)
(x) Identification of roadside service area and its design
(xi) Production of design drawings (A1 size) showing plan in 1:500 scale, longitudinal profile in 500H to 100V scale, cross-sections at 10 m interval in 1:100 scale

25. Road alignment designed on Digital Terrain Model (DTM) shall be set out at the site with staking the central line and taking levels with verification of design. The consultant may use internationally recognized software for the road and bridge design. However, availing of the software for design purpose and any errors arising thereof during construction shall be the responsibility of the consultant. All the coordinates in the drawings shall be in reference to the coordinate value acquired from the Department of Survey.

2.2.2 Design of Pavement

26. While designing the pavements, the consultant shall ensure the following:

(i) Maximize the use of existing pavement layers (scrapping only in case of strength deficiency)
(ii) Design of sub-grade, sub-base, base and DBST/asphalt layers for each 100 m

interval or where the subsurface condition/traffic volume changes
(iii) Design for 10.2 ton (t) axle load
(iv) Design shall consider the AADT data that need to be collected by the consultant at the particular junctions/road sections, direct traffic counting at critical junctions
(v) Design of pavement on the bridges and approach roads

27. The pavement design task shall also cover working out the maintenance and strengthening requirements, and periodicity and timing of such treatments.

2.2.3 Design of Drainage Structures

28. While designing the drainage structures, the consultant shall use the data collected during the hydrological survey and determine the following:

(i) Type of surface and subsurface drain
(ii) Type of the cross-drainage structure
(iii) Structural design of slab and box culverts
(iv) Size and location of roadside drainage and cross-drainage structures (appropriate side drains and cross-drainages such as pipe culverts)
(v) Design of the water conduit, rain water inlets, and manholes to take storm water safely to the nearby natural stream
(vi) Maximize the use of the existing structures, if possible

2.2.4 Design of Bridges

29. Based on the collected information and results of the condition survey, the consultants shall design the bridges following the standard codes of practice, norms, and guidelines. In addition, the designer shall take into consideration general aesthetics and architectural perspectives of the bridges to be designed. In respect of span arrangement and type of bridge, at least three different alternatives (functionally and structurally) with cost–benefit analysis considering environmental and social aspects shall be submitted to the client with recommendation of the best alternate for each and every bridge.

30. In case of major bridges with a length more than 300 m, the consultant shall design long-span landmark bridge (suspension, cable stayed, network arch bridge, etc.). The consultant shall do a thorough condition survey of the existing bridge and estimate the remaining life of the bridge. The consultant shall also study the possibility of construction of one four-lane bridge or one or two double-lane bridges on either side of the existing bridges, with detailed cost–benefit analysis and present a report to the client for approval.

31. The consultant shall prepare General Arrangement Drawing (GAD) and Alignment Plan showing the salient features of the bridges and structures proposed to be constructed or reconstructed along the road sections covered under the study. The width of bridges shall be double lane or four-lane (depending upon the condition of existing bridges) with footpath. The consultants shall also carry out the design and make suitable recommendations for protection works for bridges as well as river training works. The design of bridges shall also include the design of the approach road with proper geometric design to connect with the existing road alignment, including road safety provisions.

32. The consultant shall perform multi-modal response spectral analysis as well as nonlinear analysis of reinforced concrete column, walls, caisson, pier, abutments, pile, etc., of the approved bridge types using internationally recognized computer software.

33. The consultant shall produce detailed quantity estimate of the bridge and its accessories. They shall collect information on sources of materials and their lead distances, and prepare rate schedules and cost estimates based on the standard norms and prevailing district rates.

34. All activities related to field studies, design, and documentation shall be done as per the latest guidelines, standard codes of practice (Nepal Bridge Standards), and norms. The consultants shall work in close coordination with the Bridge Branch of the Department of Roads in every step of the design of bridges.

35. The design consultant shall submit to the DOR the design certificates signed by the design consultant's team leader and bridge design engineer that itemize all drawings and, if appropriate, bar-bending schedules for all detailed design elements of the bridges and approach roads. The certificates shall be in an agreed format and reflect the design consultant's obligations under the contract.

36. The design consultant is required to liaise and cooperate in a proactive manner with the checking officers of the DOR's Bridge Branch and bridge design checking expert, supplying design information for checking in accordance with an agreed schedule. The checking engineers will be required to provide check certificates as a key deliverable. It is the design consultant's responsibility to resolve all technical issues raised by the checking expert and the DOR relating to the design in order to get the approval from the DOR.

2.2.5 Traffic Safety Features, Road Furniture, and Road Markings

37. The consultants shall conduct road safety audit and design suitable traffic safety features and road furniture, including traffic signals, signs, markings, overhead sign boards, crash barriers, delineators, etc. The consultant shall prepare detailed design for road safety improvements and blackspot elimination in the western section of the East–West Highway (west of Butwal) based on identification and recommendations by the TA consultant. The consultant shall prepare comprehensive detailed design road safety improvements and blackspot elimination covering all section of S.N. 1 to 4 of Table 1 of the TOR. The locations of these features shall be given in the reports and also shown in the drawings.

3. Economic Analysis

38. The consultants will carry out the following tasks but which are not limited to these:

(i) Review existing traffic data, conduct traffic counts and origin–destination and axle-load surveys, and forecast traffic for each candidate road sections for 20- and 30-year projections.
(ii) Prepare an economic analysis of the proposed road improvements using the highway development and management model (HDM, version 4). Calculate the economic internal rate of return (EIRR), individually and overall.
(iii) Undertake sensitivity analysis on the risk factor basis for various scenarios such as changes to the cost, generated and diversion traffic, modal shift, construction period, etc.
(iv) For selected priority road sections with impact on the subregional transport system,

assess the economic impact, outcome, and benefits—derived from or attributable to the improved subregional transport system/network (especially between India and Nepal). This includes, but not necessarily limited to, the following:

(a) Measurable effects on trade competitiveness through delivery costs, transit times, and supply reliability—identify relevant baseline indicators and predict achievable target outcomes.
(b) Estimated increase to regional traffic volume and trade volumes generated by the enhanced road network by improving project roads.

(v) Prepare and submit the Economic Assessment Report, presenting the following:
(a) Introduction
(b) General Considerations
(c) Input Data for Vehicle Operating Cost Components and Other Components for Economic Analysis
(d) Economic Benefits (including those due to regional implications)
(e) Construction and Maintenance Alternatives and Cost Estimates
(f) Economic Analysis
(g) Sensitivity Analysis
(h) Conclusions: summarizing the economic assessment, approach and methodology, findings (EIRRs and sensitivity analysis), and overall economic viability
(i) Appendices:
A. Project road details (should be available from main report)
B. Traffic studies (base year traffic, traffic generation, traffic diversion assessments)
C. Economic growth trend and traffic forecast (including the basis)

(vi) Develop a project impact monitoring framework and carry out baseline survey for all roads.

4. Social Assessment

39. The consultants will carry out the following tasks, but which are not limited to these:

(i) Conduct 20% poverty and social assessment taking into account the socioeconomic and poverty status of the project area of influence, including the nature, extent, and determinants of poverty in the project area. Identify and estimate the likely socioeconomic and poverty reduction impacts of the project. Assess local demand for the proposed road investments, employment opportunities, child labor, affordability, and gender specific capacity to take advantage of the likely socioeconomic opportunities that would result from the project. This will be in accordance with ADB's Guidelines for the Incorporation of Social Dimensions in ADB Operations and ADB's *Handbook on Poverty and Social Analysis*.
(ii) Identify project-related interests of key stakeholders, likely barriers to their participation in and benefiting from the project resources, and suggest possible strategies for addressing their concerns.
(iii) Conduct studies by using participatory approaches. With the participation of stakeholders, identify and analyze the reasons behind the vulnerability of at-risk groups, including their exposure to risks. Suggest participatory development strategies for key stakeholders to apply when designing and implementing the project.
(iv) Prepare a gender analysis. Identify project design elements (policy, investment, or

implementation) in which women can participate in and thus benefit from the project.

(v) Conduct assessment of risks of human trafficking and HIV/AIDS due to the project. Provide suggestions for measures to be incorporated in the project to mitigate possible adverse impacts through human trafficking and HIV/AIDS, and identify possible partners for assisting in implementing such measures.

(vi) Identify any necessary mitigation measures and a strategy for implementing them. Identify potential proactive measures, in terms of additional components and design options, which will make it easy for the poor and vulnerable to benefit from the project.

(vii) In coordination with the economic analysis, design a time-bound benefit monitoring and evaluation program, including monitoring indicators and baseline data, to assess the project benefits to local communities before and after the construction of the project. The program should address not only the economic benefits but also poverty reduction impacts and other social benefits such as stability of the region and integration with other parts of the country.

(viii) Submit a draft final poverty and social analysis (PSA) report to ADB and the DOR for review and comments. Incorporate comments and finalize the PSA accordingly, then re-submit the revised PSA to ADB through the DOR. Summarize and submit these PSA findings in the summary poverty reduction and social strategy (SPRSS) report format.

5. Resettlement and Indigenous Peoples' Assessment

40. The consultants will carry out resettlement and indigenous peoples planning of the project roads and bridges in accordance with ADB's Safeguard Policy Statement (2009) and Public Communications Policy (2005) as well as the Government of Nepal's acts, regulations, and policies. The major tasks include, but are not limited to, the following:

(i) Conduct a preliminary social impact assessment for the project, including assessment of possible land acquisition and resettlement impacts for the candidate road alignments in accordance with ADB's Safeguard Policy Statement (2009). Prepare and complete screening and impact categorization forms for involuntary resettlement for the candidate road alignments.

(ii) Identify whether the project will be located in, or pass through, areas of significant indigenous peoples' settlements, and if this is the case, propose how to specifically include indigenous peoples in project planning and implementation in accordance with ADB's Safeguard Policy Statement (2009). If relevant, make an overview of population characteristics in the project area and anticipated project impacts. Prepare and complete a checklist for indigenous peoples' screening and impact categorization for the candidate road alignments.

(iii) Review existing resettlement policies and plans under ongoing ADB and government projects and adapt them to the project roads as necessary, which are acceptable to the government and ADB in compliance with ADB's Safeguard Policy Statement 2009 and government-related acts and policies.

(iv) Prepare a resettlement plan (RP) and indigenous people plan (IPP) as necessary, which are acceptable to the government and ADB in compliance with ADB's Safeguard Policy Statement (2009), and government-related acts and policies. The RP and IPP should be based on 100% census, which covers a complete enumeration of all displaced persons and their affected assets.

(v) Assess the resettlement budget requirement for acquisition of land of different

width from the footprint of the road to the full right-of-way (ROW) of the road and recommend the best alternative.

(vi) Define categories for impact and eligibility of affected people for compensation and prepare a matrix of entitlements covering compensation and other assistance for all types of impacts to fully replace lost assets, income, and livelihood. Assess whether the compensation standards for all types of assets, crops, and trees are based on replacement value and discuss in detail the valuation methodology used.

(vii) Prepare a comprehensive income and livelihood restoration program, supported by adequate budget, to help displaced persons improve, or at least restore, their incomes and livelihoods. Identify specific measures for the affected poor, ethnic minorities, or other vulnerable households.

(viii) Ensure that (a) the compensation standards are based on replacement value, and (b) the overall resettlement budget is sufficient to implement the resettlement plan based on the proposed entitlements and rehabilitation plans.

(ix) Assist government officials to initiate and expand consultation with the affected communities, local leaders, proponents, and stakeholders who may be opposed to the project. Prepare a consultation plan for the DOR and a format for documenting consultation with affected people.

(x) Assess the capacity of the government in implementing the proposed RP and IPP, recommend improvements and actions required before land acquisition, and propose necessary training to enable the DOR and the government to implement the RP and IPP, and assess the social and resettlement issues of the follow-on subprojects, if required. Assist the DOR to (i) prepare a resettlement implementation schedule, (ii) recruit the NGO/agency for RP and IPP implementation (if required), and (iii) recruit consultants for external monitoring and evaluation.

(xi) Assist the DOR to develop a computerized database management system for recording displaced persons and lost assets. The system should reflect the present impact on displaced persons and accordingly the entitlements for displaced persons are planned. The system should be in place from the beginning of the resettlement survey.

(xii) Develop cadastral mapping of affected plots for construction of the alignments using the road inventory map developed under the engineering study. Also, prepare file map and trace map of individual plots of land that need to be acquired.

(xiii) While preparing IPPs, conduct (a) social impact assessment, (b) meaningful consultation, and (c) ascertain consent of affected IP communities. For items (b) and (c), proper recording and full documentations are required. These documents must be attached to IPPs as annex. These IPPs should also incorporate the findings of the resettlement census.

(xiv) Prepare a final RP and IPP, and summary RP and IPP based on detailed design, taking into account the comments from ADB and the government, and based on 100% census survey. The RP and IPP should include a record of consultation with affected persons.

(xv) Conduct a workshop training to provide guidance to the DOR on project-related social issues and ADB's Safeguard Policy Statement (2009) and procedural requirements during project preparation and implementation. The scope of training should include the differences between the provisions of ADB policy and the relevant country laws.

6. Environmental Assessment

41. The consultants shall carry out environmental assessment (EA) of the project roads and bridges in accordance with ADB's Safeguard Policy Statement (2009), Public Communications Policy (2011) as well as the Government of Nepal's acts, regulations, and policies. The EA can require environmental impact assessments (EIA) or initial environmental examinations (IEE) as the case may be. The major tasks include, but are not limited to, the following:

(i) In accordance with the government's notification on environmental impact assessment (EIA) and ADB's guidelines, review and confirm the environmental classification of the project, and indicate which sections pass through National Park (NP), Wildlife Sanctuary (WS), other Sanctuary (S), and reserve forest, if any. From the review, prepare a summary matrix for environmental classification, showing the length of sections passing through NP, WS, S, or reserved forest (RF) areas, necessary environment-related information, and environmental classification.

(ii) If the project is classified as "A," draft terms of reference for the EIA study, to be submitted to the ministry concerned for approval. After the approval of the TOR for the EIA study, undertake the EIA study and prepare an EIA report. The consultant will lay special emphasis to induced/cumulative impacts of the projects and estimate and analyze climate change impacts while assessing the environmental sustainability of the proposed project designs.

