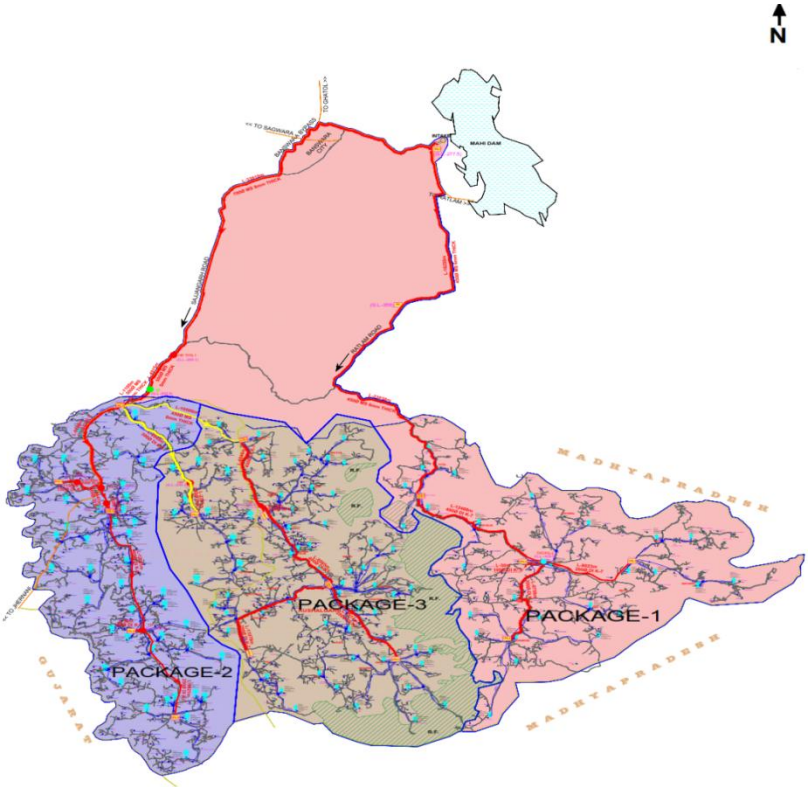
# GOVERNMENT OF RAJASTHAN
# PUBLIC HEALTH ENGINEERING DEPARTMENT

## Drinking Water Supply Project for 399 Villages of Block Kushalgarh & Sajjangarh District Banswara




# FOR TECHNICAL SANCTION
# PACKAGE - 1: RS. 256.80 CRORES

**(Work of Transmission Main, Construction of Intake and WTP of 30.58 MLD Capacity and Cluster Distribution System for 89 High Zone Villages of Kushalgarh Block)**

## VOLUME-I

**(Report, Estimates & Annexures)**

**February 2018**

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pumps is made below on the basis of available details:

**Table 6-11: Comparision of VT and Sub CF pumps**

| S.N. | Particulars | VT Pump | Sub CF Pump |
|---|---|---|---|
| 1 | App. Cost of M/C with allied ancilliaries | Rs 25000 – 27000 per HP | Rs 24500 – 27500 per HP |
| 2 | Reqired civil structure | Large & Heavy structure | Relatively light Structure |
| 3 | Reduction in efficiency | 10 to 20% reduction in ncy after 5 to10 years of operation | 5 to 10% reduction in ncy in 5 to 10 years of operation |
| 4 | Ease of repair within pump house | Possible but very time taking & cumbersome | Possible & less time taking |
| 5 | % reliability in operation | Moderate (85 to 90%) | High (95 to 99%) |
| 6 | Maintenance | Re-lubrication after 500-3000 running hrs, gland tighting & re-alignment is required | Only re-lubrication after 40000-75000 running hrs required |

Looking to above comarision, it is proposed to install submerged centrifugal pumps. Two working pump sets with two standby pump set are proposed to be installed looking to quantity of water to be pumped.

Raw water demand for the year 2036 = 31531 KLD With 20 hrs of pumping in a day,

discharge required for each pump = 43872/20/2

=788.28 cum/hr
=218.97 lps say 219 lps

As per design of raw water pumping main, pump head required for the raw water demand is 33.5 m. Therefore, sub CF pump sets, each of 219 lps or 788 cum per hour at 33.5 m head for the design year 2036 are proposed.

### 6.6.3 RAW WATER PUMPING MAIN

The Water Treatment Plant shall be constructed in main Head Works, proposed to be developed at Ratlam Road about 1 KM from intake well. Forest land is available at the proposed location and PHED assured to get this land allotted. Raw water pipe line of 650 mm dia MS 7 mm thick about 1010 m in length from intake well to WTP to meet the water demand for the design year 2051 is proposed to be laid. Design of raw water pumping main is enclosed as Annexure-3.

### 6.6.4 WATER TREATMENT PLANT

Conventional type rapid gravity water treatment plant is proposed at main Head Works. The plant shall have modular design for future expansion. In this project, it is proposed to construct a treatment plant for the intermediate water demand of year 2036, which will be upgraded to the demand for the year 2051 with addition of clari-flocculator and filter beds. However, inlet channel and other civil works shall be constructed to meet water demand of year 2051. Clear water demand for the year 2036 & 2051 is given in table-6.10.

