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The World Bank

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LN. 2797-IN

Report No. 6458-IN

STAFF APPRAISAL REPORT

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

April 2, 1987

Urban and Water Supply Division
South Asia Projects Department

Currency Equivalents

Currency Unit	=	Rupee (Rs)
Rs 1.00	=	US$0.08
Rs 13.00	=	US$1.00
Rs 1 lakh (10)	=	US$7,692
Rs 1 crore (10)	=	US$769,231

MEASURES AND EQUIVALENTS

mm	-	millimeter (0.0394 inches)
cm	-	centimeter (0.3937 inches)
m	-	meter (3.2808 ft)
km	-	kilometer (0.6214 miles)
m2	-	square meter (10.7639 square feet)
ha	-	hectare (2.4711 acres or 10,000 square meters)
l	-	litre (0.2642 US gallons or 0.2200 Imperial gallons)
m3	-	cubic meters (35.3147 cubic feet or 264.1721 US gallons or 1,000 liters)
mld	-	million liters per day (264,172.0524 US gallons per day)
lcd	-	liters per capita day (0.2642 US gallons per capita day)
m3/sec	-	cubic meters per second (264.1721 US gallons per second) (gal/sec)

ABBREVIATIONS AND ACRONYMS

BISWAS	- Bihar State Water and Sewerage Board
CGA	- Central Ganga Authority
CMDA	- Calcutta Metropolitan Development Authority
DA	- Development Authority
DLB	- Directorate of Local Bodies
EWS	- Economically Weaker Section
GOI	- Government of India
GOUP	- Government of Uttar Pradesh
GPD	- Ganga Project Directorate
HIG	- Higher Income Group
HUDD	- Housing and Urban Development Department (Uttar Pradesh)
IPMC	- Investment Planning and Monitoring Cell
JS	- Jal Sansthan (city water and sewerage authority)
KAVAL	- Kanpur, Agra, Varanasi, Allahabad and Lucknow
KDA	- Kanpur Development Authority
KJS	- Kanpur Jal Sansthan (Kanpur Water and Sewerage Authority)
KNM	- Kanpur Nagar Mahapalika (Kanpur Municipal Corporation)
KUDP	- Kanpur Urban Development Project (Credit 1185 IN)
LCMC	- Local Coordination and Monitoring Committee
LIG	- Lower Income Group
MIG	- Middle Income Group
MNP	- Minimum Needs Program
NM	- Nagar Mahapalika (municipal corporation)
NP	- Nagar Pahalika (municipal board)
OAP	- Operational Action Plan
PHED	- Public Health Engineering Directorate
SADA	- Special Area Development Authority
SWM	- Solid Waste Management
TEMC	- Traffic Engineering and Management Cell
TTAU	- Traffic and Transportation Appraisal Unit
UNDP/TAG	- United Nations Development Programme/Technology Advisory Group
UP	- Uttar Pradesh
UPWSSP	- Uttar Pradesh Water Supply and Sewerage Project (Credit 585-IN)
UPJN	- Uttar Pradesh Jal Nigam (State Water and Sewerage Authority)

FISCAL YEAR

APRIL 1 - March 31

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

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This report is based on the findings of pre-appraisal and appraisal missions which visited UP in April and June 1986, respectively, and on the contributions by GOUP's Investment Planning and Monitoring Cell, and GPD. The pre-appraisal mission consisted of Messrs. Patrick McCarthy, Terry Hall, Gerhard Menckhoff (ASPUW), Jens Lorentzen (WUDOR), Edward Quicke (WUDAT), and John Pettigrew and Michael Whitbread (Consultants). Messrs. McCarthy, Hall, Quicke, Whitbread, and David Jackson (Consultant) assisted at appraisal. Ms. JoAnn Feldmann, Secretary, assisted in Washington, D. C.

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INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

LOAN, CREDIT AND PROJECT SUMMARY

Borrower:	India, acting by its President (GOI)
Beneficiaries:	Government of Uttar Pradesh (GOUP) and up to 30 towns in Uttar Pradesh (UP); and Ganga Project Directorate (GPD) and four or more towns in Bihar, UP, and West Bengal.
Amount:	Bank Loan : US$20 Million IDA Credit: SDR 106.3 Million (US$130.0 M equivalent)
Terms:	Bank Loan : Repayment over 20 years including five years' grace, at applicable rate of interest. IDA Credit: Standard.
Relending Terms:	From GOI to GOUP: As part of central assistance to states for development projects on terms and conditions applicable at the time. From GOUP to the development authorities, municipal corporations or boards, town water and sewerage authorities, in about 30 urban areas for: (i) technical assistance: grants; (ii) low cost sanitation: 50% grants; (iii) slum upgrading: grants up to Rs 250/capita; (iv) community facilities in sites and services: grants and (v) other project activities: at 8.75% p.a. interest over 20 years including five years' grace period on principal repayments. Agencies would on-lend to beneficiaries at not less than 12% p.a. over varying periods of time.

From GOI to GPD: grants.
From GPD to designated implementing agencies in Bihar, UP, and West Bengal: grants.

GOI would bear the foreign exchange risk.

Project Description: The project would: (a) support policy adjustments, institutional strengthening, and urban shelter and infrastructure developments initiated by GOUP; and (b) address sector policy improvements to support GPD at the national level by strategic planning for pollution reduction and control in the Ganga River.

The project comprises two distinct programs: the UP Program, and the Ganga Program. The UP Program would support: (a) sector management, technical assistance and training, sites and services, slum upgrading, area development, water supply, sewerage and sewage treatment, drainage, low cost sanitation, solid waste management, maintenance management, and traffic engineering and management, in about 12 urban areas in the state, and (b) low cost sanitation investments in a further 18 towns where UNDP/TAG feasibility studies have already been carried out. This program would focus on improving urban management, and operations and maintenance of investments, including improved resource mobilization and utilization.

The Ganga program would provide consulting services, studies, training, priority rehabilitation and pollution control works, and equipment for sewer cleaning operations and river monitoring to reduce pollution of the Ganga River.

The potential risks of the UP program are: (a) the capacity of UP's Investment Planning and Monitoring Cell (IPMC) to manage the project; (b) the institutional capacity of town agencies to implement a multi-sector investment program; and (c) non-compliance by GOUP and project towns of policy conditions relating to cost recovery and resource mobilization. However, GOUP has staffed the IPMC with its most experienced multi-discipline officers who are familiar with programmed activities. Project towns would implement an operational action plan, supplemented by training, to strengthen their institutional capacity. GOUP and project towns have already demonstrated a firm commitment to objectives by having increased substantially, water tariffs and water and sewer taxes

substantially, water tariffs and water and sewer taxes and charges. The potential risks of the Ganga program are low since GPD will be engaging specialist consulting services to support its core team. Implementation will be carried out by competent authorities at the state level.

Estimated Costs:	Local	Foreign	Total
	(US$ million)		
Sector Management, Technical Assistance and Training	5.7	2.3	8.0
Sites and Services	14.3	1.3	15.6
Slum Upgrading	7.5	0.8	8.3
Area Development	1.8	0.2	2.0
Water Supply	35.8	7.8	43.6
Sewerage	19.8	19.4	39.2
Drainage	12.7	1.4	14.1
Low Cost Sanitation	6.1	0.7	6.7
Solid Waste Management	5.2	1.5	6.8
Maintenance Management	4.5	1.2	5.7
Traffic Engineering and Management	4.8	0.5	5.3
Sub-total	118.2	37.1	155.3
Physical Contingencies	10.1	3.0	13.1
Design, Supervision and Management	13.8	4.0	17.8
Price Contingencies	39.3	12.3	51.6
Total Project Cost /a	181.4	56.4	237.8

/a Includes $12.0 million of taxes and duties.

Financing Plan:	Local	Foreign	Total
	(US$ million)		
IBRD/IDA	93.6	56.4	150.0
GOUP	74.5		74.5
CGA	13.3		13.3
Total Project Cost	181.4	56.4	237.8

Estimated Disbursements:

Bank FY	1988	1989	1990	1991	1992	1993	1994	1995	1996
	(US$ million)								
Annual	6.0	18.0	24.0	25.5	24.0	19.5	16.5	12.0	4.5
Cumulative	6.0	24.0	48.0	73.5	97.5	117.0	133.5	145.5	150.0

Economic Rate of Return: Between 10.2%-17.0% on components representing about 52% of total project cost for which benefits are quantifiable.

Appraisal Report: No. 6458-IN dated April 2, 1987.

Maps: IBRD 19880 Central Ganga Program
IBRD 19881 UP Program

I. SECTOR BACKGROUND

A. India - National Urbanization Trends and Management

1.01 India's cities and towns are growing rapidly. The increase in urban population from 107 million in 1971 (20% of total population) to 156 million in 1981 (24% of the total) marked an acceleration in the annual rate of urban growth to 3.9% from 3.3% in the previous decade. By the year 2000, India's urban population will have more than doubled, reaching a total of at least 325 million. In the next 15 years, more than half of India's population growth will occur in urban areas.

1.02 There is a growing realization in India that urban development is an important part of economic development and that past efforts to contain urban growth may have been counterproductive. Increasing attention is therefore being given to the development of more appropriate urban sector policies and to the strengthening of sector institutions. Better management of urban growth is now a priority of both the Government of India (GOI) and the State Governments, with three principal objectives: (a) to support the expanding urban economy of India; (b) to alleviate urban poverty; and (c) to improve living conditions.

1.03 Within these objectives, the State Governments, with whom the primary responsibility for urban development rests, emphasize four broad themes which characterize urban sector policies: (a) increased efficiency and effectiveness of resource utilization, (b) improved pricing, cost recovery, and local resource mobilization, (c) more rational allocation of sector responsibilities between the private and public sectors, and (d) strengthening of public sector management.

1.04 Resource Utilization: Design standards are being modified and lower cost technologies are being adopted for public sector land development, water supply, sanitation, transport, and other municipal services to make investments affordable. This permits coverage to be expanded, costs to be recovered, and sector subsidies to be reduced. It is also recognized that existing facilities must be better utilized, which requires improved maintenance and more efficient operations (e.g., reduced leakage and wastage in water supply systems, improved traffic management, etc.).

1.05 Improved resource utilization is the policy area in which the most progress has been made. Affordable and replicable approaches have been identified and are being incorporated into individual investment projects and into some statewide investment programs. However, widespread application is hampered by weaknesses in resource mobilization and sector management. Also, while good progress is being made in making new investments more cost-effective, progress is slower in improving the operation and maintenance of existing facilities.

1.06 Resource Mobilization: Policy formulation and action to improve resource mobilization in the urban sector is under way. There are three principal areas of emphasis: (a) pricing of public sector land and housing, where full cost recovery from beneficiaries is increasingly accepted, although interest rates remain low (except in Bank-supported projects where

interest of 12% or more is being charged); (b) tariff setting for public utilities, such as water supply, sewerage, and transport, where the principle of full cost recovery is also becoming accepted; and (c) mobilization of general municipal revenues, and particularly property tax revenues, where less progress has been made.

1.07 The mobilization of additional municipal tax revenues will require that comprehensive programs be designed and implemented to address a number of inter-related issues which are administratively complex and politically sensitive, including mapping and land registration, property value assessments, rate setting, billing, and collection. Property values are typically assessed on the basis of rents, which are kept artificially low because of rent control. Hence, a new basis for property valuation, and rent control reforms are cautiously being pursued by GOI and some State Governments.

1.08 Sector Management: Sector management needs to be strengthened at three levels: central, state, and local (municipal). At the central level, the concerned GOI sector ministry was reorganized in 1985 and renamed the Ministry of Urban Development (formerly Works and Housing) to reflect better the emerging broader emphasis on urban policy. The role of the existing Housing and Urban Development Corporation of India (HUDCO) may be expanded. HUDCO is currently the only central level agency performing the role of financial intermediary for a Bank-supported project in the urban and water supply sector (the Madhya Pradesh Urban Development Project). In 1985, GOI also established the Central Ganga Authority (CGA) to assist the states along the Ganga in reducing river pollution, principally by improving sewerage and sanitation in urban areas. The Ganga Project Directorate (GPD) within the CGA is responsible for the preparation of action plans for the cleanup of the Ganga River. Early in 1986, GOI also established a national Urban Infrastructure Finance Corporation to provide both financial and policy support to State Governments and sector agencies. A proposal is under consideration to establish a National Housing Bank during the Seventh Plan period. The above are examples of India's new found resolve to build a coherent urban policy and a sound framework for its execution.

1.09 At the state level, some progress has been made in strengthening sector management. In most states, agencies now exist for housing, water supply and sanitation, etc. They are essentially construction agencies whose capacity for broader sector planning and management functions is being strengthened in only a few states. An adjustment in their mandate and outlook is required. Equally important, State Governments themselves need to be better organized and staffed to plan for economic development and to address urban sector issues and opportunities as part of their economic development programs, rather than as isolated physical planning subjects.

1.10 Less progress in strengthening sector management has been made at the municipal level. However, valuable experience has been gained and demonstration of new policies and approaches has taken place through Bank-supported projects, providing a good basis for a broader strengthening program. State Governments have previously adopted a relatively centralized approach to local issues, preferring to carry out development programs through state level bodies, thereby often bypassing and weakening local governments and

community groups. There is now a growing realization that a more decentralized approach must be adopted if the management, investment, and maintenance requirements of India's 3500 cities and towns are to be met. Local initiative and local resources must be stimulated and mobilized to a greater extent than has been the case to date. This is a major policy theme of the Seventh Plan.

1.11 Rational Allocation of Sector Responsibilities. There are two sub-sectors in which the role of the private sector clearly needs to be strengthened in India: shelter and urban transport. It is now generally accepted that house construction itself should be left to the private sector, with the public sector focusing on the provision of trunk infrastructure and, selectively, on land assembly and on-site infrastructure for low-income households and small businesses. The need to adjust the legal and financial framework accordingly is beginning to be accepted, and adjustments are being considered and introduced (e.g., reform of rent control and urban land ceiling legislation, reform of land use and building control regulations applicable to the private sector, and strengthening of housing finance institutions). In transport, there is limited although growing acceptance of the need to liberalize policies on the licensing of private bus operators, and some states are moving in this direction.

B. Urbanization Trends in Uttar Pradesh

1.12 Uttar Pradesh is the fourth largest state in India, covering 9% of the total area of the country. It is, however, first in population, with 111 million, according to the 1981 census, and has about 17% of India's population. The 1981 urban population of Uttar Pradesh was about 20 million, or 18% of the state's population, and grew at the rate of 4.9% a year during the period 1971-1981, compared to the all-India urban population growth of 3.9% over the same period. The greatest increase in growth rate has been in towns of under 20,000 population. Almost half of this increase is migration from rural areas, especially from the less developed Eastern and Hill regions. About one million persons per year are being added to UP's urban population and on the basis of present projections, by 2001 the urban population could exceed 52 million, or 30% of the state's population. The UP urban population is widely dispersed in about 660 cities and towns, indicating the need for decentralization of urban development responsibilities to the local level and to the private sector, with State Government interventions focused on the establishment of broad policies and on an appropriate framework of incentives. State level bodies cannot mobilize either the financial or the managerial resources required for direct intervention in all urban areas.

1.13 Although the economy of the state is primarily agricultural, with 52% of the State Domestic Product (SDP) originating in agriculture and allied sectors compared to 40% for India as a whole, urbanization is becoming important. For many decades, economic growth in the state lagged behind the rest of India. Recently, however, the economy has expanded at a rate of about 6%, which equals or exceeds the growth rate of the national economy. Some of the industrial sectors, such as chemicals, machinery, transport equipment, non-metallic products and miscellaneous manufacturing, which are predominantly urban in their location and characteristics, show particularly

rapid growth. It is clearly becoming more important to provide an efficient urban environment as an incentive to growth for industry and commerce in the state. Further details of the economy of the state and urban services are attached as Annex 1.

1.14 Urban growth has taken place in the context of an inadequate public utility infrastructure. The problems of urban growth are all the more severe in the largest cities because of the greater absolute number of people involved. About 45% of the urban population does not have access to a safe water supply, 55% have no access to electricity, and 27% have no access to latrine facilities. Local government services, such as solid waste management, night soil collection and disposal, and street cleaning and lighting are poor, particularly in low-income areas. State provision of developed land and shelter falls far short of needs. The UP Housing and Development Board, whose jurisdiction extends to 113 cities and towns in the state, completes about 1200 housing units and plots a year. Annual requirements for new shelter alone are about 70,000 units/plots.

