



MAHARASHTRA JEEVAN PRADHIKARAN

WATER SUPPLY AND SANITATION DEPARTMENT MAHARASHTRA



PRESENTATION BY

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SUPERINTENDING ENGINEER (Mech.)

THANE

Shirbhavi & 81 Villages regional Rural Water Supply Scheme

Advance Technology Used in this Scheme

- **Web Based Energy, Level, Flow & Pressure Monitoring System**
- **Automatic Meter Reading(AMR) System (Ultrasonic Bulk Meter & Electromagnetic Flow Meter)**
- **Solar Power Generation System 1.0 MW (Work in progress)**

Introduction

1. Commissioned in the year 2003.
2. Designed for population of 340163 for year 2030.
3. Total Villages covered – 82
4. Total area covered about 1400 sq kms.
5. Rain fall very scanty ,only about 450 mm.
6. No other source for water supply/ failure of bore well ,so depend on this scheme.
7. Total capacity of pumps installed is 3515 HP.
8. Very high power consumption considering the topography of the region.
9. Total energy charges about Rs. 400.00 lakhs per annum

Isbhavi Raw Water Pumping Station (3 X 475 HP)

वांची प्रादेशिक पाणीपुरवठा योजना ए जीवन प्राधिकरण गोला जिल्हा - सोलापूर



DETAILS OF RISING MAINS

Sr. No.	Name of Rising Main	Material	Diameter (mm)	Length (Km.)
1	Head works to WTP Shirbhavi	M.S.	559.000	21.500
2	WTP Shirbhavi to Shirbhavi MBR	M.S.	355.600	0.048
3	WTP Shirbhavi to Mahud MBR	M.S.	219.100	19.320
4	WTP Shirbhavi to Katfal MBR	M.S.	273.100	24.000

१. प्रशासकीय मंजूरी	म.शा.प.पा.पु.१९८७
२. तांत्रिक मंजूरी	मु.अ.पु.१९८७
३. लोकांख्या (२००८)	२,५१,०००
(२०२०)	४,५२,४१९
४. पाणीपुरवठा दर	५५ प.मा.द.दि.
५. कार्यारंभ आदेश	२९.०६.१९९९
६. काम पूर्ण दिनांक	३०.०९.२००९

Shirbhavi Water Treatment Plant
 Shirbhavi MBR Pumps (2 X 30 HP)
 Mahud MBR Pumps (2 X 110 HP)
 Wanichinchole MBR Pumps (2 X 170 HP)
 Katfal MBR Pumps (2 X 100 HP)
 Manegaon MBR Pumps (3 X 240 HP)

Wanichinchole Booster pumping station (2 X 30 HP)

Manegaon Booster pumping station (2 X 180 HP)

Kole Booster pumping station
 Pachegaon ESR (2 X 25 HP)
 Kidbisri ESR (2 X 12.5 HP)

8	90 mm 10 Kg/cm ²	4838.00
9	110 mm 10 Kg/cm ²	3123.00
10	140 mm 10 Kg/cm ²	4995.00
11	160 mm 10 Kg/cm ²	4470.00
12	180 mm 10 Kg/cm ²	5048.00
13	200 mm 10 Kg/cm ²	15970.00
14	100mm Dia. G.I. Rising Main	15624.00

DISTRIBUTION SYSTEM

1	63 mm 4 Kg/cm ²	17730.00
2	75 mm 4 Kg/cm ²	3252.00
3	90 mm 4 Kg/cm ²	4344.00
4	100 mm 4 Kg/cm ²	4092.00
5	125 mm 4 Kg/cm ²	1636.00
6	150 mm 4 Kg/cm ²	1380.00
7	175 mm 4 Kg/cm ²	948.00
8	200 mm 4 Kg/cm ²	210.00
TOTAL		420918.00

- 1 E.S.R.
- 2 G.S.R.
- 3 PURE WATER GRAVITY MAIN
- 4 P.V.C. / G. I. RISING MAINS
- 5 SUMP AND PUMP HOUSE

M.I.P. WATER MANAGEMENT CIRCLE, PANVEL.
 M.I.P. WATER MANAGEMENT DIVISION, KOLHAPUR
 M.I.P. WATER MANAGEMENT SUB-DIVN., SANGOLA

