

# Prevention of River Pollution by Urban Sewage

*Recommendations from Policy and Governance  
Perspective based on a Model Case Study*

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## GRB EMP : Ganga River Basin Environment Management Plan

by

Indian Institutes of Technology



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## Preface

In exercise of the powers conferred by sub-sections (1) and (3) of Section 3 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government has constituted National Ganga River Basin Authority (NGRBA) as a planning, financing, monitoring and coordinating authority for strengthening the collective efforts of the Central and State Government for effective abatement of pollution and conservation of the river Ganga. One of the important functions of the NGRBA is to prepare and implement a Ganga River Basin: Environment Management Plan (GRB EMP).

A Consortium of 7 Indian Institute of Technology (IIT) has been given the responsibility of preparing Ganga River Basin: Environment Management Plan (GRB EMP) by the Ministry of Environment and Forests (MoEF), GOI, New Delhi. Memorandum of Agreement (MoA) has been signed between 7 IITs (Bombay, Delhi, Guwahati, Kanpur, Kharagpur, Madras and Roorkee) and MoEF for this purpose on July 6, 2010.

This report is one of the many reports prepared by IITs to describe the strategy, information, methodology, analysis and suggestions and recommendations in developing Ganga River Basin: Environment Management Plan (GRB EMP). The overall Frame Work for documentation of GRBMP and Indexing of Reports is presented on the inside cover page.

There are two aspects to the development of GRB EMP. Dedicated people spent hours discussing concerns, issues and potential solutions to problems. This dedication leads to the preparation of reports that hope to articulate the outcome of the dialog in a way that is useful. Many people contributed to the preparation of this report directly or indirectly. This report is therefore truly a collective effort that reflects the cooperation of many, particularly those who are members of the IIT Team. Lists of persons who have contributed directly and those who have taken lead in preparing this report are given on the reverse side.

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## **1. Brief Summary**

This report presents an analysis of the ground-level situation of the sewage conveyance and treatment systems in the Kanpur city in the Indian state of Uttar Pradesh. The objective is to bring out important policy and governance related lacunas in the sector, causing continued release of partially treated or untreated sewage and faecal-matter in the river Ganga. This report broadly follows the template presented in the report titled: Policy and Governance Perspective and Analytical Framework (009\_GBP\_IIT\_PLG\_ANL\_03\_Ver 1\_Dec 2011). This report begins with background information on the city of Kanpur with the focus on the activities of the Ganga Action Plan (GAP) executed in two phases (GAP I and GAP II) in the city. After the introductory sections, it presents findings of this study. The findings focus on different deficiencies in the performance of the sewage system in the city of Kanpur. Further, it presents the review and analysis of various major Policy Instruments (PIs), the in-depth analysis of the lacunas in the Governing Agencies (GAs). The report then moves to recommendations that emerge from the analysis of PIs and GAs. The concluding section takes a broader view of the problems, and, based on the analysis, presents a three-pronged strategy.

## **2. Sanitation System: Status and Issues in Kanpur**

### **2.1. Introduction**

A thorough review of various studies and reports available on the issue reveals many key challenges. For example, the first challenge was that there is hardly any essentially policy or governance analysis. What is available is technical, economic, or institutional analysis, with brief add-on attempt of analyzing policies and governance issues. Most of the studies and reports present performance evaluations of the schemes and projects in the sector. The second and more critical challenge was that there is hardly any methodological and conceptual basis available for further work on policy analysis of the issues in the sector.

Considering these, first an attempt was made to evolve a systematic, comprehensive, and at the same time, adequately in-depth analytical framework from the Policy and Governance Perspective. Based on the framework, the field-work, data collection, and analysis of the performance of the sanitation and sewage sector in the city of Kanpur was undertaken. This report presents the findings of the case study of the city of Kanpur on the banks of the river Ganga and in the state of Uttar Pradesh based on P & G Perspective and Analytical Framework presented in one of the earlier reports (009\_GBP\_IIT\_PLG\_ANL\_03\_Ver 1\_Dec 2011).

### **2.2. Rationale**

Sewage is an important source of pollution and accounts for about 75% of the total pollution from all point-sources. Urban settlements, of different sizes, contribute most of the sewage related pollution in the river Ganga. Further, the sewage problem continues to aggravate despite the considerable emphasis by the Ganga Action Plan (GAP I and GAP II) on diversion and treatment of urban sewage. All these factors require diligent analysis of the

sewage-related challenges and issues, of performance of the sectoral institutions, and of mechanisms dealing with these challenges or issues. The study should also assess performance of the measures like GAP employed to remedy the situation. As per the 'Policy and Governance' (P&G) Perspective presented in the earlier report (009\_GBP\_IIT\_PLG\_ANL\_03\_Ver 1\_Dec 2011), the core or root cause underlying such performance crisis is the governance failure. Following the perspective, this analysis is focused on different aspects and factors of the governance of the sewage sector.

### **2.3. Methodology and Research Design**

The analysis using the P&G Framework is aimed at unraveling qualitative nuances of different lacunae in policy instruments and governing agencies. It also attempts to draw out qualitative understanding of the misalignments between, on one hand, policy objectives, and, on the other, the norms and interests of different stakeholders. Such a qualitative and nuanced enquiry would require a method like the Case Study method. The Case Study method helps the researcher to look at the case as a microcosm of the larger reality. In this study, the method would help us gain nuanced understanding of the complex situation on the ground in the cities. Through comparisons of cities and towns, it will also allow us to locate and understand the finer differences in the ground-level situation and also to uncover possible causal factors underlying these differences.

However, the constraints on time and resources (including human resources) in this phase of the project allow study of only one city to begin with. In this light, Kanpur was chosen as the city for the model case study. Apart from providing substantive knowledge, understanding, and insights, such a study will help to validate the framework and methodology and create a template for preparing case studies of other towns and cities.

Before going to the case study, it should be mentioned that the limitations of time and resource also restricted the depth and scope of the study of Kanpur case study. The limited time and resources put restriction to the number of secondary data sources studies and the depth of their study. Similarly, the limited resources also restricted the number of informants that were interviewed. As a result, it was not possible to collect all the policy instruments, especially the subordinate instruments such as rules, regulations, government resolutions, and office orders. In absence of these instruments the analysis of PIs has remained restricted to that of laws easily available on the internet. In view of these limitations, it was decided that the data collection and analytical efforts under this particular study be focused on analysis of lacunas in governing agencies (GAs). Though these limitations certainly affected the depth and scope of the findings of the study, the study provides a very effective demonstration of the need to repeat similar studies with the same framework for gaining better understanding of the governance crisis, which is at the core of the problem of pollution of the river Ganga.

## 2.4. Kanpur: Rationale for Choice

Kanpur city was chosen for the model case study mainly because of its important features, briefly described as follows.

First, Kanpur is one of the biggest cities located on the banks of the river Ganga, by size of its geographic area and population. Being a city with a population of over 3.5 million people, it generates sewage in massive quantity.

Second, it is also one of the oldest and biggest industrial, trading, and educational center in the state, having army and air-force bases. As a result, the scale of economic and political activities in Kanpur is large, and, in turn, it is able to attract due attention of policy-makers. The cultural diversity and presence of non-formal, small-scale industrial sector in Kanpur increases the complexity of issues around pollution of the river Ganga. This pollution could be traced to the wide-spread practice of releasing industrial effluent and domestic sewage—either mixed together or through separate channels—into the river.

Third, Kanpur is located on the most polluted middle-segment of the river Ganga, in which the water flows in the river are highly inadequate due to large scale diversion of water in the upper-segment. Large quantities of partially treated and untreated sewage and industrial effluent, when released in the thin flow of the river, drastically increase the intensity of the pollution.

Fourth, the statistics<sup>1</sup> show that large, capital-intensive projects for sewage conveyance and treatment under Ganga Action Plan (hereafter GAP) have been implemented in Kanpur for addressing the issue of pollution. There is a great need to learn from the successes or failures of these projects.

Fifth, one famous historical, religious, and pilgrim place called Bithoor on the banks of the river Ganga is just 15 kilometers upstream of Kanpur. Bithoor receives tourists and pilgrims in huge numbers, who take holy bath and offer prayers in large religious congregations. This requires that the quality of water is adequately good.

Thus, the Kanpur city offers all the diversity and complexity of the issues around sewage-related pollution of the river Ganga. These features make Kanpur as one of the most eligible and most preferred candidates for model case study.

## 2.5. Historical Development of Kanpur

Kanpur has been one of the oldest cities on the banks of the river Ganga. The trajectory of development of the Kanpur city shows different phases of its development as an industrial and strategically important city.

Prior to Independence, it was the second most industrialized city in India after Calcutta. It was called the 'Manchester of India' due to existence of a large number of cotton textile units. During the British era, Kanpur was of strategic importance due to the important role it

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<sup>1</sup> Refer to the websites of National Ganga River Basin Authority (NGRBA) and Uttar Pradesh Jal Nigam (UPJN)

played during the great revolt of 1857. This led to development of a large cantonment base at Kanpur. After independence, Kanpur continued to be an important city, and many large public sector companies established their facilities in the city (CDP Kanpur 2007).

The presence of British in Kanpur influenced the development of the city in many ways, including establishment of the municipality. Kanpur Municipal Council was established on 22<sup>nd</sup> November 1861. It became a Municipal Corporation (locally called as Kanpur Nagar Nigam or KNN) in 1959. The corporation is administered under the Uttar Pradesh Municipal Corporation Adhiniyam, 1959. This has been amended in 1994 by the UP Act 12 of 1994 (w.e.f. 30 May, 1994), the UP Act 26 of 1995 (w.e.f. 30 May 1995) and amendments subsequent to the 74th CAA, 1992 including the functions given in the 12th Schedule of the Constitution (CDP 2007).

Today, being an important industrial, educational as well as a trade-center located on the banks of the river Ganga, Kanpur is known as the biggest city in the state of Uttar Pradesh. Kanpur has a population of about 2.5 million according to 2001 census. Considering the trends in the growth of the population of Kanpur, a rough estimate suggests that, by now, the population of the city must have reached to 3.5 million. Naturally, in terms of generation of sewage and its disposal into Ganga, the Kanpur city plays a significant role. Kanpur alone contributes a large share of the total (both treated and untreated) sewage generated by all the cities on the banks of the river Ganga.

## **2.6. Sanitation Issues in the Pre-Gap Period**

The sanitation system in Kanpur was first established by the British in the 19th century for some parts of the city. The sewerage network was laid in the year 1904 in a limited area. In 1920, it was extended to cover more areas by providing trunk, main, and branch sewers. In 1952, Kanpur Development Board reorganized the entire sewerage system for a population of 9.5 lakhs, which was designed to carry sewage at the rate of 180 lpcd (or liters per capita per day) (Administrative Staff College of India, City Sanitation Plan of Kanpur).

After 1952, there was no major development or renovation in the Kanpur sewage system, whereas the geographical area as well as the population had grown to a large extent. Increased load of sewage was finding its way to the river Ganga through 13 different natural drains (*nallas*).

The sources of this sewage are from both the categories, domestic and industrial, with a major portion coming from domestic sources. There has never been separate sewerage system for these sources; neither was there any arrangement to segregate domestic and industrial sewage.

In the pre-GAP period, in the Kanpur city, problems in sanitation sector causing pollution of the river originated in the lack of treatment of the sewage. The entire sewage of the city was finding its way into river Ganga, either through piped discharge or through *nallas* (streams). Not just domestic sewage, but even the wastewater and effluents generated by

industries flowed into the river largely untreated. The industrial units at Panki and Dada Nagar industrial areas as well as tannery units also discharged their effluents through *nallas* or the tributary called the river Pandu.

## **2.7. Sanitation Component Under ‘Ganga Action Plan’ in Kanpur**

Ganga Action Plan (or GAP), launched in 1985 was primarily focused on two tasks: (a) controlling direct sewage disposal, and (b) controlling direct effluent disposal into Ganga. As a strategy, the natural storm-water drains (*nallas*) that were carrying sewage to the river were tapped (or intercepted) and the sewage was diverted to Sewage Treatment Plants (STPs). Under the first phase of GAP, the following activities were undertaken in Kanpur for reducing pollution in river Ganga due to sewage.

- Kanpur Sewage Reorganization Master Plan (immediate works)
- Cleaning of trunk and main sewers
- Tapping of *nallas*
- Expansion of domestic sewage system
- UASB Pilot Sewage Treatment Plant and improvement works
- Wastewater Conveyance System for Northern Jajmau belt
- 36 MLD UASB Combined Treatment Plant for wastewater from tanneries + sewage
- 130 MLD Sewage Treatment Plant
- Low cost sanitation measures
- Solid waste management measures
- Public Health education and Community Development
- Sewer Cleaning in Jajmau Area (Indo-Dutch program)

In sum, GAP I focused on three aspects in Kanpur, viz., (a) Expansion and cleaning of sewer networks, with interception of *nallas* and diversion of sewage to STPs, (b) Construction of sewage treatment facilities, and (c) Institutional and Community Development. Prima facie, all the three aspects show an integrated approach for addressing the pollution caused by deficiencies in sanitation management. The total cost of the works undertaken was Rs. 730 million. It took almost 18 years for completing the works undertaken under GAP I for the agencies involved, which were concluded in the year of 2003.

The prioritization of interception of *nallas* and diversion of sewage to STPs—instead of overhauling of the sanitation systems of the city—was rather prudent as an immediate action. But, construction of underground sewerage system and improvements in the pre-existing system was not avoided completely.

GAP II, which commenced in 1993 well before the GAP I works were complete, focused on treatment of remaining 224 MLD of the total wastewater that GAP-I had not covered. It continued with the interception and diversion works by laying reliving sewers and bringing wastewater to the intermediate pumping stations and further to treat under a proposed 200 MLD treatment plant. The wastewater of the Halwa Konda nalla and COD nalla will also

be sent for its treatment to this proposed STP. Under GAP II 16 schemes were sanctioned, out of which central government sanctioned 14 schemes and UP state government sanctioned 2 schemes.

