

# *Jaipur*

## *Pink City*

### *Water Supply*



Jaipur, formerly Jeypore, is the capital and largest city of the Indian state of Rajasthan. Also known as the Pink City, due to the dominant colour scheme of its buildings. As of 2019, the city had a population of 3.8 million it has a total area of 467 sq. Km.



Jaipur today receives drinking water mainly from Bisalpur dam which is situated at 120 km from the city. Along with Bisalpur supply there are public and private tube wells and through hundreds of water tankers plying around the city. A few percentages of population have their own personal borewells.

## Situation : Jaipur\_WSS

Major part of Jaipur city was supplied with Bisalpur water from Balawala water distribution centre.

But some areas of Jaipur city including Gujar Ki Thadi area were deprived of Bisalpur water & there was a constant shortage of drinking water.

Water shortage had to be mitigated through Tube Wells & Tankers yet there was a lot of water scarcity problem. Often, the public was forced to buy water from private suppliers, who charged sometime heavily depending on demand.



Hence in 2020, Rajasthan Government decided that 16 colonies around Gujar ki Thadi should get drinking water from Bisalpur system.

## Solution

The project involved using the existing Sewage Farm Campus with main elements being the Construction of 14 lakh ltr CWR, SITC of SubCF pumping machinery, laying 20 km long 90mm to 350 mm diameter SD-DI pipeline, Chlorination Plant, 5year O&M

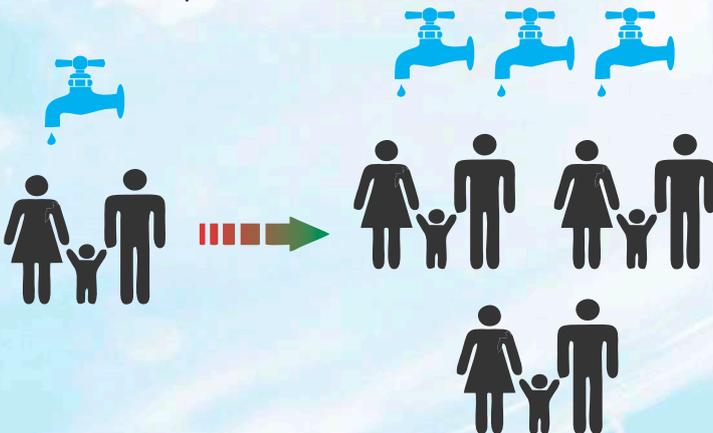
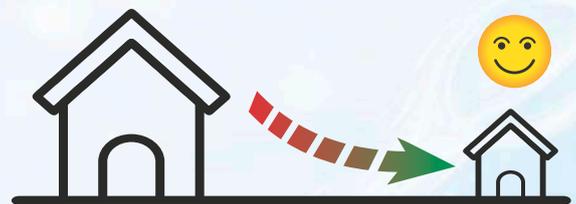
But Space Availability within the Existing Sewage Farm campus was a problem



This is where Aqua's Submerged Centrifugal pumps were a natural choice - being directly immersed into the Clear Water Sump; they don't need spacious & expensive pump rooms.



SubCF pumpsets can be immersed directly into Wet Pit (CWR); hence **eliminating** the need of Dry Pump Room resulting in **upto 55% saving** in Land required\*.



The use of SubCF pumps saves a Lot of Land which can be **better utilized** to make a **Larger Clear Water Reservoir (CWR)** thereby **serving a Larger Population (in same available land)** for **additional years** to come.

