

# **ADDENDUM**

## **Expression of Interest for the empanelment of additional consultancy firm for preparation of Preliminary Scheme Report (PSR), Details Scheme Report (DSR) and Concept note with technical specifications and cost estimates for rural drinking water supply schemes in Karnataka**

### **1. Background**

Rural Drinking Water and sanitation Department, Government of Karnataka is responsible for implementation of Rural Drinking Water and Sanitation Programmes including Operation and Maintenance (O&M) of schemes. The department is also managing activities pertaining to Jal Jeevan Mission(JJM) in general including SBM (Grameen). Safe, sufficient and sustainable supply of drinking water with better accessibility to rural community has been the priority of the State government. With a view to facilitate faster progress, the department is seeking services of Private Sector Technical firms/institutions/organizations for preparing Preliminary Scheme Report (PSR), Detailed Scheme Report (DSR) and Concept Note with Technical Specifications of DBOT Projects for Rural Drinking Water Supply Schemes to be implemented in Karnataka.

### **2. Objective**

Objective is to empanel consultants to prepare

a) Preliminary Scheme Report (PSR) b) Detailed Scheme Report (DSR) based on approved PSR and c) Concept Note with detailed Technical Specifications based on approved PSR for DBOT Projects, under all 4 categories.

i) Category – I are eligible to prepare scheme reports for all schemes, including DBOT schemes.

ii) Category – II are eligible to prepare scheme reports for schemes costing *upto 50cr.* (Item rate/DBOT).

iii) Category – III are eligible to prepare scheme reports for schemes costing *upto 20cr.*

iv) Category – IV are eligible to prepare scheme reports for schemes costing *upto 5cr.*

**Note:**

**1. Consultants empanelled for higher category will also be eligible for the lower categories.**

**2. For eligibility criteria, refer to clause 9 of TOR & Minimum Qualification Criteria**

### **3. Scope of work**

The scope of work comprises engineering surveys, designing, costing, mapping etc for PSR, DSR and to prepare the concept note with technical specifications, cost estimates and bid documents for DBOT Projects of Rural Drinking Water Supply to be implemented across the districts in Karnataka in various phases as defined in the data sheet. The assignment will be assigned to the consultants as and when required.

### **4. Outline of the Tasks/responsibilities with respect to the scope of work**

a. PSR: i) Preliminary investigation ii) Preliminary design iii) Quantity estimates based on data from toposheets, preliminary investigation and designs iv) Preliminary Cost estimates.

b. DSR: i) Detailed survey and investigation ii) Detailed designs iii) Quantity estimates based on detailed investigations and designs iv) Detailed Cost estimates v) Bid documents.

c. DBOT: i) Concept Note of the Project ii) Detailed technical specifications iii) Tender Schedule along with Bid document and Cost estimates (Unit wise).

d. Assist Department regarding tenders as and whenever required.

## 5. Detailed Activities to be carried out for different activities/phases

### PSR

- a. Collection of basic information's like population as per census/IMIS, water demand based on guideline of GOI/GOK.
- b. Resource mapping (Marking different alternative sources available on topo sheet) and depicting the existing situation of water supply system including House Hold Connections in tabular form.
- c. Assessment of existing water supply source in terms of LPCD as per IMIS Data.
- d. Study the past population (at least three decade) and project the population for different project phases.
- e. Identifying gaps (if any), determining water demand for different project phases (taking design period as 30 years from now with lag period)
- f. Establishing Source for Surface Water based schemes, including alternate sources available, examining these sources for source potentiality/sustainability for demand period and finalizing the most feasible water source.
- g. Conducting reconnaissance / preliminary survey for identifying locations of the different components of scheme (Including Village level OHTs/GLSRs).
- h. Preliminary soil investigation by means of site visit, collection of data, trial pits at typical locations including Headworks, WTP, Pumping stations, MBRs etc.
- i. Collection of water quality data of the selected water source including its analysis in determining the type of water treatment to be proposed.
- j. Preliminary structural designs to arrive at cross sections of footings, columns, beams, slabs etc. for working out quantities and preparation of cost estimates.
- k. Preliminary Hydraulic Design of – Head works including Intake Well, Jack well, Impounding Reservoirs, Raw water, Clear water pipelines, All WTP Components proposed, MBRs/MBTs/ZBTs, GLSRs, OHTs and Intermediate Pump Sumps.
- l. Formulation of scheme based on techno-economic feasibility (two to three alternatives to be worked out).
- m. Preparation of layout plan depicting the levels and locations of various components using SOI toposheet/hand held GPS.
- n. Suggesting choice of technology (i.e., Proven technologies, along with the details of confirmation of workability of these new adopted technologies and their dependability) including water conservation and use of green technology.
- o. Designing scheme with respect to field details indicating detailed preliminary cost which includes all the components of the scheme and the backup of cost assessment basis in-detail including Unit Cost following standard guidelines/manuals etc. and submission of the same in both hard & soft copy.
- p. Obtaining endorsement of the GP for the scheme by way of passing a resolution.
- q. Linking existing water supply system (partially/fully), if feasible, to the proposed water supply system
- r. Identification of feasible and nearest ESCOM/ Distance from source substation & Transmission line estimate for proposed scheme. Single line diagram of substation (Redundant system), Voltage level, frequency etc. of the power system for proposed scheme along with the estimate ( Jackwell, WTP, IPS, etc) in consultation with the Department.
- s. Present to Superintending Engineer for scrutinizing the PSR.
- t. Chief Engineer RDW&SD to recommend for approval of PSR through STA/SLSSC as per the norms.

## **DSR**

Based on the approved PSR,

- a. Reaffirming of source sustainability and coverage of habitations due to addition/deletion in any other approved scheme.
- b. Conducting detailed survey of proposed source with respect to water quality and quantity.
- c. Establishment of temporary benchmarks all along the alignment of scheme in prominent places using total station or any other self-recording digital instrument.
- d. Conducting alignment survey for longitudinal sections, cross sections, block level and for various components like Jackwell, WTP, IPS, MBRs & ZBRs, OHT etc. The levels are to be endorsed by the Engineer In charge of the work.
- e. Conducting detailed soil investigation by means of drilling of bore holes, collection of data and arriving of various soil parameters including founding depth, safe bearing capacity of soil, water table conditions at site and presentation of soil investigation report for carrying out detailed structural designs of various components.
- f. Formulation of Design Basis Report for Hydraulic, Structural and Electro Mechanical works in compliance with CPHEEO manual, all relevant BIS Codes and presentation of the report.
- g. Hydraulic designs, Structural designs, Electro mechanical designs, Control and Monitoring system designs and all other relevant designs meeting standard norms and submission of Hydraulic, Structural and Electro Mechanical design reports. Assessment of power source and estimates for transformer substation and Express feeder line will be provided by the department with help of respective KPTCL / ESCOMs. Concept & Design Criteria of Instrumentation Control and SCADA Along with P& ID Diagram and System Architecture shall be Redundant System. Assessment of power source and estimates for transformer(Redundant system ) substation and Express feeder line should be taken up with help of respective KPTCL / ESCOMs,/KERC Substation SLD, Design criteria and selection of Major Equipment Transformers, Motors, Switchgears, Starters, Drives & Cables Etc.
- h. Preparation & Submission of Draft DSR with detailed specifications and detailed cost estimates based on Hydraulic designs, Structural designs, Electro mechanical designs, Control and Monitoring system designs and all necessary detailed drawings in both hard and soft copy. The cost estimates shall be backed up by the detailed estimate of each component of work along with the backup of rates (SOR & Quotations)
- i. O&M Cost along with the breakup of all the consumables, machineries etc. and O&M arrangements to be spelt out.
- j. Cost of the Scheme and Per capita cost to be indicated as per the norms and O&M cost to be separated.
- k. Conforming scheme design to standard technical norms.
- l. Endorsement of draft DSR by GP / RWS SD through a resolution.
- m. Draft DSR will be reviewed by the Chief Engineer / State Technical Committee of RDWS&SD. In case of any modifications as per the decision of the committee, it is required to resubmit the Draft DSR with suitable modifications.

## **DBOT**

- a. Identify the rural habitations in project area and prepare talukwise base map.
- b. Study the past population (at least three decade) and project the population for different project phases.
- c. Study of the existing water supply arrangements of the project habitations and ongoing schemes.
- d. Carryout water demand analysis habitation wise.

- e. Study the feasibility of different surface sources in and around project area to draw required quantity of water on sustainable basis.
- f. Using GIS Terrain model or toposheet or topography, identify the locations of Head Works, Water treatment Plant, Master balancing reservoirs, pumping stations village level OHT's/GLSR's and prepare the water feeder main network to the habitations of the scheme.
- g. Carryout reconnaissance survey to project site to capture the site condition.
- h. Perform Soil investigation to arrive at various soil parameters required for structural designs including founding depth, safe bearing capacity of soil, water table conditions etc. and submission of report.
- i. Preparation of report with habitation, population, water demand, source location and system components
- j. Carryout hydraulic analysis and modelling for transmission main and feeder mains.
- k. Carryout Techno-economical analysis for transmission mains and pumping mains.
- l. Carryout analysis for selection of pipe materials for transmission and feeder mains/valves, surge protection
- m. Formulation of Design Basis Report for Hydraulic, Structural and Electro Mechanical works in compliance with CPHEEO manual, all relevant BIS Codes and presentation of the report.
- n. Carryout preliminary designs for intake structures, pumping stations, master balancing reservoirs WTP components etc. and submission of design report.
- o. Carryout preliminary hydraulic and process design for water treatment plant, prepare layout plans and General arrangement drawings.
- p. Assess electrical load for various components of works and carryout preliminary electrical design, Transformer sizing, Selection Criteria of Motors, Switchgears, Starters, Drives and Cables Etc.
- q. Prepare operation philosophy for management of bulk water supply.
- r. Prepare bulk water supply network drawings with pipe diameter, material, length and levels as obtained from terrain modelling.
- s. Prepare general arrangement drawings for civil, mechanical and Selection Criteria of Motors, Switchgears, Starters, Drives and Cables Etc components of work.
- t. Preparing Concept Note of the Project and submit the techno economical and feasible concept.Design of all the major components (unit wise) – The design includes major designs, mechanical components, electrical components and SCADA Concept & Design Criteria of Instrumentation Control and SCADA Along with P& ID Diagram and System Architecture shall be Redundant System.
- u. Detailed technical specifications to be worked out
- v. Preparing Tender Schedule along with Cost estimates (unit wise)
- w. Prepare component/ item wise operation and maintenance cost for the project.
- x. Bid document to be prepared.
- y. And fill proforma of any activity relevant to DBOT work assigned entrusted by Department.