(iii) If the project is classified as "B," undertake IEE study and prepare an IEE report, including an environment management plan (EMP) for each project in accordance with ADB's Safeguard Policy Statement (2009).

(iv) Carry out a climate risk and vulnerability assessment (CRVA) in accordance with ADB's Guidelines on Climate Risk for projects with medium or high climate risk. If the project passes through ecologically sensitive areas, collect necessary primary data on ecology needs (vegetation analysis, rapid assessment on biodiversity) to be used as a basis for predicting the environmental impacts.

(v) Carry out a baseline wildlife study for the Pathlaiya–Hetauda–Narayanghat road section, to be used as basis for predicting the wildlife impacts of the project road.

(vi) Ensure that the IEE/EIA study will be carried out by taking into account government's and ADB's EIA guidelines, and that the EIA report and its summary will be prepared in accordance with ADB's Environmental Assessment Guidelines (2003). The study has to cover the project area and affected area, and provide assessment of impacts, analysis of alternatives, environmentally sensitive regions, loss of biodiversity, suitable mitigation measures, adequate consultation with affected people, and a proper management plan.

(vii) Analyze greenhouse gas emission levels in the project cycle, and recommend technically and financially feasible and cost-effective options to reduce or offset project-related greenhouse gas emissions during project design, construction, and operation.

(viii) Recommend occupational and community health and safety measures, and proper grievance redress mechanism for the affected people in the course of the project cycle.

(ix) Assess the DOR institutional arrangement and capacity in addressing environmental concerns related to the project; identify requirements for additional capacity building in project preparatory works; and conduct a seminar/workshop to provide guidance to the DOR on procedural requirements and required activities for each stage of project preparation and implementation.

(x) Finalize the EIA or IEE report, including EMPs and their summaries, as required. Prior to finalization, draft reports should be submitted to theDOR and ADB for review.
(xi) The environmental assessment (EA) report should perform census study while performing the biological survey and should mention the details of each tree including GPS position, name of species, diameter, height and category of timber, and should be clearly provided in the annex of the report.
(xii) Details of chainage-wise information for each community forest, national forest, government forest trees should be clearly mentioned and loss from each category should be reported clearly.
(xiii) The consultant shall work in close coordination with the respective district forest office during the field survey especially in case of tree counting, and should submit its proof in the EA report.
(xiv) The location of the project structures and facilities should be clearly mentioned in the EA report, showing these in colored topographic and Google maps with proper scaling.
(xv) There should be coherency in the design report and the EA report.
(xvi) The environmental management plan should be precise and applicable as per Nepalese standards and norms.

7. Noise, Air Pollution, and Water Quality Parameters

42. The consultant shall perform baseline study for measurement of total suspended particle (TSP), particulate matter in air, sulphur oxides, nitrogen oxides, lead, carbon monoxide, and benzene based on acceptable standards (WHO and national ambient air quality standards 2012) and the required modelling in the format acceptable to ADB. The consultant shall also measure water quality parameters for collecting baseline information in case of surface and groundwater contamination as per WHO and national water quality standards for drinking water as accepted by ADB and DOR.

8. Wildlife Survey

43. The Wildlife Expert will conduct a wildlife study for the Pathlaiya–Narayanghat road during the design stage to determine the location, design, and numbers of underpasses that will be required to be constructed. The study will involve suitable methods such as field surveys, transect survey, public and stakeholder consultations, camera trapping (making 2x2 km^2 grid), habitat mapping, GIS-based analysis, etc. to establish the biodiversity baseline conditions (locations and number of wildlife crossings, wildlife species crossing the road and their seasonal behavior, number of wildlife–vehicle collisions, etc.). This will be done in close consultation with Chitwan National Park, Parsa Wildlife Reserve, and other local forestry officials and forestry user groups. The Wildlife Expert shall coordinate with the Environmental Specialist and include his/her findings in the EMP and EIA reports.

9. Procurement Assistance

44. Procurement shall be carried out in accordance with ADB's Guidelines on Procurement. The consultant shall prepare bidding documents and assist with procurement actions, including advertising, issuing bidding documents, responding to queries, receiving and evaluating bids, and preparing bid evaluation reports, and any other appropriate assistance.

10. Capacity Development

45. The consulting services shall include organizing in-house, national, and overseas training for capacity development of DOR personnel in different disciplines. The consultant shall organize, manage, and provide knowledge transfer to DOR personnel on current practices and developments on construction techniques, advanced contract management, dispute resolution, FIDIC, etc.

D. Team Composition and Qualification Requirements for the Key Expert

46. The consulting services shall be carried out by an international firm in association with national consultants. Minimum service of 90 person-months for international experts, 301 person-months for national key experts, and 120 person-months for national non-key experts will be required to carry out the assignment. The qualification requirement for evaluation of key experts is set out in Annex 2. The person-month required for the assignment is enumerated under Table 4, Staff Inputs. The task and responsibility of each position is enumerated under Table 5, Position-based Tasks and Responsibilities.

Table 4: Staff Inputs

1. International Key Experts

Position	Quantity	No. of Person-Months	Total Person-Months
Team Leader/Senior Highway Engineer	1	24	24
Senior Bridge Design Engineer-1	1	20	20
Senior Bridge Design Engineer-2	1	15	15
Geotechnical Engineer	1	12	12
Procurement Specialist	1	6	6
Transport Economist	1	5	5
Senior Road Safety Engineer	1	8	8
Subtotal			**90**

2. National Key Experts

Position	Quantity	No. of Person-Months	Total Person-Months
Deputy Team Leader /Highway Engineer-1	1	24	24
Highway Engineer-2	1	20	20
Bridge Design Engineer	3	22	66
Structural Engineer	1	10	10
Geotechnical Engineer	2	22	44
Materials Engineer	1	6	6
Road Safety/Traffic Engineer	1	12	12
Hydrologist	2	22	44
Transport Economist	1	9	9
Procurement Specialist	1	18	18
Environment Specialist	1	20	20
Social Development/Resettlement Specialist	1	16	16
Wildlife Expert	1	12	12

Position	Quantity	No. of Person-Months	Total Person-Months
Subtotal			**301**

3. National Non-Key Experts

Position	Quantity	No. of Person-Months	Total Person-Months
Electrical Engineer	1	2	2
Environmental Engineer	1	20	20
Road Safety Engineer	1	12	12
Cadastral Surveyor	2	19	38
Computer-Aided Design (CAD) Specialist	1	24	24
Social and Resettlement Officer	1	24	24
Subtotal			**120**

Table 5: Position-Based Tasks and Responsibilities

S. No.	Position	Task Assignment
1	Team Leader	Shall be responsible overall for the project, including but not be limited to, the following: (i) In charge over all of the project team and implementation activities (ii) Guiding/supervising the work of key personnel and support staff to achieve the project objectives (iii) Coordinate with the subordinate team to ensure that the construction process is well controlled as per established procedures (iv) Interaction with the client (v) Review of the existing available information, studies and data, inventory survey of priority road section (vi) Overall management of the design activities (vii) Preparation of quality assurance plan (viii) Review of data and documents (ix) Work program method statements (x) Critical path method (CPM) analysis and planning (xi) Quality assurance system (xii) Safety procedures (xiii) Geotechnical investigation (xiv) Working drawings and specifications (xv) Design works (xvi) Environmental and social safeguard aspects (xvii) Proposed construction materials and contingency plan (xviii) Environmental assessment works (xix) Project planning and planning schedule for construction (xx) Social and resettlement planning (xxi) Supervise the necessary tests, analyze, and make recommendations for approval (xxii) Prepare the monthly and quarterly reports and other project reports as per the terms of reference (TOR) requirements (xxiii) Training and technology transfer
2	Senior Highway Engineer	Shall be responsible for but not be limited to the following: (i) Conduct and supervision of all traffic-related works (ii) Preliminary and detailed design work through practical and cost-efficient approach (iii) Prepare designs based on the typical road sections, applying sound

		engineering practice and giving due regard to environmental aspects (iv) Field tests and verifications (v) Review report provided by the technical assistance (TA) consultant (vi) Identify and locate intersection and grade separated intersection design, development, and production management for the roadway plans (vii) Produce support documentation, including reports, quantities, and specifications (viii) Design of bioengineering works and environmental protection (ix) Design of pavement (x) Design of bridges (xi) Training and technology transfer
3	Senior Bridge Design Engineer	Shall be responsible for design of major bridges, including the following: (i) Carry out detailed survey and sub-soil investigations of bridge sites (ii) Analysis of bridge (iii) Design the bridge following the standard codes of practice, norms, and guidelines considering general aesthetics and architectural perspectives of the bridges (iv) Discuss with client about span arrangement and type of bridge and foundation type with alternatives and cost–benefit (v) Modeling and testing of design (vi) Produce detailed quantity estimate of the bridge and its accessories (vii) Prepare rate schedules and cost estimates based on the standard norms and prevailing district rates (viii) Training and technology transfer
4	Senior Geotechnical Engineer	Shall be responsible for but not be limited to the following: (i) Conduct detailed geological mapping at 1:1,000 with contour intervals at 2 m, subsurface drilling at selected locations for major landslides and collect samples of mechanical properties of soils as necessary (ii) Stability analysis of slope (iii) Rock classification of road and tunnel (iv) Assess the requirement for slope protection measures adjacent to the road, and design any necessary remedial works (v) Detailed geotechnical investigation of bridge site, tunnel and road alignment (vi) Potential quarry site identification and quantification (vii) Training and technology transfer
5	Senior Procurement Specialist	Shall be responsible for but not be limited to the following: (i) Develop appropriate contract management tools, guidelines and manuals for standardization and knowledge sharing purposes (ii) Prepare and amend the bidding documents as needed in accordance with Asian Development Bank's (ADB) guidelines and Government of Nepal's rules (iii) critical path method and program evaluation review technique (CPM/PERT) analysis and reporting (iv) Assist in procurement in accordance with ADB's Procurement Plan and guidelines and preparation of evaluation reports (v) Prepare the General Procurement Notice (GPN), Specific Procurement Notices (SPNs), Invitation for Bids (IFBs), and other solicitation documents whenever required (vi) Assist in obtaining ADB's "No Objection" on bidding documents and evaluation reports (vii) Monitor and ensure timely responses to procurement questions raised by ADB (viii) Preparing and updating the project's annual procurement plan and budget detailing contract packages (including estimated cost) for procurement of works and goods and processing times until completion

		of each procurement activity (ix) Participating in pre-bid meetings, bid opening sessions, and bid evaluations, and ensuring that the appropriate guidelines are followed to arrive at the recommendations for award of contracts (x) Assisting in dealing with claims, bid challenges, and litigations relating to procurement
6	Senior Transport Economist	Shall be responsible for but not be limited to the following: (i) Conduct transport research and identify the economic implications (ii) Transport economic analysis (iii) Preparation of economic modeling, investment optimization, economic impact assessments, reducing transport costs, cost recovery, cost apportionment, commercialize projects, feasibility studies, policy analysis (iv) Undertaking economic studies as part of the road design (v) Conducting highway development and management model (HDM-4) analysis (vi) Building capacity for economic analysis related to transport (vii) Training and technology transfer
7	Senior Road Safety Engineer	Shall be responsible for but not be limited to the following: (i) Undertaking analysis of road accident statistics and other related documents, including blackspots and possible accident-prone locations and assisting in road safety audits when required (ii) Analyzing road designs on issues of road safety (iii) Review report provided by TA consultant (iv) Prepare detailed design for road safety improvements and blackspot elimination (v) Design and prepare drawings of road safety measures for the particular location in the project (vi) Check for the latest appropriate road safety measures (vii) Prepare road safety audit report (viii) Conduct meetings with stakeholders (ix) Undertake training in road safety measures (x) Training and technology transfer
8	Deputy Team Leader/ Highway Engineer-1	Shall be responsible for but not be limited to the following: (i) In charge over all of the project design team as assistant team leader (ii) Responsible for the overall implementation activities in coordination with the team leader (iii) Coordinate with the subordinate team to ensure that the construction process is well controlled as per established procedures (iv) Interaction with the client (v) Collection of available data, maps, policy documents and other related documents (vi) Preliminary and detailed design work through practical and cost-efficient approach (vii) Prepare designs based on the typical road sections, applying sound engineering practice and giving due regard to environmental aspects (viii) Design, development, and production management for the roadway plans (ix) Producing support documentation, including reports, quantities, and specifications (x) Design of bioengineering works and environmental protection (xi) CPM analysis and planning (xii) Prepare designs based on the typical pavement sections, applying sound engineering practice and giving due regard to environmental aspects (xiii) Establish the thickness and composition of the pavement by trial pits

		and sampling, and subgrade strengths by dynamic cone penetration (DPC) testing and/or in-situ California bearing ratio (CBR) (xiv) Maximize the use of existing pavement layers (scrapping only in case of strength deficiency) (xv) Design of subgrade, sub-base, base and asphalt layers for each 100 m interval or where the subsurface condition/traffic volume changes considering the annual average daily traffic (AADT) data, which need to be collected by the consultant at the particular junctions/road sections, and direct traffic counting at critical junctions (xvi) Design of pavement on the bridges and approach roads (xvii) Training and technology transfer
9	Highway Engineer-2	Shall be responsible for but not be limited to the following: (i) Coordinate with the subordinate team to ensure that the construction process is well controlled as per established procedures (ii) Interaction with the client (iii) Collection of available data, maps, policy documents, and other related documents (iv) Preliminary and detailed design work through practical and cost-efficient approach (v) Prepare designs based on the typical road sections, applying sound engineering practice and giving due regard to environmental aspects (vi) Design, development, and production management for the roadway plans (vii) Producing support documentation, including reports, quantities, and specifications (viii) Design of bioengineering works and environmental protection (ix) CPM analysis and planning (x) Prepare designs based on the typical pavement sections, applying sound engineering practice and giving due regard to environmental aspects (xi) Establish the thickness and composition of the pavement by trial pits and sampling, and subgrade strengths by dynamic cone penetration (DPC) testing and/or in-situ California bearing ratio (CBR) (xii) Maximize the use of existing pavement layers (scrapping only in case of strength deficiency) (xiii) Design of subgrade, sub-base, base and asphalt layers for each 100 m interval or where the subsurface condition/traffic volume changes considering the AADT data, which need to be collected by the consultant at the particular junctions/road sections, and direct traffic counting at critical junctions (xiv) Design of pavement on the bridges and approach roads
10	Bridge Design Engineer	Shall be responsible for but not be limited to the following: (i) Carry out detailed survey and subsoil investigations of bridge sites (ii) Analysis of bridge (iii) Design the bridge following the standard codes of practice, norms, and guidelines considering general aesthetics and architectural perspectives of the bridges (iv) Discuss with the client about span arrangement and type of bridge and foundation type with alternatives and cost–benefit (v) Modeling and testing of design (vi) Produce detailed quantity estimate of the bridge and its accessories (vii) Prepare rate schedules and cost estimates based on the standard norms and prevailing district rates