1.15 Urban Investment Requirements. UP has given increasing emphasis to urban development in recent Five Year Plans, as Table 1.1 indicates. Between the Fifth and Sixth Plans, for instance, the amount allocated rose threefold. The amounts, however, fall far short of needs. Based on recent national estimates of investment requirements for providing "adequate" levels of urban services (in water supply, sewerage/sanitation, solid waste, storm drainage, roads, street lighting, and associated land development) for the urban population up to the year 2001, including filling the existing backlog, and the replacement of worn out infrastructure (assuming here a 40 year life expectancy), UP would require about Rs 6,000 crores (equivalent US$4,615 million) in 1986 prices. On this basis, the average annual requirement for its current (1985-1990) Five Year Plan would be about Rs 2,000 crores. This would be the equivalent of 19% of UP's total current (Seventh) Five Year Plan allocation. GOUP has allocated 4%. Although full funding requirements for the sector are not likely to be realized, the increasing emphasis given to urban development is timely and should be pursued.

Table 1.1: GOUP FIVE YEAR SECTOR PLAN ALLOCATIONS

Rs. Crores

Plan Period	Total UP Plan Allocation (1986 Prices)	Sector Allocation	% Sector to Total	% Increase over Previous Sector Allocation
Fifth Plan (1974-79)	2,466.00 (4,242.00)	49.28 (84.76)	2	-
Sixth Plan (1980-85)	6,200.00 (6,510.00)	129.85 (136.34)	2	61
Seventh Plan (1985-90)	10,447.00 (9,783.00)	415.00 (408.06)	4	199

1.16 Sector Policy Adjustments. In 1984, in order to provide the background necessary for making sectoral policy adjustments, GOUP carried out an extensive review of the urban sector. IDA reviewed this document and is in agreement with its conclusions. Drawing also on the lessons learned from the two Bank-supported projects (see para 1.17), GOUP revised its urban sector policies and prepared an action plan for the implementation of necessary policy adjustments. These focused on improved cost recovery and local resource mobilization, a shift of housing construction to the private sector, relaxation of constraints on private bus operations in urban areas, relaxation of rent control, and greater reliance on local community initiative and resources. GOUP and local authorities have already made good progress in introducing the policy adjustments and in implementing the action plan. Principal steps taken to date include:

Pricing and Cost Recovery: (i) GOUP has rescinded its freeze on increases in water charges. A number of towns, including all the proposed project towns, have raised tariffs (increases ranged from 50% to 200%) and water and sewer taxes (increases ranged from 12% to 100%); (ii) all project agencies have begun enforcement of the collection of arrears of general tax, water, and sewer taxes and charges, and hire purchase on loan schemes.

Resource Mobilization: GOUP has rescinded its freeze on reassessments of urban property values for tax purposes, and a number of towns, including all proposed project towns, have introduced revised property value assessments. Project towns have extended octroi reforms incorporated in Kanpur and have minimized exceptions from octroi.

Rent Control: GOUP has amended the rent control act to extend the "control free" period for new properties from 10 to 20 years.

Institutions: GOUP has (i) expanded a state-level urban cell established under KUDP in HUDD into an investment planning and monitoring cell (IPMC) to strengthen sector management and to carry out appraisal, supervision and evaluation of projects proposed by local authorities, and (ii) has created a cell in the Directorate of Local Bodies (DLB) to manage an expanded low cost sanitation program.

Legislation: GOUP has (i) amended the Slum Areas (Improvement and Clearance) Act of 1962 to streamline the process of land acquisition (this will aid in cost recovery in slum upgrading), and (ii) amended the Mahapalika Adhiniyam (municipal corporation act) and the UP Municipalities Act of 1916 to permit urban, commercial properties to be taxed at higher rates than residential properties, and improve the procedures for reassessing urban properties.

Transportation Study: GOUP has prepared a draft study in Kanpur to assess options of introducing private bus services.

C. The Bank's Sector Role and Assistance Strategy in India

1.17 To date, the Bank has committed a total of US$1,395.6 million in credits and US$89.1 million in loans, net of cancellations, to support 21 projects in the urban and water supply sector in India. Nine projects have been completed (Calcutta Urban I and II, Calcutta Transport, Bombay Water Supply and Sewerage I, Bombay Urban Transport, Madras Urban I, Uttar Pradesh Water Supply and Sewerage, Maharashtra Water Supply and Sewerage, and Punjab Water Supply and Sewerage), while 12 projects are under implementation (Calcutta Urban III, Bombay Water Supply and Sewerage II and III, Bombay Urban, Madras Urban II, Kanpur Urban, Rajasthan Water Supply and Sewerage, Gujarat Water Supply and Sewerage, Madhya Pradesh Urban, Tamil Nadu Water Supply and Sanitation, Kerala Water Supply and Sanitation, and Gujarat Urban).

1.18 Physical investments are being implemented satisfactorily under these projects. Intended improvements in operations and maintenance are being achieved in some cases but are generally lagging. Progress is also being made in achieving the cost recovery and resource mobilization objectives of these projects 1/, particularly in establishing more appropriate water tariffs, bus fares, plot prices and interest rates, but less so in raising property tax revenues. Progress is slower in improving sector management, as evidenced by the slow dissemination of sector-wide policy measures which have been introduced and tested under specific Bank-supported projects. The statewide UP Water Supply and Sewerage Project (UPWSSP) (Cr. 585-IN) was completed in 1983 2/. Its institutional and financial objectives were not fully achieved, largely due to (a) a relatively centralized approach with insufficient involvement of local governments and communities, and (b) a lack of detailed action plans mapping out how the objectives were to be achieved. The objectives themselves were ambitious, in retrospect, and could not have been achieved in the time span of a single project. The Kanpur Urban Development Project (KUDP), approved by the Board on October 27, 1981 (CR.1185-IN), focuses on the introduction of institutional and financial improvements in only one town and has been more successful, within its more limited objectives. Most major works were completed by the original closing date of June 30, 1986. A one year extension was granted to complete the provision of building and sewer connection loans to beneficiaries and to complete the slum upgrading program, which has been delayed by land acquisition problems.

1.19 The Bank's lending program in the urban sector will continue to include specific investment projects to introduce improved resource utilization and cost recovery, particularly in states where no or little Bank assistance has been provided previously. However, there will be a shift towards

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1/ See "Sector Report: Water Supply and Sewerage Projects Financed by the World Bank in India - Financial and Institutional Performance" Report No. 6046-IN.

2/ See Project Completion Report (PCR) dated December 1985.

sector lending operations which provide more support to broader resource mobilization and sector management improvements, starting with states where the Bank has substantial prior sector experience. The proposed project sets the stage for such an operation since, at the state level, some important sector policy changes have been instituted. In addition, about 50% of the state's Plan investments in the sector has been appraised, in partnership with the State Government (see paras 2.03 to 2.06). The project, therefore, has many elements of a sector lending operation, albeit in the selected towns. At the same time, there will continue to be a movement towards increased support to, and through, central level intermediaries to help ensure that policy initiatives and new methodologies are disseminated more rapidly among states and that all states adopt a reasonably consistent urban policy framework.

1.20 The Bank's sector assistance strategy has evolved from an initial phase of exploration and demonstration of alternative sector approaches, relying mainly on specific investment projects, to the current phase of more concerted and better focused efforts to assist the respective governments in formulating and implementing a consistent set of urban sector policies, with increasing reliance on broader sector lending operations as vehicles to support change. The current phase of the Bank's assistance also gives more emphasis to sector analysis and to the provision of direct staff support in evaluating sector performance and in disseminating lessons on policy initiatives and implementation.

II. THE PROJECT

A. Introduction

2.01 Through the two previous projects in UP, the Bank has helped lay the basis for improved urban sector policies and is encouraging wider dissemination of required policy adjustments. After two years of intensive analyses and discussion, GOUP has now demonstrated its readiness to take appropriate policy actions and set the stage for a sector lending approach. Furthermore, at the national level the project will assist in the development of a national level sector intermediary which would address required sector policy improvements on a multi-state basis through the GPD.

B. Project Objectives

2.02 The overriding objective of the project would be to support the policy adjustments and the institutional strengthening initiated by GOUP and GOI/GPD, and to reduce the serious deficits in urban shelter, infrastructure, and services. To that end, GOUP's specific objectives would be to improve: sector finances by improving cost recovery and resource utilization and mobilization; sector management by strengthening sector organizations; and infrastructure and services by extending and improving, for example, water supply, sanitation, drainage, solid waste collection, maintenance management, and traffic management for the urban population, especially the urban poor. GPD's specific objectives would be to address sector policy improvements by:

the introduction of program management systems; the development of river pollution control models; and the preparation of strategic plans for reduction and control of pollution in the Ganga River.

C. Project Concept

2.03 The project comprises two distinct programs of investments: (a) (i) about 50% of UP's Seventh Plan and partial Eighth Plan investments in urban development and water supply in 11 cities and one new urban area, including technical assistance and training; (ii) low cost sanitation in an additional 18 towns; and (b) phase 1 investments by the GPD in three states (Bihar, UP, and West Bengal) under its Seventh Plan, mainly for technical assistance, training, and urgent rehabilitation works, pending the formulation of a phase 2 action plan to reduce the level of pollution of the Ganga River (see Annex 2 for phase 1 description). As the project provides for rehabilitation of, and additions to, existing water works and schemes, there will be no adverse effect on the flow of waters. Instead, the project will abate pollution and improve the quality of the flows. In view of this, no notification to downstream riparian is required pursuant to OMS 2.32.

2.04 Drawing on its urban sector review, GOUP identified a number of urban areas (see Annex 3) which, based on size, growth rates, urban infrastructure deficits, economic potential, and institutional capacity, could benefit from an enhanced program of investments. They have been classified into four principal categories which reflect their size and their particular investment needs:

Group A: Kanpur, Agra, Varanasi, Allahabad, and Lucknow - KAVAL towns - the largest towns with populations ranging from 600,000 to 2,000,000;

Group B: Bareilly, Moradabad, Gorakhpur, Aligarh, Saharanpur, and Ghaziabad - the group of towns next in economic importance in the state, with populations ranging from 300,000 to 600,000;

Group C: Shaktinagar - a "new" urban area located near the Singrauli coalfields and power stations; and

Group D: Up to 18 towns for which (UNDP/TAG) feasibility studies on low cost sanitation have been carried out.

2.05 While the selection of the Groups A and B towns has been made on the above criteria, their inclusion in the project would be contingent upon continued successful implementation of the policy adjustments referred to in paragraph 1.16. Standby towns have been identified as well which have also implemented the policy adjustments but whose project implementation will only commence after a decision on their inclusion. Dehradun and Jhansi (Group B) have been selected as standby, since they are the next two towns in order of importance in the state. Nainital has been selected as a standby town under Group C due to the special problem of extreme pollution of its main water source. Assurances were given during negotiations that if any of the original 11 towns do not meet agreed interim financial performance targets,

or lag unduly in implementing their respective investment programs, GOUP/IPMC will, in consultation with the Bank and IDA, reduce the proposed capital allocation to such towns and make the funds available to a better performing town, and/or induct one or more standby towns into the project.

D. Project Description

2.06 The UP program would include the following components: Sector Management, Technical Assistance, and Training; Sites and Services; Slum Upgrading; Area Development; Water Supply; Sewerage and Sewage Treatment; Drainage; Low Cost Sanitation; Solid Waste Management; Maintenance Management; and Traffic Engineering and Management. Within a funds allocation based on per capita criteria, Group A and B towns were given the latitude to select their perceived investment priorities from the above mentioned predetermined components. This approach addresses one of the options proposed in the Project Completion Report (PCR) of UPWSSP, namely, the desirability of decentralizing the planning function so that awareness and a sense of ownership and responsibility for the investments might be established at an early stage. The Ganga program would provide: (a) consultancy advisory services and training; (b) pollution monitoring and maintenance equipment; and (c) priority pollution control works. Table 2.1 shows the selection of investments by each town based on the funds allocations made by GOUP, and investments by GPD. The Bank appraised all proposed investments in water supply and sewerage, and a representative sample in the remaining components. The following criteria were used: (i) design standards which were affordable to the target group; (ii) least cost solution (e.g. in water supply and sewerage); (iii) emphasis on rehabilitation and maximization of existing investments; (iv) operation and maintenance; and (v) technical assistance and training.

2.07 In addition to these investments, there are a number of interrelated project activities to be undertaken by participating agencies to accelerate project implementation and to improve the operating efficiency and financial viability of sector agencies. These actions are discussed throughout this report, and, because of their importance, they have been grouped into an Operational Action Plan (OAP) (see Annex 4). Assurances were given at negotiations that the OAP will be reviewed and updated annually by GOUP and GPD, to be satisfactory to the Bank and IDA.

2.08 Project Components. Project components are described in the following paragraphs. Some components are described in greater detail in Annex 5.

UP Program

2.09 Sector Management, Technical Assistance, and Training: (Cost: 1/ Rs 7.3 crores: US$5.6 million). At the state level in UP, the project would

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1/ Includes base, physical and price contingencies but not design supervision and management costs over an eight year (i.e. Bank-wide Sector Profile) implementation period.

support the establishment and operation of: (i) IPMC and a Traffic and Transportation Appraisal Unit (TTAU) (see para 4.05); and (ii) the costs of UP Jal Nigam (UPJN) for the preparation of Group A and B towns' water supply and sewerage components. Consultants would assist the Town and Country Planning Department (TCPD) to prepare an outline development strategy for new urban areas. At the local level the project would support the establishment and operation of Traffic and Engineering and Management Cells (TEMC's) in the KAVAL towns (in Kanpur such a cell was established under KUDP). IPMC and local authorities would retain consultant and advisory services for improving their accounting and management information systems. Technical assistance would be sought for a number of studies to help improve urban management and service delivery. GOUP would give major emphasis to training at all levels, for which programs have been substantially prepared.

2.10 Shelter. (i) Sites and Services (Cost: Rs 28.7 crores; US$22.1 million). Eight of the Group A and B towns have included a sites and services component in their programs. In all, about 122 hectares would be developed in eight sites to provide about 9,580 serviced residential plots, and about 8.3 hectares of commercial and small business plots. All sites are located close to employment locations, transport facilities, and adjacent to developed residential areas. Land for all sites has already been acquired;

(ii) Slum Upgrading (Cost: Rs 16.5 crores: US$12.7 million). Ten of the Group A and B towns have selected slum upgrading. About 230 slums covering about 510 hectares of land with approximately 350,000 inhabitants would be upgraded in six cities. Almost all slums to be upgraded are former rural villages that have been incorporated into the municipal boundaries. Most households are the legal owners of their respective properties, so no transfer of land title is contemplated; and

(iii) Area Development (Cost: Rs 3.8 crores: US$2.9 million). Urban shelter can be divided into three main categories: (a) planned communities by public authorities (e.g., sites and services); (b) communities developed privately through sub-division; and (c) unauthorized settlements. In the latter two categories, while householders generally hold legal title to the land, minimum standards of services have either followed the creation of the housing stock, or more likely, there are no services at all. The component will address six such sites totalling about 57 hectares in two cities housing approximately 17,500 inhabitants would be improved through provision of roads, drainage, street lighting and connections to off-site water and sanitation services. About 60% of the households in these sites are Economically Weaker Section (EWS) households.

