Chapter 10

Urban Water

10.1. Introduction

Uttar Pradesh is the land of Gangetic plains and Himalayan foothills and is endowed with vast fertile soil, abundant surface and groundwater resources as well as forests. The state has an estimated 85 billion cubic meters (bcm) of replenishable groundwater resources and 3500 bcm of in-storage groundwater resources, which are one-quarter and one-third of the total resources available in India respectively (Ministry of Water Resources, 1999). There is also adequate precipitation during monsoon. Yet, the provision of water services in urban Uttar Pradesh has been grossly inadequate, with severe water scarcity in many towns, particularly during the summer months. The provision of wastewater services is even worse. The aim of this chapter is to provide a development perspective for the urban water sector in Uttar Pradesh Section 10.2 provides a brief overview of the sector. This is followed by an analysis of the current trends that are influencing water services in urban Uttar Pradesh (Section 10.3). In Section 10.4 the performance of the sector is analysed. Section 10.5 identifies the major challenges facing the sector and Section 10.6 recommends measures to overcome these challenges.

10.2. Broad Overview[1]

The institutional and financing arrangements of the Urban Water Supply Schemes (UWSS) sector are briefly described below:

10.2.1. Institutional Arrangement

The sector is entirely owned and operated by the government. The state government and the urban local bodies share the responsibility for the sector. The GoUP is responsible for policymaking, regulation and part of operations. The main agency for both urban and rural water supply is Uttar Pradesh Jal Nigam (UPJN), which is constituted as an autonomous corporation, but works under the control of the state government. A Board comprising Chairman and 10 other members, who are nominated by the state government, governs it. The UPJN is responsible for planning, designing and construction of schemes relating to water supply and sewerage in the entire state and operation and maintenance of piped drinking water schemes in all rural areas (except Bundelkhand and hills). It undertakes construction work through private contractors; its role in construction is confined to management and supervision.

The operation and maintenance of water services in entire Bundelkhand and hills and in only urban areas in the rest of the state are the responsibility of the concerned local bodies and Jal Sansthans.[2] Their responsibility includes billing and collection from water users as well. In towns and cities, where Jal Sansthans do not exist, there are no separate, autonomous entities for operation and maintenance activities.

10.2.2. Financing

The water supply in urban areas from both surface and underground sources is done mainly through

1. Based on discussions with officials of Government of Uttar Pradesh.

2. There are currently seven autonomous bodies, under administrative control of state government, called Jal Sansthans, which are responsible for operations and maintenance of UWSS schemes. These Jal Sansthans are located at five cities-Kanpur, Agra, Varanasi, Allahabad, Lucknow, and one region-Bundelkhand (Jhansi and Chitrakut). Jal Sansthans at Garhwal and Kumaon, which were earlier in Uttar Pradesh now come under Uttaranchal. Since February 2001, following the recommendation of the first State Finance Commission, there is a move to merge Jal Sansthans with their respective ULBs.

schemes implemented by the UPJN.[3] At present, there are two urban water supply schemes operating in Uttar Pradesh: Normal Programme and Accelerated Urban Water Supply Programme (AUWSP). Normal Programme is a state-financed programme and focusses mainly on medium and large size towns. In contrast, AUWSP is a centrally sponsored scheme and aims at raising service level in small towns to the norm. Under the programme, the central government and the state government bear the cost on a 50:50 basis.

Capital costs are financed mainly by GoUP's transfers, which are given directly to UPJN.[4] UPJN uses these resources to undertake construction work through private contractors. Its main source of income is the 12.5 percentage—on total construction cost—it receives as fees for management and supervision of construction. UPJN is responsible for its own establishment costs.

O&M costs are only partially met by water revenue and the balance by the general pool of municipal resources. Jal Sansthans, where they exist, maintain separate accounts; they receive water and waste water tax and user charges for provision of water and disposal of waste water as their revenue and incur all expenditure relating to establishment and maintenance.[5] In other towns and cities, no separate accounts are maintained for expenditure on account of operation and maintenance of the water sector.

The household sector is the dominant user of water supply in urban areas, typically accounting for about 90 per cent of water consumption. Only a small share of the household sector, however, has water meters, although industrial and commercial entities are generally covered by metered connections. It is only in large cities, that there is a moderate degree of metered connections in the household sector, which allow user charges to be levied based on consumption of water. However, several domestic meter connections are defective or do not work. In 2001, out of 86000 connections in Allahabad, only 1500 were metered, of which 450 were not working (Allahabad Municipal Corporation). Since most people do not have proper metering, they are required to pay minimum water charge (which is really water tax and is linked to annual rental value (ARV) of properties). In small towns, water metering is either non-existent or very limited, and revenue is collected from ARV-linked water charges. Thus, the main source of water revenue in Uttar Pradesh is not user charge collection, but water tax, which is linked to ARV of properties. Water tariffs are set at very low levels. Their revisions are neither timely nor adequate. The lowest water tariffs are applicable in the case of domestic consumers and are in the range of Rs. 2-3 per KL.[6] Commercial and industrial establishments are typically charged 5 to 10 times the domestic water tariffs.

10.3. Two Factors Influencing Water Services

Trends in two areas—urbanisation and decentralisationhave had major influences on provision of water and waste water services in urban areas in recent decades. While the former has implications on the sources and magnitude of demand, the latter influences the institutional setting within which the service is to be provided. Before assessing the performance of the urban water and wastewater sector, it is important to analyse these trends.

10.3.1. Trends in Urbanisation

As Table 10.1 shows, Uttar Pradesh's population is predominantly rural; the share of urban population in Uttar Pradesh is lower than most of its neighbours and the national average (26%). In absolute terms, however, Uttar Pradesh's urban population (32.6 million) is the second largest in India next only to Maharashtra, and is larger than the population of several countries. The urban population is not only large, but rising rapidly too. During 1971-2001, the share of urban sector in the total population of Uttar Pradesh increased from 14 per cent to 21 per cent. The trend is likely to continue. Since per capita water demand for domestic use is higher in urban areas, growing urbanisation, *ceteris paribus* implies greater pressure on existing resources: water, infrastructure and management.[7]

3. Some supplies are also made available from storage canals of UP Irrigation Department.

4. Seven per cent of net tax revenue of the state government are transferred to ULBs (see below).

5. There is a widely prevalent practice among Jal Sansthans and ULBs to avoid payments for electricity and attempt to meet the rest of the expenditure from current revenue. The state government usually pays the electricity bills to the utility and adjusts the amount against transfers to the respective ULBs.

6. All cities provide water free of cost to the low-income population through stand posts on equity consideration.

7. The growth in demand is further boosted due to a rise in real income.

TABLE 10.1

Percentage of Urban Population to Total Population

States	*1971*	*1981*	*1991*	*2001*
Bihar	10	12	13	11
Karnataka	24	29	31	34
Madhya Pradesh	16	20	23	27
Maharashtra	31	35	39	42
Rajasthan	18	21	23	23
Tamil Nadu	30	33	34	44
Uttar Pradesh*	14	18	20	21
All India	**20**	**23**	**26**	**28**

Note: *Refers to undivided Uttar Pradesh up to 1991 and Uttar Pradesh after separation for 2001.