11	Structural Engineer	Shall be responsible for but not be limited to the following: (i) Carry out detailed survey and subsoil investigations of minor bridge sites as required (ii) Design the minor bridges following the standard codes of practice, norms, and guidelines (iii) Design of slab culvert, box culvert, pipe culvert (iv) Design of masonry, gabion, plum concrete, reinforced cement concrete (RCC) structures (v) Produce detailed quantity estimate of the bridge and its accessories (vi) Design of other structures required for the roads
12	Geotechnical Engineer	Shall be responsible for but not be limited to the following: (i) Conduct detailed geological mapping at 1:1,000 with contour intervals at 2 m, subsurface drilling at selected locations for major landslides, and collect samples of mechanical properties of soils as necessary (ii) Stability analysis of slope (iii) Rock classification of roads and tunnels (iv) Assess the requirement for slope protection measures adjacent to the road, and design any necessary remedial works (v) Geotechnical investigation of the bridge site and road alignment (vi) Potential quarry site identification and quantification
13	Materials Engineer	Shall be responsible for but not be limited to the following: (i) Investigate, test, and define sources of construction materials (ii) Assess the sources of natural construction materials (e.g., quarry sites), carry out suitability tests (iii) Prepare a materials report for the contractors' information
14	Road Safety Engineer	Shall be responsible for but not be limited to the following: (i) Undertaking analysis of road accident statistics and other related documents, including blackspots and possible accident-prone locations, and assisting in road safety audits when required (ii) Analyzing road designs on issues of road safety (iii) Review report provided by TA consultant (iv) Prepare detailed design for road safety improvements and blackspot elimination (v) Design and prepare drawings of road safety measures for the particular location in the project (vi) Check for the latest appropriate road safety measures (vii) Prepare road safety audit report (viii) Conduct meetings with stakeholders (ix) Undertake training in road safety measures
15	Hydrologist	Shall be responsible for but not be limited to the following: (i) Technical assessment of site conditions, suitability, and issues (ii) Surface runoff/run-on analyses, flood/inundation modeling, site drainage assessment and design (iii) Data collection on existing flow regime and structures (iv) Drainage/hydrological assessment, estimation of peak discharge locations and volumes, detailed drainage design (v) Hydrological design of culverts, bridges, cross-drains and toe drains (vi) Study and analysis of watershed (vii) Determining type of the cross-drainage structure (viii) Structural design of slab and box culverts (ix) Size and location of roadside drainage and cross-drainage structures (appropriate side drains and cross-drainages such as pipe culverts) (x) Design of the water conduit, rain water inlets, manholes to take storm water safely to the nearby natural stream (xi) Use of the existing structures (xii) Design of subsurface drains

		(xiii) Technical report preparation
16	Transport Economist	Shall be responsible for but not be limited to the following: (i) Conduct transport research and to identify the economic implications (ii) Transport economic analysis (iii) Preparation of economic modeling, investment optimization, economic impact assessments, reducing transport costs, cost recovery, cost apportionment, commercialize projects, feasibility studies, policy analysis (iv) Undertaking economic studies as part of the road design (v) Conducting HDM-4 analysis (vi) Building capacity for economic analysis related to transport (vii) Training and technology transfer
17	Procurement Specialist	Shall be responsible for but not be limited to the following: (i) Preparing and amending the bidding documents as needed in accordance with ADB's guidelines and Government of Nepal's rules (ii) CPM/PERT analysis and reporting (iii) Assist in procurement in accordance with ADB's Procurement Plan and ADB's guidelines and preparation of evaluation reports (iv) Preparing the general procurement notice (GPN), specific procurement notices (SPNs), invitation for bids (IFBs), and other solicitation documents whenever required (v) Assist in obtaining ADB's "No Objection" on bidding documents and evaluation reports (vi) Monitoring and ensuring timely responses to procurement questions raised by ADB (vii) Preparing and updating the projects' annual procurement plan and budget detailing contract packages (including estimated cost) for procurement of works and goods and processing times until completion of each procurement activity (viii) Participating in pre-bid meetings, bid opening sessions, bid evaluations and ensuring that the appropriate guidelines are followed to arrive at the recommendations for award of contracts (ix) Assisting in dealing with claims, bid challenges, and litigations relating to procurement
18	Environmental Specialist	Shall be responsible for but not be limited to the following: (i) Environment impact assessment (EIA) and initial environment examination (IEE) of priority road sections, including summary matrix for environmental classification (ii) Design and implementation of mitigation and remediation plans (iii) Provide assessment of impacts, analysis of alternatives, suitable mitigation measures, and proper management plan for detailed design of road sections (iv) Prepare report based on classification of road section and collect the data in accordance with ADB's Safeguard Policy Statement (v) Recommend feasible and cost-effective options to reduce or offset project-related greenhouse gas emission (vi) Prepare proper grievance redressal mechanism for the affected people (vii) Review the Department of Roads (DOR) institutional arrangement and capacity in addressing environmental issues (viii) Assist and coordinate with the team leader in the identification and resolution of all environmental problems (ix) Prepare environmental assessment report (x) Conduct literature reviews to collect data and information on projected climate changes in the respective project area (xi) Compile or compute projected climate change data in the respective

		project area, including information on the source of data (xii) Conduct literature review to understand current practices and lessons learned on climate change adaptation measures in infrastructure projects (xiii) Review project concept documents to understand the project scope and potential climate risks (xiv) Based on the projected climate data and components of the project, identify if there are any medium or high climate change risks that may affect or cause damages to the project infrastructure during its design life (xv) Based on the type of climate risk identified, conduct further relevant in-depth studies such as hydrological analysis and modelling, statistical analysis, geographic information systems (GIS)-based analysis, field data collection, and hold consultations with relevant local authorities and communities, etc. (xvi) Where relevant, review hydrological studies carried out by the engineering team and provide inputs to integrate future climate data into the study (xvii) In consultation with the design engineers of the project, identify climate adaptation measures or design modifications for projects to mitigate the key climate risks identified. Where feasible, identify innovative measures or best practices being applied successfully in other projects and/or countries (xviii) Estimate the incremental costs of adaptation measures or design modifications in relation to the total project costs (xix) Prepare a report on the climate risk and vulnerability assessment and adaptation measures incorporated in the project design for projects with medium or high climate change risks
19	Social Resettlement Specialist	Shall be responsible for but not be limited to the following: (i) Conduct a social impact assessment for the project including assessment of possible land acquisition and resettlement impacts in accordance with ADB's Safeguard Policy Statement (2009) (ii) Prepare a resettlement plan (RP) and indigenous people's plan (IPP) as necessary and which are acceptable to the government and ADB (iii) Prepare a comprehensive income and livelihood restoration program (iv) Identify specific measures for the affected poor, ethnic minorities, or other vulnerable households. (v) Assist government officials to initiate and expand consultations with affected communities, local leaders, proponents, and stakeholders who may be opposed to the project (vi) Assess the capacity of the government in implementing the proposed RP and IPP (vii) Prepare a resettlement implementation schedule (viii) Provide support in recruiting an NGO and/or agency for RP and IPP implementation and consultants for external monitoring and evaluation (ix) Prepare a final RP and IPP (x) Conduct poverty and social impact assessment (xi) Plan and conduct stakeholder consultative forum (xii) Prepare a gender analysis (xiii) Identify mitigation measures and a strategy for implementation (xiv) Questionnaire design and approval (xv) Socioeconomic data analysis (xvi) Coordinate and implement activities involving public outreach and communications in conjunction with other key professionals (xvii) Identify project-related interests of key stakeholders, likely barriers to their participation in and benefiting from the project resources, and

		suggest possible strategies for addressing their concerns (xviii) Conduct assessment of risks of human trafficking and HIV/AIDS due to the project and suggest measures to be incorporated in the project (xix) Identify any necessary mitigation measures and a strategy for implementing them (xx) Prepare the reports in approved format (xxi) Conduct a workshop training to provide guidance to the DOR on project-related social issues
20	Wildlife Expert	Shall be responsible for but not be limited to the following: (i) Liaise with the park wardens, CNP and PWR focal person for the project, local forestry officials, relevant buffer zone community forestry management groups, and prepare biodiversity conservation activities to be included in the EIA report for the Pathlaiya–Hetauda–Narayanghat road (ii) Prepare the wildlife-related mitigation and enhancement measures recommended for the EIA, IEE, and EMP and provide updates and revisions and further site specific recommendations as necessary (iii) Organize stakeholder consultations and workshops in the project site and/or Kathmandu to discuss the preparation of biodiversity conservation activities under the project. Relevant stakeholders such as Department of National Parks and Wildlife Conservation, WWF Nepal, and NTNC may be invited. (iv) Conduct wildlife surveys (v) Provide inputs in requirements of wildlife underpass/overpass in the design of the road
21	Electrical Engineer	Shall be responsible for but not be limited to the following: (i) Design of street lighting (ii) Identification of electric poles, transformers, wires, etc., for relocation in close coordination with related electricity offices (iii) Prepare estimate for relocation requirements
22	Environmental Engineer	Shall be responsible for but not be limited to the following: (i) Assist the environmental specialist in data collection, surveys, public hearings, preparation of various reports, etc.
23	Road Safety Engineer	Shall be responsible for but not be limited to the following: (i) Assist Senior Road Safety Specialist and Road Safety Specialist in data collection, surveys, public hearings, preparation of design, and reporting, etc.
24	CAD Operator	Shall be responsible for but not be limited to the following: (i) Preparation of CAD drawings (ii) Assist various experts in design works
25	Cadastral Surveyor	Shall be responsible for but not be limited to the following: (i) Conduct cadastral survey (ii) Identify land and structures required to be acquired (iii) Prepare cadastral map of affected plots (iv) Produce cadastral map clearly showing the road
26	Social and Resettlement Officer	Shall be responsible for but not be limited to the following: (i) Assist resettlement and social development experts in data collection, surveys, focused group discussions, preparation of various reports, etc.

E. Reporting Requirements and Time Schedule

47. The consulting services shall be implemented over 24 calendar months from the commencement date.

48. The consultant shall submit the reports (10 copies to DOR and 2 copies to ADB) as enumerated in Table 6: Reports and Submissions. The consultant shall initially submit two copies of documents and reports as drafts in ring/spiral binding form. After approval from the client, the consultant shall submit the remaining 10 copies of each report in book binding form. The consultant shall sign and stamp on all the pages of design documents, drawings, estimates, rate analysis, investigation reports, etc., before submitting to the client. All the reports shall also be submitted in electronic copy compatible with the respective program on which they were prepared. All the alignments, including bridges and tunnel alignments, shall be tracked on GPS and shall be submitted in compatible format. The consultant shall also produce separate colored posters in A0, A1, and A2 size of each road and bridge showing the detailed plan, profile, and other relevant information.

Table 6: Reports and Submissions

No.	Preparatory Outputs	Submission Deadline (No. of Months After the Commencement Date)
I	Inception report	1
II	Inventory/condition survey report	2
III	Economic analysis and feasibility study report of all roads and bridges	4
IV	**Detailed Design of Road I**	
(i)	Condition survey reports	2
(ii)	Survey, hydrological, and soil investigation reports	5
(iii)	Resettlement and social reports	6
(iv)	Environmental assessment, EIA/IEE/EMP, and categorization	6
(v)	Climate risk and vulnerability assessment	6
(vi)	Design and drawing, specification, and cost estimate	7
(vii)	CPM planning and resources requirement of each contract package	7
(viii)	Draft bidding documents	7
(ix)	Project management report	7
(x)	Final design reports	8
(xi)	Final bidding documents (minimum of 25 sets for each contract package)	8
V	**Detailed Design of Road II**	
(i)	Condition survey reports	2
(ii)	Survey, hydrological, and soil investigation reports	9
(ii)	Resettlement and social reports	10
(iv)	Environmental assessment, EIA/IEE/EMP, and categorization	10
(v)	Climate risk and vulnerability assessment	10
(vi)	Design and drawing, specification, and cost estimate	11
(vii)	CPM planning and resources requirement of each contract package	11
(viii)	Draft bidding documents	11
(ix)	Project management report	11
(x)	Final design reports (minimum of 25 sets for each contract package)	12
(xi)	Final bidding documents	12
VI	**Detailed Design of Road III**	
(i)	Condition survey reports	2
(ii)	Survey, hydrological, and soil investigation reports	13
(ii)	Resettlement and social reports	14
(iv)	Environmental assessment, EIA/IEE/EMP, and categorization	14
(v)	Climate risk and vulnerability assessment	14

