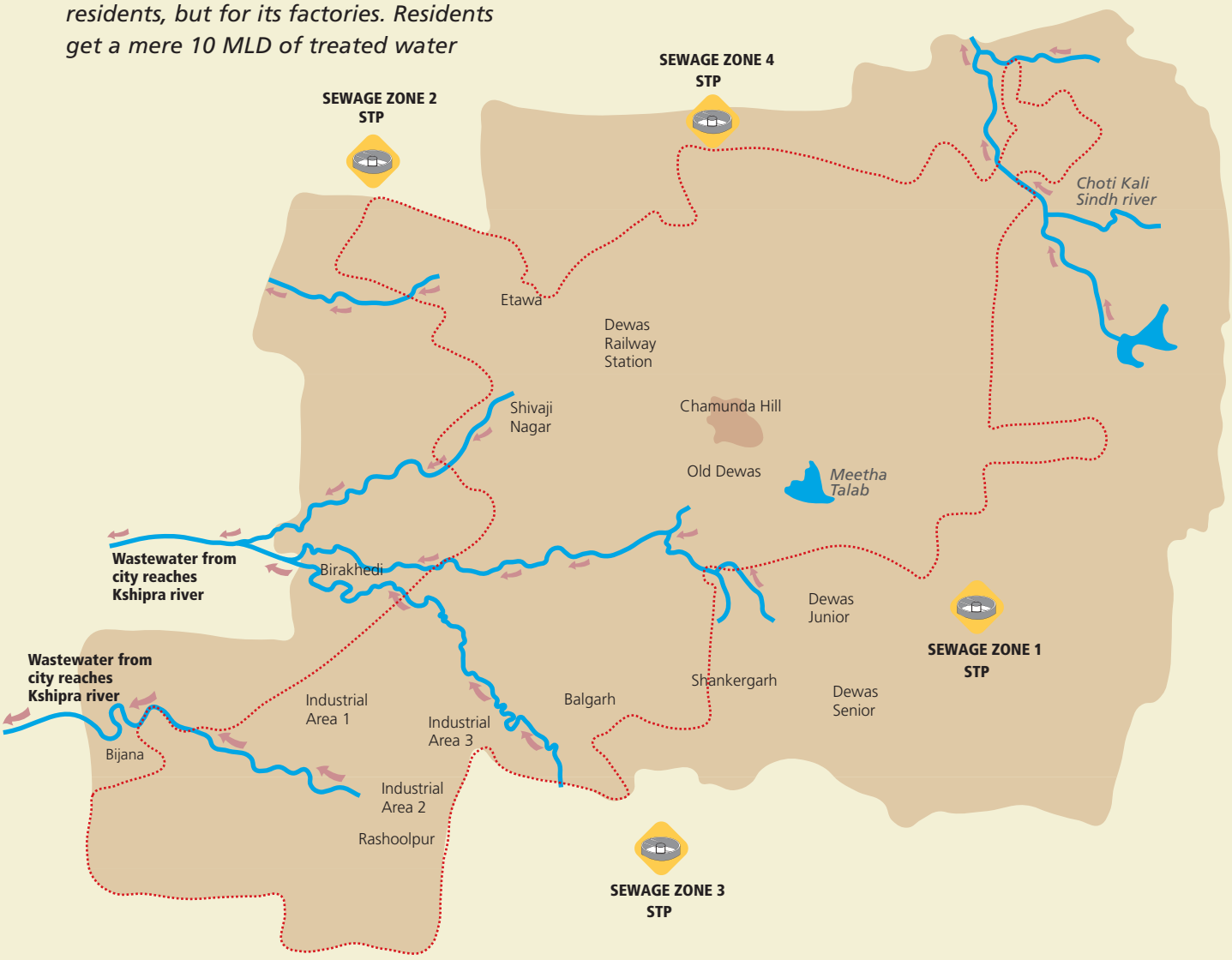
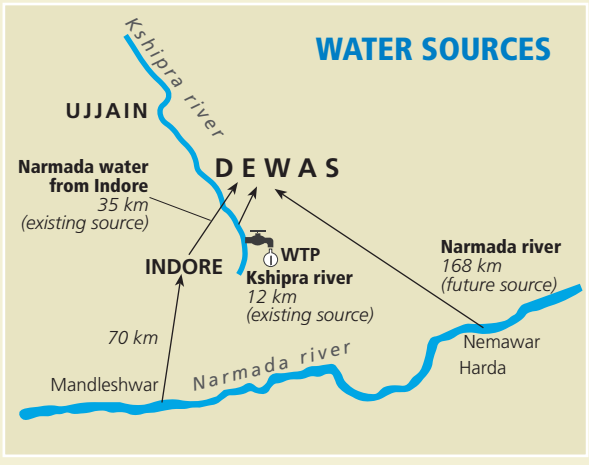
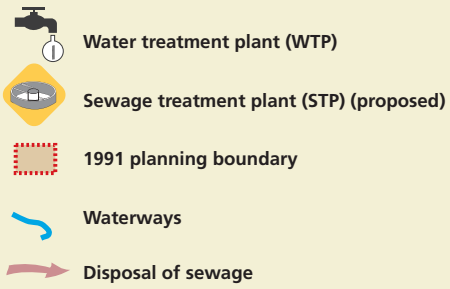
DEWAS