Source: *Census of India (Various)*.

The second trend relates to differential growth rates for urban centres of different sizes. In line with the nation-wide trend, small towns in Uttar Pradesh progressively account for a smaller fraction of population, while the share of large cities is growing. Class IV-VI towns accounted for 18.5 per cent of urban population in Uttar Pradesh in 1991 down from 23.5 per cent in 1981, while the share of Class I cities rose from 51 per cent to 55 per cent (Table 10.2). This implies that the provision of water and wastewater services is challenging particularly for large cities. Even within the category of large cities, there is a wide difference in growth rates. While Allahabad, Bareilly and Varanasi grew by 7-17 per cent during 1990s, Ghaziabad and Moradabad grew by 89 per cent and 45 per cent respectively (Table 10.3). This trend underscores the need for a demand-driven approach to service provision.

TABLE 10.2

Size Distribution

Town Class	*Percentage of Urban Population*	
	1981	*1991*
Class V & VI	10	6
Class IV	14	12
Class III	13	14
Class II	12	12
Class I	51	56
Total	**100**	**100**

Source: Government of Uttar Pradesh, 2001.

TABLE 10.3

Population Growth in Selected Towns

Urban Agglomerations	*Population (Lakhs)*		*Percentage Increase 1991-2001*
	1991	*2001*	
Agra	9.5	12.6	33
Aligarh	4.8	6.7	39
Allahabad	8.4	9.9	17
Bareilly	6.2	7.0	13
Ghaziabad	5.1	9.7	89
Gorakhpur	5.1	6.2	24
Kanpur	20.3	25.3	25
Lucknow	16.7	22.1	32
Meerut	8.5	10.7	27
Moradabad	4.4	6.4	45
Varanasi	10.3	11.0	7

Source: Government of Uttar Pradesh, 2001.

Finally, as Table 10.4 shows, most of the population growth in urban areas occurs in the existing cities and not in new towns. This implies that Uttar Pradesh's towns are getting increasingly crowded. In fact, the density of urban population in Uttar Pradesh is among the highest in the country. This creates both opportunities and challenges. While high density reduces the cost of transmission and distribution, it entails high environmental costs. Also, to the extent that growing density is associated with rising slum population, innovative solutions are necessary to provide adequate services to the poor, while generating sufficient resources for expansion.[8] The slum population in Uttar Pradesh is estimated to have risen from 5.8 million in 1991 to 7.7 million in 2001 (NIUA, 2000)).

TABLE 10.4

Contribution to Urban Growth, 1981-1991

State	*Contribution to Urban Population, 1981-1991*		
	Natural Increase	*Net Migration*	*Area Reclassification**
Uttar Pradesh	63	27	10
Bihar	86	-11	26
Haryana	62	27	11
Madhya Pradesh	57	14	29
Rajasthan	65	26	9
All India	60	23	17

Note: *Area reclassification has two components: new towns and change in jurisdiction.

Source: Government of Uttar Pradesh, 2000.

8. The urban slum population in UP is believed to be rising rapidly; although there is no consistent data series to substantiate it.

10.3.2. Decentralisation

The 74th Constitutional Amendment Act (CAA74) was passed in 1992. The Act accorded constitutional status to urban local bodies (ULBs) and aimed at empowering the ULBs to function as autonomous, self-sustained city governments. The Twelfth Schedule of the CAA74 entrusts local bodies with certain functions and responsibilities, which included water supply for domestic, industrial and commercial purposes, public health, sanitation, conservancy and solid waste management. Following the amendment, water supply and sewerage, which were discretionary functions of all ULBs, were turned into obligatory functions from March 1996. To bring the existing legislation in conformity with the 74th Amendment, the Uttar Pradesh Local Self Government Laws (Amendment) Act, 1994 was passed by the Uttar Pradesh government, which came into force in May 1994. GoUP has since taken a number of important initiatives toward the implementation of the CAA74 (Box 10.1).

BOX 10.1

Initiatives Following 74th Constitutional Amendment

- **Administrative Streamlining:** Urban Local Bodies, which were previously organised into eight categories, are now streamlined into three. The urban population of Uttar Pradesh is spread over 623 ULBs (11 Municipal Corporations, 194 Municipal Boards and 418 Town *Panchayats*).
- **Political Autonomy:** The powers of the state government to dissolve the elected boards of local bodies have been curtailed. The GoUP can dissolve an elected local body, only if it is satisfied that the local body has persistently failed to perform its duties or abused its powers. Further, a reasonable opportunity has to be given to the local body to defend itself. Also, in case of dissolution, elections will have to be held within six months.
- **Ward Committee:** In all municipal corporation and large municipalities (with population of more than three lakh), a ward committee is to be formed.
- **Financial Autonomy:** To boost financial autonomy of ULBs, greater financial powers have been given to the Mayor/President of the local bodies.
- **District Planning Committee (DPC):** A DPC is to be set up in each district. The Committee will be responsible for preparing draft development plans for each district keeping in view matters of common interest of municipal bodies, including sharing of water and other natural resources. The committee will be responsible for integrated development of infrastructure facilities.
- **State Finance Commission (SFC):** Uttar Pradesh constituted its first SFC to study and recommend, *inter alia*, the distribution of taxes, tolls and fees levied by the state between state and local bodies and between local bodies of their respective shares. The major recommendations of the first SFC that have been effective since April 1997 include: (a) devolution of 7 per cent of net proceeds of total tax revenue of state government to ULBs (3.12% each for municipal corporations and municipalities and 0.76% for town *panchayats*), and (b) distribution within each category on the basis of a criterion that gives 80 per cent weight to population and 20 per cent to area.

Source: Government of Uttar Pradesh, 2001.

In Uttar Pradesh, although the responsibility for provision of water and wastewater services had been entrusted to the urban local bodies even prior to the 74th amendment, the state government has continued to play a major role in the provision of these services even now, mainly because ULBs lack the institutional capability. The measures taken by the GoUP in line with the 74th Amendment have not adequately addressed this issue, although they have lent greater stability to local self-government, strengthened democratic institutions at the grassroots level and established rationale system for resource transfer, which are critical factors for democratic decentralisation.[9]

10.4. Performance of the Sector

10.4.1. Water Supply

Table 10.5 gives the progress in coverage of water supply since 1990. At present, all the towns in Uttar Pradesh are covered by piped water supply. Further, according to official statistics, the entire urban population in Uttar Pradesh has access to water supply through either house service connection or public stand posts (Table 10.6). The access figures, however, may have been overstated because the assumption regarding coverage per stand post, used in the estimation of coverage, is in reality difficult to achieve, considering the poor performance of stand posts. While over-estimation on this count occurs in every state, it is particularly high in Uttar Pradesh, where the share of urban population claimed to be covered through public stand posts is as high as 50 per cent (Table 10.6).

9. The schemes relating to the subjects included in the 12th Schedule have not yet been transferred to the ULBs. State's legislation enumerates the subjects indicated in the 12th Schedule, but does not specify the schemes to be implemented by these bodies. As a result, the funds and functionaries relating to these schemes continue to remain under the control of state government departments. ULBs typically play no role in the planning and formulation of schemes. The 11th Finance Commission recommends that transfer of function and schemes should be specifically provided by legislation.