Table 2.1 UP URBAN DEVELOPMENT PROJECT (Rs Lakhs)

GOUP & GPD Investment Programs 1/ (Base Costs, Contingencies & Design, Supervision and Management)

	SHELTER			WATER & SANITATION				MUNICIPAL SERVICES				
Town	Sites & Services	Slum Upgrading	Area Dev.	Water Supply	Sewerage	Drainage	Low Cost San.	Solid Waste Mgt.	Maint.	Traffic Eng. & Mgt.	T.A. & Training	Total
Sector MGT TA&T	-	-	-	-	-	-	-	-	-	-	455.35	455.35
Kanpur	1217.96	206.85	281.81	1037.35	351.91	354.74	257.09	185.04	94.99	175.55	-	4163.30
Agra	-	327.08	-	1929.38	250.27	201.60	157.19	88.21	149.44	342.69	-	3445.86
Varanasi	67.87	120.47	-	1251.87	158.99	231.50	-	-	76.62	136.68	-	2043.60
Allahabad	202.17	257.12	105.14	663.48	211.61	130.70	139.05	99.59	106.91	103.37	-	2019.14
Lucknow	697.46	145.30	-	997.70	189.12	642.22	62.00	187.58	350.31	194.79	-	3466.48
Bareilly	110.05	183.90	-	257.70	88.83	527.74	126.48	99.06	41.43	-	-	1435.19
Moradabad	165.21	59.46	-	184.37	19.20	399.99	137.45	70.65	14.67	-	-	1051.00
Gorakhpur	261.39	120.06	-	182.76	24.55	76.80	35.51	170.92	33.67	-	-	905.66
Aligarh	106.58	-	-	392.18	144.87	67.86	43.69	41.28	-	-	-	796.46
Saharanpur	-	41.85	-	344.76	258.18	182.70	-	28.79	17.49	-	-	873.77
Ghaziabad	-	202.49	-	607.43	278.82	-	-	132.10	-	-	-	1220.84
Group-C Towns	47.86 2/	-	-	117.70 2/	-	72.01 2/	-	-	-	62.43 2/	-	300.00
Group-D Towns	-	-	-	-	-	-	355.00	-	-	-	-	355.00
Total GOUP	2876.55	1644.58	386.95	7966.69	1976.35	2887.86	1313.46	1103.22	885.23	1015.51	455.35	22550.03
GANGA				54.22	5386.71	-	-	-	-	-	336.11	5777.04
GRAND TOTAL	2876.55 (10%)	1664.58 (6%)	386.95 (1%)	8038.91 (28%)	7363.06 (26%)	2887.76 (10%)	1313.46 (5%)	1103.22 (4%)	885.53 (3%)	1015.51 (4%)	791.46 (3%)	28327.07 (100%)

1/ Based on allocations made by GOUP for the period 1986-1991, and GPD for the period 1986-1990.
2/ Tentative allocation.

2.11 Water Supply and Sanitation (i) Water Supply: (Cost: Rs 79.4 crores: US$61.0 million). All Group A and B towns have selected investments in water supply, which is an indication of the deficiencies in this service. The investments represent the least cost solution to augmenting supplies. Operational and financial improvements would enhance the efficiency and delivery of the service;

(ii) Sewerage: (Cost: Rs 19.3 crores: US$14.8 million). As is the case with water supply, all Group A and B towns have included investments in this component. Most of the work included in the project would support cleaning and repair of existing sewers and, in some cases (which are quite extensive) the construction of new sewers to replace old sewers, now either beyond repair or with inadequate capacity to meet present and future flows;

(iii) Drainage: (Cost: Rs 27.9 Crores: US$21.5 million). Ten Group A and B towns have included investments in drainage, which include the procurement and laying of pipes and the construction of drains. Where the latter are located in built up areas, the public will be protected from the potential danger posed by the drains by the construction of parapet walls. In some places the drains will be covered intermittently to provide protection without preventing cleaning; and

(iv) Low Cost Sanitation: (Cost: Rs 12.9 crores: US$9.9 million). Eight Group A and B towns and up to 18 towns in Group D would invest in low cost sanitation. The sub-projects prepared by the towns are to UNDP/TAG design. The project places great importance on the proposals for those citizens who dwell outside the sewered areas. The proposals form part of a program which extends beyond the project period. Accurate estimates are not available because these depend on public response. However, Kanpur, for example, aims at completing 2,500 conversions per annum over the project period, and to construct 150 community latrines as well. Overall, some 51,700 conversions from the bucket conservancy system to ventilated improved pit latrines with poured flush, and about 7,700 new units, are expected to be completed over the project period.

2.12 Municipal Services (i) Solid Waste Management (SWM): (Cost: Rs 11.8 crores: US$9.1 million). Ten towns would improve their solid waste operations. At present, these towns expend an average of 40% of their total revenues on SWM, but existing primary collection methods involve double or triple handling of wastes, resulting in low productivity and vehicle utilization, with poor service delivery. Estimates of population served vary now from 35% to 65%.

(ii) Maintenance Management: (Cost: Rs 9.7 crores: US$7.5 million). Nine towns have included investments in this component which would provide for studies and the purchase of equipment. An important objective of the project is to institute lasting improvements in the maintenance of infrastructure and service delivery systems. While a number of factors, including insufficient funding, contribute to the maintenance deficiencies, the primary cause is a management problem which the project will seek to redress through technical assistance and training; and

(iii) Traffic Engineering and Management: (Cost: Rs 9.8 crores: US$7.6 million). TEMC's would be responsible for (a) initiating the process of evolving long-term transport policies in their respective cities, (b) supporting low cost solutions to traffic congestion and means of improving traffic safety, (c) arranging for the purchase of equipment for traffic police, and (d) promoting and carrying out road safety programs.

2.13 Ganga Program: This program would provide: (i) Technical Assistance: (Rs 4.3 crores; US$3.3 million). The project would support environmental impact studies; sewer condition assessment and identification of remedial works; program monitoring; river quality monitoring assessment; assistance in programming and preparation of rehabilitation works not yet identified; and the preparation of a strategic plan for the long term reduction of pollution in the Ganga River;

(ii) Training: (Rs 0.8 crores; US$0.6 million). The project would develop training needs; review institution availability; determine training institutional arrangements; and provide river modeling technology training;

(iii) Priority Equipment: (Rs 5.4 crores; US$4.2 million). GPD would arrange to procure: (a) jetting machines, gulley pit emptiers, rodding and bucket cleaning machines, loaders and related equipment for sewer cleaning operations; and (b) automatic monitoring, sampling and analyzing equipment; and

(iv) Priority Pollution Control Works: (Rs 48.5 crores; US$37.3 million). The works to be implemented include: (a) sewage treatment plants at Allahabad, Haridwar, and Kanpur; and (b) other pollution control works to be identified.

III. PROJECT COSTS AND FINANCING

A. Cost Estimates

3.01 The total project costs, including contingencies, are estimated at Rs 309.2 crores (US$237.8 million). The foreign exchange component is Rs 73.4 crores (US$56.4 million), or 24% of project costs. Taxes and duties are estimated at Rs 15.6 crores (US$12.0 million), or 5% of project costs. Summary cost estimates are given in Table 3.1, while more detailed estimates for each town/component are given in Annex 6.

3.02 Base cost estimates are in September 1986 prices. Cost estimates for civil works are based on final designs for a number of major components in UP's Seventh/Eighth Plan investment proposals and on the costs of similar works carried out recently in UP, and on preliminary engineering designs for the GPD component. Estimates for equipment and materials are based on recent quotations from suppliers. The project provides for sustained support in sector management (US$1,600,000), detailed engineering (US$2,600,000), technical assistance (US$4,000,000), and training (US$1,400,000). Average person-month (all inclusive) costs for foreign and locally procured consultant and advisory services are estimated at US$16,000 and Rs 20,000 (US$1,540)

respectively. The project provides for about 75 person months of foreign consultancy for GPD, and for leak detection and repair assistance for GOUP.

3.03 Physical contingencies of 10% have been included for all components except slum upgrading, drainage, and solid waste civil works, where 15% has been used. Design and supervision costs are estimated at 13%. No physical contingencies or design and supervision costs have been applied to land, equipment and materials, and technical assistance and training. A 2% management fee has been applied to all investments. Price contingencies have been estimated as follows for both foreign and local costs: 6% for fiscal year 1986/87, 6.8% for 1987/88-1988/89, 7% for 1989/90-1990/91, and 4% for 1991/92-1993/94.

Status of Preparation

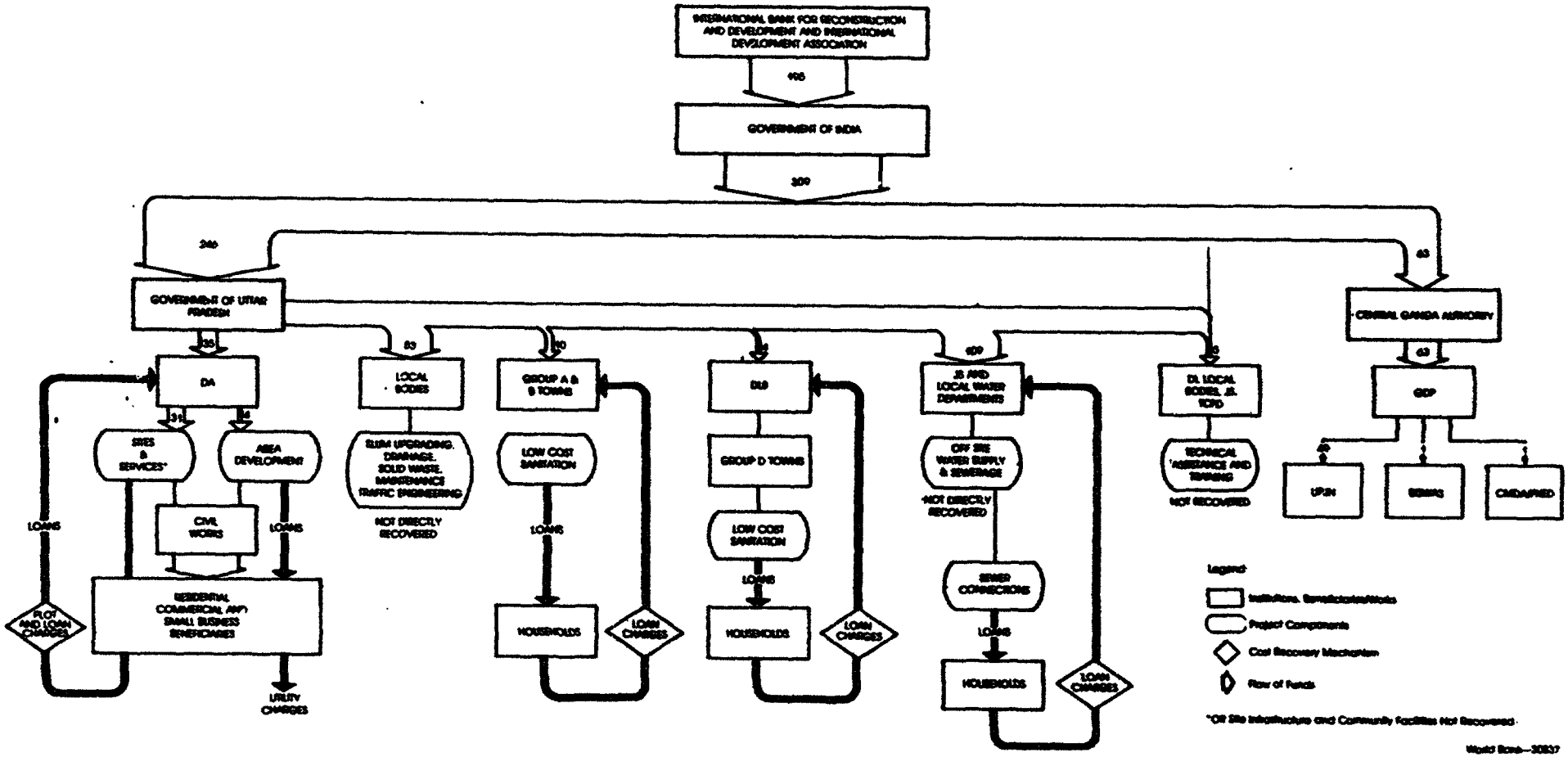
3.04 Final designs and bid documents have been completed or are in advanced stages of preparation for all investments in Group A, B, and D towns. For Group C (Shaktinagar) investments in key sectors would be identified and created following studies to be carried out in the area. In the Ganga program, GPD has retained corporate consultancy services (financed by the Overseas Development Authority (ODA) of UK) to undertake the first phase of advisory services focusing particularly on (i) river quality modelling, and (ii) resource recovery and utilization. Physical investments for the Ganga program have been prepared up to the preliminary design stage.

B. Financing Plan

3.05 The proposed Bank loan of US$20 million and IDA credit of US$130 million would finance about 66% of project costs, net of taxes and duties. The loan and credit would cover 100% of the foreign exchange costs and about 52% of local costs. The loan and credit would be made available to GOI, which would pass them on to GOUP on its standard terms and conditions as part of central government assistance to the state, and to GPD as a grant (Credit only). GOUP would make available to the project towns all funds required for their investments, including the proceeds of the Bank loan and IDA credit, in a combination of loan and grants. The terms of GOUP loans to implementing agencies conform to current practices as follows: 8.75% per annum, to be amortized over 20 years, including a five year moratorium on principal repayments. GOUP will provide funds on a grant basis for the following investments: (i) low cost sanitation (50% grant); (ii) Minimum Needs Program (MNP) for slum upgrading (100% grant up to Rs 250/capita or such other threshold to be set from time to time by GOI); and (iii) community facilities, including schools, health centers, police stations, post offices and community halls in the sites and services component (100% grant). GPD will make available directly to implementing agencies in Bihar, UP and West Bengal all funds required for rehabilitation works and new construction, including the proceeds of the IDA credit, as grants. The flow of funds is indicated in Chart 3.2.

INDIA

Chart 3.2 UTTAR PRADESH URBAN DEVELOPMENT PROJECT
Flow of Funds (Rs. CRORES)



3.06 Sector management, technical assistance, and training expenditures would be absorbed by GOUP except expenditures for technical assistance incurred by project towns for the preparation of their water supply and sewerage proposals by UPJN, which would be treated as a loan by GOUP to the water and sewerage authority in each town.

3.07 Total project costs, including contingencies, design, supervision and management, and taxes (see Table 3.1) are based on the Bank-wide profile applicable to the sector (i.e., eight year implementation/nine year disbursement). All economic and financial analyses are also based on this profile. However, GOUP and GPD believe they can implement the project over five years and four years, respectively, in accordance with the funding arrangements set out in Annex 7. Under this schedule, the total project cost including contingencies, design, supervision and management, and taxes and duties is estimated at Rs 283.27 crores (US$217.90 million), or about US$20 million (8%) less than the costs in Table 3.1. Assurances were given at negotiations that GOUP and GPD will provide the resources necessary to complete the project as appraised, or any mutually agreed amendments arising during the course of implementation.

3.08 As the state of preparation is well advanced, with detailed engineering designs, and estimates of quantities completed for most components, and as GOUP and GPD are anxious to sustain the momentum built up by project towns and also take advantage of the present construction season, the following retroactive financing would be provided:

(i) from November 1, 1985: (a) consultant assistance for project preparation; and

(ii) From August 1, 1986, all other project expenditures.

The total amount of retroactive financing would not exceed US$15 million, or 10% of the loan and credit.