- Renovation of existing sewer and pumping stations (Old Kanpur, Kidwai Nagar, etc)
- Integrated development for south city service district of Kanpur city Phase-I, water supply
- Relieving sewers for (Juhi Transport-Nagar, Bakarmandi, Rakhimandi)
- Intermediate pumping stations at Munshipurwa, Rahimandi
- Tapping of Ganda-nala and Halwa-Konda nalla
- Main pumping station related works
- Rehabilitation of water supply production facility and rehabilitation of water supply at Govindnagar [executed by Kanpur Jal-Sansthan]
- Water treatment plants at Ganga Barrage (Plant I: Capacity – 200 mld, Year of Construction – 2005-06, Cost – 1080 lacs, Current Utilized Capacity – 30 mld; Plant II: Capacity – 200 mld, Year of Construction – 2011-12, Cost – 2220 lacs; Plant III: Capacity – 200 mld, Year of Construction – 2011-12, Cost – 3242 lacs)
- Solid waste management, part-I and part-II [executed by Kanpur Nagar Nigam]
- Low cost sanitation [executed by Kanpur Nagar Nigam]
- Land Procurement Costs [Funded by UP state government]
- Trunk Sewer along with COD nalla [Funded by UP state government]

The total expenditure incurred is 7305 lakhs under the GAP I. The works sanctioned under GAP-II are still in progress, despite the fact that planned duration has elapsed way back in 2000. Hitherto 8694.5 lakhs of rupees have been spent for the GAP-II works. In the middle, another some important works for improving sewerage systems have been proposed and sanctioned under the Jawaharlal Nehru National Urban Renewal Mission which include drainage works worth Rs. 105 cores and sewerage works worth Rs. 265 crores being executed by Kanpur Nagar Nigam (KNN) and Uttar Pradesh Jal Nigam (UPJN), respectively. Majority of the works under GAP-I and GAP-II were executed by UPJN. However, KNN did execute some of the works, such as low cost sanitation for squatter settlements and slum areas, solid waste management projects, and river front development projects. Kanpur Jal Sansthan is primarily vested with the responsibility of operation and maintenance of the water supply and sewer-lines, but it also implemented the projects pertaining to the improvement and rehabilitation of the water supply facilities.

## **2.8. Findings: Performance Deficiencies in Kanpur Sewage System**

This section presents preliminary findings of the short case study of the city of Kanpur's sewage-related situation. These findings, essentially, are different deficiencies in performance of the sanitation system of the city. These deficiencies, together, lead to the performance crisis plaguing the sanitation sector in the city.

These deficiencies are presented here from two perspectives, in order to ensure full coverage and deeper understanding. First, they are presented as deficiencies in the sectoral responsibilities in the sewerage sector, viz., collection, conveyance, treatment, and disposal (Section 2.8.1 and 2.8.2). Second, they are also presented as deficiencies in the generic functions involved in all these sectoral responsibilities (Section 2.8.3).

It needs to be noted that these findings also match with the generic deficiencies in sewerage-systems, which are presented in the report titled Sewage Collection, Diversion, Pumping, Treatment, and Reuse (Sewage CDPTR) Infrastructure in Class I Towns (004\_GBP\_IIT\_EQP\_S&R\_03\_Ver 1\_Dec 2010).

The performance deficiencies in discharging the sectoral responsibilities have to be understood in the context of the deliberate strategy adopted under Ganga Action Plan of interception and diversion of sewage flowing through *nallas* to STPs. The performance of this strategy (interception and treatment) needs to be analyzed separately, while the performance of the sewerage-system for collection and conveyance of sewage needs a separate treatment. This is because, while the measures under the interception and disposal strategy implemented with support from Ministry of Environment and Forests, the works on the sewerage system was implemented by Kanpur Nagar Nigam (KNN), with the grant support from Ministry of Urban Development and/or Ministry of Housing and Poverty Alleviation (Government of India).

### **2.8.1. Deficiencies in Sectoral Responsibilities: Collection and Conveyance**

**Inadequacy of sewer network:** The underground network for draining sewage simply does not exist in many parts of the city, especially in the newly-developed localities, unauthorized colonies, and slum clusters. The sewage generated from such colonies also gets diverted into *nallas*, both tapped and untapped, which ultimately finds its way into the river.

**Non-Connection of Households to Existing Sewerage Network:** It was found that in many areas of Kanpur, despite existence of the sewer lines, many households remain unconnected to these lines. They either use soak pits, septic tanks and/or release sewage/septic tank overflows into the *nallas*.

**Open Defecation:** Households, especially from the slums and squatter settlements, still practice open defecation. It was also reported that the public toilets do not exist in adequate numbers, locations, and with adequate capacities; further, existing public toilets are not maintained properly, putting them out of use. The number of 'Pay-to-use' toilets is also inadequate to cover the population.

**Inadequate Maintenance of Sewers:** The sewer network in some parts of the city is more than 100 years' old. Some areas in old Kanpur city have an underground sewer network built—with bricks—during the British period. As one of its components, the GAP I focused on cleaning of this old network. GAP I also involved development of sewer network in the parts of Kanpur that are adjacent to the river Ganga and where the network was not present

in 1985. However, even in these areas, many households are not connected to the sewer network. Besides, after 1985, none of the sewers are cleaned fully or regularly. This has resulted in frequent choking of sewers, especially due to garbage. Both lack of connections as well as choking of sewers result in diversion of sewage flow directly into *nallas* and further to the river, if *nallas* are untapped.

### **2.8.2. Deficiencies in Sectoral Responsibilities: Interception and Diversion Works**

**Partial Coverage of the Interception and Diversion:** As an important and urgent component of GAP I, the interception of storm-water *nallas* and diversion of sewage towards STPs was undertaken. However, inadequate coverage of *nallas* while tapping (or intercepting) is one of the prime reasons for direct disposal of untreated sewage *into* the river. Among the 23 *nallas* in Kanpur, all *nallas* were not tapped. For example, three major *nallas* called Ganda *Nalla*, COD *nalla* and Halwa-kund *nalla* are still disposing the sewage into the Pandu river, which meets river Ganga some distance downstream of Kanpur.

**Non-Tapping of *Nallas* in Areas where City Expanded:** In addition to these *nallas*, many *nallas* in the areas where city geographically expanded over the period of last 20 years are not tapped. As the city kept expanding, resulting in increased population and in establishment of new colonies, the number of *nallas* carrying raw sewage increased. But, neither tapping (interception and diversion works) could not keep pace with the speed of urbanization; nor were STPs built to treat the increased quantities of sewage.

**Frequent Chocking and Leaking of Conveyance System:** The diversion of sewage towards STPs through the built conveyance system by interception of *nallas* has also not worked properly. Inadequate and irregular maintenance is the prime reason for this dysfunction. Pumping stations are inadequate in their numbers and capacities, while some are malfunctioning. As a result, sewage conveyance system is often choked, leaking, or overflowing, resulting in dysfunctional/malfunctioning conveyance system.

**Inadequate Treatment Facilities:** An inadequate sewage treatment capacity has also been an important reason for disposal of untreated sewage into the river. In 1985, the Kanpur city was generating 200 MLD of sewage, as against the 171 MLD installed capacity of the STPs. Over the 25 years period, the sewage generation has doubled and reached well over 425 MLD.

**Irregular Operation and Maintenance of Treatment Capacities:** Operation of treatment facilities at partial capacity is also an important reason for discharging untreated sewage into the river Ganga. The main reasons for not running STPs in full capacity include: blocked sewers, malfunctioning of pumping infrastructure, and lack of continuous electricity supply. Kanpur has an alternative diesel-based electricity supply system to run the pumping stations, which also reported to face problems due to unavailability of diesel and/or non-availability of funds to buy diesel.

In this way, the lasting problem of discharge of untreated sewage into the Ganga river can, thus, be attributed to two broad failures in performance of the sewerage or sanitation system in the city of Kanpur: (a) inadequacy of infrastructural facilities to collect and treat sewage up to the desired standards, and (b) lack of effective operation and maintenance of the installed infrastructure. Absence of sewers, of household connections, inadequate capacity as well as inadequate number of STPs, inadequate pumping stations and electricity problems refer to the inadequacy of infrastructural facilities. Similarly, choking of networks, broken pipes, underutilized capacity of STPs refer to the lack of effective operation and maintenance.

### **2.8.3. Deficiencies in Performing Generic Functions**

According to the P & G Framework, the above-mentioned two broader performance deficiencies indicate deficiencies in carrying out three sectoral responsibilities, viz., collection, conveyance (transport), and treatment of sewage. These performance deficiencies in sectoral responsibilities could be also traced by mapping instances of failure of various government agencies in discharging various generic, cross-sectoral functions. The following observations and findings clearly point this out.

**Deficiencies in Planning and Designing of Sewer Network:** The master plan for Kanpur city's sanitation and sewage management (collection, treatment and disposal facilities) was inadequate by itself. Additionally, it had no strategy to accommodate the growing population in the peripheral areas of the city, in terms of building new infrastructure. This clearly shows the deficiencies in survey, design and planning functions as well as lacuna in execution of designs and plans for building infrastructure.

**Building Sewers and Sewage Treatment Infrastructure:** The frequent choking and leaking of system also underscores the poor quality of the built infrastructure. It is also clear that the design norms were not adhered to during the process of laying sewers and building other infrastructure such as conveyance systems and pumping stations.

**Operation and Maintenance of the Assets:** The failure of effective operation and maintenance of the assets is primarily rooted in inconsistent stream of finance from different government agencies, especially ULBs, state Government, as well as the central government. Analysis of arrangements for financial resources also reveal that there have been repeated instances of insufficient finance as well as delays in releasing the funds for carrying out operation and maintenance.

**Weak monitoring, evaluation and regulation:** Similarly, monitoring and evaluation of the existing infrastructure facilities shows ineffectiveness in terms of reporting the problems and initiating actions to correct the deficiencies in both the generic functions—survey and planning as well as operation and maintenance.

Thus, the analysis shows that each of the generic functions—from survey and design, planning, execution, operation and maintenance, and monitoring and evaluation—was not

carried out in an effective and efficient manner by the agencies concerned with governance of the sanitation sector. Obviously, there are certain genuine constraints, as well as, serious lassitude and apathy which prohibited agencies from carrying out the functions effectively.

### **3. Analysis of Kanpur's Sewage System using Policy and Governance Framework**

#### **3.1. Applying 'P and G' Framework to the Kanpur Sanitation Sector**

The Policy and Governance Framework based on the Policy and Governance Perspective is available in other report (009\_GBP\_IIT\_PLG\_ANL\_03\_Ver 1\_Dec 2011). The framework is applied here to the Urban Sewage Sector in the case of Kanpur city, which lies in the state of Uttar Pradesh.

The framework essentially helps the researcher unravel the qualitative deficiencies in the sphere of policy and the governance that lead to various problems evident in the infrastructure sectors. The basic thesis is that various deficiencies in these governance instruments and distortions in the governance process lead to various problems in the functioning of the governing agencies and, ultimately affect their performance in achieving the policy objectives set before them. This framework helps the researchers to identify, in systematic manner, these deficiencies in the two instruments of governance (PIs and GAs) as well as distortions in the process of governance. With this knowledge, the researcher can then suggest a set of recommendations to make appropriate changes in these instruments of governance addressing the above-mentioned deficiencies and distortions.

Before going into application of the framework, it is necessary to reiterate the limitations of time and resource, under which the current study was conducted. As a result, some of the steps in the framework were altogether dropped, while some were curtailed to narrower scale and shallower depth. This has imposed severe limitations on the scope and depth of the case study of Kanpur city's sewage system developed here.

The subsequent sections in this report are devoted to application of the framework for the Kanpur's city sewage system. The discussion begins with application of the steps under Stream A of the framework, which is based on the desk-based analysis of various policy instruments. This is then followed by the discussion along the steps of framework under the Stream B.

#### **3.2. Review and Analysis of Major Policy Instruments (PIs)**

To begin with, the P&G Framework is applied in this section for analysis of the content of some major policy instruments. This, however, does not strictly follow the steps elaborated under the Stream A of the P&G Framework articulated in the concerned report (009\_GBP\_IIT\_PLG\_ANL\_03\_Ver 1\_Dec 2011). It needs to be noted that the P&G Framework applied here is a much improved version, improved after incorporating the lessons and

insights gained while applying the earlier draft of the framework in the field-work in Kanpur city. As a result, there are some significant differences in the final version of the framework presented in the earlier report and the framework used in this report for the case-study.

Further, despite efforts to undertake analysis following the framework, it was not possible to undertake this with full rigor and depth as expected in the framework, primarily due to constraints on time and resource. Similarly, due to the same constraints, it was not possible to cover all the policy instruments at the national, state, and city levels in this analysis. Hence, the analysis is limited to some key provisions from the limited number of major policy instruments.

The following paragraphs present review and analysis of the content of some major policy instruments, aimed at identifying the strengths as well as lacunas in the instruments.

### **3.3. Lacunas in the Normative Frame for Governance of Sanitation Sector**

The review of policy documents brings out that there are two broader goals for the governance of the urban sewage sector. The first goal is to increase availability of sanitation services to citizens, especially to the poor and disadvantaged sections. This calls for increase in the capability of the infrastructure required. The second goal is to avoid pollution of water and other natural resources due to sewage and human excreta. These goals largely direct the efforts to discharge sectoral responsibilities and generic functions.

#### **3.3.1. Constitutional Perspective**

The Constitution of India is the original source of all policy instruments. It does cover environmental and health aspects of sanitation. As per the Constitution, the subject of 'sanitation' falls within the legislative jurisdiction of the state governments. The 73<sup>rd</sup> and 74<sup>th</sup> Amendments in the Constitution devolve the responsibility of providing sanitation services to Panchayat Raj Institutions (PRIs) and Urban Local Bodies (ULBs). States are vested with the constitutional right to plan, implement, operate, and maintain sanitation and drainage projects.

#### **3.3.2. Review of Central Policies**

Though 'sanitation' is a subject under the jurisdiction of states, the central government provides support to state governments, PRIs, and ULBs by financing infrastructure, as well as by providing knowledge inputs.

The 'Water Pollution and Control Act, 1974', enacted during the fourth FYP, has been an important policy instrument which could be seen as an effort to increase the role for the central agencies in the sanitation and sewage sectors. Until then, the role of the central government was restricted to provisioning of technical inputs and building capacity of agencies of state governments. To this end, CPHEEO was created under the then 'Housing and Works Ministry', following recommendations of an expert committee set up on public health and sanitation in 1953.

Until the year 2008, not a single policy-document was available as a comprehensive policy instrument on urban sanitation sector in India. Even today, there is no exclusive law on sanitation in India. The vision, goal, and objectives guiding the sectoral development and management are available in a scattered and disjointed form in various policy instruments, such as, CPHEEO Manuals, state laws governing the ULBs and para-statal agencies of various state governments, various guidelines issued by Ministry of Urban Development (MoUD) and Ministry of Environment and Forests (MoEF) of Government of India (GoI) from time to time.

The vision that emerges from the major PIs for sanitation management is rather broad and sketchy, in comparison with the complexity and broad scope of issues involved. The main rationale for provision of sanitation services as part of the public services emanates from the concern for 'public-health' as well as for 'environment'. In other words, sanitation systems are to be developed, operated, and maintained in order to avoid pollution of natural resources and urban environment due to sewage, which might cause serious harm to public health.

The review of policy documents clearly brings out the fact that preoccupation or sole emphasis on the centralized sanitation systems has influenced the vision, rationale, and objectives. This preoccupation is a relic of the earlier policy era (i.e., the initial decades after independence) when the understanding was that the soviet-style, centralized, big systems relying on 'sophisticated' technologies are required for handling the gigantic challenges of development in different sectors. Thus, there is hardly any cognizance of the new thinking in the sector, focusing on the decentralized sanitation systems, depending on the small scale and simpler technologies, which are suitable especially for developing countries. As a result, there has been complete neglect of efforts to develop: (a) schemes and institutions for developing technology-options for decentralized sanitation systems, or (b) an appropriate policy-frame for promoting, incentivizing, and supporting decentralized sanitation systems for urban areas.