TABLE 10.5

Coverage of Water Supply in Undivided Uttar Pradesh*

Item	*March 1990*	*March 1997*	*March 2004***
Towns Having Piped Water Supply	598	622	623
Population Covered (Lakh)	262	303	346
Water Available (mld)	1960	2433	3994

Source: *Government of Uttar Pradesh Annual Plan*, 2000-2001 and Uttar Pradesh Jal Nigam.

Note: * Uttar Pradesh had 686 ULBs before separation of Uttaranchal in November 2000. Now, it has 623 ULBs.
** Uttar Pradesh after separation

TABLE 10.6

Access to Water Supply, March 2000

State	*Percentage of Estimated Population Provided with Water Supply through*		
	HSC(%)	*PSP(%)*	*Total(%)*
Haryana	57	11	68
Madhya Pradesh	65	35	100
Punjab	61	4	65
Rajasthan	80	20	100
Uttar Pradesh (Undivided)	49	50	99
All India	57	32	89

Source: Central Public Health & Environmental Engineering Organisation, Ministry of Urban Water Supply and Sanitation, Government of India.

Note: HSC: House Service Connection; PSP: Public Stand Post;

Data indicate accessibility only. Adequacy of water supply is not as per the prescribed norms.

Access is meaningful only if the level and quality of service is adequate. Table 10.7 gives status of the service level in towns of different sizes. It is clear that the service level is way below the norms for several towns. More than one-third of towns are operating at below 50 per cent of the norms (Table 10.7). The problem is particularly acute in medium-sized towns. The important point to note is that even these estimates are overstated on account of inclusion therein of water lost in transmission and distribution and water used for non-domestic purpose. (For estimating service levels, total water supply released is taken into account and not the quantity of water received by consumers. The latter is lower than the former by an estimated 30 to 40 per cent on account of leakage and theft.)

Service level is low in terms of not only quantity of supply, but also quality of water service and water. Municipal water is generally available for not more than three to four hours a day—in many cases one to two hours a day—and with very low pressure. Low pressure and intermittent supply allow back-siphonage, resulting in cracks leading to contamination of water in the distribution network. Although data on quality of tap water for the household sector is not available, it is widely believed to be very low. (Water quality is supposed to be monitored only before water is pumped into transmission network.) The slum-dwellers, who are provided water through stand posts (mainly hand pumps), get a relatively much lower level of service than the rich. They often spend long time in queues to collect water from these sources. Further, hand pumps involve drudgery. Clearly the focus has been on meeting piped water supply targets, rather than on improving service level.

TABLE 10.7

Status of Service Level in 2002 (UP after Separation)

Service Level	*No. of Towns with Population*				
	More than 5 Lakhs	*1–5 Lakh*	*20000–1 Lakh*	*Less than 20000*	*Total*
No water supply	0	0	0	4	4
0-25% of norms	0	7	48	0	55
25-50% of norms	5	20	81	49	155
50-75% of norms	2	2	26	87	117
More than 75% of norms	1	0	6	285	292
Total	**8**	**29**	**161**	**425**	**623**

Source: Government of Uttar Pradesh, 2002.

Note: The specified service norms are 135-150 litres per person per day for urban local bodies (ULBs) with more than 5 lakh population and 70-135 litres per person per day for all other ULBs.

TABLE 10.8

Access to Sewerage and Sanitation, March 2000

State	*Percentage of Estimated Population Provided with Sewerage and Sanitation Facilities*		
	Sewer (%)	*LCS (%)*	*Total (%)*
Haryana	53	9	63
Madhya Pradesh	10	70	80
Punjab	44	17	61
Rajasthan	8	71	79
Uttar Pradesh	**37**	**N.A.**	**37***
All India	**30**	**30**	**60**

Source: Central Public Health & Environment Engineering Organisation, Ministry of Urban Water Supply and Sanitation, Government of India.

Notes: LCS: Low cost sanitation; *Sewers only, as data on LCS are not available.

In comparison to water supply, the sewerage system has been traditionally accorded a low priority, as reflected in limited sewage carrying and treatment capacity. Access to sewerage is much less than access to piped water supply. Only 37 per cent of undivided UPs population have some access to sewerage as compared to 100 per cent for piped water supply (Table 10.8). At present, out of 623 towns in Uttar Pradesh after division, only 55 towns (all 11 Municipal Councils, 41 Municipal Boards and three Town *Panchayats*) have access—albeit partial—to sewerage facilities (Table 10.9). The focus is clearly on larger towns. The poor have very little access to sewerage even in towns where it is available (Box 10.2). Out of the 55 towns that have centralised sewerage, only five towns have treatment facilities.[10] The installed treatment capacities even in these towns are not enough to handle all the sewage generated. Despite such poor state of sewerage in the state, government spending on sewerage has been negligible in recent years reportedly due to resource crunch (Annual Reports of Uttar Pradesh Jal Nigam).

TABLE 10.9

Coverage of Sewerage Facility in Uttar Pradesh*

	*March ** 1990*	*March ** 1997*	*March 2004****
Towns Having Sewerage Facility	57	60	55
Population Covered (Lakh)	113	119	NA
Sewage Handled (mld)	638	642	NA

Notes: * UP had 686 ULBs before separation of Uttaranchal in November 2000. Now, it has 623 ULBs.

**UP before separation; ***UP after separation

Source: *Government of Uttar Pradesh Annual Plan, 2000-2001* and *Annual Report of UP Jal Nigam*, 2002.

BOX 10.2

Low Cost Sanitation Programme

According to the 2001 Census, one-third of the urban population in UP does not have toilets. Further, there are only a few public toilets in the state. Clearly, several people in the state still live in very unhygienic conditions. Most of these people are poor. An important reason for this is that low cost sanitation, which could potentially supplement sewerage facility, is expanding slowly.

In view of the high cost of providing centralised sewerage facility, the state government initiated a low-cost sanitation programme in 1981. Based on a UNDP design, the programme aimed at converting dry latrines to water flush latrines. Low cost sanitation came under focus in 1993 when instructions were issued to ULBs to frame low cost sanitation bye laws in line with Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition) Act. Several local bodies in UP have since framed and adopted such bylaws, which essentially makes construction of dry latrines a punishable offence.

Source: Govt. of Uttar Pradesh.

10.4.3. Consequences of Poor Service Provision

High Coping Costs

Poor quality of water and inadequate and intermittent supplies cause consumers a great deal of inconvenience and drudgery, often forcing them to incur high coping costs in terms of onsite storage, pumping and treatment. Several people turn to expensive private vendors such as tanker water suppliers. The scarcity problem is acute for those who get their supply through public stand posts (PSP). As stated earlier, they constitute half of UPs population.

Health Problems

In many towns in Uttar Pradesh, as elsewhere in India, inadequate drainage and sewerage systems result in avoidable public health problems, especially during monsoon months. According to the World Bank, 60 per cent of deaths in urban areas in 1987 were due to water-related diseases.[11] Besides, several disability adjusted life years (DALYs) are lost each year because of poor water quality and sanitation. The poor, especially those living in slum areas, are particularly vulnerable, as they have very little access to hygiene and sanitation.

