

Attachment 7 Business Development Toolkit: Rural Water Supply and Sanitation Sector in Selected States (Tamil Nadu, Gujarat and Delhi):

TAMIL NADU

General details

Tamil Nadu is one of the southern-most states in the south-east corner of the country with a large coastline off the Bay of Bengal towards the east and the Indian Ocean in the south. It has a population of 62 million people spread over total area of some 130,000 square kilometres divided into 31 districts.

Water Supply

Main Players: Tamil Nadu Water Supply and Drainage Board (TWAD) is the main government agency vested with the responsibility for providing Rural Water Supply (RWS) in Tamil Nadu. Urban water in Chennai is looked after solely by the Chennai Metropolitan Water Supply and Sewerage Agency or Metrowater for short. Urban water supply engineers in TWAD look after most water supply schemes in the smaller cities.

Programmes: The state receives funds for drinking water supply from three centrally-sponsored schemes:

- (1) Accelerated Rural Water Supply Programme (ARWSP)
- (2) Swajaldhara Programme
- (3) Bharat Nirman Programme

Performance: In 2003, there were 81,787 rural habitations of which only 29,067 habitations were fully covered with 40-lpcd supply and the rest were partially or not covered. During the 10th Five Year Plan period (2002 -2007), all the partially covered and the quality affected habitations were to be covered (Government of Tamil Nadu, Annual Plan, 2006-07 found at <http://www.tn.gov.in/spc/annualplan/ap2006-07/2.18.pdf>). With the high levels of groundwater use, however problems of TDS, iron, salinity and fluoride contamination are likely to re-appear.

Main problems: Sustainability of water sources, caused largely by decreasing ground water levels, and poor water quality are the two main problems in the state. The main water quality problems are physical contamination of surface water sources, and chemical contamination by fluoride, salinity, nitrates and iron (Table 5).

Table 5: Type of contamination of water sources in habitations of Tamil Nadu

	District	Chemical Contamination						Other types		Total
		Iron	Arsenic	Nitrate	Fluoride	salinity	Multiple	Physical	Bacteriological	
1	DHARMAPURI	3	0	13	97	4	114	715	0	946
2	KRISHNAGIRI	46	0	15	400	14	133	170	1	778
3	TIRUVARUR	0	0	0	0	0	0	653	0	653
4	NAGAPATTINAM	4	0	0	0	0	0	609	0	613
5	TIRUVANNAMALAI	0	0	0	0	5	0	217	0	222
6	SIVAGANGA	0	0	0	0	0	0	175	0	175
7	RAMANATHAPURAM	0	0	0	0	0	47	49	0	96

	District	Chemical Contamination						Other types		Total
		Iron	Arsenic	Nitrate	Fluoride	salinity	Multiple	Physical	Bacteriological	
8	KANNIYAKUMARI	0	0	0	0	89	0	0	1	89
9	CUDDALORE	0	0	0	0	0	1	70	0	71
10	NAMAKKAL	0	0	0	0	29	3	25	0	57
11	SALEM	0	0	0	1	2	2	51	0	56
12	PERAMBALUR	0	0	0	0	16	0	38	0	54
13	ERODE	0	0	9	3	0	10	16	0	38
14	PUDUKKOTTAI	3	0	1	0	0	0	32	0	36
15	THOOTHUKUDI	14	0	0	0	12	5	0	0	31
16	COIMBATORE	0	0	0	0	4	1	17	0	22
17	TIRUVALLUR	0	0	0	0	2	3	6	0	11
18	DINDIGUL	0	0	0	0	0	0	9	0	9
19	VELLORE	0	0	0	0	0	1	5	0	6
20	KANCHIPURAM	0	0	0	0	0	0	4	0	4
21	KARUR	0	0	1	0	0	2	0	0	3
22	TIRUCHIRAPPALLI	0	0	0	0	0	1	2	0	3
23	MADURAI	0	0	0	0	0	0	2	0	2
24	THANJAVUR	0	0	0	0	0	0	1	0	1
25	NILGIRIS	0	0	0	0	0	0	0	0	0
26	THENI	0	0	0	0	0	0	0	0	0
27	TIRUNELVELI	0	0	0	0	0	0	0	0	0
28	VILLUPURAM	0	0	0	0	0	0	0	0	0
29	VIRUDHUNAGAR	0	0	0	0	0	0	0	0	0
TOTAL		70	0	39	501	177	323	2866	2	3978

Source: Department of Drinking Water Supply, Ministry of Rural Development.

