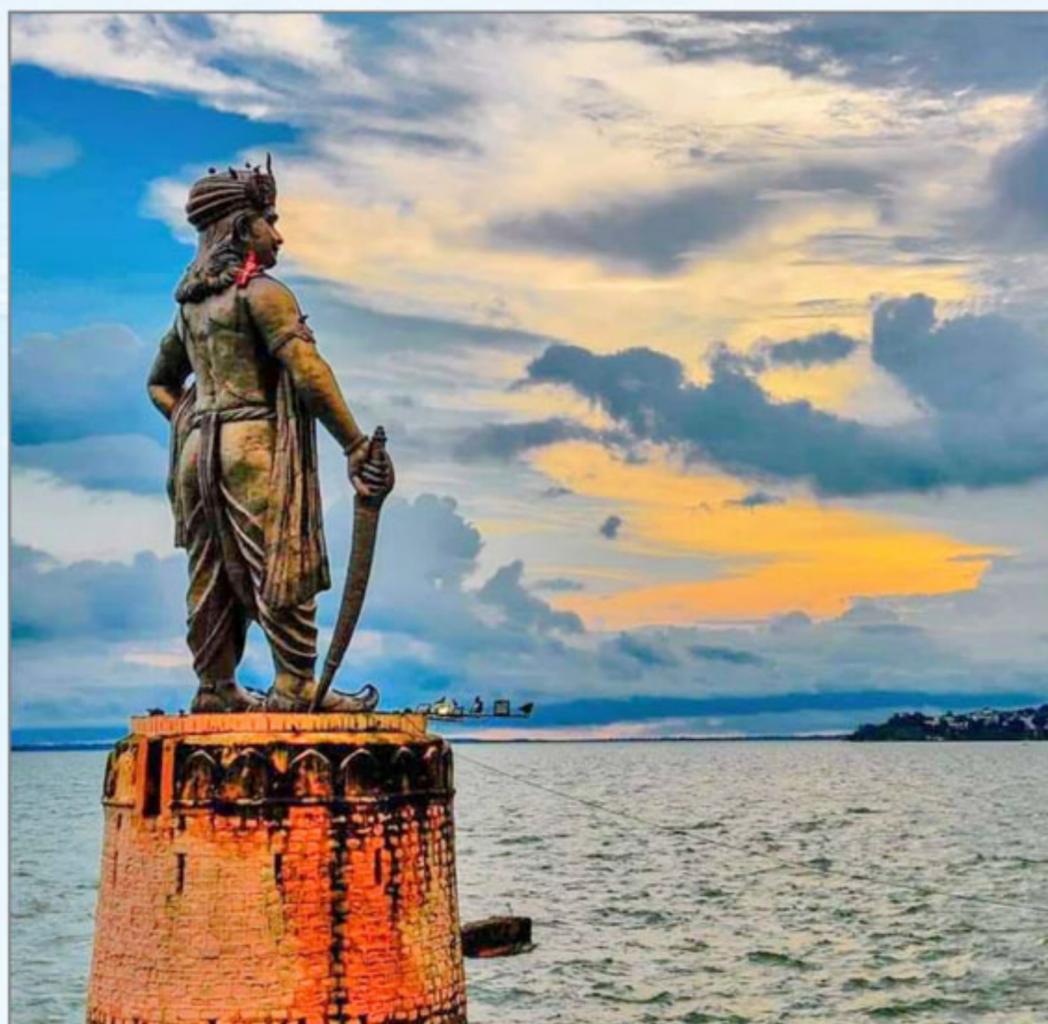


The City of Lakes...