## **6. Item wise cost break up of activities**

The breakup of *activities for which the rates are finalized and approved by the department are listed in ANNEXURE-1.*

## 7. Methodology to be adopted

Adopting IS Codes, CPHEEO Manual Guidelines, Best Practices, Latest Technologies Innovative Techniques and International Standards.

## 8. Duration of the preparation of the assignment

Duration of the assignment will be as given below:

- PSR Preparation: Three months from the date of work order
- DSR Preparation: Four Months from the date of intimation to prepare DSR
- DBOT scheme preparation: Four Months from the date of intimation to prepare DBOT basis

## 9. Qualification and Experience of Consultant

- A consultancy firm/organization/institution having considerable experience in preparing engineering designs for simple/complex Rural Drinking Water Supply Schemes based on both underground and surface water sources with various interventions involved therein, they should have professional expertise in areas of Civil Engineering Survey and Investigation including Hydrological, Hydro-geological, Hydraulic, Structural engineering, Electro-mechanical engineering, aspects of Multi Village Schemes (MVS), Design Build Operate and Transfer (DBOT) Projects and working with various Government departments in general and Panchayat Raj Institutions (PRIs) in particular.
- Minimum qualification requirement in years for all the four categories are defined as below:

Sl no	Particulars	Category 1 all works	Category 2 (up to 50cr)	Category 3 (up to 20 cr)	Category 4 (up to 5cr)
1	Specific Experience of the firm (years)	8	6	5	4
2	Qualifications and Competence of the key professional staff ( Min Years)				
	Engineer (Hydraulics)	10	8	6	4
	Engineer (Structures)	10	8	4	3
	Engineer (Electro-Mechanical)	6	4	3	2
	Engineer (Quantity Surveyor)	8	6	5	4
3	Financial Turnover of the firm ( any 3 years)	100 lakhs	50 lakhs	20 lakhs	10 lakhs

- The staffing inputs of the Consultancy Firms/Institutions shall be as given below: (Appendix C)

Sl No	Key Position	Professional Experience Desired
1	Hydraulic Engineer	He/She should have degree in ME/M.Tech in Environment / PHE Engineering with 5 years / BE / B.Tech with 10 years / Diploma with 15 years' experience in Hydraulic aspects of simple/complex water supply schemes and have working experience in designing Headworks, Water treatment plant, pipelines, valves with their pressure ratings and locations, surge analysis, water hammer design etc. He/She should be conversant with PRI System.

2	Structural Engineer	He/She should have ME/M.Tech degree in Structural Engg. with 5 years / BE / B. Tech with 10 years / Diploma with 15 years' experience in structural aspects of water supply schemes (simple/complex), civil engineering matters covering Drinking Water Sources, WTP, Reservoirs, Jack well, other civil work components of MVS, DBOT Projects. He/She should be conversant with PRI System.
3	Electro-Mechanical Engineer	He / She should have BE/B.Tech degree in Electrical/Mechanical Engineering with 5 years / Diploma with 8 years' experience in electromechanical aspects of simple/complex water supply schemes and have working experience in design of pumps, motors, electrical equipment's, transformers, cranes etc. He / She should be conversant with PRI System and local electricity board norms/CPHEEO norms.
4	Quantity Surveyor	He/She should have BE/B.Tech degree in Civil Engineering with 3 years / Diploma with 5 years experience in extracting quantities as per the relevant IS codes and estimations in civil engineering matters covering Drinking Water Sources, Distribution System, WTP, Reservoirs, Jack well, OHT and other civil work components of MVS, DBOT Projects. He/She should be conversant with PRI System.
5	Automation	He/She should have BE/B.Tech degree in Electrical / Electronic / Instrumentation / Computer Science/ Information Technology Engineering should have working experience of PLC, Control system, I/O (Input/Output) address schedules, filed bus segment, loop diagram, ICA Panel Layout, Panel power distribution drawings, Instrument location drawings, Logic diagrams, Control system software and other component related to automation. He/She should be conversant with PRI System.

#### **Assistance for the Assignment**

Firms/Institutions engaged for preparing Preliminary Scheme Report (PSR), Detailed Scheme Report (DSR) and Concept Note with Technical Specifications of DBOT Projects for Rural Drinking Water Supply Schemes to be implemented in Karnataka shall get assistance from RDWS&SD/RWS Divisions and other stakeholders in terms of obtaining relevant information/documents/papers available to carry out the assignment.

#### **10. Internal Committee**

An internal committee would be constituted comprising following officers of RDW&SD:

<i>Sl.No.</i>	<i>Officer</i>	<i>Particular</i>
1	Chief Engineer	Chairman
2	Deputy Secretary	Member
3	Chief Account Officer	Member
4	Director, WSSO	Member
5	Superintending Engineer	Member
6	Executive Engineer	Member
7	Concerned TA &AE	Members

The above committee will evaluate proposals for Consultancy Assignment based on evaluation criteria/sub-criteria provided in the EOI document. The committee would also review consultant's outputs, reports and progress through interaction with the consultants. The committee's suggestions are to be followed by the consultant.

## 11. Reporting Requirement

### A. PSR / DSR

- a. Submission of **Sustainability Report** and **PSR** on the source selected by the Department for the schemes already formulated and approved in SLSSC
- b. Submission of **Feasibility Report** and **PSR** on the schemes already formulated by the Department considering the economics.
- c. Submission of **PSR** for newly formulated surface source schemes to provide treated potable water to quality affected and enroute villages.
- d. Preparation of **draft DSR** for the surface source water supply project based on the design criteria as detailed in the CPHEEO Manual with regards to Population, Service level, Storage capacity, Residual pressure at each and every outlet point, etc. Design of all the major components (unit wise) – The design includes major designs, mechanical components, electrical components and SCADA components, power requirement rating of equipments.
- e. Preparation & submission of Detailed technical specifications with Cost estimates of the scheme, backed up by the detailed estimate of each component of work along with the backup of rates (SOR & Quotations).
- f. Submission of **Detailed Scheme Report** duly attending to the observation if any by the E.E., S.E. and C.E, before Technical Sanction by Competent Authority.
- g. Submission of Technically Sanctioned estimate (duly corrected copies)
- h. **Electronic Copies:** In addition to the paper copies, the consultants will make available electronic copies (all the reports in MS-Word & MS-Excel file and all raw data in tabulated form together with all backup calculations)
- i. Presentation of same in MS office PPT.

### B. PSR / DBOT

- j. **Preliminary Scheme Report:** This report should also contain all the aspects mentioned in clause 11A above along with the methodology/plan and outline of the DBOT Project.
- k. **Draft Concept Report:** Concept Reports related to the Project and submit the techno economical and feasible concept. Design of all the major components (unit wise) – The design includes major designs, mechanical components, electrical components and SCADA components. Detailed technical specifications to be worked out, Preparing Tender Schedule along with Cost estimates (unit wise) to DBOT assignment (soft & Hard copies).
- l. **Final Concept Report:** Reports for DBOT Assignment (Concept Note, Technical Specifications and Cost Estimates) incorporating comments of the department as per the agreed time frame. (soft & Hard copies).
- m. **Electronic Copies:** In addition to the paper copies, the consultants will make available electronic copies (all the reports in MS-Word & MS-Excel file and all raw data in tabulated form together with all backup calculations).
- n. Presentation of same in MS office PPT.

## **FORMAT FOR PREPARATION OF PRELIMINARY SCHEME REPORT**

The various details that are to be collected in the preparation of a PSR are broadly identified as follows:

- Identification of villages, Gram panchayats, Group of villages to be covered under the project.
- Description of the area with reference to its location, terrain and accessibility.
- Present population of the area proposed to be covered in the project.
- Present status of water supply, List of the problems, deficiencies by inspection, local enquiry or studying the existing systems / records, if available.
- Key plan of the project area.
- Water requirement for projected population. Commercial and other non- domestic requirements, if any, adopting appropriate per capita demand.
- Identification of project components like water source, improvements to existing one or augmentation or new one, collection, conveyance, treatment, storage, distribution, etc. Adequacy of quantity and quality of water source.
- Preliminary cost of project (unit wise). which includes all the components of the scheme and the backup of cost assessment basis in-detail.
- Cost of component/ item wise operation and maintenance
- Index plan to indicate the project area, existing facilities, proposed works and schematic diagram showing salient details of the project to be enclosed in the report.