No.	Preparatory Outputs	Submission Deadline (No. of Months After the Commencement Date)
(vi)	Baseline wildlife study report	14
(vii)	Design and drawing, specification, and cost estimate	15
(viii)	CPM planning and resources requirement of each contract package	15
(ix)	Draft bidding documents	15
(x)	Project management report	15
(xi)	Final design reports	16
(xii)	Final bidding documents (minimum of 25 sets for each contract package)	16
VII	**Detailed Design of Bridges**	
A	**Design of Minor Bridges**	
(i)	Condition survey reports	2
(ii)	Survey, hydrological, and soil investigation reports	5
(ii)	Resettlement and social reports	6
(iv)	Environmental assessment, EIA/IEE/EMP, and categorization	6
(v)	Climate risk and vulnerability assessment	6
(vi)	Design and drawing, specification, and cost estimate	7
(vii)	CPM planning and resources requirement of each contract package	7
(viii)	Draft bidding documents	7
(ix)	Project management report	7
(x)	Final design reports	8
(xi)	Final bidding documents (minimum of 25 sets for each contract package)	8
B	**Design of Major Bridges**	
(i)	Condition survey reports	2
(ii)	Survey, hydrological, and soil investigation reports	13
(ii)	Resettlement and social reports	14
(iv)	Environmental assessment, EIA/IEE/EMP, and categorization	14
(v)	Climate risk and vulnerability assessment	14
(vi)	Design and drawing, specification, and cost estimate	15
(vii)	CPM planning and resources requirement of each contract package	15
(viii)	Draft bidding documents	15
(ix)	Project management report	15
(x)	Final design reports	18
(xi)	Final bidding documents (minimum of 25 sets for each contract package)	18
VIII	**Design of Road Safety Improvement and Blackspot Elimination in Western Part of East–West Highway**	
(i)	Review of TA report and preparation of master plan	2
(ii)	Survey, hydrological, and soil investigation reports	5
(ii)	Resettlement and social reports	6
(iv)	Environmental assessment, EIA/IEE/EMP, and categorization	6
(v)	Climate risk and vulnerability assessment	6
(vi)	Design and drawing, specification, and cost estimate	7
(vii)	CPM planning and resources requirements of each contract package	7
(viii)	Draft bidding documents	7
(ix)	Project management report	7
(x)	Final design reports	8

No.	Preparatory Outputs	Submission Deadline (No. of Months After the Commencement Date)
(xi)	Final bidding documents (minimum of 25 sets for each contract package)	8
IX	**Other Deliverables**	
(i)	Bid evaluation report	As required
(ii)	Documents and manuals - Contract Administration Manual - Quality Control and Assurance Manual	10
(iii)	Project completion report	22
(iv)	Supply of bidding documents for all contract packages	During bidding for supplying to the bidders in required numbers
(v)	Monthly report	Within 1 week of the end of each calendar month
(vi)	Quarterly report	Within 1 week of the end of each quarter
(vii)	Field report	After the completion of field works
(viii)	Presentations	On each aspect of design of roads and bridges

CPM = critical path method, EIA = environmental impact assessment, EMP = environmental management plan, IEE = initial environmental examination, TA = technical assistance.
Source: Asian Development Bank.

49. The payment schedule for lump sum contract is provided in Annex 5.

F. Consultants' Facilities

50. The consultants will need to provide for themselves all the administrative, technical, and support staff needed to carry out the consulting services. The inputs provided in part 4 of this TOR are the minimum inputs required. If the consultants think that additional inputs are required (e.g., engineers, technical support, administrative support, specialists, etc.), they should propose the additional inputs in their technical proposal and financial proposal. The consultants shall also be responsible for providing all other necessary facilities and logistical support for their staff, including accommodation, transportation, office equipment, communications, utilities, office supplies, and other miscellaneous requirements that are required to complete all the tasks and fulfill the objectives and scope of woks, all of which shall be included in their financial proposal. The specifications of the facilities are set out in Annexes 3 and 4.

G. Data and Assistance to be Provided by the Client

51. The client will provide the consultants with all available studies and reports. Any other studies or reports needed shall be obtained by the consultants themselves.

ANNEX 1
BRIDGES

LIST OF MAIN BRIDGES OF STRATEGIC ROAD NETWORK

S.No.	Bridge Identification	Chainage	Name of Bridge/Khola	Type of Bridge	Bridge Parameter	Location		
					Bridge Length	District	Latitude	Longitude
A. Eastern Development Region								
Mahendra Rajmarg (MRM) (H01)								
2	04/H001/002	1+500	Kali Khola	RCC	26.40	Jhapa	26°38'52.8"	88°08'56.4"
3	04/H001/003	3+440	Pali Khola	RCC	59.00	Jhapa	26°39'00"	88°08'24.0"
4	04/H001/004	5+460	Ninda Khola	RCC	327.00	Jhapa	26°39'36"	88°07'12.0"
5	04/H001/005	6+520	Timai	RCC	74.00	Jhapa	26°39'34.7"	88°05'55.9"
6	04/H001/006	7+840	Nagardubba	RCC	35.20	Jhapa	26°39'22.1"	88°05'9.9"
7	04/H001/007	8+080	Dhukure	RCC	6.90	Jhapa	26°39'18.1"	88°04'48"
8	04/H001/008	8+930	Hadiya	RCC	57.50	Jhapa	26°39'17.1"	88°04'31.7"
9	04/H001/009	90640	Raspandi	RCC	7.10	Jhapa	26°39'12.2"	88°03'51.3"
10	04/H001/010	10+670	Phulbasa	RCC	57.00	Jhapa	26°39'12.9"	88°03'30.9"
11	04/H001/011	13+480	Debniya	RCC	26.30	Jhapa	26°38'59.3"	88°01'51.8"
12	04/H001/012	14+760	Rekha	RCC	35.00	Jhapa	26°38'57.9"	88°01'5.8"
13	04/H001/013	17+720	Aaduwa	RCC	35.00	Jhapa	26°38'33.6"	87°59'23.7"
14	04/H001/014	21+530	Ghagra	RCC	35.00	Jhapa	26°38'27"	87°57'9"
15	04/H001/015	22+950	Biring	RCC	405.50	Jhapa	26°38'25.8"	87°56'17.7"
16	04/H001/016	26+380	Surunga	RCC	33.40	Jhapa	26°38'37.1"	87°54'15.8"
17	04/H001/017	29+530	Kankai	RCC	702.00	Jhapa	26°39'8.7"	87°52'36.1"
18	04/H001/018	31+130	Hundrunge	Vented Pipe	18.30	Jhapa	26°39'31.5"	87°51'45.9"
19	04/H001/019	22+950	Sukhani-1	Vented Pipe	6.30	Jhapa	26°39'29.6"	87°51'14.1"
20	04/H001/020	32+330	Sukhani-2	Vented Pipe	6.10	Jhapa	26°39'26"	87°51'8"
21	04/H001/021	32+530	Sukhani-3	Vented Pipe	7.20	Jhapa	26°39'20.3"	87°51'1.6"
22	04/H001/022	32+830	Bhalu Khola	Vented Pipe	24.20	Jhapa	26°39'15.1"	87°50'55.5"
23	04/H001/023	34+090	Jharana-1	RCC	33.00	Jhapa	26°39'0.7"	87°50'3.5"
24	04/H001/024	34+470	Jharana-2	RCC	33.00	Jhapa	26°38'57.6"	87°49'50.1"
25	04/H001/025	35+170	Dudhe-1	Vented Pipe	15.00	Jhapa	26°38'53.3"	87°49'29.3"
26	04/H001/026	35+230	Dudhe-2	RCC	33.00	Jhapa	26°38'52.0"	87°49'23.6"
27	04/H001/027	36+030	Satasi	RCC	34.40	Jhapa	26°38'44.9"	87°48'55.4"
28	04/H001/028	36+640	Jhiljile	RCC	6.10	Jhapa	26°38'36.5"	87°48'25.7"
29	04/H001/029	39+840	Kamal	RCC	128.00	Jhapa	26°39'1.9"	87°47'6.5"
30	04/h001/030	41+950	Kerakha	RCC	50.00	Jhapa	26°38'55.6"	87°45'56.2"
31	04/H001/031	42+250	Chyangri	RCC	7.10	Jhapa	26°38'58.3"	87°45'43.3"
32	04/H001/032	43+150	Dhangre	Vented Pipe	18.30	Jhapa	26°39'4.7"	87°45'14.1"
33	04/H001/033	45+910	Geuria	Vented Pipe	33.30	Jhapa	26°39'27.4"	87°43'37.8"
34	04/H001/034	47+990	Ratuwa	RCC	585.00	Jhapa	26°39'10.8"	87°42'30"
35	04/H001/035	52+510	Dhardhare	RCC	17.00	Jhapa	26°39'44.2"	87°39'56.3"
36	04/H001/036	52+850	Betani	RCC	33.10	Jhapa	26°39'45.2"	87°39'44.4"
37	04/H001/037	54+150	Bhutre	RCC	7.80	Jhapa	26°39'48.0"	87°38'58.9"
38	04/H001/038	54+750	Mawa	RCC	128.00	Jhapa	26°39'49.6"	87°38'36.1"
39	09/H001/039	55+100	Mawa Branch	RCC	17.00	Morang	26°39'49.8"	87°38'27.11
40	09/H001/040	57+550	Bakra	RCC	319.00	Morang	26°39'48.1"	87°36'56.7"
41	09/H001/041	58+440	Solti	RCC	84.00	Morang	26°39'54.9"	87°36'26.1"
42	09/H001/042	60+480	Sanjhora	RCC	64.05	Morang	26°39'34.6"	87°35'17.5"
43	09/H001/043	63+630	Pathariya	RCC	17.00	Morang	26°39'40"	87°33'24.2"
44	09/H001/044	64+940	Dans	RCC	95.00	Morang	26°39'38.6"	87°32'36.9"
45	09/H001/045	65+620	Morangi	RCC	28.00	Morang	26°39'38.7"	87°32'12.3"
46	09/H001/046	69+930	Chisang-1	RCC	40.00	Morang	26°39'32"	87°29'37"
47	09/H001/047	70+330	Chisang-2	RCC	130.50	Morang	26°39'31.9"	87°29'22.5"
48	09/H001/048	74+530	Chisang Bhangabari	RCC	45.40	Morang	26°39'30"	87°26'51.7"
49	09/H001/049	76+330	Betna	RCC	13.00	Morang	26°39'32"	87°25'47.3"
50	09/H001/050	78+250	Lohendra	RCC	385.20	Morang	26°39'37.5"	87°24'39.1"
51	09/H001/051	79+460	Lalbhitti	RCC	33.08	Morang	26°39'56.8"	87°24'01"
52	09/H001/052	80+570	Sukuna Paini	RCC	21.50	Morang	26°40'6.6"	87°23'23.4"
53	09/H001/053	80+680	Sukuna	RCC	64.26	Morang	26°40'7.1"	87°23'19.4"
54	09/H001/054	82+190	Jharana	RCC	20.00	Morang	26°40'9.4"	87°22'25"
55	09/H001/055	84+660	Madhyali	RCC	10.20	Morang	26°39'43.3"	87°21'1.2"
56	09/H001/056	84+960	Mada	RCC	6.80	Morang	26°39'40.6"	87°20'52.2"

LIST OF MAIN BRIDGES OF STRATEGIC ROAD NETWORK

S.No.	Bridge Identification	Chainage	Name of Bridge/Khola	Type of Bridge	Bridge Parameter	Location		
					Bridge Length	District	Latitude	Longitude
57	09/H001/057	86+270	Malati	RCC	8.70	Morang	26°39'30.5"	87°20'5.4"
58	09/H001/058	87+170	Trijuja Ganeshpur	RCC	7.00	Morang	26°39'30.5"	87°19'36.7"
59	09/H001/059	87+920	Gachhiya	RCC	171.20	Morang	26°39'30.9"	87°19'5.9"
60	09/H001/060	91+050	Budhi	RCC	128.40	Morang	26°39'33.9"	87°17'13.6"
61	10/H001/061	91+970	Tengra	RCC	33.60	Sunsari	26°39'43.2"	87°16'43"
62	10/H001/062	93+030	Kheti	RCC	9.70	Sunsari	26°39'52.1"	87°16'6"
63	10/H001/063	95+950	Devi Khola	RCC	6.70	Sunsari	26°40'20"	87°14'32.5"
64	10/H001/064	97+750	Pakali	RCC	15.50	Sunsari	26°40'41.1"	87°13'24.4"
65	10/H001/065	99+740	Chatara Canal	RCC	21.60	Sunsari	26°40'19.5"	87°12'19.5"
66	10/H001/066	106+140	Jorti	RCC	12.30	Sunsari	26°37'18.1"	87°10'1.4"
67	10/H001/067	111+050	Sunsari	RCC	85.50	Sunsari	26°36'15.8"	87°7'45.2"
68	10/H001/068	113+400	Sukesena	RCC	7.40	Sunsari	26°36'5.6"	87°6'21.7"
69	10/H001/069	116+760	Khuniya	RCC	20.30	Sunsari	26°36'0.7"	87°04'21.3"
70	10/H001/070	118+200	Jharuwa-1	RCC	13.50	Sunsari	26°35'57.2"	87°03'29.6"
71	10/H001/071	118+320	Jharuwa-2	RCC	11.50	Sunsari	26°35'57.2"	87°03'25.1"
72	10/H001/072	120+050	Jamuwa Dhar	RCC	13.50	Sunsari	26°35'53.5"	87°02'23.2"
138	16/H001/138	236+230	Kamala Canal	RCC	16.60	Siraha	26°53'2.0"	86°9'5.0"
139	16/H001/139	237+240	Kamala	RCC	640.00	Siraha	26°52'43.7"	86°8'35.3"
			B. Central Devlopment Region					
			Mahendra Rajmarg (MRM) (H01)					
371	20/H001/140	232+700	Kamala Canal	RCC Slab	70.40	Dhanusha	26º52'44.3"	86º07'50.0"
372	20/H001/141	237+000	Chamnath	RCC	322.00	Dhanusha	26º53'25.9"	86º5'56.9"
373	20/H001/142	244+800	Baluwa	RCC	116.00	Dhanusha	26º53'46.8"	86º3'50.4"
374	20/H001/143	250+500	Jagadav Branch	RCC	26.60	Dhanusha	26º55'3.8"	86º0'50.5"
375	20/H001/144	250+800	Jagadav	RCC	96.00	Dhanusha	26º55'0.7"	86º0'40.9"
376	20/H001/145	252+000	Jalad	RCC	266.00	Dhanusha	26º54'53.7"	85º59'54.9"
377	20/H001/146	254+250	Aurahi	RCC	329.00	Dhanusha	26º55'27.5"	85º58'55"
378	20/H001/147	256+800	Basai	RCC	96.00	Dhanusha	26º55'39.6"	85º57'57.4"
446	33/H001/215	377+400	Amlekhgunj-1	RCCT-beam	61.00	Bara	27º17'27.4"	84º59'25.7"
447	33/H001/216	380+380	Amlekhgunj-2	RCCT-beam	81.40	Bara	27º18'18.6"	84º59'54.6"
448	33/H001/217	382+380	Amlekhgunj-3	RCCT-beam	60.00	Bara	27º19'7.5"	85º0'16.1"
449	33/H001/218	385+850	Amlekhgunj-4	PSC	60.00	Bara	27º19'17.3"	85º0'14.1"
450	33/H001/219	387+800	Badahkim	RCC Slab	27.70	Bara	27º20'6.2"	84º59'42.0"
451	33/H001/220	388+980	Gundo	RCC Slab	67.80	Bara	27º20'36.4"	84º59'35.1"
452	31/H001/221	391+780	Churiya	RCCT-beam	60.00	Makwanpur	27º21'42.1"	85º0'17.6"
453	31/H001/222	392+080	Pakkipul	RCCT-beam	18.00	Makwanpur	27º21'50.0"	85º0'21.2"
454	31/H001/223	392+280	Sansare	RCC	12.58	Makwanpur	27º21'56.1"	85º0'25.4"
455	31/H001/224	392+350	Sayafut	RCC Slab	24.25	Makwanpur	27º22'1.9"	85º0'27.9"
456	31/H001/225	394+850	Karra	PSC	105.00	Makwanpur	27º24'51.3"	85º1'35.2"
457	31/H001/226	397+460	Rapti	PSC	210.00	Makwanpur	27º25'54.5"	85º1'21.8"
458	31/H001/227	425+730	Manahari	PSC	240.00	Makwanpur	27º32'11.6"	84º48'33.8"
459	31/H001/228	437+550	Lothar	PSC	150.00	Makwanpur	27º35'5.8"	84º43'58.8"
460	35/H001/229	438+550	Lothar Branch	RCC Slab	7.20	Chitawan	27º35'13.4"	84º43'11.0"
461	35/H001/230	444+670	Mardar	RCCT-beam	45.00	Chitawan	27º36'5.2"	84º40'10.1"
462	35/H001/231	449+570	Pampha	RCCT-beam	45.00	Chitawan	27º36'17.5"	84º37'15.2"
463	35/H001/232	455+760	Budhi Rapti	RCCT-beam	62.00	Chitawan	27º36'50.5"	84º33'33.7"
464	35/H001/233	458+410	Kair	RCCT-beam	61.60	Chitawan	27º37'4.0"	84º31'58.8"
465	35/H001/234	456+760	Budhi Khola	RCC Slab	15.30	Chitawan	27º37'20.5"	84º30'50.2"
466	35/H001/235	462+940	Khageri-2	RCCT-beam	66.00	Chitawan	27º37'56.8"	84º29'25.7"
467	35/H001/236	463+060	Khageri-1	RCCT-beam	39.00	Chitawan	27º37'58.4"	84º29'21.5"
468	35/H001/237	473+610	Narayani	PSC	420.00	Chitawan	27º41'52.8"	84º25'19.2"