R. R. SHIRBHAVI AND 81 VILLAGES
 W.S. SCHEME.
 TAL - SANGOLA DIST - SOLAPUR

KEY PLAN

ASST. ENGR.	S.D.E.	E.E.	S.E.	C.E.
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DETAILS OF MBR'S

Zone	Name of MBR	Capacity (lit Lakh)	Stages	Height (m)
Zone I	Shirbhavi	12.00	19.00	
	Mahud	5.00	15.00	
Zone II	Katfal	5.00	25.50	
	Burhewadi	3.00	12.00	4
Zone III	Wari Chinchale	3.25	15.00	4
	Pare	1.80	15.00	5
Zone IV	Manegaon	15.00	4.00	29
Zone VI	Kole	7.50	17.50	13

Details of the Scheme

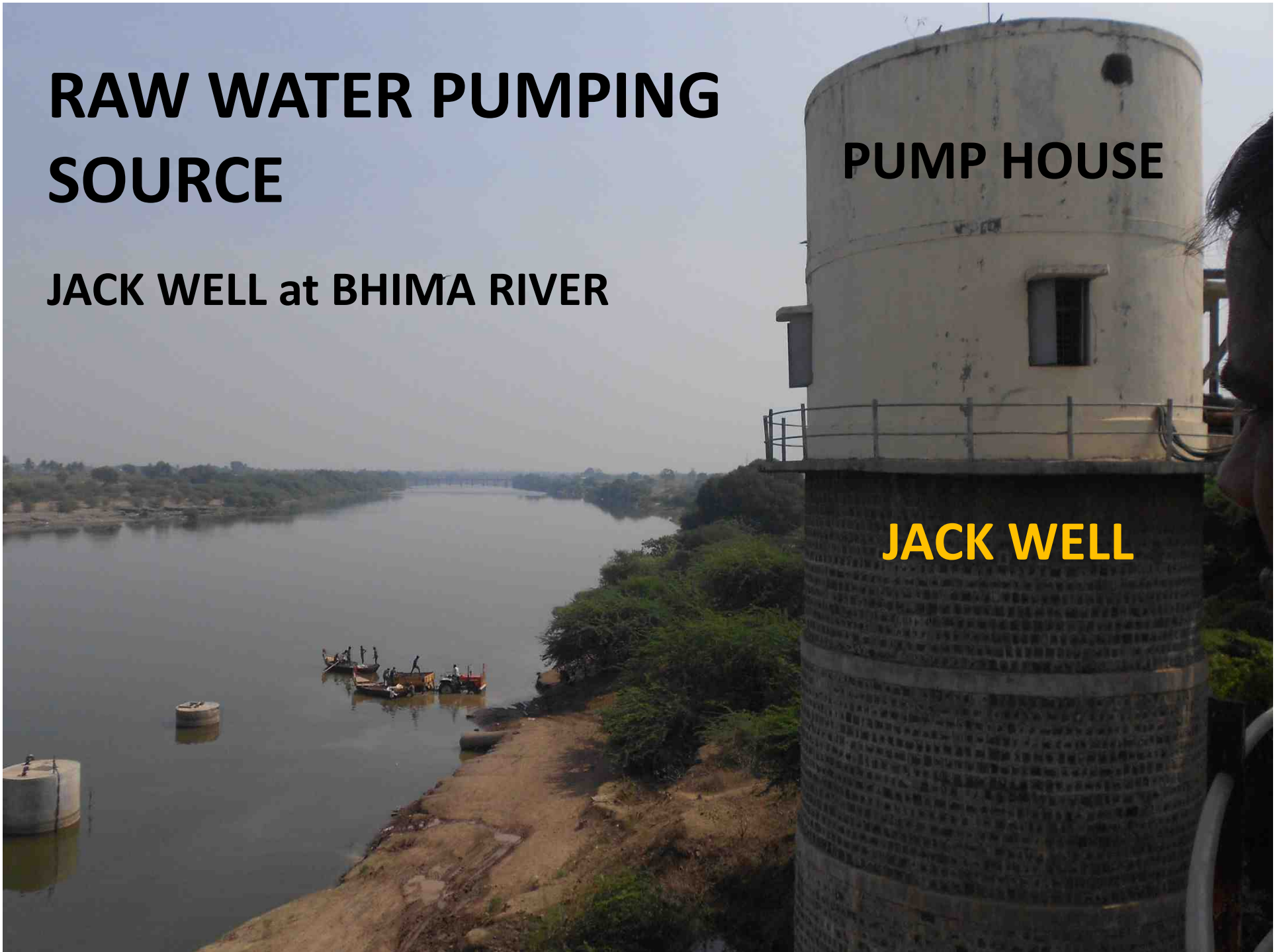
○ Project Cost	22222.91 Lakhs
○ Source	Bhima River at Isbhavi Pandharpur Dist. Solapur
○ Raw water pumps	Vertical Turbine Pumps
○ Raw water Rising main	Head works to WTP Dia.559.10 mm Type:-M.S. 21.67 K.M
○ WTP	22 MLD at Shirbhavi Conventional type
○ Pure water pumps	Centrifugal Multistage pumps 5 HP to 240 HP
○ Pure water rising main	MS, PVC & GI Pipe lines from 457.10 mm dia to 90 mm dia 183 kms
○ Pure water Gravity main	PVC & GI Pipe lines ranging from 200 mm dia to 75 mm dia 388 kms
○ MBR	8 Nos.
○ Pure Water Sump	7 Nos.
○ ESR & GSR	ESR – 67 Nos & GSR – 6 Nos