# THE WATER-WASTE PORTRAIT

*Dewas plans to ferry water from the Narmada – 168 km away – not for its residents, but for its factories. Residents get a mere 10 MLD of treated water*




**Source:** Anon 2011, *71-City Water-Excreta Survey, 2005-06*, Centre for Science and Environment, New Delhi

MADHYA PRADESH

# Dewas

Dewas, a former seat of two princely states, is the administrative centre of Dewas district, lying north-east of Indore at the foot of the Chamunda Hill. The Chambal and Chhoti Kali Sindh rivers flow north from the Vindhya ranges and through the district on their way to the Ganga.

Its proximity to Indore has rubbed off on Dewas: it is today a bustling industrial town, home to prominent industrial houses such as Ranbaxy and the Tatas. The population growth is higher than the state average and demand for water is increasing every day. But the city has no viable plans to bring more water to its residents – all it has are proposals to ferry Narmada waters across a distance of 168 km to serve the needs of its industries.

## WATER

### DEMAND-SUPPLY, SOURCES AND TREATMENT

With official demand at over 18 million litre daily (MLD) and supply ranging at around 14-15 MLD, the town of Dewas suffers from an almost 17 per cent gap between what it needs and what it gets. The supply, in fact, reduces to 12 MLD because of leakage losses. But demand estimations are skewed. Based on the national average supply norm of 150 litre per capita daily (LPCD), the demand of Dewas should be much higher – about 38 MLD – than what is projected by the municipal authorities.[1]

In the past, Dewas depended on its stepwells and the Kshipra river for its water. The Kshipra remains a key surface source; the Narmada river has joined it today (see Table: *Sources of water*), with its water piped from as far away as Indore (70 km). These two sources together make up 70 per cent of the total supply in the city. Unmet demand is fulfilled by groundwater, which is extracted through some 370 borewells and 55 open wells; in 2005-06, only 230 borewells and three open wells were operational.[2]

Many of the wells have gone dry due to the rapid decline in

TABLE: **SOURCES OF WATER**
*As the town's thirst grows, the Narmada has now joined its ranks of sources*

| Source | Distance | Water supply (in MLD) |
|---|---|---|
| Narmada water from Indore | 70 km | 5 |
| Existing barrage on the Kshipra | 12 km | 5 |
| Raja Nal and deep tubewells | Within the city | 4.5 |

**Source:** Based on data received from Dewas Municipal Corporation, 2005-06

| THE CITY | |
|---|---|
| Municipal area | 100 sq km |
| Total area | NA |
| Population (2005) | 0.3 million |
| Population (2011), as projected in 2005-06 | 0.3 million |
| **THE WATER** | |
| **Demand** | |
| Total water demand as per city agency | 18 MLD |
| Per capita water demand as per city agency | 70 LPCD |
| Total water demand as per CPHEEO @ 150 LPCD | 38 MLD |
| **Sources and supply** | |
| Water sources | Kshipra and Narmada, groundwater |
| Water sourced from surface sources | 69% |
| Water sourced from ground sources | 31% |
| Total water supplied | 15 MLD |
| Per capita supply | 58 LPCD |
| Leakage loss | 20% |
| Actual supply (after deducting leakage losses) | 12 MLD |
| Per capita supply (after deducting leakage losses) | 46 LPCD |
| Population served by water supply system | NA |
| Per capita supply in the served area | NA |
| Demand-supply gap (after leakage losses) | 6 MLD |
| **Treatment** | |
| Number of WTPs | 2 |
| Total treatment capacity | 10 MLD |
| Actual treatment | 10 MLD |
| **Future demand and supply** | |
| Demand (2011), as projected in 2005-06 | 21 MLD |
| Augmentation needed to meet 2011 water demand | 7 MLD |
| Required increase in supply | 47% |
| **THE SEWAGE** | |
| **Generation** | |
| Sewage generated as per CPCB | 29 MLD |
| Sewage generated as per city agency | 16 MLD |
| **Collection and treatment** | 15% of the city covered by sewerage; no STP |
| **Disposal** | Chhoti Kali Sindh river, and into the Kshipra |

