AHMEDABAD MUNICIPAL CORP.

Ahmedabad is the largest city and former capital of the Indian state of Gujarat. It was refered to as the **"Manchester of the East"** in British Raj due to the fact that almost 77 out of 110 Textile Mills in India were based in Ahmedabad.

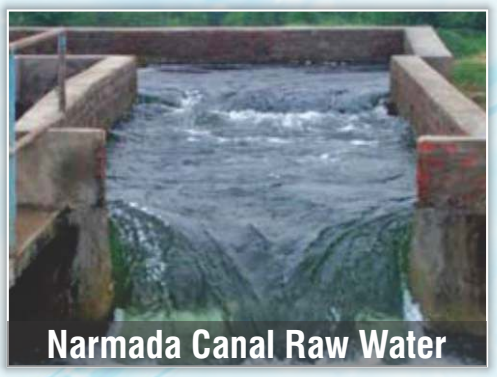
In 2010 Ahmedabad was ranked third in Forbes's list of fastest growing cities of the decade. In 2012, The Times of India chose Ahmedabad as India's best city to live in.

AMC was established in July 1950 grew from an area of 52.49 Sq.Km. *(in 1950)* to 466 Sq.Km. *(in 2013)*.

Water treatment and Water Distribution is a very important key for the development of any city & AMC is one such ULB in India who has achieved till date as good as 90% of house hold coverage with potable water supply as on date and working ahead to achieve objective of 100% coverage with 24 x 7 water supply.

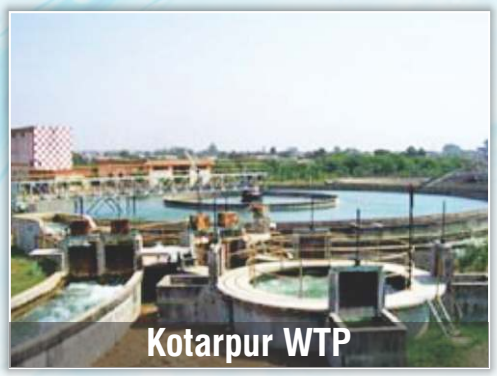
AMC supplies approximately **1150 MLD** drinking water across the city vide 3 major WTPs & nearly **187** Water Distribution Pumping Stations *(WDS)*.

Approximatley 100+ Aqua Submerged Centrifugal pumpsets are used by AMC for supplying Drinking Water.

