

# Project Administration Manual

Project Number: 47270  
Loan and/or Grant Number(s): LXXXX  
September 2014

India: Madhya Pradesh District Connectivity Sector  
Project

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### **Project Administration Manual Purpose and Process**

1. The project administration manual (PAM) describes the essential administrative and management requirements to implement the project on time, within budget, and in accordance with Government and Asian Development Bank (ADB) policies and procedures. The PAM should include references to all available templates and instructions either through linkages to relevant URLs or directly incorporated in the PAM.
2. The government of Madhya Pradesh, acting through the Madhya Pradesh Road Development Corporation Limited, is wholly responsible for the implementation of ADB financed projects, as agreed jointly between India (the borrower) and ADB, and in accordance with Government and ADB's policies and procedures. ADB staff is responsible to support implementation including compliance by Madhya Pradesh Road Development Corporation Limited is of its obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.
3. 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.
4. 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.

## Abbreviations

ADB	=	Asian Development Bank
AFS	=	audited financial statements
CAAA	=	Controller of Aid Accounts and Audit
CSC	=	construction supervision consultants
DMF	=	design and monitoring framework
DPR	=	detailed project report
EARF	=	environmental assessment and review framework
EIA	=	environmental impact assessment
EMP	=	environmental management plan
ESMS	=	environmental and social management system
GACAP	=	governance and anticorruption action plan
GDP	=	gross domestic product
GOMP	=	Government of Madhya Pradesh
ICB	=	international competitive bidding
IEE	=	initial environmental examination
IDC	=	interest during construction
IPP	=	indigenous people plan
IPPF	=	indigenous people planning framework
LAR	=	land acquisition and resettlement
LIBOR	=	London interbank offered rate
MDR	=	major district road
MORTH	=	Ministry of Road Transport and Highways
MPPWD	=	Madhya Pradesh Public Works Department
MPRDC	=	Madhya Pradesh Road Development Corporation Ltd.
NCB	=	national competitive bidding
NGOs	=	nongovernment organizations
PAI	=	project administration instructions
PAM	=	project administration manual
PIU	=	project implementation unit
PPP	=	public private partnership
PPTA	=	project preparatory technical assistance
QCBS	=	quality- and cost based selection
RP	=	resettlement plan
RRP	=	report and recommendation of the President to the Board
SBD	=	standard bidding documents
SH	=	state highway
SOE	=	statement of expenditure
SPS	=	Safeguard Policy Statement
SPRSS	=	summary poverty reduction and social strategy
TOR	=	terms of reference

## I. PROJECT DESCRIPTION

1. **Project Location, Description, and Rationale.** The state of Madhya Pradesh, in its present form, came into existence in November 2000 following its bifurcation to create the new state of Chhattisgarh. It is the second largest state in the country, with an area of about 308,000 sq.km and population of about 72.6 million. Agriculture is the mainstay of the state's economy and about 73% of the people live in rural areas. The state has a high incidence of poverty and needs substantial investments to meet developmental needs. Dispersed nature of industrial development and agricultural production means that the road network is a critical element of the economic infrastructure. The state has a road network of about 127,000 km, out of which about 30,000 km are state highways (SHs) and Major District Roads (MDRs). The government of Madhya Pradesh (GOMP) has been using a combination of budgetary, public private partnership (PPP), and Asian Development Bank (ADB) financing, to improve state highways (SHs). Rural roads have also been specifically addressed through a separate agency and funds made available from the national rural roads scheme. ADB has assisted GOMP with three previous loans for addressing improvements to state highways, and ADB's loans to the central line ministry (Ministry of Rural Development) have been used for improving rural roads in the state. However, the intermediate tier – MDRs – has not been specifically targeted for improvement. MDRs form the key linkage between rural roads and SHs, connect peri-urban and urban areas, and have to be essentially developed to complete state road connectivity. Developing this network will foster inclusiveness by enabling larger segments of the state's population to better access markets and basic services. The Project constitutes (i) rehabilitating and upgrading about 1,600 km of MDRs; (ii) improving road maintenance and asset management; and (iii) developing an efficient accident response system. While detailed project reports (DPRs) have been prepared by MPRDC's consultants, ADB has provided a project preparatory technical assistance (PPTA)<sup>1</sup> of \$225,000 to review and supplement the DPRs.

2. **Impact and Outcome.** The impact of the project will be improved road transport connectivity in the state of Madhya Pradesh. The outcome of the project will be improved road transport efficiency in Madhya Pradesh.

3. **Outputs.** The project outputs will be: (i) reconstructed and rehabilitated major district roads, to all weather standards, and designed for road safety; and (ii) improved road maintenance and asset management. About 1,600 km of MDRs will be reconstructed and rehabilitated to intermediate lane-width of 5.5 m, or two lane-width of 7 m, depending on traffic requirements. The roads will be designed for road safety. The contracts will include 5 year performance based maintenance obligations. MDRs under the project will be integrated into the accident response system being developed by MPRDC.

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<sup>1</sup> TA 47270-002 IND: Preparing the Madhya Pradesh District Connectivity Sector Project

## II. IMPLEMENTATION PLANS

### A. Project Readiness Activities

Indicative Activities	Months						Who responsible
	Jul 2014	Aug 2014	Sep 2014	Oct 2014	Nov 2014	Dec 2014	
Advance contracting actions	X						MPRDC (ongoing)
Retroactive financing actions					X		MPRDC
Establish project implementation arrangements			X				MPRDC
ADB Board approval					X		ADB
Loan signing					X		Government/ADB
Government legal opinion provided						X	Government/ADB
Government budget inclusion			X				Government (ongoing)
Loan effectiveness						X	Government/ADB

## B. Overall Project Implementation Plan

	2014				2015				2016				2017				2018				2019																			
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D				
<b>A. DMF Activities</b>																																								
<b>1. Output 1 - Reconstructed and Rehabilitated MDRs</b>																																								
1.1. Prepare Safeguard Documents	■																																							
1.2. Award and Mobilize Construction Supervision Consultants													■																											
1.3. Award Contracts for About 1700 Km of MDRs													■																											
1.4. Construction of MDRs													■																											
<b>2. Output 2 - Improved Road Maintenance and Asset Management</b>																																								
2.1. Award PPP contracts for about 1000 km of MDRs													■																											
2.2. Develop a computerized road asset management system by 2018																									■															
2.3. Develop a financial framework for proper maintenance of roads by 2018																									■															
<b>3. Output 3 - Efficient Accident Response System Structured</b>																																								
3.1. Complete the initial design and financial structure for a cashless medical care facility for accident victims linked to a sustainable fund																									■															
<b>B. Management Activities</b>																																								
Procurement plan key activities to procure contract packages													■																											
Consultant selection procedures													■																											
Environment management plan key activities													■																											
Annual/Mid-term review																									■															
Project completion report																																					■			



### III. PROJECT MANAGEMENT ARRANGEMENTS

#### A. Project Implementation Organizations – Roles and Responsibilities

Project Implementation Organizations	Management Roles and Responsibilities
▪ Executing agency	<p>The executing agency will be the Government of Madhya Pradesh, acting through Madhya Pradesh Road Development Corporation Ltd.</p> <ul style="list-style-type: none"><li>➤ overall coordination of project implementation</li><li>➤ selection of subprojects</li><li>➤ procurement of works</li><li>➤ consultant recruitment</li><li>➤ day-to-day project management</li><li>➤ ensure compliance with safeguard requirements</li><li>➤ withdrawal applications</li><li>➤ project progress reports</li><li>➤ maintaining project financial statements</li><li>➤ implementation of safeguard activities</li></ul>
▪ ADB	<p>Monitor and review overall implementation of the project in consultation with the EA including: the project schedule; actions required in terms of poverty reduction, environmental impacts, and resettlement plans and subproject selection, if applicable; timeliness of budgetary allocations and counterpart funding; project expenditures; progress with procurement and disbursement; statement of expenditure when applicable; compliance with particular loan covenants; and the likelihood of attaining the project's immediate development objectives.</p>

#### B. Key Persons Involved in Implementation

##### Executing Agency

Government of Madhya Pradesh, acting through the Madhya Pradesh Road Development Corporation

Officer's Name : Mr. Vivek Aggarwal  
Position: Managing Director, MPRDC, & Secretary, PWD, Government of Madhya Pradesh  
Telephone: +91-755-2765217  
Email address: [vivagg\\_2005@yahoo.com](mailto:vivagg_2005@yahoo.com)

Office Address: 45-A, Arera Hills, Bhopal, (M.P)  
India - 462 011

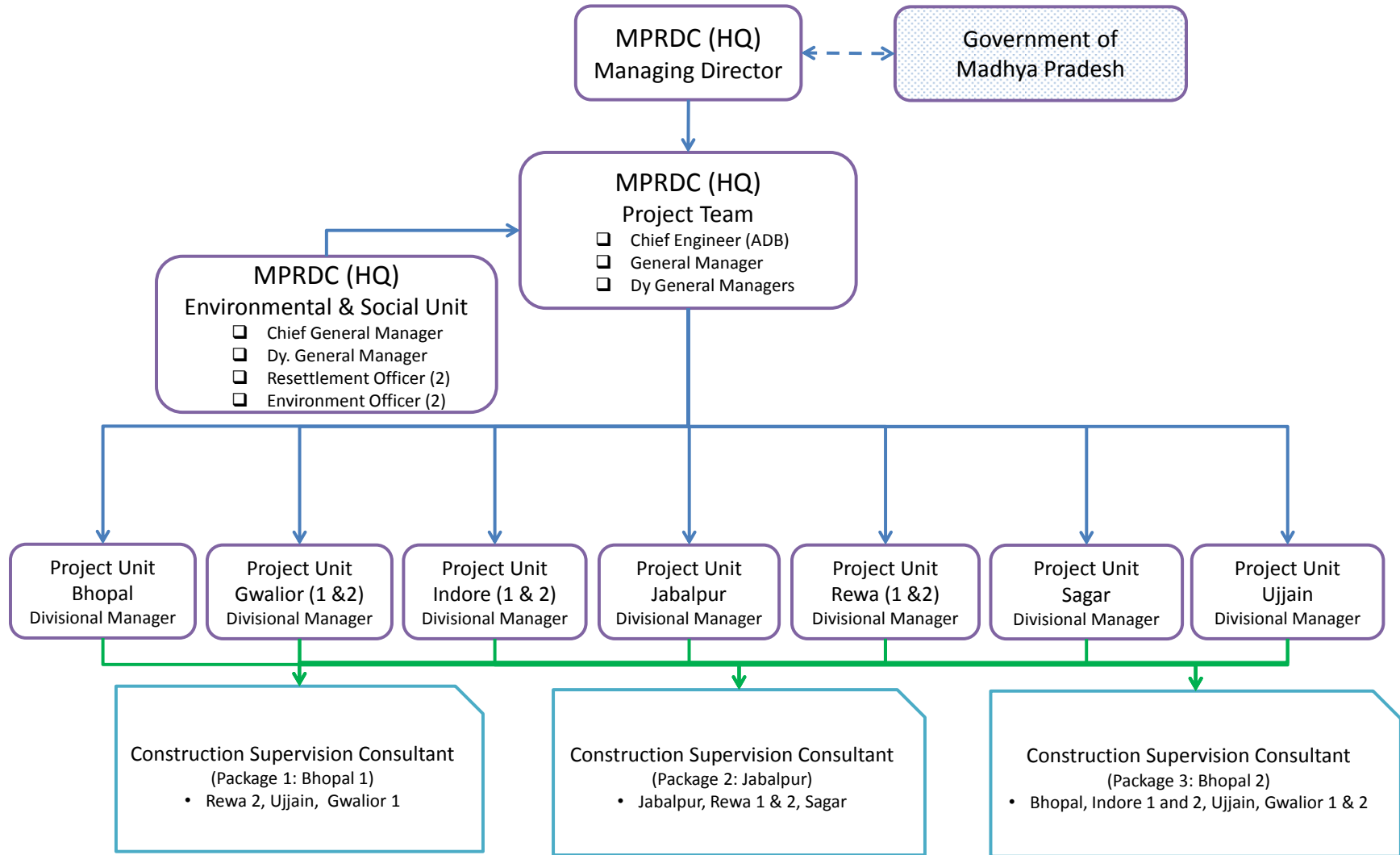
**ADB**

Staff Name: Hiroaki Yamaguchi  
Position: Director, SATC  
Telephone No. +63-2-632-6745  
Email address: [hyamaguchi@adb.org](mailto:hyamaguchi@adb.org)

Mission Leader

Staff Name: Ravi Peri  
Position: Principal Transport Specialist  
Telephone No. +63-2-683-1771  
Email address: [rperi@adb.org](mailto:rperi@adb.org)

**C. Project Organization Structure**



#### IV. COSTS AND FINANCING

##### A. Investment and Financing Plans

4. The project is estimated to cost \$500 million (Table 1).

**Table 1: Project Investment Plan**

(\$ million)

	Item	Amount <sup>a</sup>
<b>A.</b>	<b>Base Cost</b> <sup>b</sup> Investment component	425.00
<b>B.</b>	<b>Contingencies</b> <sup>c</sup>	<b>55.00</b>
<b>C.</b>	<b>Financing Charges during Implementation</b> <sup>d</sup>	<b>20.00</b>
	<b>Total (A + B + C)</b>	<b>500.00</b>

<sup>a</sup> ADB financing includes part of taxes and duties of about \$15 million, which is 3% of project cost, and is not considered excessive.

<sup>b</sup> In March 2014 prices.

<sup>c</sup> Physical contingencies computed at 6% for civil works; price contingencies at 2.5% of foreign exchange costs and 8% of local currency costs, including provision for fluctuations in the purchasing power parity exchange rate if this rate is used.