RAW WATER PUMPING SOURCE

JACK WELL at BHIMA RIVER

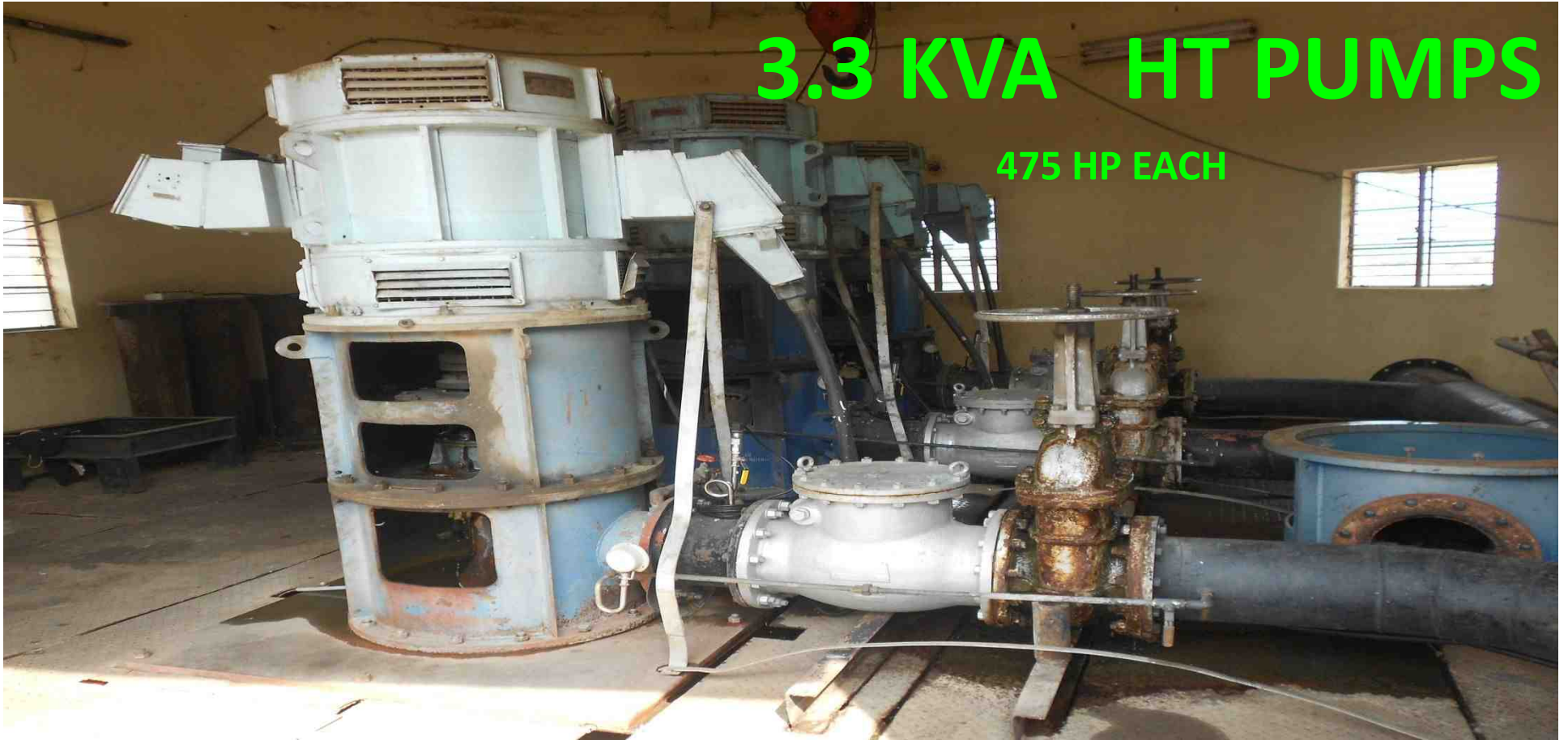
PUMP HOUSE

JACK WELL



3.3 KVA HT PUMPS

475 HP EACH



PRESSURE TRANSMITTER



RADAR LEVEL SENSOR

Pumps at Water Treatment Plant

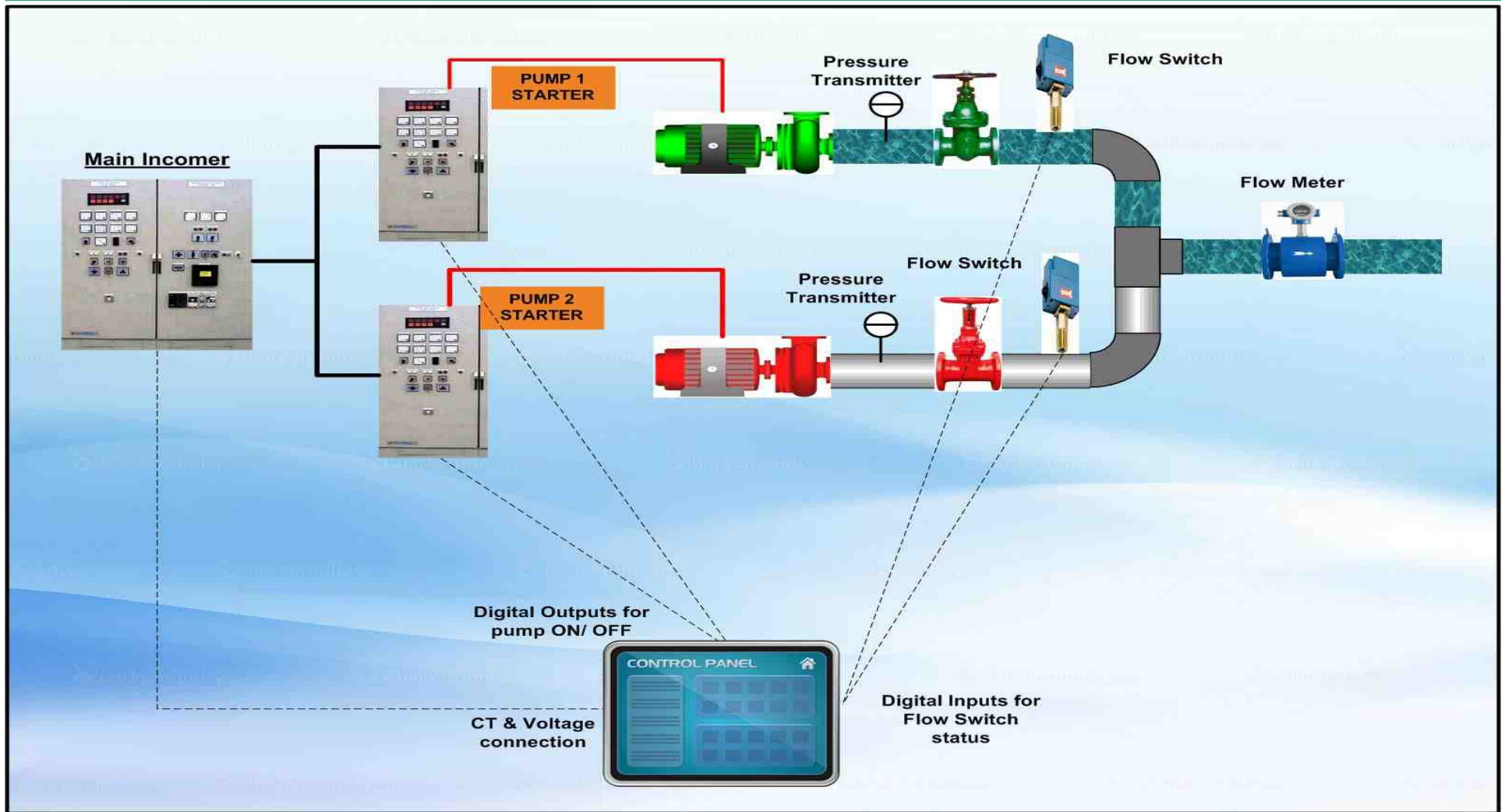


PRESSURE TRANSMITTER



RADAR LEVEL SENSOR

Web Based Energy Monitoring & Controlling System



All pumps Energy Meter ,Level , Pressure , Flow , temperature etc. are connected to Web based controller module to get total site data on a single dashboard. Which can be viewed from any location across the globe.

Pumps also can be controlled through web based software.

Online Monitoring of Pumps

Dashboard Reports Alerts Admin User Settings **GtSpL**
Graphia Technology Solutions Pvt. Ltd.

Site Dashboard Unit Dashboard Unit Summary Dashboard SCADA Dashboard Control Panel(KOLE)