The powers and functions pertaining to the eighteen different urban services (including sanitation services) were devolved to ULBs through 74<sup>th</sup> Constitutional Amendment Act (74<sup>th</sup> CAA). Prior to this devolutions, many important urban services such as water and sanitation services were governed by the state governments' departments (such as Public Health Departments or PHDs) or by para-statal agencies created by state government (such as UP Jal Nigam or UPJN). Though the 74<sup>th</sup> CAA devolved eighteen functions to ULBs, many states did not comply with the 74<sup>th</sup> CAA. These states enacted confirmatory legislations that had lots of gaps or escape-routes; and many states did not implement these state laws effectively. As a result, in all major states, para-statal agencies (or PHDs) are still operating with their old mandates when it comes to urban sanitation services. The role of ULBs has remained limited to or providing lands or offering 'No Objection Certificates' to the plans and works undertaken by para-statal agencies.

### **3.3.3. Review and Analysis of National Urban Sanitation Policy**

The 'National Urban Sanitation Policy (NUSP) 2008' acknowledges many of the lacunas in the policy instruments, such as multiplicity of agencies, functional overlaps, fragmented roles and responsibilities, lack of attention to peri-urban areas, and problems created by poor awareness and occupational aspects of the sanitation. It also mentions the need to reach to the un-served and poor sections and availability of limited technology choices. Importantly, it accepts a more comprehensive definition of the sewerage and sewage management and does not restrict scope of sanitation merely to the safe disposal of grey water and human excreta. The policy emphasizes on three core goals: (a) awareness generation and behavioral changes, (b) cities free of open-defecation, and (c) integrated city-wide sanitation. It also encourages the states to formulate their own strategies and city-sanitation-plans and rearrange institutional arrangements. The demand-driven approach and awards program for behavioral change are some of the key strategies suggested.

While focusing in its discussion on knowledge generation, capacity building and support, financial support, national level coordination, monitoring and evaluation as activities of the union government, the policy lays equal emphasis on importance of the strategies to be adopted by the states.

However, as far as the gaps are concerned, the central government seems to have not learnt any lessons from the earlier experiences of the two strategic approaches, viz., (a) the Demand-Driven Approach and (b) Award Schemes. Rather, the central government continued to introduce new schemes such as Total Sanitation Campaign following the same approaches, without undertaking serious and sufficient analysis of the ground-situation and efficacy of these approaches.

The experience of *Ganga Institutional and Community Development Project (GICDP)* undertaken in Kanpur is worth a mention. This program focused on capacity building aspects is considered as an abject failure. The project had serious design lacunas, which were further aggravated by circumventions, distortions, and perversions of the strategies of implementing agencies. Essentially, such projects and program focused on institutional and knowledge/ capacity building look at the ground reality in very naive and sanitized manner. In doing so, they fail to take cognizance of the power exercised on the governance processes by the informal norms and interests of the stakeholders. The programs, due to same reasons, fail to build subversion-proof mechanisms and procedures for transparency, accountability and public participation. These failures automatically lead to various circumventions, distortions, and perversions. It was reported that when the coordinator of the project, a British national, tried to put his foot down, he was forced to withdraw. There is great need to analyze, in an in-depth manner, the capacity building and knowledge inputs programs for these lacunas.

Similarly, there are problems in the manner in which projects and program based on Demand-Driven Approach (DDA) are conceived. The DDA proposes that if there is demand for the program from the community, then the community will have the sense of

‘ownership’ about the program. This will translate into effective monitoring of the construction work as well as efficient and effective operations and management of assets by the community.

However, more often than not, the programs based on DDA approach are not designed in subversion-proof manner. This then allows the vested interest to capture the program, who collude together to demonstrate demand on paper, when the community is not even aware, let alone have commitment and ownership about the program. Thus, though the DDA approach is desirable, the on-ground complexities require that the programs are designed to guard against such pitfalls. Such designs would require sound analysis from the policy and governance perspective and measures that are hard to implement in a targeted and time-bound manner especially for commercial consultants and professional NGOs.

Further, though the policy makes a mention of ‘low cost sanitation,’ it does not give due space for the decentralized sanitation systems. As a result, various policy-level measures for facilitating sufficient experimentation, pilot-testing, and incentives for development of markets for decentralized sanitation systems are completely neglected.

Finally, though NUSP takes cognizance of the policy gaps such as ‘multiplicity of agencies’ and their ‘fragmented roles’ as important lacunas in the current institutional set up in the sanitation sector, it does not provide an alternative model of the institutional set-up for the states to follow. This leaves out the urgent need of streamlining all the three important functions in the governance, Normative Framing, Execution, and Compliance-Ensuring.

### **3.3.4. Review and Analysis of Uttar Pradesh Urban Sanitation Policy (UPUSP)**

Following the NUSP, the Uttar Pradesh government has also drafted the ‘Uttar Pradesh Urban Sanitation Policy (UPUSP)’. While adopting certain provisions from NUSP, the UP government watered down some of the provisions in NUSP in the UPUSP<sup>2</sup>. UPUSP has retained goals and objectives of the NUSP in the same manner. Similarly, it has also retained the concept of ‘city-sanitation-plans’. However the state government diluted many important provisions from NUSP. In fact, the original draft given to the UP government by the consultant was detailed and did not just retained provisions of the NUSP, but presented a good analysis of these provisions with implications for the state<sup>3</sup>. The key provisions of this draft are presented in (Table 1)

However, the final and official draft of UPUSP posted by ‘International Environmental Law Research Centre’ on its website has remained silent on many key aspects such as:(a) streamlining of the organizational structure in order to remove the overlaps and conflicting jurisdictions, and (b) strengthening regulatory functions of the government as well as finance-related provisions. Interestingly, it does not talk about reforms in the required detail. The UPUSP has provided for establishment of ‘City Sanitation Task Force (CSTF)’.However, it has curtailed the functions of the CSTF as compared to the design

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<sup>2</sup> Available at [www.ielrc.org](http://www.ielrc.org)

<sup>3</sup> This detailed draft policy documents is available on the India Sanitation Portal.

proposed by the consultant, by limiting it to a body responsible for awareness building and implementing campaigns under the chairmanship of the City-Mayor or ULB. In addition to these lacunas, the official draft of UPUSP also suffers from the lacunas of NUSP discussed before.

**Table 1: UP Urban Sanitation Policy-Key Provisions in the Suggested Draft**

<b>Why?</b>	<b>Objective:</b> Public Health, hygiene and protection of the environment
<b>For Whom?</b>	<b>Key Benefits and Beneficiaries:</b> Toilet facilities for individuals, community and public in general, Special attention to the women, children and handicapped
<b>What?</b>	<ul style="list-style-type: none"> <li>• <b>Sanitation Infrastructure:</b> 1.Low-cost toilets, community-toilets, 2. Collection, Conveyance, Treatment and Reuse Infrastructure for sewerage and solid waste (all types), 3. Infrastructure for Storm water collection, reuse and disposal, 4. Disposal of liquid and solid waste in environmentally sound manner.</li> <li>• <b>Programs and Schemes:</b> Infrastructure building programs (such as JNNURM, UIDSSMT, State-programs), Awareness Building Programs (TSC, urban sanitation awards)</li> </ul>
<b>Who, &amp; How?</b>	<p><b>Standard Functions and Existing Mechanisms:</b></p> <ul style="list-style-type: none"> <li>• <b>Planning:</b> ULBs and Development Authorities, through city sanitation plans based on assessment of gaps in sanitation-infrastructure</li> <li>• <b>Finance:</b> ULBs through ‘User-Charges’, SG +CG though their own sources</li> <li>• <b>Execution:</b> ULBs, Development Authorities, and Private Sector Agencies</li> <li>• <b>Awareness Building:</b> ULBs, DAs, and NGOs/CBOs</li> <li>• <b>O&amp;M:</b> ULBs and Private Sector Agencies</li> <li>• <b>M&amp;E, Coordination of Sanitation Programs:</b> State Urban Development Department, with ULB, Health Department, Housing, Environment</li> </ul> <p><b>New Mechanisms:</b>  <b>City Sanitation Task Force:</b> It will undertake the following functions:(a) INVOLVE multiple stakeholders; (b) CONDUCT sanitation campaigns; (c) APPROVE progress-reports of implementing agencies, material purchase and ‘city-sanitation-plans’, agencies/NGOs contracted by implementing agencies; (d) HOLD consultation with citizens for approvals, field visits to monitor; (e) GIVE press-briefings, (f) RECOMMEND ULBs the fixing of responsibilities on a permanent basis, (g) IMPLEMENT ‘information-system-improvement plan’ and ‘performance-improvement-plan’</p>
<b>Key Features</b>	<ul style="list-style-type: none"> <li>• Equitable provisioning, focus on vulnerable sections,</li> <li>• Designing infrastructure according to use-culture and traditions based on indigenous knowledge and skills</li> <li>• Commitment to devolution of the responsibilities</li> </ul>

### 3.3.5. Gaps Related to Standards

UPJN is the state-level agency for the state of Uttar Pradesh, which is entrusted with the responsibility of developing standards relevant for the state for the sectors of water supply

and sanitation. However, UPJN has largely been following the manuals developed by CPHEEO (Central Public Health Engineering and Environmental Organization), except in cases where external agencies required different standards, such as in the case of sewage treatment plant built with assistance from the Dutch Bilateral Cooperation agency.

‘Central Public Health Engineering and Environmental Organization’ (CPHEEO) has been responsible for creating norms at the central level. CPHEEO developed a comprehensive manual on sewage collection and treatment in 1993. There was no comprehensive manual or guidelines before development of this manual. The design standards in this manual revolve around four key aspects: (a) Engineering, (b) Environmental, (c) Process, and (d) Costs. However, the major gap in the manual is that it concentrates only on the centralized systems for collection, transport, and treatment designs. It does not take any cognizance of decentralized systems for sanitation. Effectively, norms for decentralized systems have not been developed.

### 3.4. Lacunas in the Governing Agencies in Kanpur’s Sewage System

The step-wise procedure depicted under the Stream B of the P&G Framework is applied here with focus on the deficiencies in the structure and functioning of the governing agencies working in the urban sewage sector in the city of Kanpur and at the state level in the state of Uttar Pradesh. Due to the limitations on the resources, some steps from the framework are not covered here, while some steps are covered in somewhat limited manner.

#### 3.4.1. The Governance Grid for the Urban Sewage Sector in Kanpur

The analysis begins with setting the sectoral context by developing the Governance Grid for the sector under study. The Governance Grid is expected to depict the comprehensive picture of the responsibilities of the governing agencies functioning in the sector. Table 2 provides, the Governance Grid for the urban sewage sector in the city of Kanpur. It shows all the important Sectoral Responsibilities in the top row, while presenting all the relevant generic functions in the left-most column. Each of the cells from the grid—representing one generic function under one sectoral responsibility—involves three core governance tasks.

**Table 2: Governance Grid for the Urban Sewage Sector in Kanpur**

Generic functions	Collection of sewage	Conveyance of sewage	Treatment of sewage	Disposal of sewage
Survey, planning & technical design	Policy-making	Policy-making	Policy-making	Policy-making
	Policy-execution	Policy-execution	Policy-execution	Policy-execution
	Compliance-ensuring	Compliance-ensuring	Compliance-ensuring	Compliance-ensuring
Financing and administrative approvals	Policy-making	Policy-making	Policy-making	Policy-making
	Policy-execution	Policy-execution	Policy-execution	Policy-execution
	Compliance-ensuring	Compliance-ensuring	Compliance-ensuring	Compliance-ensuring

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Generic functions	Collection of sewage	Conveyance of sewage	Treatment of sewage	Disposal of sewage
Infrastructure development	Policy-making	Policy-making	Policy-making	Policy-making
	Policy-execution	Policy-execution	Policy-execution	Policy-execution
	Compliance-ensuring	Compliance-ensuring	Compliance-ensuring	Compliance-ensuring
Operation, maintenance, & service provision	Policy-making	Policy-making	Policy-making	Policy-making
	Policy-execution	Policy-execution	Policy-execution	Policy-execution
	Compliance-ensuring	Compliance-ensuring	Compliance-ensuring	Compliance-ensuring
Monitoring and evaluation	Policy-making	Policy-making	Policy-making	Policy-making
	Policy-execution	Policy-execution	Policy-execution	Policy-execution
	Compliance-ensuring	Compliance-ensuring	Compliance-ensuring	Compliance-ensuring

### 3.4.2. Mapping of the Governing Agencies

An overview of the GAs serving sanitation sector of the Kanpur city shows there are seven different governing agencies involved in sectoral responsibilities of collection, transport and treatment of sewage in Kanpur, including providing safe sanitation services to the citizens.

**The Uttar Pradesh Jal Nigam (UPJN):** UPJN was established in 1976 by UP state government, in order to carry out all functions in the Water Supply and Sanitation (WS&S) sector in the state<sup>4</sup>. UPJN is entrusted with all major functions, generic such as Planning, Execution, Financing as well as, O&M, M&E as well as building infrastructure. Nonetheless, it is an official agency for defining state-norms for WS&S, both, rural and urban. It has its functional branch office in Kanpur, which is named as ‘Ganga Pollution Control Unit’ (GPCU) after the commencement of Ganga Action Plan in 1985. It has been the primary agency for creating assets under GAP I as well as under GAP II.

**Kanpur Jal Sansthan (KJS):** KJS is part of the ‘Jal Sansthan’ agencies established by the state governments especially for undertaking improvements and operation of the WS&S schemes at the local level. Initially, these agencies were established for famous KAVALS towns (and later extended to other cities). There is a considerable overlap in functions of these Jal Sansthans; however, JSs function under UPJN. In Kanpur, KJS was earlier responsible for creating and maintaining water supply and sanitation related assets, but recently it was brought under KNN. In future, though it will not have an independent identity, it would be responsible for functions and possess all powers of KNN. At present, it maintains the sewer-network, especially gravity-based network.

**District Urban Development Agency (DUDA):** It works under state’s Urban Development Agency (UDA), and implements government schemes. It also discharges the duty of creating water and sewage facilities for Malin Bastis (Slums) in Kanpur. DUDAs and UDAs are

<sup>4</sup>Refer: Uttar Pradesh Water Supply and Sewerage Act, 1975

<sup>5</sup> KAVAL towns are Kanpur, Agra, Varanasi, Allahabad, and Lucknow, the bigger cities in Uttar Pradesh.

established under a central government scheme called 'Swarna Jayanti Shahari Rozgar Yojana'.