<sup>d</sup> Includes interest and commitment charges. Interest during construction for the ADB loan(s) is computed at the 5-year forward London interbank offered rate plus a spread of 0.5% and maturity premium of 0.10%. Commitment charges for an ADB loan are 0.15% per year on the undisbursed loan amount.

Source: Asian Development Bank estimates.

5. The Government has requested a loan of \$350,000,000 from ADB's ordinary capital resources to help finance the project. The loan will have a 25-year term, including a grace period of 5 years, an annual interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility, a commitment charge of 0.15% per year and such other terms and conditions set forth in the loan agreement and project agreement. The government has provided ADB with (i) the reasons for its decision to borrow under ADB's LIBOR-based lending facility on the basis of these terms and conditions, and (ii) an undertaking that these choices were its own independent decision and not made in reliance on any communication or advice from ADB. The Government has requested that repayment will follow the equal repayment option. Based on the above loan terms and this repayment option, the average loan maturity is 15.25 years and the maturity premium payable to ADB is 0.10% per annum.

6. The financing plan is in Table 2. The ADB loan will finance 70% of the project cost. This is considered acceptable, taking into account that the GOMP has allocated its counterpart financing for 30% of the cost. By including more roads in the loan, the benefits will be spread into more areas of the state.

7. The Government will make available the loan proceeds to GOMP on a back-to-back basis and GOMP will bear the foreign exchange risk on the ADB loan in accordance with the policy of the Government.

**Table 2: Financing Plan**  
(\$ million)

<b>Source</b>	<b>Amount</b>	<b>Share of Total (%)</b>
Asian Development Bank	350	70
Government (state government of Madhya Pradesh)	150	30
<b>Total</b>	<b>500</b>	<b>100</b>

Source: Government of Madhya Pradesh and Asian Development Bank estimates.

8. Detailed cost estimates by expenditure category, as well as cost estimates by year are given in tables in the subsequent section.

**B. Detailed Cost Estimates by Expenditure Category**

**Table 3: Detailed Cost Estimates by Financier**  
(\$ million)

Component	Total	ADB		GOMP	
		%	Amount	%	Amount
<b>A. Land acquisition, resettlement and rehabilitation, utility shifting</b>	19.00	0.0%	0.00	100.0%	19.00
<b>B. Civil Works<sup>a</sup></b>	373.00	78.0%	291.08	22.0%	81.92
Chitrangi – Kasar	14.70				
Dabra - Bhitwarwar – Harsi	23.56				
Mahua - Chuwahi	21.18				
Ujjain - Maksi	15.33				
Non-sample Roads	298.23				
<b>C. Maintenance Works</b>	14.00	0.0%	0.00	100.0%	14.00
<b>D. Consulting Services</b>	16.00	100.0%	16.00	0.0%	0.00
<b>E. Project Management</b>	3.00	0.0%	0.00	100.0%	3.00
Subtotal A-E	425.00	72.3%	307.08	27.7%	117.92
<b>F. Contingencies</b>					
1. Physical	22.00	78.0%	17.17	22.0%	4.83
2. Price	33.00	78.0%	25.75	22.0%	7.25
Subtotal Contingencies	55.00	78.0%	42.92	22.0%	12.08
<b>G. Financing Charges</b>					
1. IDC	18.50	0.0%	0.00	100.0%	18.50
2. Commitment Charges	1.50	0.0%	0.00	100.0%	1.50
Subtotal Financing Charges	20.00	0.0%	0.00	100.0%	20.00
<b>TOTAL</b>	<b>500.00</b>	<b>70.0%</b>	<b>350.00</b>	<b>30.0%</b>	<b>150.00</b>

<sup>a</sup> In March 2014 prices. Taxes and duties are included in the cost estimates.  
Source: MPRDC and Asian Development Bank estimates.

**Table 4: Detailed Cost Estimates by Year**  
(\$ million)

Component	Total	2015	2016	2017	2018	2019
<b>A. Land acquisition, resettlement and rehabilitation, utility shifting</b>	19.00	15.20	3.80	0.00	0.00	0.00
<b>B. Civil Works<sup>a</sup></b>	373.00	37.90	83.96	111.68	101.90	37.56
Chitrangi – Kasar	14.70					
Dabra - Bhitwar – Harsi	23.56					
Mahua - Chuwahi	21.18					
Ujjain - Maksi	15.33					
Non-sample Roads	298.23					
<b>C. Maintenance Works<sup>b</sup></b>	14.00	0.00	0.00	2.10	3.50	8.40
<b>D. Consulting Services</b>	16.00	4.00	4.00	4.00	2.40	1.60
<b>E. Project Management</b>	3.00	0.60	0.60	0.75	0.75	0.30
Subtotal A-E	425.00	57.70	92.36	118.53	108.55	47.86
<b>F. Contingencies</b>						
1. Physical	22.00	0.00	4.40	4.40	6.60	6.60
2. Price	33.00	0.00	5.61	7.59	8.91	10.89
Subtotal Contingencies	55.00	0.00	10.01	11.99	15.51	17.49
<b>G. Financing Charges</b>						
1. IDC	18.50	0.39	1.60	3.50	5.53	7.48
2. Commitment Charges	1.50	0.5	0.42	0.3	0.17	0.11
Subtotal Financing Charges	20.00	0.89	2.02	3.80	5.70	7.59
<b>TOTAL</b>	<b>500.00</b>	<b>58.59</b>	<b>104.39</b>	<b>134.32</b>	<b>129.76</b>	<b>72.94</b>

<sup>a</sup> In March 2014 prices. Taxes and duties are included in the cost estimates for civil works.  
<sup>b</sup> Maintenance costs included in the contract will be paid by MPRDC for five years beyond completion of construction for each road stretch  
Source: MPRDC and Asian Development Bank estimates.

### C. Allocation and Withdrawal of Loan Proceeds

9. **Percentages of ADB Financing.** Except as ADB may otherwise agree, each item of expenditure shall be financed out of the proceeds of the Loan on the basis of the percentages set forth in the tables attached to Schedule 3 of the loan agreement.

10. **Reallocation.** Notwithstanding the allocation of Loan proceeds and the withdrawal percentages set forth in the tables,

i. if the amount of the Loan allocated to any category appears to be insufficient to finance all agreed expenditures in that category, ADB may, in consultation with the Government, (a) reallocate to such category, to the extent required to meet the estimated shortfall, amounts of the loan which have been allocated to another category but, in the opinion of ADB, are not needed to meet other expenditures, and (b) if such reallocation cannot fully meet the estimated shortfall, reduce the withdrawal percentage applicable to such expenditures in order that further withdrawals under such category may continue until all expenditures thereunder will have been made; and

ii. if the amount of the loan allocated to any category appears to exceed all agreed expenditures in that category, ADB may, in consultation with the Government, reallocate such excess amount to any other category.

**Table 5: Allocation and Withdrawal of Loan Proceeds**

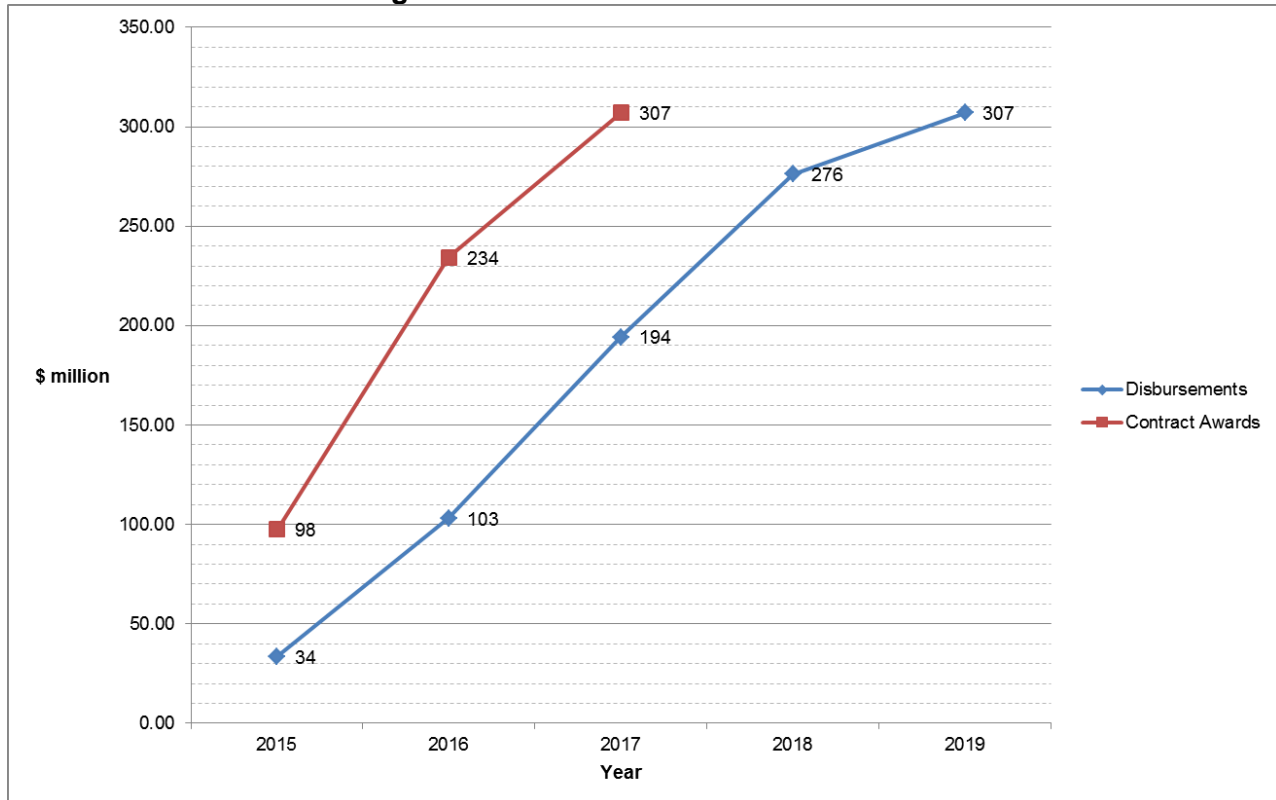
Sl. No.	Item	Amount Allocated \$ Category	Percentage of ADB Financing from the Loan Account
1	Works	291,000,000	78 percent of total expenditure claimed
2	Consulting Services	16,000,000	100 percent of total expenditure claimed
3	Unallocated	43,000,000	
	<b>Total</b>	350,000,000	



#### D. Contract and Disbursement S-curve

11. The following graph(s) show contract awards and disbursement for the allocated amounts over the life of the project, and annually based on the contract awards and disbursement projections.

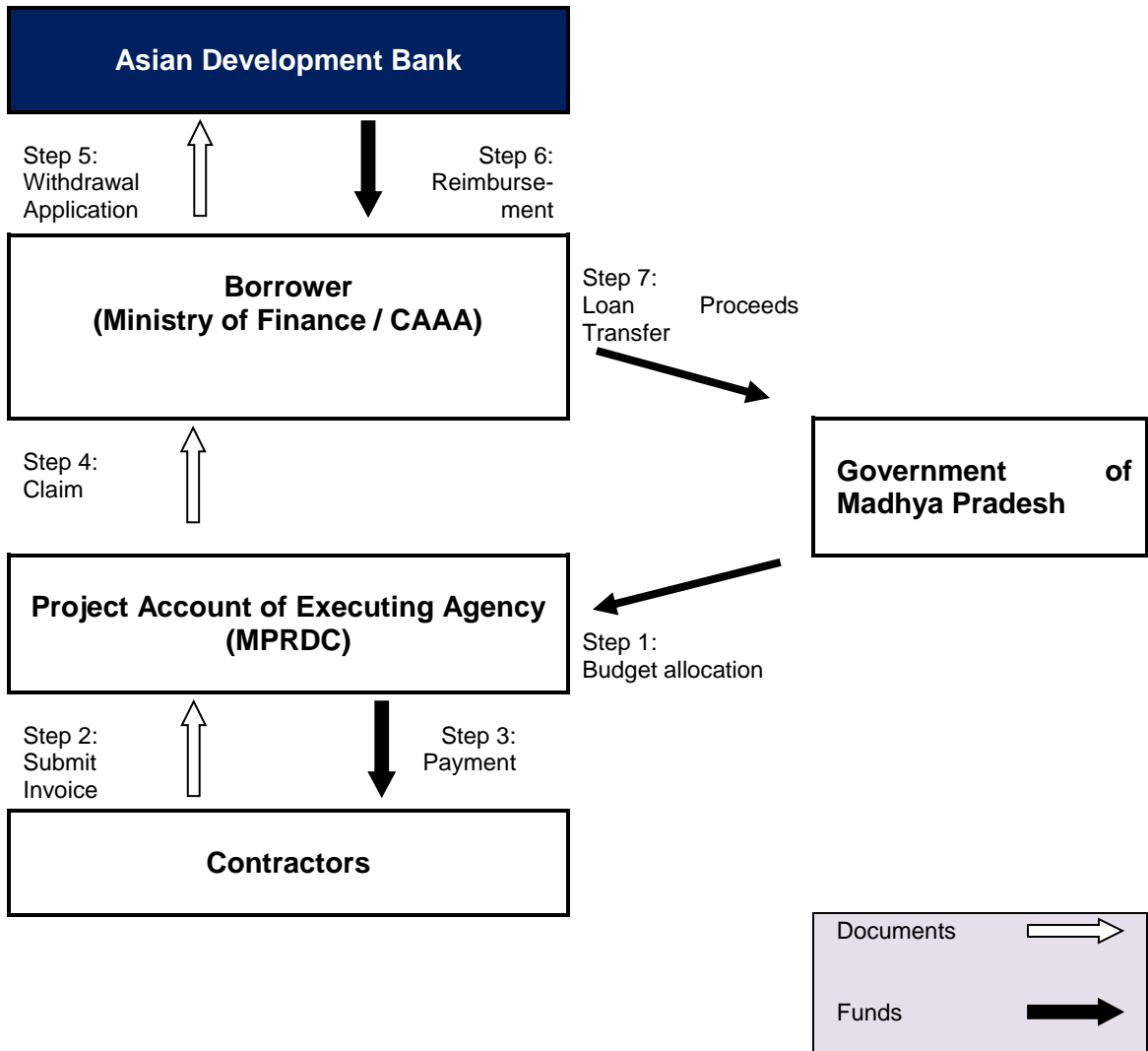
**Figure 1: Contracts and Disbursement**



#### E. Fund Flow Diagram

12. Disbursement methods as outlined in ADB's Loan Disbursement Handbook (2012) will also be adopted for the project. As the main disbursement method, the loan will adopt the reimbursement method for payments. GOMP will provide the ADB loan and counterpart funds to MPRDC for project implementation, ensuring sufficient budget for payments to the contractors based on the submitted invoices. MPRDC will then submit claims to the Borrower, who will submit them to ADB. ADB will pay to the Borrower out of the loan and the Borrower will provide Additional Central Assistance to MPRDC through GOMP. GOMP will be responsible for meeting the financial responsibilities and obligations of MPRDC for the project. The following diagram shows how the funds will flow from ADB and the Borrower to implement project activities.