Environmental Degradation

An analysis of surface water quality data (1999) collected by Central Pollution Control Board (CPCB) shows that surface water pollution in Uttar Pradesh is acute, widespread and is caused mainly by sewage (CPCB website accessed on 2/20/01). In most centres, where river water quality is monitored, the existing water class is below the desired class.[12] In 30 out of 53

10. They are Farrukhabad, Allahabad, Kanpur, Mirzapur and Varanasi. Sewage treatment facilities have been constructed under the first phase of the Ganga Action Plan.

11. According to a World Bank estimate (1993), 30.5 million DALYs (disability adjusted life years) are lost in India each year due to poor water quality, sanitation and hygiene. DALY is a combined measure of mortality and morbidity.

12. In terms of quality, water is be divided into five designated best use classes: A, B, C, D and E. While Class A water is suited for drinking, even without treatment, class E water is best suited for irrigation.

centres in Uttar Pradesh, the existing water class was two or more notches below the desired class and in 11 other centres, it was one notch lower. Further, TC (total Coliform) is the critical parameter in most cases, implying that sewage is the most significant polluter of surface water. Although the groundwater quality is not monitored in a similar fashion, it is widely believed to be low and deteriorating.

10.5. Major Challenges

So far, Uttar Pradesh's attempts at urban reforms have been predominantly on the basis of the 74th Amendment and have focussed on boosting the stability of local self-government and creation of democratic institutions at the grass-root level. Direct reform attempts to improve service provision in particular sectors have been limited. The major challenges facing the water sector are given below.

10.5.1. Weak Local Body Finances

Since municipalities are responsible for urban water services, the state of their overall finances is a significant factor influencing service provision.[13] Municipal bodies, however, do not have adequate resources to provide the services entrusted to them under the constitution, at acceptable standards. While the demand for urban services has increased rapidly because of trends in urbanisation stated earlier, revenue growth has been slow reflecting primarily the sluggish efforts by ULBs in Uttar Pradesh to boost their own revenue (tax and non-tax revenue), thus allowing limited scope for service expansion. Financial weakness of ULBs may be pervasive in India, but it is particularly acute in Uttar Pradesh, which stands among the lowest in the country in terms of not only overall revenue, but also contribution of own sources to total revenue (Table 10.12). The government had instructed the ULBs in October 1997 to raise their own revenue to a minimum of Rs. 120 per capita for municipal corporations, Rs. 40-90 per capita for municipalities and Rs. 20 per capita for town panchayats (Government of Uttar Pradesh). This was to be achieved by assessing new houses constructed and revising water charges as well as through licensing fees on trades and callings. However, the progress in this regard has been slow.

TABLE 10.10

Per Capita Total Income of ULBs and Contribution of Own Sources

	Per Capita Total Revenue		*Tax as % of Total Revenue*		*Non-tax as % of Total Revenue*	
	1993-94	*1997-98*	*1993-94*	*1997-98*	*1993-94*	*1997-98*
Gujarat	406	689	61	60	8.3	7.4
Maharashtra	753	1303	70	69	23.7	21.1
Punjab	427	655	58	68	19.2	18.8
Andhra Pradesh	182	287	33	32	11.9	20.9
Haryana	227	344	42	38	27.4	20.8
Karnataka	166	252	34	33	21.9	6.4
Madhya Pradesh	179	245	31	18	16	12.4
Tamil Nadu	238	570	35	27	21.1	26.3
Uttar Pradesh	**135**	**181**	**13**	**11**	**17.1**	**16.7**

Source: GoI, 2002.

10.5.2. Excessive Control by State Government

With low and non-buoyant own revenues, ULBs in Uttar Pradesh have been mainly relying on state government tax transfers to provide services including water services. In Uttar Pradesh, tax transfers from the state government accounts for about 70-75 per cent of total revenue of ULBs, which is among the highest in the country (Table 10.12). The GoUP, on its part, has been reluctant to ease the high degree of financial control it has been exerting over the ULBs over the years and consequently, the autonomy of ULBs has remained low. While some states have introduced reforms in the water sector including in tariff rationalisation at the behest of lending organisations such as HUDCO, ULBs in Uttar Pradesh have not taken loans from financial institutions and have thus far remained free from pressures to reform. This reflects both the GoUP's patronising attitude and the ULBs' lack of preparedness (such as, low cost recovery levels, primitive accounting practices and poor financial management). Although GoUP has begun to supplement transfers to ULBs with loans for the water sector albeit small-beginning 2001, it appears unlikely that government loans will put pressure on municipalities to raise their resources or improve efficiency since the government in the past had tended to forgive ULBs for defaults in repayment of its loans.[14]

10.5.3. Institutional Weaknesses

There are some institutional difficulties facing the sector. First, there is no separate regulatory institution;

13. Even if the water sector generates enough revenue to cover all its costs, its financial viability will be affected if overall municipal finances are weak.

14. Loans sanctioned to ULBs falling over due on March 31, 1997 for urban projects including water supply schemes were converted into grants by the state government. (Government of UP)

operational and regulatory functions are bundled together and vested with the state government. As a result, tariff setting has been politicised and deterioration in service standards has been tolerated. Second, although the responsibility to provide water services has been entrusted to the municipalities, none of the small municipalities and few of the medium-sized municipalities have the capacity (including managerial capabilities, engineering, accounting and financial skills) to provide these services. Small municipalities often lack capacity to even delegate the responsibility to another body and can potentially be taken advantage of by contractors (World Bank, 1999a). The third set of difficulties relates to the finances of the UPJN, which has tended to be overstaffed with staff strength of 20000, (Uttar Pradesh Jal Nigam, 2001) perhaps reflecting government interference in staffing decision. Besides, the Nigam is increasingly unable to meet its rising revenue expenditure (mainly salaries) from its own income. This gives rise to suspicion that UPJN diverts resources from projects, resulting in delays and cost over-run.[15] Finally, difficulties arise from the division of responsibilities between different levels of government. If a local body or Jal Sansthan refuses to take over facilities from UPJN after project completion, the Nigam has no option but to bear O&M responsibility without any prospect for additional revenue. For example, UPJN is currently running bulk supply works several months after commissioning them, as the concerned local bodies have been unwilling to take them over because of lack of funds to operate them. This places major burden on UPJN in terms of human and financial resources.[16]

10.5.4. Lack of Competition

ULBs technically can employ private EPC contractors directly. But, they invariably prefer to use UPJN as an agent partly because they are constrained by tradition, but mainly because of convenience.[17] Being a monopoly provider of this services, UPJN has no incentive to be cost-efficient. Although cost norms are prescribed, it is not clear as to what extent the norms are adhered to and more importantly, whether the norms reflect competitive costs. While ULBs ultimately incur these costs, they have no control over how the funds are spent—even if large parts of their funds are spent on unproductive purposes such as salaries of a grossly overstaffed organisation.