ANNEX 2
PREFERRED QUALIFICATION REQUIREMENTS OF KEY EXPERTS

A. INTERNATIONAL KEY EXPERTS

1.	**Team Leader** (experience of the last 20 years will only be considered)	
i.	**Educational Qualification**	
	Graduate in civil engineering, preferably with master's degree in transport engineering/highway engineering/construction management	
ii.	**Experience**	
	• Total experience	20 years
	• Experience in related field	15 years in road works
	• Experience in the proposed field of expertise	10 years of experience as a team leader (design) and experience in 5 highway projects with approximate size of $3 million
		Experience in wide geographic regions
iii.	**Language**	Communicates fluently in English language

2.	**Senior Highway Engineer** (experience of the last 20 years will only be considered)	
i.	**Educational Qualification**	
	Graduate in civil engineering, preferably with master's degree in transport engineering/highway engineering	
ii.	**Experience**	
	• Total experience	20 years
	• Experience in related field	15 years in road works
	• Experience in the proposed field of expertise	10 years of experience as highway design engineer and experience in 5 projects of similar nature and size (road projects)
		Experience in wide geographic regions
iii.	**Language**	Communicates fluently in English language

3.	**Senior Bridge Design Engineer** (experience of the last 20 years will only be considered)	
i.	**Educational Qualification**	
	Graduate in civil engineering, preferably with master's degree in bridge engineering/structural engineering	
ii.	**Experience**	
	• Total experience	20 years
	• Experience in related field	15 years in bridge engineering/structural engineering works
	• Experience in the proposed field of expertise	10 years of experience as a bridge design engineer and experience with 5 major bridges of similar nature
		Experience in wide geographic regions
iii.	**Language**	Communicates fluently in English language

4.	**Senior Geotechnical Engineer** (experience in the last 20 years will only be considered)	
i.	**Educational Qualification**	
	Graduate in civil engineering, preferably with master's degree in geotechnical engineering/engineering geology	
ii.	**Experience**	
	• Total experience	20 years
	• Experience in related field	15 years in road and bridge works
	• Experience in the proposed field of expertise	10 years of experience as geotechnical engineer and experience in 5 projects of similar nature (road project)
		Experience in wide geographic regions
iii.	**Language**	Communicates fluently in English language

5.	**Senior Procurement Specialist** (experience in the last 20 years will only be considered)	
i.	**Educational Qualification**	
	Graduate in civil engineering, preferably with master's degree in transport engineering/highway engineering/contract management/construction management	
ii.	**Experience**	
	• Total experience	20 years
	• Experience in related field	15 years in similar field
	• Experience in the proposed field of expertise	10 years of experience as procurement specialist with FIDIC documents and experience in 5 projects of similar nature (road projects)
		Experience in wide geographic regions
iii.	**Language**	Communicates fluently in English language

6.	**Senior Transport Economist** (experience of the last 20 years will only be considered)	
i.	**Educational Qualification**	
	Graduate in civil engineering/economics/development economics/transport economics, preferably with master's degree in transport economics	
ii.	**Experience**	
	• Total experience	20 years
	• Experience in related field	15 years as a transport economist
	• Experience in the proposed field of expertise	10 years of experience as a transport economist and experience in 5 projects of similar nature (road projects)
		Experience in wide geographic regions
iii.	**Language**	Communicates fluently in English language

7.	**Senior Road Safety Engineer** (experience of the last 20 years will only be considered)	
i.	**Educational Qualification**	
	Graduate in civil engineering, preferably with master's degree in transport engineering/highway engineering/traffic engineering	
ii.	**Experience**	
	• Total experience	20 years
	• Experience in related field	15 years in road works
	• Experience in the proposed field of expertise	10 years of experience as road safety specialist and experience in 5 projects of similar nature (road projects)
		Experience in wide geographic regions
iii.	**Language**	Communicates fluently in English language

B NATIONAL KEY EXPERTS

1.	**Deputy Team Leader/Highway Engineer** (experience of the last 15 years will only be considered)	
i.	**Educational Qualification**	
	Graduate in civil engineering, preferably with master's degree in transport engineering/highway engineering	
ii.	**Experience**	
	• Total experience	15 years
	• Experience in related field	10 years in road works
	• Experience in the proposed field of expertise	7 years of experience as highway design engineer and experience in 4 projects of similar nature and size (road projects), and with 3 years of experience as deputy team leader
		Experience with international organizations in infrastructure projects
iii.	**Language**	Communicates fluently in English language

2.	**Highway Engineer** (experience of the last 15 years will only be considered)	
i.	**Educational Qualification**	
	Graduate in civil engineering, preferably with master's degree in transport engineering/highway engineering	
ii.	**Experience**	
	• Total experience	15 years
	• Experience in related field	10 years in road works
	• Experience in the proposed field of expertise	7 years of experience as highway design engineer and experience in 4 projects of similar nature and size
		Experience with international organizations in infrastructure projects
iii.	**Language**	Communicates fluently in English language

3.	**Bridge Design Engineer** (experience of the last 15 years will only be considered)	
i.	**Educational Qualification**	
	Graduate in civil engineering, preferably with master's degree in bridge engineering/structural engineering	
ii.	**Experience**	
	• Total experience	15 years
	• Experience in related field	10 years in bridge engineering/structural engineering works
	• Experience in the proposed field of expertise	7 years of experience as a bridge design engineer and experience in design of 4 major bridges
		Experience with international organizations in infrastructure projects
iii.	**Language**	Communicates fluently in English language

4.	**Structural Engineer** (experience of the last 10 years will only be considered)	
i.	**Educational Qualification**	
	Graduate in civil engineering, preferably with master's degree in bridge engineering/structural engineering	
ii.	**Experience**	
	• Total experience	10 years
	• Experience in related field	8 years in bridge engineering/structural engineering works
	• Experience in the proposed field of expertise	6 years of experience as a structural engineer and experience in 3 projects of similar nature (road works)
		Experience with international organizations in infrastructure projects
iii.	**Language**	Communicates fluently in English language

5.	**Geotechnical Engineer** (experience in the last 10 years will only be considered)	
i.	**Educational Qualification**	
	Graduate in civil engineering, preferably with master's degree in geotechnical engineering/engineering geology	
ii.	**Experience**	
	• Total experience	10 years
	• Experience in related field	8 years as a geotechnical specialist in road works
	• Experience in the proposed field of expertise	6 years of experience as a geotechnical engineer/engineer geologist and experience in 3 projects of similar nature (road projects)
		Experience with international organizations in infrastructure projects
iii.	**Language**	Communicates fluently in English language

6.	**Materials Engineer /Pavement Engineer** (experience in the last 10 years will only be considered)	
i.	**Educational Qualification**	
	Graduate in civil engineering, preferably with master's degree in highway engineering/geotechnical engineering/engineering geology	
ii.	**Experience**	
	• Total experience	10 years
	• Experience in related field	8 years in road works
	• Experience in the proposed field of expertise	6 years of experience as a materials engineer/pavement engineer/geotechnical engineer/geological engineer and experience in 3 projects of similar size and nature (road projects)
		Experience with international organizations in infrastructure projects
iii.	**Language**	Communicates fluently in English language

7.	**Road Safety/Traffic Engineer** (experience of the last 10 years will only be considered)	
i.	**Educational Qualification**	
	Graduate in civil engineering, preferably with master's degree in highway/traffic engineering	
ii.	**Experience**	
	• Total experience	10 years
	• Experience in related field	8 years in road works
	• Experience in the proposed field of expertise	6 years of experience as a road safety/traffic engineer and experience in 3 projects of similar size and nature (road projects)
		Experience with international organizations in infrastructure projects
iii.	**Language**	Communicates fluently in English language

8.	**Hydrologist** (experience of the last 10 years will only be considered)	
i.	**Educational Qualification**	
	Graduate in hydrology/engineering hydrology/civil engineering, preferably with master's degree in Hydrology	
ii.	**Experience**	
	• Total experience	10 years
	• Experience in related field	8 years as a hydrologist
	• Experience in the proposed field of expertise	6 years of experience as a hydrologist and experience in 3 projects of similar size and nature (road projects)
		Experience with international organizations in infrastructure projects
iii.	**Language**	Communicates fluently in English language

9.	**Procurement Specialist** (experience of the last 10 years will only be considered)	
i.	**Educational Qualification**	
	Graduate in civil engineering preferably with master's degree in transport engineering/highway engineering/contract management/construction management	
ii.	**Experience**	
	• Total experience	10 years
	• Experience in related field	8 years in similar sector
	• Experience in the proposed field of expertise	7 years of experience in the relevant field, with expertise and experience in 3 projects of similar nature (road projects)
		Experience with international organizations in infrastructure projects
iii.	**Language**	Communicates fluently in English language

10.	**Transport Economist** (experience of the last 10 years will only be considered)	
i.	**Educational Qualification**	
	Graduate in civil engineering/economics/development economics/transport economics, preferably with master's degree in transport economics related field	
ii.	**Experience**	
	• Total experience	10 years
	• Experience in related field	7 years in road projects
	• Experience in the proposed field of expertise	5 years of experience in the relevant field, with expertise and experience in 3 projects of similar nature (road projects)
		Experience with international organizations in infrastructure projects
iii.	**Language**	Communicates fluently in English language

11.	**Environment Specialist** (experience of the last 10 years will only be considered)	
i.	**Educational Qualification**	
	Graduate in civil engineering preferably with master's degree in environmental engineering/environmental science	
ii.	**Experience**	
	• Total experience	10 years
	• Experience in related field	7 years as an environmental specialist in road works
	• Experience in the proposed field of expertise	6 years of experience as an environmental specialist and experience in 3 projects of similar nature (road Projects)
		Experience with international organizations in infrastructure projects
iii.	**Language**	Communicates fluently in English language

12.	**Social Development/Resettlement Specialist** (experience of the last 10 years will only be considered)	
i.	**Educational Qualification**	
	Graduate in social science, preferably with master's degree in social science	
ii.	**Experience**	
	• Total experience	10 years
	• Experience in related field	7 years in similar sector
	• Experience in the proposed field of expertise	6 years of experience as social development specialist/resettlement specialist/livelihood specialist and experience in 3 projects of similar nature (road projects)
		Experience with international organizations in infrastructure projects
iii.	**Language**	Communicates fluently in English language

13.	**Electrical Engineer**	
i.	**Educational Qualification**	
	Graduate in electrical engineering, preferably with master's degree in electrical engineering	
ii.	**Experience**	
	• Total experience	15 years
	• Experience in related field	10 years in similar sector
	• Experience in the proposed field of expertise	10 years of experience as electrical engineer
		Experience with international organizations
iii.	**Language**	Communicates fluently in English language

14.	**Environmental Engineer**	
i.	**Educational Qualification**	
	Graduate in civil engineering, preferably with master's degree in environmental engineering/environmental science	
ii.	**Experience**	
	• Total experience	8 years
	• Experience in related field	6 years in similar sector
	• Experience in the proposed field of expertise	3 years of experience as environmental engineer
		Experience with international organizations in infrastructure projects
iii.	**Language**	Communicates fluently in English language

15.	**Road Safety Engineer**	
i.	**Educational Qualification**	
	• Graduate in civil engineering, preferably with master's degree in civil engineering/transport engineering/highway engineering • Obtained training from South Asia Subregional Economic Cooperation Highway Improvement Project (SHIP) TA consultant on road safety	
ii.	**Experience**	
	• Total experience	15 years
	• Experience in related field	10 years in similar sector
	• Experience in the proposed field of expertise	10 years of experience as electrical engineer
		Experience with international organizations
iii.	**Language**	Communicates fluently in English language

16.	**Cadastral Surveyor**	
i.	**Educational Qualification**	
	Graduate in surveying, preferably with master's degree in surveying or equivalent	
ii.	**Experience**	
	• Total experience	8 years
	• Experience in related field	6 years in similar sector
	• Experience in the proposed field of expertise	3 years of experience as cadastral surveyor for road works
		Experience with international organizations in infrastructure projects
iii.	**Language**	Communicates fluently in English language

17.	**Social and Resettlement Officer**	
i.	**Educational Qualification**	
	Graduate in social field, preferably with master's degree in related field	
ii.	**Experience**	
	• Total experience	8 years
	• Experience in related field	6 years in road sector
	• Experience in the proposed field of expertise	3 years of experience in social/resettlement/gender related fields
		Experience with international organizations in infrastructure projects
iii.	**Language**	Communicates fluently in English language

18.	**On-the-Job Trainee Engineer**

i.	**Educational Qualification**	
	• Freshly passed as civil engineer • Appeared in final exam of BE Civil Engineering without any backlogs in previous semester/year's exams	
ii.	**Language**	Communicates fluently in English language

ANNEX 3
OFFICES

H. Provision of Offices and Accommodation for the Consultant

1. General Requirements

1. The consultant shall acquire and provide office space at Kathmandu within a radius of 2 kilometers (km) of the Project Directorate office. The consultant shall provide furniture, fittings, equipment, and materials to ensure fully functioning and usable facilities and to provide the consultant's staff with the necessary resources for the administration, detailed study, and reporting of the works.