**Figure 2: Fund Flow Diagram**



## V. FINANCIAL MANAGEMENT

13. The executing agency, MPRDC was incorporated on 14 July 2004, under the Companies Act, 1956, and is a wholly owned entity of the government of Madhya Pradesh. MPRDC will maintain a separate account for the project. Financial management risks will be considered and updated throughout the life of the project. Risk mitigation measures will also be updated accordingly.

### A. Financial Management Assessment

14. The financial management assessment (FMA) was conducted in accordance with ADB's Guidelines for the Financial Management and Analysis of Projects and Financial Due Diligence:

a Methodology Note, and Technical Guidance Notes.<sup>2</sup> The FMA assessed that the capacity of MPRDC is adequate in project financial accounting and in ADB disbursement procedures. MPRDC has been the implementing agency for three prior ADB loans. MPRDC has been the executing agency for three previous ADB loans, and assessment of prior performance in financial management indicates that MPRDC's capacity with respect to auditing requirements, including timely submission of audited project financial statements has been good and major concerns have not been identified. MPRDC follows double entry, accrual based accounting since it is a corporate entity. The entity is using established commercial enterprise resource planning software and is able to undertake budgeting and other functions. The accounting system has the controls in place to ensure that all transactions are correctly made and adequately explained. All accounting and supporting documents are maintained for a minimum 8 years from the date of transaction. MPRDC is staffed with experienced financial specialists in its Finance & Accounts Department. The Finance and Accounts Department has been handling the function successfully since incorporation in 2004. Since then loans worth \$770 million have been availed and managed by the team. In all, including BOT & EPC (non-ADB) projects, the total value of projects implemented till date is more than \$5 billion. Based on the assessment, the overall financial management risk of the project is categorized as "Low".

The Financial Management Assessment has identified the following action points:

- Assurances in the project agreements that counterpart funds for the project (implementation and maintenance) will be made available on time;
- Recommendation to MPRDC to meet its statutory governance requirements such as Board Meetings, Annual General Meetings; and
- Recommendation to MPRDC to disclose its accounts statements on the web.

## **B. Disbursement**

15. The Loan proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2012, as amended from time to time), and detailed arrangements agreed upon between the Government and ADB.<sup>3</sup>

16. The Statement of Expenditures (SOE) procedure will be used to reimburse eligible expenditures not exceeding \$100,000 equivalent per individual payment. SOE records should be maintained and made readily available for review by ADB's disbursement and review mission or upon ADB's request for submission of supporting documents on a sampling basis, and for independent audit.

17. ADB's imprest account procedure will not be used for the project.

18. MPRDC 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.

19. Before the submission of the first withdrawal application, the Government should submit to ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on behalf of the borrower, together with the authenticated specimen signatures of

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<sup>2</sup> Available at: <http://www.adb.org/projects/operations/financial-management-resources>. See also Analysis of Projects Guidelines (2005): <http://www.adb.org/Documents/Guidelines/Financial/default.asp>.

<sup>3</sup> Available at: <http://www.adb.org/sites/default/files/loan-disbursement-handbook.pdf>

each authorized person. The minimum value per withdrawal application is US\$100,000 equivalent, unless otherwise approved by ADB. Individual payments below this amount should generally be paid by MPRDC and subsequently claimed to ADB through reimbursement. ADB reserves the right not to accept withdrawal applications below the minimum amount.

20. Withdrawal applications and supporting documents will demonstrate, among other things that the goods, and/or services were produced in or from ADB members, and are eligible for ADB financing.

21. All disbursements under government financing will be carried out in accordance with regulations of the GOI and GOMP.

### **C. Accounting**

22. MPRDC will maintain separate project financial statements and records by funding source for all expenditures incurred on the Project. Project financial statements will follow accounting principles and practices prescribed by the Government's accounting laws and regulations.<sup>4</sup>

### **D. Auditing**

23. MPRDC will cause the detailed consolidated project financial statements to be audited in accordance with the Government's audit regulations by an auditor appointed by the Auditor General, which is acceptable to ADB. The audited financial statements will be submitted in the English language to ADB within 6 months of the end of the fiscal year by the executing agency.

24. SOE records should be maintained and made readily available for review by ADB's disbursement and review mission or upon ADB's request for submission of supporting documents on a sampling basis, and for independent audit. The annual audit report will include a separate audit opinion on the use of the SOE procedures.

25. The annual audit report for the project financial statements will include an audit opinions which 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 loan proceeds were used only for the purposes of the project or not; and (iii) the level of compliance for each financial covenant contained in the legal agreements for the project. If a management letter is prepared by the auditor, this shall also be submitted to ADB.

26. To ensure the timely submission of audited project financial statements, MPRDC shall formally request the Comptroller and Auditor General (CAG) to include audits of subprojects under the investment program in their yearly work plan through the DEA. Unaudited project financial statements should be submitted to CAG for audit within 3 months of the end of the fiscal year.

27. The Government and MPRDC have been made aware of ADB's policy on delayed submission<sup>5</sup>, and the requirements for satisfactory and acceptable quality of the audited

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<sup>4</sup> Government laws and regulations, and following Indian Generally Accepted Accounting Principles

<sup>5</sup> ADB Policy on delayed submission of audited project financial statements:

- When audited project financial statements are not received by the due date, ADB will write to the executing agency advising that (i) the audit documents are overdue; and (ii) if they are not received within the next six

*{Footnote continued on next page}*

financial statements. ADB reserves the right to require an addition in the auditor as mutually agreed with the borrower, 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.

28. 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.

29. Public disclosure of the project financial statements, including the audit report on the project financial statements, will be guided by ADB's Public Communications Policy (2011)<sup>6</sup>. After review, ADB will disclose the project financial statements for the project and the opinion of the auditors on the financial statements within 30 days of the date of their receipt by posting them on ADB's website. The Audit Management Letter will not be disclosed.

## VI. PROCUREMENT AND CONSULTING SERVICES

### A. Advance Contracting and Retroactive Financing

30. All advance contracting and retroactive financing will be undertaken in conformity with ADB's *Procurement Guidelines* (March 2013, as amended from time to time) (ADB's *Procurement Guidelines*)<sup>7</sup> and ADB's *Guidelines on the Use of Consultants* (March 2013, as amended from time to time) (ADB's *Guidelines on the Use of Consultants*).<sup>8</sup> The issuance of invitations to bid under advance contracting and retroactive financing will be subject to ADB approval. The borrower, government of Madhya Pradesh, and MPRDC have been advised that approval of advance contracting and retroactive financing does not commit ADB to finance the Project.

31. **Advance contracting.** MPRDC has requested advance action for procurement of works to expedite the consultant selection process, including finalization of the request for proposal; and the tender process of works, including preparation of the bidding documents for civil works and call for tender.

32. **Retroactive financing.** MPRDC has requested approval for retroactive financing. If approved by the ADB Board, up to 20% of the amount of the loan proceeds (\$70 million, 20% of \$350 million) will be eligible for retroactive financing, provided that expenditures are incurred on

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months, requests for new contract awards and disbursement such as new replenishment of imprest accounts, processing of new reimbursement, and issuance of new commitment letters will not be processed.

- When audited project financial statements have not been 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 imprest accounts, processing of new reimbursement and issuance of new commitment letters. ADB will (i) inform the executing agency of ADB's actions; and (ii) advise that the loan may be suspended if the audit documents are not received within the next six months.
- When audited project financial statements have not been received within 12 months after the due date, ADB may suspend the loan.

<sup>6</sup> Available from <http://www.adb.org/documents/pcp-2011?ref=site/disclosure/publications>

<sup>7</sup> Available at: <http://www.adb.org/Documents/Guidelines/Procurement/Guidelines-Procurement.pdf>

<sup>8</sup> Available at: <http://www.adb.org/Documents/Guidelines/Consulting/Guidelines-Consultants.pdf>

works, equipment, and consulting services for the investment program in accordance with agreed procedures and during the 12 months before the signing of the loan and project agreements.

## **B. Procurement of Goods, Works and Consulting Services**

33. All procurement of goods and works will be undertaken in accordance with ADB's *Procurement Guidelines*.

34. MPRDC and ADB have discussed procurement packages and procedures and understood that the proposed project does not involve national competitive bidding (NCB). The procurement plan should be updated whenever change in the procurement arrangements is required and agreed.

35. An 18-month procurement plan indicating threshold and review procedures, goods, works, and consulting service contract packages and national competitive bidding guidelines is in Section C.

36. Procurement activities under MPRDC will be the responsibility of the designated officer, Chief Engineer (Procurement), who will be supported by the Deputy General Manager (Procurement), and other staff and consultants. ADB will closely monitor all major project implementation activities. Contracts for civil works will comprise about 18 international competitive bidding (ICB) packages. All contracts for civil works and goods will be procured in accordance with ADB's *Procurement Guidelines*. ADB's standard bidding documents will be used in all cases.

37. All consultants will be recruited according to ADB's *Guidelines on the Use of Consultants*.<sup>9</sup> The terms of reference for all consulting services are detailed in Section D.

38. Consulting services are required to facilitate project management and implementation. Construction Supervision Consultants (CSC) will be funded out of loan proceeds. The expertise requirement of international consultants and national consultants are given in the relevant sections of the terms of reference in Attachment-5. Consulting firms will be engaged using the quality- and cost- based selection (QCBS) method with a standard quality: cost ratio of 80:20.

39. MPRDC will institute a referencing system in record keeping. All procurement files including bid invitations, winning bids, evaluation reports, pre-contract documents, contracts documents and invoices are kept in single contract files. The government regulations require keeping all records for eight years which sufficiently covers ADB requirement to keep the project records for two years after project completion, considering that all projects under the proposed loan are envisioned to be completed within 3-4 years following procurement activities.

## **C. Procurement Plan**

40. The procurement plan is in Attachment 1 and describes all procurement of good and works to be undertaken for the Project based on the Procurement Capacity Assessment undertaken separately for MPRDC.

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<sup>9</sup> Checklists for actions required to contract consultants by method available in e-Handbook on Project Implementation at: <http://www.adb.org/documents/handbooks/project-implementation/>

## **D. Consultant's Terms of Reference**

41. The terms of reference for the construction supervision consultants are given in the relevant sections of the terms of reference in Attachment 5.

## **VII. SAFEGUARDS**

42. Pursuant to ADB's Safeguard Policy Statement (2009) (SPS), ADB funds may not be applied to the activities described on the ADB Prohibited Investment Activities List set forth at Appendix 5 of the SPS.<sup>10</sup>

### **A. Environmental Safeguards**

43. In accordance with requirements of the ADB SPS, the four sample subprojects have been categorized as environment category "B" as no significant, long term or irreversible environmental impacts are anticipated under them. Therefore separate initial environmental examination (IEE) reports including environmental management plans (EMPs) have been prepared for each sample subproject. An Environmental Assessment and Review Framework (EARF) has been prepared<sup>11</sup> to guide environment safeguards related preparatory work and implementation for the non-sample subprojects and ensure compliance with the ADB's SPS 2009 and the environmental policies of the government. In accordance with the EARF and the selection criteria, no subproject categorized 'A' under ADB SPS will be financed.

44. All required clearances, as applicable, such as the environmental clearance, forestry clearance for diversion of forest land, "No Objection" letters from wildlife agencies etc., must be obtained by MPRDC before start of construction works in the respective road sections. Permits, certificates, No objection letters etc. for activities such as operation of hot mix plants, operation of equipment and machinery, sourcing of ground water etc. must be obtained by the contractor before the implementation of the respective construction activity.

45. The environment monitoring plan (EMOP) is a plan for monitoring various environment quality parameters and checking the effectiveness of the EMP. It comprises of activities on testing the quality of air, water, and noise through laboratory tests and physical monitoring of problems of soil erosion, and habitat enhancement activities carried out and occupational health and safety issues. Quality testing of air, water and noise will be outsourced by the contractor to recognized and approved laboratories, while physical monitoring activities will be carried out by the CSC. MPRDC will carry out the activities related to tree plantation and maintenance either by including in the construction contracts, or through specialized agencies that can carry out tree plantation, maintenance, monitoring and reporting.