### **Formats for collecting data**

- Names of village in the scheme area
- Name of Gram Panchayat
- Taluk & District
- Accessibility by road / rail
- Present population (as per IMIS data)
- Covered under individual rural W/S scheme or mini water supply scheme or not.
- Source of present water supply, quantity and quality as per IMIS data
- Adequacy of water supply
- Water supply service - through stand post / cisterns, house service connections
- Hours of water supply - Morning, Afternoon, Evening (or) Continuous
- No. of House connections – metered or non-metered
- Water charges – fixed flat rate / variable rates
- Land Availability
- Dis-infection arrangement

**Status of Existing Water Supply Source** (to be collected from the Department and tabulated)

### **Water source**

- Open well / tube well
- Size
- Total depth
- Yield

### **Brief details of pump**

- Capacity of pump
- Type
- Discharge
- Head
- No. of pumps installed



## **Pumping Main**

- Size
- Length
- Material of pipe
- Class of pipe

## **Storage(GLSR)**

- Ground level
- Capacity
- Size
- Material of construction

## **Overhead Tank**

- Capacity
- Staging height

## **Distribution network**

- Pipe size
- Length in each size
- Material of pipe
- Class of Pipe

## **Format for Conceptual Design Report**

1. Name of scheme -
2. Names of villages covered under scheme -
3. Accessibility, terrain, climatic conditions of the area -
4. Socio-economic status, occupancy of people,  
Cultural,  
religion, historic activities -
5. Present population -
6. Future population (forecast) -
7. Design period -
8. Per capita water supply -
9. Water supply for non-domestic requirements -
10. Net water requirement -
11. Account of losses in
  - a) Transmission - 2.5 %
  - b) Treatment units - 2.5 %
  - c) Distribution -15%
12. Gross water requirement
13. Source of supply
  - Stream / river (storage to be provided if non-perennial) -
  - Storage reservoir (Based on requirement with minimum 100% dependable) -
  - Irrigation Canal (provide storage equal to canal closure period) -
14. Intake structure (To provide for drawal of water from surface source/IR)
15. Raw water pumping machinery (Mention type)
  - Hours of pumping (ultimate) - 22 hrs.
  - Hourly discharge -
  - Total Head on pump set -
  - Horse power
  - Pumping Main Size -
  - Pipe material -

	Length	-	
16.	Treatment Units		
	Capacity/type	-	
	Brief details of units proposed	-	
17.	Storage - One day at master storage tank at ground level		
	Capacity	-	
	Size of Tank	-	
	Free Board - 0.50 m	-	
	Material of construction	-	
	Sizes of inlet, outlet	-	
18.	Elevated Tank		
	Capacity		
	Staging height	-	
	Size of inlet	-	
	Size of outlet	-	
19.	Pumping Machinery from .....to..... (locations)		
	Hours of pumping	-	22 hrs. If < 22hrs please
	provide justification		
	Discharge	-	
	Head on pump set	-	
	Horse power with ... % efficiency	-	
	No. of pump sets (To provide standby suitably)		
20.	Distribution network		
	Design for peak factor	-	
	Size of pipes	-	Min. 63 mm
	Material of pipe	-	
	Appurtenances	-	
	Control valves - size	-	
	House service connection	-	
21.	Cost of components	-	
	(Here list the components and their cost)		
22.	Financial aspects		
	Grant in aid by State / Central Govts.	-	
23.	Annual maintenance and repairs	-	
24.	Total annual burden	-	
25.	O & M cost per capita	-	
26.	Capital cost per capita	-	
27.	Cost of water per 1000 ltrs		

### Capital Cost and O & M Cost

#### 1. Capital Cost

SINo.	Description	Rs.
1.	Augmentation of Source of supply	
2.	Intake structures	
3.	Pumping main	
4.	Treatment units	
5.	Storage structures	
6.	In-village storage tank	
7.	Pumping machinery	
8.	Distribution system	
9.	Electrical works	

10.	Land acquisition	
11.	SCADA	
12.	Misc.	
	Total	

## 2. O & M Cost

SINo.	Description	Rs.
1.	Annual maintenance and repairs Civil works at 1 % Electrical & Mechanical at 5 %	
2.	Annual salary of operating staff and communication charges	
3.	Annual energy charges	
4.	Annual chemical charges (consumables)	
5.	Annual depreciation fund, Civil works at 0.2 % Mechanical and Electrical works at 2 %	
	Total	

## 3. Per Capita Cost

(On present population) – Capital cost .....

O & M cost .....

## SUMMARY OF CONTENTS IN A TYPICAL PSR

The consultants shall submit the PSR to RWSD and explaining the various technology options available. The brief capital cost and O&M cost shall be indicated.

The contents of a PSR shall be as follows:

1. A executive summary of PSR (in one or two pages)
2. Salient features
3. Main report
  - a) Introduction
  - b) Existing water supply,
  - c) Population projection and water demand assessment
  - d) Design norms considered for project components
  - e) Proposed technology options, one or more options to be given
  - f) Capital cost along with the backup of detailed estimates basing on the preliminary design & drawings for all the components in the technology options
  - g) O&M cost estimate for water supply

- h) Water quality report of the source for proposed scheme.
- i) List of drawings to be prepared
  - i) Index map showing location of villages, GP headquarters and Taluk head quarters
  - ii) A schematic drawing of proposed water supply scheme
- z. Basic/ Typical General Arrangement Drawings / Sectional Drawings of all the components in the scheme.

## **SUMMARY OF CONTENTS IN A TYPICAL PSR**

- **Salient features**
- Index maps
- **Summary of cost** along with the detailed estimates.

### **1.0 Introduction and Background**

- 1.1 General background
- 1.2 District profile
- 1.3 Taluk profile

### **2.0 Existing water supply**

- 2.1 Water supply
- 2.2 Water Quality Analysis

### **3.0 Population Projection and demand assessment**

- 3.1 Population Projection
- 3.2 Demand Assessment

### **4.0 Design Norms**

### **5.0 Identification of proposed Source Report**

- 5.1 Field data of proposed water sources
- 5.2 Data of proposed surface water sources
- 5.3 Final Source selection
- 5.4 Water Quality analysis

### **6.0 Proposed water supply scheme**

- 6.1 Head works
- 6.2 Pumping machinery
- 6.3 Rising main/gravity main
- 6.4 Water treatment plants
- 6.5 Salient features of Service Reservoir
- 6.6 Distribution System
- 6.7 Soil Investigation
- 6.8 Disinfection Unit
- 6.9 SCADA details
- 6.10 Power source

### **7.0 Land Requirement**

- 7.1 Preliminary Soil Investigation report.

### **8.0 Estimated Costs for water supply scheme**

- 8.1 Cost of land

- 8.2 Establishment of sources
- 8.3 Pumping machinery
- 8.4 Transmission Main
- 8.5 Water treatment plants
- 8.6 Service Reservoir
- 8.7 Distribution system
- 8.8 Cost of power supply
- 8.9 Operation and Maintenance costs

## 9.0 Analysis and design details

- 9.1 Economic analysis of Raw water Rising main and Design of pumpset
- 9.2 Design of Head works and Water Treatment plant
- 9.3 Design of Distribution Network – Loop system.
- 9.4 Design of Service Reservoir

## 10.0 Data

- 10.1 Rate Analysis for all the items

## 11.0 List of Drawings

- 12.0 List of Pipeline crossings
- 12.1 List of Nala crossings
- 12.2 List of Railway crossings
- 12.3 List of highway crossings.

## 2.0 Existing status of Water supply

### 2.1 Water supply

Sl. No	Water supply components	Unit	Qty	Status
1	Sources	Borewell with Hand pump	No.	
		Borewell with Power pump	No.	
		Open Well	No.	
		Open Well with Power Pump	No.	
		Hand pump	No.	
2	Technology	Mini Water Supply	No.	
		Piped Water Supply– Ground Water	No.	

		Surface Source Individual / Surface Source Regional	No.		
3	Storage	Cisterns	No.		
		Ground Level Storage Reservoir	No.		
		Elevated Level Storage Reservoir	No.		
		Sumps	No.		
4	Pump sets	Submersible	No.		
		Centrifugal	No.		
5	Rising main	CI/GI/PVC/HDPE	M		
6	Distribution system	CI/GI/PVC	M		
7	Valves	Air valves	No.		
		Sluice valves	No.		
		Scour valves	No.		
		Non-return valves	No.		
8	Stand post		No.		
9	No. of house. Connections		No.		

## 5.0 Identification of proposed source

### 5.1 Data of proposed surface water sources

Sl. No	Description	Details
1.	Name of river basin	
2.	Name of main river	
3.	Name of tributary	
4.	Name of stream/nalla	
5.	Projected demand lits/day	
6.	Existing supply lits/day	
7.	Balance requirement lits/day	
8.	Hydro-geological condition	
9.	Details of the Runoff of river/stream source (for minimum 10 years)	
10.	Location	
11.	Bed level	



The DSR shall be submitted in the following manner. (Vol - I and II can be clubbed based on size of booklet)

Vol- I : Reports and estimate in A4 size

Vol- II : Hydraulic and Structural Designs in A4.

Vol- III : Drawings to scale and outputs in the required sizes.

The Volume- I shall have the following contents in addition to the component wise estimates.