2. Offices shall be designated as Office Type 1.

(xvii)

3. The complete office facilities shall include the provisions of the land, covered parking facilities for vehicles, rental of the buildings, and all other necessary appurtenances such as drainage systems, fences, utilities, etc.

4. After providing the offices and equipment, the consultant shall maintain them for the duration of the consulting service.

2. Services

5. The consultant shall arrange, where possible, for the connection of water mains, drainage and sewerage, and mains electricity to all offices, which shall be functional at all times. In circumstances where the location of the offices makes such connections impracticable, the consultant shall provide and operate generators to supply adequate power and pumps to supply water from wells or storage tanks, with regular deliveries of potable water and sewage disposal facilities, which conform in full to the requirements for sewage disposal facilities. A standby generator with fuel of appropriate capacity shall be provided to the office for use during load shedding and power failure.

6. Telephone services, including at least two direct lines and three mobile phones, shall be provided for Office Type 1.

3. Rented Premises

7. Before rented accommodation is approved, the employer must be satisfied that the location is suitable, that the property proposed shall be available for the required duration, and that the layout of the property is functionally equivalent to the requirements.

4. Office and Accommodation Buildings

8. The office buildings shall have the rooms described in Table 1.1 below as a minimum.

Table 1.1: Office Room Requirements

Room Requirements	Office Type 1	
	No. of Rooms	Area
Senior Highway Engineer/Team Leader	1	Total floor area shall not be less than 500 sqm
Intermittent Professionals (International)	3	
Highway Engineer/Traffic Engineer	2	
Bridge/Structural Engineer	1	
Geotechnical Engineer/Tunnel Engineer	1	
Materials Engineer/Pavement Engineer	1	
Hydrologist/ Drainage Engineer	1	
Procurement Specialist	1	
Other Professionals (National)	2	
Office Manager/Accountant	1	
Office Secretary/Administrator	1	
Conference Room	1	
Toilet	3	
Store Room	1	
Kitchen	1	
Covered Parking Space/Vehicles	8 Vehicles	

9. Each room, and the conference room and the kitchen, shall be provided with at least 3 x 15 amp power outlets. Each office room and kitchen shall be fitted with adequate light fittings. Additionally, table lamps and desk lights shall be provided as required. External lighting shall be provided to give adequate illumination of the whole area surrounding the building and covered parking spaces. Each toilet shall be fitted with a wash basin with running water.

5. Furnishings and Equipment

10. The consultant shall provide sufficient fittings, furnishings, and equipment for the smooth running of the office. The provision of fittings, furnishings, and equipment shall be such that there is no difficulty or obstruction in fulfilling all the requirements of the terms of reference (TOR).

11. In the event the consultant fails to deliver the outputs as mentioned in the TOR in a timely manner, the payment for that period shall be deducted.

I. Office Accommodation and Provision of Supplies

1. General Requirements

12. The consultant shall maintain in good, decorative, and working order all the buildings and the contents thereof installed under the consultancy service. The consultant shall be responsible for supplying all power, water, and telephone services to all the offices. A standby generator or equivalent equipment of appropriate capacity is required on each office to have continuous supply of power during load shedding and power failure.

13. The maintenance of the consultant's offices shall include daily cleaning and provision of toilet materials.

14. The consultant shall provide adequate security to guard and secure the buildings on a 24-hours per day basis.

15. A wireless internet facility shall be provided at every office to facilitate the transmission of project data and information.

J. Furniture and Office Equipment for the Consultant

16. Each room shall be fitted with adequate light fittings, ceiling fans with regulators, and two electric 5A outlets with ground connection. The kitchens shall have at least two 5A and one 15A electric outlets.

17. The office shall have two outside telephone lines: one shall be provided for the exclusive use of the chief officer in charge of the office, and the other line will be provided with necessary extensions for use in the various offices.

18. The consultant shall arrange for the offices to be connected with each other by an intercommunications telephone system to facilitate communications between the consultant's staff.

19. The consultant shall supply and keep replenished all consumable items.

K. Furniture and Office Equipment for the Consultant's Staff

20. The furniture and equipment to be supplied and installed in the offices shall be new and of acceptable quality.

21. The furniture may be steel, aluminium, wood, or a combination of these. The consultant should forward details of the items he/she intends to supply and obtain prior approval from the employer.

ANNEX 4
VEHICLES

A. Vehicles for the Consultant

1. The type of vehicles the consultants are required to provide for their use shall be as follows:

S. No.	Vehicle Type	Nos. to be Supplied	Description of Specifications
1	Type 1	2	New, or nearly new, 5- or 6-door station wagon (including 1 or 2 rear doors) with a diesel engine of at least 2.2 liter capacity, 4-wheel drive, high and low ratio gear box with differential lock, minimum ground clearance (unladen) of 180 mm, airbags, air-conditioner, cloth seats, seat belts, locking fuel cap, spare wheel, tool kit, tow rope, jump leads, fire extinguisher, and first aid kit.
2	Type 2	5	New, or nearly new, “double cab“ pick-up with a diesel engine of at least 2.0 liter capacity, 4-wheel drive, airbags, air-conditioner, cloth seats, seat belts, locking fuel cap, spare wheel, tool kit, tow rope, jump leads, fire extinguisher, and first aid kit.
3	Type 3	3	New “off road” motorcycle with a 4-stroke engine of at least 150 cc equipped with panniers and spare tool kit. Included shall be a motor cycle safety helmet meeting the Nepal Road Safety specifications.

2. The consultant may propose for additional vehicles, if necessary, in their financial proposal.

3. “Nearly new” means less than 5 years old and with less than 50,000 km travelled and in general good condition.

4. All vehicles shall be fully insured throughout the project period.

5. Payment shall be made only to those vehicles which conform to the specifications.

ANNEX 5
TENTATIVE PAYMENT SCHEDULE (LUMP SUM CONTRACT)

Installments	Description	Payment	Advance Deduction	Net Payment	Remarks
1	Mobilization Advance	15%	-	15%	
2	Submission of Inception Report	5%	20%	4%	
3	Approval of Inception Report	5%	20%	4%	
	Resettlement and social report of the following:				
4	(a) Road I	8%	20%	6.4%	Sub-division to be proposed by consultant and agreed during negotiations
5	(b) Road II				
6	(c) Road III				
7	(d) Bridges				
8	(e) Road Safety and Blackspot Elimination				
	Environmental report of the following:				
9	(a) Road I	8%	20%	6.4%	Sub-division to be proposed by consultant and agreed during negotiations
10	(b) Road II				
11	(c) Road III				
12	(d) Bridges				
13	(e) Road Safety and Blackspot Elimination				
	Detailed design of Road I				
14	Submission of Draft Design	5%	20%	4%	
15	After approval of design and submission of design, drawings, bid documents as per TOR	5%	20%	4%	
	Detailed design of Road II				
16	Submission of Draft Design	3%	20%	2.4%	
17	After approval of design and submission of design, drawings, bid documents as per TOR	3%	20%	2.4%	
	Detailed design of Road III				
18	Submission of Draft Design	6%	20%	4.8%	
19	After approval of design and submission of design, drawings, bid documents as per TOR	6%	20%	4.8%	
	Detailed design of road safety and blackspot elimination				
20	Submission of Draft Design	1%	20%	0.8%	
21	After approval of design and submission of design, drawings, bid documents as per TOR	3%	20%	2.4%	
	Detailed design of bridges				
22	Submission of Draft Design	11%	20%	8.8%	
23	After approval of design and submission of design, drawings, bid documents as per TOR	11%	Remaining Mobilization advance	9.8%	
24	After successful completion of the project and fulfilment of all required tasks in TOR and submission of project completion report	20%		20%	
	TOTAL	**115%**	**15%**	**100%**	

TOR = terms of reference.

OUTLINE TERMS OF REFERENCE FOR PROJECT MANAGEMENT CONSULTANTS (INDIVIDUAL) AND CONTRACT MANAGEMENT SPECIALISTS (INTERNATIONAL AND NATIONAL)

A. Objective

1. The main objective of the consulting services is to assist the Project Directorate (Asian Development Bank) of the Department of Roads (DOR) in managing, overseeing, and monitoring the implementation of the South Asia Subregional Economic Cooperation Highway Improvement Project and develop project management capability. The consulting services will also assist in institutional development and capacity building.

2. Components include the following:

(i) Assist the DOR, Project Directorate (ADB), which handles ongoing ADB projects, to manage and oversee the project.
(ii) Assist the project managers to manage and oversee their contract-specific programs and progress.
(iii) Assist the DOR, Project Directorate (ADB) and project managers in implementing the international competitive bidding contracts (civil works and consulting services).
(iv) Assist in project monitoring and evaluation.

B. Scope of Works

3. The consultants shall be responsible for, but not limited to, the following:

(i) Oversee and manage the project components on behalf of the DOR, Project Directorate (ADB).
(ii) Work closely with the DOR, Project Directorate (ADB) in executing the management role over the project.
(iii) Monitor and report on project progress (physical and financial).
(iv) Monitor and check the works carried out by the construction supervision consultants (CSC) in compliance with the terms of reference of their respective contracts.
(v) Review and approve all project documentation produced by the CSC prior to their submission to ADB and/or use on the project.
(vi) Assist the DOR, Project Directorate (ADB) in the implementation of consultancy services and civil works contracts as per the respective contract documents.
(vii) Assist in reviewing and checking assessments of variations, time extensions, rate determination, and other determinations done by the CSC.
(viii) Assist in dispute resolution.
(ix) Review and update the CSCs following the manuals and reports.
(x) Review and update the Consultants' Implementation Manual.
(xi) Review and update the contract administration and construction manual.
(xii) Review and update the quality control and assurance manual.
(xiii) Review and update the laboratory manual.
(xiv) Review and update the environmental monitoring checklist.
(xv) Review and update the project performance management system.
(xvi) Review the CSCs' proactivity, and control and approval procedures.

(xvii) Review the adequacy of the materials laboratory with respect to specifications and international practice.
(xviii) Review the CSC's site communications.
(xix) Review the CSC's knowledge of the contract.
(xx) Review the CSC's quality of supervision and the quality of work completed.
(xxi) Monitor whether the CSC is ensuring implementation of the contractor's appropriate methods of work.
(xxii) Monitor whether the CSC is ensuring that contractor's materials are compliant with specifications.
(xxiii) Monitor whether the CSC is recording the contractor's site organization, site management, and daily diaries.
(xxiv) Review and monitor whether the CSC is ensuring contractor's quality assurance procedure, work quality, and details of the construction program.
(xxv) Monitor whether the CSC is ensuring contractor's site safety.
(xxvi) Check whether the works are constructed as per design, drawings, and specifications, and assess the construction quality of the works.
(xxvii) Analyze the effectiveness of procedures and processes of subproject implementation from the initial phase.
(xxviii) Identify the problems faced by each stakeholder in fulfilling their roles in the implementation of the subproject.
(xxix) Assess whether record-keeping of different construction materials and labor used, equipment, etc. is maintained.
(xxx) Check whether drawings are prepared as per built subprojects with details of all structures.
(xxxi) Based on the findings of the study and observations made in the field, recommend ways on how to improve the performance of each of the parties involved in the implementation of the programs.
(xxxii) Train the project implementation unit staff in project management, contract supervision, project coordination, and auditing.
(xxxiii) Assist in internal and external audit and compliance with procedures.

C. Qualifications of International Consultants

Education	Minimum of bachelor's degree in civil engineering, preferably with postgraduate degree in highways, transportation, structural engineering, construction management or equivalent, with membership in an institution
Total professional experience	20 years minimum
Experience in highway projects	He/she must have worked as contract specialist in contract administration for at least 6 years on large highway or road construction contracts.
Project experience working on overseas highway/bridge construction projects	At least 2 projects costing over $30 million each under FIDIC conditions. Must have experience in assessment of extension of time and cost claims, and other contractual claims and disputes under FIDIC conditions.

D. Qualifications of National Consultants

Education	Minimum of bachelor's degree in civil engineering, preferably with postgraduate degree in highways, transportation, structural engineering, construction management or equivalent, with membership in an institution
Total professional experience	10 years minimum
Experience in highway projects	He/she must have worked as contract specialist in contract administration for at least 3 years on highway or road construction contracts.
Project experience working on overseas highway/bridge construction projects	At least 1 project costing over $10 million under FIDIC conditions. Must have experience in assessment of extension of time and cost claims, and other contractual claims and disputes under FIDIC conditions.