46. The EMP for all subprojects will be attached to the respective contract documents. The responsibilities of respective parties and agencies on implementing the environmental safeguards are given below:

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<sup>10</sup> Available at: <http://www.adb.org/sites/default/files/pub/2009/Safeguard-Policy-Statement-June2009.pdf>

<sup>11</sup> The Environmental Assessment and Review Framework, Resettlement Framework, and Indigenous Peoples Planning Framework have been published on the websites of MPRDC and ADB.

(i) **MPRDC:** Ensure that all environment safeguard requirements as stated in the EARF, IEE and loan covenants for the project is complied with. Submit semi-annual environmental monitoring reports as necessary to ADB for disclosure on the ADB website.

- **Environmental Expert, MPRDC:** Implementation and monitoring of the requirements of the EARF for the entire project and IEE and EMP for respective subprojects. Preparation of semi-annual environmental monitoring reports for the project based on periodic monitoring reports prepared at the site level.
- **Environmental Focal Person, Project site, MPRDC:** Day to day monitoring of site level implementation of the EMP. Review and approval of monthly/ quarterly environmental monitoring checklists or reports.

(ii) **Contractor:** Implementation of the EMP. Updating of the EMP when necessary, together with and in consultation with the CSC Environmental Specialist.

(iii) **Environmental Specialist, CSC:** Periodic site level monitoring, providing technical advice, on the job training, etc., to the contractor to enable smooth implementation of the EMP. Updating the EMP as necessary together and in consultation with the contractor. Preparation of monitoring checklists/ reporting formats to be completed on a monthly basis. Submit the completed checklists/ reports to the environmental focal person from PIU at the site level. Provide necessary technical support to the environmental focal person at the site level as well as MPRDC.

47. An initial coordination cum training workshop will be carried out by ADB experts and the CSC environmental specialist during the pre-construction stage and further during construction stages for MPRDC staff, other CSC staff, and the contractors.

## **B. Social Safeguards**

48. **Involuntary Resettlement.** The project is categorized as “B” per ADB Safeguard Policy Statement. A Resettlement Framework (RF) has been prepared for the sector project in accordance with (i) the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013”, which is effective from 1-Jan-2014 (hereinafter called LA Act 2013); (ii) State laws and regulations; and (iii) ADB’s Safeguard Policy Statement, 2009. The RF guides the screening and planning for all subprojects that have resettlement impacts. Displaced persons (titleholders and non-titleholders) will be compensated at replacement cost and rates for different categories of loss and special assistance are detailed in the RF. The project was developed with a view to avoid land acquisition and involuntary resettlement by adopting the most feasible technical design. The proposed improvement of roads will all occur within the existing right-of-way. The sample subprojects are representative of the kinds of impact likely to be encountered in non-sample roads.

49. For the 4 sample subprojects, meaningful consultation and information disclosure were undertaken during preparation. No land acquisition is envisaged but some temporary disruption to livelihood will be experienced during construction. One due diligence report for the 4 roads has been prepared.

50. For non-sample subprojects with resettlement impacts, resettlement plans (RPs) will be prepared in accordance with the provisions made in the RF. Negotiated settlements may be utilized. It will follow the requirements outlined in the RF.



51. If any changes or additional land requirements or involuntary resettlement impacts are identified during implementation for any subproject, a RP will be prepared or updated. ADB's prior approval will be obtained before awarding of civil works contracts, or further implementation of the relevant section of the subprojects.

52. MPRDC will (i) carry out meaningful consultation with project affected persons during the entire project; (ii) implement the subprojects in accordance with the RF, RPs prepared; (iii) ensure that all displaced persons should be paid compensation and assistance prior to the commencement of the civil works, (iv) ensure that the land should be made free of encumbrances and obstructions from the related section required to be handed over to the civil works contractor for and prior to commencement of construction thereof in accordance with the work schedule under the related civil works contract, (v) establish efficient grievance redress mechanism to assist affected persons to resolve grievances and complaints if any in a timely manner; and (vi) provide semi-annual progress reports to ADB.

53. Should there be any involuntary resettlement, the implementation of the resettlement plans will be monitored internally by MPRDC and the implementation NGO engaged by MPRDC. Should the impact be significant, a qualified and experienced external monitoring agency/experts of the CSC, will undertake the external monitoring of the safeguards and relevant social issues.

54. **Impact on indigenous peoples.** The project has been categorized "C" as per ADB's SPS. An indigenous peoples planning framework (IPPF) has been prepared to guide the screening and preparation of planning documents for non-sample subprojects. Subproject with significant impacts on indigenous peoples will not be financed. In accordance with the framework, if any impacts on indigenous people are identified in the subsequent subprojects, the EA will prepare an indigenous peoples plan (IPP) and submit it to ADB for approval before award of related civil works contract and implemented before commencement of the relevant section of the civil works contract as applicable. Any update of IPP during implementation shall follow requirements similar to the RPs as described for involuntary resettlement.

### **C. Grievance Redress Mechanism**

55. The project specific grievance redress mechanism (GRM) will be established to receive, and facilitate the resolution of displaced people's concerns, complaints and grievances about the social and environmental performance at the project level. The GRM will aim to provide a time bound and transparent mechanism to voice and resolve social and environmental concerns linked with the project. The project specific GRM is not intended to bypass the government's own redress process, rather it is intended to address project affected people's concerns and complaints promptly, making it readily accessible to all segments of affected persons and is scaled to the risks and impacts of the project. Hence, depending on the nature and significance of the grievances or complaints, the GRM will comprise procedures to address grievances at the project site level and MPRDC level. More serious complaints which cannot be addressed at the MPRDC level will be forwarded to the respective Grievance Redress Committee (GRC).

### VIII. GENDER AND SOCIAL DIMENSIONS

56. **Gender:** For the project, gender-sensitive measures have been integrated to maximize project benefits to women. The table below list out the measures and institutions responsible for implementation.

	<b>Activity</b>	<b>Responsibility</b>
1	Integrate safety and elderly-women-children-disabled (EWCD) friendly features into road design such as well marked crossings, safety signage, pedestrian walkways in the form of raised walkway, hard shoulder, soft shoulder, or covered drains depending on available ROW and local needs	Designed by DPR Consultant  Implemented by civil works contractor  Monitored by PIU / CSC
2	Give preference to employing local women for road maintenance during the 5-year maintenance period, and provisions in bidding documents ensure equal wages for equal work done by both male and female skilled and unskilled labor in project works	Implemented by civil works contractor  Monitored by PIU / CSC  (sex disaggregated data to be collected for number of maintenance workers employed)
3	Provide basic training to 100% of road maintenance workers employed	Implemented by civil works contractor  Monitored by PIU / CSC
4	Appoint a social and gender focal at the MPRDC and PIU level	Implemented by PIU / MPRDC  Monitored by ADB
5	Build the capacity of EA and IA on gender-inclusive design and mainstreaming gender in future project preparation, consultation, road construction, and maintenance.	Implemented by CSC  Monitored by ADB

57. **HIV/AIDS.** The State and MPRDC shall ensure that the Works contracts under the Project incorporate provisions to the effect that the contractors are required to (i) carry out HIV/AIDS awareness programs for labor; (ii) disseminate information at worksites on risks of sexually transmitted diseases and HIV/AIDS as part of health and safety measures for those employed during construction. Such contracts will also include clauses for termination in case of any breach of the stated provisions by the Contractors. The CSC will monitor the implementation.

58. **Labor Standards.** The State and MPRDC shall ensure that the Works contracts under the Project follow all applicable labor laws of Government of India and State of Madhya Pradesh and that these further include provisions to the effect that contractors (i) follow and implement all statutory provisions on labor (including not employing or using children as labor, equal pay for equal work), health, safety, welfare, sanitation, and working conditions. Such contracts will also include clauses for termination in case of any breach of the stated provisions by the Contractors. The CSC will monitor the implementation.

## IX. PERFORMANCE MONITORING, EVALUATION, REPORTING AND COMMUNICATION

### A. Project Design and Monitoring Framework

59. The design and monitoring framework (DMF) is in Attachment 2.

### B. Monitoring

60. **Project performance monitoring.** The achievement of the project performance targets will be assessed following the DMF. MPRDC will, within 3 months of the loan signing, develop a systematic project performance monitoring system, in form and substance acceptable to ADB, for use throughout the life of the Project. MPRDC will also establish, within 3 months of loan effectiveness, a baseline for performance indicators to be used for monitoring implementation of each road subproject. MPRDC will conduct annual evaluation surveys for each road subproject, in accordance with the project performance monitoring system, to evaluate the scope, implementation arrangements, progress, and achievement of the project objectives.

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

62. **Safeguards monitoring:** Implementation of the EMP, RP, IPP, and social mitigation measures will be monitored internally by designated MPRDC officers and externally by the CSC.

**Environment Safeguard Monitoring.** For environment safeguards records on implementation of the mitigation measures on site will be maintained by the contractor. Based on these records and spot checks of at least once a month by designated MPRDC staff (internal monitor) and CSC, monitoring reports will be compiled on a quarterly basis. These quarterly monitoring reports will further be compiled into a semi-annual reports for all subprojects for further submission to ADB for disclosure on the ADB website. If there are any changes in the design or alignment or if there are any unanticipated impacts, the EMP of the respective subproject will be updated to account for any additional or new environmental impacts and relevant corrective actions. Further the need for revising the respective IEE report will also be reviewed and confirmed in discussion with ADB.

**Social Safeguard Monitoring.** The Environment and Social Unit of MPRDC will be responsible for overall internal monitoring and evaluation of the project progress for social safeguard. If there is involuntary resettlement, the internal monitor will monitor and verify RP implementation to determine whether resettlement goals have been achieved, livelihood and living standards have been restored, and provide recommendations for improvement. Monitoring will also ensure recording of displaced persons' (DP's) views on resettlement issues such as; DP's understanding of entitlement policies, options, and alternatives; site conditions; compensation valuation and disbursement; grievance

redress procedures; and staff competencies. The internal monitor will also evaluate the performance of the NGOs (if required). The monitoring reports will be sent to ADB twice a year. For subprojects that have significant adverse safeguard impacts, the resettlement specialist of the CSC will be the external monitor. An important function of the external monitoring expert is to advise MPRDC on safeguard compliance issues. If significant non-compliance issues are identified, MPRDC is required to prepare a corrective action plan to address such issues. MPRDC will document monitoring results, identify the necessary corrective actions, and reflect them in a corrective action plan. MPRDC, in each quarter, will study the compliance with the action plan developed in the previous quarter. Compliance with loan covenants will be screened by MPRDC.

**Gender Monitoring.** The CSCs will undertake monitoring for number of women employed for maintenance. Sex-disaggregated data should be collected and reported on a semi-annual basis.

### **C. Evaluation**

63. 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. As necessary, special loan administration missions and a midterm review mission will be fielded, under which any changes in scope or implementation arrangement may be required to ensure achievement of project objectives. MPRDC 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. A project completion report<sup>12</sup> will be submitted by MPRDC within 3 months of physical completion of the project, providing detailed evaluation of the progress of implementation, costs, consultant performance, social and economic impact, and other details as requested by ADB.

### **D. Reporting**

64. MPRDC 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 and (d) updated implementation plan for next 12 months; and (iii) a project completion report within 6 months of physical completion of the Project. To ensure projects continue to be both viable and sustainable, project financial statements and the executing agency AFSs, together with the associated auditor's report, should be adequately reviewed.

### **E. Stakeholder Communication Strategy**

65. Salient information regarding the project, including scope, general progress status, beneficiaries, invitation for bid and consultant recruitment notices, will be provided to the general public. The information will be made available and updated through the official website of MPRDC. The safeguard documents i.e., environmental assessment and review framework, initial environmental examination including EMP, resettlement framework, resettlement plans, indigenous people planning framework, indigenous peoples plan (if any) will be posted on ADB's website. MPRDC will provide relevant information, including information from the above

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<sup>12</sup> Project completion report format available at: <http://www.adb.org/sites/default/files/pai-6-07-a.pdf>

documents in a timely manner, in an accessible place and in a form and languages understandable to the displaced people and other stakeholders. If the displaced people are illiterate other appropriate communication methods will have to be used.

## X. ANTICORRUPTION POLICY

66. The Government, State Government, and MPRDC are advised of ADB's Anticorruption Policy (1998, as amended to date). Consistent with its commitment to good governance, accountability and transparency, implementation of the Project shall adhere to ADB's Anticorruption Policy. ADB reserves the right to review and examine, directly or through its agents, any alleged corrupt, fraudulent, collusive, or coercive practices relating to the Project. In this regard, investigation of government officials, if any, would be requested by ADB to be undertaken by the government.

67. To support these efforts, relevant provisions of ADB's Anticorruption Policy are included in the Loan Regulations, Agreements, and the bidding documents. In particular, all contracts financed by ADB shall include provisions specifying the right of ADB to audit and examine the records and accounts of the State and MPRDC, and all contractors, suppliers, consultants, and other service providers as they relate to the Project. Individuals/entities on ADB's anticorruption debarment list are ineligible to participate in ADB-financed activity and may not be awarded any contract under the Project.<sup>13</sup>

68. Madhya Pradesh has been amongst the first states in the country to enact specific legislation for anticorruption measures, through the "*Lokayukta Evam Uplokayukt Adhininyam*" (Act 37 of 1981) (Act to appoint an anticorruption ombudsman with specific powers). MPRDC will follow norms and standards prescribed in the executive orders issued by the State Government from time to time, which emphasizes on transparency in managing of works. To achieve this goal, the e-tendering system has been introduced in 2009. Other initiatives such as such as computerization of accounts and web based work progress monitoring system have been developed to enhance transparency.