Table 3.1. UTTAR PRADESH URBAN DEVELOPMENT PROJECT, Summary Cost

	Rupees (Crores)				US$(Million)				% foreign exchange	% total base cost
	Local	Taxes	Foreign	Total	Local	Taxes	Foreign	Total		
SECTOR MGT, T.A. & TRG.	6.97	0.40	2.97	10.34	5.35	0.31	2.30	7.96	29	5.13
SITES & SERVICES	17.50	1.01	1.73	20.24	13.46	0.78	1.33	15.57	9	10.03
SLUM UP-GRADING	9.22	0.54	1.08	10.84	7.09	0.42	0.83	8.34	10	5.37
AREA DEV-ELOPMENT	2.20	0.13	0.26	2.59	1.69	0.10	0.20	1.99	10	1.28
WATER SUPPLY	43.72	2.86	10.19	56.77	33.63	2.20	7.84	43.67	18	28.13
SEWERAGE	22.96	2.70	25.17	50.83	17.66	2.08	19.36	39.10	50	25.18
DRAINAGE	15.59	0.92	1.83	18.34	11.99	0.71	1.41	14.11	10	9.09
LOW COST SANITATION	7.52	0.44	0.88	8.84	5.78	0.34	0.68	6.80	10	4.38
SOLID WASTE	6.48	0.44	1.91	8.83	4.98	0.34	1.47	6.79	22	4.37
MAINTENANCE	5.40	0.37	1.61	7.38	4.15	0.28	1.24	5.67	22	3.65
TRAFFIC ENG. & MANAGEMENT	5.01	0.34	0.68	6.03	4.47	0.26	0.52	5.25	10	3.38
TOTAL BASE COSTS	143.37	10.15	48.31	201.83	110.25	7.82	37.16	155.25	24	100.00
PHYSICAL CONT-INGENCIES	12.20	0.87	3.94	17.01	9.39	0.67	3.03	13.09	23	8.43
DESIGN,SUPER-VISION & MANAGEMENT	16.80	1.17	5.21	23.18	12.93	0.90	4.01	17.84	21	12.52
PRICE CONT-INGENCIES	47.80	3.43	15.92	67.15	36.77	2.63	12.25	51.65	24	33.27
TOTAL PROJECT COSTS	220.17	15.62	73.38	309.17	169.34	12.02	56.47	237.83	24	

IV. PROJECT MANAGEMENT AND IMPLEMENTATION

A. UP State Level Agencies

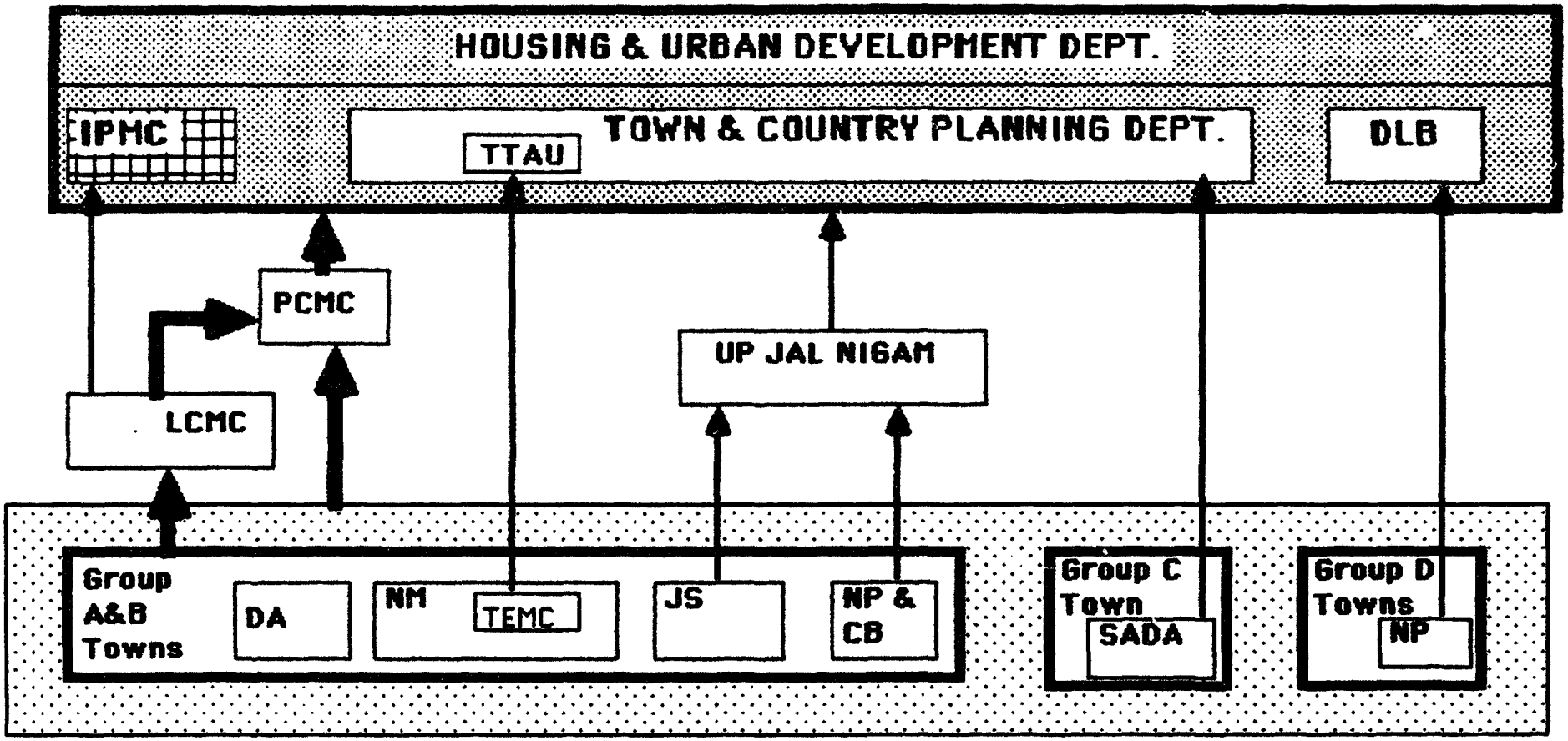
4.01 GOUP's Housing and Urban Development Department (HUDD) has responsibility for overseeing project implementing agencies, including local governments, development authorities, and town water and sewerage agencies. Policy guidance and coordination of other state and local agencies rests with a Project Coordination and Monitoring Committee (PCMC) at the state level under the chairmanship of the Secretary, HUDD. At each city level, a Local Coordination and Monitoring Committee (LCMC) was formed to coordinate and monitor project activities. LCMC would report to PCMC. The organization and interrelationship of the state and local level agencies is outlined in Chart 4.1.

4.02 Investment Planning and Monitoring Cell (IPMC). The actual formulation, monitoring of project implementation, authorization of disbursements to project agencies, and evaluation of the investment program would be the responsibility of IPMC, a separate unit within HUDD. IPMC evolved out of the urban strategy cell created under KUDP to develop a strategy for statewide urban development and strengthen urban management and finance. It prepared an Urban Sector Review (Item No. 1 of Annex 13), a critical document on the status of urban development, management, and finance in the state, from which the present project was formulated. IPMC participated with the Bank in the pre-appraisal and appraisal of the project, demonstrating an independence and professionalism which would make it suitable for assuming some supervisory responsibility during implementation. The appraisal mission agreed with IPMC on appropriate technical, financial, and economic guidelines and criteria to be followed. During implementation, IPMC would be responsible for reviews of the towns' investments programs, and the deletion, substitution, inclusion of new investments and standby towns (see para 2.05), in consultation with the Bank and IDA. IPMC's influence has already begun to extend beyond the project towns into the remaining urban areas of the state. The present professional staff strength is 10, with disciplines in town planning, transport planning, civil and mechanical engineering, sanitary engineering, economics/financial analysis, and law. They are all senior officials well experienced in their fields who were associated with KUDP during preparation and implementation. As part of the OAP, GOUP would ensure that IPMC has the resources necessary to carry out a greater role in the supervision of the project.

4.03 Throughout project preparation, the State Government through HUDD and IPMC has supported the project by implementing critical policy adjustments, resolving problems, and adopting new ideas.

Chart 4.1 **UP URBAN DEVELOPMENT PROJECT**

UP PROGRAM ORGANIZATION CHART



Main communication channels

Component-specific communication channels

IPMC - Investment Planning & Monitoring Cell

TTAU - Traffic & Transportation Appraisal Unit

DLB - Directorate of Local Bodies

PCMC - Project Coordination & Monitoring Comm.

LCMC - Local Coordination & Monitoring Comms.

DA - Development Authority

NM - Nagar Mahapalika (Muncipal Corporation)

TEMC - Traffic Engineering & Management Cell

JS - Jal Sansthan (Town Water & Sewerage Authority)

NP - Nagar Palika (Municiapl Board)

CB - City Board (Ghaziabad)

SADA - Special Area Development Authority (Shaktinagar)

4.04 Low Cost Sanitation Cell. GOUP has also created a low cost sanitation cell in the Directorate of Local Bodies (DLB) to supervise the low cost sanitation program in the 18 Group D towns. Assurances were given during negotiations that GOUP will employ adequate staff in the cell with the appropriate disciplines throughout the project period to carry out this program.

4.05 Traffic and Transportation Appraisal Unit (TTAU). GOUP proposes to create a TTAU within its Town and Country Planning Department (TCPD) to assist in evolving appropriate traffic and transport policies at the city level, and to provide technical support at the state level towards resolving problems of coordination among various departments and agencies (e.g., electricity board, public works department, telecommunications department). It will also frame guidelines for transport sector studies, and institutional arrangements, and carry out appraisals not only in the KAVAL towns where traffic engineering and management cells (TEMC's) are to be set up before July 1, 1987, but also in the 16 other large urban areas in the state where development authorities have been created and prospective development plans are being drawn up by TCPD. As part of the OAP, GOUP would be required to staff the TTAU adequately through the project period.

4.06 Special Area Development Authority (SADA). The Group C town, Shaktinagar, is the Singrauli area of Mirzapur district of UP where major development activities in power generation and coal mining are taking place. The urban population of the Shaktinagar area is expected to increase from the present 20% of the total urban population of Mirzapur district to about 50% by the year 2001. As there has been little planned development to date in the area, resulting amongst other things in increased environmental problems, GOUP has created SADA there. A planning unit under a chief regional planner would be set up in SADA during the project period to assist in developing a strategic plan, followed by an investment plan, for the area. The TCPD would assist with some studies. The lessons learned would be applied to other areas of the state where because of particular considerations, similar SADA's might also be established.

4.07 UP Jal Nigam (UPJN). UPJN, a State Government autonomous corporation, was created in June 1975 out of the Local Self Government Engineering Department, previously known as the Public Health Engineering Department.

4.08 UPJN has the legal responsibility for planning, designing, and constructing investment projects in the water supply and sanitation sector, on behalf of urban and rural agencies. One of its first tasks was to implement the UPWSSP (see para 1.18). While UPJN will continue to play a major role in the rural areas, owing to the lack of technical expertise and administrative arrangements, its role in urban areas needs to be reoriented. The PCR listed a number of options which to a large extent were adopted for the sector under this project (e.g., "bottom-up" approach to the planning of investments to obtain, inter alia, local body commitment, with funding to pass through the

local agency). In all eleven project towns the local water authority prepared its respective components with the assistance of the UPJN.

4.09 A high level GOUP committee is reviewing the role of a number of institutions in the state, including that of UPJN and Jal Sansthans (JS's). Assurances were given at negotiations that GOUP will keep the Bank and IDA informed of any changes contemplated/made in the role of any project implementing agency which will materially affect the project.

B. UP Local Level Agencies

4.10 At the local level, LCMC's have overall responsibility for coordination of project execution. The agencies directly involved in implementing the project at this level are the Development Authorities (DAs), the Nagar Mahapalikas (NM's) or municipal corporations, in Kanpur, Agra, Varanasi, Allahabad, Lucknow, Bareilly, and Gorakhpur, Nagar Pahalikas (NP's), or municipal boards, in Moradabad, Aligarh, and Saharanpur, City Board (CB), in Ghaziabad, and the Jal Sansthans (JS's), or city water and sewerage authorities in Kanpur, Agra, Varanasi, Allahabad, and Lucknow. Water supply and sanitation in the remaining towns is the responsibility of NM's or NP's (see Table 4.2). Ownership of the investment created, and responsibility for operation, maintenance, and servicing the debt thereon (where applicable) would likewise devolve on the local agencies in Groups A-D listed in Table 4.2, with the following exceptions:

(i) Water supply and sewerage: UPJN would assist in execution: ownership would remain with Jal Sansthans (JS), Nagar Mahapalikas (NM), Nagar Palikas (NP), and City Board (Ghaziabad);

(ii) Low cost sanitation: Lucknow - JS would implement this component on behalf of NM. The Directorate of Local Bodies (DLB) would assist municipal boards in implementation of the Group D Component; and

(iii) Traffic Engineering and Management: Agra - DA would implement this component.

4.11 Under the provisions of the UP Planning and Development Act of 1973, DA's are set up in selected cities to coordinate and promote the development of the area. DA's have the power to acquire, hold, manage, and dispose of land and other property, and carry out construction, engineering, and other operations. There are at present 21 development authorities in the state. Under the project, DA's would be responsible for implementing the sites and services and area development components.

4.12 The main weaknesses of DA's are administrative and financial management. DA's tend to incur losses on sales, owing to lengthy periods in acquiring land, for which additional amounts are often paid following

Table 4.2 UP URBAN DEVELOPMENT PROJECT

IMPLEMENTING AGENCIES RESPONSIBILITIES

Group	Sites & Services	Slum Upgrading	Area Dev.	Water Supply	Sewerage & Sewage Trtmt.	Drainage	Low Cost San.	Solid Waste Mgt.	Maint.	Traffic Eng. & Mgt.	T.A. & Training
GROUP-A											
1. Kanpur	DA	NN	DA	JS/JN	JS/JN	NN	NN	NN	NN/JS	NN	-
2. Agra	-	NN	-	JS/JN	JS/JN	NN	NN	NN	NN/JS	DA	-
3. Varanasi	DA	NN	-	JS/JN	NN/JS	NN	-	-	NN/JS	NN	-
4. Allahabad	DA	NN	DA	JS/JN	NN/JS	NN	NN	NN	NN/JS	NN	-
5. Lucknow	DA	NN	-	JS/JN	JS	NN	JS	NN	NN/JS	NN	-
GROUP-B											
6. Bareilly	DA	NN	-	NN/JN	NN/JN	NN	NN	NN	NN	-	-
7. Moradabad	DA	NP	-	NP/JN	NP/JN	NP	NP	NP	NP	-	-
8. Gorakhpur	DA	NN	-	NN/JN	NN/JN	NN	NN	NN	NN	-	-
9. Aligarh	DA	-	-	NP/JN	NP/JN	NP	NP	NP	-	-	-
10. Saharanpur	-	NP	-	NP/JN	NP/JN	NP	-	NP	NP	-	-
11. Ghaziabad	-	CB	-	CB/JN	CB/JN	-	-	CB	-	-	-
12. Group-C Towns	TCPD/SADA	-	-	SADA/TCPD	-	SADA/TCPD	-	-	-	SADA/TCPD	-
13. Group-D Towns	-	-	-	-	-	-	NP/DLB				-
14. Sector Mgt.	-	-	-	-	-	-	-	-	-	-	HUDD
15. TA & TRG	-	-	-	-	-	-	-	-	-	-	HUDD
16. Ganga	-	-	-	GPD	JN/BISWAS/ CMDA/PHED	-	-	-	-	-	GPD

LEGEND:

DA = DEVELOPMENT AUTHORITY
NN = NAGAR MAHAPALIKA (MUNICIPAL CORPORATION)
NP = NAGAR PALIKA (MUNICIPAL BOARD)

JS = JAL SANSTHAN (TOWN WATER AND SEWERAGE AUTHORITY)
JN = JAL NIGAM (STATE WATER AND SEWERAGE AUTHORITY)
CB = CITY BOARD

TCPD = TOWN AND COUNTRY PLANNING DEPARTMENT
SADA = SPECIAL AREA DEVELOPMENT AUTHORITY
DLB = DIRECTORATE OF LOCAL BODIES
GPD = GANGA PROJECT DIRECTORATE
BISWAS = BIHAR STATE WATER AND SEWERAGE BOARD
CMDA = CALCUTTA METROPOLITAN DEVELOPMENT AUTHORITY
PHED = PUBLIC HEALTH ENGINEERING DIRECTORATE
HUDD = HOUSING AND URBAN DEVELOPMENT DEPARTMENT (GOUP)

court rulings. They also have a low or negative return on their rental properties. The financial position is supported temporarily by the large amount of refundable deposits taken for the construction of shelter. These problems could be solved with better management and an accrual accounting system rather than the single entry cash system. Under KUDP, consultants were employed to design and implement an appropriate accrual accounting system for the Kanpur Development Authority (KDA) including improvements in organization and methods, collection systems, project cost accounting and management, and internal controls. The systems have been duly implemented, resulting in improved management and finances of KDA, enabling it to complete nearly 15,000 sites and services units in four years at a cost which is affordable to the original target group. The improvements introduced into KDA are being replicated in the DA's of the other project towns (see OAP - Annex 4, Section 4).

4.13 Urban Local Bodies. There are some 660 urban local bodies in the state, including eight corporations, 167 municipal bodies, 44 notified areas, and 441 town area communities. Municipal corporations are governed by the Uttar Pradesh Nagar Mahapalika Adhiniyam of 1959, municipal boards by the UP Municipalities Act of 1916, and town areas by the Town Areas Act of 1920.

4.14 A local body is responsible for solid waste management, sanitation, street lighting, traffic engineering, city roads, and to some extent, maternity and child health, and education. Its duties are mainly operation and maintenance of facilities, but it also undertakes some new works. Under the project, NM's and NP's will carry out the following capital works: slum upgrading, sanitation, drainage, solid waste and maintenance (e.g., construction of garages and workshops), and traffic engineering and management. The functions of local bodies have sometimes been eroded: (i) by creation of DA's; and (ii) by separating water supply and sewerage operations into Jal Sansthans (see para 4.17). Elections have not been held for a number of years, and all local bodies in the state are now functioning under administrators appointed by the State Government.