Bhopal

Sewage Management



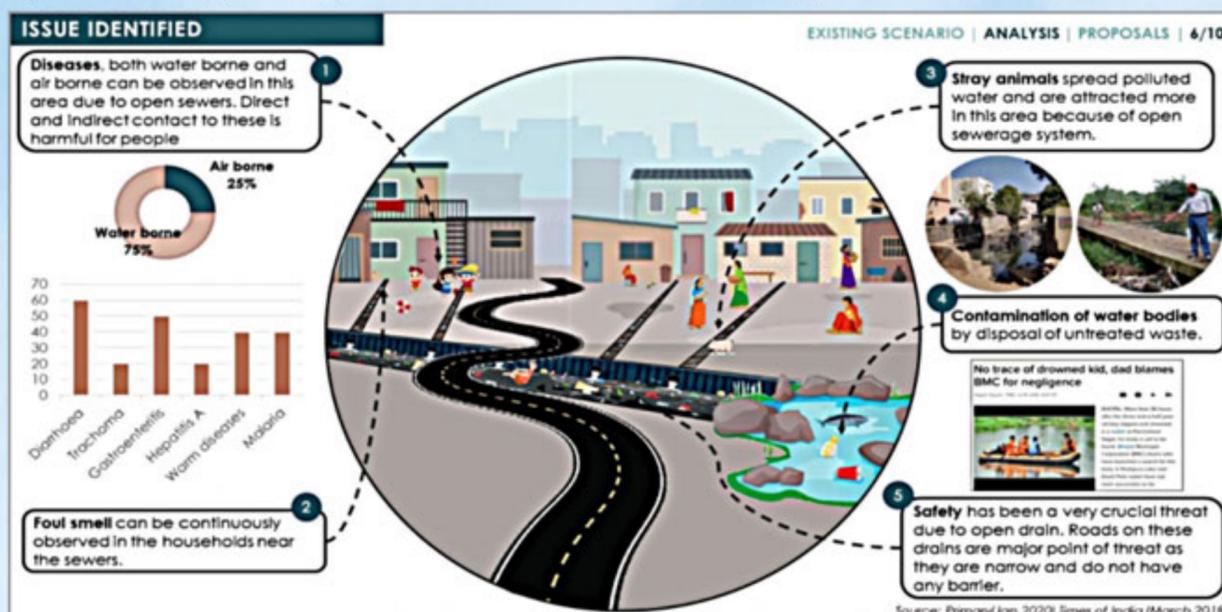
Bhopal is the capital of Madhya Pradesh & one of India's Greenest cities. It is an important industrial city housing various Educational & Research institutions like **ISRO, BHEL, AMPRI, IISER, MANIT, SPA, AIIMS, NLIU, IIFM, NIFT, NIDMP, IIIT & Regional Science Centre.**



Situation:

Bhopal is witnessing Rapid Urban Development & Industrialization - it's Population is growing very fast (at about 3.5% per year - higher than the national average of 2%). This surge has put severe **stress on the city's available waste water handling facilities.**

About 40% of Bhopal has a sewerage network, which covers about 28-30% of the population - of the 66 wards within municipal limits, 10 are fully seweraged & 18 partially seweraged. There are 723 drains across Bhopal & most get clogged when it rains heavily & the **existing Dry Well type Conventional Non Clog Pumps failed which led to wide spread flooding in the city.**



Solution:

Atal Mission for Rejuvenation and Urban Transformation (**AMRUT**) was launched on 25th June 2015 across the country with a goal of development of basic infrastructure in the sectors of water supply; sewerage and septage management. During this stage, Aqua's Engineers worked in **close technical collaboration** with Engineers of Bhopal Municipal Corporation & it's Consultants m/s WAPCOS.

The **Root Cause Analysis (RCA)** of the informal study revealed that apart from the need to augment the capacity of Sewage Pumping Stations (*Intermediate & Terminal SPS*); the existing SPS were fitted with old technology Conventional Bare Shaft Horizontal Non Clog pumps coupled with Air Cooled Non Submersible Motors.



Brainstorming between End Client, Consultant & Aqua's Engineers

During peak monsoons, often; the Dry Well was flooded & the **Non Submersible Motors failed due to drowning** finally leading to wide spread flooding & mixing of sewage into the storm water flooding the city.

Project :
Renovation of Sewage Project
Bhopal.

End Client:



Bhopal Municipal Corporation, Bhopal

Consultant:



WAPCOS LTD., Bhopal



While the Dry Well & it's Conventional NC pumps are now Obsolete...



...and the SPS is now converted to Aqua's Sub Sewage pumps installed directly in the Wet Well...



