

Chanderi

Micro Irrigation Project

Madhya Pradesh

41500 hectre



Madhya Pradesh is literally the “**Centre of India**” - it is the **2nd** Largest State in Area & is rich in Mineral Resources; with the largest reserves of **Diamond & Copper** in India.

MP has posted Country's **Highest Agricultural Growth Rate** which had averaged above 20% over last few years & now it leads in production of Pulses, Oilseeds, Soya Bean, Gram, Pea, Garlic, Guava, Medicinal & Aromatic herbs.

Chanderi, is a town of **historical** importance in **Ashoknagar** District of MP, surrounded by hills SouthWest of the Betwa River.

Chanderi Lift Irrigation Scheme is from the Reservoir of **Rajghat Dam** - it is an interstate project of MP & UP States.

The dam is constructed across **Betwa River** & is situated on the border of Ashoknagar District of MP & Lalitpur District of UP.



Situation:



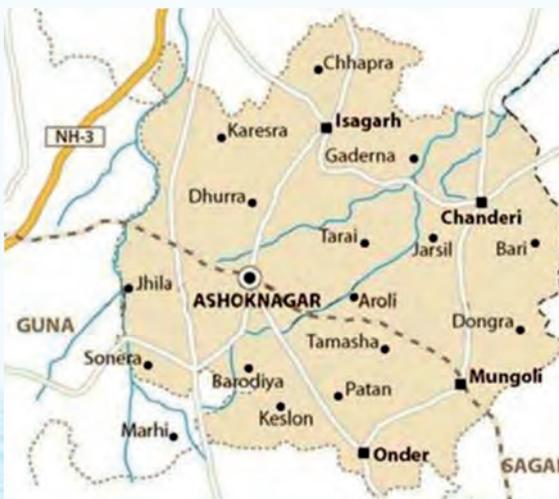
In past years, some villages in the Chanderi region have experienced water crises.

A water shortage in old Chanderi village near Sehore, leading to local administration digging a new borewell.

The situation in Chanderi reflects a wider water crisis.

This is caused by factors like a growing population, changing rainfall patterns due to climate change & poor management of modern & traditional water sources.

Solution:



The Project was proposed to be developed **to provide irrigation facilities** to the water-scare areas in Ashoknagar district of MP & Lalitpur of UP; covered in upper reaches of Chambal Betwa basin where **the level of irrigation is very much less.**

In this district, the agriculture is largely dependent on the rainfall & thus subject to the vagaries of monsoon. This Development will improve the economic condition of the agrarians & result in efficient utilization of soil & water resources of the region.

The command of Scheme **falls in three tehsils** namely Chanderi (42 villages), Mungawali (69 villages) & Piprai (11 villages) in district Ashok Nagar of M.P. Gross command area (GCA) & Culturable command area (CCA) of the project is 41500 ha & 28000 ha respectively.



Aqua's Solution:

