
Detailed Project Report

A toolkit for use in the National Cyclone Risk Mitigation Project

Annexure - III: Format for preparation of DPR on Roads & Bridges



National Disaster Management Authority
Government of India

Annexure III- Format for the preparation of DPR on Roads and Bridges

Objective of NCRMP is to support the States to identify and implement high priority activities for cyclone risk mitigation such as (i) construction of cyclone shelters, and (ii) provision of missing road links and bridges for speedy evacuation of people and for subsequent movement of relief materials. Considerable length of rural roads have been planned / executed or are under execution through a host of community development programmes for rural roads, such as Food for Work Programme, Minimum Needs Programme, NREP, RLEGP, JRY, PMGSY etc.. The objective of those programmes is to ensure that the villages / cluster of villages progressively get an all weather connection to Block Head quarters (based on their population). This would normally suffice, since most of the Block Head-Quarters are already connected with the Sub-Divisional and District Head Quarters. (This would define the connectivity to be all-weather.) However these agencies under these different programmes are taking up construction of rural roads without a comprehensive master plan, which should be based on appropriate data of habitats, population and their occupational needs, geographical and climatic factors. Also many of these projects have been and are being done with specifications lower than what a proper design would require. Disaster situations are also not taken into consideration when such a master plan is made. Therefore requirements demanded during the severe disaster situations are rarely met with and frequently nature obliterates the assets created under various programmes and the substantial investments come to nought and the assets have to be created again at great cost to the public exchequer.

There is a need for development of a reliable road network so as to ensure speedy evacuation of people from vulnerable places to safer areas in the face of an impending disaster threat and also to ensure measures for relief in the event of a cyclonic storm surge attack. The link roads to the proposed cyclone shelters and to the existing storm resistant buildings, both public cyclone shelters and also private storm / storm surge resistant buildings, is very crucial for people to save their lives. This can be achieved only when the road networks also remain functional during this period. **This component is owned, maintained and executed by Line Departments like PWD, Panchayat Raj or Rural Development Department but have to be supported with greater allocations under the present NCRMP programme, through a Nodal Agency.**

Under this programme, it is not proposed to take up any road projects which are unconnected with the requirements for proper utilization of the cyclone shelters and cyclone/storm surge proof other public and private buildings. These are to be served mostly by arterial roads parallel to the direction of flow of storm surges or high floods caused by swelling rivers. Any attempt to obstruct the natural drainage by constructing high road embankments in a cross direction would only aggravate the situation and disturb the environment. Similarly, under this programme, long length major roads or large span bridges on missing links would not be encouraged, which, however, will have to be **identified and recommended by the State Government for inclusion under various other roads development programmes**, which are specially targeted for improvement of communication of the area. Only those roads should be included which will keep the cyclone proof buildings in a state, where they can remain in effective service during disaster situations, when the people have to reach the shelters and supplies have to reach them and the relief/rehabilitation operations can be conducted and monitored, centered around the cyclone shelters.

The proposals could include,

- New roads
- Upgradation of damaged roads and completion of missing links
- Restoration of damaged roads
- Drainage, independent of existing roads

- Bridging the missing links
- Helipads if required
- Mounds (for cattle), if included in the original investment proposal
- Retrofitting of the existing cross drainage works, after assessing the present status of road links to villages in the cyclone prone areas.

For deciding the cyclone shelter locations a classification has been made based on the severity of cyclonic impact, comprising of cyclonic wind, flooding due to backwater and saline ingress due to storm surge.

Where as it would be appropriate to choose the most adversely affected areas for locating cyclone shelters in Phase I, the criteria for choice of roads / missing links / bridges under phase I could be marginally different. The contribution of each completed road to the overall protection measure could achieve a higher priority for inclusion under phase I. In other words the road communication system not only contributes to the effectiveness of the cyclone shelters now being built, but also of the existing ones and private buildings, which could be under use during the worst of cyclones. It has been observed in some of the states that a major cyclonic catastrophe, while very severely depleting the wealth of the affected population, has also very strongly firmed up their resolve to fight the nature, as has been reflected in the gigantic construction programmes undertaken by private individuals (albeit with some governmental help) after occurrence of any disaster. Therefore, provision of a good road network to these areas could reduce the burden on the state exchequer and reinforce private activities in solution of the shelter problems. However this has to be very judiciously examined and a solution found for giving protection in short run while solving the long term problem with private enterprise.