**Kanpur Development Authority (KDA):** KDA was established under UP Urban Planning and Development Act in 1973. The agency is mainly responsible for planning and facilitating development in the peripheral parts of the city. Main functions include: planning, land acquisition and development, constructing and facilitating housing and other infrastructure, financing of scheme/s or raising finance from public and private agencies. In sewage sector, it discharges the functions of constructing sewers for suburbs, including pumping stations and STPs.

**UP Housing Development Board (UPHDB):** It is primarily established for providing housing for LIG and EW sections of society. It develops housing colonies, has the mandate to build sewage system for the developed area. In context of Kanpur, UPHDB has developed 3 major schemes, which are known as Awas-Vikas.

**Uttar Pradesh Pollution Control Board (UPPCB):** As specified in Table 2, the agency functions under the Water (Prevention and Control of Pollution) Act, 1974. In the context of sewage collection and treatment, it has powers to monitor, evaluate, control, issue notices, prosecute and penalize the persons / agencies responsible for pollution.

**District Magistrate and Divisional Commissioner:** The officials are specially directed to monitor the progress of GAP I as well as GAP II, including other River Action Plans. District Magistrate (DM) and District Collector (DC) have important powers to set up departmental enquiries and penalize officers and employees for non-compliance issues too.

### **3.4.3. Mapping of the Governing Agencies**

Different governing agencies have been functioning in the city of Kanpur in the urban swage sector. A quick analysis of their functions, responsibilities, and jurisdictions indicate at a large number of and significant overlaps among them. These overlaps are identified by cross-mapping of provisions from different policy instruments that define and shape the concerned structural characteristics of the governing agencies.

Table 3 and 4 present mapping of agencies, handling different generic functions under the three main sectoral responsibilities. The sectoral responsibility of Transport or Conveyance of sewage is divided in two sub-types. The tables vividly depict the overlapping functions and responsibilities of different agencies. The following paragraphs briefly discuss the overlaps in the structural elements or characteristics of the governing agencies involved.

**Table 3: Agencies Involved in Sewage Management in Kanpur**

Agency	Functions
U.P Jal Nigam (UPJN)	Mainly responsible for construction, operation and management of water supply and sanitation related infrastructure across the state, on behalf of the state government
Kanpur Jal Sansthan (KJS)	Construction and management of the water supply and sewage infrastructure
Kanpur Nagar Nigam (KNN)	Local government agency, responsible for providing basic services including water supply and sewerage, storm-water drainage, waste-disposal, roads and bridges, electricity etc. Owns the assets.
Kanpur Development Authority (KDA)	A para-statal body, mandated to build infrastructural facilities including housing in Kanpur. It acquires land and develops new colonies, suburbs and builds all infrastructural facilities for it.
UP Housing Development board (UPHDB)	UP housing board is an autonomous body, that frames, plans and executes housing and market development projects, provides all infrastructure facilities in the developed areas and enjoys powers to acquire and dispose land for the same (Under State Department of Urban Development)
District Urban Development Agency (DUDA)	Agency specifically established to undertake and implement infrastructure programs under central schemes, mainly for urban BPL families and slums (Under Ministry of Urban Employment and Poverty Alleviation)
UPPCB (Kanpur)	Pollution control board (under Environment Protection Act, 1986) works to prevent water, air and noise pollution and penalizes for non-compliance of the norms.
District Collector and Magistrate (Kanpur Rural & Kanpur Urban)	Monitoring agency for all the projects, programs in the district and region in general, as well as (under special directions) for monitoring of GAP and other RAPs.

**Table 4: Overlap in Functions of Sewage Management Agencies in Kanpur**

Generic Functions	Sectoral Responsibilities			
	<i>Collection of Sewage (Connecting HHs)</i>	<i>Transport of Sewage (Gravity based)</i>	<i>Transport of Sewage (Pumping based)</i>	<i>Treatment of Sewage</i>
<i>Survey and Design</i>	KNN, UPJN, KDA, UPHDB, DUDA	KNN, UPJN, KDA, UPHDB, DUDA	UPJN, KDA, KNN	UPJN
<i>Planning</i>	KNN, UPJN, KDA, UPHDB, DUDA	KNN, UPJN, KDA, UPHDB, DUDA	UPJN, KDA, KNN	UPJN
<i>Financing</i>	KNN, CG, and SG.	KNN, CG, and SG.	UPJN, KDA, KNN	KNN, CG, and SG.
<i>Execution (Constructing Sewers)</i>	KNN, UPJN, KDA, UPHDB, DUDA	KNN, UPJN, KDA, UPHDB, DUDA	UPJN, KDA	UPJN
<i>O &amp; M</i>	KJS (KNN)	KJS (KNN)	UPJN	UPJN
<i>M&amp;E (Only Third Party Monitoring)</i>	KNN, UPCB, DM-Kanpur-Nagar, Regional Commissioner	KNN, UPCB, DM-Kanpur Nagar, Regional Commissioner	KNN, UPCB, DM-Kanpur Nagar, Regional Commissioner	KNN, UPCB, DM-Kanpur Nagar, Regional Commissioner

**Overlaps in Planning:** UP Jal Nigam enjoys full powers for developing state plans. However, local urban local bodies and local Development Authorities also play important role in this. This overlap results not only in confusion but also leads to somewhat chaotic situation. This is because all the five agencies (viz., UPJN, KDA, UPHDB, KNN, and DUDA) prepare designs and vie for projects for the sewerage system. Such a situation also results in complete

absence of integrated planning or integrated development of the city, including that of its sewage system.

***Overlaps in Designing and Building Infrastructure:*** Overlaps in planning also result in overlaps in design and building of infrastructure. According to the laws, three independent institutions, viz., Kanpur Nagar Nigam, UP Jal Nigam, and Kanpur Jal Sansthan have the mandate to design and build sewers and sewerage systems at different scale. In addition to these three institutions, Kanpur Development Authority and UP Housing Development Board also construct sewers and STPs in the areas where they carry land and housing development work. Moreover, there is a special agency called District Urban Development Agency, established to undertake programs for slums, which also looks after water and sanitation issues in slums.

***Overlaps in Financing Capital Costs:*** As far as the financing of infrastructure is concerned, hitherto, the central government (CG) and the state government (SG) have been bearing the responsibilities, and even between them, the CG has shared the bulk of the load. KNN also spends—through ward-levels works—funds for small-scale capital works such as those required for connecting households' water-closets to the sewers. Nonetheless, this overlap between the functions of local and state/central governments is not of much importance. However, the overlap between functions of agencies of the central and the state governments really harms the sector significantly. This overlap allows the tactic of 'passing the buck' to each other, when it comes to accountability; it also results delays in decisions over financial allocations and release of grants. For example, in GAP I and II, confusions as well as disagreement between the state and central governments over the share of capital costs affected the progress of construction of GAP assets and quality of these assets.

***Overlaps in Operation and Management of Assets:*** All these five agencies are expected to transfer assets to KJS (under KNN) for maintenance, as per the current arrangements. It was found that, in practice, along with KNN (KJS), UPJN shares these responsibilities, in which KJS only maintains the gravity-driven sewer networks, whereas UPJN maintains the pumping-driven sewer networks and STPs. Thus, half of the sewage collection infrastructure is managed and maintained by KJS (KNN), while remaining half is managed by UPJN. In addition, UPJN maintains pumping and treatment infrastructure.

***Overlaps in Financing of Operations and Maintenance:*** In terms of finances for operation and maintenance, for many years, there was confusion. Formally, the UP Water Supply and Sewerage Act, 1975 empowers UPJN to define the tariffs based on the projected or actual costs of operation and management. Similarly, UP Municipal Corporations Act, 1959 also empowers Municipal Corporation of Kanpur for the same function as well for levying and collecting taxes from the citizens. On the issue of determination of tariffs/taxes, this overlap always results in conflicts or disagreements between these two agencies, even in formal interactions. However, in practice, both provisions are not operational and water supply schemes are dependent on state finance for operation and maintenance.

**Overlaps in Monitoring and Evaluation (M&E):** The function of M&E is generally vested with both the types of agencies: (a) implementing or executing agencies, and (b) agencies that finance the works. In addition, special-purpose agencies such as Pollution Control Agencies also discharge the responsibility of monitoring and evaluation. In effect, the Kanpur sewage system is monitored by different agencies, such as KNN (as a local government agency and responsible for providing basic services), KDA and UPJN (as implementers as well as, as a agencies mandated to carry out this function according to respective laws), KJS (as an agency discharging operation and maintenance function), and the Kanpur PCB Unit (as an agency controlling the water pollution). Further, in addition to all these agencies, the state government and the central government agencies (departments) also undertake monitoring through the local agencies as well as through by specially-appointed (temporary) agencies. Despite the presence of all these M&E agencies, Kanpur swage system suffers from significant level of non-compliance and non-adherence, primarily because of this overlap and resulting confusion and dilution of responsibility.

### **3.5. Other Lacunas in the Structural Characteristics of GAs**

Apart from the overlaps which came out sharply in the analysis, some other instances of different types of lacunas could be found in the structural elements or characteristics of the governing agencies (GAs) involved in governing the sewage sector in the city of Kanpur during even such a short study.

**Gaps in Capacities and Administrative Systems:** Gaps in administrative system are wide-spread across the governing agencies involved in the sector institutions. Apart from the GPCU, functioning of every important agency is marred by lack of adequate and dedicated staff, constant shifting of responsibilities, and unclear reporting structures. For example, despite being the only central government agency for direct monitoring of water pollution and GAP, the UPCB Kanpur Unit is very poorly staffed.

**Lacunae in the Financial Arrangements:** Many of the governing agencies involved in the sector (including the local government agencies as well as para-statal agencies) have been entrusted with the function of raising finances through levying of charges, taxes, fees, or by issuing debentures and bonds (e.g., UPJN). However, their decisions in this regard are directly and tightly controlled by the state government. In fact, while transferring the important functions of urban services to the urban local bodies following the 74th constitutional amendment, the state government did not decentralize the sources of funds. Obviously, all the para-statal agencies and KNN are poorly financed and starved of funds even for their daily operations. It was reported that the state government seldom disburses adequate funds for operation and maintenance of sewage management assets in timely manner.

**Vagueness in Relationships between KDA and UPJN:** The relationship between KDA and UPJN is vaguely defined in both the acts concerned, except two provisions which establish that: (a) The Managing Director of UPJN is an ex-officio member of the Development

Authorities (DAs)<sup>6</sup>, and (b) Development Authorities require that every amenity constructed in the 'development-area' is consistent with the master and zonal plans Prepared by the DA. Prima facie, these provisions establish the control of the DAs (in this case, KDA) over each sewerage or drainage proposal in the development area, but also create contestation, as UPJN also enjoys same functions as far as the sewerage and water supply is concerned.

***Vagueness in Relationships between KJS and UPJN:*** UPJN has authority to inspect the operations of Jal-Sansthans (JSs) in the state, to finance new schemes of local authorities including JSs, as well as to undertake construction of its own schemes, subject to state directions or permissions. However, if both agencies operate in one city, those are independently accountable to the state government, but not directly accountable to each other. Thus, UPJN seems to have supremacy over the Jal Sansthans in the state, but only indirectly, as both the institutions have independent jurisdictions.

### **3.6. Misaligned Perceptions and Norms of Stakeholders**

As mentioned in the report on the framework, informal rules or norms do guide thinking and behavior, in significant manner, of not only individual and informal stakeholders but also of the governing agencies and formal but non-governing agencies. Naturally, these norms do affect the functioning of the GAs, which are trying to direct the behavior and thinking of stakeholders in the direction appropriate for achievement of the policy objectives set before them.

The informal rules or norms are often rooted in perceptions of the respective stakeholders towards the overall reality and the other stakeholders. But, the relationship between the behavioral patterns, norms and perceptions is not necessarily always a one-way causal relationship. Many times, repeated behavior might give rise to new norms, and a particular normative perspective can also engender new perceptions. In short, the relationship between behavior patterns, norms, perceptions is cyclical.

These perceptions and norms of a stakeholder guide and prompt the stakeholder to act in a particular direction. At the same time, the GAs attempt to guide the thinking and behavior of the stakeholder in a particular direction in order to achieve the policy objectives by employing certain incentives or disincentives through the policy instruments. If these two directions are not aligned, there is tussle between forces pushing the stakeholder in two contradictory directions. In this situation, the actual behavior of the stakeholder depends on how the stakeholder responds to, on one hand, the incentives and disincentives provided in the policy, and, on the other hand, the internal compulsion created by the misaligned norm. If the force of the norm overwhelms the motivation provided by policy incentives, then the behavior of the stakeholder results in some distortion or perversion in the governance process. These distortions or perversions in the functioning of governing agencies create deficiencies in their performance, harming the efforts to achieve policy objectives..

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<sup>6</sup> Refer Section 4 (3) of The Uttar Pradesh Urban Planning and Development Act, 1973

The study found out many perceptions that shaped the norms and behavior, which were misaligned with the policy objective of cleaning Ganga.

***'The holy river Ganga can never be polluted'***: There is a wide-spread belief that the river Ganga is a holy river and can never get polluted. The popular belief that the holy-river Ganga can be dirty but never be polluted is an expression of a deep cultural belief of a large religious community. This concepts of being 'dirty' and being 'polluted' carry significantly different meanings altogether, which reinforces another perception that 'the river especially the Ganga has self-cleansing capacity'. These perceptions shall perpetuate the ignorance about the 'pollution' of the river and, thus, breed apathy in the minds of the local people about pollution abatement works.

***'The Ganga is not a holy river for us'***: It is increasingly said that Ganga holds religious importance for only a particular religious community, but for other communities. It is a wide-spread belief that, due to this feeling, these non-believing communities are not sensitive to the issue of pollution of Ganga.

***'The ULBs are neither capable nor motivated enough'***: Various experts and academics often champion the cause of decentralization of funds, functions, and functionaries to the urban local bodies. This, according to some of them, is the panacea for improving governance of municipal public services. However, there is an increasing perception that the ULBs are neither capable nor motivated to take-over and discharge the governing functions—in efficient, effective, and timely manner—especially those related to the sewage and solid-waste management. This perception is quite rampant in the general public, media, state-level bureaucracy, and even in some sections in ULBs. This is found to be leading to demands for privatization of these functions.

***'Urban un-connectedness to the river'***: Despite significant failure of the GAPs, there has not been any strong disapproval on the part of the citizens, their representatives from the urban areas on the banks of the river and her tributaries. The failures clearly are rooted in lack of effective extraction of accountability of the governing agencies. However, the problem is not restricted only to lack of appropriate mechanisms for extraction of accountability. The problem also lies in general apathy of the urban citizens and their representatives who are unwilling to extract accountability. This apathy seems to be rooted in perception of remoteness and lack of attachment that common urban citizen harbor toward the river. As a result of this apathy in urban citizens, the political parties do not find the issue of pollution in Ganga worth investing their time and resources as there is no political dividend to gain. One explanation of this apathy or un-connectedness is the disjunction urban citizen experience in their daily lives, their daily needs on one hand, and the river on the other.