69. ADB's Anticorruption Policy designates the Office of Anticorruption and Integrity<sup>14</sup> as the point of contact to report allegations of fraud or corruption among ADB-financed projects or its staff. Office of Anticorruption and Integrity is responsible for all matters related to allegations of fraud and corruption. For a more detailed explanation refer to the Anticorruption Policy and Procedures. Anyone coming across evidence of corruption associated with the Project may contact the Anticorruption Unit by telephone, facsimile, mail, or email at the following numbers/addresses:

- by email at [integrity@adb.org](mailto:integrity@adb.org) or [anticorruption@adb.org](mailto:anticorruption@adb.org)
- by phone at +63 2 632 5004
- by fax to +6326362152
- by mail at the following address (**Please mark correspondence Strictly Confidential**):  
Office of Anticorruption and Integrity  
Asian Development Bank  
6 ADB Avenue

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<sup>13</sup> ADB's Integrity Office web site is available at: <http://www.adb.org/integrity/unit.asp>

<sup>14</sup> ADB's Integrity Office web site is available at: <http://www.adb.org/integrity/unit.asp>

Mandaluyong City 1550  
Metro Manila, Philippines

70. The website of MPRDC will provide updated, detailed information on project implementation. For example, it will include procurement-related information, such as ongoing tenders, list of participating bidders, name of the winning bidder, basic details on bidding procedures adopted, amount of contract awarded, and the list of goods and/or services procured.

## **XI. ACCOUNTABILITY MECHANISM**

71. 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 a good faith effort 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.<sup>15</sup>

72. MPRDC has issued an order to establish a grievance redress mechanism.<sup>16</sup> The relevant committees and staff to make the mechanism operational have to be put in place prior to carrying out social surveys for any subproject. The grievance redress mechanism will ensure greater accountability, to receive and resolve complaints, as well as to act upon stakeholders' reports of irregularities on project related matters, including grievances concerning environment and resettlement. The existence of this mechanism will be publicized to ensure that stakeholders are aware that a venue is available to address concerns or grievances relating to fraud, corruption, abuse, and any other aspects of project implementation.

## **XII. RECORD OF PAM CHANGES**

73. All revisions/updates during course of implementation should retained in this Section to provide a chronological history of changes to implemented arrangements recorded in the PAM.

<b>Sl. No.</b>	<b>Date</b>	<b>Description of Revisions</b>
1.	27-June-2014	First draft at Fact Finding Mission

<sup>15</sup> For further information see: <http://www.adb.org/Accountability-Mechanism/default.asp>.

<sup>16</sup> Through an order dated 09/06/2014

## PROCUREMENT PLAN

### Basic Data

<b>Project Name:</b> Madhya Pradesh District Connectivity Sector Project	<b>Executing Agency:</b> Government of Madhya Pradesh, acting through Madhya Pradesh Road Development Corporation (MPRDC), Bhopal
<b>Country:</b> India	<b>Loan Number:</b>
<b>Loan Amount:</b> \$350,000,000	<b>Date of First Procurement Plan:</b> 26-Jun-2014
	<b>Date of this Procurement Plan</b>

### A. Process Thresholds, Review and 18-Month Procurement Plan

#### 1. Project Procurement Thresholds

1. Except as the Asian Development Bank (ADB) may otherwise agree, the following process thresholds shall apply to procurement of goods and works.

#### Procurement of Goods and Works

Method	Threshold
International Competitive Bidding for Works	Above \$40 million
International Competitive Bidding for Goods	Above \$1 million
National Competitive Bidding for Works	Below \$40 million
National Competitive Bidding for Goods	Below \$1 million
Shopping for Goods	Below \$100,000

#### 2. ADB Prior or Post Review

2. Except as ADB may otherwise agree, the following prior or post review requirements apply to the various procurement and consultant recruitment methods used for the project.

Procurement Method	Prior or Post	Comments
<b>Procurement of Works and Goods</b>		
ICB for Works	Prior	
ICB for Goods	Prior	
NCB for Works	Prior	
NCB for Goods	Prior	
Shopping for Goods	Prior	
<b>Recruitment of Consulting Firms</b>		
Quality- and Cost-Based Selection (QCBS)	Prior	

#### 3. Goods and Works Contracts Estimated to Cost More Than \$1 Million

3. The following table lists goods and works contracts for which procurement activity is either ongoing or expected to commence within the next 18 months.

General Description	Contract Value	Procurement Method	Prequalification of Bidders (Y/N)	Advertisement Date (Quarter, Year)	Comments
Road Construction, including culverts, bridges, and associated works	\$78 million in 4 contract packages	ICB	N	Q2/ 2014	Four sample road contracts: <ul style="list-style-type: none"> <li>• Chitrangi–Kasar (40 km)</li> <li>• Dabra–Bhitarwar-Harsi (62 km)</li> <li>• Mahua–Chuwahi (49 km)</li> <li>• Ujjain–Maksi (36 km)</li> </ul>
Road Construction, including culverts, bridges, and associated works	\$10-40 million	ICB	N	Q4/ 2014 – Q2/ 2015	14 contract packages for about 1400 km

#### 4. Consulting Services Contracts Estimated to Cost More Than \$100,000

4. The following table lists consulting services contracts for which procurement activity is either ongoing or expected to commence within the next 18 months.

General Description	Contract Value	Recruitment Method	National or International Assignment	Advertisement Date (Quarter, Year)	Comments
Construction Supervision		QCBS (80:20)	International	Q2/ 2014	Package Bhopal-1 <sup>17</sup> 1:
Construction Supervision		QCBS (80:20)	International	Q3/ 2014	Package Jabalpur <sup>18</sup> 2:
Construction Supervision		QCBS (80:20)	International	Q3/ 2014	Package Bhopal-2 <sup>19</sup> 3:

<sup>17</sup> Package 1 covers the following roads in Bhopal Circle: Sample roads package Mahua – Chuwahi (49 km), Chitrangi – Kasar (40 km), Dabra – Bhitarwar – Harsi (62 km), Ujjain – Maksi (37 km). Non-sample roads Hardua – Chakghat (92 km), Rewa – Bankuiya – Semariya (33 km), Barkha - Parsona (79 km).

<sup>18</sup> Package 2 covers roads in the following districts: MDRs in Jabalpur Circle

<sup>19</sup> Package 3 covers roads in the following districts: MDRs in Bhopal Circle (2)



**B. Indicative List of Packages Required Under the Project**

5. The following table provides an indicative list of all procurement (goods, works and consulting services) over the life of the project. Contracts financed by the Borrower and others are also be indicated, with an appropriate notation in the comments section.

<b>General Description</b>	<b>Estimated Value (Cumulative)</b>	<b>Estimated Number of Contracts</b>	<b>Procurement Method</b>	<b>Domestic Preference Applicable</b>	<b>Comments</b>
Works	\$385 million	18	ICB	No	
<b>General Description</b>	<b>Estimated Value (Cumulative)</b>	<b>Estimated Number of Contracts</b>	<b>Recruitment Method</b>	<b>Type of Proposal</b>	<b>Comments</b>
Consulting Services	\$16 million	3	QCBS (80:20)	Full Technical Proposal	

## DESIGN AND MONITORING FRAMEWORK

### DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
<p><b>Impact</b></p> <p>Improved road transport connectivity in the state of Madhya Pradesh</p>	<p>By 2024</p> <p>Inter-district connectivity with high standard of road network (standard lane width MDRs) increased to 55% from 35% of the total length of MDRs in the state, in 2013</p>	<p>Post-implementation reports published by MPRDC</p>	<p><b>Assumption</b></p> <p>Road improvement remains a priority for GOMP</p> <p><b>Risk</b></p> <p>Funding sources from GOMP, beyond the Project, are not available</p>
<p><b>Outcome</b></p> <p>Improved road transport efficiency in Madhya Pradesh</p>	<p>By 2018 (for all indicators)</p> <p>Movement of people and goods on roads rehabilitated (measured by the average daily vehicle-km in the first full year after completion of the project) increased to 2,465,000 from 1,586,000 in 2013</p> <p>Average travel time on the project roads reduced by 25% from 2.49 minutes per km in 2013 as indicated in the detailed project reports.</p> <p>Vehicle operating cost (economic) on the project roads reduced by 25% from Rs.9.13 per km in the case of cars and Rs.23.80 in the case of medium trucks in 2013, as indicated in the detailed project reports</p> <p>Deaths from road accidents on an annual basis on the project roads reduced to less than 25 from 30 as in 2013.</p>	<p>Post-implementation measurement by MPRDC</p> <p>Post-implementation measurement by MPRDC</p> <p>Post-implementation measurement by MPRDC</p> <p>Data collated from police jurisdictions by MPRDC</p>	<p><b>Assumption</b></p> <p>Sustainable mechanisms are in place for funding the required road maintenance works.</p> <p>Traffic measures are enforced by local police</p> <p><b>Risks</b></p> <p>Severe economic reversals are encountered in the state.</p>

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
<b>Outputs</b>  1. Major district roads reconstructed and rehabilitated to all-weather standards and designed for road safety	By 2018  About 1,600 km of MDRs reconstructed and rehabilitated, with EWCD-friendly road safety features at appropriate locations. <sup>20</sup>  About 1,600 km of MDRs under the project integrated into the accident response system being developed by MPRDC.	Progress reports by MPRDC  Progress reports by MPRDC.	<b>Assumption</b>  No major turnover in responsible MPRDC staff during implementation
2. Improved road maintenance and asset management	By 2018:  PPP contracts with 5 year performance based maintenance adopted for all MDRs under the project.  Financial framework for proper maintenance of roads approved by GOMP	Awarded PPP contracts  Financial framework	
<b>Activities with Milestones</b> <b>Output 1 – Major district roads reconstructed and rehabilitated to all-weather standards and designed for road safety</b> 1.1 Prepare safeguard documents: RP and EIA/ IEE completed for sample roads by Q2 2014 and non-sample roads by Q4 2014. 1.2 Award and mobilize construction supervision consultant by Q4 2014. 1.3 Award contracts for reconstruction/ rehabilitation of about 1600 km of roads by Q1 2015 and complete construction by Q2 2018. 1.4 MDRs under the project designed for road safety and integrated into the accident response system developed by MPRDC by Q2 2018. 1.5 Conduct post-implementation measurement of indicators by MPRDC by Q4 2019  <b>Output 2 – Improved road maintenance and asset management</b> 2.1 Award PPP contracts for MDRs under the project by 2018. 2.2 Financial framework for proper maintenance of roads operational by 2019.		<b>Inputs</b>  <b>Loan</b> <b>ADB:</b> \$350 million  <b>Government of Madhya Pradesh:</b> \$150 million	

GOMP = Government of Madhya Pradesh, km = kilometer, MDR = major district road, MPRDC = Madhya Pradesh Road Development Corporation, PPP = public-private partnership  
 Source: Asian Development Bank.

<sup>20</sup> EWCD = elderly- women- children- , and disabled-friendly features. Features include well marked crossings, safety signage, and pedestrian walkways.

## LIST OF PROJECT ROADS AND SUMMARY OF DESIGN STANDARDS

### I. SAMPLE ROADS

Sl. No.	MDR Number *	Name of Road	District	Length (km)	Cost \$ million
1		Chitrangi – Kasar	Sidhi/ Singrauli	40.39	15.25
2		Dabra – Bhitwar – Harsi	Gwalior/ Shivpuri	62.40	24.44
3		Mahua – Chuawahi	Sidhi/ Singrauli	49.10	21.98
4		Ujjain – Maksi Road	Ujjain	36.34	15.91
				188.23	77.58

\* These are newly constituted MDRs and numbers are not yet assigned

### II. NON – SAMPLE ROADS

#### Set 1: Rewa – Singrauli Division

Sl. No.	MDR Number *	Name of Road	District	Length (km)
1		Hardua – Chakghat	Rewa	92.26
2		Parsona – Mahua (Up to Barkha)	Singrauli	65.26
3		Rewa – Bankuiya – Semariya	Rewa	33.41
		Total		190.93

\* These are newly constituted MDRs and numbers are not yet assigned

**Set 2: Bhopal Circle**

Sl. No	MDR No.	Name of Road	District	Length (In Km.)
1	MP-MDR-01-01	Mohanpur-Behat-Mau Road	Gwalior	41.20
2	MP-MDR-02-03	Behat-Mau Road		10.00
3	MP-MDR-01-08	Murar Chitora Road		19.00
4	MP-MDR-02-08	Murar Chitora Road	Bhind	10.40
5	MP-MDR-07-06	Mohna Pohri Road	Shivpuri	64.00
6	MP-MDR-07-10	Pachwali Rannod Road	Guna	23.00
7	MP-MDR-07-04	Rannod Pichhore Road		37.40
8	MP-MDR-06-09	Bhasula Chainpur Vijaypur Dhanrawad Road		20.30
9	MP-MDR-08-11	Ashoknagar-Thubon (including Kolua Road)	Ashoknagar	30.00
10	MP-MDR-06-03	Maksudanganj Najeerabad Road	Bhopal	20.40
11	MP-MDR-23-08	Najeerabad-Maksudangarh Road		11.50
12	MP-MDR-23-06	Berasia-Najeerabad Road		30.00
13	MP-MDR-23-10	Vidisha-Berasia Road	Vidisha	15.00
14	MP-MDR-27-01	Vidisha-Berasia Road		24.20
15	MP-MDR-10-02	Dewas-Newari Road	Dewas	27.60
16	MP-MDR-09-04	Mahidpur-Panvihar Jeevaji Nagar Road	Ujjain	32.00
17	MP-MDR-11-02	Shajapur Bercha Road	Shajapur	16.40