- i. Introduction: Name of the work, terrain, topography, Geography, climate conditions, habitations covered.
- ii. Existing water supply Facility: Details of the existing PWS / MWS /BWS / OHT / source, LPCD, Water quality problem as per 2011 Survey, quantification of contamination.
- iii. Population: As per 2011 census / IMIS, present and the projected population for the project period including lag period for preparation of design / tender / execution / commissioning.
- iv. Water requirement: Water requirement for present, projected population for the designed LPCD including all losses applicable.
- v. Source: Selection of the source, sustainability, availability of water, perennial etc.,
- vi. Quality of Water: The quality of the proposed source shall be tested for all the 14 parameters and any other parameter as per the site requirement.
- vii. Impounding Reservoir: In case of the canal or non-perennial sources the provision for impounding reservoir, its necessity, location, capacity and other details such as permeability of the soil strata and other losses adopted shall be enumerated.
- viii. Intake well with Intake pipe / intake channel.
- ix. Jack well cum pump house/floating platform
- x. Raw / clear Water Pumping Machinery: Type, capacity, Head, Discharge etc.
- xi. Preliminary surge analysis and protection works for pumping mains (based on the requirement of the scheme and prior approval of the C.E.).
- xii. Rising Main / gravity main: Dia, Material, Length, Valves, etc.
- xiii. WTP: Location, Components, Necessity of the components, capacity, area required, land availability, soil investigation report etc.
- xiv. Clear Water Transmission Mains: By Gravity/Pumping, alignment, supply of pure water, pumping capacity, head, discharge, dia, length of mains, valves, intermediate sumps, MBT etc.,
- xv. Storage Capacity & Intra village distribution: Additional OHT/GLSR requirement with intra village distribution network.
- xvi. Costing of SCADA (Supervisory control and data acquisition) and instrumentation required to operate entire scheme on automation using SCADA software along with the backup of the cost considered.
- xvii. Analysis of Rates: Rate for all the items for estimation;
- xviii. Estimate: Apart from the major components like head works, WTP, Pipelines, MBR/ ZBR/ IPS, OHT, staff quarters, fencing/ compound wall, lighting of WTP area, approach roads, provision for contingencies, land acquisition cost, crossings, price adjustment, project reports preparation cost, dedicated express/feeder line may be incorporated;



- xix. Annual Maintenance Cost: Funds needed for maintenance and maintenance management systems;
- xx. Cost Analysis: Cost of project and per capita cost of the scheme;
- xxi. Remote Operation & Monitoring

The Volume- II: Hydraulic designs and structural designs should be prepared after collecting necessary field data and conducting necessary survey and essentially should contain the following:

- i. Design of Intake well with Intake pipe or intake channel; considering source profile and scour depth;
- ii. Design of jack well cum pump house/floating platform
- iii. Design of Raw Water Rising Main, Pumping Machinery including economical section analysis and water hammer analysis;
- iv. Preliminary surge analysis and protection for pumping mains (based on the requirement of the scheme and prior approval of the C.E.).
- v. Hydraulic design of WTP components as per CPHEEO manual considering the turbidity of raw water both pre-monsoon and post monsoon; and by adopting best design practices to minimize water losses from the WTP by recycling of backwash water and filtrate/supernatant from sludge handling system.
- vi. Design of pure water gravity main / pumping main with pumping machineries, economical section analysis and water hammer analysis as the case may be;
- vii. Adoption of OHT designs and drawings as per Jalnirmal Project for various capacities; (Minimum 5000ltrs. Capacity)
  - aa. Detailed Soil Investigation Report including Bore log data, soil parameters, recommendations for foundation design including founding depth, type of foundation, safe bearing capacity of soil, water table parameters at site.
- viii. Structural design of ELSR / GLSR / Sumps designs and drawings as per various capacities;
- ix. Structural design for intake / jack well / pump house / pump house flooring;
- x. Structural design for WTP components viz., aerator, raw water channel, flash mixer chamber, settling tank / clariflocculator filters, pure water sump, intermediate sumps etc.,
- xi. Mechanical / electrical designs for clariflocculator components:
- xii. Design, of SCADA (Supervisory control and data acquisition) and instrumentation required to operate entire scheme on automation using SCADA software

The Volume- III Drawings: The following drawings should accompany the DPR.:

- i. Key map showing the scheme details including source, WTP, rising main, habitations, pure water mains, OHT's etc.,
- ii. Block level plan of jack well with location;
- iii. Block level plan of WTP with various components marked to get continuity of flow;
- iv. Position of intake well, jack well with inlet and outlets RLs marked and other prominent RLs;
- xiii. Cross section view of various WTP components showing continuity of flow;
- xiv. Longitudinal section of rising mains, gravity mains of raw water and pure water;
- xv. Drawing of individual WTP components with inlet and outlet and other prominent RLs marked along with dimension;
- xvi. Line drawings of SCADA (Supervisory control and data acquisition) and instrumentation required to operate entire scheme on automation using SCADA software
- xvii. Structural Design drawings of Intake well/jack well/pump house /WTP components;
- xviii. Structural Design Drawings of OHTs as required;

- xix. Base map of habitation for intra village facility as per specification in Schedule - B
- xx. Type Design Drawing viz., Thrust block, valve chamber, chain link fencing and other misc., components adopted in the scheme;

## 12. Schedule of Payment

Payment to the consultants will be made as per the following schedule:

### 1. Schedule of Payment for PSR/DSR

Sl. No.	Types of Report	Time Schedule	Payment
1	Preliminary Scheme Report (3 copies)	After completion of assigned works and in Duration as mentioned in para.8 of TOR	a) 80% of the PSR Amount (Agreed Rates for PSR) after submission of the PSR to Division b) 20% of the PSR Amount (Agreed Rates for PSR) after acceptance of the PSR at the Office of the Chief Engineer RDWS&SD and placed before STA.
2	Draft Scheme Report (3 copies)	After completion of assigned works and in Duration as mentioned in para.8 of TOR	50 % of the DSR amount as per agreed rates after submission of report to Division
3	Detailed Scheme Report (3 copies) together with final electronic copies.	After incorporating observations/suggestions of Evaluation Committee of the department with a presentation.	a) 40% of the DSR amount as per agreed rates after submission and acceptance of Final Report by Office of the Chief Engineer RDWS&SD and placed before STA. b) 10% of the DSR amount as per agreed rates after submission and acceptance of Final Report and submission of tender document. (Technical Sanction).

### 2. Schedule of Payment for PSR/DBOT

Sl. No.	Types of Report	Time Schedule	Payment
1	Preliminary Scheme Report (3 copies)	After completion of assigned works and in Duration as mentioned in para.8 of TOR	a) 80% of the PSR Amount (Agreed Rates for PSR) after submission of the PSR to Division. b) 20% of the PSR Amount (Agreed Rates for PSR) after acceptance of the PSR at the Office of the Chief Engineer RDWS&SD and placed before STA.

2	Draft Concept Report (3 copies)	After completion of assigned works and in Duration as mentioned in para.8 of TOR	50% of theDBOT amount as per agreed rates after submission to Division
3	Final Concept Report (3 copies) together with final electronic copies.	After incorporating observations/suggestions of Evaluation Committee of the department with a presentation.	a) 40% of the DBOT amount as per agreed rates after submission and acceptance of Final Report by Office of the Chief Engineer RDWS&SD and placed before STA b) 10% of the DBOT amount as per agreed rates after submission and acceptance of Final Report and submission of tender document

- a. Payment shall be made within 60 days of receipt of the invoice and the relevant document, and within 90 days in case of final payment. The interest rate is 5 % per annum.
- b. The rates set forth shall be adjusted every twelve (12) months ( and with effect from 13<sup>th</sup> Calendar Month after the date of approval of the empanelment of consultants with agreed rates) by applying increase of a factor 5% per annum.
- c. **Penalties:** in case, delay in satisfactory completion of services occurs due to consultant beyond the stipulated period, the consultant shall be liable to pay penalty at Rs. 1,000/- per calendar day subject to maximum of Rs. 25,000/-. In case of delay beyond 30 days, DPR will not be acceptable and in addition to penalty, payment already made to consultant till that time shall be recoverable. Decision of Chief Engineer, RDW&SD is final in this regard.
- d. (i). Consultants shall incorporate any changes at any stage of the Project as per the instructions of the Department. If the changes are required due to the reasons not attributable to Consultants, additional payment shall be made on items as per the agreed rates in case of repetition.  
(ii). These approved rates are also applicable for repairing, redesigning, remodeling and recasting of ongoing or existing defunct scheme.  
(iii). the fees for vetting of designs by third party consultants will be borne by the department separately.

## Summary of Cost

The rates finalised by the department are as below excluding GST *but including IT*

Category – I for DBOT Schemes				
SI No	Part	Unit	Particulars	Amount
1	2	3	4	5
<b>PART- I PSR</b>				
	<b>PART- I PSR</b>		<b>Preparation of preliminary scheme report highlighting the following items:</b>	
			i) Preparation and submission of preliminary scheme report on the scheme already formulated by the department and administratively approved by the Government highlighting the following criteria:	
			Sustainability of the sources selected for supply of potable treated drinking water to villages throughout the year	
			Feasibility report on the scheme formulated to supply potable treated drinking water economically within the administratively approved amount;	
			Preparation and submission of preliminary report on fresh schemes to be formulated by the consultants with the following reports:	
			i) Population details; (2011 Census)	
			ii) Reconnaissance Survey and assessment of the area available & required for different components.	
			iii) Preliminary design report including source sustainability;	
			iv) Preliminary cost estimate which includes all the components of the scheme and the backup of cost assessment basis in-detail based on approximate designs and quantities to place the preliminary report before SLSSC	
1		Habitation	Upto 25 habitations	1,25,000
2		Habitation	From 25 to 50 habitations	1,85,000
3		Habitation	From 50 to 100 habitations	3,00,000
4		Habitation	More than 100 habitations for part of every 25 additional habitation	75,600
<b>PART II DBOT</b>				
1	<b>PART – III DBOT Concept Note and Technical Specifications</b>	Each	Preparing Concept Note of the Project and submit the technological and feasible concept.	2,52,000
2a		Each	Design of all the major components (unit wise) The designs of the entire system shall be strictly as per the CPHEEO manual in force and as per the circulars issued by the department from time to time. Based on GIS Terrain model or toposheet or topography, identify the locations of Head Works, Water Treatment Plant, Master balancing reservoirs and pumping stations of the scheme. The components of the scheme shall be designed in most economical manner. The general arrangement drawing of the Head works, Treatment plant and Pumping Station shall be submitted indicating positions of all the components and hydraulic connections.	4,59,000
2b		Km	Based on GIS Terrain model or toposheet or topography, prepare the water feeder main network to the habitations of the scheme.	2,520