## Some of Aqua's Submerged pumpsets (Jaipur)



Aqua's SubCF pumps



### “Aqua” make Submerged Centrifugal Pumpsets

Flow : 520m<sup>3</sup>/hr

Head : 50m

Motor Rating : 150hp

Qty : 2W + 1S

Project : **Sewage Farm at Gujar Ki Thadi**

*(reorganisation Of Urban Water Supply Scheme For Gurjar Ki Thadi and near by Colonies of Jaipur City)*

End Client : Public Health Engineering Department (PHED)

Flow : 640.80m<sup>3</sup>/hr

Head : 30m

kW / HP : 150hp

Qty : 1W + 1 S

Project : **Gurunanakpura UWSS**

Location : Tilak Nagar Pumping Station Jaipur



**Aqua's Submerged pumpsets : Rajasthan Water Supply**

Name of WSS/ Project	Name of Aqua's Client	Pump Type	Motor Rating (hp)	Flow (m <sup>3</sup> /hr)	Head (m)	Qty (Nos)
Jakhm Head Works UWSS	PHED Pratapgarh	Submerged Turbine Pumpset	250	252	180	2
Ramganj Mandi RWSS	Ambica Pollution Control	Submerged Turbine Pumpset	500	650	160	2
Chikalwas Parvati Dam Scheme	Lahoty Buildcon Pvt. Ltd.	Submerged Turbine Pumpset	25	62.5	45	2
Sangod RWSS	Devendra Construction Co.	Submerged Turbine Pumpset	65	288	40	1
Reorganisation of UWSS Pratapgarh, PHED	Offshore Infrastructures Limited	Submerged Turbine Pumpset	315	541.26	103	2
Reorganisation of UWSS Pratapgarh, PHED	Offshore Infrastructures Limited	Submerged Turbine Pumpset	450	541.26	145	2
Atru Shergarh WSS PHED	Vishnu Prakash R Punglia Limited	Submerged Turbine Pumpset	50	333.93	25	2
Indargarh WSP From Chakan Dam PHED	Jagdish Prasad Agarwal	Submerged Turbine Pumpset	40	217.69	26	2
Indargarh WSP From Chakan Dam, PHED	Jagdish Prasad Agarwal	Submerged Turbine Pumpset	100	159.73	100	2
Indargarh WSP From Chakan Dam, PHED	Jagdish Prasad Agarwal	Submerged Centrifugal Pumpsets	30	51.44	60	2
Chambal Bundi, PHED	Yasha Enterprises	Submerged Turbine Pumpset	75	583.2	24	1
Housing Board Banswara	Gori Borewell Co.	Submerged Centrifugal Pumpset	30	86.4	50	2
Chhoti Sadri PHED	Yadav Construction Company	Submerged Centrifugal Pumpset	65	163	60	2
Dungarpur PHED	Ghasiram Goyal Contractor	Submerged Centrifugal Pumpset	50	142	55	2
Udaipur PHED	Mahendra Mandia	Submerged Centrifugal Pumpset	45	100	65	2
Dungarpur PHED	Om Prakash Visnoi	Submerged Centrifugal Pumpset	18	36	70	2
Barana PHED	Gori Borewell Co.	Submerged Centrifugal Pumpset	35	90	60	2
JDA Jaipur	Raj Enterprises	Submerged Centrifugal Pumpset	40	93.76	70	2
Ramdeora PHED	Devendra Construction Co.	Submerged Centrifugal Pumpset	60	180	50	2
Dabok RWSS	Lachhiram Surecha	Submerged Centrifugal Pumpset	35	63.6	60	2
PHED Bhinder	Anil Suthar	Submerged Centrifugal Pumpset	55	75	90	2
PHED Bhinder	Anil Suthar	Submerged Centrifugal Pumpset	15	25.5	50	2
PHED Bhinder	Anil Suthar	Submerged Centrifugal Pumpset	18	24	60	2
Kota-Jhalawar WSS	Ajay Construction	Submerged Centrifugal Pumpset	25	129.6	27	2
Sagarpada WSS	Nihalchand Jain Intra Projects P. Ltd.	Submerged Centrifugal Pumpset	55	720	14	2
Gagreen WSS	SMPL Intra Ltd.	Submerged Centrifugal Pumpset	65	589.2	21	3
Jhalawar UWSS	Vishnu Prakash R Punglia Ltd	Submerged Centrifugal Pumpset	150	450	50	2
Gogunda Udaipur	Gori Borewell	Submerged Centrifugal Pumpset	50	70	85	2
Gogunda Udaipur	Gori Borewell	Submerged Centrifugal Pump sets	70	110	85	2
Atru Shergarh UWSS	Vishnu Prakash R Punglia Ltd	Submerged Centrifugal Pump sets	100	323.93	43	2
Behror WSS	Deem Construction Co. Pvt. Ltd.	Submerged Centrifugal Pump sets	40	120	38	2

**Aqua's Submerged pumpsets : Rajasthan Water Supply**

Continued...