18	MP-MDR-11-13	Shajapur-Dupada-Kanad-Pachlana-Pilvas- Nalkheda Road		55.30
19	MP-MDR-15-18	Sanver Kshipra Road	Indore	20.00
20	MP-MDR-16-11	Kanvan Magod Road	Dhar	47.20
21	MP-MDR-15-02	Mahu Simrol Road	Indore	17.40
22	MP-MDR-15-07	Depalpur Betma Road		20.00
23	MP-MDR-20-01	Sanawad Khargone Road Km 1 to 65/8	Khargone	64.80
24	MP-MDR-22-05	Rajpur-Khetia(Palsood-Niwali)	Badwani	42.60
25	MP-MDR-30-19	Hathnapur-Anwawlighat -Salkanpur Road	Hosangabad	28.18
26	MP-MDR-30-06	Tawa Bridge- Itarsi Mandi		11.12
27	MP-MDR-30-04	Itarsi-Dulriya-Tigria Road		26.20
TOTAL				765.20

**Set 3: Jabalpur Circle**

Sl. No	MDR No.	Name of Road	District	Length (In Km.)
1	MP-MDR-36-19	Rani Durgawati Samadhi Road	Jabalpur/ Mandla	19.20
2	MP-MDR-39-01	Katni-Vijay Raghavgarh-Barhi Road	Katni	51.40
3	MP-MDR-41-01	Gotegaon Road	Narsinghpur	12.60
4	MP-MDR-36-05	Tilwara-Chargaon Raod	Jabalpur	33.40
5	MP-MDR-31-13	Bandri Jaruwakheda Road	Sagar	24.20
6	MP-MDR-31-32	Nirtala Mandi Bamora Road		25.00
7	MP-MDR-32-12	Damoh-Hindoriya-Patera Road	Damoh	31.60
8	MP-MDR-34-04	Prithvipur-Niwari Road	Tikamgarh	22.80
9	MP-MDR-33-05	Ajaygarh-Toriya-Bariyapur Road	Panna	24.00
10	MP-MDR-35-25	Nougaon-Baldeogarh Road	Chhattarpur	36.00
11	MP-MDR-45-02	Sidhi Tikri Road	Sidhi	33.60
12	MP-MDR-43-02	Kyothi Katra Lalgon Road	Rewa	26.00
13	MP-MDR-43-04	Mauganj Katra Road		38.20
TOTAL				378.00

### III. DESIGN STANDARDS

The design standards and general design considerations for all subprojects include the following:

- i. Design standards will be in conformance with Indian Road Congress (IRC) codes and MORTH circulars and standards for design of roads and bridges.
- ii. As per IRC: 73, the minimum carriage-way width for MDRs is 3 meters. In consideration of future traffic growth and level of service, the subproject roads will be widened to 5.5 meter (intermediate lane) carriage-way. Where warranted due to future traffic growth, the existing road will be widened to 7 meter.
- iii. In built-up and urban areas, the widening will be accommodated within the existing right-of-way as far as possible.
- iv. Proper cross-drainage structures will be provided, wherever necessary, to ensure all weather connectivity. The overall width of culverts and new bridges will be 12 meters.
- v. In built up areas, side-drains of 'V' cross section will be provided. Footpaths will also be provided in built up areas, using paving blocks.
- vi. Adequate road safety features will be provided in accordance with the requirements of Indian Roads Congress/Ministry of Shipping, Road Transport and Highways standards.
- vii. Bituminous pavement will be provided, except in selected flood-prone areas, where concrete pavement may be provided based on a case-by-case assessment.
- viii. Design speeds will range from 50 to 80 KMPH, depending on available right of way and location. At rail-road crossings, 20 KMPH speed has been proposed.
- ix. In open areas, Flexible pavement having 300 mm thick Granular Sub Base (GSB) and 250 mm thick WMM has been designed. Dense Bituminous Macadam (DBM) of 70 mm layer will have a surface course or bituminous concrete top of 40 mm thickness in most cases.
- x. The built-up sections (within villages) have already been constructed with rigid pavement. Such sections will be strengthened with 300 mm thick Pavement Quality Concrete (PQC).



## SELECTION CRITERIA FOR SUBPROJECTS

### A. Subproject Selection Criteria

1. Unless modified or amended in the loan or project agreements, the Project will utilize the following subproject selection criteria and approval process.
2. A subproject will be eligible for financing under the Project if:
  - (i) It is to improve existing major district roads (MDR) or other district road (ODR), identified by Government of Madhya Pradesh (GOMP) as part of the road network implemented by the Madhya Pradesh Road Development Corporation (MPRDC);
  - (ii) It is the technically feasible least-cost option and a detailed project report prepared supports such feasibility of improving the road to (at least) a standard intermediate lane configuration or a two lane configuration;
  - (iii) An economic analysis of the subproject prepared in accordance with Asian Development Bank (ADB) Guidelines for the Economic Analysis of Project shows that the estimated economic internal rate of return will be at least 12%;
  - (iv) **Environmental Safeguards.** A subproject categorized as 'A' in accordance with ADB SPS will not be considered under the Project. The subproject has been screened for its environmental impacts in compliance with the requirements of India and ADB's Safeguards Policy Statement (2009), an initial environmental examination has been prepared for each subproject following the environmental assessment and review procedures as specified in the environmental assessment review framework agreed between GOMP and ADB.
  - (v) The subproject will minimize land acquisition. If land acquisition or involuntary resettlement is required for a subproject, a resettlement plan will be prepared in accordance with applicable national and state laws and regulations, ADB's Safeguards Policy Statement (2009); and the agreed resettlement framework;
  - (vi) **Social Safeguards.** A subproject categorized as 'A' in accordance with ADB SPS will not be considered under the Project. If any indigenous peoples/scheduled tribes are likely to be affected by a subproject, an indigenous peoples plan (IPP) will be prepared in accordance with the agreed indigenous peoples' planning framework (IPPF) and the ADB's Safeguards Policy Statement (2009);
  - (vii) Sufficient counterpart funding has been allocated to implement the subproject timely and efficiently in accordance with the overall implementation schedule; and;
  - (viii) For each subproject, all necessary government approvals will have been/ will be obtained as applicable.

## B. Approval Process

3. A subproject, to be eligible for financing, will conform to the following:
  - (i) MPRDC will select a possible subproject from priority roads identified by GOMP to be implemented by MPRDC. MPRDC will then conduct a feasibility study for the subproject including its cost estimate, technical and economic analysis. MPRDC will fill out a checklist for (a) involuntary resettlement; (b) indigenous people; and (c) environmental screening.
  - (ii) MPRDC will submit (a) project selection and prioritization reports, and (b) the above checklists to ADB for further review, to obtain necessary guidance with regard to the extent of relevant analysis, assessment or plans.
  - (iii) ADB will review the reports submitted by MPRDC. If ADB finds that a proposed **subproject is not likely to satisfy the eligibility criteria and/or that the agreed procedures**, ADB will advise MPRDC either (a) to modify the subproject proposal in a manner that will make it eligible for approval; or (b) that the subproject must be rejected. If a subproject is rejected, MPRDC may propose a replacement subproject. If the ADB finds that the proposed subproject is likely to satisfy the eligibility criteria and procedures, ADB will advise whether, based on the resettlement checklist a resettlement plan is required, and based on the indigenous people checklist, whether an IPP is required. An initial environmental examination (IEE), including EMP, is required for all subprojects.
  - (iv) Following the review described in (iii) by MPRDC and/or ADB, MPRDC will conduct detailed design and, based on those works, develop a resettlement plan (if required) and IPP (if required), and undertake an IEE including an environmental management plan (EMP) with support of the on-going technical assistance consultants.<sup>1</sup>
  - (v) Where applicable, MPRDC will disclose the resettlement plan and IPP, and make it available to the displaced persons.
  - (vi) MPRDC will appropriately disclose the IEE.
  - (vii) The reports of preliminary design/other design work will be submitted by MPRDC following examples provided by the ADB based on the appraisal of the sample subproject.
  - (viii) MPRDC will send the relevant safeguard planning documents (resettlement plan, IPP, and IEE including EMP) to ADB for final review and approval.
  - (ix) After reviewing the appraisal reports and relevant safeguard documents, if ADB finds that the proposed subproject does satisfy the eligibility criteria and procedures, ADB will approve the subproject. If ADB finds that the proposed subproject does not satisfy the eligibility criteria and procedures, or does not comply with ADB's Safeguard Policy Statement, ADB may (a) advise MPRDC on remedial actions to be taken for the proposed subproject in order for it to comply or (b) reject the subproject.

## **TERMS OF REFERENCE FOR CONSTRUCTION SUPERVISION CONSULTANTS**

### **1. BACKGROUND**

The Government of India has applied for financial assistance from the Asian Development Bank (ADB) towards the cost of the proposed Madhya Pradesh District Connectivity Sector Project (MPDCSP) aims to improve about 1600 km of priority district road sections in Madhya Pradesh state of India.

Madhya Pradesh Road Development Corporation Ltd. (MPRDC), a company fully owned by Govt. of Madhya Pradesh has been entrusted with the responsibility of Widening and Re-construction of Major District Roads (MDRs) under MPDCSP. These Terms of Reference (TOR) broadly define the services required of the consultant who is to be engaged to assist the Madhya Pradesh Road Development Corporation Ltd. in the implementation of the afore mentioned Project. The Project is being considered for financing by the Asian Development Bank (ADB). The Consultants shall be engaged under three packages namely Package - 1 (Bhopal-1), Package-2: (Jabalpur) and Package-3: (Bhopal-2).

It is estimated that about 28 person-months of international staff and about 1600 person-months of national staff will be required for each consultancy package under the project.

Only the firms from the ADB member countries are eligible for participating in the process.

### **2. OBJECTIVE**

The objective of the proposed consultancy services is to assist the MPRDC to implement the subproject works in the State by:

- i. Ensuring high standards of quality assurance in the execution of work and completion of work within stipulated time limit. Consultant will be specially responsible for quality and timely completion;
- ii. Comprehensive supervising project implementation activities carried out by the Contractor(s) to ensure complete compliance with the drawings, technical specifications and various stipulation contained in the Contract Documents;
- iii. Efficiently supervising the construction by deploying personnel who are experienced in modern methodology of construction supervision and contract management;
- iv. Proper management of civil works contracts as "the Engineer" in terms of civil works contract;
- v. Comprehensive supervision of project implementation activities carried out by the contractors to ensure 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; and
- vi. Training MPRDC staff in managing the contracts.

### **3. CONTRACT MANAGEMENT FRAMEWORK**

The civil construction contract will be based on the FIDIC MDB June 2010 version (hereafter referred to as FIDIC) with appropriate amendments to incorporate local requirements.

MPRDC will administer the project as "the Employer".

MPRDC will nominate a senior officer, who will act as "Employer's Representative." Substitution of key professional staff and CVs of junior staff of the consultant shall be approved by this officer in MPRDC.

The construction supervision consultant (CSC) will act as "the Engineer" under FIDIC for the contract. The CSC will make the necessary measurements and ensure the quality of work. The CSC shall make all engineering decisions required during the implementation of the Contract. However, the CSC shall seek prior approval of the Employer with regard to the following:

- Issuing the order to commence the works;
- Issuing/approving variation orders in quantities exceeding 10% of the individual BOQ items or aggregate variation exceeding 5% of the contract value with financial implications;
- Issuing/approving variation orders for non BOQ items which have financial implications ; except in an emergency situation as reasonably determined by the CSC
- Sanction of additional items, sums or costs and variations of rates and price including fixation of new rates;
- Approval of subletting of any part of works;
- Approval of any extension of contractual time limits;
- Stopping and/or termination of the Contract of works;
- Where this TOR or the Civil construction contract conditions require to do so;

The CSC will be a firm of consultants. The firm's full time Director will be "the Engineer." The CSC designates its Team Leader as the Engineer's Representative, who shall act on all matters pertaining to the Engineer's Representative. However, the Consultant's firm shall be responsible for all actions taken by its Team Leader, and his team.