<http://ddws.gov.in/ddwsimis/RuralWaterSupply/Reports/RepQualityAffectedHabitationDistwiseasOndateAsperARWSPnorms.aspx?Stateid=029&statename=TAMIL+NADU>

Sanitation

Main Players: The government programmes of TSC and the Nirmal Gram Puraskar are by far the most major players. Next is the World Bank assisted Tamil Nadu Urban Development Project II (TNUDP II) also works in urban sanitation. Large urban NGOs working on water supply and sanitation solutions in Tamil Nadu include the following:

Water Aid (http://www.wateraid.org/india/about_us/default.asp)

EXNORA International Foundation (www.exnorainternational.org),

Consortium for Dissemination of DEWATS (CDD) (<http://www.bordasa.org/modules/cjaycontent/index.php?id=2>), where DEWATS stands for the Decentralized Wastewater Disposal System, and CDD is a 12-organization network set up to promote DEWATS.

Programmes: The TSC is being implemented throughout the state. Using state and central government funds, the Tamil Nadu Urban Sewerage Master Action Plan is being implemented in phases, with the objective of providing underground sewerage schemes to 5 City Municipal Corporations, 102 Municipalities and 367 Urban Town Panchayats at a cost of Rs. 4,500 crores. In addition, the World Bank supported Tamil Nadu Urban Development Project II has been implementing the Integrated Sanitation Programme to benefit those living below the poverty line in 5 City Corporations (except Chennai), 102 Municipalities and 611 erstwhile Town Panchayats. This Programme provides a package of public sanitation services for the urban poor. The programme provides for construction of community toilets, including bathing and washing areas

separately, both for men and women with additional facilities like water supply, lighting, garbage collection and sewerage. The special feature of these complexes is that the participation of the user groups is ensured from the beginning of the programme and the sanitary complexes are operated and maintained by such groups. For ensuring sustainability in the operation and maintenance of the sanitary complexes even after the tenure of the TNUDP II, the user groups are being trained by regional NGOs.

Apart from this, detailed project reports for providing Underground Sewerage Schemes to the 14 district headquarter towns namely Kancheepuram, Villupuram, Thiruvallur, Coimbatore, Namakkal, Udthagamandalam, Pudukottai, Perambalur, Nagapattinam, Virudhunagar, Thoothukudi, Ramanathapuram, Sivagangai, and Theni have been prepared by Tamilnadu Urban Infrastructure Financial Services Limited (TNUIFSL). EXNORA International is an NGO working in urban Chennai to provide sanitation services to the city, although it is not specifically aimed at the poorer urban residents (for more details see Water and Sanitation as a Business: Best Practices from India).

Links to more information

The following links to web-pages provides more information on water supply and sanitation issues in Tamil Nadu.

http://india.gov.in/nowindia/st_tamilnadu.php

<http://india.gov.in/nowindia/districts/andhra1.php?stateid=TN>

<http://nird.ap.nic.in/clic/arwsp.html>)

<http://indiabudget.nic.in/es2007-08/chapt2008/chap107.pdf>)

<http://ddws.nic.in/swajaldhara.htm>

http://ddws.nic.in/popups/swajal_pop.htm

<http://www.tn.gov.in/policynotes/archives/policy2004-05/maws2004-05-12.htm>

<http://planningcommission.nic.in/plans/annualplan/ap2021pdf/ap2021ch5-2.pdf>)

<http://www.tn.gov.in/policynotes/archives/policy2004-05/maws2004-05-12.htm>)

<http://www.nabard.org/introduction.asp>)

<http://www.tn.gov.in/policynotes/archives/policy2004-05/maws2004-05-12.htm>)

http://www.tn.gov.in/policynotes/archives/policy2005-06/municipal_administration-10to11.htm)

GUJARAT

General

Gujarat is in the west of the country and has a coastline off the Arabian Sea. It has 25 administrative districts and houses a population of 50 million people living in 18,618 villages and 242 towns.

Water Supply

Main Players: The implementation and operation of water supply projects in Gujarat are handled by the Gujarat Water Supply and Sewerage Board (GWSSB), Gujarat State Drinking Water Infrastructure Company, Sardar Sarovar Narmada Nigam Limited and Department of Narmada Water Resources and Water Supplies.¹ An innovative institution is the Water Supply Management Organisation (WASMO www.wasmo.org) which seeks to implement community-based water supply systems in collaboration with major NGOs in the state. The major NGOs working in Gujarat are the following:

Utthan (www.utthangujarat.org)

Self Employed Women's Association or SEWA (www.sewa.org)

Aga Khan Rural Support Programme (India) or AKRSP(I) (www.akrsp.org)

World Vision (www.worldvision.in)

In addition, PRAVAH is a unique drinking water supply and sanitation network of NGOs in this state.