...and New SPS are now based dedicatedly on Aqua's Sub Sewage NC pumpsets

Site

Jatkhedhi SPS:



Misrod (Bagli) SPS:



Sankhedi SPS:



Bairagarh Chichali SPS:



Salaiya SPS:



Kotra SPS:



Concept Benefits

<p>Saves (upto 55%) Land Requirement*</p>	<p>Saves (upto 75%) Spare Parts & Consumables*</p>	<p>Saves (upto 66%) O&M Staff*</p>
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User Friendly

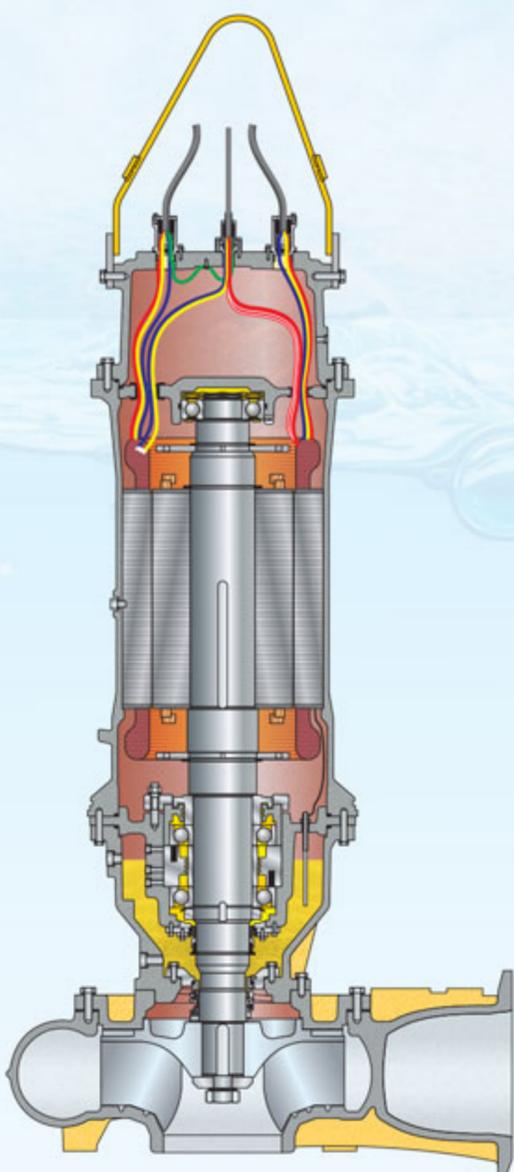
- No risk of Cavitations.
- No damage due to Flood or Rains.

Low Life Cycle Costs (LCC)*

No need for Frequent Periodic....

<p>Aligning / Replacing Shafts/Sleeves &/or Coupling</p>	<p>Adjusting / Replacing Gland Packing</p>	<p>Refilling Oil &/or Grease</p>
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Unique Advantages of Aqua's ANS:



Motor Insulation

Based on World Leading "Power House" type treatment (Mica based; Dual Vacuum Pressure Resin Impregnation (VPI)) technology for Superb Di-Electric Strength due to Costlier Resin v/s Cheaper Varnish.

Tolerates Power Spikes & Surges

Designed for upto 55°C Ambient temperature

Vacuum Pressure Impregnation Treatment (VPI) (also known as Power House Treatment) is provided by Default at no extra cost

Robust Tank like Build

Specially Designed for Ease of Local Repairs

Tolerates Wide Voltage Variation

BHOPAL MUNICIPAL CORPORATION, BHOPAL (MP)
(Sewage Section)

Date: 23/5/23

Ref.No. 30

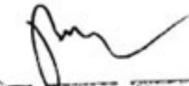
**Performance Certificate
TO WHOMSOEVER IT MAY CONCERN**

This is to certify that M/S AQUA MACHINERIES PVT. LTD AHMEDABAD supplied Non Clog Sewage Submersible pump sets at various sewage pumping station at Bhopal Municipal Corporation under AMRUT project through Ankita Construction. We are pleased to state that these pump sets are running satisfactorily.

Project : Kolar Town Sewage Project, Bhopal
End Client: Bhopal Municipal Corporation, Bhopal
Consultant: WAPCOS LTD. Bhopal
Contractor: Ankita Construction, Ahmedabad
The details of pumping station are as under follows:

Sr. No.	Name Pumping Station	Discharge (m ³ /hr)	Head (Mtr)	HP	Qty	Pump Model
1	Bairagarh Chichali (Zone-3) SPS	298.04	45	85	1	ANS V AC 1 st VoG .1242. D. M. .85N .415 NJ.
		546.4	45	140	1	ANS V AC 1 st VoG .2042. TX. M. .140N .415 NJ.
		819.6	45	200	1	ANS V AC 1 st VoG .2052. D. M. .200N .415 NJ.
2	Sankhedi (Zone-2) SPS	556.67	17	55	2	ANS V AC 1 st VoG .2033. DQ M. .55N .415 NJ.
		1113.35	17	110	2	ANS V AC 1 st VoG .2543. D. M. .110N .415 NJ.
		2041.13	17	180	1	ANS V AC 1 st VoG .3552. TY. L... .180N .415 NJ.
3	Jatkhedhi SPS	471.31	21	65	1	ANS V AC 1 st VoG .2033. DQ M. .65N .415 NJ.
		864.08	21	110	1	ANS V AC 1 st VoG .2543. D. M. .110N .415 NJ.
		1080.1	21	140	1	ANS V AC 1 st VoG .2543. D. M. .140N .415 NJ.
4	BawadiyaKalan SPS	78.75	36	30	1	ANS V AC 1 st VoG .0842. D. M. .30N .415 NJ.
		144.38	36	40	1	ANS V AC 1 st VoG .1042. DX M. .40N .415 NJ.
		216.56	36	55	1	ANS V AC 1 st VoG .1242. D. M. .55N .415 NJ.

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प्रमोद कुमार शालवीय
सहायक यंत्री
नगर निगम, भोपाल

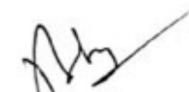
BHOPAL MUNICIPAL CORPORATION, BHOPAL (MP)
(Sewage Section)

5	J K Hospital	227.53	16	25	1	ANS V AC 1 st VoG .1227. D. M. .25N .415 NJ.
		417.14	16	40	1	ANS V AC 1 st VoG .1542. D. L. .40N .415 NJ.
		625.95	14	45	1	ANS V AC 1 st VoG .2033. DQ M. .55N .415 NJ.
6	Salaiya SPS	296.71	14	20	1	ANS V AC 1 st VoG .1527. D. M. .20N .415 NJ.
		543.96	14	35	1	ANS V AC 1 st VoG .2027. DQ M. .35N .415 NJ.
		679.95	14	45	1	ANS V AC 1 st VoG .2027. DQ M. .45N .415 NJ.
7	Mandakini Colony (Zone-1) SPS	40.67	12	6	1	ANS V AC 1 st VoG .0527. V. M. .6N .415 NJ.
		74.56	12	7.5	1	ANS V AC 1 st VoG .0627. S. M. .7N .415 NJ.
		111.84	12	12.5	1	ANS V AC 1 st VoG .0827. S. M. .12N .415 NJ.
8	Misrod SPS	478	18	60	2	ANS V AC 1 st VoG ES 2033 D. 4P .60N .415 NJ.
		955	18	110	2	ANS V AC 1 st VoG ES 2543. D. 4P .110N .415 NJ.
		2150	18	225	1	ANS V AC 1 st VoG .3552. TY L. .225N .415 NJ.
9	Priyanka Nagar SPS	5.74	21	7.5	1	ANS V AC 1 st VoG .0418. V. H. .7N .415 NJ.
		10.53	21	7.5	1	ANS V AC 1 st VoG .0418. V. H. .7N .415 NJ.
		15.79	21	7.5	1	ANS V AC 1 st VoG .0418. V. H. .7N .415 NJ.
Total					31	

We are pleased to state that at above sewage pumping station AQUA make Non clog Sewage Submersible pumpsets are running satisfactorily.

Executive Engineer
Bhopal Municipal Corporation
आर.के. गुप्ता
कार्यपालन यंत्री (सी.से.)
नगर निगम, भोपाल

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प्रमोद कुमार शालवीय
सहायक यंत्री
नगर निगम, भोपाल

BHOPAL MUNICIPAL CORPORATION, BHOPAL (MP)
(Sewage Section)

Date: 17/05/2023

Ref.No. 19

Performance Certificate

TO WHOMSOEVER IT MAY CONCERN

This is to certify that M/S AQUA MACHINERIES PVT. LTD AHMEDABAD supplied Non Clog Sewage Submersible pump sets at various sewage pumping station at Bhopal Municipal Corporation under AMRUT project through Ankita Construction. We are pleased to state that these pump sets are running satisfactorily.