When hamlets are suggested for inclusion it may have to be assessed if these are temporary resorts for undertaking professions connected with the sea, or would be allowed to develop into permanent settlements (villages). It is quite possible that such hamlets are encroachments into the coastal zone, where there should be no settlement, and providing a road to such a settlement would only defeat the very purpose for which the NCRMP has been planned. Therefore this problem would need a very careful evaluation by the Nodal Agency of the State.

This toolkit has been divided into two parts. Part I addresses the generic information to be submitted by the State encompassing all Roads & Bridges proposed under NCRMP. Part II addresses the information that is to be submitted for the individual Roads and Bridges project **or in workable packages** proposed by the State.

Part A (Roads and Bridges)

III (A).1 Proposed Missing road links & bridges (to be constructed in Phases)

Table 1: Locations of the proposed road [mark on multi-hazard map and attach]

Prioritization of construction of the proposed roads/missing links/ missing bridges may be provided in this section.

Sl. No.	Name of road	Block/ Taluk	District	Zone (III/ II/ I)	Serviced area		No. of persons/ Vehicles likely to use the road per hour during emergencies	Phase in NCRMP
					No. of villages covered	No. of hamlets covered		
I	II	III	IV	V	VI	VII	VIII	IX
1								
2								
.								
9								
10								

Phase I Roads should be marked on map as RED, Phase - II as BLUE, Phase - III as GREEN . It is recommended that the Human Development Indices or a Block Non-Development index be calculated to assist in phasing. The following sections may also be considered while proposing the portfolio of roads and for phasing decision.

III(A).2 Planning and Implementation of Missing Road links and Cross Drainage Works

The States may kindly consider undertaking the following steps while preparing the DPR (These are only indicative)

List of indicative activities at planning stage:

- Finalization of road layout and the sites for the CD works and soil exploration Studies. The overtopping zones are to be identified and protection measures are to be examined.
- In case land acquisition becomes necessary steps may have to be taken while preparation of the DPR (cost to be excluded).
- Preparation of designs for the roads, CD works and other items and then to prepare the cost estimates. For each road, due to multiple variations, for each estimate the quantity calculations and the analysis of rates may become necessary. 'Material Statement', if prepared for each road, could assist in planning for materials.
 - Phasing of roads and decision on the packages may have to be decided by the Nodal Agency.

- Assessing the bottlenecks in execution, such as removal of encroachments, services, tree growth and follow up action.
- Any other state specific activity visualized by the Nodal Agency.

List of indicative activities at Implementation stage:

- Selection of agencies for implementation
- Handing over sites/roads to executing agency. Necessary traffic control measures and cost there of are to be defined.
- Ensure accessibility for transfer of men and materials.
- Implementation of works (through selected agencies).
- Implementation of items required for complying with environmental considerations.
- To arrange supervision consultants to be in place.
- To arrange quality control laboratories at appropriate places and develop a system for ensuring quality.
- To arrange for third party quality check.
- Any other state specific activity visualized by the Nodal Agency

III(A).3 Project Cost

The project may comprise of (a) road formation and crust, (b) drainage works, (c) cross drainage works, (d) protection works against cyclonic storm surges and floods, (e) road appurtenances, (f) Any other State specific item. These costs have to be realistically assessed. The basis of assessment may please be indicated. The following suggestions are made for consideration.

Table 2: Project Cost- Itemwise details (Abstract for All Roads)

[1]	[2]	[3]	[4]		
Sl. No.	Description	Total amount (Rs.)	Break-up of Col [3]		
			Phase - I	Phase - II	Phase - III
A.	Survey:				
1	Site survey and soil exploration				
B.	Designing:				
2	Designing fees for consultants for preparation of survey, designs, drawings, estimates, preparation of BoQ's and the Bid documents etc..				
C.	Procurement and implementation:				
3	Procurement and implementation fees for				

	supervision Consultants				
4	Fees for agencies/consultants for monitoring (if outsourced)				
5	Fees for agencies/ consultants for quality control and assurance				
6	Cost of Construction (summation of cost estimates prepared for all roads -phase wise inclusive of all items) Phase-I Phase-II Phase-III				
7	Likely escalation in cost at various stages @ xx%				
8	Contract tax/ other taxes as applicable@ xx%				
9	Costs for hiring professional services of coordination cell @ Rs. xxxx/- per annum for xx years				
10	Environmental compliance cost				
11	Corpus fund to generate 2% of cost for maintenance				
12	Any others suggested by Nodal Agency				
	Grand Total				

III.4 Implementation Arrangement

Responsibilities of different agencies for implementation, monitoring and evaluation of the Project Component at local level shall be elaborated in this section.