			Carryout hydraulic analysis and modelling for transmission main and feeder mains. Techno-economical analysis for transmission mains and pumping mains and analysis for selection of pipe materials for transmission and feeder mains using commercially available software. (back up data to be furnished in soft copy)	
3		Each	Detailed technical specifications for tender document.	1,08,000
4		Each	Preparing Cost estimates (unit wise) The rates adopted shall be as per the current schedule of rates of PWD / RDW&SD / PRED / PW, P & IWTD / KUWSDB / BWSSB / MI (Minor irrigation) / WRD (Major Irrigation) / CPWD / All ESCOM and other approved schedule of rates. The items not found in the Schedule of rates shall be derived from the market rates and shall be supported by the copies of the rates obtained from the competent manufacturers or authorized dealers of the companies only.	2,07,000
5		Each	Preparation of Bid document The draft tender schedules shall be prepared based on the standard practice of the department and neatly bound and submitted to the department. The consultant can assist tender inviting authority in evaluation of the tenders.	1,08,000
6		Each	Design, drawings, and costing of SCADA (Supervisory control and data acquisition) and instrumentation required to operate entire scheme on automation using SCADA software. Designing and costing of HMI, PLC, instrumentation, communication, data transmission and designing of report generation, Remote/wireless communication or wired communication as per requirement. Design of logics as per scheme requirement to operate entire scheme on automation. Designs of water level sensors, flow and discharge meters, pressure sensors, actuator and Meters required at Jack well, Rising main, WTP, MBT, ZBT and village reservoirs.	5,00,000

Category – II - Prepare scheme reports for schemes costing *upto 50cr.*

SI No	Part	Unit	Particulars	Amount
1	2	3	4	5
<b>PART- I PSR</b>				
	<b>PART- I PSR</b>		<b>Preparation of preliminary scheme report highlighting the following items:</b>	
			iii) Preparation and submission of preliminary scheme report on the scheme already formulated by the department and administratively approved by the Government highlighting the following criteria:	
			Sustainability of the sources selected for supply of potable treated drinking water to villages throughout the year	
			Feasibility report on the scheme formulated to supply potable treated drinking water economically within the administratively approved amount;	
			Preparation and submission of preliminary report on fresh schemes to be formulated by the consultants with the following reports:	
			i) Population details; (2011 Census)	
			iv) Reconnaissance Survey and assessment of the area available & required for different components.	
			iii) Preliminary design report including source sustainability;	
			iv) Preliminary cost estimate which includes all the components of the scheme and the backup of cost assessment basis in-detail based on approximate designs and quantities to place the preliminary report before SLSSC	
1		Habitation	Upto 25 habitations	1,20,000
2		Habitation	From 25 to 50 habitations	1,75,000
3		Habitation	From 50 to 100 habitations	2,75,000
4		Habitation	More than 100 habitations for part of every 25 additional habitation	65,000
<b>PART – II DSR</b>				
<b>A</b>	<b>Conducting survey works</b>			
1	<b>PART – II DSR A. Conducting Survey works</b>		General Conditions: The Benchmark adopted for all the survey works shall be GTS Bench Mark. If no such bench marks are available nearby within a radius of 5 km, the benchmarks shall be established using Differential GPS or Hand-Held GPS. Temporary benchmarks shall be established along the alignment at prominent places and list of such bench marks shall be submitted. The survey shall be conducted using Total Station or other self-recording Digital Survey Instruments only.	4,000

		Km	<p>Alignment survey for the Longitudinal section of the Rising mains (Gravity/Pumping) and preparation of L section plan with detailed designs.</p> <p>The interval of the longitudinal section shall be at least 30 m and less at required places. The alignment plan shall show the position of the Cross drainage works/Nalla crossings/River/stream/road junctions and other natural features. The location of air valves/scour valves/control valves/surge protection devices shall be marked clearly in the Longitudinal section drawings.</p> <p>(Note: If survey carried out from GTS bench mark, additional length will be claimed as per rate quoted for this item)</p>	
2	<b>PART – II DSR A. Conducting Survey works</b>	Each	<p>Cross section of the River/ Stream/source of the proposed scheme for locating the intake structures/ Jack well / Headworks using Bathymetric survey.</p> <p>The cross section of the source shall be taken at 5 m interval up to the HFL on both the banks of the stream/river. The lowest bed level of the stream shall be distinctively marked.</p>	90,000
3	<b>PART – II DSR A. Conducting Survey works</b>	Hectare	<p>Block level plan of the proposed Jack well / Headworks / Treatment plant</p> <p>The Block level plan shall be at an interval of 3M for minimum size of 50 m x 50 m. The contour interval to be generated shall be 0.20 m. The Block level plan shall extend to contour at least 1.0 m above observed HFL at the location for Headworks.</p>	10,000
4	<b>PART – II DSR A. Conducting Survey works</b>	Hectare	<p>Block level plan of the proposed Impounding reservoir</p> <p>The Block level plan shall be at an interval of 3 M for the required size. Temporary bench mark shall be established near the treatment plant on a well-defined object. The contour interval to be generated shall be 0.20 m.</p>	6,500
5	<b>PART – II DSR A. Conducting Survey works</b>		<p>Preparation of the Base map of the villages including distribution network analysis in Loop System with any approved distribution network analysis software.</p> <p>The existing features of the village such as roads, lanes, by lanes, buildings, power lines, telephone lines. The important buildings such as worshipping places and government buildings such as Schools / Collages / Anganawadi shall be clearly marked in the layout plan. The location of the existing and proposed water retaining structures shall be clearly marked with their holding capacity and the staging above the ground level. The existing source points such as bore wells, Pump Houses, cisterns and Rising Mains and Distribution Mains and positions of valves shall be distinctively marked with the available diameter. The existing household connections shall be indicated. The contour interval adopted shall be 0.20 m interval. The village shall be Geo-referenced, and grids plotted with grid lines of 500m X 500m. Temporary bench marks shall be indicated in the layout plan. The width of the road, lanes and by lanes is to distinctive marked.</p> <p>Surface of the road. The storm water/sullage drains shall be marked with the material of construction. The position of the proposed service reservoir if required shall be marked distinctively with capacity, staging and the clear area available shall be marked. The distribution network proposed and the existing shall be indicated with the class of pipes/dia and length/node number and pipe number.</p>	

5a		Habitation	Up to 1000 population as per 2011 census	55,000
5b		Habitation	1001 to 2000 population as per 2011 census	85,000
5c		Habitation	2001 to 3000 population as per 2011 census	1,10,000
5d		Habitation	3001 to 5000 population as per 2011 census	1,40,000
5e		Habitation	Above 5000 population (for a part of 1000 additional population)	25,000
<b>B</b>	<b>Conducting soil investigation and water quality</b>			
6	<b>PART – II DSR B. Conducting soil investigation and water quality</b>		The soil investigation and water quality shall be conducted as per the current standard practice in conformity to the IS/BIS specifications	
6a		Per 5Mtrs	Trial bore for determining the classification of the soil at jack well site using mechanically driven device up to bottom level of headworks in all kinds of strata.	45,000
6b		Each	SBC of the Soil at WTP site (maximum of 3 pits) / OHT/ISS and other structure sites	18,000
6c		Each	Trial pits for determining the soil classification along pumping/gravity mains of size 1m x 1m x 1m (2 pits per km)	850
6d		Each	Water quality testing for standard 14 parameters.	8,500
<b>C</b>	<b>Hydraulic Designs of the System</b>			
7	<b>PART – II DSR C. Hydraulic Designs of the System</b>		Submission of Hydraulic designs: The designs of the entire system shall be strictly as per the CPHEEO manual in force and as per the circulars issued by the department from time to time. The components of the scheme shall be designed in most economical manner. The general arrangement drawing of the Head works, Treatment plant and Pumping Station shall be submitted indicating positions of all the components and hydraulic connections with levels. The drawing output shall be submitted component wise with index. Any revision shall be distinctively marked in the drawing.	
7a		Each	1. Head works/ Pumping Station	65,000
7b		Km	2. Design of Rising Main/Gravity Main with standard software available in market. The pumping mains/gravity mains shall be analyzed for the economical selection. The scope includes the design of pipeline, valves sizing with their pressure ratings and their locations as per norms.	2,500
7c.i		Each	3.a.i. WTP adopting rapid sand filters; up to 5MLD	90,000
7c.ii		Each	3.a.ii. WTP adopting rapid sand filters; 5 to 10MLD	1,40,000
7c.iii		Each	3.a.iii. WTP adopting rapid sand filters; 10 to 25 MLD	2,35,000
7c.iv		Each	3.a.iv. WTP adopting rapid sand filters; 25 to 50 MLD	4,25,000
7c.v		Each	3.a.v. WTP adopting rapid sand filters; more than 50MLD	5,50,000
7c.vi		Each	3.b) WTP adopting pressure filters;	60,000