Site Dashboard

2016-05-21

Search

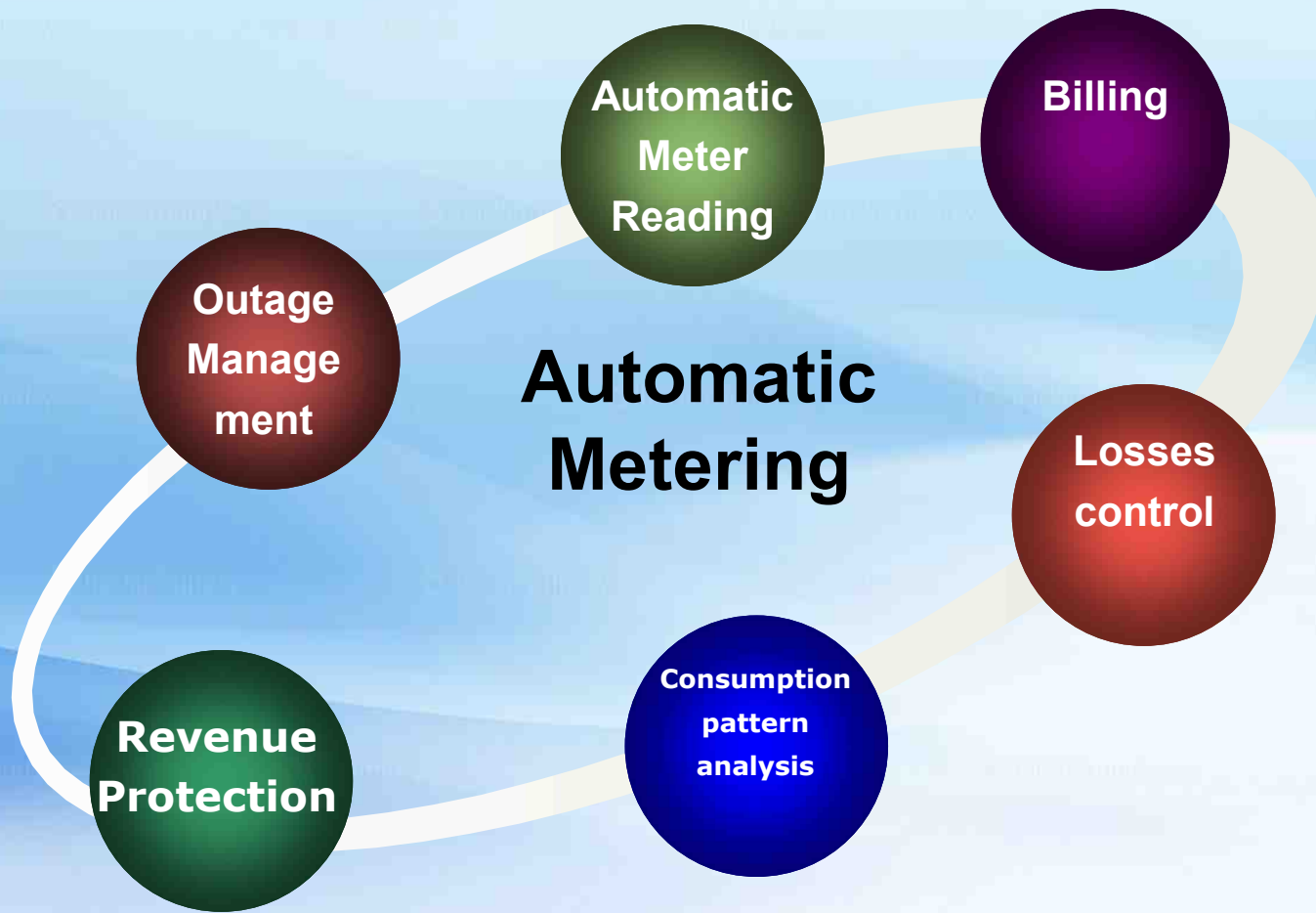
 Isbhavi Pump 01 (475 HP) Today's Run: 0 Hrs 0 Mins	 Isbhavi Pump 02 (475 HP) Today's Run: 13 Hrs 15 Mins	 Isbhavi Pump 03 (475 HP) Today's Run: 13 Hrs 15 Mins	 WTP Kattal Pump 01 (100 HP) Today's Run: 13 Hrs 15 Mins	 WTP Kattal Pump 02 (100 HP) Today's Run: 0 Hrs 0 Mins	 WTP Mahud Pump 01 (110 HP) Today's Run: 8 Hrs 0 Mins
 WTP Mahud Pump 02 (110 HP) Today's Run: 0 Hrs 0 Mins	 WTP Manegaon Pump 01 (240 HP) Today's Run: 11 Hrs 45 Mins	 WTP Manegaon Pump 02 (240 HP) Today's Run: 13 Hrs 15 Mins	 WTP Manegaon Pump 03 (240 HP) Today's Run: 0 Hrs 0 Mins	 WTP Shirbhavi Pump 01 (30 HP) Today's Run: 5 Hrs 0 Mins	 WTP Shirbhavi Pump 02 (30 HP) Today's Run: 0 Hrs 0 Mins
 WTP Wani Pump 01 (170 HP) Today's Run: 13 Hrs 15 Mins	 WTP Wani Pump 02 (170 HP) Today's Run: 0 Hrs 0 Mins	 Manegaon Pump 01 (180 HP) Today's Run: 0 Hrs 0 Mins	 Manegaon Pump 02 (180 HP) Today's Run: 10 Hrs 0 Mins	 Wanichinchle Pump 01 (30 HP) Today's Run: 4 Hrs 0 Mins	 Wanichinchle Pump 02 (30 HP) Today's Run: 0 Hrs 0 Mins
 KIDBISRI ESR PUMP 1 (12.5 HP) Today's Run: 0 Hrs 0 Mins	 KIDBISRI ESR PUMP 2 (12.5 HP) Today's Run: 0 Hrs 45 Mins	 PACHEGAON ESR PUMP 1 (25 HP) Today's Run: 0 Hrs 0 Mins	 PACHEGAON ESR PUMP 2 (25 HP) Today's Run: 0 Hrs 0 Mins		