III.5 Work Plan

III.5.1 Activity Schedule

The DPR should provide a schedule of activities with time-frame.

Table 3: Activity Schedule during DPR Preparation:

Sl. No.	Activity	Nos.	Target Date	Remarks
1	<ul style="list-style-type: none"> Finalization of cite and soil exploration Studies for C.D. Works Finalisation of alignment and soil studies for roads. Identify overtopping zones and study the soil. 	<p>xx nos.</p> <p>xx nos.</p> <p>xxnos.</p>		
2	<ul style="list-style-type: none"> Collection of road-specific data and finalization of the design. <ul style="list-style-type: none"> C.D.works Roads Protection works 	<p>xx nos.</p> <p>xx nos.</p> <p>xxnos.</p>		
3	<ul style="list-style-type: none"> Preparation of designs and drawings and cost estimates / Material Statements for C.D. works. Preparation of designs and drawings and Cost Estimates / Material Statements for roads Preparation of designs and drawings and Cost Estimates / Material Statements for protection works. 	<p>xxnos.</p> <p>xxnos.</p> <p>xxnos.</p>		
4	<p>Decide on packages</p> <ul style="list-style-type: none"> Roads C.D. Works Overtopping / Protection works 	<p>xxnos.</p> <p>xxnos.</p> <p>xxnos.</p>		
5	Selection of agencies for implementation after choice of packages.	z nos.		
6	<p>Assessing the bottlenecks</p> <ul style="list-style-type: none"> Roads C.D. Works Overtopping / protection works 	<p>xxnos.</p> <p>xxnos.</p> <p>xxnos.</p>		
7	Working out project costs	1		

8	Submission of DPR to NDMA	1		
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Table 4: Activity Schedule during Implementation of Road Packages:

Sl. No.	Activity	Nos.	Target Date	Remarks
1	Road handing over to Executing Agency, (Roads, C.D. works, protection works included)	xx nos.		
2	Accessibility for transfer of men and materials	xx nos.		
3	Provision of diversions to maintain traffic	xxnos.		
4	Selection and deployment of supervision consultants	xxnos.		
5	Installation of quality control labs and equipments.	xxnos.		
6	Select third party quality consultants and deployment.	xxnos.		
7	Initiation of road works by Executing Agency (Packages)	xx nos.		
	Tendering process	xx nos.		
	Issue of tender notices	xx nos.		
	Receipt of tenders	xx nos.		
	Evaluation of tenders	xx nos.		
	Approval of tenders	xx nos.		
	Award of work	xx nos.		
8	Construction through selected agencies complying with environmental considerations [Details for 7 and 8 to be given in	xx nos.		
Gantt/CPM format for each road and amalgamated in to a summary of activities]				

Planned Construction Schedule (Detailed programme for Activity No. 4 and 5) also to be furnished.

For review of overall progress, the programme should be conducted at micro-level for specific road projects and reflected in progress report at state level after compilation

Schedule revealing cumulative progress against target levels is to be furnished every quarter.

III.6 Financial and Economic Analysis

III.6.1 Fund Flow

The DPR to provide a flow-chart showing the budgeted fund-flow diagram from State Nodal Agency level to the level of disbursement.

Table 5: Planned Fund requirements per quarter:

Sl. No.	Activity	Total cost (Rs. In Lakhs)	Quarter-wise requirements (Rs. In Lakhs)			
			Q1	Q2	Q3	Q4
A.	Survey					
1	Site survey and soil exploration					
B.	Designing					
2	Fees for consultants for preparation of Designs, Estimates etc.					
C.	Procurement and Implementation					
3	Costs for site development					
4	Cost of construction (summation of Cost Estimates prepared at road-specific cost estimates phase-wise) Phase - I: xxxxx nos. Phase - II: xxxxx nos. Phase - III: xxxxx nos.					
5	Likely escalation cost @ xx% as per RBI price index.					
6	Contract tax/ other taxes as applicable					
7	Fees for agencies/ consultants for monitoring					
8	Fees for agencies/ consultants for quality Control and assurance					

9	Costs for hiring professional services of coordination cell @ Rs. xxxx/- per annum for xx years					
10	Environmental Compliance cost					
11	Administrative overheads of Nodal Agency including audit expenses.					
12	Corpus fund to generate 2% of cost for maintenance per annum					
	TOTAL					
	Expected overall progress of implementation in %ages of estimated cost.					