ARS Pumpset

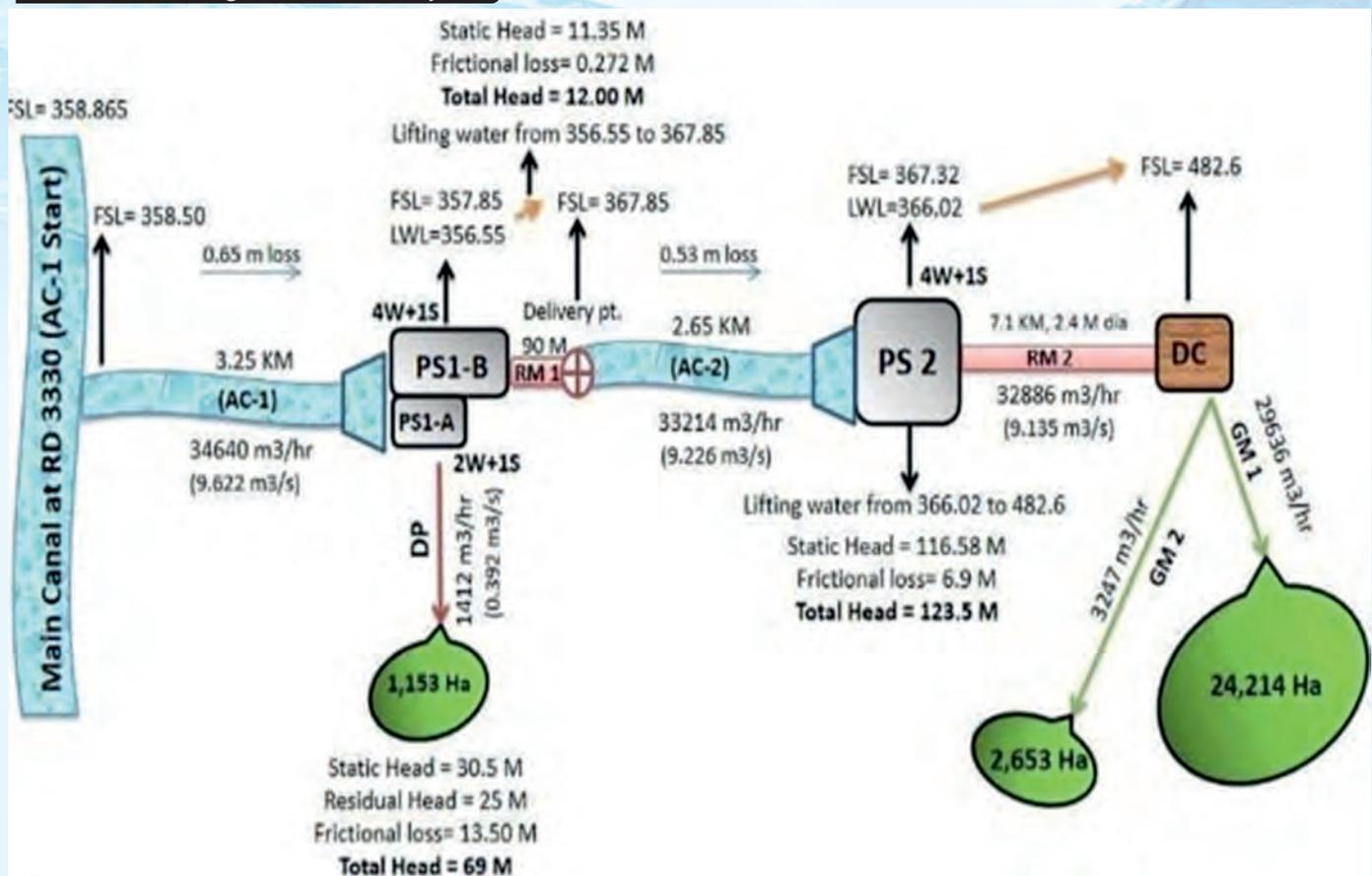


ATBx Pumpset



Project		
Chanderi Micro Irrigation Project		
End User: MPWRD		
Pump Model: ATBP_V_Tu_1st_Bo_13085__ 10P_500N_415_NJ.		
No. of Pumps	Flow (m ³ /hr)	
5 Nos. (4W+1S)	8304	
Head (m)	hp	kW
12	500	375
Pump Model: ARS._V_AC_1st_VoG_2052. _M_.4P_268N_		
No. of Pumps	Flow (m ³ /hr)	
3 Nos. (2W+1S)	706	
Head (m)	hp	kW
69	268	200

Schematic Diagram of the Project:

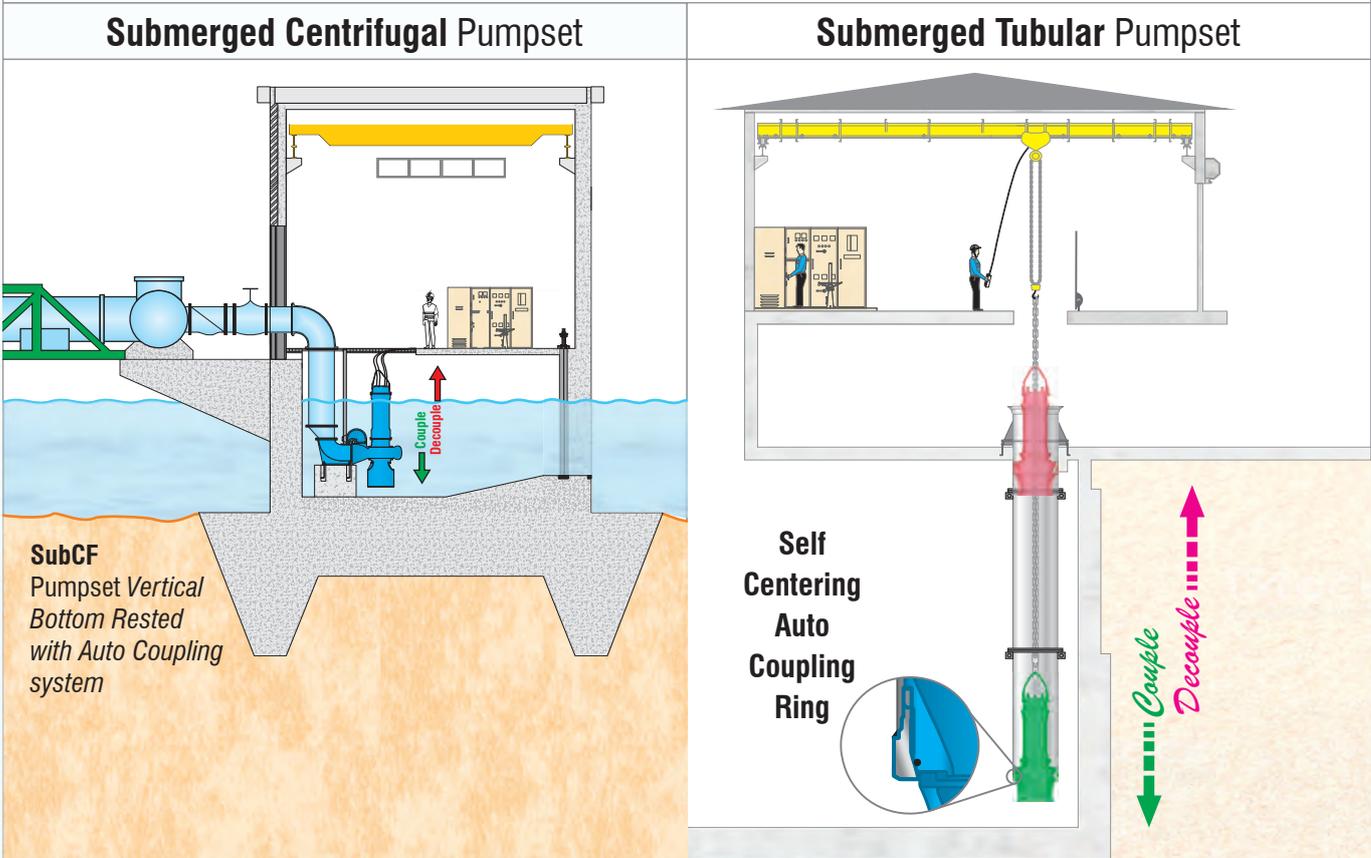


Pump House



Benefits of Auto Couplings

This Represents the **most Economical & most user Friendly** pumping station design. The pumpset is installed directly at the bottom of the intake well using **Aqua's Automatic Coupling System**.



The Auto Coupling system ensures that the Pumpset is properly Lowered (& firmly connected to the discharge piping) or Lifted out (disengaged from discharge piping) in a **simple & precise manner within MINUTES...!**

The Pumpset is installed directly at the bottom of the **Riser Tube** using **Aqua's Automatic Coupling System** which ensures that the pumpset is Concentrically Lowered (& firmly connected to the discharge piping) or Lifted out (disengaged from discharge piping) in a simple, precise manner & **within minutes...!**

It uses Riser Tube (which guide the pumpset correctly downwards) till its Conical Discharge Flange meets that of the Auto Coupling Canister Ring's Conical Flange - the contacting surfaces are well machined & designed such that the weight of the Pumpset (along with an O'Ring for High Head ATBM pumps) ensures a Leak Free joint.