***'Kanpur Jal Sansthan is left with dirty work of maintenance'***: There is wide-spread feeling among the functionaries of KJS that KJS is a low profile agency. This perception seems to have emerged because of the fact that KJS, being a local agency, its engineers enjoy less powers, salaries, and status. They believe that they have been assigned this dirty function of

cleaning of sewers and other ‘engineering’ agencies enjoy respectable functions of building infrastructure. This perception breeds apathy toward their work of maintenance of sewerage network.

**‘We can be held responsible for our corruption, but not of others’:** The officials in the agencies which have been assigned with the operation and maintenance (O&M) related responsibilities often face the music for bad operations and maintenance and are blamed for the resulting performance problems. However, they claim that many of the O&M problems are rooted in the bad designs and sub-standard work during the stage of building of the infrastructure. These problems during the building of infrastructure are believed to be results of large-scale corruption, nepotism, incompetence, and sheer apathy on the part of the agencies involved in the infrastructure building. Hence, the functionaries who are given the responsibility only of O&M feel that they cannot be held accountable for the misdeeds of the infrastructure building agencies. This situation makes it difficult to nail the accountability of problems evident at the users’ end.

**‘Cleaning of Ganga a job of UP Jal Nigam’:** Many agencies believe that the cleaning of Ganga is a job of the UPJN since it administers a special authority called Ganga Pollution Control Unit (GPCU). KNN is agency which is ultimately responsible for providing sewage services to the citizens of Kanpur. However, KNN neither has any powers to monitor the UPJN nor it has any role in operationalizing the related programs. Even if it faces any problem related to pollution in Ganga, it cannot do much as KNN does not enjoy any direct powers over UPJN or pollution related programs. This allows KNN to shirk away from the responsibility of providing good sewage services.

**Courts do not have control over execution, could be taken lightly:** on many occasions, the High Courts and the Supreme Court have intervened on the issue of pollution of Ganga. However, there is a wide-spread perception that the role of the courts has been not effective mainly because the execution of the court orders is finally rested with the public governing agencies, which remain unaccountable even to the courts. The governing agencies and general citizens feel that *“courts do not have police force of its own to control public governance agencies”*. For this reason, on one hand, the citizens are increasingly losing faith in efficacy of judicial interventions, and, on the other hand, the governing agencies are increasingly getting bold in flouting the court orders. In fact, some officials are bold enough to blame court interventions for the delays in implementation of programs.

### **3.7. Misaligned Interests**

In the report on the framework (009\_GBP\_IIT\_PLG\_ANL\_03\_Ver 1\_Dec 2011), interests were defined as the expectations or desires of obtaining benefits—especially economic, financial, or political benefits—on the part of the stakeholder.

Interests are powerful factors that shape and guide thinking and behavior of individuals and organizations. Interests prompt the stakeholder to think and behave in a particular direction, whereas the GAs attempt to guide the thinking and behavior of the stakeholders

to think and behave in a particular direction, using various incentives and disincentives through policy instruments and in order to achieve the policy objectives. If these two directions are not aligned, then the actual behavior of the stakeholder depends on its relative responses to, on one hand, to policy incentives, and, on the other hand, the lure of interests. If the lure of interest overwhelms the motivation provided by the policy incentives, then the actual behavior of the stakeholder creates distortion or perversion in the governance process, affecting achievement of the policy objective adversely. This subsection maps some major stakeholder and their main interests. It also discusses how these interests manifest in misalignments and how these misalignments adversely affect the policy objective of cleaning the river Ganga. Some of these points are briefly depicted in Table 5.

**Table 5: Stakeholders and their Interests in Sanitation Sector (Kanpur)**

Stakeholder Group	Major Interests	Manifestation in Misalignments	Adverse Impact on the Policy Objective
Political parties	Securing and increasing popular support from the electorate	Reluctance to levy adequate charges for recovering the costs even of operation and maintenance of the sewage system	Overall financial viability of the sewage system is affected Expansion of infrastructure of public services affected
		No push for connecting households to the main sewers	Sewage keeps flowing through <i>nallas</i>
	Securing capital intensive projects and monetary benefits	Nexus between contractors and politicians is formed for sharing the benefits	Adverse impacts on the overall financial viability, quality of work, technical efficiency, siting and timing of costly projects
UPJN	Ensuring expansion of economic and political clout of the organization	Preoccupation with bigger capital-intensive projects Neglect of the operation and maintenance aspects	Low level of O&M efficiency, reduction in the life of assets, alienation of users
Kanpur Jal Sansthan	Ensuring expansion of economic and political clout of the organization	Without opportunity for engaging in capital works, KJS is stuck with O&M job, with no extra benefits. The KJS officials also find their salaries and financial powers much less than their counterparts in other agencies. This results in loss of moral, apathy, and bitterness towards the responsibility entrusted.	Adverse impact on O&M, quality of services, life of the assets, goodwill of users
Kanpur Nagar Nigam	Ensuring expansion of economic and political clout of the organization	Securing (often extorting) benefits from the infrastructure building projects, at the time issue of no-objection-certificates to the executing agencies such as UPJN	Delay in work, cost-overruns, artificially inflated budgets, low quality construction, neglect of quality control, handing out undue benefits to all other concerned
Private Service Providers (Septic Tank Cleaning Services)	Securing steady business revenues	Lobby against measures for connecting household to sewer lines	Coverage by the sewer system is adversely affected, allowing untreated sewage to flow into the river

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Stakeholder Group	Major Interests	Manifestation in Misalignments	Adverse Impact on the Policy Objective
<b>The Pujari/Pandit Community</b>	Securing steady business revenues	Reinforcing the deep-rooted belief that the Ganga river cannot be polluted	Increases the apathy of the people towards the pollution issue
<b>Business Sections</b>	Keeping the cost of business operations minimum to the extent possible	Mixing of commercial and industrial effluents with the domestic sewage, making the treatment of sewage difficult	Increased flow of untreated or semi-treated effluents into the river
<b>State level – ruling party</b>	Ensuring continuation and expansion of political power and economic gains to the people, sections, and areas providing electoral support	Prioritizes money allocation in the best possible manner to the areas and towns, which provide electoral support	Creates regional imbalance across the state, results in overdesigning or under-designing of infrastructure, neglect of funds for operation and maintenance of assets
<b>Design Consultants</b>	Securing steady business revenues and profits (which are based on percentage of the total project costs)	Prescribing and supporting solutions/projects requiring large-scale investments, with the neglect of low cost but effective solutions Formation of nexus with other stakeholders having vested interests in big-ticket projects	Waste of scarce resources on unnecessary high-cost projects, affecting overall expansion of the sewage system
<b>Technology Companies</b>	Securing steady business revenues at the least costs	Selling of technologies which they sell and which bring high levels of profits, rather than providing technologies which are appropriate	Waste of scarce resources on unnecessary technologies, which often prove inappropriate and unviable at the time of operations
<b>Donors/Financers</b>	Pushing Broader Policy agenda Sponsoring Chosen Consultants	Promotion of technologies and policy models that suite to their larger agendas	End up thrusting policy models and technological solutions that are unsustainable and unviable, affecting the broader policy objective of cleaning of Ganga
<b>Common Citizen</b>	Cutting down the expenditure on daily needs	Reluctance to pay the user-fees charges for public services Reluctance for connecting water closets (WCs) to the sewers, and allowing swage to flow into <i>nallas</i>	Perpetuation of the financial crisis of governing agencies Perpetuation of the open sewage problem in the city
<b>Contractors</b>	Securing steady business revenues at the least costs	Inflating the costs of the projects Forming the nexus with political and administrative decision-makers	Impact on coverage of the sewage system, low quality and shorter life of assets, early brake-down of the sewage system

**Political Parties:** Popular support is the principal source of power for political parties. Hence as part of electoral politics, political parties are always sensitive and supportive of perceptions of the dominant sections of the electorate. The proposals to raise taxes or impose new fees on the services is part of the reforms attempt to ensure financial viability of the sectoral operations. However, ruling political parties always show reluctance to raise taxes, fearing loss of votes in the next elections. Opposition parties also show a lot of political opportunism and campaign against the ruling parties, if they propose to raise taxes or user-fees. This affects the revenue and perpetuates the problems of paucity of funds for operation and maintenance. This is the situation around the issue of payment of O&M costs by KNN to UPJN, as per the court guidelines. According to the orders issued by the Hon. Supreme Court, KNN is expected to collect user-charges and pay for operation and maintenance of the assets created under GAP I and II. However, since the KNN has not been successful in imposing and collecting user-fees and always short of money otherwise, it has never been consistent in paying the required amount to UPJN. In the end, the UP state government started sending the money directly to UPJN, by cutting the amount from the KNN's share in grants from the state government, which are actually meant for creating new and much required infrastructure for improving other basic services. This failure on the part of KNN has not only increased the strife between UPJN and KNN, but also has adversely affected the expansion of the infrastructure in the city.

**Uttar Pradesh Jal Nigam:** It is a well-known fact that capital intensive, high cost projects bring with them political clout and economic benefits to the governing agency and its functionaries. As a result, all governing agencies are always attempting to chase and secure such projects. In the case of urban sewage sector in UP, other governing agencies and the civil society always accuse UPJN of being preoccupied with and chasing high capital cost projects. This preoccupation results in neglect of operation and maintenance of the assets.

**Kanpur Jal Sansthan:** The KJS officials always try to find point out lacunas and bitterly complain about the quality of infrastructure during the joint inspection of assets created by UPJN. This joint inspection is conducted at the time of handing over the assets to KJS for maintenance. The main grouse underlying these complaints is the disparity between the functions and powers of KJS and UPJN. While UPJN works on infrastructure building project, KJS is saddled with the responsibility of maintenance of sewer line. Further, while the infrastructure projects involve very high level of expenditure, the level of expenditure involved in the maintenance work is very low. The UPJN engineers of the same rank enjoy powers for sanctioning of larger expenditure and earn more salary than what their counterparts of the same rank in KJS enjoy. All these create serious disparity in the total earnings of the officials of the two organizations. This result in serious neglect of O & M, which, in turn, affect quality of service, life and utility of assets, and good will of users/citizens.

**Kanpur Nagar Nigam (KNN):** KNN officials have the similar grouse against the UPJN colleagues. As a result, they strike when they could wield their power of creating trouble for

UPJN. UPJN is expected to secure No-objection Certificate (NoC) from KNN officials before commissioning any infrastructure work in the city limits. KNN officials ensure inordinate delays in issuing of NoC. They wait until their due or undue benefits are secured to the extent possible. This causes inordinate delays even in completing the projects, which further result in time-overruns and cost-escalations. Envisaging all these, the executing agencies try to inflate the budget to the extent possible. But, often, the tight resource position restricts the budgets, which in turn result in sub-standard work and even failure to complete the work. This creates a disjointed, unconnected, chaotic, and sub-standard sewage system.

**Service Providers for Septic Tank Cleaning:** Many household have improved toilet systems in their houses, however their water closets (WCs) or septic tanks are not connected to the sewer lines. Such septic tanks are periodically cleaned by private service providers, which is a big business in the city. The interest of these service providers lies in securing steady business revenue, which would get severely affected if WCs or septic tanks are directly connected to the underground sewers. It was reported that these agencies always try to lobby—in legitimate and illegitimate manners—against the measures for connecting households to the sewer systems.

**The Pujaris/Pandits:** The Pujaris who help the pilgrims to perform religious rites and rituals are dependent on the belief-system that makes the river Ganga an eternally holy river. If the pilgrims find Ganga polluted, they would stop coming for pilgrims and the livelihoods of the Pujari community will be in trouble. Hence, this community, in order to ensure their continuity of their business and livelihoods, always try to maintain the belief that ‘the river Ganga can never be polluted’ by vigorous proclamations of the same. However, it is observed by many that this belief effectively alienate citizens from the efforts for cleaning pollution in river Ganga.

**Business Community:** Kanpur has a large business community of owners of small units such as tanneries, textile units, and textile-dyeing units. Apart from the big tanneries, the other small informal units do not treat their effluent. Even bigger tanneries do not treat their effluents in order to cut down their costs as far as they could. With strong backing from political and criminal elements, these sections try either to co-opt the functionaries of pollution control agency through enticements or pressure, or create barriers to their efforts to monitor and enforce regulations. Lack of adequate capacities and resources with the pollution control agency and lack of effective mechanisms to ensure its autonomy and accountability are the factors that allow this interference. Thus, the misalignment of interests of the business community, and the lacunas in the policy instruments, together, creates serious threats to the efforts to curtail pollution in river Ganga.

**State Level Ruling Parties:** The political party in control of the state government has strong interest in maintaining and expanding its political power by distributing economic benefits to the sections of society and geographic areas that provide electoral support to the party. As a result, it tends to use its authority to ensure larger share and priority to these sections and regions. This creates disparity among regions and sections of society, and results in

developmental imbalance across the state. The other regions and sections of society starve from funds for infrastructural development as well as for proper operation and maintenance.

**Design Consultants:** Design-consultants, like other commercial consultants are driven by the sole motive of increasing business profits. Their fees are generally based on a certain percentage of the project costs. Thus, they develop interests in increasing the total project costs to the extent possible. As a result, they tend to prescribe and support technical and managerial solutions that are high capital costs. They also tend to participate in the nexus with other stakeholders who have similar interests in pushing high-cost projects. This encourages wastage of scarce resources due to unnecessarily high cost projects, affecting the other possible projects and O&M of the other existing projects.

**Technology Companies:** Technology companies and consultants, driven by interests similar to those of the design consultants, often tend to sell the high-cost technological options that give them higher profit margins, instead of providing technological solutions that are appropriate to the needs of the sector. This again leads to wastage of scarce resources and the inappropriate technologies pose many problems at the time of operation. This obviously affects the efforts to clean up pollution in river Ganga.

**Donor or Financing Institutions:** As it happened in the case of UASB technology, in which Dutch-funding played a decisive role in the selection of UASB technology, donors tend to push technologies owned by the companies from their own countries. Many times, the donors have broader agenda of pushing certain policy solutions. The technologies or policy pushed in such manner often tend to prove misfits for local conditions and create new barriers for achievement of policy objectives.

**Common Citizens:** One of the major reasons why KNN has not been able to raise resources for O&M through taxes or tariffs is reluctance of citizens to pay the taxes. The citizens are always interested in cutting down expenditure on services. This is further aggravated by the absence of norms that would prompt common citizens to make payments for the public services they use. Hence, if imposed strictly, citizens tend to evade or delay the payments. These norms and interests also make political parties to fear about the backlash from citizens if they support efforts to increase revenue through user-fees. This severely affects the financial viability of the governing agencies and that of infrastructure projects.