Programmes: The state receives funds from several centrally-sponsored schemes:

- (1) Accelerated Rural Water Supply Programme (ARWSP);
- (2) Swajaldhara Programme, under which Rs. 695 million was spent in 2007-08;
- (3) Bharat Nirman Programme and
- (4) Accelerated Urban Water Supply Programme (AUWSP) of the Ministry of Urban Development, under which Rs. 930 million is being spent on water supply infrastructure in 70 small towns;
- (6) Minimum Needs Programme, to construct drinking water sources and other rural water infrastructure; and
- (7) Tribal Sub-Plan, since it has a significant tribal population.

Main Problems: Drinking water shortage is in almost all districts to different degrees (particularly in summer), while sharply dropping groundwater levels are reported from Patan, Banaskantha and Mehsana districts of Gujarat. There are four main types of water quality problems. First is the chemical contamination of groundwater by industrial effluents in the highly polluting industrial belt of Vadodara district. Second, there are naturally occurring fluorides and other salts in the sub-soil rock strata, and due to the excessive pumping out of groundwater for agricultural production, the concentration of these salts increase in the groundwater. Third, agricultural chemicals from irrigated farming cause nitrates to pollute groundwater. Fourth, in several coastal districts, excessive pumping of groundwater causes sea water to come into groundwater aquifers and turn them saline and unfit for human consumption. The districts with different water quality problems are detailed in Table 6.

¹ See Report No. 2000ER61 on the "Regulatory Framework for Water Services in Gujarat", The Energy Research Institute, New Delhi.

Table 6: Types of water quality problems in districts of Gujarat

	District	Chemical Contamination						Other types		Total
		Iron	Arsenic	Nitrate	Fluoride	salinity	Multiple	Physical	Bacteriological	
1	VADODARA	0	0	86	395	104	5	5	0	595
2	SABAR KANTHA	0	0	139	364	38	11	1	1	553
3	PANCH MAHALS	0	0	45	301	38	8	0	0	392
4	BANAS KANTHA	0	0	28	295	34	0	0	0	357
5	DOHAD	0	0	23	263	23	0	0	0	309
6	KHEDA	0	0	49	133	83	12	1	0	278
7	JUNAGADH	0	0	91	37	53	7	0	0	188
8	GANDHINAGAR	0	0	31	124	7	2	1	0	165
9	SURENDRANAGAR	0	0	13	82	34	14	9	24	152
10	JAMNAGAR	0	0	5	30	112	3	1	6	151
11	AHMADABAD	0	0	2	82	60	4	2	0	150
12	RAJKOT	0	0	59	40	43	5	1	0	148
13	ANAND	0	0	39	66	38	3	0	0	146
14	PATAN	0	0	0	89	25	3	0	0	117
15	VALSAD	1	0	3	1	79	0	7	2	91
16	AMRELI	0	0	12	19	58	0	0	1	89
17	BHAVNAGAR	0	0	11	25	35	1	5	0	77
18	BHARUCH	0	1	15	9	43	0	0	0	68
19	NARMADA	0	0	23	37	6	2	0	0	68
20	MAHESANA	0	0	2	37	16	4	5	0	64
21	NAVSARI	0	0	1	15	41	0	0	0	57
22	KACHCHH	0	0	0	15	17	6	8	7	46
23	PORBANDAR	0	0	6	14	9	9	0	0	38
24	SURAT	0	0	5	0	1	13	0	0	19
25	DANG	0	0	0	0	0	0	0	0	0
	TOTAL	1	1	688	2473	997	112	46	41	4318

Source: Department of Drinking Water Supply, Ministry of Rural Development.

<http://ddws.gov.in/ddwsimis/RuralWaterSupply/Reports/RepQualityAffectedHabitationDistwiseasOndateAsperARWSPnorms.aspx?Stateid=011&statename=GUJARAT>

Sanitation

Overview: Rural sanitation coverage was only 21% during the 2001 National Census, and it is acknowledged to be extremely low for such an industrialized state. As in most of rural India, open defecation is the norm in most rural communities in Gujarat and toilets are seen as something only more wealthy people can afford. UNICEF has been an active partner of the Government of Gujarat and continues to provide technical support for development of communication strategy, material and tools for capacity building. According to UNICEF, limited reach of government agencies within rural communities, an unreliable system to deliver sanitation services in rural areas and a lack of awareness and commitment among rural communities are some of the major constraining factors in increasing coverage of sanitation at the household level (http://www.unicef.org/india/wes_1208.htm). However, in places where water is scarce, it is difficult to convince rural communities to use toilets that are not only difficult to construct and maintain, but use more water than the traditional open defecation practice. Therefore, rural sanitation faces an uphill challenge in the state, as in the rest of the country.

Main Players: The government is the only major player. Although small NGOs and networks like PRAVAH also play a role, their main focus is on water supply, not sanitation.