The pumpset is kept in place by its weight **there is no need for any fastening of Bolt Nut** to clamp it to the delivery piping.

Removing the pumpset for maintenance is equally simple - just pull it up; there are no bolts to be dismantled (the operator need not enter the sump once the automatic coupling system is fitted).

User Friendly (Couple / Decouple) :

The use of Auto Coupling system enables Installation / Removal in matter of minutes (for cleaning silt, gravel, pebbles, grass, plastics, etc stuck up in suction strainer)

As the Pump can be installed - within minutes; it is also possible to run All the Installed pumps (of course within the limits of permissible high head range) & keep Standby pumps out of the Pumping Station - i.e. Store Standby.

Concept Benefits:



Robust, Multiple DE Bearing arraignments, easily tolerate **Heavy Thrusts** (*emanating due to wide head variation*) for **L_{10h}** life upto **1,00,000h**



Anti Drip, Fully Synthetic; Super Premium Grease ensures a minimum Regreasing Interval (*F10h*) of upto **75,000 h**



Mechanical Shaft Seals two, Independent; Seals rated for **25bar** pressure capability for **L_{10h}**

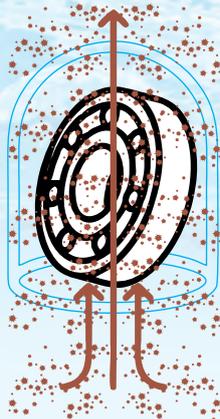


Robust & Reliable

- ⑩ **No Failure** of Bearings despite **high silt** in water
- ⑩ **No Rusting / Galling** of Bearings despite **upto 9months of rest**

Conventional Pumpset

(utilizes *Water Lubricated Pump Bearings & Leakage Prone Rope Glands*)



Rope Packing in Cast Iron Gland

Pump Bearings are **exposed to Silt Water** leading to their **Erosion & possible Premature Failures.**

Submerged Pumpset

(utilizes *Two, Zero Leakage Mechanical Seals*)



Mechanical Seal in Stainless Steel Gland

Bearings are located deep inside the motor & are **Totally Sealed** by **Two Mechanical Seals** thereby are **totally Protected** from Water, Silt, Rust & Galling



Low Energy Cost : Due to Elimination of many Ancillary & Auxiliaries; **Wire to Water Power Consumption** of SubCF based Pumping Station is **slightly Lower** (*compared to Conventional Bare Shaft Pump - Motor Set based Pumping Stations*). *



No need for Frequent Periodic....



Minimal Noise, Vibration & Heat Emission; due to **elimination** of Auxiliary & Ancillary systems (like Forced Water Lubrication, Thrust Bearing Cooling system, Motor Heat Exchanger).



Shafts/Sleeves &/or Coupling



Gland Packing



Oil &/or Grease

Intelligent InBuilt Monitoring

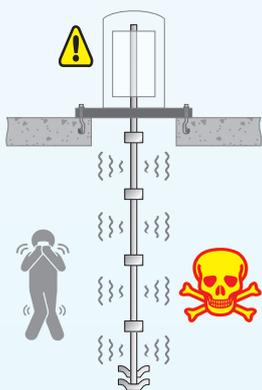
Easy Monitoring (& Remote Control[#]) of your Pumpset's Health.