OUTLINE TERMS OF REFERENCE FOR ROAD ASSET MANAGEMENT SPECIALIST (NATIONAL)

A. Objective

1. The objective of the consulting service is to assist the Project Directorate (Asian Development Bank [ADB]) of the Department of Roads (DOR), which handles ongoing ADB projects, in data collection and analysis for implementing the road asset management component of the South Asia Subregional Economic Cooperation Highway Improvement Project.

B. Detailed Scope and Reporting Requirements

2. The consultant shall be responsible for, but not limited to, the following:

(i) Collect, encode, clean, and analyze road data to support the implementation of the road asset management system.
(ii) Review available data and economic analysis of the project roads prepared by the detailed design consultant to ensure the quality of the consultant's study.
(iii) Assess assumptions used for economic analysis; consider possible design alternatives; and update traffic data, traffic forecasting, and cost estimates, as required. Prepare an economic evaluation of the proposed projects following ADB's Guidelines for the Economic Analysis of Projects covering the key areas of economic analysis indicated in ADB's Key Areas of Economic Analysis of Projects–An Overview.
(iv) Develop a project impact monitoring framework and carry out a socioeconomic baseline survey for the project road.

3. **Report**. The consultant will submit a monthly report to the Project Director describing his/her tasks performed, including the findings and suggested remedial measures for improvement.

C. Required Expertise

4. The consultant should have at least 3 years of relevant experience in the transport sector covering data collection, data processing, feasibility study, engineering design, and economic analysis. He/she should be proficient in using MS Office software packages, the highway development model 4 (HDM-4), and economic analysis application. Preference will be for the candidate with experience in working on projects financed by international development agencies.

TERMS OF REFERENCE FOR ENVIRONMENT SAFEGUARD SPECIALIST (NATIONAL)

A. Objectives

1. The objective of the consulting service is to assist the Project Directorate (Asian Development Bank [ADB]) of the Department of Roads (DOR), which handles ongoing ADB projects, in all aspects of the environmental safeguard requirements of ADB and the Government of Nepal. The consultant shall also conduct periodic monitoring of implementation of the initial environmental examination, environmental impact assessment, and environmental management plan(s).

B. Scope of Work

2. Specific tasks of the expert include the following:

(i) Review the existing initial environmental examination (IEE) and environmental impact assessment (EIA) reports prepared by or revised by design consultants and/or construction supervision consultants, and monitor their implementation.
(ii) Review and finalize the IEE or EIA for roads to be proposed to ADB for financing.
(iii) Review the quarterly and periodic reports prepared by the CSC environmental expert in relation to the abovementioned activities in both EIA and IEE.
(iv) Conduct inspection visits to verify the information presented in the abovementioned reports for all roads and review the performance and progress of works under each activity.
(v) Consult with the people of the local community and other relevant stakeholders to verify local community participation in the activities and to get feedback.
(vi) Rate the progress and success of each activity as per the objectives stated in the EIA and IEE reports.
(vii) Identify problems or bottlenecks, if any, that may affect the successful outcome of the planned activities and provide recommendations to solve the problems.
(viii) Prepare a biannual monitoring report based on the findings of the site visits, report review, and consultations.
(ix) Assist the DOR, Project Directorate (ADB) in securing the environmental and forest clearances for all road subprojects through the following:
    a. Represent the DOR, Project Directorate (ADB) in all meetings with the environment and forest authorities, including public hearings and technical presentations.
    b. Revise all reports and prepare all applications in compliance with the requirements to secure the clearances.
    c. Actively engage the authorities to expedite the issuance of clearances.
    d. Submit meeting highlights and identify actions to be taken by the DOR, Project Directorate (ADB).
    e. Prepare a permit guide for contractors that enumerate the needed local permits, provide brief descriptions, compile needed forms, provide Gantt/flow chart of activities to be taken, and identify responsible agencies and timelines.
(x) Review the reports submitted by consultants recruited by the DOR, Project Directorate (ADB), and finalize the safeguard documents.

C. Expected Outputs

(i) Conduct site inspection once every 3 months for all the roads and prepare the biannual monitoring reports.
(ii) Six copies of the monitoring report should be submitted in the prescribed format.
(iii) Submit recommendations and technical advice for delivery of successful results of the biodiversity conservation activities and environmental mitigation.
(iv) Update IEE and EIA reports based on the comments of the geo-environment and social unit (GESU).
(v) Secure environmental clearances for all subprojects.
(vi) Secure forest clearances for all subprojects.
(vii) Prepare the permit guide for contractors as specified under 2.ix.e above.
(viii) Report on the highlights of meetings and the recommended actions to be taken by the DOR, Project Directorate (ADB).
(ix) Present the prepared documents and reports to the DOR, Project Directorate (ADB) and to ADB as well. The individual consultant shall present the overall status of the environmental safeguards in road work implementation as and when required to the DOR, Project Directorate (ADB).

D. Estimated Person-Months

3. The individual consultant will be required to render service for 48 months. The assignment is expected to commence in September 2019.

E. Qualification Requirements

Education	Graduate of civil engineering or environmental engineering, preferably with master's degree in environmental engineering or environmental science
Total professional experience	15 years, with 10 years in similar sector, and 5 years in road works
Experience in highway projects	Minimum experience in two road projects as environment specialist or in bioengineering
Language	Communicates fluently in English

TERMS OF REFERENCE FOR SOCIAL SAFEGUARD SPECIALIST (NATIONAL)

A. Objectives

1. The objective of this consulting service is to assist the Project Directorate (Asian Development Bank [ADB]) of the Department of Roads (DOR), which handles ongoing ADB projects, in all aspects of social safeguard requirements of ADB and the Government of Nepal. The consultant shall also conduct periodic monitoring of resettlement and livelihood activities, HIV/AID awareness and anti-trafficking prevention, and gender and child labor awareness program (hereinafter referred to as social program), and verify the successful completion of resettlement activities and the social program carried out by construction supervision consultants (CSC).

B. Scope of Work

2. Specific tasks of the expert are the following:

(i) Undertake all the activities for social safeguard requirements.
(ii) Review the resettlement and social safeguard documents prepared by the design and construction supervision consultants.
(iii) Review and verify the progress in resettlement implementation as outlined in the resettlement plan and social program.
(iv) Monitor the effectiveness and efficiency of the project office, and the construction supervision consultants in resettlement plan/social program implementation.
(v) Assess whether the resettlement and social program objectives, particularly livelihoods and living standards of the displaced persons, have been restored or enhanced.
(vi) Assess the resettlement and social programs (HIV/AIDs, human trafficking, gender and child labor), particularly in terms of efficiency, effectiveness, impact, and sustainability, drawing on policy and practices, and suggest corrective measures, if required.
(vii) Monitor the compliance of the civil works contractor with the provisions on health, sanitation, and appropriate working conditions as stipulated in the civil works contract agreement.
(viii) Assist the DOR, Project Directorate (ADB) in implementing social safeguards in the road projects.
(ix) Visit each road section when payments of compensation and resettlement, and the social program, have been completed and review the results of internal monitoring. Verification will be assessed through random checking of 10% of affected households at field level to assess whether land acquisition, resettlement, and social program objectives have generally been met. The consultant will involve the affected people and community groups in assessing the impact of land acquisition and the social program for monitoring and evaluation purposes through participatory community meetings.
(x) Identify the strengths and weaknesses of the land acquisition, resettlement, and social program objectives and approaches, and implementation strategies.
(xi) Review and verify progress in the resettlement and social program implementation of each subproject road on a sample basis and prepare biannual and annual reports for the DOR, the Government of Nepal, and ADB after the commencement of resettlement plans and social program activities.

(xii) Make monitoring visits to each road section to assess ongoing progress and produce a monitoring report. These visits will coordinate with the internal monitoring activities of CSCs with displaced persons and involve special attention to monitoring impacts on women displaced persons and other vulnerable groups of displaced persons.
(xiii) The consultant will be responsible for overall monitoring of the executing and implementing agencies and will submit reports direct to ADB with a copy to the DOR, and determine whether resettlement and social program goals have been achieved and whether livelihoods and living standards have been restored or enhanced, and suggest recommendations for improvement.
(xiv) Assess the effectiveness and results achieved for the livelihood restoration program and house rebuilding sites.
(xv) Liaise with the CSC over monitoring activities and review the effectiveness of the CSC in resettlement plans and social program implementation.
(xvi) Monitor and evaluate implementation of resettlement plans, social program, and the civil works contractor's compliance with provisions on health, sanitation, and appropriate working conditions once in a 6-month period and provide feedback to the implementing agency and ADB.
(xvii) Undertake preparedness check and periodic compliance check, visit the project sites, and work closely with the consultants, NGOs, contractors, communities, and project staff; get relevant information on social issues and safeguard practices; maintain and update the information in relation to compensation, resettlement, and rehabilitation assistance.
(xviii) Assist the DOR, Project Directorate (ADB) in coordinating with other agencies toward raising awareness on social safeguard measures in road projects, and disseminate information on the social aspects of road development among various stakeholders vis-a-vis donors, projects, government bodies, affected communities, etc.
(xix) Review the reports submitted by consultants recruited by the DOR, Project Directorate (ADB) and finalize the safeguard documents.

C. Outputs

(i) Conduct site inspection once every 3 months for all the roads and prepare biannual monitoring reports.
(ii) Six copies of the monitoring report should be submitted in the prescribed format.
(iii) Submit recommendations and technical advice for delivery of successful results of the social safeguard activities.
(iv) Update the resettlement plan, social action program, indigenous peoples plan reports based on the comments of the GESU and ADB.
(v) Provide assistance in compensation determination and its disbursement monitoring.
(vi) Review proposed livelihood trainings and make recommendations.
(vii) Report on meeting highlights and the recommended actions to be taken by the DOR, Project Directorate (ADB).
(viii) The consultant is required to describe any outstanding actions that are required to bring the resettlement activities in line with the resettlement policy and the resettlement plan, and describe further mitigation measures needed to meet the needs of any affected persons or families judged and/or perceiving themselves to be worse off as a result of the project.
(ix) Prepare reports and documents for presentation to the DOR, Project Directorate

(ADB) and to ADB as well. The individual consultant shall present the overall status of the social safeguards in road work implementation as and when required to the DOR, Project Directorate (ADB).

D. Estimated Person-Months

3. The services of the individual consultant will be required for 48 months of intermittent inputs over 5 years. The assignment is expected to commence in June 2019.

E. Qualification Requirements

Education	Graduate of social science, preferably with master's degree in social science
Total experience	15 years, with 10 years in similar sector
Experience in the field of expertise	5 years of experience as social development specialist or resettlement specialist, and minimum experience in two road projects
Language	Communicates fluently in English

TERMS OF REFERENCE
FOR SOCIAL SAFEGUARD SPECIALIST

A. Objectives

1. The objective of this consulting service is to assist the Project Directorate (Asian Development Bank [ADB]) of the Department of Roads (DOR), which handles ongoing ADB projects, in all aspects of the social safeguard requirements of ADB and the Government of Nepal. The consultant shall also conduct periodic monitoring of resettlement and livelihood activities, HIV/AIDS awareness and anti-trafficking prevention, gender and child labor awareness program (hereinafter referred to as the social program), and verify the successful completion of resettlement activities and the social program carried out by construction supervision consultants (CSC).

B. Scope of Work

2. Specific tasks of the expert are the following:

(i) Undertake all activities for social safeguard requirements.
(ii) Review the resettlement and social safeguard documents prepared by the design and construction supervision consultants.
(iii) Review and verify the progress in resettlement implementation as outlined in the resettlement plan and social program.
(iv) Monitor the effectiveness and efficiency of the project office and CSCs in resettlement plan and social program implementation.
(v) Assess whether the resettlement and social program objectives, particularly livelihoods and living standards of the displaced persons, have been restored or enhanced.
(vi) Assess the resettlement plan and social program (HIV/AIDs, human trafficking, gender, and child labor), particularly their efficiency, effectiveness, impact, and sustainability, drawing on policy and practices, and suggest corrective measures, if required.
(vii) Monitor the compliance of the civil works contractor with the provisions on health, sanitation, and appropriate working conditions as stipulated in the civil works contract agreement.
(viii) Assist the DOR, Project Directorate (ADB) in the implementation of social safeguards in the road projects.
(ix) The consultant will visit each road section when payments for compensation and resettlement, and the social program, have been completed, and review the results of internal monitoring. Verification will be assessed through random checking of 10% of affected households at field level to assess whether land acquisition, resettlement, and social program objectives have generally been met. The consultant will involve the affected people and community groups in assessing the impact of land acquisition and social program for monitoring and evaluation purposes through participatory community meetings.
(x) Identify the strengths and weaknesses of the land acquisition, resettlement, and social program objectives and approaches, and implementation strategies.
(xi) Review and verify progress in the resettlement plan and social program implementation of each subproject road on a sample basis, and prepare biannual and annual reports for the DOR, the Government of Nepal, and ADB after the commencement of resettlement plans and social program activities.

(xii) The consultant must make monitoring visits to each road section to assess ongoing progress and produce a monitoring report. These visits will coordinate with the internal monitoring activities of CSCs with displaced persons and involve special attention to monitoring impacts on women displaced persons and other vulnerable groups of displaced persons.

(xiii) The consultant will be responsible for overall monitoring of the executing and implementing agencies and will submit reports direct to ADB with a copy to the DOR, and determine whether resettlement and social program goals have been achieved and whether livelihoods and living standards have been restored or enhanced, and suggest recommendations for improvement.

(xiv) Assess the effectiveness and results achieved for the livelihood restoration program and house rebuilding sites.

(xv) Liaise with the CSC over monitoring activities and review the effectiveness of the CSC in resettlement plan and social program implementation.

(xvi) Monitor and evaluate the implementation of the resettlement plan, social program, and the civil works contractor's compliance with provisions on health, sanitation, and appropriate working conditions once in a 6-month period and provide feedback to the implementing agency and ADB.