Project : Renovation of Bhojwet Town Sewage Project, Bhopal

End Client : Bhopal Municipal Corporation, Bhopal

Consultant : WAPCOS LTD. Bhopal

Contractor: Ankita Construction, Ahmedabad

The details of pumping station are as under follows:

Sr. No.	Name Pumping Station	Discharge In M3/hr	Head(Mtr)	HP	Quantity	Pump Model
1	Indra Nagar SPS	179	27	35	1	ANS V AC 1 st VoG .1133. DX M. .35N .415 NJ.
		328.1	27	55	1	ANS V AC 1 st VoG .1542. D. M. .55N .415 NJ.
		492.2	27	80	1	ANS V AC 1 st VoG .1242. DQ M. .80N .415 NJ.
2	Nehru Nagar SPS	38.2	28	12	1	ANS V AC 1 st VoG .0523. VJ H. .12N .415 NJ.
		70	28	20	1	ANS V AC 1 st VoG .0633. D. M. .20N .415 NJ.
		105	28	22	1	ANS V AC 1 st VoG .0833. D. M. .22N .415 NJ.
3	Garam Gadda SPS	99.6	30	35	1	ANS V AC 1 st VoG .0842. D. M. .35N .415 NJ.
		182.6	30	35	1	ANS V AC 1 st VoG .1042. DX M. .35N .415 NJ.
		273.9	30	55	1	ANS V AC 1 st VoG .1242. D. M. .55N .415 NJ.
4	Behtha SPS	102.3	30	35	1	ANS V AC 1 st VoG .0842. D. M. .35N .415 NJ.
		187.5	30	35	1	ANS V AC 1 st VoG .1042. DX M. .35N .415 NJ.
		281.3	30	55	1	ANS V AC 1 st VoG .1242. D. M. .55N .415 NJ.
5	1250 SPS	51.1	25	15	1	ANS V AC 1 st VoG .0633. D. M. .15N .415 NJ.
		93.8	25	17	1	ANS V AC 1 st VoG .0833. D. M. .17N .415 NJ.
		140.6	25	25	1	ANS V AC 1 st VoG .1033. SX. M. .25N .415 NJ.

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SHALINI SINGH
ASSISTANT ENGINEER (SEWAGE)
MUNICIPAL CORPORATION, BHOPAL

BHOPAL MUNICIPAL CORPORATION, BHOPAL (MP)
(Sewage Section)

6	Laukhedi SPS	203	46	80	2	ANS V AC 1 st VoG .1242. D. M. .80N .415 NJ.
		406	46	120	2	ANS V AC 1 st VoG .1542. D. M. .120N .415 NJ.
		1015	46	270	1	ANS V AC 1 st VoG .2552. D. M. .270N .415 NJ.
7	Sehore Naka SPS	317	30	65	1	ANS V AC 1 st VoG .1542. D. M. .65N .415 NJ.
		634	30	120	1	ANS V AC 1 st VoG .2042. D. M. .120N .415 NJ.
		792	30	140	1	ANS V AC 1 st VoG .2042. TX. M. .85N .415 NJ.
8	Khanugaon SPS	121	30	35	1	ANS V AC 1 st VoG .0842. D. M. .35N .415 NJ.
		242	30	50	1	ANS V AC 1 st VoG .1242. D. M. .50N .415 NJ.
		302	30	60	1	ANS V AC 1 st VoG .1242. D. M. .60N .415 NJ.
9	Ahmedabad SPS	127	58	90	2	ANS V AC 1 st VoG .0852. V. M. .90N .415 NJ.
		253	58	120	2	ANS V AC 1 st VoG .1552. D. M. .120N .415 NJ.
		634	58	225	1	ANS V AC 1 st VoG .2052. D. M. .225N .415 NJ.
10	Fatehgarh SPS	111	30	35	1	ANS V AC 1 st VoG .0842. D. M. .35N .415 NJ.
		222	30	50	1	ANS V AC 1 st VoG .1242. D. M. .50N .415 NJ.
		277	30	55	1	ANS V AC 1 st VoG .1242. D. M. .55N .415 NJ.
11	Banganga SPS	192	40	50	2	ANS V AC 1 st VoG .1042. DX M. .50N .415 NJ.
		383	40	90	2	ANS V AC 1 st VoG .1542. D. M. .90N .415 NJ.
		958	40	225	1	ANS V AC 1 st VoG .2552. D. M. .225N .415 NJ.
12	Patra SPS	277	60	130	2	ANS V AC 1 st VoG .1552. D. M. .130N .415 NJ.
		554	60	235	2	ANS V AC 1 st VoG .2052. D. M. .235N .415 NJ.
		1386	60	536	1	ANS V AC 1 st VoG .2552. T. M. .536N .415 NJ.
13	Vardhman SPS	48	40	35	1	ANS V AC 1 st VoG .0842. D. M. .35N .415 NJ.
		95	40	40	1	ANS V AC 1 st VoG .0842. D. M. .40N .415 NJ.
		119	40	50	1	ANS V AC 1 st VoG .0842. D. M. .50N .415 NJ.
14	MLB SPS	49	30	17	1	ANS V AC 1 st VoG .0522. VJ. H. .17N .415 NJ.
		98	30	35	1	ANS V AC 1 st VoG .0842. D. M. .35N .415 NJ.
		122	30	35	1	ANS V AC 1 st VoG .0842. D. M. .35N .415 NJ.
15	Ginnori SPS	258	30	55	1	ANS V AC 1 st VoG .1242. D. M. .55N .415 NJ.
		516	30	100	1	ANS V AC 1 st VoG .2042. D. M. .100N .415 NJ.
		644	30	120	1	ANS V AC 1 st VoG .2042. D. M. .120N .415 NJ.
16	Manisha Market SPS	100	30	35	1	ANS V AC 1 st VoG .0842. D. M. .35N .415 NJ.
		200	30	45	1	ANS V AC 1 st VoG .1042. DX M. .45N .415 NJ.
		249	30	60	1	ANS V AC 1 st VoG .1242. D. M. .60N .415 NJ.