10.5.5. Poor Cost Recovery

While institutional weaknesses and lack of competition have added to the cost, cost recovery has been poor with only a part of O&M expenditure being recovered through water tax and water charge in most cases (Table 10.12). The Table shows that the recovery rates in Uttar Pradesh as well as its neighbouring states vary widely between towns. It may be noted that the cost recovery rates in the Table have been arrived at on the basis of actual costs; i.e., costs of very poor service standards.

TABLE 10.11

Cost Recovery Rate (1997-98)

Municipal Corporation	*%*	*Municipal Councils*	*%*
Uttar Pradesh			
Kanpur	117	Hapur	77
Allahabad	87	Rampur	69
Varanasi	69	Mathura	48
Agra	91	Mirzapur	38
Lucknow	54	Saharanpur	102
Other States			
Gwalior	26	Bhatinda	39
Patiala	75	Ambala	54
Faridabad	22	Bharuch	32
Jamnagar	132	Munger	59

Source: NIUA Draft Report "*Water Supply and Sanitation*", by Mrs. Usha Raghupati.

Notes: Revenue receipt includes water tax, water cess, water charges, connection charges, bulk supply and other charges. Revenue expenditure includes salary and wages, electricity, consumables, and repairs.

The annual per capita water charge (including tax) in Uttar Pradesh in 1999-2000 was Rs. 7.9 in municipal corporation, Rs. 8.7 in municipal councils and Rs. 4.8 in town *panchayats*—that is less than the cost of a 1 litre drinking water bottle (*Memorandum to the Eleventh Finance Commission*, Vol. V-A, Government of Uttar Pradesh). Recovery rates are low because of a number of flaws in the tariff structure. First, since the main source of revenue in the water sector is water tax linked to annual rental value of properties rather than tariff based on volumetric consumption, revenues are significantly unrelated to leakage and theft, which weakens the incentives for municipalities to improve distribution

15. UPJN's annual revenue shortfall is typically about 15 per cent of its income.
16. Since December 2002, the GoUP has made it mandatory for ULBs to pay (to the Jal Nigam) for the O & M of their respective STPs. In case of any shortfall in payment, the GoUP would compensate the Jal Nigam by intercepting the fiscal transfers from the GoUP to the concerned ULB.
17. Because of its proximity to the state government, it is relatively easy for UPJN to procure all clearances.

efficiency.[18] Second, typically 30 to 40 per cent of properties fall outside the tax net, since they are not registered with the city authorities, and therefore do not contribute to revenue. It is widely believed that several people get favorable assessment of ARV through their political connections. Third, ULBs have tended to postpone revision of tariff and ARV for populist reasons and revisions, whenever they happen, are not enough to reflect cost increases. This continues to be the case, even though recent studies indicate that people are willing to pay much higher prices than they are currently paying provided quality of service improves (Box 10.3). The major beneficiary has been the households sector (Table 10.12). Cross-subsidisation has been excessively high, which have resulted in some industrial and commercial users opting for self-supply by digging wells in their compounds, thereby constraining the revenue for municipalities. Finally, the tariff structure is very complex. In some towns such as Kanpur, there are three alternative ways of assessing water charge: (i) metered consumption, (ii) ARV-linked water tax and (iii) minimum tariff linked to ferrule size and size of the property (Kanpur Municipal Corporation). The complex tariff structure makes it not only difficult to administer, but also prone to manipulation, leading to low revenue.

In a significant reform initiative, all the Jal Santhans under instruction from the state government have been raising water tariff and minimum water charge (linked to ARV) by 7.5 per cent per annum for all consumer categories since January 1999 (Government of Uttar Pradesh). Under the system, tariff increases have become regular and independent of ARV revision, which is highly politicised, leading to greater buoyancy of revenue. In case of Lucknow, however, the Lucknow High Court has instructed the Lucknow Jal Sansthan to do away with the 7.5 per cent annual increase and link tariff to O&M instead.

TABLE 10.12

Water Tariff

	Domestic		*Industry*	*Commercial*
	Metered (Rs./Kl)	*Unmetered. (Rs./Yr)*	*(Metered) (Rs./Kl)*	*(Metered) (Rs./Kl)*
Allahabad	2.5	900	12.5	7.5
Agra	3	360	22.8	22.8

Source: NIUA Daft Report "Water Supply and Sanitation", by Mrs. Usha Raghupati.

18. It also gives rise to two additional problems, as it (a) discourages efficient water use, (b) delinks costs from revenue.

BOX 10.3

Consumers' Willingness to Pay

Tariff rates are often not raised because of an exaggerated perception of associated political cost. Implicit in this judgement is the perception that people are not willing to pay. A number of willingness to pay studies has been conducted in India. Studies have shown that:

- In Dehradun, in 1996, consumers were willing to pay more than twice the prevailing tariff. Average households were willing to pay up to Rs. 4.50 per cubic metre for a continuous water supply as compared to the prevailing rate of Rs. 2.00 per cubic metre for the existing intermittent supply. What is more, the study revealed that, on average, households were already paying up to Rs. 10 per cubic metre in 'coping costs' arising from the irregularity and unreliability of supply.
- In Baroda, in 1995, households with incomes below Rs. 1500 per month were willing to pay up to Rs. 275 per annum for a reliable service (as against prevailing payments of about Rs. 43) while wealthier families with monthly incomes between Rs. 4500 to 6000 were willing to pay up to Rs. 440 (as against prevailing payments of around Rs. 200).
- In rural Kerala, in 1988, consumers who were already paying Rs. 5 per month for the existing service were willing to increase this to Rs. 20 without any requirement for service improvements, and were willing to pay a further Rs. 5 per month for improved services.
- In Delhi, in 1988, households could pay anything up to Rs. 2000 per year in direct and indirect costs to cope with the irregularity and unreliability of existing supplies.

To sum up, people are already paying much more than the official tariff rate through informal channels and coping strategies, and that they would be willing to pay the government even more, provided service quality improves. If policy makers can establish this, they should be able to:

- Revise tariff to capture the potential revenue source.
- Plan future investment keeping in mind what people really need.
- Move towards financial sustainability.

Source: UNDP/World Bank, Water and Sanitation Programme (1999).

10.5.6. Lopsided Expenditure

Since expenditure of ULBs is constrained by low income, it is all the more important to get the expenditure priorities right. A significant negative outcome of public ownership is the skewed expenditure in the sector. Large amount of funds are spent on new

capital works, while routine maintenance is ignored, primarily because capital projects are visible and projected as achievement, while maintenance yields no such benefit. Transmission and distribution networks are old and poorly maintained. Pipes have developed cracks because of low pressure and intermittent supplies. As a result, losses are typically high. Unaccounted for water levels, which includes not only leakage but also theft, is believed to be in the range of 30-40 per cent, as compared to 7 per cent in Singapore. Further, among capital works, there has been an undue focus on bulk supply and a severe neglect of sewage disposal. For example, out of a total (sanctioned) capital expenditure of Rs. 225 crores by Uttar Pradesh Jal Nigam in 2001-02, Rs. 122 crores were meant for only Kanpur Barrage. Further, there was no budget provision made for sewerage projects in 2001/02 (Uttar Pradesh Jal Nigam, 2002).