(xvii) Undertake preparedness check and periodic compliance check, visit the project sites, and work closely with the consultants, NGOs, contractors, communities, and project staff; get relevant information on social issues and safeguard practices; maintain and update the information relating to compensation, resettlement, and rehabilitation assistance.

(xviii) Assist the DOR, Project Directorate (ADB) in coordinating with other agencies toward raising awareness on social safeguard measures in road projects, and disseminate information on social aspects of road development among various stakeholders vis-a-vis donors, projects, government bodies, affected communities, etc.

(xix) Review the reports submitted by consultants recruited by the DOR, Project Directorate (ADB) and finalize the safeguard documents.

C. Outputs

(i) Conduct site inspection once every 3 months for all the roads and prepare biannual monitoring reports.

(ii) Six copies of the monitoring report should be submitted in the prescribed format.

(iii) Submit recommendations and technical advice for delivery of successful results of the social safeguard activities.

(iv) Update the resettlement plan, social action program, indigenous peoples plan reports based on the comments of the geo-environment and social unit and ADB.

(v) Assist in compensation determination and its disbursement monitoring.

(vi) Review proposed livelihood trainings and recommendations.

(vii) Report on meeting highlights and recommended actions to be taken by the DOR, Project Directorate (ADB).

(viii) The consultant is required to describe any outstanding actions that are required to bring the resettlement activities in line with the resettlement policy and the resettlement plan, and describe further mitigation measures needed to meet the needs of any affected persons or families judged and/or perceiving themselves to be worse off as a result of the project.

(ix) Prepare reports and documents for presentation to the DOR, Project Directorate (ADB) and to ADB as well. The individual consultant shall present the overall status

of the social safeguards in road work implementation as and when required to the DOR, Project Directorate (ADB).

D. Estimated Person-Months

3. The individual consultant will be required to render service for 48 months of intermittent inputs over 5 years. The assignment is expected to commence in June 2019.

E. Qualification Requirements

Education	Graduate of social science, preferably with master's degree in social science
Total experience	15 years, with 10 years in similar sector
Experience in the proposed field of expertise	5 years of experience as social development specialist or resettlement specialist, and minimum experience in two road projects
Language	Communicates fluently in English

TERMS OF REFERENCE FOR TUNNEL DESIGN CHECK EXPERT (INTERNATIONAL)

A. Background

4. The Government of Nepal, the Ministry of Physical Infrastructure and Transport (MOPIT), and the Department of Roads (DOR) are preparing the design of a number of tunnels under the Asian Development Bank (ADB)'s financial assistance for the South Asia Subregional Economic Cooperation Highway Improvement Project. The Project Directorate (ADB) of the DOR, which handles ongoing ADB projects, is seeking the services of an experienced International Tunnel Design Expert to check the detailed designs prepared by the design consultant, verify the appropriateness of the design, and certify the design for the approval of the DOR.

B. Objectives

5. The objective of this consulting service is to procure the services of an International Tunnel Design Expert for checking, verifying, and recommending for approval the design provided by the design consultant. The expert shall work in close coordination with the DOR, Project Directorate (ADB) in checking the design and getting departmental approval of the tunnel designs. The expert shall transfer knowledge to local engineers for capacity building in the design of such tunnels as well as in the process of approval checking.

C. Scope of Work

6. The scope of work includes, but is not limited to, the following:

(i) Check the designs provided by the design consultant as per international codes and practices.
(ii) Verify whether the design inputs taken are appropriate.
(iii) Check whether the design process and calculations are accurate.
(iv) Visit the proposed tunnel sites.
(v) Provide comments on the design for incorporation and revision, wherever applicable.
(vi) Certify the final designs and recommend these for approval of the Department of Roads.
(vii) Provide knowledge transfer on modern tunnel design, construction, and maintenance practices.
(viii) Conduct exposure visits to under-construction and construction-completed long tunnel sites.
(ix) Conduct training for capacity building of local engineers in design as well as approval checking.

D. Outputs

7. The expert shall undertake reviews; provide comments for revisions and modifications, if applicable; certify and recommend the final tunnel design for approval; and facilitate technology transfer to local engineers.

E. Estimated Person-Months

8. The expert's services will be required for 8 weeks depending upon the comments and revisions required on the design provided by the design consultant. The assignment is expected

to commence in November 2018.

F. Key Qualifications

9. The individual consultant must have experience as a tunnel design engineer of major and long-span tunnels.

10. Qualification and experience requirements of the Tunnel Design Expert are as follows:

Education	Graduate of civil, structural, or tunnel engineering, preferably with master's degree in geotechnical engineering or tunnel engineering
Total experience	20 years in civil engineering or related field, with 15 years as tunnel design engineer
Experience in the proposed field of expertise	Experience in the design of minimum 10 nos. major tunnels with 2 nos. tunnels with length of more than 2 kilometers Experience in various geographical areas and countries
Language	Communicates fluently in English

G. Evaluation of Expression of Interest (EOI)

11. The expert will be evaluated on the basis of general qualifications (education and training) and experiences, general and specific, in the relevant field.

H. Taxation

12. The expert will be fully responsible for meeting all tax liabilities arising out of the contract. Information on the consultant's tax obligation in Nepal is available at the website of the Inland Revenue Department of the Government of Nepal (https://www.ird.gov.np/).

OUTLINE TERMS OF REFERENCE FOR NONGOVERNMENTAL ORGANIZATION FOR HUMAN TRAFFICKING PREVENTION AND HIV/AIDS AWARENESS

A. Objectives

1. The Government of Nepal requested the assistance of the Asian Development Bank (ADB) to support the upgrade of the Kanchanpur–Kamala road section on the southeastern side of the East–West Highway (EWH). The South Asia Subregional Economic Cooperation Highway Improvement Project (SHIP) will (i) upgrade 85 kilometers (km) to four-lane standard with a design speed of 80 kilometers per hour (km/h), and (ii) improve road safety and maintenance on the entire EWH. The project will be implemented by the Department of Roads (DOR) with the assistance of the construction supervision consultants (CSC).

2. The project road crosses the following 12 municipalities and rural municipalities located in the districts of Saptari and Siraha:

Table 1: SHIP's Direct Area of Influence

District	Municipality
Saptari	Agnisaer Krishna Sawaran Rural
	Kanchanrup Municipality
	Khadak Municipality
	Rupani Rural Municipality
	Shambhunath Municipality
	Surunga Municipality
Siraha	Dhangadimai Municipality
	Golbazar Municipality
	Karjanha Municipality
	Lahan Municipality
	Mirchaiya Municipality
	Narha Rural Municipality

3. SHIP has a social action program that integrates training and community outreach measures to help mitigate the negative impacts of the road improvements related to potential increase in human trafficking and HIV/AIDS incidence. The DOR is recruiting a national-level nongovernment organization (NGO) to conduct community outreach activities and provide specific training and reinforcement during the period of construction activities.

4. The objectives of the assignment are to

(i) conduct community awareness campaign on human trafficking prevention and HIV/AIDS transmission for residents and particularly for vulnerable groups located along the alignment of the Kanchanpur to Kamala road section (85 km), and
(ii) conduct capacity trainings within the DOR to raise awareness of the risks of human trafficking and HIV/AIDS and incorporate strategies to mitigate these risks in future road projects.

5. The national NGO will work alongside the local NGO and government programs on the specific topics of human trafficking prevention and HIV/AIDS awareness.

6. The NGO will conduct (i) two community awareness campaigns—one for human trafficking prevention and the other for HIV/AIDS awareness; and (ii) train the DOR, CSC, local authorities, schoolteachers, and other targeted audiences on human trafficking prevention and HIV/AIDS awareness.

A. Selection Criteria for the National NGO

(i) Registration in district administration office under NGO services
(ii) Affiliation with Social Welfare Council
(iii) Registration in Permanent Account Number (PAN) system
(iv) Current experience in conducting community awareness campaigns on human trafficking prevention and HIV/AIDS awareness
(v) Current experience in conducting training programs on human trafficking prevention and HIV/AIDS awareness
(vi) Current experience in road construction is advantageous
(vii) Preference will be given to NGOs already working in both human trafficking and HIV/AIDS prevention
(viii) Excellent knowledge of the existing government and nongovernment programs and counselling services in human trafficking and HIV/AIDS in Nepal and of the general conditions and legislative framework of migrant labor, including the Foreign Employment Act 2064 (2007)
(ix) Competence in providing training, facilitation, and counselling services is preferred

B. General Scope of Work

(i) Conduct a community awareness campaign on human trafficking prevention in all 12 municipalities and rural municipalities along the road corridor with specific sessions for vulnerable groups.
(ii) Conduct a community awareness campaign on HIV/AIDS prevention in all the municipalities and rural municipalities along the road corridor.
(iii) Liaise with local officials and local NGOs and civil society organizations (CSOs) specializing in human trafficking prevention and HIV/AIDS awareness to optimize efforts and provide referrals.
(iv) Conduct targeted human trafficking prevention trainings for the DOR, local officials, and specialized audiences.
(v) Assist in internal monitoring conducted by the CSC.

C. Specific Scope of Work

7. The awareness campaigns will take place twice a year over two years. The major tasks are the following:

1. Human trafficking prevention community awareness campaign. The overall objective is to generate public awareness about trafficking in its various forms, including the methods employed by traffickers and risks associated with overseas work, and provide targeted awareness sessions to vulnerable groups (e.g., existing and potential migrant workers and their families, minorities, children). A minimum outreach will target 2,000 road residents, 50% of whom are women. Key tasks include but are not limited to the following:

(i) Conduct awareness sessions in the 12 municipalities and rural municipalities about (a) specific groups targeted and methods used by traffickers; (b) exploitation and

human trafficking risks associated with overseas employment, workers' rights and obligations, and Nepal's legislative framework on foreign employment such as complaints and resolutions; (c) risks associated with human trafficking at the domestic levels; (d) risks associated with cross-border smuggling and trafficking; (e) existing governmental and nongovernmental referral services.

(ii) Conduct targeted sessions for most vulnerable populations (i.e., existing and potential overseas workers and their family, schoolchildren, etc.) and targeted groups (ward and law enforcement officials, the media, social workers, teachers).

(iii) Develop and disseminate communication materials in an interesting and simplified manner, using a lot of visuals and keeping the target audience in mind.

(iv) Coordinate with the local and national committees for controlling human trafficking to provide referrals to general and specific audiences during awareness sessions.

(v) Conduct awareness sessions for DOR officials.

2. HIV/AIDS awareness raising. The objective will be to educate about HIV/AIDS, its mode of transmission, existing counselling and testing services, and protection methods. A minimum outreach will target 1,000 road residents, 50% of whom are women.

(i) Conduct awareness sessions in the 12 municipalities and rural municipalities about (a) HIV/AIDS, symptoms, and modes of transmission; (b) HIV/AIDS prevention methods; and (c) existing governmental and nongovernmental testing and counselling services.

(ii) Conduct targeted sessions for vulnerable groups (i.e., professional drivers, sex workers, etc.).

(iii) Develop and disseminate communication materials in an interesting and simplified manner, using a lot of visuals and keeping the target audience in mind.

(iv) The NGO will participate in monitoring and evaluation of its programs by the verification NGO and the CSC.

(v) NGOs will distribute condoms at critical points such as local hotels, brothels, eating places as well as during training sessions. NGOs will provide information regarding the easiest available service for testing, counselling, and treatment of sexually transmitted diseases.

8. The NGO will carry out its activities under the close supervision of the CSC.

D. Outputs

9. **Work plan.** The NGO will compile a work plan to be submitted to the DOR and the CSC a month after recruitment detailing the methodology and timeframe to be used for the two awareness campaigns.

10. **Awareness campaign reports.** A report for each awareness campaign should include the following:

(i) Date of sessions, sites visited, location, number of sessions, and number of participants (gender segregated)

(ii) Outline of training modules delivered

(iii) Materials distributed

(iv) Comments on the receptivity of contractors and cooperation received

11. The NGO will provide six copies of quarterly, biannual, and annual reports, including reinforcement sessions, detailing the following:

(i) Date, contract, contractors visited, location, number of sessions, and number of participants
(ii) Outline of training modules delivered
(iii) Materials distributed
(iv) Comments on the receptivity of contractors and cooperation received

12. The NGO will provide the DOR a training manual with detailed methodologies and content of all training courses delivered.

E. Team Composition and Qualifications of Staff

13. Following is the composition of the NGO team and the qualifications and experience required of its staff.

S.N.	Personnel	No.	Person-months	Total Person-months	Remarks
1.	Team Leader	1	36	36	Intermittent
2.	Social Mobilization Supervisor	4	16	64	Intermittent

14. The NGO will have significant experience in HIV/AIDS and anti-trafficking in Nepal and familiarity with all aspects of training delivery in these fields. The NGO will deploy a team consisting of a Team Leader with at least a bachelor's degree in anthropology, sociology, public health, or development studies, with 3 years of experience in the relevant field. Master's degree in public health will be preferred. The Team Leader will design and produce appropriate training modules and materials and deliver the annual training sessions.

15. The Team Leader will be assisted by up to four training mobilizers to assist in initial training and to undertake the community training sessions and quarterly reinforcement sessions for the site workers. The training mobilizer must have at least proficiency certificate level or CMA/ANM pass. The training mobilizers shall have considerable experience in community motivation and have HIV/AIDS and anti-trafficking training experience.

16. The proposal should contain a brief statement of the approach, methodology, and relevant information concerning previous experience on human trafficking prevention and HIV/AIDS awareness. Experience conducting campaigns for road construction is preferred.

17. The profile of the agency containing the duly signed curriculum vitae of the Team Leader and training mobilizers with relevant experience must be submitted along with the proposal.

18. The input of above proposed personnel and person-months may vary depending on the volume of work and shall be utilized on as- and when-required basis. Thus, the input of personnel would be on the basis of an approved annual plan.

F. Budget and Logistics

19. Two copies of the proposal (one original and one copy) should be submitted and the budget should include all cost and logistics details necessary for human trafficking prevention and HIV/AIDS awareness.

20. The NGO will provide office space for the work within its own offices with dedicated office

equipment, including computers, printer, etc.

G. Timing

21. The NGO will be employed for the project until March _____.

22. During the midterm review, the performance evaluation of the NGO shall be carried out.