**Contractors:** Constrained by stringent budgets and inordinate delays in sanction and payments of their bills, contractors tend to enter into illegitimate arrangements with the administrative and political functionaries who wield power over these decisions. As a result, they tend to inflate the project costs and go for sub-standard material and practices to cover their profits. This naturally affects the technical efficacy, efficiency, and life of the facilities and infrastructure.

## 4. Recommendation and Conclusions

### 4.1. Recommendation for Addressing the Governance Deficiencies

#### 4.1.1. Overlaps in Planning function

As clearly mentioned in the preamble as well as goals and objectives of the Development Authorities Act (UP), the role of the Kanpur Development Authority (KDA) DA is to plan the city, considering existing problems as well as future demands. In adherence to these legal provisions, the planning function should be retained with the DAs, however, DAs need to be dissociated from the project-design and execution functions. Similarly, the planning function assigned to different sectoral agencies especially the *para-statal* bodies, such as UPJN, KJN, UPHB should be withdrawn. Such streamlining exercise would essentially do away with the overlaps and facilitate better coordination and avoid conflicts that affect the functioning in a negative manner.

Importantly, it would be extremely necessary to align this restructuring or streamlining exercise with implementation of urban reforms as well as the provisions of the 74<sup>th</sup> Constitutional Amendment Act (or CAA). One of the important governance reforms in the set of 23 urban reforms introduced under JNNURM is “Assigning City Planning Function to ULBs”. Implementation of this reform, although largely neglected at present, questions the role of DAs in future. In pursuit of showcasing compliance to this reform, the government assigned the responsibility of preparing ‘City Development Plans’ to the ULBs and confined the geographical scope of the City Development Plans (or CDPs) to the municipal limits. Whereas the DAs continued and are still continuing with the implementation of Development Plans (DPs) they prepared including plans for the peri-urban areas or the areas that newly entered into the municipal limits. In view of the dynamics of political-economy among these various agencies, these overlaps are hard to resolve. But, resolving them is extremely critical for smooth and effective discharge of planning and execution function related to the sewage collection, treatment and disposal systems.

#### 4.1.2. Overlaps in Designing and Building Infrastructure

Similarly, other functions devolved under the 74<sup>th</sup> CAA and the new mechanism of Public Private Partnerships (PPPs) implies restructuring of agencies such as UPJN in a fundamental manner. This is mainly because the amendments require transfer of the functions of design and infrastructure-building entirely to the ULBs; and, hence, divesting para-statal agencies of this function. For example, in the Maharashtra state, trifurcation of the existing ‘Water Supply and Sewerage Board’ has been proposed into three different companies. In fact, an NIUA report indicates that a similar thinking prevails in many of the state-level policy makers in UP.

However, on various fronts, the process of restructuring UPJN is not going to be easy for the UP government. It is feared that among many other difficulties, the UP state government would face the major problem of placing the huge staff of UPJN appropriately among other

agencies including ULBs. The employees of the UPJN have already indicated their reluctance and resistance to such restructuring, as they are not willing to work for ULBs.

At the same time, urban reforms as a larger process of governance reforms under JNNURM as well as under other several reform initiatives by the state are creating enabling environment for private sector participation in the basic infrastructure services like urban sewerage and sanitation services. These policy-level developments have put pressures on staff of UPJN, which would face severe competition from the private sector entities. This threat has further aggravated their resistance to restructuring. Another important danger is that the process of restructuring would create an institutional vacuum, as it would dissolve a state-level, reliable body playing supportive role to the ULBs, by handling regulatory and financing functions in addition to the function of infrastructure building. Moreover, this vacuum would be disastrous especially in situations, wherein either the PPP arrangement fail, or the private partner in the PPP agreement starts using its advantage of superior expertise and capabilities to reap monopolistic benefits, as there would not be any fall-back mechanism available to ULBs. To avoid such situations or to take-over the failed PPPs, state-owned organizations like UPJN—having necessary human resources, capability, and infrastructure—need to be maintained and strengthened. These aspects justify UPJN's continued existence and role in the sewage and sanitation management, along with the water supply.

It is evident that the institutional restructuring at the state level is going to be a daunting task for state authorities, as it involves negotiations and intense stakeholder processes at various levels. Hence this is going to be a time-consuming job. The success of efforts for brining effectiveness in sectoral responsibilities, (i.e. collection, conveyance, treatment and disposal) would depend on the speed and efficacy of state authorities in carrying out restructuring of para-statal agencies and streamlining ULB functions. Besides, the dangers of policy failure, especially in the case of private participation, can also affect restructuring to a great extent. On this background, the pollution-abatement work for the river Ganga cannot wait until the institutional restructuring and streamlining are completed; and needs immediate action. This calls for striking a right balance between constitutional responsibility and mandate to implement 74<sup>th</sup> CAA, on one hand, and, on the other, the need to avoid the possibility of institutional vacuum due to restructuring or disbanding of UPJN. The UPJN can play an important role in designing, erecting, and maintaining projects for interception, diversion, and treatment (or reuse) of sewage. However, UPJN would have to be made accountable to the SPCB as well as to the State Environment Ministry in order to streamline the functions.

#### **4.1.3. Overlaps in Operation and Management of Assets**

At present, the UPJN and Jal Sansthan are handling the function of the operation and maintenance (O&M) in majority of the sewerage collection-conveyance systems as well as STPs. However, JNNURM reforms would transfer this function to the ULBs. Since, for bigger cities, the process of merging respective Jal Sansthan's into the ULBs is in pipe-line, these

ULBs (i.e. of KAVAL towns and other big cities) would develop capacities to manage the O&M. However, a large number of medium and small towns would still need institutional support to operate and run the systems. The UPJN can fill this void. However, it needs to be ensured that the UPJN would conduct only the function of O&M for interception, diversion and treatment facilities and would not interfere in the inner city sewerage systems as far as possible. In such cases, if ULBs experience inability to operate the projects, UPJN may get involved in management of sewer systems, provided that Directorate of Municipal Administration, State Department of Urban Development and State Department of Environment and Forests jointly give directions to UPJN.

#### **4.1.4. Overlaps in Function of Monitoring, Evaluation and Ensuring Compliance (M, E and EC)**

The review of overlaps in this function bring out two important observations: (a) according to the existing statues and laws, these functions are distributed among agencies that are responsible for financing (up to a limited extent), building infrastructure (such as UPJN or KJS, and the revenue department) as well as purely monitoring agencies such as CPCB, and (b) the procedures for penal measures for non-compliance are also highly complex (for example, departmental enquiry or secret-reports), and these responsibilities are also distributed among various agencies.

In order to clean up the existing distribution of M, E and EC functions, it is highly recommended that CPCB and SPCB need to be given higher autonomy in their functioning. At present, the CPCB is functioning merely as a technical support agency. It has not even been supported with an independent funding source, unlike SPCB which can collect its own cess. Another important limitation is that SPCB is accountable to the state-government for any action they take against the non-complying companies or ULBs. This clearly shows that CPCBs and SPCBs have capabilities to effectively conduct monitoring and evaluation functions but they are relatively weaker in conducting the function of compliance-ensuring, mainly due to low level of autonomy. Hence, it is strongly recommended that their autonomy is increased on one hand, and, also new and more spaces are created for interventions and participation by public and civil society in the M, E, and EC functions, on the other hand.

The complicated and secretive procedures for evaluating the performance and compliance of the employees and officials is another important hurdle in bringing effectiveness and efficiency in the pollution abatement tasks, pertaining to sewage collection and treatment. This has made the process opaque and restricted accountability relationships (among the officials) to the vertical direction, whereby the employee or the official is accountable only to the higher authority and not to the broader cause or other important stakeholders like citizens. There is a great need to restructure these accountability relationships and make them horizontal, and to create spaces for participation of civil society and the citizens, in evaluating the performance and extracting accountability of the utility (and its officials) responsible for the functions in sewage and sanitation management.

#### **4.1.5. Piloting for decentralized sanitation system and recycling**

It has been evident from the efforts hitherto that the sufficient level of experimentation has not taken place for decentralized and in-situ sewage disposal techniques. There is a great need to incentivize such techniques as well as their production and market development if such experiments are to become successful. Such new techniques and practices could be used in the rapidly developing peri-urban areas of large urban agglomerations such as Kanpur as well as to smaller cities which do not have centralized systems for sewage collection, conveyance, treatment, and disposal/reuse.

Incentivizing market development for recycling and reuse is another equally important area, especially for cities that are having centralized systems. The shortage of freshwater is being increasingly faced by the industries in many part of the country which have adequate financial strength to raise finance for undertaking reuse or purchasing treated sewage for industrial use. This potential need to be assessed and pilots should be undertaken at appropriate locations, especially in industrial towns after conducting feasibility assessment of such pilots.

#### **4.1.6. State Financing arrangements for Small Towns**

Small towns would continue to face the financial crisis; even after successful introduction of reforms, primarily because of the smaller sizes of their local economies, which are almost stagnated. Such towns would need continued state support; for sewage treatment, which would be an important issue for these towns. UP state government could support these towns through UPJN and route the financial allocations for setting up and running the STPs through State Finance Commissions.

### **4.2. Conclusions**

#### **4.2.1. Need for More Case Studies**

The discussion until this point vividly brings out that there are serious lacunas in the governance instruments (GIs, i.e. PIs and GAs together) and distortions in the process of governance. Examples of many of these lacunas and the root-causes of the distortions are brought out by the analysis of the ground situation in Kanpur city. Though this case study has serious limitations—as it was conducted under severe resource and time constraints—it corroborates many findings of the earlier report (004\_GBP\_IIT\_EQP\_S&R\_03\_Ver 1\_Dec 2010) in this series and also the comments of many observers and the available anecdotal evidence. It certainly will be useful to take up more in-depth case studies—using the P & G Framework presented in a separate report—covering a varied sample of towns and cities from all the states along the banks of Ganga and her tributaries. Such studies would bring out many more lacunas in PIs and GAs and sources of distortions (i.e., misalignments) in the governance process. These would help us to identify the amendments and revisions in GAs and PIs, which would be needed to address these lacunas and distortions. This, in effect, would help us improve the governance of urban sanitation (or sewage) sector in different states along the banks of river Ganga and her tributaries.

#### **4.2.2. Feasibility and Efficacy of Retrofitting Governance Instruments**

But, considering the urgency of the goal of cleaning up the river and the severity of her pollution, there is need to take a deep and serious look at the feasibility of these recommendations aimed at retrofitting GAs and PIs. As mentioned before, the crux of the diagnosis presented in the earlier sections can be narrowed down in terms of the four types of core governance maladies: (a) lacunas in Policy Instruments, (b) lacunas in Governing Agencies, (c) distortions in the governance process due to misaligned perceptions and norms of the stakeholders, (d) distortions in the governance process due to misaligned interests of the stakeholders.

In a plural society like India, Policy Instruments (PIs) are shaped by the contestation and tussle among various interest groups of stakeholders. The dominant interest groups and the groups which have access to the process of making and implementing PIs have greater say in actual design and use of policy instruments. Thus, the final design and effective implementation of PIs are the outcome of a certain balance of political and economic powers of various interest groups that vie for influencing governance instruments (on in short, the 'political-economy balance') related to the issue or sector under study. Similarly, the structure and functioning of governing agencies—which are shaped significantly by the concerned PIs—could also be seen as the outcome of the balance of political economy in the sector. In other words, the political processes and tussle among different groups determine the balance of political economy, which, in turn, shapes PIs and GAs. Hence, it is very difficult to bring in effective changes—beyond a certain limit—in PIs or GAs, unless there is change in the balance of political-economy (or of the political-economic power of interests groups). Such a change in the political-economy balance is the matter of the political process; and it cannot be engineered by changes in PIs and GAs alone.

Coming to the misaligned norms, the genesis of norms is quite a complex process; and discussion on this process is out of the purview of this report. As mentioned before in the previous report on the P & G Perspective (009\_GBP\_IIT\_PLG\_ANL\_03\_Ver 1\_Dec 2011), norms, perceptions, and behavioral patterns have a somewhat cyclical relationship. Further, the norms and perceptions pertaining to a particular sector are often intertwined in a complex manner with the broader culture of the community. Norms and perceptions also have close links with history, political economy, and livelihoods of communities of stakeholders involved. Usual economic incentives often prove ineffective in dealing with norms and perceptions, while behavioral measures and incentives (like rewards or awareness-building aimed at inculcating new values) take long time to be effective. In short, it is difficult to modify, in a short time, the norms and perceptions, or to reduce their impact on the governance processes, either with behavioral or economic incentives.

Addressing distortions in the governance process due to misaligned interests of stakeholders poses equally fundamental challenges. The main strategy often used to address the misaligned interests is to provide a 'carrot' in the form of some (adequately attractive) benefits to the stakeholders involved, or / and (simultaneously) wield the 'stick'

in the form of strong penalties, in order to convince them to make appropriate changes in their thinking and/or behavior. However, in a country like India, where the dominant sections of society enjoy disproportionately high level of economic and political power, these dominant sections are effectively immune to the threats of the 'stick'. Further, the dominant interest groups, who are capable of creating distortions in the governance process, often, anyway, enjoy high-level of benefits from the governance process, making the 'carrot' option unattractive. Rather, these benefits (drawn by the dominant sections)—often undue and harmful for others and for the society—are at the root of many of the social and environmental problems that the governance process attempts to address. Hence, providing these dominant interests with additional ('adequately attractive') benefits often defeats the very purpose of the governance objectives, especially those objectives which have equity and environmental sustainability as the underlying values. In other words, while the 'sticks' fail to deter the powerful stakeholders, the 'carrot' proves counter-productive to the governance objectives.

In sum, it can be surmised that it is very difficult to significantly reduce the impacts of most of the lacunas in governance instruments (i.e., PIs and GAs) and the distortion in the process of governance especially in a quick manner and in a short term. This is because the adverse balance of political economy continues to work against the efficacy of the changes suggested in the governance instruments. Correcting this adverse balance of political economy is not possible through the amendments in GIs or incentives through PIs.

#### **4.2.3. Political Bottom-line and Lessons for Future Projects**

This does not, however, mean that the recommendations for changes in PIs presented in the earlier section are not at all useful. Implementation of these policy recommendations, to a certain extent, will certainly create some positive changes in the governance process. However, it needs to be noted that these changes will have limited impacts. It is the limitation of the policy amendments that they cannot address this 'political bottom-line'—i.e., the need to change the adverse political-economy balance, disfavoring the governance objectives often prompted by concerns for equity and environment.

This understanding also helps to diagnose the failures of the earlier Ganga Action Plan (GAP I and GAP II). The GAP and other similar measures were focused on providing technical and financial support to state and local level GAs primarily for creating supplementary infrastructure for urban sanitation. These measures were inadequate for addressing the core governance maladies described earlier. Rather, these measures fell prey to the same governance maladies and were turned into opportunities for dominant sections for acquiring additional undue benefits or, when and where such benefits were not accruing, to scuttle the efforts under GAP. As a result, it is no wonder that GAP not only was inordinately delayed, but abjectly failed in cleaning river Ganga.