Name of WSS/ Project	Name of Aqua's Client	Pump Type	Motor Rating (hp)	Flow (m <sup>3</sup> /hr)	Head (m)	Qty (Nos)
Balawala PS, Jaipur	Water Power Engg. Enterprises	Submerged Centrifugal Pump sets	700	1704.5	72	3
Bundi PHED	Offshore Infrastructure Limited	Submerged Centrifugal Pump sets	60	152.53	60	2
Bundi PHED	Offshore Infrastructure Limited	Submerged Centrifugal Pump sets	10	33.8	35	2
Bundi PHED	Offshore Infrastructure Limited	Submerged Centrifugal Pump sets	15	16.92	55	2
Bundi PHED	Offshore Infrastructure Limited	Submerged Centrifugal Pump sets	20	36.68	80	2
Bundi PHED	Offshore Infrastructure Limited	Submerged Centrifugal Pump sets	50	49.78	108	2
Bundi PHED	Offshore Infrastructure Limited	Submerged Centrifugal Pump sets	12	28.54	50	2
Kota PHED	Yasha Enterprises	Submerged Centrifugal Pump sets	15	43.2	40	2
Sonwa WSP Baran, PHED	Vishnu Prakash R Punglia Limited	Submerged Centrifugal Pump sets	100	152.7	90	2
Sonwa WSP Boran, PHED	Vishnu Prakash R. Punglia Ltd.	Submerged Centrifugal Pumpset	120	165.5	100	2
Sonwa WSP Boran, PHED	Vishnu Prakash R. Punglia Ltd.	Submerged Turbine Pumpset	100	333.94	43	2
RPC Jhalawad WSS	Bhihani Construction	Submerged Turbine Pumpset	60	256.32	32	2
Gujar Ki Thadi PS, Jaipur PHED	Nanda Sales	Submerged Centrifugal Pump sets	150	520	50	3
Gurunanakpura PS, Jaipur PHED	Sarla Industries	Submerged Centrifugal Pump sets	100	640.8	30	2
Suratgarh PHED	Vishnu Prakash R Punglia Limited	Submerged Centrifugal Pump sets	60	504	17	2
Ajmer WSS	Sarjeeet Construction	Submerged Centrifugal Pump sets	101	416.67	35	2
Suket UWSS	Vishnu Prakash R Punglia Limited	Submerged Turbine Pumpset	80	274.5	50	2
Suket UWSS	Vishnu Prakash R Punglia Limited	Submerged Centrifugal Pump sets	50	184.4	40	2
Suket UWSS	Vishnu Prakash R Punglia Limited	Submerged Turbine Pumpset	20	82	35	2
Kalikhhar WSS	Good Will Advance Construction	Submerged Centrifugal Pumpset	25	226	15	2
Sojat WSS	Raj Enterprises	Submerged Centrifugal Pump sets	30	120	40	1
KOTA WSP	Agrawal Sales Agency	Submerged Turbine Pumpset	120	307.87	40	2
Rewa WSS	Goodwill Advance Construction Company Pvt Ltd	Submerged Centrifugal Pump sets	5	25.78	16	2
KOTA WSS	Bihani Constructions Private Limited	Submerged Turbine Pumpset	85	452.38	35	1
Chhoti Sadri Pratapgarh WSS	Agarwal Construction Company	Submerged Centrifugal Pumpset	12	-	100	6
Surpura WTP	Megha Engg. Infra Ltd.	Submerged Centrifugal Pumpset	55	600	16	2
CNSP PKg II WSS	SPML Infra Ltd.	Submerged Turbine Pumpset	120	267	63	4
Dhannasar WSS.	GRG Infra	Submerged Turbine Pumpset	60	86.40	102	1

## Concept Benefits

No need to Periodically...