4.15 Local bodies generally have severe financial constraints which inhibit the effective operation and maintenance of assets and service delivery. Their administration is characterized by low productivity and over staffing. Revenues are generally inelastic except for octroi which, being based on the present value of goods, rises with inflation and accounts for between 45-60% of recurrent revenue generation. There is resistance to paying for services rendered (e.g., water and sewerage), while rent control on properties precludes periodic revaluations to take account of inflation. Under KUDP, consultant assistance was retained by Kanpur Nagar Mahapalika (KNM) to (i) carry out a comprehensive institutional strengthening program, (ii) introduce an appropriate accounting system, (iii) carry out a resource mobilization study to improve the resource base by (a) improving internal efficiency, (b) improving the tax assessment and collection machinery, and (c) tapping additional revenue resources, and (iv) strengthen maintenance

management. KNM, since implementing the recommendations of the above studies, has achieved impressive results in some areas, notably improvements in octroi collection, and in accounting and financial management. Many of the improvements introduced into KNM have already been replicated in the NM's and NP's of the remaining project towns. The introduction of the accounting systems, expected to be operational from April 1, 1987, has commenced. As suggested in paras 1.06 and 1.07, improvements in property tax valuation assessment and billing and collection have come more slowly than other resource mobilization measures. Paragraph 1.16 lists several actions that have been taken to improve revenues.

4.16 Traffic Engineering and Management Cells (TEMC's). In the KAVAL towns, TEMC's would operate on a continuing basis within NM's to (i) initiate the process of evolving long term transport policies in the respective cities in consultation with TTAU (see para 4.05), and (ii) support low-cost traffic management schemes and safety measures. The cells would be headed by a qualified traffic and transportation planner, and the favorable experience gained by TEMC, Kanpur, during the past four years would be disseminated to the remaining KAVAL towns. Assurances were given at negotiations that TEMC's will be established in Agra, Varanasi, Allahabad, and Lucknow, similar to the cell in Kanpur, and that they will be adequately staffed before proceeding with physical components.

4.17 Jal Sansthans (JS). When the State Government created the UPJN in 1975 under the Uttar Pradesh Jal Nigam Act of 1975, it also created under the same act a number of Jal Sansthans to be autonomous and financially viable water supply and sewerage undertakings, by separating the water supply and sewerage functions from the local body. There are now eight JS's: three regional--Garhwal, Kumaon and Bundelkhand--and 5 city specific - Kanpur, Agra, Varanasi, Allahabad, and Lucknow. The functions and powers of JS's are to promote and execute schemes in water supply and sanitation and operate such schemes efficiently. They have the power to borrow, introduce or amend tariffs (subject to approval of UPJN), and collect all due charges and taxes on their operations. In practice, JS's do not possess planning and design capability, which has been carried out by the UPJN instead. JS's and other local bodies responsible for the distribution and sale of water are required to meet their operation, maintenance, and debt service costs from their own revenue sources. The actual state of affairs is that in order to balance expenditures and receipts, JS's and local bodies underperform on maintenance and do not promptly pay their electricity bills or debt service to UPJN. Organizationally, they require more trained staff to remedy deficiencies in implementing metering and meter repair programs, billing, and collection.

4.18 While physical performance under UPWSSP was good, financial performance of JS's was poor. None of the JS's met the covenanted rates of return during the implementation period of the project. Under KUDP, a more limited financial objective was set for the Kanpur Jal Sansthan (KJS), which, until recently, it also had experienced difficulty in meeting. In October 1985,

KJS raised its tariffs, taxes, and charges by an average of about 65%. From April 1, 1987, water and sewer taxes (which are a percentage of the annual values of properties) will increase further through the introduction of revised assessments of urban properties. The effect of the above measures will now enable KJS to meet its financial covenant.

C. Central Ganga Authority (CGA)

4.19 Overall responsibility for the cleanup of the Ganga River rests with the CGA, which is chaired by the Prime Minister. CGA has drawn up a Ganga Action Plan (GAP) which is coordinated through the Ganga Steering Committee 1/, while the Ganga Project Directorate (GPD) is responsible for the detailed implementation of GAP. GPD is soundly managed. It is headed up by a senior civil servant from the Indian Administrative Service (IAS) and staffed with a small core of specialists in financial management, sanitary engineering, and pollution control. GPD would rely heavily on consultants for corporate consulting advisory services (see para 3.04), environmental impact studies, sewer condition assessment, program monitoring, including review of tender documents and the technical assessment of schemes, river quality monitoring, and the preparation of rehabilitation works not yet identified. The project provides financing for the above services.

4.20 GPD would delegate responsibility for executing priority rehabilitation works under the project to the following implementing agencies:

Bihar:	Bihar State Water and Sewerage Board (BISWAS)
Uttar Pradesh:	UP Jal Nigam (UPJN)
West Bengal:	Calcutta Metropolitan Development Authority (CMDA) and Public Health Engineering Directorate (PHED).

The States may also designate other agencies to assist in implementing this component. IPMC would be responsible in UP and Bihar for procurement of sewer cleaning equipment, and its distribution to the respective JS's, NM's and BISWAS. Ownership of the investments would generally rest with the municipal corporation/board in whose locality the asset is created. GPD investments can be divided into three categories: (i) rehabilitation of existing assets, (ii) expansion of existing assets, and (iii) new assets.

1/ Chaired by the Secretary, Department of Environment, and members consisting of the Chief Secretaries of Bihar, UP, and West Bengal, Secretaries of Ministry of Urban Development, Department of Non-Conventional Energy Sources, Joint Secretaries of Fertilizer Division Ministry of Agriculture, Ministry of Finance, Industrial Development concerned with licensing of industrial units, Chairman of the Central Board for Prevention and Control of Water Pollution, and a representative from the Ministry of Health.

Items (i) and (ii) would remain with the local authority for ownership, operation, and maintenance. For item (iii) GPD would provide the funds needed for operation and maintenance during the 7th Five-Year Plan (1985-1990). After 1990, in the event GPD is dismantled, the ownership and operation and maintenance of the new facilities would be vested in the respective State Governments. In order to address the issue of long term institutional and financial arrangements for effective operation and maintenance of new facilities, GPD has set up an expert committee. It is due to report shortly. However, GOUP has already given a commitment to finance operation and maintenance of the new facilities in UP after the 7th Plan period.

D. Implementation Schedule

4.21 IPMC and GPD would be responsible for overall coordination and management of the project. As up to 10 components may be under implementation at any one time in over 10 towns, no summary project implementation schedule is presented. Instead, the schedule of implementation of each component is given in the Summary Project Reports for each town (Annex 13, Item 7).

E. Procurement

4.22 Table 4.3 provides a breakdown of project costs, showing also the principal types of procurement. All contracts would be awarded in accordance with Bank procurement guidelines. During appraisal, format draft procurement documents were agreed with IPMC and GPD to be used by implementing agencies for all components in all project towns.

4.23 Out of a total estimated value of contracts for civil works of US$165.3 million, about US$58.0 million would be awarded under international competitive bidding (ICB). This comprises about six contracts to be awarded on a turnkey basis to prequalified contractors for (a) design, construction, and commissioning of water treatment plants at Lucknow and Agra, and augmentation of river water supplies at Varanasi, and (b) sewage treatment plants at Allahabad, Haridwar, and Kanpur. The turnkey option was selected by both GOUP and GPD to take maximum advantage of available technology options, and to ensure that least cost treatment process designs are adopted. For these turnkey contracts, margins of preference for domestic manufacturers and contractors would be agreed between the Bank/IDA and GOUP/GPD. An amount of about US$107.3 million would be spent on the remaining civil works, to be procured under local competitive bidding (LCB) procedures. These contracts would not attract foreign bidders, since they are widely dispersed over area and time. Under the sites and services and area development components, however, the works for each site would be let on a "slice and package" basis to pre-qualified contractors advertised on an all-India basis. The size of each contract would vary from about Rs 65 lakhs (US$0.5 million) to Rs 585 lakhs (US$4.5 million).

TABLE 4.3: UP URBAN DEVELOPMENT PROJECT-PROCUREMENT

(US$ million)

	Total Cost	ICB	LCB	N.A	BANK/ IDA
SECTOR MGT,T.A. & TRG					
Start up Costs	1.50			1.50	1.50
T.A.,Studies & Trg	4.77			4.77	4.77
	6.27				6.27
SITES & SERVICES					
Land	3.27			3.27	
Civil Works	16.77		16.77		10.90
Loans	0.93			0.93	0.79
	20.98				11.70
SLUM UPGRADING					
Civil Works	12.06		12.06		7.84
AREA DEVELOPMENT					
Civil Works	2.75		2.75		1.79
WATER SUPPLY					
Land	0.17			0.17	
Civil Works	46.32	20.85	25.48		34.85
Eqpt & Materials	11.94	4.81	7.32		7.99
T.A.(Jal Nigam)	1.26			1.26	1.26
	59.69				44.10
SEWERAGE					
Land	1.18			1.18	
Civil Works	47.92	37.16	10.77		39.15
Eqpt & Materials	3.75	3.68	0.08		2.62
T.A.(Jal Nigam)	1.21			1.21	1.21
	54.05				42.98
DRAINAGE					
Civil Works	20.40		20.40		13.26
LOW COST SANITATION					
Civil Works	9.41		9.41		6.12
SOLID WASTE MANAGEMENT					
Civil Works	1.82		1.82		1.18
Eqpt & Materials	6.78	5.67	1.11		4.40
T.A. & Studies	0.07			0.07	0.07
	8.67				5.65
MAINTENANCE					
Civil Works	1.41		1.41		0.92
Eqpt & Materials	5.69	4.83	0.86		3.70
	7.10				5.42
TR. ENG. & MGT					
Civil Works	6.44		6.44		4.19
Eqpt & Materials	0.73		0.73		0.48
T.A. & Studies	0.21			0.21	0.21
	7.39				4.87
Dsn,Spn & Mgt	16.94			16.94	
Taxes & Duties	12.10			12.10	
TOTAL	237.83	76.78	117.43	43.62	150.00

DISBURSEMENT BY CATEGORY	Total				BANK/ IDA
Eqpt & Materials-ICB	28.89	12.20	-	6.57	10.50
Eqpt & Materials-LCB	-	-	10.11		6.50
Civil Works-ICB	165.32	58.00	-		49.00
Civil Works-LCB	-	-	107.32		69.00
Loans	0.93			0.93	0.80
Sec.Mgt,T.A. & Trg	9.02			9.02	9.00
Land	4.62			4.62	0.00
Dsn,Spn & Mgt	16.94			16.94	0.00
Taxes & Duties	12.10			12.10	0.00
Unallocated IDA Credit	-			-	5.20
TOTAL	288.94	58.00	107.32	43.62	150.00

4.24 Contracts for equipment and materials to be procured under the project total US$28.9 million. Of this amount, US$18.8 million would be procured under ICB based on a contract package threshold of US$100,000 equivalent. The equipment and materials would be grouped into packages, and further aggregated by towns in order to achieve lower unit costs. The following items would be covered: aerial tower wagons, carrier vehicles and containers, cast iron/ductile iron pipes and fittings, compaction collection vehicles and bins, cranes, gully pit emptiers, hydraulic towers, jeeps, sewer cleaning and jetting machines, static road rollers, tipper trucks (4/7 mt), water meters, and vibratory road rollers (1-4 tons). IPMC would, on behalf of towns, tender for such equipment each year and recommend to the respective towns the lowest evaluated bidder (i.e., procurement through nominated suppliers). Towns and suppliers would settle directly with each other. Qualifying domestic manufacturers would receive a preference in bid evaluation of 15% or the import duty, whichever is the lower. Other equipment and materials totalling US$10.1 million, which, even after grouping, would not exceed contract package thresholds of US$100,000 equivalent, would be procured through contracts/purchase orders advertised locally, except for minor items of equipment such as aluminum tower ladders, fogging machine and trailer, handcarts, mobile generators, minor tools, primary collection equipment, pumps (20 hp), silt/water wagons, test equipment and tractor attachments, totalling US$1.2 million, which would be purchased on the basis of at least three quotations.

4.25 Existing local competitive bidding procedures have been reviewed for Uttar Pradesh. (Those for West Bengal (GPD component) have been reviewed and refined over the course of three urban development projects financed by the Bank since 1973). The review showed that the procedures generally ensure adequate competition, open procedures, fair and equitable treatment of all bidders, and encourage economy and efficiency. However, potential weaknesses were noted in: (a) inexplicit bid evaluation criteria, (b) award to the lowest responsive evaluated bidder, and (c) settlement of disputes by local courts or local arbitration procedures. Assurances were given during negotiations that Bank and IDA procurement guidelines will be complied with. The Bank and IDA would also ensure during project execution that the anomalies noted above are given due attention.

4.26 Sector management, technical assistance and training costs under the project total US$9.0 million. Of this amount, US$1.5 million is for sector management in UP, US$2.5 million for engineering services provided by UPJN for the design of the water and sewerage (UP and GPD) components, US$1.4 million for training, and US$3.6 million for technical assistance. Bank guidelines for the use of consultants would be complied with for the following: (i) in the UP component, in leakage and waste control in all KAVAL towns, in utility mapping and inventory in all project towns, in a tariff study for water supply and sewerage, in assistance to implement accounting and management information systems, in maintenance studies, in audits (see para 4.34), and in other technical assistance agreed by the Bank/IDA and GOUP

that would be needed to achieve project objectives; and (ii) in GPD component, in corporate consulting advisory services, in environmental impact studies, in sewer condition assessment, in program consultants services, in river quality monitoring and documentation, and in assistance to GPD in programming and preparation of rehabilitation works not yet identified.

4.27 Contract Review. All bidding packages for civil works estimated to cost US$500,000 equivalent or more, and all bidding packages for equipment and materials estimated to cost US$200,000 equivalent or more, would be subject to the Bank's and IDA's prior review of procurement documentation, resulting in coverage of 49% of the total estimated value of works contracts, and about 30% of goods and materials contracts. This will involve a review of about 41 contracts (22 civil works, 19 equipment and materials). The balance of contracts would be subject to random post review by the Bank and IDA after contract award. All contracts would be subject to IPMC and GPD review. The number and value of contracts to be reviewed are less than the suggested guidelines. As described in paragraph 4.24, contracts have, to the extent possible, been aggregated by towns to produce larger contracts. The geographical spread of the project and varied nature of works generally preclude further aggregation of works contracts. The relatively low number and value of contracts to be reviewed under the project is therefore considered acceptable.

F. Disbursement

4.28 The proceeds of the loan and credit would be disbursed against:

(a) 100% foreign expenditures for directly imported equipment and materials, and 100% of local expenditures (ex-factory) for locally manufactured equipment and materials procured through ICB;

(b) 65% of expenditures for equipment and materials procured through LCB or through quotations;

(c) 85% of expenditures on contracts for civil works, including turnkey contracts, awarded under ICB;

(d) 65% of expenditures on civil works contracts awarded under LCB;

(e) 85% of expenditures on home improvement loans; and

(f) 100% of expenditures for sector management, technical assistance and training and related equipment.

Disbursements for (e) above, for civil works and equipment and materials expenditures against contracts not exceeding Rs 26 lakhs (US$200,000), and sector management and training expenditures, would be made against statements of expenditures (SOE's), the documents for which would not be submitted to

the Bank/IDA but retained and made available for inspection during project supervision missions, and subject to independent audits (see para 4.34).

4.29 To expedite disbursements, a Special Account with an authorized allocation of US$5.6 million (representing about four months of estimated IDA-financed expenditures), would be established in the Reserve Bank of India, on terms and conditions satisfactory to IDA. The Special Account would be used to finance all eligible expenditures, and would be replenished from time-to-time on receipt and approval of withdrawal applications, supported by the required documentation.

4.30 As indicated in paragraph 3.07 above, GOUP and GPD expect to implement the project over five years and four years, respectively. As the Bank-wide profile for the urban and water supply sectors indicates a nine year disbursement period, a schedule for disbursement of the Bank loan and IDA credit has been prepared accordingly, and is shown in Table 4.4.

G. Accounts and Audit

4.31 During preparation of KUDP, accrual accounting and associated management information systems were designed and implemented for Kanpur Development Authority (KDA), while for Kanpur Nagar Mahapalika (KNM) a partial accrual accounting system and associated management information system was also designed and implemented. The accrual accounting and management information systems for Kanpur Jal Sansthan (KJS) were designed and implemented under UPWSSP.

4.32 All remaining project towns have commenced introduction of the systems designed under KUDP, and they are expected to be fully operational commencing April 1, 1987. In addition, DLB on behalf of Group D towns, UPJN, Bihar State Water and Sewerage Board (BISWAS), Calcutta Metropolitan Development Authority (CMDA), Public Health Engineering Directorate (PHED, West Bengal), and GPD would maintain separate project accounts to record the progress of implementation of the components for which they are responsible.

4.33 Compliance with audit covenants under UPWSSP and KUDP has been poor. In the years that UPWSSP was under implementation, no audit report was submitted. Audit reports for KUDP were delayed initially but are now up to date. The audit reports received to date have been the standard Accountant General's (AG) statutory audits. Although IDA had requested it, no separate assessment was made by the auditor of record of the material deficiencies or weaknesses in the accounting and internal controls of KDA, KNM, and KJS.