10.6. Moving Ahead

Clearly, the service delivery in the sector is poor, resulting in high health and coping costs as well as environmental degradation, in addition to drudgery and inconvenience for a large section of the population. Possibly, the costs that the government and consumers pay (health costs and coping costs) are higher than the costs of providing safe and continuous water service. To meet the challenges of the sector, reforms need to focus on improving service delivery. This would require easing financial constraints facing the sector as well as addressing the institutional and managerial issues identified above. Also, the supply constraints can be eased to the extent that unaccounted for water is reduced and the system is properly operated. To overcome the managerial and institutional deficiencies, the sector needs to be restructured in a manner that managers get the autonomy to operate in a commercial environment on a sustained basis. Specifically, the reform strategy must include the following initiatives.

10.6.1. Take a More Comprehensive View of Water

Generally, the approach to water in India has been guided by narrow, sectarian viewpoint. This is reflected in separate planning and implementation of projects in various water using sectors such as irrigation, both urban and rural water supply and sanitation, power, etc. Similarly, there is little coordination between surface water projects and groundwater development programmes. All these are a reflection of emphasis being laid on development of water resources and construction of new infrastructure, but not on management. To ensure sustainable use of water and protect its quality, the state government has to shift focus to management of water and resort to integrated planning. While urban water accounts for only a small fraction of aggregate water use, irrigation accounts for the bulk. A bizarre situation has arisen where several urban areas are suffering from water stress, while a large part of irrigation water is used inefficiently to produce water-intensive and low-value crops. To increase overall efficiency of the sector, the long-standing issues relating to irrigation including pricing issues need to be addressed. At the same time, new avenues must be explored to facilitate transfer of water from irrigators to municipalities.[19]

10.6.2. Improving Overall Finance

It is not possible to have separate autonomous water utility to function on a sustainable basis if the local government finances are in a shambles as in Uttar Pradesh. The low income at every level of municipal government (Municipal Corporation, Municipal *Panchayat* and Town *Panchayat*) reflects primarily the meagre revenue from own sources (*Memorandum to the Eleventh Finance Commission,* Government of Uttar Pradesh). Therefore, efforts have to focus on introduction of reforms in property tax (the most significant tax), increase in tax base, imposition of adequate user charges and improvement in revenue collection. The First State Finance Commission had made a number of recommendations in each of these areas. Wherever the recommendations have been implemented, the results have been encouraging. For example, following the implementation of the incentive scheme, which linked distribution of 10 per cent of overall transfers from state government to the revenue collection efforts of ULBs, overall collection ratio has increased from 55.1 per cent in 1997-98 to 69.4 per cent in 1999-2000 (Government of Uttar Pradesh). The state government, however, has been generally slow in implementing SFC recommendations. For example, the SFC recommendation to follow the Patna property tax model (Box 10.4), has taken over five years to begin implementation in earnest and is limited to only the 11

19. Water markets create such an avenue. Even though it has been suggested by the Government of India and the World Bank that beginning be made by selective piloting of water markets in a few specific locations. (World Bank, 1999), no such initiative has yet been taken.

municipal corporation towns. (Govt. of Uttar Pradesh) It is clear that vested interest groups are opposing these reforms. If the GoUP is serious about providing financial autonomy to ULBs, it needs to pursue all the recommendations of the SFC aggressively.

BOX 10.4

Patna Property Tax Model

The Patna Municipal Council (PMC) initiated an area-based, simplified assessment of property tax in 1993. Until then, property tax in Patna was levied at the rate of 43.75 per cent of the annual rental value of the respective properties. The new system entailed a substantial reduction in tax rate to 9 per cent and a simple matrix for calculating property rent based on its location, type of construction, use (residential or commercial) and carpet area. The move has minimised discretion and *ad hoc* nature of assessment and has increased acceptability by the assessed and tax compliance. Even though tax rates were reduced substantially under the new guidelines, there was a multi-fold increase in property tax collections.

The United Nations Centre for Human Settlements (UNCHS) in its report "The State of the World's Cities Report 2001" has observed that the area-based assessment method, as initiated by the PMC has emerged as "a legally tested, administratively tried and practically feasible method of property tax assessment in India". Other corporations of Bihar have already adopted the Patna model and the Central government has issued guidelines to state governments to modify their assessment procedure of property tax in line with the Patna model. The state governments of Uttar Pradesh, Madhya Pradesh and Tamil Nadu are in the process of adopting the Patna model.

Source: NIUA, 2001.

10.6.3. Institutional Change

Restructuring Uttar Pradesh Jal Nigam

To unleash potential competition, it may be a useful idea to separate planning from designing and construction, since competition in the latter is feasible.[20] This can be done by splitting UPJN into four or five independent utilities, while allowing statewide resource planning and rural water supply to remain with a separate state-level body. Effective competition may not, however, be possible if these utilities continue to be in the public sector. The aim should therefore be to sell majority stake in these utilities to private entities within three years or so. Each utility needs to be capable of providing bulk services as well as distribution services on contract to municipalities.[21] These capabilities are already available with the UPJN. ULBs can get their construction and O&M work relating to water (and possibly, solid waste disposal) done through contracts, which would be awarded on the basis of open, competitive bidding. Bidders would include the successors of the present UPJN as well as other companies.[22] This will create incentives for bidders to be cost-efficient, thereby reducing financial burden on municipalities. Further, GoUP needs to transfer resources directly to ULBs, which will give local bodies greater financial control.

Creation of Autonomous Entities

For service operations to run on commercial principles and with consumer orientation, it is necessary that the service be provided by operationally independent and autonomous entities. The entities can take the form of separate undertakings (municipal enterprises) or a separate company with a licence from ULBs. In all metropolitan councils and other large cities that have well developed municipal administration, strong economic base and large population, ULBs can take full responsibility for their own urban water services and individually plan their own reforms such as involving the private sector for service provision. They can start by carving out from themselves separate undertakings for water and wastewater services.

In smaller cities that lack economies of scale (in bulk supply and distribution) and the capacity to individually take full responsibility, multi-municipal solutions can be applied.[23] Here, the state government support would be critical. The state government could take an initiative to bring a number of municipalities together for developing new bulk supply schemes or involve private sector, depute staff to provide technical assistance and control contracts between towns and service providers. (World Bank, 1999a).

20. It is also feasible to have competition for market in case of distribution.

21. These units will be free to take up other civil contracts as UPJN is at present.

22. Just as UPJN is undertaking projects in other states, companies as well as water boards in other states should be allowed to bid in Uttar Pradesh.

23. It would make sense to introduce a legislation that requires municipalities to choose multi-municipal solutions when they are most efficient. In this respect, the District Area Planning Committees, whose mandate includes integrated development of infrastructure, can be consulted.

