

*Gujarat's Highest Head (123m) Lift Irrigation Scheme*

# ***Khanpur LIS***

*Aqua's 123m, 939hp x 6.6 kV SubVT pumps enable  
Energy Efficient Lift Irrigation of 28.5cusecs*



## Situation :

Gujarat is a water scarce state & the primary source of water in the country is South-West monsoon which is confined only **3 to 4 months** in a year. Gujarat has variation in rainfall in its own regions; several parts of the State face floods during monsoon, at the same time several parts are drought affected.

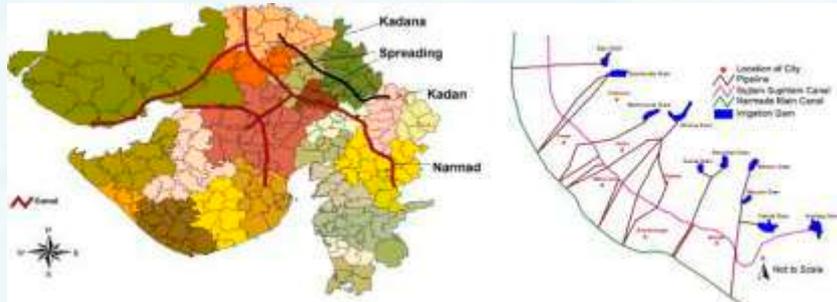


Central Eastern region of Gujarat is scarce in its water resources thereby affecting its overall development.

## Potential Solution:

With an aim of increasing the Agricultural Production & improving the living standards of farmers the Gujarat Government decided to Augment various Reservoirs (Lakes/Tanks) of various regions by Lifting water **from Canals** & transporting it vide Pipelines to the reservoirs.

Sujalam Sufalam Canals are a part of Govt of Gujarat's unique Aquifer Recharging project using massive Canals to spread surplus water to lean regions



## Specific Solution

This project was named as “*Lift Irrigation Pipeline Project from SSSC to Northern village’s Tank of Khanpur taluka*”.

In this project water is to be lifted from Sujalam Sufalam Spreading Canal near Padedi village & by this project water is to be discharged in the below mentioned Northern village's Tank of Khanpur taluka :

EPC Contract for Lift Irrigation vide DI-K9 pipeline project for transmission of **28.5cusecs** of water from Sujalam Sufalam Spreading Canal near Padedi village to Northern Village of Khanpur taluka. (Pumping Station at SSSC near chainage 24.00 km & Pipeline 900 mm dia DI-K9 total length 21.000 Km with Operation and maintenance 10 Years).

This Contract was awarded to M/s. **Krishna Construction Co. - Om & Yash (JV) Pvt. Ltd. (JV) Aqua** make Submerged Vertical Turbine pumpsets were selected for the highest head lift irrigation scheme of Gujarat.

### Name of Beneficiary Villages / Tanks

- |                            |                                  |                                       |
|----------------------------|----------------------------------|---------------------------------------|
| 1. Khuntelav Lake          | 12. Limbdi Timba Lake            | 22. Kakri Muadi Lake                  |
| 2. Umariya Lake            | 13. Kaliyakua Lake               | 24. Lambho-1 Lake                     |
| 3. Lavana Lake             | 14. Khatu damor ni muadi<br>Lake | 25. Lambho-2 Lake                     |
| 4. Vasta na Muada-1 Lake   | 15. Chhani Lake                  | 26. Vadhela & Rankali<br>Lake         |
| 5. Vasta na Muada-2 Lake   | 16. Dhol Khakhara-1 Lake         | 27. Baballiya Naroda<br>450 Main Lake |
| 6. Hansiliya na Muada Lake | 17. Dhol Khakhara-2 Lake         | 28. Kaleswari Lake                    |
| 7. Pandarwada-1 Lake       | 18. Naroda Lake                  | 29. Kaleswari-Kotar<br>Lake           |
| 8. Pandarwada-2 Lake       | 19. Babaliya Lake                |                                       |
| 9. Motipura Lake           | 20. Bakor Lake                   |                                       |
| 10. Khadodi Lake           | 21. Borvai Lake                  |                                       |
| 11. Dolatpura Lake         |                                  |                                       |