7d		MCft	4. Impounding Reservoir (I.R.) The capacity to be fixed considering the non-perennial source period and the demand of the scheme. Provision to be made for evaporation and percolation losses. For arriving at the capacity of the I.R. Mass Balancing to be done for optimum utilization of land or ground profile. The bund section to be designed as per WARDO standards.	10,000
<b>D</b>	<b>Structural Design of the System</b>			
8	<b>PART – II DSR D. Structural Designs of the System</b>		Submission of Structural designs: The structural designs shall be in detail with supporting outputs in hard copy as well as soft copy in excel format. The basis for the structural design shall be as per IS 456 - 2000 revised from time to time, IS 3370 as amended time to time. In case analysis is done using STAAD or similar software the entire analysis file and the output files shall be submitted. The design document shall be supported with the details of the Codes and design parameters adopted.	
8a		Each	1. Head Works/ Pumping Station	1,25,000
8b.i		Each	2.a.i. WTP adopting rapid sand filters; up to 5MLD	2,50,000
8b.ii		Each	2.a.ii. WTP adopting rapid sand filters; 5 to 10MLD	3,50,000
8b.iii		Each	2.a.iii. WTP adopting rapid sand filters; 10 to 25 MLD	5,00,000
8b.iv		Each	2.a.iv. WTP adopting rapid sand filters; 25 to 50 MLD	8,00,000
8b.v		Each	2.a.v. WTP adopting rapid sand filters; more than 50MLD	10,00,000
8b.vi		Each	b) WTP adopting pressure filters;	65,000
8c		Each	Adoption of <i>Jal Nirmal Project</i> standard OHT's drawings	3,000
8d		Each	Design & Drawings of GLSRs, Sumps, Intermediate Storage Sump and OHT	55,000
<b>E</b>	<b>Electromechanical Design</b>			
9	<b>PART – II DSR E.Electromechanical Design</b>		The design of the Pumping systems shall be strictly as per the CPHEEO manual in force and as per the circulars issued by the department from time to time based on the required discharges from each pump and efficiency of pump. The HP of pump to be worked out. Based on the Pump HP, Control Panel, Capacitor Panel, Starters Panels, Cable sizing and Substation have to be designed, etc.,	
9a.i		Each	a. HP of the pump in the range upto 5	20,000
9a.ii		Each	b. HP of the pump in the range of 5-25	40,000
9a.iii		Each	c. HP of the pump in the range of 25-300	1,30,000
9a.iv		Each	d. HP of the pump in the range of 300 and above	2,25,000
9b		Each	The pumping mains shall be analyzed for the water hammer. Preliminary surge analysis shall be carried out along with the provision of necessary surge protection devices. The scope includes the design of valves or any other protective component with their pressure ratings and their locations. The components of the scheme shall be designed in most economical manner.	2,50,000

			To prepare Preliminary surge analysis,prior approval of the Chief Engineer is a must as it is not required for smaller discharge and head pipelines.	
<b>F</b>	<b>Control &amp; Monitoring system Design</b>			
10	<b>PART – II DSR F.Control &amp; Monitoring system Design</b>	Each	Design, drawings, and costing of SCADA (Supervisory control and data acquisition) and instrumentation required to operate entire scheme on automation using SCADA software. Designing and costing of HMI, PLC, instrumentation, communication, data transmission and designing of report generation, Remote/wireless communication or wired communication as per requirement. Design of logics as per scheme requirement to operate entire scheme on automation. Designs of water level sensors, flow and discharge meters, pressure sensors, actuator and Meters required at Jack well, Rising main, WTP, MBT, ZBT and village reservoirs.	4,50,000
<b>G</b>	<b>Preparation of DSR document</b>			
11a	<b>PART – II DSR G. Preparation of DSR document</b>	Each	DSR shall be prepared based on the actual quantities worked out from the designs and drawings, no lump sum quantities shall be adopted. The rates adopted shall be as per the current schedule of rates of PWD / RDW&SD / PRED / PW, P & IWTD / KUWSDB / BWSSB / MI (Minor irrigation) / WRD (Major Irrigation) / CPWD and other approved schedule of rates. The items not found in the Schedule of rates shall be derived from the market rates (quotations) and shall be supported by the copies of the rates obtained from 3 (three) different competent manufacturers or authorized dealers of the companies only. The comparative statement for the 3 (three) quotations thus obtained shall be approved by the concerned SE along with make & specifications. The DSR shall be submitted in three sets at the first instance neatly bound by spiral binding/comb binding	2,50,000
11b		Each	Additional copies of DSR / DBOT / Tender document including drawings.	25,000
<b>H. Preparation of Draft Tender Schedule and Tender Evaluation</b>				
12	<b>PART- II DSR H. Preparation of Draft Tender Schedule and Tender Evaluation</b>	Each	The draft tender schedules shall be prepared based on the standard practice of the department and neatly bound and submitted to the department. The consultant can assist tender inviting authority in evaluation of the tenders also to be submitted.	3,00,000

Category – III - Prepare scheme reports for schemes costing *upto 20cr.*

SI No	Part	Unit	Particulars	Amount
1	2	3	4	5
<b>PART- I PSR</b>				
	<b>PART- I PSR</b>		<b>Preparation of preliminary scheme report highlighting the following items:</b>	
			v) Preparation and submission of preliminary scheme report on the scheme already formulated by the department and administratively approved by the Government highlighting the following criteria:	
			Sustainability of the sources selected for supply of potable treated drinking water to villages throughout the year	
			Feasibility report on the scheme formulated to supply potable treated drinking water economically within the administratively approved amount;	
			Preparation and submission of preliminary report on fresh schemes to be formulated by the consultants with the following reports:	
			i) Population details; (2011 Census)	
			vi) Reconnaissance Survey and assessment of the area available & required for different components.	
			iii) Preliminary design report including source sustainability;	
			iv) Preliminary cost estimate which includes all the components of the scheme and the backup of cost assessment basis in-detail based on approximate designs and quantities to place the preliminary report before SLSSC	
1		Habitation	Upto 25 habitations	1,14,000
2		Habitation	From 25 to 50 habitations	1,66,250
3		Habitation	From 50 to 100 habitations	2,61,250
4		Habitation	More than 100 habitations for part of every 25 additional habitation	61,750
<b>PART – II DSR</b>				
<b>A</b>	<b>Conducting survey works</b>			
1	<b>PART – II DSR A. Conducting Survey works</b>		General Conditions: The Benchmark adopted for all the survey works shall be GTS Bench Mark. If no such bench marks are available nearby within a radius of 5 km, the benchmarks shall be established using Differential GPS or Hand-Held GPS. Temporary benchmarks shall be established along the alignment at prominent places and list of such bench marks shall be submitted. The survey shall be conducted using Total Station or other self-recording Digital Survey Instruments only.	3,800

		Km	<p>Alignment survey for the Longitudinal section of the Rising mains (Gravity/Pumping) and preparation of L section plan with detailed designs.</p> <p>The interval of the longitudinal section shall be at least 30 m and less at required places. The alignment plan shall show the position of the Cross drainage works/Nalla crossings/River/stream/road junctions and other natural features. The location of air valves/scour valves/control valves/surge protection devices shall be marked clearly in the Longitudinal section drawings.</p> <p>(Note: If survey carried out from GTS bench mark, additional length will be claimed as per rate quoted for this item)</p>	
2	<b>PART – II DSR A. Conducting Survey works</b>	Each	<p>Cross section of the River/ Stream/source of the proposed scheme for locating the intake structures/ Jack well / Headworks using Bathymetric survey.</p> <p>The cross section of the source shall be taken at 5 m interval up to the HFL on both the banks of the stream/river. The lowest bed level of the stream shall be distinctively marked.</p>	85,500
3	<b>PART – II DSR A. Conducting Survey works</b>	Hectare	<p>Block level plan of the proposed Jack well / Headworks / Treatment plant</p> <p>The Block level plan shall be at an interval of 3M for minimum size of 50 m x 50 m. The contour interval to be generated shall be 0.20 m. The Block level plan shall extend to contour at least 1.0 m above observed HFL at the location for Headworks.</p>	9,500
4	<b>PART – II DSR A. Conducting Survey works</b>	Hectare	<p>Block level plan of the proposed Impounding reservoir</p> <p>The Block level plan shall be at an interval of 3 M for the required size. Temporary bench mark shall be established near the treatment plant on a well-defined object. The contour interval to be generated shall be 0.20 m.</p>	6,175
5	<b>PART – II DSR A. Conducting Survey works</b>		<p>Preparation of the Base map of the villages including distribution network analysis in Loop System with any approved distribution network analysis software.</p> <p>The existing features of the village such as roads, lanes, by lanes, buildings, power lines, telephone lines. The important buildings such as worshipping places and government buildings such as Schools / Collages / Anganawadi shall be clearly marked in the layout plan. The location of the existing and proposed water retaining structures shall be clearly marked with their holding capacity and the staging above the ground level. The existing source points such as bore wells, Pump Houses, cisterns and Rising Mains and Distribution Mains and positions of valves shall be distinctively marked with the available diameter. The existing household connections shall be indicated. The contour interval adopted shall be 0.20 m interval. The village shall be Geo-referenced, and grids plotted with grid lines of 500m X 500m. Temporary bench marks shall be indicated in the layout plan. The width of the road, lanes and by lanes is to distinctive marked.</p> <p>Surface of the road. The storm water/sullage drains shall be marked with the material of construction. The position of the proposed service reservoir if required shall be marked distinctively with capacity, staging and the clear area available shall be marked. The distribution network proposed and the existing shall be indicated with the class of pipes/dia and length/node number and pipe number.</p>	