Table 6: Abstract for Fund requirement (quarterly) from Centre and State

	Planned requirement (Rs. in Lakhs)		
	Total	Centre (75%)	State (25%)
Quarter 1			
Quarter 2			
Quarter 3			
Quarter 4			
Total			

Table 7: Cost Benefit Analysis of the Roads project

Sl. No.	Road ID	Expected No. of persons along with their valuable assets to travel in emergencies	Expected livestock in emergencies	Population having easy access to relief materials	Traffic use during normal times	Community activities		
						Social	Economic - income generation	Remarks
1								

2								
3								
4								
5								
TOTAL								

(Items to be given a subjective assessment for their money value)

III.6.3 Quality Control and Monitoring:

The State /UTs will follow (for recording and presentation of relevant construction works and materials.) the proforma of the (i) IRC:SP:57-2001 (Guidelines for quality systems for road construction); (H) IRC:SP:47-1998 (Guidelines for quality systems for Roads and Bridges); (iii) IRC:SP:21-2000 Standard Specifications and Code of Practice for Road Bridges, Section (iii) - Cement concrete (Plain and Reinforced); (iv) IRC:87-1984, guidelines for design and erection of false work for road bridges and for material standards relevant latest BIS codes. For the protocol and standards for quality assurance and monitoring of the works and benchmarking and expected norms, the guidelines will have to be submitted by the State Agency.

III.7 Environmental and Social Impact Assessment

This section shall derive from the environmental and social screening undertaken at the IP level. Based on the category in which the project has been classified. Appropriate impact assessment as defined in the ESMF shall be undertaken and detailed reports shall be annexed to the DPR.

III.7.1 Social Impact

Construction of Roads will have a great positive social impact, immediate as well as far-reaching, as enumerated here. An indicative list of social impacts that may be addressed are listed below

- Minimization of risks due to reduction in loss of lives of human and livestock due to shorter travel times.
- Immediate livelihood for local construction workers unskilled / workers.
- Training of construction workers to adopt safer construction practices in future, thereby reducing vulnerabilities of built environs.
- Promotion of child and adult education - as schools, training centres, etc. will be easily accessible.
- Scope for immunization and health-camps in these remotely accessed villages will improve health care.

- Scope for income-generation programmes for Women SHGs and even setting up of small industries/cottage industries etc.

II.8 Project Monitoring

A Monitoring Agency having adequate capacity should be appointed or set up in-house to monitor physical and financial progress of the Roads and Bridges. The DPRs are to specify the profile, responsibilities and powers of the members in the Monitoring Committee/ Agency.

Mechanisms to ensure the quality of material & construction and progress of work on-site shall be elaborated in this section

III.9 Project Sustainability

Properly designed and constructed roads with protection works and assured quality will make the roads withstand cyclone hazards and give durable and satisfactory service for a long period with adequate maintenance and special repairs and renovation during and immediately, after the monsoon periods.

The roads remain the property of the State Government, either in the PWD / R.D. Department or with the P.R. Institutions. Unless adequate care is taken the roads will again lose their usability. Therefore the Nodal Agency has to ensure that revised Road Charts are prepared showing the new/renovated C.D. Works and the revised embankment sections, formation levels and present crust thickness. A new maintenance programme is to be prepared and follow up action is to be taken by the concerned departments, who are in charge of the road network.



Part B

III (B).1 Context and Background

This programme of road construction under NCRMP comes complementary to various other road construction programmes. However in the in this case the stress is on meeting the needs of the emergent situations caused by natural hazards. The general design features and specifications may follow the same practice as under other programmes, with the modifications required for meeting the specific needs of the NCRMP. The following are only indicative and the States may submit informations as deemed fit, but conforming to World Bank funding requirements.

(Roads of longer length may not to be included under this programme).

III (B).2 Detailed Designs

III (B).2.1 Roads

The details may include,

1. Name of road.
2. Road identification number in the State wise programme.
3. Road length in Km.
4. Connection to other roads through which supplies will come to this road or vice versa, i.e.
 - i. Start point details
 - ii. End point details
5. Cyclone shelters served

Catchment areas of the cyclone shelters, their geographical and demographic details are included in cyclone shelter DPR. However the total number of persons/vehicles expected to travel on this road at the time of calamity forecast may be furnished. (Not only have the revenue villages, but also the hamlets been to be considered).