AMR Water Meters

Advantages of Automatic meter reading (AMR) system

- **Reduction in manpower**
- **Information available at finger tip**
- **Easy redressal**
- **Consumer friendly**
- **Billing**
- **Troubleshooting**
- **Analyzing.**

Automatic Metering

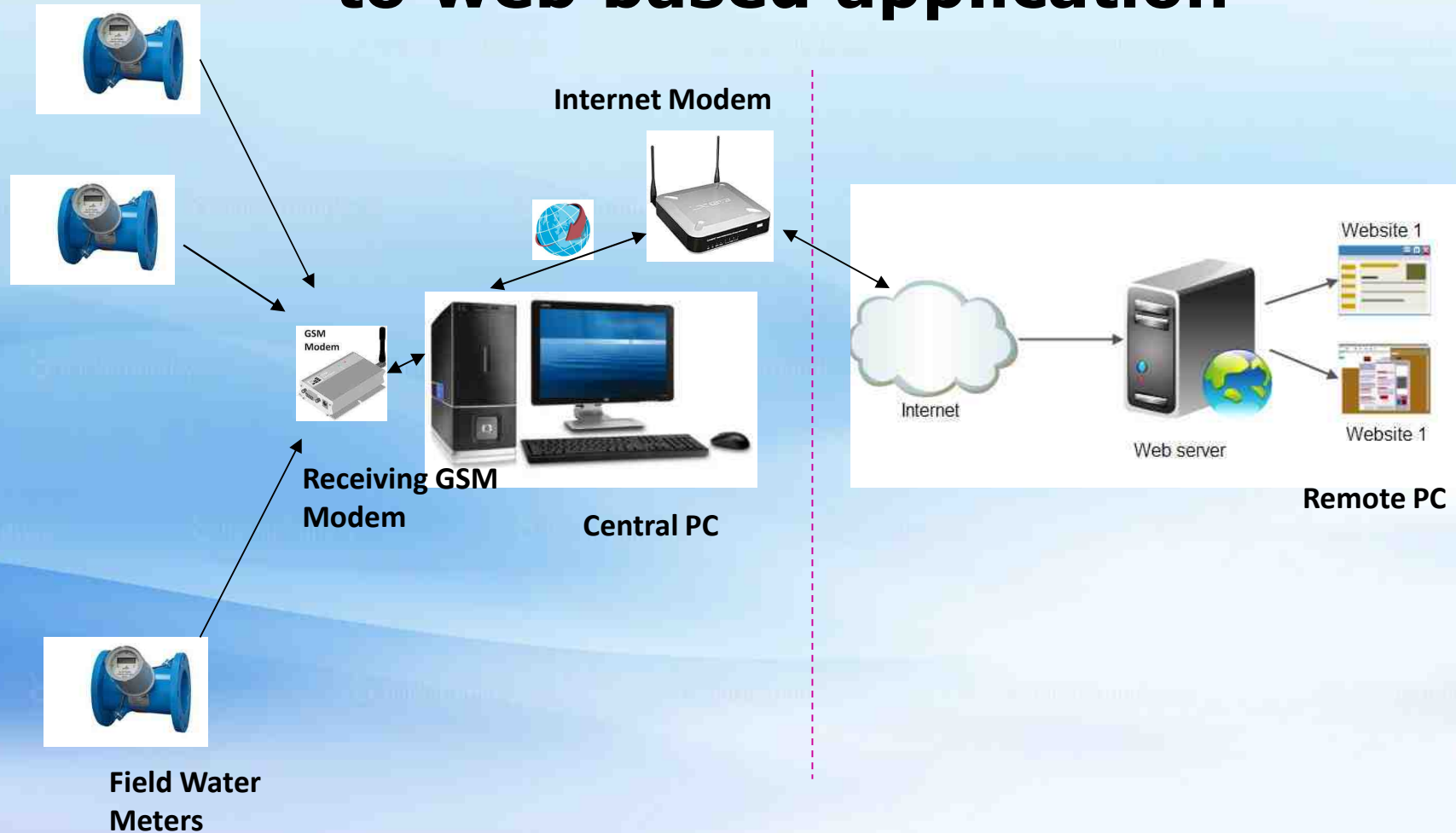


Total 142 AMR meters are installed at Shirbhavi site.