5a		Habitation	Up to 1000 population as per 2011 census	52,250
5b		Habitation	1001 to 2000 population as per 2011 census	80,750
5c		Habitation	2001 to 3000 population as per 2011 census	1,04,500
5d		Habitation	3001 to 5000 population as per 2011 census	1,33,000
5e		Habitation	Above 5000 population (for a part of 1000 additional population)	23,750
<b>B</b>	<b>Conducting soil investigation and water quality</b>			
6	<b>PART – II DSR B. Conducting soil investigation and water quality</b>		The soil investigation and water quality shall be conducted as per the current standard practice in conformity to the IS/BIS specifications	
6a		Per 5Mtrs	Trial bore for determining the classification of the soil at jack well site using mechanically driven device up to bottom level of headworks in all kinds of strata.	42,750
6b		Each	SBC of the Soil at WTP site (maximum of 3 pits) / OHT/ISS and other structure sites	17,100
6c		Each	Trial pits for determining the soil classification along pumping/gravity mains of size 1m x 1m x 1m (2 pits per km)	807.50
6d		Each	Water quality testing for standard 14 parameters.	8,075
<b>C</b>	<b>Hydraulic Designs of the System</b>			
7	<b>PART – II DSR C. Hydraulic Designs of the System</b>		Submission of Hydraulic designs: The designs of the entire system shall be strictly as per the CPHEEO manual in force and as per the circulars issued by the department from time to time. The components of the scheme shall be designed in most economical manner. The general arrangement drawing of the Head works, Treatment plant and Pumping Station shall be submitted indicating positions of all the components and hydraulic connections with levels. The drawing output shall be submitted component wise with index. Any revision shall be distinctively marked in the drawing.	
7a		Each	1. Head works/ Pumping Station	61,750
7b		Km	2. Design of Rising Main/Gravity Main with standard software available in market. The pumping mains/gravity mains shall be analyzed for the economical selection. The scope includes the design of pipeline, valves sizing with their pressure ratings and their locations as per norms.	2,375
7c.i		Each	3.a.i. WTP adopting rapid sand filters; up to 5MLD	85,500
7c.ii		Each	3.a.ii. WTP adopting rapid sand filters; 5 to 10MLD	1,33,000
7c.iii		Each	3.a.iii. WTP adopting rapid sand filters; 10 to 25 MLD	2,23,250
7c.iv		Each	3.a.iv. WTP adopting rapid sand filters; 25 to 50 MLD	4,03,750
7c.v		Each	3.a.v. WTP adopting rapid sand filters; more than 50MLD	5,22,500
7c.vi	Each	3.b) WTP adopting pressure filters;	57,000	

7d		MCft	4. Impounding Reservoir (I.R.) The capacity to be fixed considering the non-perennial source period and the demand of the scheme. Provision to be made for evaporation and percolation losses. For arriving at the capacity of the I.R. Mass Balancing to be done for optimum utilization of land or ground profile. The bund section to be designed as per WARDO standards.	9,500
<b>D</b>	<b>Structural Design of the System</b>			
8	<b>PART – II DSR D. Structural Designs of the System</b>		Submission of Structural designs: The structural designs shall be in detail with supporting outputs in hard copy as well as soft copy in excel format. The basis for the structural design shall be as per IS 456 - 2000 revised from time to time, IS 3370 as amended time to time. In case analysis is done using STAAD or similar software the entire analysis file and the output files shall be submitted. The design document shall be supported with the details of the Codes and design parameters adopted.	
8a		Each	1. Head Works/ Pumping Station	1,18,750
8b.i		Each	2.a.i. WTP adopting rapid sand filters; up to 5MLD	2,37,500
8b.ii		Each	2.a.ii. WTP adopting rapid sand filters; 5 to 10MLD	3,32,500
8b.iii		Each	2.a.iii. WTP adopting rapid sand filters; 10 to 25 MLD	4,75,000
8b.iv		Each	2.a.iv. WTP adopting rapid sand filters; 25 to 50 MLD	7,60,000
8b.v		Each	2.a.v. WTP adopting rapid sand filters; more than 50MLD	9,50,000
8b.vi		Each	b) WTP adopting pressure filters;	61,750
8c		Each	Adoption of <i>Jal Nirmal Project</i> standard OHT's drawings	2,850
8d		Each	Design & Drawings of GLSRs, Sumps, Intermediate Storage Sump and OHT	52,250
<b>E</b>	<b>Electromechanical Design</b>			
9	<b>PART – II DSR E.Electromechanical Design</b>		The design of the Pumping systems shall be strictly as per the CPHEEO manual in force and as per the circulars issued by the department from time to time based on the required discharges from each pump and efficiency of pump. The HP of pump to be worked out. Based on the Pump HP, Control Panel, Capacitor Panel, Starters Panels, Cable sizing and Substation have to be designed, etc.,	
9a.i		Each	a. HP of the pump in the range upto 5	19,000
9a.ii		Each	b. HP of the pump in the range of 5-25	38,000
9a.iii		Each	c. HP of the pump in the range of 25-300	1,23,500
9a.iv		Each	d. HP of the pump in the range of 300 and above	2,13,750
9b		Each	The pumping mains shall be analyzed for the water hammer. Preliminary surge analysis shall be carried out along with the provision of necessary surge protection devices. The scope includes the design of valves or any other protective component with their pressure ratings and their locations. The components of the scheme shall be designed in most economical manner.	2,37,500

			To prepare Preliminary surge analysis,prior approval of the Chief Engineer is a must as it is not required for smaller discharge and head pipelines.	
<b>F</b>	<b>Control &amp; Monitoring system Design</b>			
10	<b>PART – II DSR F.Control &amp; Monitoring system Design</b>	Each	Design, drawings, and costing of SCADA (Supervisory control and data acquisition) and instrumentation required to operate entire scheme on automation using SCADA software. Designing and costing of HMI, PLC, instrumentation, communication, data transmission and designing of report generation, Remote/wireless communication or wired communication as per requirement. Design of logics as per scheme requirement to operate entire scheme on automation. Designs of water level sensors, flow and discharge meters, pressure sensors, actuator and Meters required at Jack well, Rising main, WTP, MBT, ZBT and village reservoirs.	4,27,500
<b>G</b>	<b>Preparation of DSR document</b>			
11a	<b>PART – II DSR G. Preparation of DSR document</b>	Each	DSR shall be prepared based on the actual quantities worked out from the designs and drawings, no lump sum quantities shall be adopted. The rates adopted shall be as per the current schedule of rates of PWD / RDW&SD / PRED / PW, P & IWTD / KUWSDB / BWSSB / MI (Minor irrigation) / WRD (Major Irrigation) / CPWD and other approved schedule of rates. The items not found in the Schedule of rates shall be derived from the market rates (quotations) and shall be supported by the copies of the rates obtained from 3 (three) different competent manufacturers or authorized dealers of the companies only. The comparative statement for the 3 (three) quotations thus obtained shall be approved by the concerned SE along with make & specifications. The DSR shall be submitted in three sets at the first instance neatly bound by spiral binding/comb binding	2,37,500
11b		Each	Additional copies of DSR / DBOT / Tender document including drawings.	23,750
<b>H. Preparation of Draft Tender Schedule and Tender Evaluation</b>				
12	<b>PART- II DSR H. Preparation of Draft Tender Schedule and Tender Evaluation</b>	Each	The draft tender schedules shall be prepared based on the standard practice of the department and neatly bound and submitted to the department. The consultant can assist tender inviting authority in evaluation of the tenders also to be submitted.	2,85,000

Category – IV - Prepare scheme reports for schemes costing *upto 5.00 cr.*

Sl No	Part	Unit	Particulars	Amount
1	2	3	4	5
<b>PART- I PSR</b>				
	<b>PART- I PSR</b>		<b>Preparation of preliminary scheme report highlighting the following items:</b>	
			vii)Preparation and submission of preliminary scheme report on the scheme already formulated by the department and administratively approved by the Government highlighting the following criteria:	
			Sustainability of the sources selected for supply of potable treated drinking water to villages throughout the year	
			Feasibility report on the scheme formulated to supply potable treated drinking water economically within the administratively approved amount;	
			Preparation and submission of preliminary report on fresh schemes to be formulated by the consultants with the following reports:	
			i) Population details; (2011 Census)	
			viii) Reconnaissance Survey and assessment of the area available & required for different components.	
			iii) Preliminary design report including source sustainability;	
			iv) Preliminary cost estimate which includes all the components of the scheme and the backup of cost assessment basis in-detail based on approximate designs and quantities to place the preliminary report before SLSSC	
1		Habitation	Upto 25 habitations	1,08,300
2		Habitation	From 25 to 50 habitations	1,57,938
3		Habitation	From 50 to 100 habitations	2,48,188
4		Habitation	More than 100 habitations for part of every 25 additional habitation	58,663
<b>PART – II DSR</b>				
<b>A</b>	<b>Conducting survey works</b>			
1	<b>PART – II DSR A. Conducting Survey works</b>		General Conditions: The Benchmark adopted for all the survey works shall be GTS Bench Mark. If no such bench marks are available nearby within a radius of 5 km, the benchmarks shall be established using Differential GPS or Hand-Held GPS. Temporary benchmarks shall be established along the alignment at prominent places and list of such bench marks shall be submitted. The survey shall be conducted using Total Station or other self-recording Digital Survey Instruments only.	3,610