The earlier project aimed at capacity building and community awareness with NGO involvement was the victim of machinations of dominant vested interests emboldened by

the same adverse political economy balance. It was reported that the British official who was heading the project was forced to leave when he tried to confront the dominant interest groups. In sum, the core governance maladies cannot be cured by the technical, financial, managerial, or knowledge 'fixes', as these fixes do not affect the adverse balance of political economy.

There is a critical lesson here for the future efforts to clean up Ganga. It needs to be noted that any amount of financial support and knowledge support to efforts for infrastructure building, community awareness, or capacity building will not address these core governance maladies or, more importantly, the adverse political economy. As a result, such efforts would meet the same fate as the earlier Capacity Building project or GAPS.

#### **4.2.4. Three-Pronged Strategy**

Coming back to the point that the policy amendments have limited efficacy in addressing the adverse political-economy balance, there is need to look for the possible opportunities for the policy and governance prescriptions to contribute to the governance objective of cleaning up river Ganga.

In this situation, the policy and governance prescriptions should be designed following the three-pronged strategy. The first prong involves attempting—through amendments in PIs and providing new incentives and disincentives—to improve the efficiency and efficacy of the governance process to the extent possible. This is to be achieved by reducing impact of the above-mentioned four core maladies of governance on the governance process. This precisely is attempted through policy recommendations presented in the earlier section of the report.

#### **4.2.5. Closed Compound Approach**

The second prong of strategy is aimed at finding solutions that would circumvent the problem areas, and still allow achievement of the main goal of governance, viz., cleaning up of river Ganga. In this regard, the technical solution of 'Interception, Diversion and Treatment' (IDT) appears to be appropriate for this approach under the second prong. This solution involves building facilities for diverting the *nallas* (or open sewers) to Sewage Treatment Plants (STPs), at the meeting points of these *nallas* and the rivers or rivulets, and treating the sewage flowing in the *nallas* in STPs before its disposal in appropriate way. Viewed from the P&G Perspective, this solution essentially attempts to circumvent the GIs (both PIs and GAs) at the state and ULB levels which are problem-ridden as per findings of the case study. The rationale is that these state and local GIs are difficult for the central government—which has conviction and willingness to clean up the river Ganga—to control or regulate in order to improve their performance. In other words, the approach here is to circumvent the policy instruments and jurisdictions of the local and state level governing agencies and still try to address the issue of cleaning river Ganga.

This approach could be termed as 'End-of the Pipe' and 'Closed Compound' approach as it allows the central government's agencies to circumvent the state and local level GAs. As it is

the 'End-of-the-Pipe' approach, the bad performance of state and local GAs in discharging Sectoral Responsibilities of Collection and Conveyance of Sewage would not harm the efficacy of the solution, though it would increase the burden on these efforts. It is called 'Closed-Compound' approach as it assumes isolation of the governance of this approach from the governance agencies and processes at the state and local levels, on which the central government does not have any control. In order to make this solution more effective and efficient, from the P&G perspective, an appropriate institutional model can be suggested. This model is presented very briefly in Appendix I of this report.

If needs to be noted that, In GAP I and II, many projects were based on the technical solution of IDT. However, the main problems with such projects (apart from instances of obvious bungling or subversion) were: (a) inadequate capacities of the STP plants (b) decisions on siting and designs based an assumption of successful implementations of other project by state or local agencies, and (c) involvement of state and local level agencies in a significant manner. The approach suggested here have two major and distinct elements: (a) complete circumvention of the state and local agencies, (b) strict regulatory control by an independent expert authority in transparent, accountable, and participatory manner. It is expected that these special features will not allow repetition of the GAP experience.

The 'Design-Build-Operate' (DBO) model presented in the earlier report (004\_GBP\_IIT\_EQP\_S&R\_03\_Ver 1\_Dec 2010) appears to fit in these criteria of 'End-of-the-Pipe' and 'Closed-Compound' solution. However, it has particular technical features which are not assessed here. Technical, economic, and financial feasibility and desirability of the DBO model needs to be perfected.

It, however, needs to be clarified here that this does not mean that there should be no support from the central government to the state or local agencies for the projects on collection and conveyance operations or decentralized options for sewage. Such support should, however, be routed through other modes and mechanisms, for example, through JNNURM projects of MOUD of Government of India. The MoEF may consider contributing to such efforts. But it is recommended that, considering the urgency of the chronic problem of pollution in river Ganga, MoEF should primarily be focused on IDT projects, with the 'End-of-the- Pipe' and 'Closed Compound' approach.

#### **4.2.6. Addressing the Political Bottom-Line**

The third prong of the strategy, however, attempts to address the fundamental problem of the balance in political-economy which is adverse or counter-productive to the main governance goal, viz., cleaning up of the river Ganga. The political bottom-line, as explained earlier, involves the need to change the balance of political-economy which is adverse to the governance goal of cleaning river Ganga. As mentioned before, political bottom-line cannot be addressed by any type of fixes, including the policy and governance fixes. It can only be addressed by the political processes that would turn the balance in favor of the governance goal. The agents to initiate and work on such political processes will be those whose norms

and interests are conducive to the above-mentioned governance goal. Based on this logic, the core of the third prong of the strategy lies in efforts to create new spaces, opportunities, and mechanisms—in the form of new PIs and GAs—that would help the non-dominant stakeholders, their organizations, CSOs, and Third-party Public-interest Interveners (or TPIs). These new PIs and GAs are expected to help these stakeholders, CSOs and TPIs to be more effective in countering and controlling the actions of the dominant sections which are counter-productive for the goal of cleaning up of river Ganga<sup>7</sup>. The key element of this third prong of the strategy is to create new PIs and GAs with the following guidelines in mind.

- Separation of the tasks of ‘Normative Framing’, ‘Execution of Generic Functions’, and ‘Compliance-Ensuring’ and handing them over to three different sets of organizations at every level<sup>8</sup>
- Making all governance procedures of all these agencies completely and universally transparent and genuinely and universally participatory<sup>9</sup>
- Making the agencies universally accountable in practice
- Preparing the non-dominant-stakeholders, CSOs, and TPIs for effectively using these new PIs and GAs for extracting accountability and participating in governance procedures.

In more concrete terms, it is suggested here that the state-level ‘State Municipal Services Regulatory Authorities’ (or SMSRAs) to be created by enacting special laws in all the states on the banks of river Ganga. In order to make these authorities effective, efficient, and acceptable (to all stakeholders), the following suggestions are made:

- The special state-level laws to establish these authorities should be enacted following the model law provided by the central government or Planning Commission.
- These authorities should regulate all investment, purchases, as well as establishment, operation, and maintenance of all facilities—that are funded by the state and central governments—providing the municipal services under Schedule 12th of the 74th CAA.
- The model law should take the cognizance of the experience and critiques of the existing regulatory authorities in other sectors.
- The PPP projects in the municipal services sector should also be governed by the authority at the entry and operation levels.
- All the funds from the central government and its agencies should be disbursed only after establishment of these authorities by the state as per the model law provided by the Planning Commission or the central government.

This (SMSRA) is not an entirely new idea. The state government of Chhattisgarh has already passed a similar law, while many other state governments are actively contemplating on similar ideas. Appendix II of this report provides some more detailed discussion on such

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<sup>7</sup> Third-party Public-interest Interveners (Or TPIs) are individuals and organizations, who are not stakeholders but who are interested in intervening in the governance process in order to protect and promote the broader public interests. These could include media-persons or media-organizations, civil society organizations, or people’s movements.

<sup>8</sup> These terms are explained in the previous document from the PLG group.

<sup>9</sup> Here, the term ‘universally’ implies including all the major stakeholders, TPPIs, CSOs, and all citizens.

authorities. The central government, MoEF, MoUD or the Planning Commission should actively consider helping the states in the Ganga River Basin (GRB) by developing the model law for such an authority.

Thus, in short, the chronic problem of pollution in the river Ganga requires a comprehensive range of solutions that are synergistically supportive of each other. It needs to be noted that the problem essentially is rooted in the governance crisis and no amount of inputs for technical, financial, or capability / knowledge enhancing will be able to reduce these core governance maladies. This is not to deny the need or utility of the technical, financial or knowledge inputs, but to warn against naiveté that prompts a search for simplistic solutions that often serve the vested interests rather than the cause of clean river Ganga. This has been amply demonstrated by the fate that GAP and other previous projects met with.

The limitations of the policy and governance solutions (or 'fixes') are also acknowledged and reiterated here, especially in the face of the 'political bottom-line'. But, the conscious understanding of this bottom-line, coupled with the efforts to create spaces for influencing the bottom-line would help achieve some success in addressing the chronic problem of cleaning up Ganga.

## Appendix I

# Governing and Regulation of the IDT Projects with 'Close-Compound' Approach

## 1. Introduction

The new approach suggested in the last section of the main report is called the 'End of the Pipe' and 'Close Compound' approach. This approach essentially involves restricting the intervention only in the operations at the end of the chain, viz., Treatment and Disposal. The first term, 'End of the Pipe' refers to this. Because it does not assume proper completion of the previous operations in the chain, viz., the Collection and Conveyance of sewage, the approach has to bring in the operation of interception of all the flows of the sewage that enter into the river water and its diversion towards the treatment facilities. Hence, the 'Interception and Diversion'—or in other words, mopping-up operation—of the sewage is the integral part of this approach. Similarly, the treated sewage has to be disposed properly. There could be a variety of disposal strategies depending on different parameters. However, for this approach, which is viewed primarily from the P & G analysis, the following three technical operations are integral to the approach: Interception, Diversion, and Treatment (IDT).

Coming to the P & G aspects of the approach, it involves circumvention of the state and local level governing agencies and governance processes. In other words, it requires isolating governance of these IDT projects from the local and state agencies existing in the areas and restricting it only to agencies under the exclusive control of the central government; hence the term 'Closed Compound'. This is based on the assumption and hitherto experience that while there is political will and normative influences at the central level which are required for cleaning up river Ganga, the political economy and normative influences operating on the governance processes at the state and local levels are counter-productive to the governance goal of eliminating or reducing the pollution of the river Ganga due to urban sewage.

Thus, the governance system for the IDT projects based on the 'End-of the Pipe and Closed Compound' (or EPCC) approach is completely controlled by agencies of the central government. Especially the two core governance tasks (pertaining to all the generic governance functions and sub-functions), viz., Normative Framing and Compliance-Ensuring will be handled completely by the central agencies.

Table 6 provides some details of the various generic governance functions and sub-functions and the agencies that would be handling those generic functions.

As the table indicates, two new institutions are envisaged here: (a) IDT Technical Cell (or IDTTC) and (b) IDT Regulatory Board (or IDTRB). The IDTTC, as the name suggests is seen as a

cell composed of experts in the particular technical, economic, and financial matters related to the IDT projects. It is seen as a part of and under full control of the second institution called IDTRB.

The second institution, viz., IDTRB, is also seen as made up of experts. However, it is envisaged as reporting to NGRBA, but has significant level of administrative and financial autonomy which will be legitimized and protected through special provisions in the notification in this regard.

**Table 6: Details of the Regulation and Governance Process for IDT Projects with Closed Compound Approach**

Tasks	Responsible Agencies	Remarks
<u>Survey and Planning:</u> Preparation of city-wise databases required for feasibility, siting, designing and monitoring IDT(Interception, Diversion, Treatment) projects	IDT Technical Cell (or IDTTC) [This will be specially created cell within the IDTRB]	Step-wise but time-bound coverage of all towns
<u>Technical Design:</u> Decisions on preliminary specifications (Location, Capacities, performance standards, and other)	IDT Technical Cell (or IDTTC) [This will be specially created cell within the IDTRB]	With technical support from CPCB and after web-based process for public participation and scrutiny
<u>Financing and Contracting:</u> Management of Bidding process for IDT projects	IDT Regulatory Board (IDTRB) [a new regulatory agency proposed for the IDT projects only]	IDTRB has to be functionally independent but reporting to NGRBA with certain distinct features
Development and Commencement of IDT projects in time-bound manner	Private Developers, Public Agencies	Continuous or periodic Compliance Ensuring by IDTRB against the contractual terms (especially related to quality assurance and time-delays) coupled with strict monitoring through the TPMA (Third-Party Monitoring Agencies)
Operation and maintenance of IDT projects	Private or Public Operators	Continuous or periodic Compliance Ensuring by IDTRB against the contractual terms, coupled with strict monitoring by TPMA (Third-Party Monitoring Agencies)
Periodic/Continuous monitoring of IDT projects	By Third Party Monitoring with oversight by IDTRB	Based on criteria for monitoring specified at the time of bidding (Web uploading of data every 24 hours)
Grievance redress (both minor & serious)	IDTRB (hierarchical structure starting with its offices at the levels of the state or sub-state regions)	Space and Support for Interventions by Civil Society Organizations (CSOs) and 'Third-Party Public Interest Interveners' (TPPII)
Redress of complaints of breach of contracts	IDTRB (Thorough the state-level offices)	Space and Support for Interventions by Civil Society Organizations (CSOs) and 'Third-Party Public Interest Interveners' (TPPII)
Enforcement of compliance	IDTRB (Thorough the state-level offices)	Provision of criminal proceeding against TPA and/or the developer and operator in case of <i>malafide</i> breach of contracts.

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Tasks	Responsible Agencies	Remarks
Appeal Mechanism	IDTR, NGRBA, High Court, Supreme Court (in that order)	Hierarchical order does not necessarily mean certain authorities are appellate authorities, or cannot be approached directly. Exceptional cases of direct appeal need to be handled.
Review after 3 to 5 years	NGRBA	Comprehensive and automatic (not at the discretion of any public agency) review of all aspects of the siting, building, operating, monitoring, and compliance-ensuring of IDT projects, after a predetermined period

IDTRB will be mandated with the classical regulatory task or the task of ‘compliance-ensuring’: (a) setting or approving standards, (b) managing and overseeing monitoring of performance, (c) enforcing compliance (or deciding on penalties when there is failure in performance). In addition, it will also carry the function of redressing of grievances of citizens, stakeholders, Civil Society Organizations (CSOs), or ‘Third-Party Public Interest Interveners’ (TPPII) or other bodies.

## 2. Main Policy and Governance Features of the IDT Regulatory Board (IDTRB)

### 2.1 Nature and Structure

- Central-level, interstate, quasi-judicial apex body, with adjudicatory in nature of its functioning, but also having a special technical cell for carrying out other functions
- It will have significantly high level of autonomy from the government departments and even from the NGRBA
- It will be duly empowered and its autonomy will be protected through the specially drafted provisions in the notification in this regard.
- It may have offices at the level of state, sub-state or region, and local level for various purposes, including monitoring

### 2.2 Composition

- Members of the IDTRB shall be professional experts, having experience of at least ten years in the fields of their expertise, and selected by an independent, preferably academic, unbiased selection committee
- Fields of expertise to be covered amongst members of the IDTRB will be all those related to technical, economic, financial, ecological, social, and other aspects of IDT projects
- Term of each member should be 3 years, no more than two terms can be held by a member
- External consultants and third party monitoring agencies shall assist the IDTRB as per need and as per the rules and regulations prescribed.