10.6.4. Private Sector Participation (PSP)

The private sector is potentially capable of injecting technological, financial and managerial resources, which the public sector may be unable to obtain, because of fiscal and bureaucratic constraints and lack of adequate incentives. In Uttar Pradesh, there has been no attempt to involve the private sector so far, although a number of PSP options are available, such as service contracts, BOT contract, management contract for O&M, etc. For successful implementation of a PSP option, it is important to ensure that the pre-conditions exist. Pre-conditions include stakeholder support and political commitment, tariff rationalisation, information base about the system and regulatory framework.[24]

BOX 10.5

Private Sector Participation (PSP) in India

A few cities in India have attempted PSP options in the water sector. The focus has been on bulk water supply on a BOT basis. Till date, most of the BOT-based projects have been unbankable or delayed, since such an approach does not address the real issue (i.e., problems with distribution). Adding more bulk supply without improving existing distribution, with continuing gross subsidisation of water, increases the financial burden on the local bodies.

Other PSP options have also been tried, including service contracts (Chennai), local body financing through municipal bonds (Ahmedabad) and joint sector company to finance and implement the project (Tirupur). The Chennai experience has been most encouraging. The Chennai Metropolitan Water Supply and Sewerage Board has signed service contracts with private operators for O&M of 2 sewage treatment plants and 70 out of 119 city sewerage pumping stations. The cost saving as compared to the estimated costs under Board management has been in the range of 33 to 40 per cent.

The important lessons from the experience of other states are: (a) focus has to be shifted from bulk water supply (currently under government initiative) to improved management of existing distribution systems, and (b) management or O&M contracts is the way forward in the short run and the ultimate aim of concession-type contract must follow later when pre-conditions are established.

Source: Vaidya, Chetan, 2000.

The progression towards concession-type contracts would have to be gradual, depending on policy changes and evolution of rational tariff structure (Box 10.5). To begin with, Uttar Pradesh can have O&M contracts for all its sewage treatment plants and sewage pumping stations. After the restructuring of UPJN is complete (10.5.3) and regulatory framework is in place, which could take up to two years, short-term O&M contracts for distribution (including billing and collection) can be given to private parties.[25] An incentive can be built into these contracts by allowing private parties to keep all collection over and above a pre-specified monetary obligation to the municipalities. Over time, as more information about the system is gathered, regulatory system gets strengthened and greater political commitment is mobilised in favour of private participation, long-term concessions can be attempted in distribution as well as bulk supply.

10.6.5. Regulatory Framework

To attract private capital, it is essential to set up an independent regulatory body (Uttar Pradesh Water Regulatory Commission) quickly, say within a year. The independent regulator would act as a catalyst for reforms by isolating tariff-setting from political influence and by removing arbitrariness in setting service standards, and will also help usher in transparency, accountability and consumer-orientation into the sector.

Given the paucity of specialised skills in finance, engineering and accounting necessary to regulate the water service providers at the municipality level, it would be appropriate to establish the commission at the state level. This will be possible if municipalities delegate their right of regulation to the state regulator. A state level regulator will not only provide economies of scale in regulation, but also safeguard against regulatory capture. The role of the regulator *vis-à-vis* municipalities has to be carefully designed keeping in view the spirit of 74th Amendment. The jurisdiction of the Commission will primarily cover urban water and waste water, but will also include allocation of water among different uses such as irrigation, power and recreation. Such an approach would help in viewing

24. Service contracts require limited information on an existing system and minimal monitoring capacity, while options such as BOT and concession require high political support, adequate information about the existing system and a strong regulatory framework (Vaidya 2000).

25. Successors of UPJN could become contenders.

water as a single resource. The key functions of the regulator would be to:

- serve as a guarantor of service quality level consistent with a basic standard of living;[26]
- ensure that price charged to water users is based on full costs of water;
- ensure that service providers do not exploit customers;
- increase awareness of citizens and get them more closely involved;
- internalise the externalities associated with adverse effects from waste water on environment and from poor quality drinking water on health. The regulator needs to work closely with Uttar Pradesh Pollution Control Board, which is responsible for regulating quality of wastewater disposal and Health Department (which is responsible for drinking water quality) to ensure that service providers comply with regulatory requirement. Costs of compliance are to be taken into consideration in determining tariff; and
- provide mechanism for sustainable aggregate water use, which would entail *inter alia* prevention of overexploitation and misallocation of raw water supply.

10.6.6. Tariff-setting

Tariff rationalisation is central to water sector reforms. The objective needs to be to treat water as an economic good, by making water demand less independent of water users' willingness to pay for it.[27] The basis for tariff-setting as well as the required operational initiatives is given below:

- Pricing needs to be oriented to full-cost recovery. It would be pragmatic to have a gradual approach by attempting progressively larger recovery over years to ensure full recovery of operations and maintenance (O&M) costs at the end of first five years and total cost (O&M plus capital costs) at the end of the next five years.
- To improve efficiency in water use, tariff-setting has to be only on volumetric basis. This would imply that meters need to be installed at all service connections as the currently dominating system of water and wastewater taxes linked to annual rental value of properties are gradually phased out. Charges for wastewater need to be linked to water tariff.
- Cross-subsidies need to be kept at a minimum level. A practical solution is to freeze the industrial and commercial tariff, which are currently at very high levels, until costs catch up.
- Cost estimation needs to reflect an efficient level of operation to ensure that tariffs that are based on these costs do not reflect inefficiency of service providers. Initially, tariff has to be based on existing level of unaccounted for water (UFW), but over time tariff would reflect progressively reduced UFW, which should result from institutional reform outlined in the paper.
- Tariffs would be revised every two years to reflect change in costs.

10.6.7. Services to Poor

Services to the poor can be substantially improved if subsidies are well targeted. It may not be feasible to provide exclusive service connections to households in slum areas. So, the current system of provision through public stand posts needs to continue, although stand posts need to be metered. It is well known that stand post water is unreliable and inadequate, although it is 'free'. There is an urgent need to improve quality of service provision through stand posts and simultaneously, charging the poor an amount that is line with their willingness to pay. Under such a system, equity considerations can be best met by subsidised uniform (and not increasing block) tariff and access charge. To facilitate revenue collection, consumer groups of three or four persons have to be established. They would be made responsible for collection of revenue from the households benefiting from stand post water in a particular slum area. Private operators need

26. Service quality would include quality of water supplied, quantity and hours of water supplied, timely redress of consumer grievance and wastewater disposal as per agreed terms.

27. The failure to treat water (and water services) as an economic good is responsible for circularity between rising demand, inadequate supply and increasing scarcity. When water is demanded at prices below supply costs, consumers do not provide enough revenue to expand water supply systems or improve service quality. Consequently, users feel deprived simply because water demand has been derived substantially independent of their willingness-to-pay for it.

to be obligated to provide a minimum specified quantity of water through stand posts. Whether they meet their obligation can be verified from the consumer groups. Pilot projects can be initiated in some places and their success would dispel the widespread notion among politicians and bureaucrats that the poor will be under-served if the private sector is the provider.

10.6.8. Accounting Reforms

One of the major stumbling blocks for privatisation of the water sector or for accessing the capital market by ULBs in Uttar Pradesh as in other states is that they follow primitive accounting practices. None of the municipalities has a basic balance sheet. The reporting practice followed by municipalities is on cash accounting basis—that is, municipalities recognise expenses only as paid for and recognise income only as received. Investors, lenders and other users of municipal financial reports, however, look for internationally accepted accrual reporting (i.e., financial reporting according to benefit period) as more revealing to the financial condition.