TABLE 4.4: UP URBAN DEVELOPMENT PROJECT-DISBURSEMENT SCHEDULE

BANK/IDA Fiscal Year	Quarter Ending	Disbursement (US$ Million)	Cumulative Disbursement (US$ Million)	Cumul. %	Quarter
	June 30, 1987	0.00	0.00	0.00%	1
1988	September 30, 1987	0.00	0.00	0.00%	2
	December 31, 1987	1.50	1.50	1.00%	3
	March 31, 1988	1.50	3.00	2.00%	4
	June 30, 1988	3.00	6.00	4.00%	5
1989	September 30, 1988	3.00	9.00	6.00%	6
	December 31, 1988	4.50	13.50	9.00%	7
	March 31, 1989	4.50	18.00	12.00%	8
	June 30, 1989	6.00	24.00	16.00%	9
1990	September 30, 1989	6.00	30.00	20.00%	10
	December 31, 1989	6.00	36.00	24.00%	11
	March 31, 1990	6.00	42.00	28.00%	12
	June 30, 1990	6.00	48.00	32.00%	13
1991	September 30, 1990	6.00	54.00	36.00%	14
	December 31, 1990	7.50	61.50	41.00%	15
	March 31, 1991	6.00	67.50	45.00%	16
	June 30, 1991	6.00	73.50	49.00%	17
1992	September 30, 1991	6.00	79.50	53.00%	18
	December 31, 1991	6.00	85.50	57.00%	19
	March 31, 1992	6.00	91.50	61.00%	20
	June 30, 1992	6.00	97.50	65.00%	21
1993	September 30, 1992	4.50	102.00	68.00%	22
	December 31, 1992	6.00	108.00	72.00%	23
	March 31, 1993	4.50	112.50	75.00%	24
	June 30, 1993	4.50	117.00	78.00%	25
1994	September 30, 1993	4.50	121.50	81.00%	26
	December 31, 1993	4.50	126.00	84.00%	27
	March 31, 1994	4.50	130.50	87.00%	28
	June 30, 1994	3.00	133.50	89.00%	29
1995	September 30, 1994	3.00	136.50	91.00%	30
	December 31, 1994	3.00	139.50	93.00%	31
	March 31, 1995	3.00	142.50	95.00%	32
	June 30, 1995	3.00	145.50	97.00%	33
1996	September 30, 1995	1.50	147.00	98.00%	34
	December 31, 1995	1.50	148.50	99.00%	35
	March 31, 1996	1.50	150.00	100.00%	36

4.34 With the introduction of improved accounting systems in the remaining project towns, GOUP recognizes there is a need for a critical assessment of the financial operations of the principal implementing agencies. Subject to the approval of the Comptroller and Auditor General (CAG), GOUP has agreed, therefore, that for at least the first three years of the project commencing April 1, 1987, at least 11 principal implementing agencies in the Group A and B towns with project investments exceeding Rs 10 crores, will employ independent commercial auditors selected in consultation with the CAG or AG. The costs of such services would be treated as technical assistance and financed from the proceeds of the credit. The auditors will be required to provide, along with their audit report, a separate management letter advising the agencies of any deficiencies or weaknesses in the accounting and management information systems and internal controls, and recommendations for improvements. The project accounts of UPJN, BISWAS, CMDA, and PHED, will also be audited annually by independent auditors acceptable to the Bank and IDA. In addition, when reimbursements are requested through SOE's, independent auditors acceptable to the Bank and IDA will annually certify that the underlying data fully support these requests. The Bank and IDA will require that these certificates also be submitted within nine months of the end of each fiscal year. During negotiations assurances were given that audit reports and related financial statements will be submitted to the Bank and IDA within nine months of the end of each fiscal year. Assurances were also given at negotiations that GOUP and GPD will follow these audit practices.

H. Monitoring and Evaluation

4.35 IPMC and GPD will be responsible for monitoring the physical and financial progress of the project. For reporting purposes, IPMC will ensure that project towns will use the reporting formats developed and refined under KUDP. It will collate the monthly reports received from project towns and submit consolidated quarterly reports to the Bank and IDA. GPD's program monitoring consultants will develop reporting formats similar to IPMC's for reporting on this component.

4.36 IPMC, and GPD where appropriate, will also focus on fiscal and socio-economic performance in terms of key indicators, such as actual and estimated operation and maintenance costs; actual and estimated service delivery norms; actual and estimated revenue collection and direct cost recovery; actual and estimated revenue expenditures. Assurances were given during negotiations that GOUP and GPD will: (i) arrange to send the Bank and IDA regular reports of physical and finarcial progress of the project performance in terms of key indicators; and (ii) consult with the Bank and IDA on any major changes they or project towns propose to make to their respective investment programs.

I. Supervision

4.37 The project will require an average of about 20 person weeks per year of Bank and IDA supervision, totalling about 180 person weeks over the estimated nine year project period. The regional average for urban projects supervision is about 15 person weeks. The higher supervision requirements for this project are due to the number of components and the geographical spread of the investments. IPMC and GPD will assume an increasing burden of supervision in all project towns as the project progresses, with Bank and IDA staff inputs gradually being reduced. Ultimately, it is envisaged that staff inputs would concentrate on IPMC and GPD, which will play the key intermediary roles.

V. PRICING, AFFORDABILITY, COST RECOVERY, AND RESOURCE MOBILIZATION

A. Pricing, Affordability, and Cost Recovery

5.01 About 45% of total project costs would be recovered from beneficiaries (10% through payments in the sites and services and area development components, and 35% through user charges in the water and sanitation components). The interest rates for shelter, home improvement, sewer connection, and low cost sanitation loans would be higher than in existing programs and positive in real terms. The average annual rate of inflation over the project period is expected to range from 4% to 7%.

5.02 Sites and Services. Full cost recovery would be achieved in this component. About 95% of the total cost would be directly chargeable to beneficiaries (land, site preparation, on-site infrastructure, off-site infrastructure, on-plot development, and shelter loans). Land would be costed at market prices (up to Rs 100 per square meter compared to Rs 10 per square meter typical in past projects). Overheads would be included in the costs to be recovered. Interest at not less than 12% per annum would be charged, which is expected to be positive in real terms since the annual inflation rate during the project period is expected not to exceed 7%. The rate is well above the 4% to 6% now charged in similar projects. Cost recovery at this level would be made affordable through appropriate designs and a system of differential land pricing, with upper income and business plot beneficiaries paying higher than average costs. Thus, about 78% of plots would be affordable to economically weaker section (EWS) and lower income group (LIG) households with incomes up to Rs 700 per month (about the 25th percentile) and between Rs 701 to Rs 1,500 per month, respectively. The terms of plot charges and loans would include:

(i) for residential plots and shelter loans for EWS households, an average 15% downpayment on the price of the plot, with the balance of the plot price and loan amount (if any) to be repaid at not less than

12% p.a. interest over 20 years; and (ii) LIG and middle income groups (MIG), a 25% downpayment with the balance to be paid at not less than 12% p.a. over 6-10 years, and (iii) higher income groups (HIG) and industrial plots, a 25% downpayment with the balance to be paid at not less than 12% p.a. over 6 years. Assurances were given at negotiations that the terms and conditions of lease and hire purchase agreements in sites and services, will be satisfactory to the Bank and IDA and an interest rate of not less than 12% will be charged to beneficiaries.

5.03 The remaining cost of community facilities (5%) would not be recovered directly, but some of the costs of off-site infrastructure would be recovered through user charges.

5.04 Slum Upgrading. There would be no direct cost-recovery from beneficiaries for slum upgrading except in the ahatas of Kanpur (see Annex 5, paras 7 and 8). As part of the OAP, agreement was reached on the following: (i) a full socio-economic and physical survey be carried out in each slum to ensure that at least 80% of residents are the legal owners; (ii) there is community participation in the scheme; (iii) households are given the opportunity to 'purchase' a water connection where feasible, and/or install low cost sanitation (under the low cost sanitation component of the project); (iv) off-site infrastructure (to be recovered from the general revenues of the local body) be provided in all slums to be upgraded; and (v) appropriate arrangements be made for the maintenance of the upgraded slums.

5.05 Area Development. Full cost recovery would be achieved in this component. Assurances were given during negotiations that, in implementing this component, development authorities will: (i) deal only with a "society," for the purposes of securing separate agreements with individual residents together with at least 25% down payment before commencing the work; and (ii) recover the balance through a short term loan from individual residents at not less than 12% interest per annum.

5.06 Water and Sewerage Charges. Investment costs in water supply and sewerage would be recovered under the UP component through water tariffs, charges, and water and sewer taxes. Assurances were given during negotiations that project towns will cover the full cost of operation, maintenance, and debt service obligations on their water supply and sewerage operations. This would be achieved through operational and financial improvements, including tariff increases (Annex 10, para 12 (ii)). The dates for attaining this objective differ among towns. The OAP (Annex 4, Attachment 1) indicates interim, monitorable targets towards that end. The costs of water and sewerage services are affordable, taking into account the likely increases in income levels and likely increases in price levels in future years. The above financial objective is an interim measure pending the results of a tariff study (see paras 4.26 and 5.07), and the revaluation of

all water and sewerage assets (OAP Annex 4). Ultimately GOUP would require that investments in water and sewerage earn a positive rate of return.

5.07 No mechanism exists for charging directly for sewerage services. The project includes a tariff study which would focus on: (i) review methodology of costing, and recommends alternatives if necessary; (ii) rationalization of the tax and meter charge elements in pricing; (iii) review and recommendations of alternative methods for recovering costs of sewerage and sanitation operations; and (iv) recommendations for a tariff structure for project towns, taking into account any social policies and objectives of GOUP.

5.08 Other components. The costs of slum upgrading (additional amounts expended in this component that exceeded the GOUP's minimum needs program), drainage, solid waste management, maintenance management, and traffic engineering and management would be recovered indirectly through the general revenues of local bodies. (See Annex 10, Income and Expenditure Statements of Local Bodies).

B. Resource Mobilization

5.09 Sector policy adjustments (see para 1.16) include a major effort to improve the general revenue position of the local bodies, including the reduction/elimination of direct and indirect subsidies. During negotiations, agreement was reached that project towns will generate sufficient internal revenues to finance increasing proportions of their revenue expenditures. The OAP (Annex 4, Attachment 2) includes interim targets towards that end. During negotiations, assurances were also given that by March 31, 1989, GOUP, in consultation with GOI, will present for Bank/IDA review proposals to minimize the negative effects of rent control, and thereafter, take steps to implement any mutually agreed proposals.

VI. PROJECT JUSTIFICATION AND RISKS

A. Economic Evaluation

6.01 Economic rates of return (ERR's) have been calculated for about 52% of project costs. ERR's were calculated for water supply and sanitation (see Annex 11 for assumptions). Benefits were measured by incremental revenues after 1986/87. The average ERR for the 11 project towns in the UP program was 10.2% at 100% labor shadow prices and 13.5% at 70% labor shadow prices. About 20% of water produced is not billed. Collections range from about 70% of current billings in the larger cities to about 50% in some of the smaller towns. Although the revenue projections used are based on assumed incremental improvements in billing and collections, they probably still underestimate economic benefits, especially in the smaller towns where current billing and collection performance is poor. Benefits such as external health

effects are not captured by prices and are not included in the analysis. ERRs for sites and services, slum upgrading, and area development, are 13%, 17%, and 16%, respectively. Benefits were estimated using market information on rental values of completed houses and on the sale prices of developed land. Sensitivity analysis indicates that rent levels of 10% less than those estimated would lower the ERRs to 12%, 13%, and 11%, respectively. Rates of return on traffic engineering and management schemes have not been worked out as the schemes have not yet been defined. However, experience from similar schemes in the region suggest rates of return varying from 30% to 100%.

6.02 The investments proposed under the Ganga program comprise an integrated set of actions, and the relationship between specific benefits and investments cannot be quantified. The investments will (i) reduce pollution in the cities, and (ii) treat sewage before discharge onto agricultural land or into the river. An attempt has been made in Annex 2 to identify the benefits more precisely.

B. Impact on the Poor

6.03 The sites and services, area development, slum upgrading, low cost sanitation and solid waste management components accounting for about 26% of project cost will directly benefit people with incomes below the poverty level. 1/ The remaining project components (water supply, sewerage, drainage, maintenance, traffic engineering and management) also confer a substantial proportion of their benefits on the poor.

6.04 The urban poverty impacts of the UP component are tabulated in Annex 12 and are summarized below:

(a) about 78% of the residential plots in the sites and services component would be affordable to the urban poor (8,300 out of 10,640);

(b) about 90% of the households in the slum upgrading areas would be in the urban poverty group;

(c) about 60% of the households in the area development schemes are classified as urban poor;

(d) 100% of the households benefiting from low cost sanitation investments would be urban poor;

(e) about 45% of the benefits of off-site water supply, sewerage and drainage are expected to accrue to the urban poor;

1/ Assumed to be Rs 650 per month, calculated in accordance with OPN 2.07.

(f) Solid waste management improvements will accrue mostly to the low income areas and about 70% of the benefits are expected to accrue to the urban poor; and

(g) Traffic management measures are concentrated in the most densely developed areas of cities, and about 45% of the benefits are expected to accrue to the urban poor.

The benefits under the GPD Program are:

(a) improved environmental conditions for urban dwellers;

(b) improved amenities at pilgrim towns;

(c) utilization of treated effluent for irrigation; and

(d) direct health benefits for farm workers.

C. Risks

6.05 The major risks are: (a) the capacity of IPMC to carry out appraisal (in the event a town is dropped and additional investments in other towns, or standby towns are brought into the project), supervision, and other support functions; (b) the institutional capacity of towns, particularly the Group B towns, to undertake such a large and complex program; and (c) possible non-compliance with policy conditions relating to cost recovery and resource mobilization.

6.06 GOUP has staffed the IPMC with its most experienced officers, almost all of whom were involved at one stage or another in the preparation and/or implementation of KUDP. The experience gained under KUDP has, and will be, used to ensure effective implementation of this project. Further, GOUP and project towns recognize that productivity and service delivery are less than satisfactory and have committed themselves to an extensive program of technical assistance and training. Lastly, GOUP and project towns have already demonstrated a firm commitment to project objectives by implementing an action plan agreed to in October 1984 which has already, and will further bring about, substantial improvement in resource mobilization through increases in water and sewer taxes and charges, octroi, and the enforcement of legal remedies against defaulters. GOUP is also taking steps to make the property tax the long term primary source of internally generated revenue of local bodies, and has already, on its own intiative, extended the rent "control free" period on new properties from 10 to 20 years.

6.07 In the GPD program, the potential risks are low. The program would address sector policy issues at the national level and in this effort GPD will be engaging specialist consulting services to support its core team of senior professionals to appraise, supervise and monitor the progress of the

works. Implementation would be carried out by competent authorities at the state level who have already been selected by GPD, and have proven capability for executing the works involved.

6.08 Land acquisition, usually a problem in urban and water supply projects, has been minimized. In the UP component, all of the land required for the project has already been acquired. The process of land acquisition for sewage treatment works at Allahabad, Hardiwar, and Kanpur under the GPD component has already started.

VII. AGREEMENTS REACHED AND RECOMMENDATION

7.01 The following agreements were reached at negotiations:

- Project towns which do not meet agreed interim financial performance targets, or which delay project implementation, will have their capital funds reduced, and such funds will be reallocated to better performing towns, or to standby towns, in consultation with the Bank and IDA (para 2.05).

- GOUP and GPD will review and update annually, the OAP, to be satisfactory to the Bank and IDA (para 2.07).

- GOUP and GPD will provide the necessary resources to complete the project as appraised, or any mutually agreed amendments to the project arising during the course of implementation (para 3.07).

- GOUP will staff the low cost sanitation cell in DLB with the appropriate disciplines required to carry out the low cost sanitation program throughout the project period (para 4.04).

- GOUP will staff the Traffic and Transportation Appraisal Unit adequately throughout the project period (para 4.05).

- GOUP will keep the Bank and IDA informed of any changes contemplated/made in the role of any project implementing agency which will materially affect the project (para 4.09).

- TEMC's positions will be sanctioned and staff retained before proceeding with physical improvements (para 4.16).

- Bank procurement guidelines will be followed (para 4.25).

- Implementing agencies will have their accounts audited annually and submit such audits to the Bank and IDA within nine months of the end of each fiscal year (para 4.34).