#### **4. SCOPE OF CONSULTING SERVICES**

The scope of consulting services will include, but not necessarily be limited to the following:

1. Act as the 'Engineer' in terms of civil works contract to the extent of the delegation given;
2. Assist the Employer in contract administration and management of the project and the civil works contract;
3. Interpretation of the Technical Specifications and Contract Documents;
4. Review designs, drawings, BOQ provisions and specification with respect to actual site conditions and suggest modifications, if required or deemed appropriate. Any realignment, redesign/modification, any additional design of bridge desired for completion of the project will be done by CSC and related approvals from concerned authorities will be obtained by the CSC without any extra cost including remuneration of personnel, equipment, software and office supplies;
5. Conduct road safety audit during construction and pre-opening of road for traffic;
6. Review and ensure conformity of contractor's securities in approved formats and ensure validity of these securities;
7. Ensure requisite insurances have been received and they comply with the requirements of the contract;

8. Review compliance with the documentation and advance actions requirements, including securing of all statutory clearances and permits or handing over of site, and advise on issuing the notice to set the Commencement Date;
9. Ensure the contractor effects and implements a system for the quality assurance of the works. The system of control of quality of materials and completed works shall also include sampling methods and criteria and acceptance criteria. The sampling methods and the acceptance criteria shall be based on statistical methods and the recommendations of the relevant IRC and MORTH/ IS publications (as applicable) and international practices;
10. Scrutinize the contractor's detailed work program, suggest modifications, if any, to the program after a careful study and ensure the contractor complies with the program;
11. Scrutinize and/or review contractor's superintendence, personnel and suggest modifications, if any;
12. Scrutinize the contractor's mobilization of the Contractor's Equipment to ensure the nominated plant and equipment is delivered to the site in accordance with the contractor's program and that permits where necessary are obtained in a timely manner;
13. Scrutinize the construction methods proposed by the contractor for carrying out the works to ensure that these are satisfactory with particular reference to the technical requirements, project implementation schedule and environmental aspects as well as safety of works, personnel and the general public;
14. Review the horizontal and vertical alignment for the roads based on review of tender drawings and the topographic survey carried out by the contractor. This work will include if required, amending the DPR alignment plan and profile drawings based on the updated topographic surveys;
15. Issue of finalized or revised 'Good for Construction' drawings and prepare and provide additional detailed drawings, if and as necessary, including drainage (inclusive of drainage scheme through the built-up areas), junctions, road signs and markings, safety measures, km stones, protection works etc. based on the contractor's survey and setting out;
16. Ensure all bridge details are complete and modify the design and drawings wherever required due to founding level as a result of the change in the founding strata or any other reason at the time of execution;
17. Scrutinize and approve the Contractor's working drawings based on survey setting out details, and drawings for temporary works, as required under the contract;
18. Carry out detailed checking and verification of the setting-out data for the work including lines, levels and layout to ensure conformity with the working drawings;
19. Carry out supervision of all works as per approved method statements of various items of work and ensure proper supervision as per requirement;
20. Examine Contractor's preparation and the completed portion of work as per 'requests for inspection' and promptly advise the contractor;
21. Monitor closely and regularly the progress of work and advise the contractor about corrective measures;
22. Carry out regular inspection of the contractor's equipment, plant, machinery, installations, housing and medical facilities etc. and ensure they are adequate and are in accordance with the terms and conditions of the contract;
23. Direct the contractor to carry out all such works or to do all such things as may be necessary to avoid or to reduce the risk in case of any emergency affecting the safety of life or of the works or of the adjoining property and advise the Employer thereof as soon thereafter as is reasonably practicable;

24. Supervise the Contractor in all matters concerning safety and care of the work including environmental aspects and labor welfare;
25. Witness sampling and testing being carried out by staff of the Contractor and undertake additional audit tests as necessary to ensure the quality of works and promptly inform the contractor of the results;
26. Review the test results/certificates of all construction materials and/or sources of materials and undertake additional tests as necessary to assess the quality of works;
27. Review all mix designs proposed by the contractors and approve/suggest modifications in the mix design, laying methods, sampling and testing procedure, and quality control measures, to ensure required standard and consistency in quality at the commencement of items;
28. Maintain a permanent record of all tests carried out for monitoring the quality of works;
29. Prepare updated and additional drawings as required during the contract period and supply to the contractor in time;
30. Measurement of quantities and certification, recording of measurements; verify, certify and issue interim and final payment certificate of the contractor based on the conditions of the contract/approval of employer;
31. Examine the requests for advances and monthly statements of contractors;
32. Support the MPRDC in matters relating to land acquisition and resettlement including updating the Resettlement Plan, monitoring the implementation of the resettlement plan and providing expert advice in all matters relating to acquisition and resettlement which include, but not necessarily limited to, the following activities;
  - (i) Review results of internal monitoring and verify claims through random checking at the field level to assess whether resettlement objectives have been generally met. Involve the affected people and the community groups in assessing the impact of land acquisition for monitoring and evaluation purposes.
  - (ii) Identify the strengths and weaknesses of the resettlement objectives and approaches, implementation strategies and suggest corrective action plans.
  - (iii) Review and verify the progress in land acquisition/ resettlement implementation and prepare monthly and semi-annual monitoring reports for the EA and ADB respectively.
  - (iv) Evaluate and assess the adequacy of compensation given to the affected persons and the livelihood opportunities and incomes as well as the quality of life of the affected persons after the project induced changes.
  - (v) Evaluate and assess the adequacy and effectiveness of the consultative process with the affected persons, particularly those who are vulnerable, especially women, including the adequacy and effectiveness of the grievance redress mechanism and procedures available to the affected persons and dissemination of information about these.
  - (vi) Advise the EA on safeguard compliance issues and if necessary a corrective action plan will be prepared to address such issues.
33. Assist MPRDC in arranging the relocation of services including providing plans of the location of all services if not shown in sufficient detail on the existing plans, preparing correspondence for the MPRDC, arranging meetings and generally ensuring that the MPRDC is meeting the deadlines necessary to avoid delay claims from the Contractor;
34. Maintain a permanent record of all measurements for the work quantities to be paid for and of all payments made;

35. Prepare monthly reports fully describing the progress of works including implementation of environment, social and resettlement safeguard requirements and the services rendered by the Consultant during the month under review, indicating also the problem areas and action required to overcome them;
36. Prepare Financial Statements;
37. Maintain a day-to-day diary recording all events relevant to the works;
38. Review and approve 'as-built' drawings prepared by the contractor and maintain records of all test data and results and also certify "as constructed" drawings for each component of the works furnished by the contractor;
39. Inspect the works on completion of the milestone before accepting the work and indicate to Project Manager/Nodal Officer any outstanding work to be carried out by the contractor before issuing a milestone certificate;
40. Inspect the works on completion of the milestone for the whole of the Permanent Works before accepting the work and indicate to Project Manager/Nodal Officer any outstanding work to be carried out by the contractor before issuing the milestone certificate or during the Defects Notification Period for the Permanent Works;
41. Inspect the works at appropriate intervals during the Defect Notification Period for the Permanent Works (to the extent of the duration of the services) and advise the MPRDC on remedial works, if any;
42. Review the IEE report and update the Environmental Management Plan (EMP) and Environmental Monitoring Plan (EMOP);
43. Ensure the contractor implements the EMP;
44. Conduct coordination and training workshops on roles and responsibilities on EMP and EMOP implementation;
45. Prepare Environmental Monitoring reports based on the EMP and EMOP implementation activities for submission to ADB and disclosure on the ADB website (twice a year at least);
46. Provide advice on environmental safeguards compliance and help prepare corrective action plans when necessary;
47. Monitor the status of the contractor's compliance with HIV/AIDS provisions in the Civil Works Contracts;
48. Operate a quantitative and qualitative project performance monitoring system (PPMS) in consultation with ADB and to monitor and evaluate the performance of the project in relation to its goals, purposes and outputs. Carry out baseline surveys to collect baseline values with reference to the methodology developed under another study. The baseline values to be collected include, but not limited to, the followings; (a) traffic volumes and journey times, (b) freight tariffs and bus fares, (c) environment and social impact indicators, (d) socio – economic indicators and (e) social and poverty reduction impact indicators. Implementation and evaluation monitoring indicators would be measured at necessary agreed frequency during the project. Measurements of these indicators, together with relevant comments would be included in the Quarterly Progress reports and the Final Completion report; and
49. Assist the MPRDC staff to carry out all of the duties as defined above as they apply to the Maintenance Works Contracts until the completion of the services while simultaneously training the MPRDC staff to undertake all of these duties.
50. Assist MPRDC in respect of contractor's claims and other matters.
51. Assist MPRDC in preparing the reply with respect to the arbitration, the appeal of arbitration or litigation related to the work, whenever required.
52. Make online entries on the MIS system of MPRDC.

53. Provide services of any other specialist (not listed in the contract), as may be required and authorized by MPRDC, at the rate established in the Construction Supervision Contract or as mutually agreed upon.

## 5. OTHER RELEVANT INFORMATION

The detailed engineering for the work has been presented in the Detailed Project Reports (DPRs) for each contract package, prepared generally in accordance with the Indian Roads Congress standards, by the consultants engaged by MPRDC.

The DPRs contain drawings which are deemed 'Good for Construction' except where modification is required to adapt to on site conditions.

The Specifications are based on the latest edition of the Ministry of Shipping, Road Transport and Highways (MORTH) Specifications for Roads and Bridge Works.

## 6. MEASUREMENT OF QUANTITIES AND CERTIFICATION TO CONTRACTOR

- i. The CSC must ensure that all the levels and detailed measurements required to arrive quantities of items are recorded in Measurement Book.
- ii. If CSC wants to use any software for working out the quantities of area or volume, such software/computer program shall be got approved from the Employer prior to its use. Nevertheless, recording of detailed measurements in the Measurement Book is necessary even when software is used by the CSC. In any circumstances standard mode of measurement as given under MORTH specifications shall not be deviated.
- iii. The CSC will process interim and final payments certificates for the contractor's work in accordance with contract of the civil works contractor. Interim monthly payments shall be based on interim payment certificates processed by the CSC on the basis of statements filed by the Contractor. The CSC should ensure that all the deductions are made as per the Contract provisions before recommending the interim payment certificate. The CSC will be liable to pay the Contractors' claims on account of delay in payment of interim payment certificate due to recommending of ineligible payments or not proposing of eligible recoveries/ deductions. In processing contractual certificates, the Team Leader of the CSC will certify that he has checked at least 15% of the measurements and quality control tests. The Resident Engineer checks and certifies 50% of the measurements and quality control tests, while the Assistant Resident Engineer checks and certifies 100% of the measurements and quality control tests. The Team Leader shall intimate the details of these check tests to the Project Manager/Nodal Officer before undertaking them, so that the Project Manager/Nodal Officer could associate, if they wish to do so. The Consultant or any of his concerned experts shall do the repeat tests or measurements, if directed by the Project Manager/Nodal Officer In-Charge of the construction package, in the presence of the same or any of his delegated representatives. In case of any conflict the Consultant may do the test check in the presence of the Project Manager/Nodal Officer In-Charge limited to 5% of total measurement/quality control tests.

## 7. EXPECTED INPUTS

The implementation of First phase of the Project is organized under seven construction packages. The suggested composition and duration for the Supervision Team for the Construction Supervision Consultancy Services is given in **Table 1**. Position based



tasks/responsibility assignments are given in **Table 2**. *These details are tentative and are likely to be refined for the RFP.*

**Table 1: Staffing Requirements**

Sl. No	Position	Person months <sup>a</sup>
<b>I International</b>		
1	Team Leader/ Senior Contract Administration Specialist – 1	28
	<b>Total (MM – International)</b>	<b>28</b>
<b>II National (TL’s HQ Office)</b>		
1	Senior Highway Engineer - 1	28
2	Senior Pavement Engineer – 1	6
3	Senior Material Engineer – 1	24
4	Senior Quantity Surveyor cum Contract Specialist – 1	28
5	Senior Bridge Engineer – 1	26
6	R & R cum Social Development Specialist – 1	6
7	Environment Specialist – 1	26
8	CAD Expert – 1	28
9	Electrical Engineer - 1	26
	Total (MM –TL’s HQ Office)	198
<b>III Site office</b>		
1	Resident Engineer – 7	148
2	Assistant Resident Engineer ( Roads) – 7	148
3	Assistant Resident Engineer ( Bridge) – 7	148
4	Quantity Surveyor cum MIS In-charge – 7	148
5	Material Engineer / Quality Control Engineer – 7	120
6	Field Engineer – Roads – 10	186
7	Field Engineer – Bridges – 7	120
8	Field Engineer – Survey – 10	186
9	Lab Technician – 10	186
<b>IV</b>	<b>Total (MM – National Site Office)</b>	<b>1390</b>
<b>V</b>	<b>Total (MM – National TL’s Office + Site Office)</b>	<b>1616</b>

<sup>a</sup> these are indicative and will vary per package

## 8. ADDITIONAL SERVICES

The Construction Supervision Consultant shall, if so required by the Client, provide any additional service at rates or on man-month rates as per the contract, or as mutually agreed upon, as a variation order.

## 9. REPORTS

The Construction Supervision Consultant will prepare and submit the reports as listed in **Table-2** to the Client on the format prepared by the Consultant and as approved by the Client / (except for inception report)

**Table 2: Reports to be submitted**

Sl. No.	Report	Frequency	Due Date	No. of Copies	No. of CDs
1.	Inception Report	One Time	Within 30 days after commencement of services.	5	1
2.	Progress Report (Monthly & Quarterly)	Every month/three months	5 <sup>th</sup> of month following the reporting month/quarter	5	1
3.	Design Review Report	One Time	One months before start of construction of a section	5	1
4.	Final Report	One Time	Within 30 days of completion of services	10	5
5.	Construction Supervision Manual	One Time	30 days after commencement of services	5	1
6.	Quality Assurance (QA) Document	One Time	30 days after commencement of service	5	1
7.	Maintenance Supervision Manual	One Time	30 days before the expected commencement of the first maintenance works	5	1

- (i) **Inception Report**  
The Inception Report shall contain the details of all meetings held with the Client and any initial meetings held with the Contractor and decisions taken therein, the resources mobilized by the Construction Supervision Consultant as well as the Contractor and the Consultant's perception in the management and supervision of the project. The report shall also include the Master Work Program and Resources Mobilization for the Project.
- (ii) **Progress Reports**  
The Monthly Progress Report shall contain details of all meetings, decisions taken therein, mobilization of resources (Consultant and the contractors), physical and financial progress and the projected progress for the forthcoming periods and implementation of environment, social and resettlement safeguard requirements. The Report shall clearly bring out the delays, if any, reasons for such delay(s) and the recommendations for corrective measures. The Report shall also contain the performance data for contractor's plant and equipment.

The Quarterly Progress Report shall include similar details to the monthly reports for the last month of the quarter, and summarize the overall progress for the quarter and highlight the main issues and the action being proposed to address those issues.