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SHALINI SINGH
ASSISTANT ENGINEER (SEWAGE)
MUNICIPAL CORPORATION, BHOPAL

BHOPAL MUNICIPAL CORPORATION, BHOPAL (MP)
(Sewage Section)

17	Tilak Nagar SPS	345	40	90	1	ANS V AC 1 st VoG .1542. D. M. ..90N ..415 NJ.
		689	40	150	1	ANS V AC 1 st VoG .2042. TX. M. .150N ..415 NJ.
		862	40	215	1	ANS V AC 1 st VoG .2552. D. M. .215N ..415 NJ.
18	Kotra SPS	111	60	80	2	ANS V AC 1 st VoG .0852. V. M. ..80N ..415 NJ.
		222	60	120	2	ANS V AC 1 st VoG .1552. D. M. .120N ..415 NJ.
		554	60	225	1	ANS V AC 1 st VoG .2052. D. M. ..225N ..415 NJ.
19	Shahpura SPS	269	50	100	1	ANS V AC 1 st VoG .1242. D. M. ..100N ..415 NJ.
		539	50	200	1	ANS V AC 1 st VoG .2052. D. M. ..200N ..415 NJ.
		673	50	200	1	ANS V AC 1 st VoG .2052. D. M. ..200N ..415 NJ.
20	Habibganj SPS	100	35	35	1	ANS V AC 1 st VoG .0842. D. M. ..35N ..415 NJ.
		200	35	45	1	ANS V AC 1 st VoG .1042. DX M. ..45N ..415 NJ.
		249	35	60	1	ANS V AC 1 st VoG .1242. D. M. ..60N ..415 NJ.
Total					70	

Against the original conventional (HNC & VNC) pumpsets, we have converted Sewage networks by submersible pumpsets and these AQUA make Non Clog Sewage submersible pumpsets are running satisfactorily.


SHAVINI SINGH
 ASSISTANT ENGINEER (SEWAGE)
 MUNICIPAL CORPORATION, BHOPAL

Executive Engineer
 Bhopal Municipal Corporation
 आर.के. गुप्ता
 कार्यपालक संचालक (सीवेज)
 नगर निगम, भोपाल

“Right from the beginning, Aqua's Engineers toured the existing SPS & suggested technical solution which ultimately led to the Conversion of Conventional Dry Pit pumping machineries into Submersible pumpsets.”

- S R Tidke, Reg. Mgr.

Project : Renovation of Sewage Project Bhopal.

End Client:  Bhopal Municipal Corporation, Bhopal	Consultant:  WAPCOS LTD., Bhopal	Contractor:  Ankita Construction, Ahmedabad
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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.

marketing@aquapumps.com