At

- **Pure Water Pumping**
- **Inlet of MBR**
- **Inlet of ESR**
- **Inlet of GSR**

Network Architecture & communication to web based application

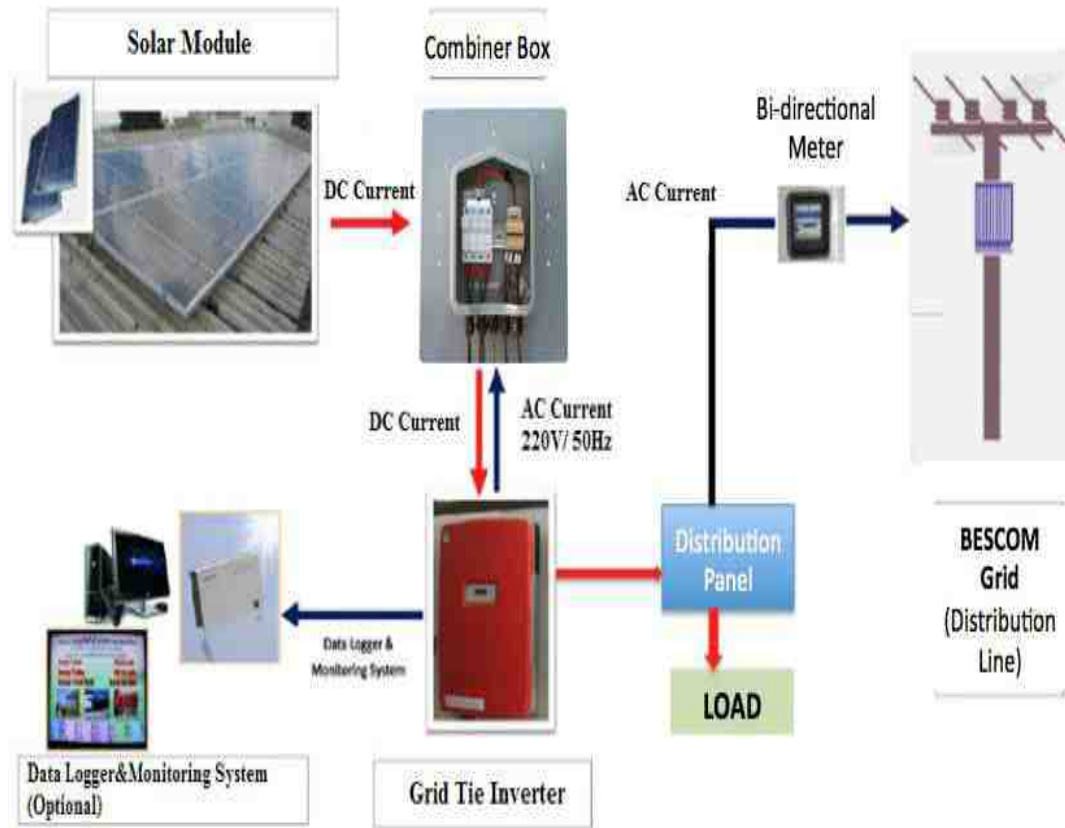


Details of Solar System at Shirbhavi WTP

Particulars

• Capacity of Solar Plant	1	MW
• Total per annum energy bill of WTP	198	lakhs
• Total annual Energy generation	1548000	kW
• Rate of solar energy cost as per MERC	5	Rs./KW
• Cost of Energy Generated per annum	77.4	lakhs
• Cost of PV system including O & M of 6 years	403	lakhs
• Pay back period	6	Years

Grid Tie – System with Net Metering



- The system is connected to the Grid through a Bi-Directional Meter
- Generate Solar power and use for internal requirement

Success Story –

❖ The scheme is operated through out the year continuously for providing water supply to the villages facing acute shortage of water being scanty rain fall.

❖ Though this scheme is under scanty rain fall region ,it provides water supply to the near by tahsils in neighboring districts through Tankers.



THANKS