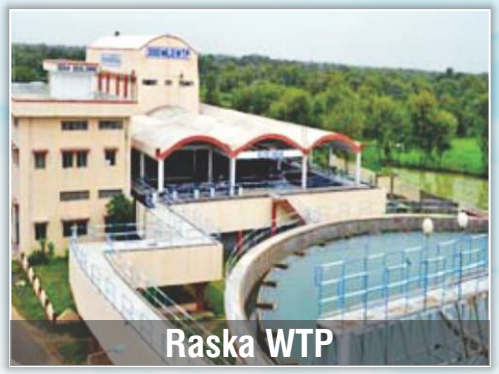

Narmada Canal Raw Water


French Well


Intake Well I & II


Kotarpur WTP


Jaspur WTP

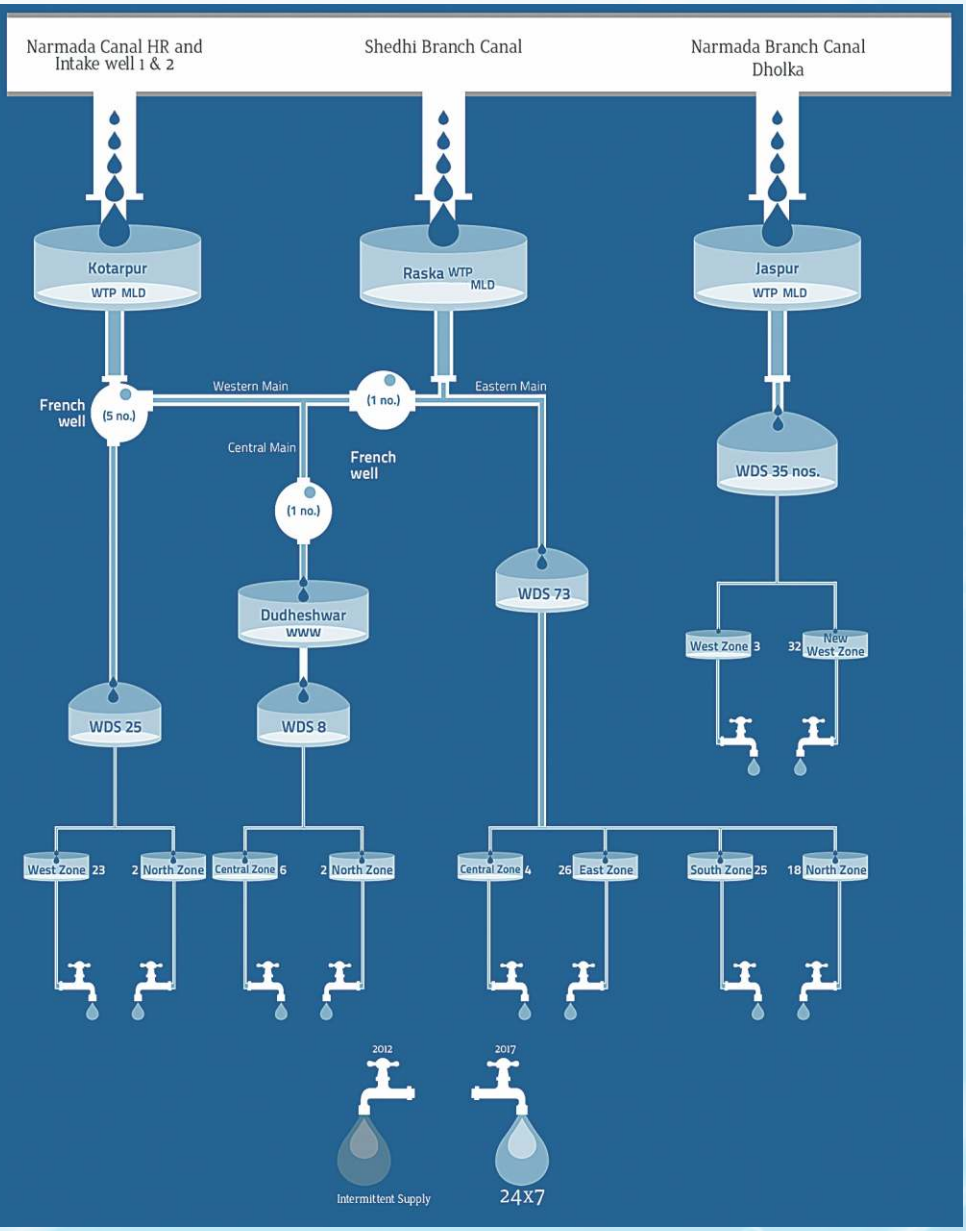

Raska WTP

Ahmedabad City's Water Supply at a glance

AMC supplies about 140 to 160 Liters of Water per capita daily from Kotarpur, Raska and Jaspur treatment plants, through 187 distribution stations.

Moreover, AMC also manages water

storage in underground tanks *(857.40 ML)* and overhead tanks *(62.69 ML)*



STADIUM WDS

Aqua's Submerged Centrifugal *(SCF)* pumpsets keep on pumping without requiring any Pre Start-Pre Stop / Ancillary-Auxillary operations; without requiring either Consumables or Maintenance.

Salient O&M benefits of SubCF pumpsets:

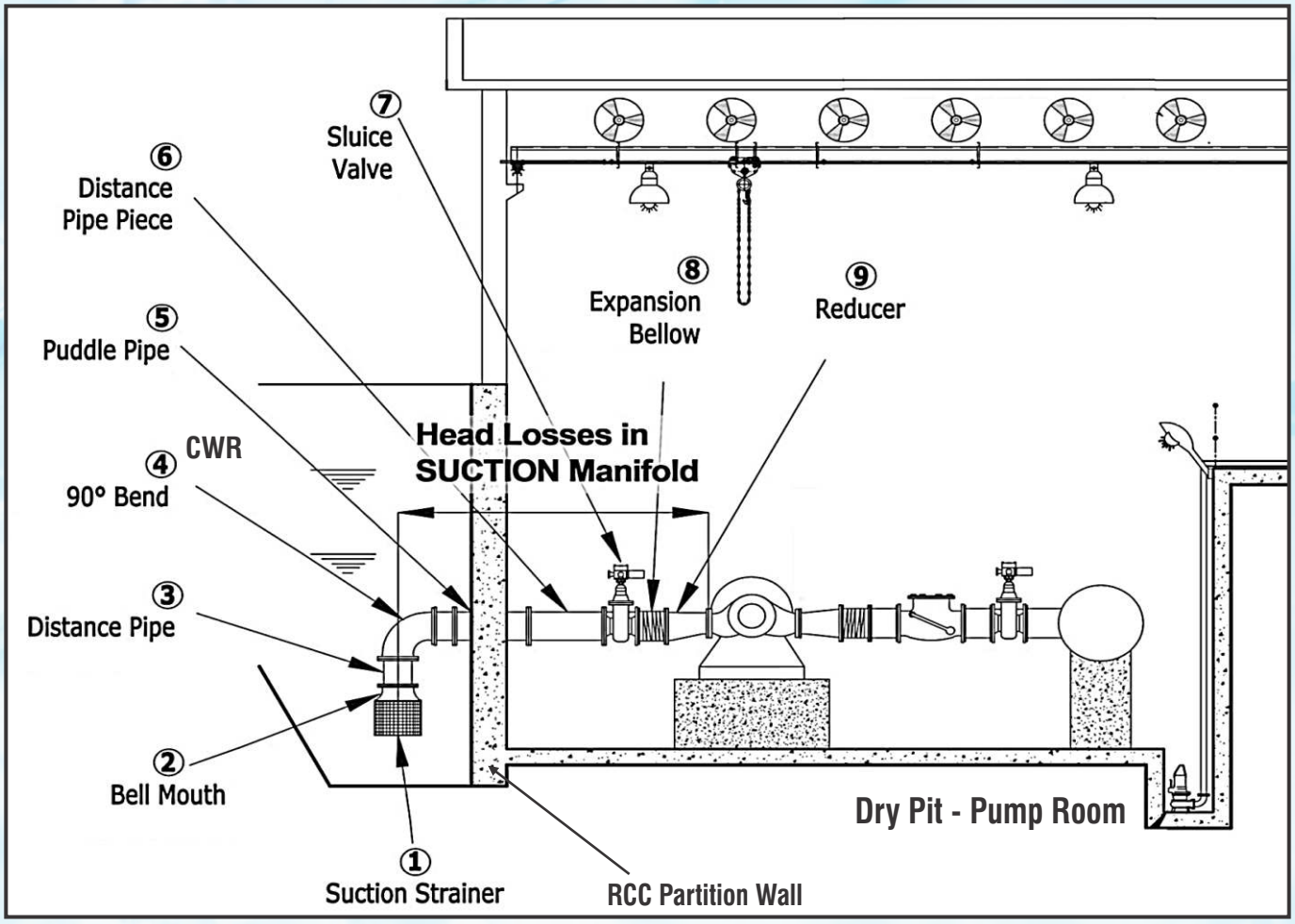
Ultra Low ManPower requirement

Operational benefits

- Requires No Special Pre – Post / Ancillary-Auxillary Operations *(like Suction Priming, Valve Opening-Closing, starting- stopping- monitoring Forced Water Lubrication systems operation, Dewatering Seepage/ Gland Leakage, etc.)*
- Requires No Consumables *(like Oil, Grease, Gland Ropes, Bush, Pins, Couplings, Sleeves, etc)*

Maintenance benefits :

- Requires No Routine Maintenance *(like Oiling, Greasing, Gland Tightening, Gland Rope replacement, Shaft Alignment, Dry Run prevention, etc.)*
- Zero Maintenance Bearings are Greased for Life *(no need of subsequent re-greasing)*
- **Intelligent & Extensive Monitoring devices allow you to Quickly *(& Remote#)* monitor pumpset's health**
  - LSLD detects Pressurized Water leakage from Mechanical Seals
  - CCWLD & SBWLD detect Accidental Water leakage from Cable Sheath's Cuts &/or Nicks in to motor
  - BTDs in the form of Bi-metallic Switches & PT100 monitor Bearing Temperature
  - WTDs in the form of Bi-metallic Switches &/or PT100 monitor Stator Winding temperature against Thermal Overloading # requires additional communication hardware
  - Maintenance Free shaft sealing by means of Two Independent Mechanical Shaft Seals in Buffer Oil Bath.



Dry Installed HS Centrifugal Pumpset

Space Saving:

- Can be immersed directly in to Wet Pit *(Clear Water Sump)*; hence :
  - No Dry Pit *(Pump room)* required thereby huge Land Saving
  - thereby eliminating the need of Suction Piping which is mandatory for Earlier Technology DRY IN STALLED HS CENTRIFUGAL PUMPSETS – this is a huge boon for Augmentation of Flow

Dry Installed HS Centrifugal pumpsets require Costly Spacious Pump Rooms

Flow Augmentation upto 2.5X is easily possible with SubCF....!