		Km	<p>Alignment survey for the Longitudinal section of the Rising mains (Gravity/Pumping) and preparation of L section plan with detailed designs.</p> <p>The interval of the longitudinal section shall be at least 30 m and less at required places. The alignment plan shall show the position of the Cross drainage works/Nalla crossings/River/stream/road junctions and other natural features. The location of air valves/scour valves/control valves/surge protection devices shall be marked clearly in the Longitudinal section drawings.</p> <p>(Note: If survey carried out from GTS bench mark, additional length will be claimed as per rate quoted for this item)</p>	
2	<b>PART – II DSR A. Conducting Survey works</b>	Each	<p>Cross section of the River/ Stream/source of the proposed scheme for locating the intake structures/ Jack well / Headworks using Bathymetric survey.</p> <p>The cross section of the source shall be taken at 5 m interval up to the HFL on both the banks of the stream/river. The lowest bed level of the stream shall be distinctively marked.</p>	81,225
3	<b>PART – II DSR A. Conducting Survey works</b>	Hectare	<p>Block level plan of the proposed Jack well / Headworks / Treatment plant</p> <p>The Block level plan shall be at an interval of 3M for minimum size of 50 m x 50 m. The contour interval to be generated shall be 0.20 m. The Block level plan shall extend to contour at least 1.0 m above observed HFL at the location for Headworks.</p>	9,025
4	<b>PART – II DSR A. Conducting Survey works</b>	Hectare	<p>Block level plan of the proposed Impounding reservoir</p> <p>The Block level plan shall be at an interval of 3 M for the required size. Temporary bench mark shall be established near the treatment plant on a well-defined object. The contour interval to be generated shall be 0.20 m.</p>	5,866
5	<b>PART – II DSR A. Conducting Survey works</b>		<p>Preparation of the Base map of the villages including distribution network analysis in Loop System with any approved distribution network analysis software.</p> <p>The existing features of the village such as roads, lanes, by lanes, buildings, power lines, telephone lines. The important buildings such as worshipping places and government buildings such as Schools / Collages / Anganawadi shall be clearly marked in the layout plan. The location of the existing and proposed water retaining structures shall be clearly marked with their holding capacity and the staging above the ground level. The existing source points such as bore wells, Pump Houses, cisterns and Rising Mains and Distribution Mains and positions of valves shall be distinctively marked with the available diameter. The existing household connections shall be indicated. The contour interval adopted shall be 0.20 m interval. The village shall be Geo-referenced, and grids plotted with grid lines of 500m X 500m. Temporary bench marks shall be indicated in the layout plan. The width of the road, lanes and by lanes is to distinctive marked.</p> <p>Surface of the road. The storm water/sullage drains shall be marked with the material of construction. The position of the proposed service reservoir if required shall be marked distinctively with capacity, staging and the clear area available shall be marked. The distribution network proposed and the existing shall be indicated with the class of pipes/dia and length/node number and pipe number.</p>	

5a		Habitation	Up to 1000 population as per 2011 census	49,638
5b		Habitation	1001 to 2000 population as per 2011 census	76,713
5c		Habitation	2001 to 3000 population as per 2011 census	99,275
5d		Habitation	3001 to 5000 population as per 2011 census	1,26,350
5e		Habitation	Above 5000 population (for a part of 1000 additional population)	22,563
<b>B</b>	<b>Conducting soil investigation and water quality</b>			
6	<b>PART – II DSR B. Conducting soil investigation and water quality</b>		The soil investigation and water quality shall be conducted as per the current standard practice in conformity to the IS/BIS specifications	
6a		Per 5Mtrs	Trial bore for determining the classification of the soil at jack well site using mechanically driven device up to bottom level of headworks in all kinds of strata.	40,613
6b		Each	SBC of the Soil at WTP site (maximum of 3 pits) / OHT/ISS and other structure sites	16,245
6c		Each	Trial pits for determining the soil classification along pumping/gravity mains of size 1m x 1m x 1m (2 pits per km)	767
6d		Each	Water quality testing for standard 14 parameters.	7,671
<b>C</b>	<b>Hydraulic Designs of the System</b>			
7	<b>PART – II DSR C. Hydraulic Designs of the System</b>		Submission of Hydraulic designs: The designs of the entire system shall be strictly as per the CPHEEO manual in force and as per the circulars issued by the department from time to time. The components of the scheme shall be designed in most economical manner. The general arrangement drawing of the Head works, Treatment plant and Pumping Station shall be submitted indicating positions of all the components and hydraulic connections with levels. The drawing output shall be submitted component wise with index. Any revision shall be distinctively marked in the drawing.	
7a		Each	1. Head works/ Pumping Station	58,663
7b		Km	2. Design of Rising Main/Gravity Main with standard software available in market. The pumping mains/gravity mains shall be analyzed for the economical selection. The scope includes the design of pipeline, valves sizing with their pressure ratings and their locations as per norms.	2,256
7c.i		Each	3.a.i. WTP adopting rapid sand filters; up to 5MLD	81,225
7c.ii		Each	3.a.ii. WTP adopting rapid sand filters; 5 to 10MLD	1,26,350
7c.iii		Each	3.a.iii. WTP adopting rapid sand filters; 10 to 25 MLD	2,12,088
7c.iv		Each	3.a.iv. WTP adopting rapid sand filters; 25 to 50 MLD	3,85,563
7c.v		Each	3.a.v. WTP adopting rapid sand filters; more than 50MLD	4,96,375
7c.vi	Each	3.b) WTP adopting pressure filters;	54,150	

7d		MCft	4. Impounding Reservoir (I.R.) The capacity to be fixed considering the non-perennial source period and the demand of the scheme. Provision to be made for evaporation and percolation losses. For arriving at the capacity of the I.R. Mass Balancing to be done for optimum utilization of land or ground profile. The bund section to be designed as per WARDO standards.	9,025
<b>D</b>	<b>Structural Design of the System</b>			
8	<b>PART – II DSR D. Structural Designs of the System</b>		Submission of Structural designs: The structural designs shall be in detail with supporting outputs in hard copy as well as soft copy in excel format. The basis for the structural design shall be as per IS 456 - 2000 revised from time to time, IS 3370 as amended time to time. In case analysis is done using STAAD or similar software the entire analysis file and the output files shall be submitted. The design document shall be supported with the details of the Codes and design parameters adopted.	
8a		Each	1. Head Works/ Pumping Station	1,12,813
8b.i		Each	2.a.i. WTP adopting rapid sand filters; up to 5MLD	2,25,625
8b.ii		Each	2.a.ii. WTP adopting rapid sand filters; 5 to 10MLD	3,15,875
8b.iii		Each	2.a.iii. WTP adopting rapid sand filters; 10 to 25 MLD	4,51,250
8b.iv		Each	2.a.iv. WTP adopting rapid sand filters; 25 to 50 MLD	7,22,000
8b.v		Each	2.a.v. WTP adopting rapid sand filters; more than 50MLD	9,02,500
8b.vi		Each	b) WTP adopting pressure filters;	58,663
8c		Each	Adoption of <i>Jal Nirmal Project</i> standard OHT's drawings	2,708
8d		Each	Design & Drawings of GLSRs, Sumps, Intermediate Storage Sump and OHT	49,638
<b>E</b>	<b>Electromechanical Design</b>			
9	<b>PART – II DSR E.Electromechanical Design</b>		The design of the Pumping systems shall be strictly as per the CPHEEO manual in force and as per the circulars issued by the department from time to time based on the required discharges from each pump and efficiency of pump. The HP of pump to be worked out. Based on the Pump HP, Control Panel, Capacitor Panel, Starters Panels, Cable sizing and Substation have to be designed, etc.,	
9a.i		Each	a. HP of the pump in the range upto 5	18,050
9a.ii		Each	b. HP of the pump in the range of 5-25	36,100
9a.iii		Each	c. HP of the pump in the range of 25-300	1,17,325
9a.iv		Each	d. HP of the pump in the range of 300 and above	2,03,063
9b		Each	The pumping mains shall be analyzed for the water hammer. Preliminary surge analysis shall be carried out along with the provision of necessary surge protection devices. The scope includes the design of valves or any other protective component with their pressure ratings and their locations. The components of the scheme shall be designed in most economical manner.	2,25,625

			To prepare Preliminary surge analysis, prior approval of the Chief Engineer is a must as it is not required for smaller discharge and head pipelines.	
<b>F</b>	<b>Control &amp; Monitoring system Design</b>			
10	<b>PART – II DSR F.Control &amp; Monitoring system Design</b>	Each	Design, drawings, and costing of SCADA (Supervisory control and data acquisition) and instrumentation required to operate entire scheme on automation using SCADA software. Designing and costing of HMI, PLC, instrumentation, communication, data transmission and designing of report generation, Remote/wireless communication or wired communication as per requirement. Design of logics as per scheme requirement to operate entire scheme on automation. Designs of water level sensors, flow and discharge meters, pressure sensors, actuator and Meters required at Jack well, Rising main, WTP, MBT, ZBT and village reservoirs.	4,06,125
<b>G</b>	<b>Preparation of DSR document</b>			
11a	<b>PART – II DSR G. Preparation of DSR document</b>	Each	DSR shall be prepared based on the actual quantities worked out from the designs and drawings, no lump sum quantities shall be adopted. The rates adopted shall be as per the current schedule of rates of PWD / RDW&SD / PRED / PW, P & IWTD / KUWSDB / BWSSB / MI (Minor irrigation) / WRD (Major Irrigation) / CPWD and other approved schedule of rates. The items not found in the Schedule of rates shall be derived from the market rates (quotations) and shall be supported by the copies of the rates obtained from 3 (three) different competent manufacturers or authorized dealers of the companies only. The comparative statement for the 3 (three) quotations thus obtained shall be approved by the concerned SE along with make & specifications. The DSR shall be submitted in three sets at the first instance neatly bound by spiral binding/comb binding	2,25,625
11b		Each	Additional copies of DSR / DBOT / Tender document including drawings.	22,563
<b>H. Preparation of Draft Tender Schedule and Tender Evaluation</b>				
12	<b>PART- II DSR H. Preparation of Draft Tender Schedule and Tender Evaluation</b>	Each	The draft tender schedules shall be prepared based on the standard practice of the department and neatly bound and submitted to the department. The consultant can assist tender inviting authority in evaluation of the tenders also to be submitted.	2,70,750

**Note:** 1. Consultants shall incorporate any changes at any stage of the Project as per the instructions of the Department. If the changes are required due to the reasons not attributable to Consultants, additional payment shall be made on items as per the agreed rates in case of repetition.

2. These approved rates are also applicable for repairing, redesigning, remodeling and recasting of ongoing or existing defunct scheme.

3. The fees for vetting of designs by third party consultants will be borne by the department separately.

4. The data such as the codes referred, design calculation etc., details shall be furnished as back up data in soft copy.

5. The contractor shall be liable for any variations without valid reasons.