- At least 11 UP implementing agencies will retain independent commercial auditors for at least the first three years of the project (para 4.34).

- Independent auditors will audit SOE's and submit such audits within nine months of the end of each fiscal year (para 4.34).

- GOUP and GPD will arrange to send regular reports on the physical and financial progress of the project performance in terms of key indicators to the Bank and IDA (para 4.36).

- GOUP and GPD will consult with the Bank and IDA on any major changes proposed in the investment programs of the project towns (para 4.36).

- The terms and conditions of lease and hire purchase agreements in the sites and services component will be satisfactory to IDA, and interest of not less than 12% p.a. will be charged to beneficiaries (para 5.02).

- Slum upgrading component criteria for ownership, community participation, off-site infrastructure, and maintenance will be satisfactory to the Bank and IDA (para 5.04).

- Area development component criteria for selection of sites and financing arrangements will be agreed on with the Bank and IDA (para 5.05).

- UP project towns will cover the full cost of operation, maintenance and debt service obligations on their water supply and sewerage operations (para 5.06).

- Project towns will generate sufficient internal revenues to finance increasing proportions of their revenue expenditures (para 5.09).

- GOUP will, in consultation with GOI, present, by March 31, 1989, specific proposals to minimize the negative effects of rent control, and thereafter, take steps to implement any mutually agreed proposals (para 5.09).

7.02 On the basis of the above agreements, the project is suitable for a Bank loan of US$20 million and an IDA credit of SDR 106.3 million (US$130 million). The Borrower would be India.

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Uttar Pradesh: Urban Growth, Development, and Services

Uttar Pradesh

1. Uttar Pradesh is India's largest state, with 110.8 million people according to the 1981 census. It is one of India's poorest states, with an average annual per capita income of only US$125, or 25% below the Indian average. State population growth is about the same as in India as a whole, about 2.3% over the 1971-81 period. As with the rest of India, the population of UP is primarily rural. About 18% was classified as urban in the 1981 census. However, the urban population of UP is growing at a rate which is faster than that for India as a whole, (4.9%, compared to 3.9% for the national average). It is estimated that, over the next 15 years, about half of UP's population growth will be located in urban areas. By 2001 the UP urban population could exceed 30%.

Economic Growth

2. The State economy had for many decades lagged behind the growth of the rest of India. However, in recent years UP's State Domestic Product (SDP) increased at a slightly faster rate. For example, in the Fifth Plan period from 1974/5 to 1978/9 it was 5.7% p.a. (compared to a national average of 5.2% p.a.). UP's target for the Sixth Plan was 6.0% p.a. (compared to 5.2% p.a. for India). The earlier lag in economic development was not attributable to poor agricultural or industrial sector performance. It was mainly a result of poor performance in service sectors which are predominantly urban in their location and characteristics, such as storage, communications, banking, public administration, and transport. Moreover, these sectors have continued to lag behind. Recently, however, some of the industrial sectors which are also urban in location have shown remarkable growth, and this has accounted for the rise in overall state growth rates above the national average. These rapidly growing sectors include chemicals, machinery, transport equipment, non-metallic products, and miscellaneous manufacturing.

Economic Regions of UP

3. It is possible to divide UP into five economic regions: The Hills (in the north), Western, Central, Eastern, and Bundelkhand (in the south). The Western region leads the others in most instances and may be regarded as the most economically advanced of the five, followed by the Central, Eastern, Hills, and Bundelkhand, in that order. The State Government has declared the Eastern, Hills, and Bundelkhand regions as backward. 1/

1/ Defined as areas where there are no large or medium industries.

4. The main reason for the superior economic position of Western UP is greater agricultural productivity, which in turn has led to growth in local manufacturing and service activities and to developments of agro-industries in the region. Another significant advantage of Western UP is its proximity to New Delhi. Inclusion within the Delhi economy has led to industrialization opportunities not encountered elsewhere in UP. Thus, the overall picture is of a state whose economy is changing rapidly as industrialization proceeds, but with marked differences in the economic performance between the Western region and the other regions.

Urban Growth in the Regions

5. The economic performance of UP is reflected in the growth rates of the urban areas in the regions. The Western region had the fastest rate of growth in urban population at 5.1% p.a. (apart from Bundelkhand, whose growth was a little faster but from an extremely low base). The Western region also has more urban areas than the others. Taking Class I, II, and III towns and cities together, which cover all urban areas in excess of 20,000 population, the Western region has 82 out of UP's total of 150 urban areas. It contains, however, only one of the five largest cities of UP: namely Agra (population 0.77 m). The more sustained economic and urban growth of the Western region compared with the others has therefore taken place in many towns and cities which are medium rank (50,000 to 200,000 population).

6. The less developed regions of UP do contain a few of these medium sized towns. They are widely dispersed and have special features which may account for their growth; for example, they act as transport centres, places of religious importance, or have institutions such as colleges or public administration.

7. Of the five largest towns in UP (the KAVAL towns), one (Agra, 0.77 m population) is located in the Central region, and two (Allahabad, 0.6 m population, and Varanasi, 0.8 m population) in the Eastern region. Some towns with high growth rates during 1971-81 include Ghaziabad (8.6%), Hardiwar (6.3%), Bulandshahr (5.7%), Firozabad (4.2%), and Muzaffarnagar (4.1%).

New Locations for Growth and Planned Developments

8. Another category which needs to be considered in the total urbanization picture of UP is that of the essentially "new" urban area. Such growth centers have two principal origins. The first is where there is exploitation of some local economic endowment which leads to urban growth. The most notable example is Shaktinagar in the southeast corner of the state bordering Madhya Pradesh and Bihar, where there is a giant coal-field, a growing number of thermal power stations, and other industrial developments which utilize coal and/or electric power. The second instance of new urban growth derives from the state's industrial location policies to place certain manufacturing enterprises, such as fertilizer factories, and electronic, telephone, and

cement industries, in backward areas in order to create employment opportunities and help to arrest migration to the urban areas. One such area on the borders of the Central and Eastern regions around Raebareli and Sultanpur has some prospects of success, owing to the availability of infrastructure. There is little evidence to show that the economic costs of these locations have been assessed. Moreover, the employment creation is likely to be of a type that will not help (or not directly help) local rural population.

Urban Services

9. Wherever urbanization takes place in the UP, it does so in the context of inadequate public utility infrastructure. This is a feature of the Western region just as much as the others. Problems of urban growth are all the more severe in the largest cities because of the greater absolute numbers of people involved.

10. An adequate water supply of good quality is a problem for most towns. Most of the water developments taking place involves independent tubewell systems, while funding for trunk infrastructure is deferred. The quantity and quality of water supply, and the operation of a large number of independent systems, pose serious problems for agencies and consumers alike.

11. Sanitation receives less priority than it deserves. Four towns have waterborne sewer systems and have considerable operational problems. Disposal methods are highly unsatisfactory and add to pollution. Low-cost sanitation has been introduced in Kanpur under KUDP, and may provide a model for other towns.

12. Local government services such as solid waste management, road construction, street cleaning and lighting, etc., suffer from inadequate funding for maintenance. Service is particularly poor in low-income areas. Municipal governments have inadequate resources to extend maintenance to newly improved low-income areas. Community participation in the planning and maintenance of services in these areas could be achieved if community development support is provided. Organization of maintenance activities by local governments needs to be radically improved. Traffic management is now being recognized as an essential part of city services, as can be seen in Kanpur. Serious traffic problems exist in the larger towns, due to different modes of transport, undisciplined road use, and lack of traffic rule enforcement.

13. State provision of developed land and shelter falls far short of needs. GOUP investments in housing are mainly intended for the poor (EWS), yet the units constructed remain out of reach of the intended beneficiaries. Earlier GOUP sites and services projects have not been successful because of (a) poor location, (b) minimum standards not acceptable to potential clients, (c) bureaucratic delays, and (d) lack of enforcement and poor credibility of government agencies. The state sponsored slum improvement schemes presently provide water supply to slums plus other basic services with no cost recovery.

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

GANGA ACTION PROGRAM (PHASE 1)

Background

1. Following a survey of the Ganga Basin by the Central Board for the Prevention and Control of Water Pollution, the Central Ganga Authority (CGA) was established in February 1985 to undertake a comprehensive Action Plan for Prevention of Pollution of the Ganga in parallel with initiatives taken by Uttar Pradesh. In June 1985, the Ganga Project Directorate (GPD) was established under the authority to coordinate the various activities of the action plan. The CGA is responsible for the overall action plan, determination of policies, and allocation of resources. CGA's initial efforts will focus on sanitation and wastewater management in urban areas of UP, Bihar, and West Bengal. The GPD reports to the CGA through the inter-departmental steering committee and is responsible for appraisal and sanction of projects prepared by state-level agencies and non-governmental organizations, release of funds, project coordination and overall monitoring.

Rationale for Bank Support

2. Through the CGA, the Bank could assist in the development of a national organization which would set appropriate standards and policies for pollution prevention and control on a multi-state basis. This assistance would include (a) the introduction of program management systems; (b) the development of river pollution control models; and (c) the preparation of strategic plans for reduction and control of pollution in the Ganga River.

Pollution Control Problem

3. The Ganga extends for a length of 2,525 kilometers, rising in the Himalayas and discharging into the Bay of Bengal at Ganga Sagar. The Ganga and its tributaries, with a catchment area in India of 861,404 km^2, drain parts of eight states. About 242 million people (37 percent of the total population of India) live in the Ganga basin. Of these, 84 percent live in rural areas and the remainder (40 million) in a total of 629 urban centers. Apart from non-point source pollution, about 100 cities with a combined population of about 15 million discharge liquid and solid waste directly into the Ganga, in most cases with no prior treatment. It is estimated that more than 85 percent of the direct pollution load in the Ganga derives from the 29 Class I cities (with population of about 12 million). The pollution load from these cities is being addressed under Phase I of the Ganga Action Plan which is programmed through 1990 at an estimated cost of about Rs 244 crores (US$200 million).

Ganga Action Plan

4. In most cities it is necessary to address the pollution control problem through a number of inter-related actions; including (a) renovation of existing sewers; (b) construction of interceptor sewers and trapping of surface streams (nallahs); (c) renovation and/or construction of treatment plants; (d) energy recovery and sludge digestion; (e) construction/renovation of sewage pump stations; and (f) development of low cost sanitation options.

Technology Issues

5. In implementing the Action Plan, the CGA and the GPD face several key issues outlined below.

6. Effluent Quality Standards. Effluent quality standards are set by state pollution control boards under guidelines established by the Central Water Pollution Control Board. A key issue in improving water quality in the Ganga is the degree to which effluent standards should be rigidly applied. Especially in the case of municipal effluent, a more flexible approach to the application of effluent quality standards might enable broader coverage of pollution control measures within available capital and operating budgets. Consideration could be given to the relation of effluent standards to river flow and quality characteristics. The optmimum degree of pollution load which the river can accommodate at any point would be considered. This issue is already being addressed under a river modeling program being undertaken by GPD's corporate consultancy advisors. The self-purifying capacity of the Ganga is well known, and this would need to be exploited to the fullest extent. In general, the unit cost of sewage treatment increases very substantially as higher effluent quality standards are sought. Primary treatment on a very large scale is therefore likely to be more cost effective than secondary and tertiary treatment of limited quantities. The river water is used extensively for agriculture; the annual consumption drawn from the Ganga amounts to about 85 billion cubic meters to irrigate a command area around 153,000 km^2. The flow in the river is therefore critical, and this consideration may influence greater development of the groundwater potential in the Ganga basin which, on the whole, is presently underutilized. The most vulnerable section of the river, from the pollution point of view, is the stretch from Haridwar to Allahabad. Below Allahabad the Ganga is joined by its major tributary, the Yamuna, which contributes almost 60 percent of the total flow. Coordination with irrigation authorities will be important in this regard.

7. Treatment Processes. A large number of treatment alternatives is available, including both conventional and non-conventional processes amenable to resource utilization. The costs and resources (manpower, energy, capital, plant, land, etc.) which are required vary substantially and are

site specific. Staged process development may be the most cost-effective way of providing the most far reaching benefits in the short term.

8. Resource Recovery and Marketing. The Action Plan is predicated on substantial recovery of operation and maintenance costs from the sale of the by-products of the sewage treatment process (methane gas, plant nutrients, fertilizer and effluent). The sale of such by-products is totally dependent on the availability of an appropriate market. Experience elsewhere shows that a variety of factors may reduce revenue to much less than might be expected. For example, the location of sewage treatment works is seldom optimum for the sale of such a diverse range of products. Location is usually governed by the need to minimize capital and operating cost and environmental impact. Any additional marketing costs must be factored into the overall analysis of the scheme costs and viability. The pollution control objective can sometimes be compromised by marketing considerations as is happening at the Okhla works in Delhi, where power failures result in a deterioration of effluent quality due to the need to maintain customers' gas supplies instead of using standby power generation for activated sludge aerators. These problems suggest that thorough economic analysis is required to assure the viability of resource recovery schemes.

9. Data Collection. Data collection is important to monitor river quality and to design cost-effective programs to improve water quality. Data should be appropriate and available on a timely basis to decision makers. Data provides the basis for important decisions on process operations. Since 1980, routine sampling and analysis have been undertaken at 38 monitoring stations throughout the length of the Ganga between Haridwar and Diamond Harbour to provide a water quality data base. It is known that there are large variations of quality across the width of the Ganga and along its length. Cost-effective means of collecting the most essential data need to be considered. For example, improved information may show the possibility of providing pollution control through dilution by mixing or mid-stream outfalls in lieu of treatment. Economies in data gathering may be achievable by reducing the number of parameters measured or by transporting samples to central laboratories rather than testing them in the field. Automatic monitoring stations would also contribute to cost effectiveness in this respect.

Institutional Arrangements

10. Overall responsibility for the Ganga Action Plan (GAP) rests with the CGA; which is chaired by the Prime Minister of India. CGA meets quarterly. Coordination of the plan is carried out by the Ganga Steering Committee, with the GPD serving as a secretariat for detailed implementation of the plan. GPD would have overall responsibility for sanctioning investments under the Ganga component but would delegate to the State Governments responsibility for executing the specific sub-components in their respective states. This

responsibility would be delegated to State agencies as follows for implementation of the works:

Bihar	- Bihar State Water Supply and Sewerage Board (BISWAS)
UP	- UP Jal Nigam
West Bengal	- Calcutta Metropolitan Development Authority (CMDA) and the State Public Health and Engineering Directorate (PHED)

The States may also designate other agencies to assist in implementing this component.

11. These agencies would be responsible for implementation of the priority rehabilitation works, including preparation of tender documents for the sewage treatment plants, preparation of bid evaluation reports for review and approval by GPD, and supervision of construction. In UP, the Investment Planning Monitoring Cell (IPMC) would be responsible for procurement of sewer cleaning equipment and its distribution to the respective Jal Sansthans and Nagar Mahapalikas. IPMC would be responsible also for the procurement of such equipment in Bihar. An organization chart is given in Appendix 1.

Operation and Maintenance

12. Physical investment in the Ganga program can be divided into three categories:

(i) Repair of existing infrastructure;

(ii) Expansion of existing infrastructure; and

(iii) New facilities.

13. The operation and maintenance reponsibility of the repaired and expanded infrastructure facilities (items (i) and (ii)) would remain with the relevant local authority (Jal Sansthans and Nagar Mahapalikas). The State agencies (UP Jal Nigam, BISWAS, CMDA, and PHED) would initially be responsible for maintaining new facilities executed under the Ganga component. These state agencies would also be responsible for the training of staff of the local authorities.

14. To the extent that local authorities and state agencies may not be in a position to raise sufficient revenues to operate and maintain expanded and new facilities, GPD would contribute any necessary additional resources required during the Seventh Plan Period (through March 31, 1990). Thereafter, in the event that GPD is dismantled, the ownership of new facilities

created under the project would be vested in the respective State Governments. The State authorities would initially be responsible for operating new facilities.

15. However, in order to address the issue of long term institutional and financial arrangements for effective operation and maintenance of new facilities, GPD has set up an expert committee with the following terms of reference:

(a) review existing technology employed in treatment facilities;

(b) review the existing arrangements for operation and maintenance and standards;

(c) quantify the costs of the various items for operation and maintenance;

(d) fix standards for operation and maintenance and quantify the costs;

(e) review organizational issues relating to operation and maintenance;

(f) consider various technology options in treatment processes and the cost of operation and maintenance of similar plants for different technology options;

(g) identify resource recovery possibilities; and

(h) recommend appropriate norms and standards for operation and maintenance of treatment facilities considering the various items of costs, resource recovery, technology options and capacities.