SubCF replacing HSCF - for e.g. Lilanagar WDS

- Old city WDS were developed around 1950s-70s – but now Old Bunglows have given way to High Rise Flats which impose approximately 8 to 12times more Population Density...!
- Naturally, such increased population will require more water & hence will severely stress the existing WDS's rated output.
- Old design Dry Installed HS Centrifugal pumpsets are installed in Dry Pit *(Underground Pump Rooms)* & "suck" water from a Cast Iron suction manifold which:
  - is Grouted into a thick RCC partition wall which seperates Water of Clear Water Reservoir *(CWR)* from Under Ground Pump Room *(UGPR – Dry Pit)* – hence chipping out the old small suction pipe to replace it with a new large suction pipe is :
  - Tedious *(to chip off concrete in suffocating underground CWR)*,
  - Time Consuming *(leads to total shutdown of WDS for weeks)* disturbing public water supply &
  - Risky *(the new cement mortar plugging may never be as leak free as the old mono lithic casting).*
  - **Unless, a larger flow; Dry Installed HS Centrifugal pumpset is also fitted with ar Larger Suction Pipe; Increasing pump's flow rating will *(also inevitably increase Suction Velocity)* lead to dangerous Cavitation, Vortexing, Efficiency Loss & even premature pump failure..!**
  - As land availability in Urban Areas is a problem, construction of New Larger Pump Rooms *(f o r increased water supply via Dry Installed HS Centrifugal pumps)* is often not a feasible *(& surely not a commercially viable, as Urban Land is very costly)* option.
- This is where, Submerged Centrifugal pumpsets are a Blessing – they can be immersed directly in to Wet Pit (Clear Water Sump); hence :
  - No Dry Pit (Pump room) is required thereby huge Land & Construction Cost Saving
  - They don't neet a Suction Piping so there is no risk of Cavitation, Vortexing or premature damage
  - They can simply be lowered into CWR Sumps so as to sustain Water Supply 24x7x365 without pump changeover interruption.

Aqua Submerged CF pumpsets : AMC

SR No	Name of Site	Capacity (m3/hr)	Head (mtr)	HP	Qty
1	Ghatlodiya	450	30	80	2
2	Vejalpur	450	30	80	2
3	Mahavirnagar	450	30	80	1
4	Adinathnagar	450	30	80	2
5	Sanklitnagar	450	30	80	2
6	Jamalpur	450	30	80	2
7	Raikhad	450	30	80	2
8	TP 10	450	30	80	2
9	Kali	450	30	80	2
10	FP 204	450	30	80	2
11	Gota	450	30	80	2
12	Naroda WPS	450	30	80	1
		675	35	120	1
		900	30	140	1
13	Meghaninagar	450	35	85	3
14	Salpara WPS	675	30	110	2
15	New Suburban WPS	550	35	100	1
16	West Zone WDS	625	35	110	12
17	Lambha T.P 58 F.P 68 South Zone	900	30	135	1
18	Mahavirnagar	675	35	120	1
19	Pragatinagar	625	35	110	2
20	Nikol	625	35	110	2
21	Naroda Fire	450	30	80	4
22	Gomtipur	625	30	110	2
23	Ankur	625	35	110	1
24	Subhas Market	625	35	110	1
25	Bapunagar	625	35	110	3
26	Astodia	550	30	90	3
27	Meghaninagar	450	15	40	2
28	Nobelnagar WPS	900	30	135	3
29	Gomtipur HWD	625	35	110	2
30	Bhilwas WDS	450	30	80	1
31	Isanpur	450	30	80	1
32	Odhav GIDC	450	15	40	2
33	Gulbai Tekra WDS	550	35	100	1
34	Various Water Pumping Station in North/East Zone	650	30	100	3
35	Odhav Fire Brigade, Odhav Ambicanagar, Bage Firdos	675	30	110	5
		450	26	70	2
36	Hathijan	750	30	120	4
37	Narol WPS	450	30	80	1
38	Shahwadi WPS	550	30	90	1
39	Odhav TP 2, FP 63	625	35	110	2
40	Lambha	750	35	140	1
41	Different Overhead Tank	625	35	110	7

"Submerged CF pumpsets, have the following benefits :

1) *No Maintenance is required*

2) *No Noise during operation (lower Public hardship) & easily Installable directly in CWRs - this is a big benefit for especially for augmentation of WDSs in densely crowded areas.*