### Challenges

*Ultra High Head....*

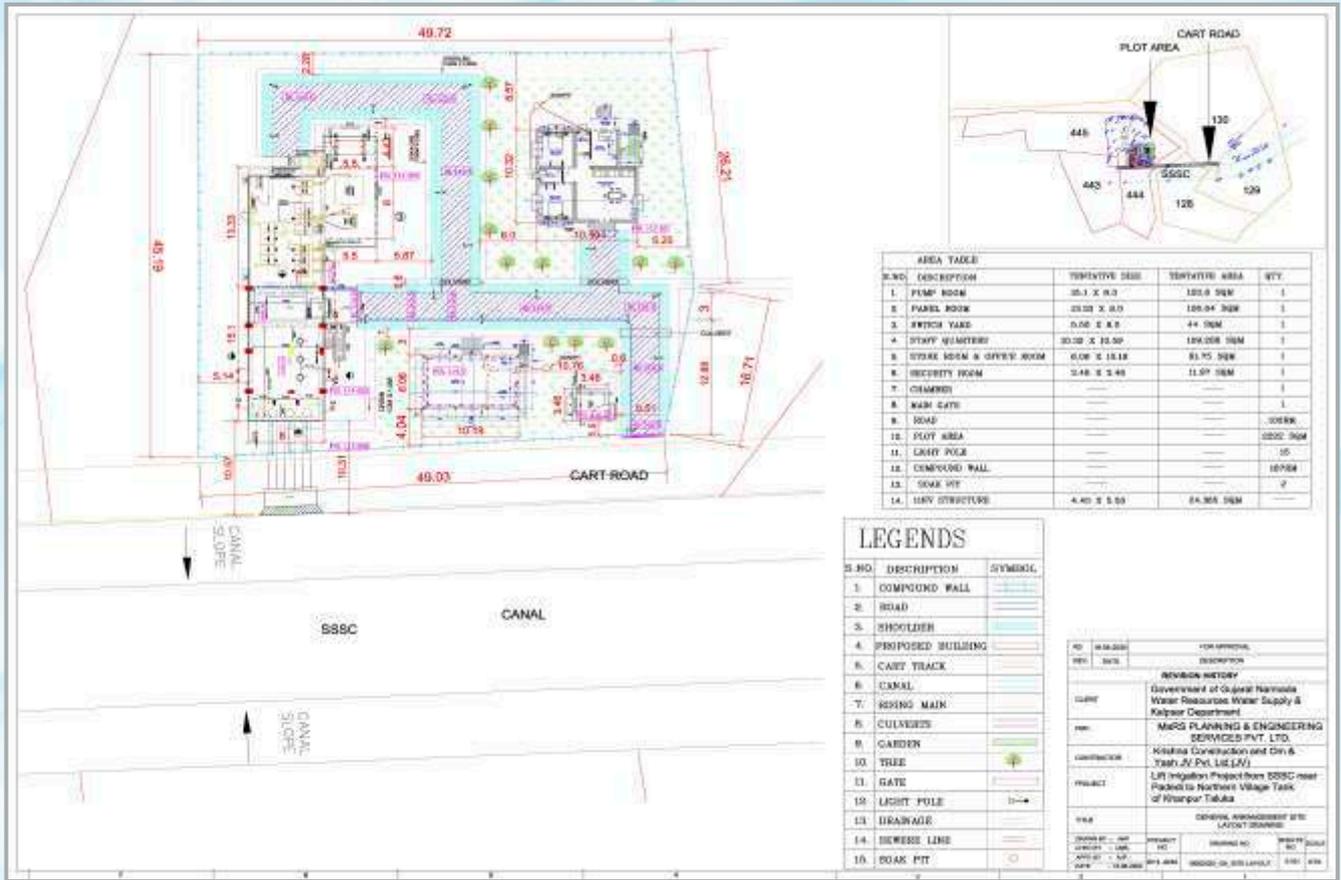
*Need of Low Maintenance Technology....*

*Low Energy Consumption requirements....*



**Padedi Dholkhakhra Lift Irrigation Scheme  
Village Padedi, Ta : Khanpur; Dist : Mahisagar**





## Aqua's Solution for Project:

### Pump Details

Pump Model : AVT..\_V\_Ps\_2st\_Bo\_ES\_.3553.\_.4P\_.939N\_.6600\_NJ

Head	Discharge	Quantity	HP	Voltage
<b>123m</b>	<b>1460m<sup>3</sup>/hr</b>	<b>3nos</b>	<b>939hp</b>	<b>6.6kv</b>



Thanks to Monoblock construction, Pump Motor set is built up at Factory & can be simply Transported/ Installed easily without Specialist ManPower requirements

## SubVT's Benefits



As the Pump Motor Set is Fully Assembled at Factory; it's **Installation** is Simple & **Maintenance** is **even more** Simple - it does not require Highly Skilled Mechanics.