...Check /  
Align Shaft  
Coupling



...Check /  
Change Gland  
Packing

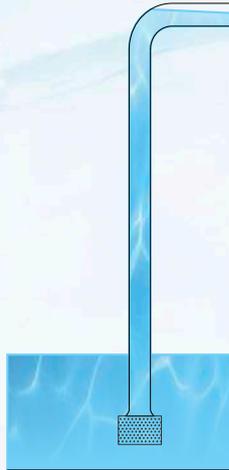
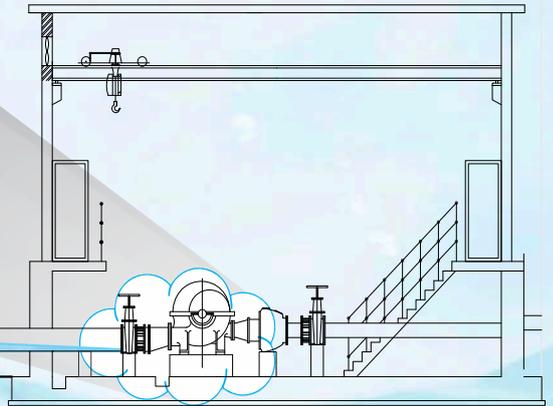
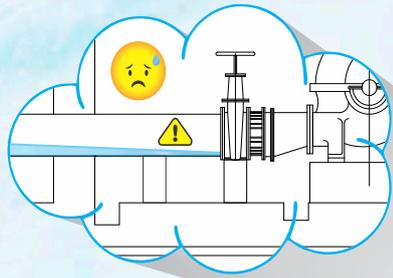


...ReGrease /  
Refill  
Oil

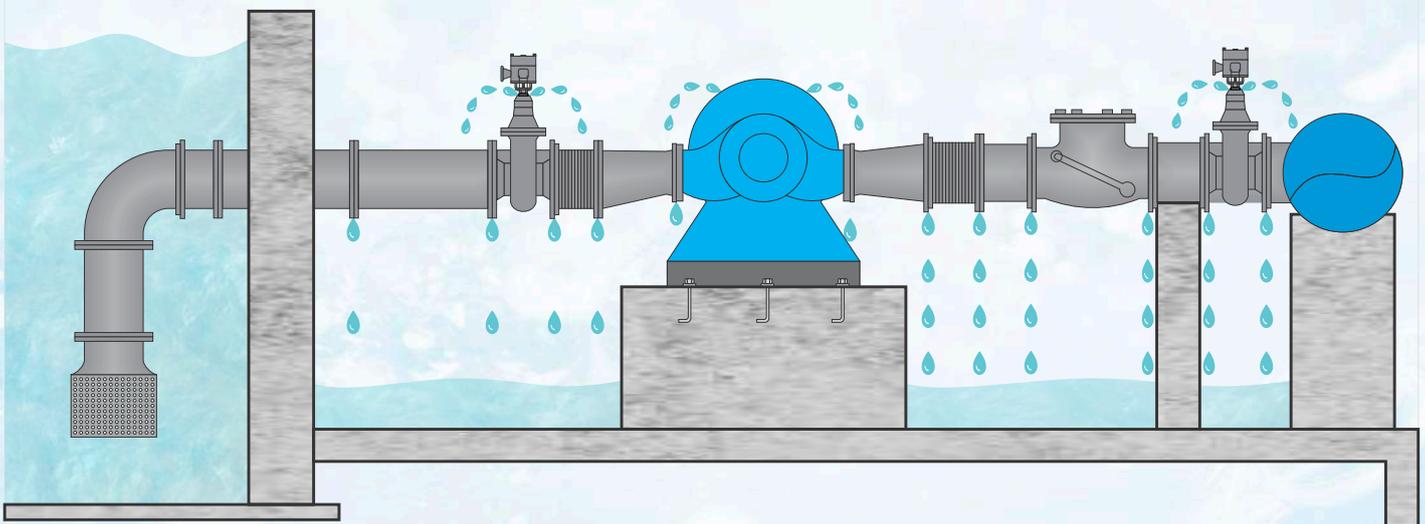
No need of Valve Opening / Closing  
(during Pumpset Start / Stop)



No Suction Piping &  
it's associated Friction Head losses



No need of ManPower for Suction Priming



No Nuisance Leakage (from Piping Flanges &/or Pump &/or Valve Glands) to be Regularly DeWatered

No Under Ground Pump Room  
prone to collection of  
Leaked Water....