(iii) Design Review Report

The Construction supervision consultant shall undertake a detailed engineering review of the design as included in the civil works contract drawings for the purpose of identifying any defects/omissions, which compromise the completeness or consistency of the design. This review shall be carried out immediately after the services commence and a detailed 'Design Review Report' shall be submitted to the Employer within 2 months. This report will set out all findings and recommendations for making good any defects/omissions identified in civil works designs. Notwithstanding the above, the supervision consultant shall also inform the Employer of any defect/omission which may have a substantial impact on the Project at the time the defect/omission is uncovered. Where defects in design are noted or designs are inadequate, the CSC shall prepare revised detail designs suitable for construction in adequate time so as not to delay the Contractor.

(iv) Final Report

The Consultant will prepare a comprehensive final completion report of the construction contract packages after completion of the Permanent Works. The reports shall incorporate summaries of the methods of construction, the construction supervision performed, reference to as-built drawings of the construction, problems encountered and solutions undertaken thereon and recommendations for future projects of similar nature to be undertaken by the MPRDC. The Consultant shall submit the self-appraisal report within the prescribed time summarizing the following details:

1. Details of Consultant's personnel including substitution made during the assignment.
2. Details of variation orders issued.
3. Details of extension of time granted to the Contractor.
4. Details of Quality Assurance System
5. Quality observed at site by the Consultant.
6. Details of claims.
7. Special preventive measures for maintenance suggested by the Consultant.
8. Overview on environment, social and resettlement safeguard requirements implemented.

The report will also summarize the maintenance works carried out to the time of the report on any of the construction contracts where maintenance has commenced.

(v) Construction Supervision Manual

The primary objective of the Construction Supervision Manual will be to evolve guidelines for administration, supervision and management of the project and the construction contracts to be implemented. Such a manual is not intended to be a contractual document nor is it to take precedence over the contract specifications. The Manual will merely act as a guide and reference to the various staff in the management and supervision of the project in discharging their duties in a smooth and systematic manner.

- (vi) **Quality Assurance Document**  
The Quality Assurance (QA) Documents shall be evolved on the basis of the relevant manual for quality system for bridges and highways published by the Indian Road Congress (IRC).
- (vii) **Maintenance Supervision Manual**  
The primary objective of the Maintenance Supervision Manual will be to evolve guidelines for administration, supervision and management of the maintenance components of the contracts and to assist the MPRDC in running this part of the works in their own right. Such a manual is not intended to be a contractual document nor is it to take precedence over the contract specifications. The Manual will merely act as a guide and reference to the various staff in the management and supervision of the maintenance works for the project in discharging their duties in a smooth and systematic manner.

## 11. STAFFING SCHEDULE

- i. The total implementation period for the Construction Supervision Consultant will consist of (i) individual construction periods of 12-24 month civil works contract and (ii) a defects notification period during which the Consultant will only require part time input over the first 12 months, as per the arrangement proposed.
- ii. The Supervision Consultant's site team would be mobilized progressively on the date of actual commencement of works by the contractors, or as decided by the Client. During the first 12 months of defects notification period, the Consultant's Team Leader along with other staff as in Table 2 will be required to continue on a periodic basis, as and when required, which will be dealt with separately at the appropriate stage towards the completion of the construction works.
- iii. After award of the contract for Consultancy Services, the Client expects all the proposed key personnel to be available during implementation of the Contract as per the agreed staffing schedule. The Client will not consider substitutions during contract implementation except under exceptional circumstances. In case of such replacements, the Consultant will ensure that there is a reasonable overlap between the staff to be replaced and the replacement wherever feasible/possible.

## 12. QUALIFICATION AND EXPERIENCE REQUIREMENTS

Qualification and experience requirements for Key Personnel of the Consultant are as suggested below:

### **Team Leader/Senior Contract Administration Specialist (International Position)**

a) Qualifications	Minimum: Bachelor's degree in civil engineering. Preferable: Post graduate degree in civil engineering or its related disciplines. Membership of professional institutions.
b) Total Professional Experience	20 yrs. minimum
c) Project-related Experience	Minimum 10 yrs. as Team Leader/Resident Engineer in supervision/contract administration or Project Manager of large highway or road and bridge construction contracts (at least 2 contracts each costing over US\$ 30 million administered under FIDIC or similar contract conditions), preferably managing multiple contracts.

d) Overseas/Country Experience	Preferably with substantial experience in developing countries.
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**Senior Highway Engineer (National Position)**

a) Qualifications	Minimum: Bachelor's degree in civil engineering Preferable: Post graduate degree in highway or transportation engineering. Membership of professional institutions.
b) Total Professional Experience	15 yrs. minimum
c) Project-related Experience	Minimum 8 years as Highway Engineer in designing highways for highway construction projects (at least 2 highway projects of similar nature costing over \$30 million each). Familiarity with international and Indian standards for design of highways including related software (MX-Road, AutoCAD 3-D Civil etc.).
d) Overseas/Country Experience	Preferably with substantial experience in developing countries

**Senior Pavement Engineer (National Position)**

a) Qualifications	Minimum: Bachelor's degree in civil engineering Preferable: Post graduate degree in civil engineering or its related fields. Membership of professional institutions
b) Total Professional Experience	15 yrs. minimum
c) Project-related Experience	Minimum 8 years as Pavement Engineer and with experience of various designs and construction procedures for flexible and rigid pavements (at least 2 highway projects costing over US\$ 30 million each).
d) Overseas/Country Experience	Preferably with substantial experience in developing countries

**Senior Material Engineer (National Position)**

a) Qualifications	Minimum: Bachelor's degree in civil engineering Preferable: Post graduate degree in civil engineering or its related fields. Membership of professional institutions
b) Total Professional Experience	15 yrs. minimum
c) Project-related Experience	Minimum 8 years as Materials Engineer and with experience of various testing procedures, designs of various mixes like GSB, WMM, Bituminous mixes, Concrete Mixes, etc. (at least 2 highway projects costing over US\$ 30 million each).
d) Overseas/Country Experience	Preferably with substantial experience in developing countries

**Senior Quantity Surveyor cum Contract Specialist (National Position)**

a) Qualifications	Minimum: Bachelor's degree in civil engineering Preferable: Post graduate degree in civil engineering or its related fields. Membership of professional institutions.
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b) Total Professional Experience	15 yrs. minimum
c) Project-related Experience	Minimum 8 years as quantity surveyor (at least 2 projects of similar nature costing over US\$ 30 million each administered under FIDIC contract conditions). or Minimum 8 years in Contract administration of road construction contracts (at least 2 contracts each costing over US\$ 30 million administered under FIDIC contract conditions). Familiarity with international and Indian design standards. Hands-on experience in using various quantity-estimation software and
d) Overseas/Country Experience	Preferably with substantial experience in developing countries

#### **Senior Bridge Engineer (National Position)**

a) Qualification	Minimum: Bachelor's degree in civil engineering Preferable: Post graduate degree in Structural Engineering. Membership of professional institutions
b) Total Professional Experience	15 yrs. minimum
c) Project-related Experience	Minimum 8 years as Bridge Engineer and with experience of designs/supervisions (At least 2 bridge works each of length over 200 m or costing over US\$ 1 million).
d) Experience in working with international organizations/ agencies	Preferable.

#### **R & R cum Social Development Specialist (National Position)**

a) Qualification	Minimum: Bachelor's degree in civil engineering, sociology, or other relevant fields. Preferable: Post graduate degree in social science.
b) Total Professional Experience	7 yrs. minimum
c) Project-related Experience	Minimum 4 years as Resettlement Specialist/Resettlement and Rehabilitation (R&R) Specialist/Social Development Specialist dealing with land acquisition and/or R&R in large highway or road construction projects (at least 2 projects, preferably funded by international funding agencies such as ADB, World Bank, etc.) Conversant with the requirements of the international funding agencies for social safeguards, and familiar with preparation and implementation of R&R plans as per the requirements of ADB. Design or implementation of quantitative and qualitative project performance monitoring systems for large infrastructure projects of similar nature, preferably funded by international funding agencies such as ADB, World Bank, etc.

	Conversant with the requirements of the international funding agencies regarding project performance monitoring and evaluation.
d) Experience in working with international organizations/ agencies	Preferable.

**Environmental Specialist (National Position)**

a) Qualification	Minimum: Bachelor's degree in environmental engineering or Post Graduate degree in environmental science, environmental management or other related fields. Preferable: Post graduate degree in environmental engineering. Membership of professional institutions
b) Total Professional Experience	7 yrs. minimum
c) Project-related Experience	Minimum 4 years as Environment Specialist/Environment Engineer in large highway or road construction projects (at least 2 projects, preferably funded by international funding agencies such as ADB, World Bank, etc.) Required to be conversant with the requirements of the international funding agencies for environmental safeguards and familiar with preparation and execution of environmental management plans as per the requirements of ADB.
d) Experience in working with international organizations/ agencies	Preferable.

**CAD Expert (National Position)**

a) Qualification	Minimum: Diploma in civil engineering or other relevant fields.
b) Total Professional Experience	5 yrs. minimum
c) Project-related Experience	Minimum 3 years in computer-aided design of major highway projects.
d) Experience in working with international organizations/ agencies	Preferable.

**Electrical Engineer (National Position)**

a) Qualification	Minimum: Bachelor's degree in Electrical engineering. Preferable: Post graduate degree in Electrical engineering or its related disciplines. Membership of professional institutions.
b) Total Professional Experience	15 yrs. minimum

c) Project-related Experience	Minimum 8 yrs. as Electrical Engineer in construction/supervision/design of Electrical Infrastructure Projects (at least 2 contracts each costing over US\$ 2.5 million), preferably as Electrical Engineer in one Highway project.
d) Experience in working with international organizations/ agencies	Preferable.

**Resident Engineer (National Position)**

a) Qualification	Minimum: Bachelor's degree in civil engineering. Preferable: Post graduate degree in civil engineering or its related disciplines. Membership of professional institutions.
b) Total Professional Experience	15 yrs. minimum
c) Project-related Experience	Minimum 8 yrs. as Resident Engineer/Project Manager in supervision or contract administration of large highway or road and bridge construction contracts (at least 2 contracts each costing over US\$ 30 million administered under FIDIC contract conditions), preferably managing multiple contracts.
d) Experience in working with international organizations/ agencies	Preferable.

**Assistant Resident Engineer (Road) (National Position)**

a) Qualification	Minimum: Bachelor's degree in civil engineering. Preferable: Post graduate degree in civil engineering or its related disciplines. Membership of professional institutions.
b) Total Professional Experience	10 yrs. minimum
c) Project-related Experience	Minimum 5 yrs. as Asstt. Engineer/ Dy. Project Manager in supervision or contract administration of large highway or road and bridge construction contracts (at least 2 contracts each costing over US\$ 20 million administered under FIDIC or similar contract conditions), preferably managing multiple contracts.
d) Experience in working with international organizations/ agencies	Preferable.

**Assistant Resident Engineer (Bridge) (National Position)**

a) Qualification	Minimum: Bachelor's degree in civil engineering. Preferable: Post graduate degree in civil engineering or its related disciplines. Membership of professional institutions.
b) Total Professional Experience	10 yrs. minimum



c) Project-related Experience	Minimum 5 yrs. as Asstt. Engineer/Dy. Project Manager in supervision or contract administration of bridge work (at least 2 works each costing over US\$ 5 million administered under FIDIC or similar contract conditions), preferably managing multiple contracts. Exclusive experience in Bridges for two years is preferable.
d) Experience in working with international organizations/ agencies	Preferable.

**Quantity Surveyor cum MIS In-charge (National Position)**

a) Qualification	Minimum: Bachelor's degree in civil engineering Preferable: Post graduate degree in civil engineering or its related fields. Membership of professional institutions.
b) Total Professional Experience	10 yrs. minimum
c) Project-related Experience	Minimum 5 years as quantity surveyor/assistant quantity surveyor (at least 2 projects of similar nature costing over US\$ 10 million each administered under FIDIC contract conditions). Familiarity with international and Indian design standards. Hands-on experience in using quantity-estimation software.
d) Experience in working with international organizations/ agencies	Preferable.

**Material Engineer / Quality Control Engineer (National Position)**

a) Qualification	Minimum: Bachelor's degree in civil engineering Preferable: Post graduate degree in civil engineering or its related fields. Membership of professional institutions
b) Total Professional Experience	10 yrs. minimum
c) Project-related Experience	Minimum 5 years as Materials Engineer/ Assistant Materials Engineer and with experience of various testing procedures, designs of various mixes like GSB, WMM, Bituminous mixes, Concrete Mixes, etc. (at least 2 highway/bridge projects costing over US\$ 20 million each). Hands-on experience in Quantity Control is preferable along with above.
d) Experience in working with international organizations/ agencies	Preferable.

**Field Engineer – Roads/ Bridges/ Survey (National Position)**

a) Qualification	Minimum: Diploma in civil engineering Preferable: Bachelor's degree in civil engineering or its related fields.
b) Total Professional Experience	5 years minimum for degree holder. 8 years minimum for diploma holder.

c) Project-related Experience	Minimum 3 years in relevant area ( <u>Roads/ Bridges/ Survey</u> ) of operation in any construction supervision of road projects.
d) Experience in working with international organizations/ agencies	Preferable.

**Lab Technician (National Position)**

a) Qualification	Minimum: Diploma in civil engineering or Bachelor's degree in Science
b) Total Professional Experience	minimum 3 years for Diploma in civil engineering / 5 years for Bachelor's degree in Science
c) Project-related Experience	Minimum 2 years for Diploma in civil engineering / 3 years for Bachelor's degree in Science in testing construction materials.
d) Experience in working with international organizations/ agencies	Preferable.