6. Road Chart showing the existing crust details, eg. black topped, cement concrete, metalled, earthen etc. is to be included. Indicate the Pavement Condition Index, if available.
 7. Missing links are to be clearly marked on the road chart and detailed proposals are to be furnished.
 8. Repair/renovation/new construction of bridges and culverts necessary to make the road all weather is to be clearly brought out. Some of the recent over toppings and damages to this road are to be recounted and how the present designs will meet with the disaster situation is to be explained.
 9. Technical details to be furnished, in respect of.
 - i. Roads and missing road links
 - The index plan
- A general alignment drawing of the road to the appropriate scale highlighting the horizontal and vertical curves.

- Long section and cross sections as per standard IRC practice for rural roads.

Note: Other details, like protection works, should have drawings justifying the necessity and extent of the protection works. The HFL, likely scour-depth and the necessary slope protection works are to be justified with calculations.

(It may be examined if the road will be all-weather even during the worst emergencies, as that could endanger the environment. Necessary embankment protection measures are to be included to ensure that the road remains functional before the calamity strikes and expeditiously after the severest calamity partially subsides.)

10. Engineering Design (Roads)

i. General

- a. Traffic survey data is to be furnished, if available
- b. Suitability of the present alignment is to be checked
- c. Soil survey, samples of soils are to be collected and tested for grain-size analysis, moisture density relationships and CBR etc.
- d. Hydrological survey and drainage plans are to be studied. All existing and proposed CD works should be examined and reported fewer than 11.
- e. Geometric design standards may have to be followed. However, this is linked with land acquisition.
- f. Design speed and sight distances to be decided.
- g. Horizontal / vertical curves to be checked. The topographical survey is to be carried out with modern instruments for designing the vertical and horizontal curves. Reduced levels are to be recorded along the centre line and cross sections are to be taken at suitable intervals. This is necessary for linking with topographical sheets.
- h. Roadway and carriageway widths to be finalized for the projected traffic.
- i. Pavement designs are to be done in detail, considering the soil strength, traffic volume and design life.
- j. Construction specifications may conform to IRC standards. Indigenous materials may be used. The source of materials for forming the embankment, pavement layers and cross-drainage structures are to be identified and their "leads" established.
- k. (Estimation of quantities and analyses for individual roads for rates are to be done to arrive at cost estimates.)

ii. Pavement design

a. Flexible pavement design

The flexible pavement design is to be done as per the procedure described in Rural Roads Manual i.e. SP 20.

b. Rigid pavement design

1. Design Method
2. IRC/IRC-58 may be followed.
3. Sub-grade and Sub-base

For better load dispersion and to obtain a uniform support condition, normally a sub-base is provided under cement concrete slab. There are many types of sub bases, which are suitable. However, from techno-economical considerations a 16 cm thick granular sub base material of Grading II as per MORD specification should be considered

The following details need to be examined.

- a. Concrete strength
- b. Design load
- c. Design parameters
- d. Critical stresses
- e. Edge stresses
- f. Corner stresses
- g. Temperature stresses
- h. Pavement thickness
- i. Joints
- j. Contraction joints
- k. Expansion joint
- l. Technical specifications

Preparation of ground before Construction of Embankment

The method of construction and sequence of operation will be as detailed in MORD specification for Rural Roads Clause 301.

- Construction of sub base/base
- Drainage layer
- It is to be provided and the sequence of construction for the drainage layer should be as per MORD Specification for Rural Roads Clause 401.4
- Granular sub-base
- Water Bound Macadam (WBM)

- The material specification and sequence of construction for the WBM layer should be as per MORD specification for rural roads clause 405.
- Construction of bituminous course
 - Prime coat
 - Tack coat
 - Premix carpet
 - Seal coat
 - Equipment
 - Method of construction

The specification and the method for preparation of pavements will be as laid down in MORD specification for Rural Roads.

- Construction of rigid pavement

It may follow the stipulations in IRC - 58.

The above are only to draw attention to the technical considerations required to make the roads have longevity. The States may follow any other procedure but they have to conform to World Bank guide lines.

III (B).2.2 Cross Drainage Works:

NOTE: The type of additional culverts, bridges and causeways, if any, are to be designed. Foundations, substructures and superstructures are to be designed. Rebuilding/strengthening of the existing structures is to be done, using modern materials like polymers, after conducting tests as per modern technology, wherever required.