In beginning WTP of 30.585 MLD is proposed to meet the water demand of year 2036. It

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Attachment-1

## GENERAL ABSTRACT OF COST

| S. No. | PARTICULARS | | Package-1 (Rs. In Lacs) |
|---|---|---|---|
| | **PART-A INTAKE STRUCTURE & WTP** | | |
| 1 | **INTAKE STRUCTURE:** | | |
| | Construction of Intake structure at Mahi dam complete in all respect as per drawing | | 1916.69 |
| 2 | **WATER TREATMENT PLANT** | | |
| | Construction of Water Treatment Plant of 30.58 MLD (1529 cum/hr) capacity including all relevent civil, mechanical, electrical, instrumentation, automization etc complete in all respect | | 1223.36 |
| | **SubTotal (Part -A)** | | **3140.05** |
| | **PART -B: PIPE LINE WORKS** | | |
| 1 | **RAW WATER PUMPING MAIN :** | | |
| | P,L & Jointing of Raw water Pumping main of 650 mm MS pipe from Intake to WTP including required specials & appurtenances etc complete. | | 107.96 |
| 2 | **TRANSFER PUMPING MAINS:** | | |
| | P, L & Jointing of Transfer Pumping Mains of MS/DI pipes from TPS-1, IPS, TPS-2, TPS-3, TPS-4, TPS-5 & TPS-6 including required specials & appurtenances etc complete | | 8294.96 |
| | **CLUSTER PUMPING MAINS:** | | |
| 3 | P,L & Jointing of Cluster Pumping main of DI pipes from CPS-1 , CPS-2, CPS-3, CPS-4 , CPS-5, CPS-6, CPS-7,CPS-8, CPS-9, CPS-11, CPS-12, CPS-13, CPS-14, CPS-15, CPS-16 to different OHSRs including required specials & appurtenances etc complete. | | 1516.68 |
| | **CLUSTER DISTRIIBUTION SYSTEM:** | | |
| 4 | P,L & Jointing of DI distribution pipelines from cluster OHSRs to VTC/ CVC including required specials & appurtenances etc complete and construction of OHSRs & VTCs etc . | | 3755.67 |
| | **VILLAGE DISTRIIBUTION SYSTEM:** | | |
| 5 | P,L & Jointing of HDPE/DI distribution pipelines including required specials & appurtenances etc and construction of PSPs & CWTs complete. | | 2001.65 |
| | **SubTotal (Part -B)** | | **15676.92** |
| | **PART-C: PUMPING STATIONS AND CLEAR WATER RESERVOIRS:** | | |
| 6 | Construction of Pump Houses, staff quarters, boundarywall and campus development works etc complete for Raw Water/Intermediate/Transfer/Cluster Pump Stations. | | 688.52 |
| 7 | Provision for all required Electrcal & mechanical works complete for all pump stations. | | 975.94 |
| 8 | Construction of Clear Water reservoirs at locations of Pump Houses. | | 546.35 |
| | **SubTotal (Part -C)** | | **2210.82** |
| | **PART -D : IEC ACTIVITIES** | | |
| 9 | IEC Activities for 399 villages of project area | | 89.00 |
| | **SubTotal (Part -D)** | | **89.00** |
| | **TOTAL (A+ B+C+ D)** | | **21116.79** |
| | **PART -E : INSTRUMENTATION & SCADA** | | |
| 10 | Provision for | | 782.54 |
| | (i) Instrumentation - | 267.26 | |
| | (ii) SCADA - | 515.28 | |
| | **SubTotal (Part -E)** | | **782.54** |
| | **Total ( A+B+C+D+E)** | | **21,899.33** |
| | **PART -F : O & M ON CAPITAL WORKS** | | |
| 11 | Cost of operation and maintenance of the system for 10 year after defect laibility period of one year (except power feeder, IEC & miscllenous provision) | | 1,308.62 |
| | **SubTotal (Part -F)** | | **1,308.62** |
| | **Total ( A+B+C+D+E+F )** | | **23,207.95** |





| S. No. | PARTICULARS | Package-1 (Rs. In Lacs) |
|---|---|---|
| | **PART-G: POWER FEEDER** | |
| 12 | Erection & Installation of dedicated Power Feeder of 33/11 kV for all pump stations through AVVNL | 521.00 |
| | **SubTotal (Part -G)** | **521.00** |
| | **PART-H: MISCLLENOUS** | |
| 13 | Provision for fees to be deposited in various departments, crop compensations, land acquisition, forest clearance, road restoration etc. | 498 |
| 14 | **ADD GST 6%** | 1453.60 |
| | **TOTAL** | **24226.68** |
| | **GRAND TOTAL (FOR PACKAGE-1)** | **25680.28** |
| | **AMOUNT RS. IN CRORE** | **256.80** |

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