## 2.3 Functions

- To develop, review, and amend norms for technical, financial, economic and quality purposes, with support from IDTTC
- To prepare plans and designs of the IDT projects through IDTTC
- To approve techno-economic, financial details of the projects
- To monitor and regulate the bidding process, selection of private / public agencies as project developers
- To monitor development of IDT projects (erection/construction of facilities) directly or through specially appointed agencies if required
- To review operation and maintenance of the projects, especially technical and cost aspects of the functioning
- To monitor quality of the treated sewage
- To ensure full public disclosure of information and data in local and vernacular language in suitable and uncomplicated form and unambiguous manner
- To suggest appropriate policy measures to government in order to improve the overall quality of the IDT projects
- To conduct stakeholder dialogues and deliberations, as per the provisions in the regulations or in response to demands by citizens. CSOs, Stakeholders, or TPPIIs
- To Issue directives to agencies, both public and private including various utilities such as electricity distributors, necessary to ensure smooth, efficient, and effective establishment and operations of the IDT projects
- To intervene, inspect, evaluate, stop the process of development of IDT projects,
- To issue directions for amendments in technical, economic, and financial designs for quality or other reasons and in order to fulfill other requirements such as scale of treatment, availability of finance, modular development of the treatment projects, etc.
- To issue directions to demolish partially or fully completed projects at the developer's / operators expenses if found guilty on techno-economic and quality parameters (depending on the gravity of the issue or extent of offense/non-compliance), to auction developers properties if developer fails to rebuild the project
- To takeover and/ or to rebuild partially or fully completed projects, in the case of defaults of any sort by project developers
- To impose penalties on defaulting developers as well as other agencies and persons who would fail to comply with provisions of the notifications or the norms, parameters, etc. prescribed by IDTRB

## 2.4 Jurisdiction

- Towns located in Entire Ganga Basin, all rivers/tributaries of Ganga
- Having mandate for regulating interventions/IDT projects of all the Ganga Basin states, restricted to the sewage-IDT projects

## **2.5 Financial Arrangements**

- Diverse financial sources, including central budgetary allocations and fees charged to the developers
- Complete financial autonomy from the central government and NGRBA

## **2.6 Responsibilities**

- All its procedures and processes will be completely transparent, accountable, and participatory, and open for scrutiny by citizens, stakeholders, Civil Society Organizations (CSOs), and 'Third-Party Public Interest Interveners' (TPPII).
- It will involve TPMA (Third-Party Monitoring Agencies) in conducting actual monitoring operations under strict vigil by its lower-level officers.
- After the initial discussion on the salient points made in this proposal, a detailed draft of the notification could be produced for the MoEF to establish and operationalize such a system.

## Appendix II

# Regulatory Design for Urban Sewage Sector Services

## 1. Context

The idea of the independent regulator is not entirely new even in the municipal sector in the country. There have been some efforts to regulate some of the governance functions of the municipal services in different states.

The state of Chhattisgarh has already passed a bill for establishing an Independent Regulator for 'Municipal Revenue'. There is every possibility that other states would not only follow the suit, but borrow heavily from the bill. This has been experience in the other sectors.

The Planning Commission is seriously considering coming up with a Model Bill for State Water Regulatory Authorities, which will cover the urban water sector.

The state of Uttar Pradesh has passed a law for establishing UP State Water Resources Regulatory Authority, which will govern many aspects of urban water sector, including issuance of licenses to utilities.

The states of Madhya Pradesh, Bihar, and Delhi have already gone ahead and passed the laws titled 'Public Services Guarantee Acts', which would cover the municipal services (after due notification). There again is every chance that the other states would follow the suit and draw heavily from this law.

It is learnt that Ministry of Urban Development (MoUD) of Government of India (GoI) is seriously considering persuading states to establish a regulator for PPPs in urban sector.

## 2. Broader Concerns about the IRA Model

In the context of such serious attention and wider acceptance of the idea of an independent municipal regulator, a review of the critiques and concerns of the model of the independent regulatory agencies (or IRAs) is found to be warranted.

There have been many broader concerns about the IRA model brought in by the World Bank (WB) in the electricity and water sectors. There is certain level of experience of functioning of IRAs in both these sectors. Some of these concerns are briefly mentioned in the following bullets.

- There is concern that IRAs will depoliticize the decision-making on the issues that are essentially political and laden with social and political values.
- This depoliticization and expertocratization of decision-making will make it impossible for marginalized sections and civil society to influence the decision-making. At the same

time, it opens the decision-making to the disproportionate influence of the corporate sector and other powerful lobbies.

- State-level IRAs also entail centralization in decision-making in the matters which have immense diversity and are inherently location-specific in both physical and socio-cultural dimensions.
- IRAs also entail emasculation of democratic institutions at the state and local level, subverting the political and democratic processes. This would be especially worrisome in the case of ULBs which have been accepted as a constitutional structure of governance but are yet to get the adequate powers.
- IRAs, dominated by the engineers, economists, and bureaucrats, neither have legitimacy nor have competence to deal with social, political, environmental matters.
- IRAs as per the current designs are focused on technical, economic, and financial concerns, with complete neglect of social, political, cultural, and environmental matters.
- IRAs are found to be concentrating authority in the sectoral governance, as it is expected not only to carry out the classical regulatory function<sup>10</sup> but also make some critical decisions. It needs to be noted here that the IRAs are justified on the argument that there is need to divest the state of some of its governance functions as the state (in the pre-reform situation) has concentrated under its control all the three governance functions of (a) decision-making, (b) implementation, (c) regulation.

Driven by these concerns, many researchers and activists oppose the idea of IRAs. Some go further and oppose the very idea of bringing in any institution other than government to carry out any governance function.

At the same time, most of these researchers and activists agree that the state and especially governments, in the current situation, have become too large, opaque, and unaccountable, which is one of the main reasons underlying the current crisis-like situation. Thus, while rejecting the current IRA model, they end up endorsing continuation of the current state-driven model not by choice but by default.

There is need to think in the 'out-of-box' manner and try to see in what manner new institutional forms and policy innovations could be adapted to make situation somewhat better, if not ideal.

This note attempts to provide some pointers in envisaging a different model for regulatory system for Municipal Services Sector. It is possible to develop these ideas in the form of a Model Bill if the idea of such a bill is found to be useful and if adequate time and resources are devoted. These ideas and pointers are presented in brief manner in the next section of this report.

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<sup>10</sup> The classical regulatory function involves three tasks: (a) setting standards for performance, (b) monitoring of output and outcome (or performance) of governance, and (c) enforcing compliance.

### **3. Towards A Regulatory System for Urban Water Sector: Some Suggestions**

#### **3.1 Scope in terms of Governance Functions**

First of all, it is suggested that there should not be a separate regulatory system for different sectors such as urban water sector. Rather, it is preferable to have one single Municipal Services Regulatory System (MSRS), covering all the 18 functions mentioned in the 74<sup>th</sup> CA Act. This is primarily because of two reasons:

- Many of the urban services have close interconnections and interdependencies. For example, urban water conditions are closely linked with conditions of sectors like sanitation and solid waste management, as well as planning of the cities.
- The governing body, or the ULB is common, and it is not possible to 'ring-fence' all dimensions (financial, HR, etc.) of all activities of the ULBs effectively.

Such a Municipal Services Regulatory System (MSRS) will be accompanied with the (State) Water Sector Regulatory System (WSRS). Obviously, there will be interconnections and possibilities of overlap (and hence confusion and conflicts) between the jurisdictions of these two regulators. However, with careful design, such possibilities could be easily avoided.<sup>11</sup>

Similarly, when all the municipal services are under the ambit of the same MSRS, the system will need to have sectoral competence and understanding to monitor and enforce compliance in all the sectors and services involved. This itself is a tall task, which requires detailed discussion.

#### **3.2 Proper Separation of Governance Functions**

In response to the concerns mentioned in Part I, there is need to avoid concentration of governance functions in the hands of the regulatory agency. In other words, the regulatory agency should carry out a limited number of functions; rather it should primarily carry out the classical regulatory function.

Further, another critique of IRAs should also be considered. IRAs are said to be encroaching on the jurisdiction of the democratically elected political bodies, at the state as well as at the local level. Any governing agency or institution should be responsible for type of functions for which it has both, competence and legitimacy. With this logic, the regulatory agency should not make any political decisions. These decisions should be rested with the agencies and institutions that have political competence and legitimacy (or mandate) to make value-laden, 'normative', or 'political' decisions on behalf of the society. Such a 'political' body should be accountable to stakeholders as well as common citizens through

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<sup>11</sup> There could be lengthy discussion on the appropriate choice between two options: (a) to have a MSRS and WSRS, or (b) to extend the jurisdiction of the WSRS to the urban water sector. For want of space, it is not possible to present all the arguments here. However, the first option is found to be more practical for various reasons.

political mechanisms. The functions of policy-making and planning do involve such political decisions. So, they should not be in the purview of the regulatory agencies per se.

### **3.3 Decentralization and Subsidiarity**

One of the major critiques of the IRA model is concentration of the authority in the hands of one agency and that too at the state level. The issues of diversity and location-specificity in the physical and socio-cultural matters as well as autonomy of the democratic institutions are the main arguments against such centralization.

In response, the alternative design of the MSRS should be decentralized, adhering to the Principle of Subsidiarity, which demands devolution of decision-making to the lowest possible level. The regulatory system could be comprised of hierarchical structure of nested agencies.

### **3.4 Substantive Scope**

The current IRAs and even the regulator envisaged in the Chhattisgarh law look at regulation primarily as regulation of tariff. However, there is a wide range of techno-economic and financial parameters that are intricately linked with each other such as tariff, quality of service, techno-economic efficiency, physical and other losses, financial discipline and prudence, investment and purchases. Restricting regulation only to tariff defeats the very purpose of regulation, while creating suspicion and resistance among other stakeholders especially consumers.

Further, the MSRS should not be restricted to covering only techno-economic and financial objectives. In fact, it should be regulating—in an integrated manner and without any hierarchical preferences—for ensuring the wider set of objectives, primarily, techno-economic efficiency, financial viability, service quality, democratic participation, social equity, and environmental integrity.

### **3.5 Transitory, Stage-wise Designing of MSRS**

All the states are not at the same stages of institutional development / preparedness, policy evolution, economic development, and political culture. So the development of MSRS could be seen as gradual, step-wise process and different structures and processes could be envisioned for different stages of regulatory evolution. Further, this evolution need not be seen as uni-linear, and there could be many parallel tracks for this regulatory evolution.

## **4. Tentative Suggestions on Structure and Process of MSRS**

The following are the elements of the MSRS envisaged as an alternative to current IRA model. (Please first refer to Table 7).

- The agencies of MSRS will have expertise in not only technical and eco-financial areas, but also in socio-cultural, political, environmental areas.
- To begin with, MSRS will have a state-level apex agency, with its regional offices at the various regional headquarters in the state. The state as well as regional (sub-state) level offices will preferably have competencies in all the areas mentioned above.
- State-level agency of the MSRS will develop and finalize a set of Regulations (both Substantive and Process) and Criteria for decision-making and implementation, which will be used for carrying out all the three tasks of the classical regulation function. These Regulation and Criteria will cover techno-economic, financial, social, political, and environmental objectives<sup>12</sup>.
- These Regulations and Criteria will govern both the substantive as well as process aspects of various decisions. The criteria would be, general (across sectors and services) as well as sector (or service)-specific. The Regulations and Criteria will be elaborate enough to cover all the aspects of the critical decisions and implementation in the chosen sectors and services. However, at the same time, they will have enough space and flexibility for the ULBs to make their diverse value-driven political decisions as well as to accommodate the location-specificity.

**Table 7: Schematic Representation of the MSRS**

Level	Decision-Making Function	Regulatory Functions	Grievance Redressal Function
State Level	Legislature will discuss and sanction the criteria for regulation	State Regulatory Agency will prepare the Regulations (both, Substantive and Process) and Criteria and conduct open and participatory process of deliberation on the draft	State Level Regulatory Agencies will act as the second appellate authority against the decisions of the Distinct level Forums for Grievance Redressal of Citizens
Regional (Sub-State) Level		Regional Regulatory Agencies will monitor and review the adherence to criteria by ULBs.	Regional Level Regulatory Agencies will act as the first appellate authority against the decisions of the Distinct level Forums for Grievance Redressal of Citizens
District Level			Distinct level Forums for Grievance Redressal of Citizens
ULB Level	ULBs would use the criteria to make decisions and implement them		

<sup>12</sup> These objectives, for example, would include: techno-economic efficiency, financial viability, service quality, democratic participation, social equity, and environmental integrity.

- These Regulations and Criteria will be finalized after a thorough, state-wide, fully transparent, truly participatory (involving all stakeholders), accountable process in which the democratically elected institutions (at the state as well as local level) will be involved. In this process, the state-level regulatory agency will primarily work as custodian and coordinator of the process.
- Once the Regulations and Criteria are finalized, then the ULBs will use these Regulations and Criteria to make the critical decisions and also strictly follow the processes laid in the Regulations and Criteria. The ULBs will have, as mentioned before, adequate space and flexibility required to retain their autonomy. Thus, the main decision-making function will remain with the democratically elected bodies.
- There will be regional-level agencies within the state regulatory system (MSRS), which will be established at the regional revenue headquarters in the state. These agencies will have all the required competencies, and regional level specificity and special requirements will be considered while forming these entities.
- The ULBs, while making decisions, will keep these agencies informed about adherence to criteria. The regional agency will take independent review of the level of adherence and sue-motto will take cognizance of any failure on this count and guide the ULB accordingly. The absence of any indication of such failure from this agency in a given time frame would mean automatic clearance of the decisions.
- In the case of grievance of any stakeholder or citizens' representative about the adherence to the criteria by any ULBs, the request for review will go first to the regional level regulatory entities for adjudication. The scope of the grievance and adjudication will be limited to ensuring adherence to the criteria. There will be well defined, time-bound process for adjudication.
- Any party to the adjudication which feels aggrieved can go to the state-level regulatory agency in appeal against the decision of the regional regulatory agency. The respective High Court will be the next appellate authority. However, the scope for adjudication will remain only to ensuring adherence to the criteria.
- Either the automatic clearance or green signal after due adjudication by regional or state level agencies would be a pre-condition for the legal validity of the decisions of the ULBs.
- If the function of redress of grievances is given to the regulatory system, then district-level forums could be established to look into the stakeholders' grievances and the regional level and state level regulatory agencies can have sections looking into appeals against the decisions of the district level forums.

It needs to be noted that these elements of the structure and process of decision-making and regulation are illustrative and not claimed to be comprehensive.