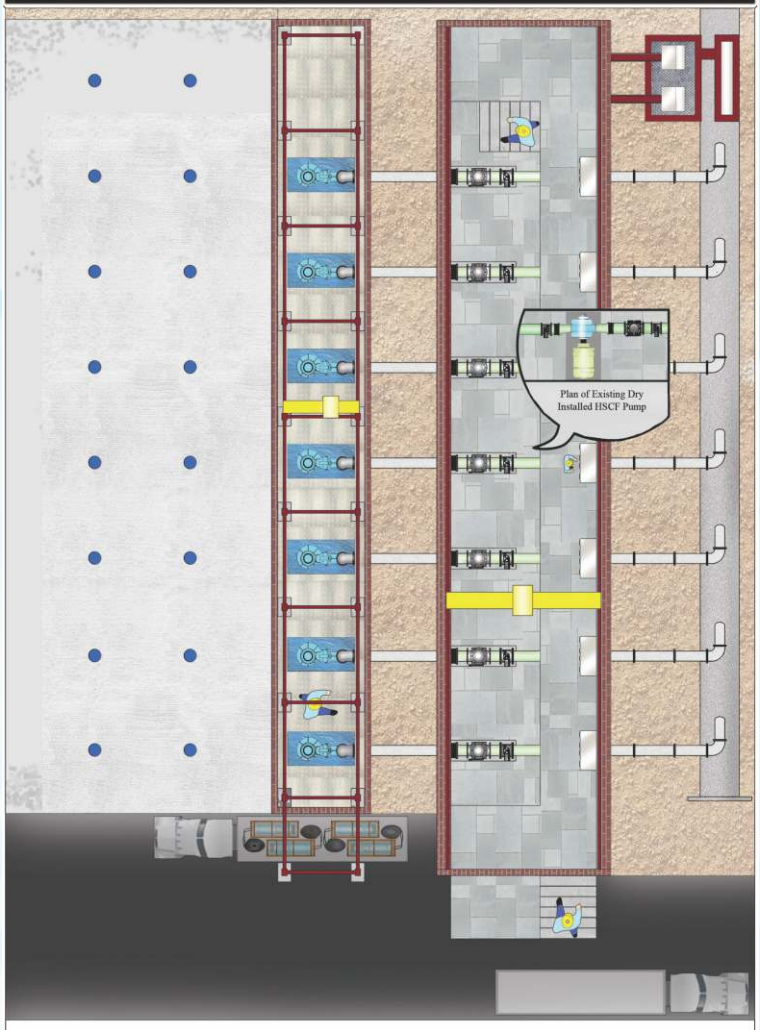
3) *The use of AutoCoupling arrangement enables Quick & Easy replacement of pumpset (incase of any rare fault) without any shutdown thereby enabling uninterrupted water supply (even if Standby pumpset is not installed due to lack of space).*

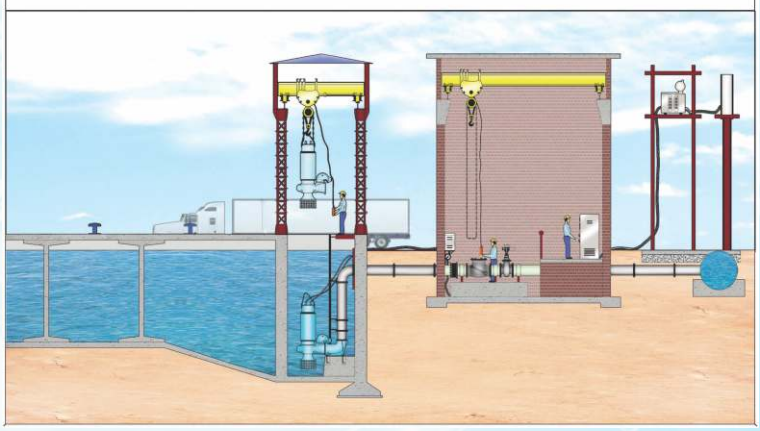
4) *Energy Efficient - at a few WDSs we saved a lot on Energy Bills (as compared to earlier used Submersible & Polder type pumps)."*

- Er. Biren Raval
Addl City Engineer,
AMC - Water Operations

Replacing Dry installed HS CF pumpsets by Wet installed Submerged CF pumpsets; utilizing Old Suction pipes as New Delivery pipes

Augmentation of existing Dry Installed HSCF Pump based Water Pumping Station without disturbing Civil Structure & Grouted Suction Manifold.





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