...No Breeding  
ground for  
Mosquitoes



₹ ₹ ₹ ₹ → ₹ ₹ ₹ ₹

Saves (upto 45%) Capital Cost of  
Entire Pumping Stations\*



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

\* (refermarketing@aquapumps.com for additional white papers)

## Aqua's Benefits



**Requires No Special Pre – Post / Ancillary-Auxillary Operations;** like Operating & Maintaining the Forced Water Lubrication systems operation.



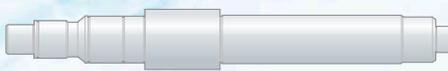
**Low Life Cycle Costs (LCC)\***



**Low Energy Cost :** Due to Elimination of Suction Losses, Ancillary & Auxiliaries; **Wire to Water Power Consumption** of SCF based Pumping Station is **slightly Lower** (compared to Conventional VT Pumpset based Pumping Stations)\*



**A Strong, Single Shaft**  
for Fail Safe Operation



Single, Robust & oversized Shaft is **Common** between the motor & pump. It is (upto 1550 kW 4P, 1200 kW 6P, 900 kW 8P) made from **Stainless Steel** & designed without Any Sleeves (below the Mechanical Seals) thereby reducing maintenance problems & **eliminating need of spare parts.**



Anti Drip, Fully Synthetic; **Super Premium Synthetic Grease** ensures a minimum Regreasing Interval (**F<sub>10H</sub>**) of **75,000h** (for Pumpsets rated upto 650kW).



Seals are rated for at least **16 / 25 bar** pressure capability for **L<sub>10H</sub>** life in excess of **50,000** hours &/or **5** years.

## Intelligent InBuilt Monitoring

Easy Monitoring (& Remote Control<sup>#</sup>) of your Pumpset's Health.



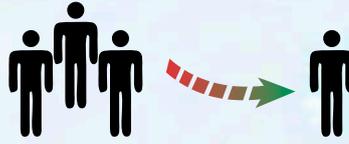
- **PSLD** detects Pressurized Water Leakage from Mechanical Seals.
- **CCWLD** detects Accidental Water Leakage from Cable Sheath's Cuts &/or Nicks into the Motor.
- **SBWLD** detect Accidental Water Leakage in to Motor's Stator Chamber.
- **BTDs** in the form of Bi-metallic Switches (for All Pumpsets)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

<sup>#</sup>requires additional communication hardware

## Performance Certificate



Saves (upto 75%) Spare Parts  
& Consumables\*



Saves (upto 66%) O&M Staff\*

Office of the Executive Engineer, PHED, City Division-II South,  
Civil lines, Jaipur

Date: 25/06/23

No. 4253

### Work performance Certificate

To Whom It May Concern

This is to certify that, for our Gujar ki Thadi Water Supply Project, Jaipur, Rajasthan, we are using the "Aqua" make Submerged Centrifugal (SCF) Pump sets as per following details.

Model : ARS..H\_PS\_1st\_VoG\_.2042..M..M..150N..415\_NJ.  
Flow : 520 m<sup>3</sup>/hr  
Head : 50 m  
Qty. : 2 W + 1 S (3 Nos.)  
Motor : 150 hp / 110 kW  
Voltage : 415 V

These pump sets were commissioned in July, 2021 and working satisfactorily till date.

  
(Devendra kumar Sharma)  
Executive Engineer  
PHED, City Div-II(S), Jaipur

# Aqua Machineries Private Limited

[www.aquapumps.com](http://www.aquapumps.com)

Registered Office & Manufacturing Plant

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