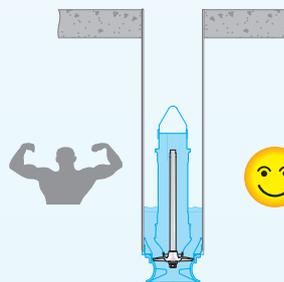
- **PSLD** detects Pressurized Water Leakage from Mechanical Seals.
- **CCWLD** detects Accidental Water Leakage from Cable Sheath's Cuts &/or Nicks into the Motor.
- **SBWLD** detect Accidental Water Leakage in to Motor's Stator Chamber.
- **BTDs** in the form of Bi-metallic Switches (for All Pumpsets) & RTD's (PT100 - 3 Wire Simplex type - from Size > 150kW) to Monitor Bearing Temperature (without any Additional Cost)[#].
- **WTDs** in the form of Bi-metallic Switches (for All Pumpsets) & RTD's (PT100 - 3 Wire Simplex type - 1 per each Phase - from

[#]requires additional communication hardware

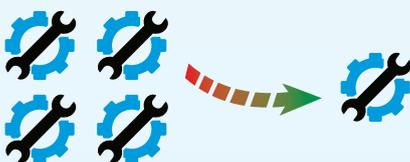
⚠ Minimum Risk of Vibration



Multiple, Jointed; Long Slender Shafts
(Vertical Turbine Pumpset (VT))



Rigid, Single; Robust Shaft
(Submerged Tubular Column Pumpset (ATBx))



Saves (upto 75%) Spare Parts & Consumables*



Saves (upto 66%) O&M Staff*



Low Life Cycle Costs (LCC)*

^{*}(refer marketing@aquapumps.com for additional white papers)

OFFICE OF THE EXECUTIVE ENGINEER
LIGHT MACHINERY & E/M DIVISION DATIA (M.P.)
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Letter no. 1692.../TS/ 2025-26

Datia, Date. 01/09/2025.

Ref. No: AQUA /WRD/PC/Chanderi/MIS/01/2025 Dated : 13.08.2025

Performance Certificate

TO WHOMSOEVER IT MAY CONCERN

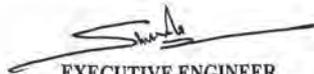
This is to certified that M/S AQUA MACHINERIES PVT. LTD. AHMEDABAD supplied Submerged Tubular Column Vertical /Submerged Centrifugal Pump sets for Chanderi Micro Irrigation project at open canal based pumping station. We are pleased to inform that these pumps are installed, commissioned and tested successfully.

The details of project as under :

- Project : Chanderi Micro Irrigation Project
- End Client : Water Resources Department, MP
- Contractor : EPC Contractor ANS Sarthi Construction
- Pump set make : Aqua Machineries Pvt. Ltd. Ahmedabad
- Pump set type : Submerged Tubular Column Vertical /Submerged Centrifugal Pump sets
- Application : Raw water handling
- Motor Type : Submerged Squirrel Cage Induction – Dry Air Filled Totally Enclosed (IP 68) Self Frame Surface Water Cooled (TESWC) Complying to IC4A1WO of IS 6362
- Location : Near Chanderi Town, Rajghat Dam ,MP

Location	Type of Pump Sets	Head	Discharge	Model	Voltage	HP/KW	Quantity
PS-1A	Submerged Centrifugal Pump sets	69m	706 m3/hr	ARS._V_AC_1st_Vo6_2052._M._AP_268N_.415_N	415	268/200	3 Nos (2W+1S)
PS-1B	Submerged Tubular Column Pump Sets	12m	8304 m3/hr	ATBP._V_Tu_1st_Bo._13085_10P_500N_415_NJ	415	500/375	5 Nos (4W+1S)

We are pleased to state the performance of above "AQUA" make 08 Nos pump sets are commissioned and tested successfully without any vibration and abnormality. We are satisfied by the performance of these Submerged Tubular Column and Submerged Centrifugal Pump sets.


EXECUTIVE ENGINEER
LIGHT MACHINERY & E/M WRD
DIVISION DATIA(M.P.)



TEAM AQUA
HAS BAGGED
THE
PRESTIGIOUS
BEST
BEST QUALITY
PUMP
VENDOR

FROM,



Aqua Machineries Private Limited

www.aquapumps.com

Registered Office & Manufacturing Plant

Survey No. 504/1-2, 442/2, Near Haridarshan Estate, Near Express Highway,
Ramol, Ahmedabad-382 445. Gujarat, India.