**Source:** Anon 2011, *71-City Water-Excreta Survey, 2005-06*, Centre for Science and Environment, New Delhi

RAVINDER SINGH / CSE

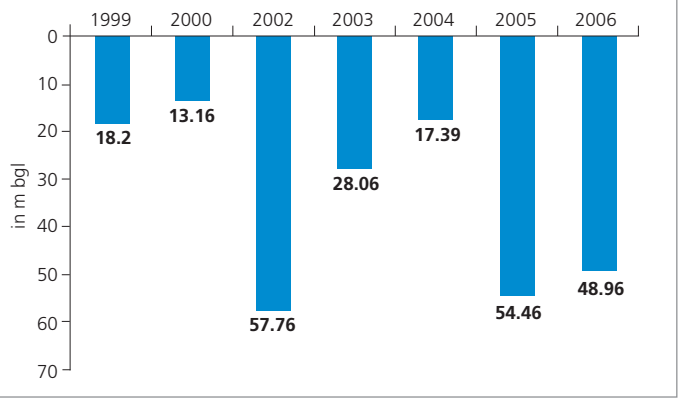
***A derelict stepwell in Dewas: in the past, the town depended on these stepwells, besides the Kshipra river, for its water***

the water table (see Graph: *Groundwater lows*). The black cotton soil in the district, overlaying the Deccan basalt, hinders the natural recharge process. Borewells drilled even to a depth of 150 metre (m) provide only moderate yields of 1-5 litre per second. With the groundwater utilisation rate going up by as much as 158 per cent, the town's reserves are over-exploited.[3]

The town's population gets a mere 10 MLD of treated water.

## GRAPH: GROUNDWATER LOWS

*As per the CGWB, water level in Dewas in 1999 was 18.2 metre (m) below ground level (m bgl). In 2006, the level dipped to 48.96 m bgl. Hence, in seven years, the water level had declined by 30.76 m at the rate of 4.39 m per year*




**Source:** National Data Centre, Central Ground Water Board (CGWB), Faridabad

This water is supplied through 12,472 connections – none of which are metered.[4] The municipality also supplies water to the community through 255 handpumps. How much water actually reaches the unconnected population who depend on these handpumps is anyone's guess, as nearly 40 per cent of the pumps lie non-functional. Another 2.25 MLD of water is supplied through tankers in areas which do not have a pipeline network.[5]

With the town's population slated to reach 0.305 million by 2011 (as per estimates done in 2005-06), Dewas would be needing over 21 MLD of water in the future. The town, thus, would have to augment its resources by about 47 per cent – twice the existing supply. To meet this hike, the Dewas municipality has been planning to build a new barrage on the Kshipra and get an additional 25 MLD.[6]

## THE ECONOMICS

In 1997-98, the Dewas municipality supplied 9 MLD of water at a cost of Rs 1.5 crore and earned Rs 0.46 crore; thus, its loss amounted to Rs 1.04 crore and the recovery was only 31 per cent of the expenses incurred. The production cost per kl stood at Rs 4.6, while revenue was Rs 1.4 for every kl sold. In the absence of metered connections, the revenue was generated from water tax and water connection charges. Every month, the municipality charged Rs 50 and Rs 100 for domestic and non-domestic connections, respectively.[7]

Out of the total expense, 46 per cent went towards payment of salaries. At that point of time, Dewas had an unprecedented 400

## ALL FOR INDUSTRY

***Dewas wants to get water for only its factories – and all the way from the Narmada. But the project has run into trouble***

The industrial complexes in Dewas depend on groundwater to fulfill their water requirements. The town is now planning to provide them with surface water to meet the increasing demand – the result has been India's first water supply project on a build-operate-transfer (BOT) basis.[1]

The Dewas Industrial Water Supply Project, as it is called, proposes drawing water from the Narmada river near Nemawar village, 168 km away, at an initially estimated cost of Rs 80 crore. However, the final cost outlay is expected to be much more.[2] The water will be carried through 600 mm pipelines to Nagda Hills from where it would be supplied to the industrial areas in Dewas.[3] The investor company is to construct an intake well near Nemawar, and set up the necessary infrastructure for bringing 23 million litre daily (MLD) to the treatment plant. The company will also lay the pipelines for sending the treated water to a mass balancing reservoir (MBR) and then on to the industrial area of Dewas. For this, two pump houses for pumping treated water and a 5-million litre MBR has been planned on Nagda Hills.[4]