Programmes: The Government of Gujarat has committed to provide 100% access to sanitation facilities in the state by 2015, through the TSC. The TSC is being implemented in all the 25 districts in Gujarat with a provision of Rs. 607 million for the year 2007-08. A new programme called Nirmal Gujarat is being implemented by the Government of Gujarat from 2007-08, with district-specific allocations from TSC funds for the state (<http://www.ruraldev.gujarat.gov.in/pdfs/GrantOrder0708/TSC-1.pdf>). One of the key strategies followed by the TSC programme is to generate demand through innovative activities and building capacity of key functionaries for community action.

Links to more information

The following links to web-pages provides more information on water supply and sanitation issues in Gujarat.

<http://www.wasmo.org/eng/swajaldhara-allocationfunds-new.shtm>

<http://www.gwssb.org>

http://www.rainwaterharvesting.org/Conflicts/Go_thirsty.htm

<http://www.carewater.org/Gujarat%20GW%20Quality.pdf>

DELHI

General

The city of Delhi is the capital of the country and the 13.8 million population of the National Capital Region (NCR) of Delhi which is spread across the city of Delhi and towns and villages around Delhi. Although Delhi is a large urban centre, the NCR of Delhi includes 59 small towns and 165 villages.

Water Supply

Main Players: The Delhi Jal Board (DJB) is responsible for production of drinking water in Delhi and DJB is responsible for distribution of water in the areas under the control of the Municipal Corporation of Delhi (MCD) which was created to cater for the rural parts of Delhi. DJB supplies water in bulk to New Delhi Municipal Council (NDMC), which primarily has New Delhi as its area of operation and Delhi Cantonment Board (DCB) for further distribution in their respective area.²

Municipal Corporation of Delhi: The Municipal Corporation of Delhi (MCD) is among the largest municipal bodies in the world providing civic services to more than estimated population of 13.8 million citizens in the capital city. The MCD operates in 12 zones of Delhi, except the central area of 'New Delhi'. The Delhi Jal Board is responsible for providing water in the entire MCD area, which also includes urban slums.

New Delhi Municipal Council: The New Delhi Municipal Council (NDMC) is responsible for water supply distribution in its area of operation, which geographically lies in the central part of the National Capital Region of Delhi.

Delhi Cantonment Board: The Cantonment Board Delhi (DCB) is a local municipal body under the Ministry of Defence, which supplies water to the Army and Air Force establishments in Delhi.

Main Problems: The main issues concern depletion of groundwater, high chloride and fluoride levels, and high electrical conductivity. The problem is naturally much worse in the slums.

Problem	Affected Districts
Depletion of ground water	South District, Najafgarh and Mehrauli Blocks
High chloride content	Najafgarh Sub-division
High electrical conductivity values	Mehrauli Block
High level of fluoride	Mehrauli Block

Sanitation

Overview: Sanitation is a major issue in the poorer parts of Delhi, comprising low income and middle class colonies, the urban slums and the villages that are part of the National Capital Region of Delhi. Most urban colonies are covered by a sewerage network, maintained by the MCD or NDMC. These are badly maintained, largely because of the low sewerage charges collected by these agencies, inefficiency in operations due to over-staffing and lack of modernization, and insufficient funds for operation and maintenance. Most slums and villages around Delhi do not have sewerage connections and open defecation is the norm. Also, they

² See WaterAid India *Profiling "Informal City" of Delhi*, 2005.

often do not have piped water connections and their local sources of water are contaminated by human and animal excreta, open and untreated sewage and chemical effluents from local factories as well as unregistered and illegal industries.

Main Players: The Delhi Jal Board is responsible for treatment and disposal of waste water through a 5600 kilometre network of internal, peripheral and trunk sewers. Major NGOs working on water & sanitation in Delhi are the following:

Sulabh International (<http://www.sulabhinternational.org/>)

Swechha (<http://www.swfc.org.in/>)

Centre for Science and Environment (<http://www.cseindia.org/>)

Water Aid (http://www.wateraid.org/india/about_us/default.asp)

Programmes: Most of Delhi's drains open into the river Yamuna and is largely responsible for the pollution of this river. The Yamuna Action Plan is being carried out by Delhi Jal Board (DJB) and Municipal Corporation of Delhi (MCD) in Delhi under the coordination of National River Conservation Directorate (NRCD) of the Ministry of Environment and Forests. Funds are from the Government of India, with some support from the Japan Bank for International Cooperation (JBIC).

Links to more information

The following links to web-pages provides more information on water supply and sanitation issues in Delhi.

<http://sec.delhigovt.nic.in/home/rprtge1997-02.asp>

http://www.india.gov.in/knowindia/ut_delhi.php