### A Strong, Mono Shaft for Fail Safe Operation



Single, Robust & oversized Shaft is Common between the motor & pump - it is made from Rust Free Stainless Steel & designed without any Sleeves (*below the Mechanical Seals*) thereby reducing maintenance problems & eliminating need of Costly Spare Parts.



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

**Superb Bearing Life** thanks to Heavy Duty Designs (*upto Quadruplex arrangements are offered*)



All **Thrusts** are absorbed by **Grease Lubricated, Anti Friction Bearings** located deep inside the motor & inherently **isolated from the pumped media** - this makes the **bearings Fail Proof** even in case of increased Silt/ Abrasive levels in Pumped Liquid.



Anti Drip, Fully Synthetic; Super Premium Synthetic Grease ensures a minimum Regreasing Interval ( $F_{10H}$ ) of **75,000h** (*for Pumpsets rated upto 650kW*) & **45,000h** (*for larger kW*)

## SubVT's Benefits

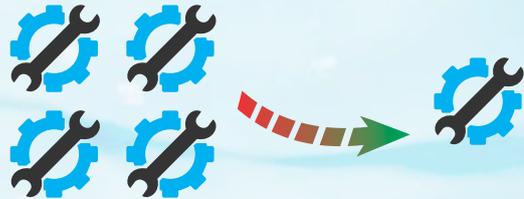


**Low Energy Cost** : Due to Elimination of Ancillary & Auxiliaries; **Wire to Water Power Consumption** of Submerged Tubular Column Pump based Pumping Station is **slightly Lower** (compared to Conventional Bare Shaft Pump - Motor Set based Pumping Stations).\*

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



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



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



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

- **Minimal Station Superstructure**
- **Simple Pipe Work**
- **Simple Foundation** - conducive for *Water Logged Terrain*



**No need for Frequent Periodic....**



**Shafts/Sleeves &/or Coupling**



**Gland Packing**



**Oil &/or Grease**



**Saves (upto 40%) Land Requirement\***



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

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

## 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

**EXECUTIVE ENGINEER**

**કાર્યાલય ઇન્ચાર્જ**

Kadana Division No. 1

કડાના વિભાગ નંબર ૧

Diwada Colony, Ta. Kadana,

દિવાડા કોલોની, તા. કડાના (જી. મહિસાગર)

Dist. Mahisagar Pin : 389250.

Fax No. : 02675 - 237627  
Phone : O. 237674 R. 237592

REF. No. KD-1/Khanpur/DI/LI/4670/ DATE: 25-08-2021

**TO WHOMSOEVER IT MAY CONCERN**

These pumps are manufactured, supplied, erected and commissioned by M/s Aqua Machineries Pvt. Ltd. for Engineering, Procurement and Commissioning (EPC) Contract for Lift Irrigation DI-K9 pipe line project for transmission of 28.5 cusecs of water from Sujalam Sufalam Spreading Canal near Padedi village to Northern villages of Khanpur taluka. (Pumping Station at SSSC near chainage 24.00 km & Pipeline 300 mm dia DI-K9 total length 21.000 Km with Operation and maintenance 10 Years)

Pumpset Type	Submerged Vertical Turbine Pumpset with Integral motor.
Main Contractor	M/s. Krishna Construction Co. - Om& Yash (JV) Pvt. Ltd. (JV)
Pumpset Make	Aqua Machineries Pvt. Ltd, Ahmedabad.
Application	Raw Water Handling
Pump Model	AVT.._V_Ps_2s_Bö_ES_3553.._4P_939N_6600_NJ.
Head	123 Mtr
Discharge	1460 M <sup>3</sup> /hr
No of Stages	Two
DN Size	350 MM
Motor Rating	939 HP / 700 KW
Voltage Level	6600 V
Motor Type	HT Submerged Squirrel Cage Induction - Dry Air filled Totally Enclosed (IP 68) Self Frame Surface Water Cooled (TESWC) complying to ICA1W0 of IS 6362
Qty	3 Nos (2W+1S)
Installation date.	@ Padedi S.S.S.C., Bottom rested. These pumps were commissioned on 7 <sup>th</sup> Aug 2021 and are working 24 x 7 satisfactorily till

(S.T. G. Patel)  
Executive Engineer,  
KADANA DIVISION, No.1  
DIWDA COLONY



*Energy Saving...*

*Ultra Low Maintenance...*

**Aqua Machineries Private Limited**

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

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