Of the 23 MLD, industries will get 12 MLD; the rest of the water has been marked for neighbouring villages, free of cost. MSK Projects (India) Ltd, the Vadodara-based private firm which was selected for executing the project, will bear the entire cost. It was fixed that the firm would charge Rs 26.50 per kl from industrial consumers.[5] The 41 industrial units of the area came to an agreement with the company for buying a minimum 12 MLD of water. It was decided that the company will continue to supply water to the industries during the concession period of 30 years, after which the project would come under the jurisdiction of the state government.[6] According to the financial daily *Business Standard,* almost 144 agreements for water supply were executed between MSK and the Dewas industries for supply of 10.47 MLD against the total installed capacity of 23 MLD.[7]

The project was inaugurated in 2006, and was scheduled to be completed in 18 months. It remains incomplete.[8] *Business Standard* reported in May 2010 that the Madhya Pradesh government had 'admitted' that the project was 'faulty' and that the company was "unable to supply the required quantity to industrial areas".[9]

The Madhya Pradesh State Industrial Development Corporation managing director Praveen Garg said, "We have found that there were mistakes and technical problems in the project. They have not used glass reinforced vinylester pipes but used pipes with poor strength instead. As a result, the water pressure either bursts the pipes or causes leakage."[10]

MSK has denied the accusations and has said that the project was operational and supplying sufficient water to the industrial areas, but that the industries were not lifting the water. It also said that a few locals had damaged the pipelines. Garg corroborated this. "We have reports that locals damage the pipeline in some areas through which it passes but that is a trivial issue," Garg said. According to reports, on an average, the company had supplied around 3 MLD of water to the industrial area from October 2009 to March 2010.[11]

"We are paying Rs 26.50 per kl for water supply, but we have not been supplied sufficient water since the commencement of the project. Fortunately, we have our own water sources which are working, otherwise there would have been severe water crisis for the Dewas industries. Our requirement is 12 MLD; they supply hardly 3-4 MLD to industries and 4-5 MLD to the town as there is no alternative arrangement of water here," honorary secretary of Dewas Industries' Association Ashok Khandelia told *Business Standard*.[12]

Dewas has some big industries such as Ranbaxy, Tata International, EID Parry, S Kumars, Tata Holset and a number of soya industries which require large quantities of water.

employees to manage its water – over 32 staff to look after every 1,000 connections.

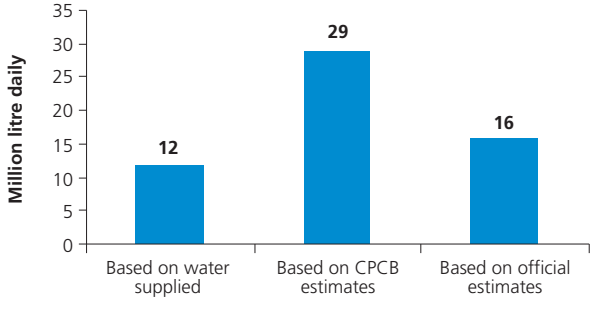
By 2005-06, the scenario had not changed much. Supply of 14.5 MLD earned the municipality Rs 1.2 crore, while expenses amounted to Rs 3 crore: there was, thus, a revenue loss of Rs 1.8 crore. Recovery had improved to 40 per cent. The expense per kilolitre was about Rs 5.67, against which only Rs 2.27 was earned. Charges for domestic water supply remained the same (Rs 50 per month), while non-domestic water supply charges had been hiked to Rs 150 per month for a half-inch pipe connection.[8]

# SEWAGE

Sewage generation estimations for the town vary widely (see Table: *The sewage*). Dewas also lacks a proper sewage collection and treatment facility. Only 15 per cent of the town has effective sewers – 6 per cent of which are closed drains. There are no sewage treatment plants (STPs) in Dewas; the town disposes off its sewage into the Chhoti Kali Sindh river.[9]

GRAPH: **VARYING ESTIMATES OF GENERATION**

*Nobody is sure how much sewage Dewas produces*




**Source:** Based on data received from Dewas Municipal Corporation, 2005-06

The municipal corporaton charges for sewerage is Rs 60 per year. In 2004-05, the city spent about Rs 0.15 crore in maintaining the sewer lines. For the future, Dewas has planned to build four STPs with a total capacity of 80 MLD.[10]