Cash accounting gives a misleading picture of municipal accounts. For example, cash received as loan is illustrated as revenue in the operating statements. (In Annexure XXXVIII of the Uttar Pradesh *Memorandum to the Eleventh Finance Commission*, Vol. V-A, loans from government to municipal corporations is shown as the latters revenue.) As a result, at any point in time, outstanding obligations in the form of

BOX 10.6

Tamil Nadu Experience with Municipal Accounting Reforms

In the area of municipal accounting reforms, Tamil Nadu is well ahead of others. In other states that have attempted accounting reforms including Gujarat, Karnataka, Rajasthan and Maharashtra, the process has been halting and limited in scope. Tamil Nadu, on the other hand, has introduced comprehensive reforms and has converted the accounting system in all its 5 municipal corporations and 102 municipalities from a cash-based single entry system to a double-entry accruing accounting system. The process included the following steps:

- At the behest of the World Bank, Tamil Nadu Urban Development Fund (TNUDF) submitted a proposal to the Government of Tamil Nadu (GoT) seeking to introduce a modern accounting system in the municipalities of the state.
- Accepting the proposal, the GoT appointed a three-member committee to draft a manual on municipal accounting system for the municipalities of the state.
- The draft manual was submitted to the GoT for clearance. The draft was modified on the basis of comments from various departments and agencies of the state government dealing with municipal finances. The manual was approved by the GoT as the basis for reforms.
- Meanwhile, TNUDF had begun a campaign to educate the officials of municipal bodies and concerned state government officials.
- With effect from April 1, 1999, the new system of accounting was introduced on a pilot basis in 12 selected municipal bodies, which were assisted in the implementation process by local accounting consultants. These municipal bodies successfully switched to double entry accrual-based accounting system with a balance sheet as on March 31, 2000.
- Beginning April, 2000, these 12 pilot municipal bodies began to computerise their new accounting system and financial records. They achieved this conversion by March 31, 2001.
- GoT instructed rest of the municipalities to introduce the new system of accounting with effect from April 1, 2000 and provided due assistance. All these municipal bodies successfully switched to double entry accrual based accounting system with a balance sheet as on March 31, 2001.
- Beginning April 1, 2001, all these 95 municipal bodies began to computerise their newly introduced accounting system and financial records and achieved conversion by March 31, 2002.
- The Secretary, Department of Municipal Administration, reviewed the implementation process every month during implementation.
- Based on the experience gained in the implementation process as well as comments given by experts from Institute of Chartered Accountants of India (ICAI), the new accounting system has been modified and a new Accounting System User Manual has been prepared. Budget statements have also been restructured in line with the new accounting system. A revised Municipal Account Code has been promulgated by GoT.
- Since April 1, 2002, all municipal bodies in Tamil Nadu are maintaining their accounts on computerised double entry accrual based accounting system.

Source: Joshi, Ravikant (2003).

contracts is not reflected in the accounting records. This can lead to unwise municipal expenditure. Similarly, because of the absence of a basic balance sheet, a potential investor or lender cannot adequately assess the level of services that can be provided by the ULB and its ability to meet its obligations when they are due. Nor will they have any idea about the physical and non-financial resources that have useful lives beyond the current financial year. To overcome these problems, a number of states have taken initiatives. The Tamil Nadu experience shows that, given adequate state government support, this can be done within two years or so. The Accounting System User Manual prepared by the Tamil Nadu Government can be a useful guide for introducing accounting reforms in Uttar Pradesh. (Box 10.6)

10.6.9. Wastewater

Wastewater has been a neglected segment and is grossly underinvested. The important point to note is that almost all users of flush toilet and its sewage system are the rich in urban areas. Yet, the sewerage system is subsidised in the name of poor. The rich get subsidy through another means. The rivers, which are polluted primarily by domestic sewage disposal, are cleaned through river action programmes, which are paid through budgetary provisions. The cost of the expensive sewage treatment plants (STPs) is not recovered from the rich (Narain, 2002). This flaw needs to be remedied. In operational terms, this implies a separation of the accounts of water and wastewater, although the two segments need to be operated by the same entity. This would ensure that the wastewater segment generates enough internal resources for the expansion of the sewage system and sewage treatment. As for the poor, a vast majority of who do not have flush toilets, expanding access to central sewage system is not the right solution. A sensible approach is to focus on public latrines and low cost sanitation for the poor. Here again, households would be willing to pay user charges provided the hygiene level in these latrines improves.

Construction of STPs is done under river action plans. An evaluation of the Ganga Action Plan Phase-I (Box 10.7) indicates that the current river action plans are grossly inadequate, partly because of lack of funds and delays in the construction of sewage treatment plants. There is also an ownership issue. Since ULBs are not involved in the design, location, etc. of the STPs, they do not feel responsible for the operation STPs. A wider consultation with the ULBs will motivate them to view STPs as part of their achievements and make them more willing to take STPs over after they are commissioned.

BOX 10.7

Ganga Action Plan (GAP)

The GAP Phase I, which was launched in 1985 to check the pollution of Ganga being caused by untreated sewage in 25 Class I towns in Uttar Pradesh, Bihar and West Bengal, has failed miserably. Although the original deadline was March 1990, it was progressively extended up to March 2000. By March 2000, Rs. 451 crores had been spent on it. The original plan was to treat only 875 million litters of sewage a day (MLD) in these plants out of the 1,345 MLD estimated to be flowing into the river in 1985. Since then, the volume of sewage has nearly doubled, while the Plan could meet only 35 per cent of the target or 305 MLD.

The Central Pollution Control Board (CPCB), along with state pollution control boards, recently inspected 35 sewage treatment plants in Uttaranchal, Uttar Pradesh, Bihar and West Bengal, while preparing a report for the Supreme Court. The inspection revealed that most sewage treatment plants built under Phase I of the Ganga Action Plan are either non-functional or functioning way below satisfactory levels. Some plants, such as Jajmau in Kanpur, and Naini in Allahabad, are 'underloaded', i.e. do not have enough sewage to treat and those in Dinapur and Bhagwanpur in Varanasi are 'overloaded', i.e. they have too much to treat. Many already need upgradation. (One significant shortcoming of the GAP is that there is no sewerage in some of the towns included in GAP. Sewage flows in open drains and during the rainy season, the surface run-off mixes with it. Pumping stations cannot handle this additional load. So, pumping out from the drains is not effective in controlling the river pollution.)

Operation and maintenance was found to be poor. Firstly, there is lack of funds, particularly in Bihar and Uttar Pradesh, and shortage of qualified and trained staff. Secondly, regular monitoring of the plants or the staff is not being done. Lack of uninterrupted power supply is another major problem.

The Central government has been providing all the funds for capital works of GAP I. Since the ULBs never had a stake in the construction of the projects, they never felt responsible for their upkeep. This, indeed, is a mockery of the 74th Amendment.

GAP (II) was launched in 1993 and was scheduled to be completed by December 2001, but has now been extended to 2005. It is much wider in its scope (1912 mld) and geographical coverage. The most important change is that the GoI would be responsible for 70 per cent of the cost, while ULBs will be responsible for the rest.

Source: Sharma, Ashish (2001).

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