The relevant guidelines / codes / standard drawings of the Indian Roads Congress are to be followed. Particularly the SP-20 (RRM) will form the basis for designs and for the materials the MORD specifications for rural roads (clauses 201, 202, 301, 302, 303, 305, 309, 401, 405, 502, 503, 508, 510, 1501 etc) may please be followed.

(C.D. Works of more than 50m length are not envisaged under this programme)

Enclose the following for each CD Work:

- Layouts showing the stream and the approach road.
- LS and CS of the stream and the approach road as per IRC norm.
- Designs of foundations, substructure and superstructure.

The IRC codes and manuals are to be followed, for deciding on designs and specifications for very severe / severe climatic conditions since most of these structures will be built in the coastal region.

- Foundations:

There should be a proper soil exploration where box culvert design is not used. For multi span box culverts of upto 20m length the

minimum soil strength is to be assessed by visual inspection and the standard MORD designs can be used.

- For piers, Abutments and Superstructure designs the IRC Codes parts I to VII and other Codes IRC / BIS are to be followed as applicable.

III.2 Detailed Estimates

III (B).2.1 Roads and C.D. Works:

The cost estimates for the roads should take into account such items like setting out, site clearance, earthwork in all kinds of soil and erosion control, construction of embankment, subgrade, shoulders, base and subbase, bituminous works and of rigid pavement etc.

The relevant clauses of MORD technical specifications will be followed. (Cost estimates will be supported by necessary drawings)

III(B).2.2 Drainage works:

Drains may be lined or unlined and estimates may be prepared accordingly.

III(B).2.3 Protection works:

These should be designed for withstanding the scour for relevant HFL for the reaches likely to be overtopped during probable storm surge.

- A list of all CD works is to be enclosed showing their location (RD) along with the necessary drawings for each structure including the soil data. The new CD works are to be highlighted. If some of the CD works have the same design then a common drawing may be followed and estimates may be made accordingly.
- For each Type Designs, for culverts and other C.D. structures enclose Abstract of Cost Estimates. The Cost Estimates are to be prepared based on the Latest Schedule of Rates. Analyses of rates adopted in the Cost estimates are to be attached.

III (B).2.4 Road appurtenances :

Providing and fixing guard stones, painting lines etc, direction and places identification reflective sign boards and semireflective cautionary, informatory sign boards also come under this category. The cost thereof is to be provided.

Table 8: Abstract of Cost Estimates

Sl. No.	Description	Units	Length	Rate (To be calculated)	Amount (Rs.)
1.	Cost of construction of road.				
2.	Cost of construction of drainage works.				
3	Cost of construction of bridges above 10m length.				
4.	Cost of construction of bridges / culverts less than 10m lengths.				

5.	Cost of protection works.				
6.	Cost of providing the appurtenances				
7.	Contingency etc.				
	G.TOTAL				

- The average unit rates (per Km or per m) are to be calculated to provide the control information.
- A Material Statement for major material components, which mainly influence costs of items, is to be provided to indicate the quantity used of each.
 - For structures:

Table 9: Material Statement for Major Material Components

Item of Work		Quantity of item in estimate	Requirement of materials component-wise					
			Brick (nos.)	Cement (qtl)	Steel (qtl)	Sand (cum.)	Stone chips -12 & 20 mm (cum.)	Stone chips - metal (cum.)
Foundation								
PCC								
Brickwork	Foundation							
	Superstructure							
RCC	Raft, piers, abutments, etc.							
	Beams, slabs, parapets etc.							
Plaster								
	External							
	Internal							
Any other Item								
TOTAL								

- For road works similar statements in respect of carriage of earth, sand, morum, quarrydust , metal of different grades and granite chips / steel if required etc are also to be prepared.
- The site specific cost will be reflected in the detailed analyses of road specific estimates, i;e, the local variations in Material Rates will be in the specific road estimate.
- Taxes - contract tax, service tax, etc are to be included.

(Note: IBRD procurement guideline stipulates that the borrower follows sample bid documents approved by the World Bank and Government of India task force. Please study the SBDs applicable for the project and consider reasonable factors like insurance, performance guarantee, defects liability, labour law compliances including EPE etc while preparing the estimates).

III(B).2.5 Work Plan and Reporting Progress

A group of roads in close geographical proximity may form a package. The States may record the advantages of such groupings. The States may prepare a programme for completion of each package is prepared for each work package in line with the work-plan suggested under item 5 of Section I of this DPR template.