This committee is expected to report its findings to GPD shortly. However, the Government of Uttar Pradesh has already given a commitment to finance operation and maintenance of new facilities in Uttar Pradesh State beyond the 7th Plan period in the event that GPD is dismantled.

Ganga Component Description

16. The Ganga component would provide (a) consultancy advisory services and training; (b) pollution monitoring and maintenance equipment; and (c) priority pollution control works. Details of the Ganga component with all inclusive costs are summarized below:

I. Technical Assistance (Rs 3.01 crores; US$2.31 million). Appointment of consultants to assist GPD to undertake:

(a) Environmental impact studies.

(b) Corporate consultancy advisory services (following up Phase I studies).

(c) Sewer condition assessment, identification of remedial works, program, and costs, financing arrangements.

(d) Program consultants to assist GPD in (1) program monitoring; (2) technical assessment of schemes; and (3) review of tender documents for turnkey projects.

(e) River quality monitoring assessment and documentation.

(f) Assistance for GPD in programming and preparation of rehabilitation works not yet identified.

II. Training (Rs 0.78 crores; US$0.60 million). Training for staff of GPD and its implementing agencies including:

(a) Development of training needs and program.

(b) Training institution availability and capability.

(c) Formulating training institutional arrangements.

(d) Overseas and local training requirements.

(e) Automatic river monitoring technology.

(f) Use of specialized sewer cleaning equipment.

III. Priority Equipment (Rs 5.49 crores; US$4.22 million)

(a) Supply jetting machines, gully pit emptiers, rodding and bucket cleaning machines, loaders, and related equipment for sewer cleaning operations in about 54 units.

(b) Supply of 11 automatic water sampling and analyzing units and related equipment.

IV. Priority Pollution Control Works (Rs 53.78 crores; US$41.37 million)

(a) Construction of 60 million liters per day (mld) capacity wastewater treatment plant at Allahabad, together with staff quarters.

(b) Construction of 18 mld capacity wastewater treatment plant at Haridwar, together with staff quarters.

(c) Construction of 135 mld capacity wastewater treatment plant at Kanpur, together with staff quarters.

(d) Construction of other priority pollution control works to be identified. These would be based on detailed studies to be undertaken by nominated executing agencies in Bihar, Uttar Pradesh, and West Bengal with appropriate consultant assistance, and submitted for IDA review after evaluation by GPD and its advisors.

17. Turnkey Contracts. Contracts for sewage treatment works at Allahabad, Haridwar, and Kanpur would be invited on a turnkey basis from prequalified contractors under ICB procedures. The turnkey contracts would include designs, civil works, mechanical and electrical equipment, commissioning, and initial operation against performance requirements.

18. Detailed engineering studies have been completed for the proposed works at Allahabad, Haridwar, and Kanpur. These studies have considered alternative technology options to determine least cost designs. In the case of Allahabad, a comparison of capital, operation and maintenance, and land costs undertaken by UP Jal Nigam indicated that stabilization ponds and the activated sludge process costs are about equal. At Kanpur, in view of the problems of land acquisition, it is likely that conventional treatment with activated sludge secondary treatment would provide the optimal solution.

19. In order that GPD may gain the best advantage from available technology options, turnkey contractors would be invited to submit process designs to meet specified effluent quality standards. Land availability, operation and maintenance, resource recovery, environmental impact, and related considerations would be taken into account in evaluating the offers. This consideration would include the impact of staged effluent quality improvement and budgetary constraints.

Costs and Financing

20. Cost Estimate. The cost estimate for the Ganga component of the project (base cost 1986/87) is summarized below:

	Base Cost	Physical & Price Contingency	Total Cost	Base Cost	Physical & Price Contingency	Total Cost
	----------Rs Lakhs----------			------US$ Million------		
Sector Management & Training						
Technical Assistance	234.60	65.99	300.59	1.80	0.51	2.31
Training	61.20	17.21	78.41	0.47	0.13	0.60
Subtotal	295.80	83.20	379.00	2.27	0.64	2.91
Sewerage						
Land	127.50	35.86	163.36	0.98	0.28	1.26
Civil Works Equipment						
Turnkey Contracts	3,643.25	1,441.15	5,084.40	28.02	11.09	39.11
Design (UP Jal Nigam)	130.00	--	130.00	1.00	--	1.00
Subtotal	3,900.75	1,477.01	5,377.76	30.00	11.37	41.37
Equipment & Materials						
Sewer Cleaning Equip.	377.40	106.15	483.55	2.90	0.82	3.72
River Monitoring Equip.	51.00	14.35	65.35	0.39	0.11	0.50
Subtotal	428.40	120.50	548.90	3.29	0.93	4.22
TOTAL COST	4,624.95	1,680.71	6,305.66	35.56	12.94	48.50

Notes

1. Base cost figures include supervision and management costs.
2. Rs 13.0 = US$1.0.
3. Costs include 5% taxes and duties where appropriate.

21. Implementation. The above costs have been calculated on the basis of an eight year implementation period, with disbursements extending over nine years. The GPD intends to implement the Ganga component during the Seventh Plan Period through March 31, 1990. In this event the overall cost of the Ganga component would be reduced to about Rs 57.77 crores (US$44.4 million) due to the shorter implementation period.

22. Procurement. Consulting services contracts would be awarded in accordance with the Bank's "Guidelines for the Use of Consultants by World Bank Borrowers and by the World Bank as Executing Agency," August 1981 edition. Contracts for civil works and the supply of equipment would be procured in accordance with the Bank's "Guidelines for Procurement under IBRD Loans and IDA Credits," May 1985 edition. Local competitive bidding (LCB)

procedures which are adopted in Bihar, Uttar Pradesh and West Bengal States have been reviewed to determine their conformity with the above guidelines. Further details are presented in Section IV, sub-section B.

23. Schedule of Contracts. The contracts which have been identified under the Ganga component are listed in the following table, which also indicates the bidding procedure and the processing timetable.

24. Financing - Capital Costs. The proceeds of Bank financing towards the Ganga component of the UP project would be passed on by GOI to GPD as grant. This is consistent with the GAP strategy that all capital expenditure under the program would be financed on a grant basis. Expenditures under the Bank financed component would be approved like other Ganga Action Plan expenditures, with the following limits:

Up Rs 1.0 crores	-	Project Director of GPD
From Rs 1.0-5.0 crores	-	Steering Committee of the Central Ganga Authority (CGA)
Above Rs 5.0 crores	-	CGA

25. Financing - Operation and Maintenance Costs. Some operating and maintenance costs of project works executed under the Ganga Action Plan would be financed by GPD during the Seventh Five Year Plan period comprising incremental costs only on the following basis:

(i) Full operating and maintenance costs of new facilities, such as sewage treatment plants.

(ii) Incremental costs of facilities enlarged under the GAP.

(iii) No contribution would be made by GPD towards the operating costs of equipment rehabilitated under the GAP but whose capacity remains the same as before.

The financing and institutional arrangments for operating and maintaining new facilities from 1990 were discussed during negotiations (refer to para 4.20).

UTTAR PRADESH URBAN DEVELOPMENT PROJECT
GANGA ACTION PROGRAM
ACTION PLAN FOR PROCESSING CONTRACTS

Contract Ref. No.	Description	ICB/ LCB	Draft Tender Doc.	IDA Review	Final Tender Period	Tender Period	Evaluation & Award Reconciliation	Bank Review	Contract Award & Implementation
CW 1	Allahabad Sewage Treatment	ICB	01/15/87	02/01/87	03/01/87	06/01/87	09/01/87	09/15/87	10/01/87 03/31/90
CW 2	Kanpur Sewage	ICB	01/15/87	02/15/87	03/15/87	06/15/87	09/15/87	10/01/87	10/15/87 03/31/90
CW 3	Haridwar Sewage	ICB	01/15/87	02/01/87	03/01/87	06/01/87	09/01/87	09/15/87	10/01/87 03/31/90
CW 4	Civil Works for monitoring stations LCB	LCB	Depends upon award decision for contract E 2						
PQ 1	Prequalification of Turnkey Contractors for Contracts CW 1, CW 2, CW 3	ICB	International Shortlisting to be completed by January 15, 1987						
E 1	Sewer Cleaning Equipment	ICB	08/30/86	09/15/86	09/30/86				
E 2	Monitoring	ICB	12/15/86	11/15/86	12/31/86	03/15/87	04/30/87	05/15/87	06/15/87

Others - to be determined

Benefits and Justification

26. Benefits. The investments proposed under the Ganga component of the UP urban development project comprise an integrated set of actions, and it is not easy to quantify the relationship between specific benefits and investments. Nevertheless, the potential benefits and beneficiaries are identified in this section. Two main sets of actions are considered; (i) the reduction of pollution in the cities, including the cleaning and rehabilitation of existing sewers and pump stations, and the interception and tapping of nallahs (storm drains) that currently discharge directly into the Ganga; and (ii) the treatment of sewage before its discharge onto agricultural land or into the Ganga River. Some of the benefits can be quantified. Others are considered qualitatively.

27. Improved Sewage Conveyance. Investments relating to the cleaning and rehabilitation of the existing sewer network include the purchase of jetting machines and bucket sewer cleaning equipment. The Ganga Action Plan also includes the rehabilitation of sewage pump stations and civil works to intercept the dry weather flow of nallahs that are significantly contributing to the pollution of the Ganga. The main benefit of these investments will be (i) the improved environmental and living conditions for the city dwellers, particularly the urban poor; and (ii) improved ammenity value of the Ghats (bathing places) located along the river banks in the project cites. This latter benefit is particularly important at Allahabad, Haridwar and Varanasi, which are visited by millions of pilgrims annually for the specific purpose of taking a "holy dip" in the sacred Ganga River. Over time, these actions would also improve the urban enviroment by reducing backing-up of sewers and sewage flows in open storm drains, contributing to increased rental values of properties.

28. Farmers' Benefits. At the present time, raw sewage is used for the irrigation of farm land, partly owned by municipal authorities and partly in private ownership. In principle, the raw sewage is diluted with river water or ground water, but at the present time only a small proportion of the sewage is applied to the land, with the major part being discharged directly into the Ganga, since the main sewage pump stations are mostly out of service.

29. There is a great demand for sewage for crop irrigation in the environs of the cities located along the banks of the Ganga. Major benefits would result from the rehabilitation of the sewage pumping stations and the irrigation channels on the existing sewage farms by fully utilizing the available sewage flow. It would appear that there is sufficient municipally and privately owned land available to make use of all the sewage effluent that is likely to be available well into the next century. From an agricultural standpoint, farmers generally have a need for irrigation water only for

about nine months of the year, from October until June, since seasonal monsoon rainfall provides crop water requirements during the three remaining months. However, during this period (July-September), there would be negligible pollution from direct discharge of either primary or secondary treated effluent into the Ganga, since there is enough water in the river to provide a dilution of more than one thousand to one, as is shown in Appendix 2, Table 1.

30. In addition, there may be intermittent occasions during the harvesting of some crops when all the effluent may not be required for irrigation and would need to be discharged directly into the Ganga. Effluent quality should therefore be suitable for discharging into inland surface waters and for use in agriculture for irrigation purposes.

31. Downstream Beneficiaries. Pollution levels in the Ganga may be expected to fall considerably both within and downstream of each of the cities in which the project is implemented. Reductions in biochemical oxygen demand, suspended solids, and pathogen levels are anticipated even if the effluent quality standards recommended by the Central Water Pollution Control Board are not fully met immediately. Major benefits will therefore accrue to people who make use of the Ganga waters downstream of the cities in which the project actions take place. This is most important in the stretch of the Ganga between Haridwar and Allahabad, where due to major abstractions of water for irrigation for much of the year the remaining flows provide insufficient dilution to permit natural regenerative capacity to the river to reduce pollution between the main cities. The economics of pollution control must therefore be considered in the context of the whole stretch of the river and cannot be judged solely by city specific considerations. In this respect the investments in river modeling and monitoring equipment would ultimately contribute to overall improvement in river quality management, to the benefit of both city and rural dwellers throughout the length of the Ganga.

32. Benefits from Sewage Treatment. The present practice of discharging untreated sewage onto farmland is unsatisfactory for the following reasons: (i) there is a risk of infection from consumption of sewage irrigated vegetables due to uncontrolled cropping pattern on sewage irrigated land; (ii) studies have shown that 80% of farm workers handling raw sewage are infected by intestinal parasites (almost three times above the normal infection rate); and (iii) farmers complain of "soil sickness" as a result of irrigation with untreated sewage effluent, due to lack of aeration in the soil, blocking of soil pores by the fine suspended solids, and over-watering, resulting in short term waterlogging of the soils.

33. Sewage treatment would (i) reduce pathogen levels, with resulting direct health benefits for farm workers; (ii) both primary treated effluent proposed initially and secondary treated effluent likely in the long term under the Ganga Action Plan would provide an effluent of satisfactory quality

acceptable for use in irrigated agriculture, although uncontrolled cropping with vegetables would not be recommended without chlorination; (iii) significant improvements in crop yields may be expected as a result of sewage treatment; and (iv) digested sludge would provide a soil conditioner low in pathogens and high in nutrients for agricultural use.

Least Cost Solutions

34. Detailed engineering studies have been prepared by the UP Jal Nigam for three sewage treatment plants (STPs) at Allahabad, Haridwar, and Kanpur in UP for financing under the Ganga component. Several treatment alternatives have been considered including: activated sludge process (ASP), trickling filters (TF), aerated ponds (AP), and stabilization ponds (SP), in order to determine the least cost solutions. Bank participation in the project preparation has ensured that major engineering components were analyzed for cost effectiveness and least cost solutions determined.

35. Allahabad. Capital and operating costs for three sites and three treatment options were compared in order to select the least cost solution. The analysis prepared by the UP Jal Nigam indicates that the Naini site, where land belonging to the Nagar Mahapalika is available and treated effluent could be discharged into the Ganga downstream of the Sangam bathing place would provide the least cost alternative. Costs of sewage treatment would be similar for the ASP and SP processes, but a land area of 162 hectares (ha) would be required for SP. Although this amount of land is owned by the Nagar Mahapalika, it would not be feasible to develop the area for stabilization ponds due to (i) the environmental impact on existing villages and housing; and (ii) the sloping topography of the area. An area of 40 ha level ground has been selected which provides sufficient space for an ASP treatment plant. This option would provide the most effective design in this case.

36. Haridwar. Three different sewage treatment options were evaluated indicating similar least costs for the ASP and AP processes and higher cost for the SP process, on account of the large land area required (2.0 ha/mld) and high land costs ($40,000/ha). The ASP was selected over the AP to conserve agricultural land. However, it is possible that other treatment processes may be proposed during tendering for the turnkey contract for treatment works. It is possible that a combination of anaerobic and aerobic ponds could provide the most economic solution, since the area required would only be about 0.4 ha/mld or a total of 7-8 ha, which could easily be found on the existing sewage farm that belongs to the Nagar Mahapalika.

37. Kanpur. A similar comparison of treatment options was carried out for Kanpur. In this case, the limited availability of suitable land on which to locate treatment facilities (40 ha) dictates that ASP is adopted as the

most effective treatment process. Stabilization ponds would require about 200 ha of land.

38. Sludge Digestion. An objective of the Ganga Action Plan is to conserve resources and to maximize the potential for resource recovery where possible. Digestion of sewage sludge and the production of biogas for electricity generation have been included in the sewage treatment plants. The justification for these investments is based on the relative costs of providing electricity for operation of the plants, and also on need for reliability and to conserve national resources. Reliability is particularly important in India since power outages of up to six hours are fairly frequent. Stand-by power generation capacity is essential to avoid interruption to sewage conveyance and treatment operations. Sewage pump stations rehabilitated under the Ganga Action Plan include diesel stand-by generators to ensure uninterrupted pumping during power outages.

39. The figures provided by the UP Jal Nigam indicated that electricty generation from biogas would be sufficient to meet the full power requirements for ASP treatment. However, taking into account the operating experiences of the Okhla ASP sewage treatment plant in Delhi and elsewhere, it is likely that gas generated from digestion of sludge would certainly be sufficient to cover the power requirements for primary sedimentation and digestion but might not meet the full power requirements for ASP secondary treatment.

40. Leaving aside the questions of reliability of electricity supply from the State Electricity Boards (SEBs) and conservation of resources, it would be marginally less costly at present electricity price levels (Rs 0.6/kwh) for the STPs to purchase electricity from the grid than to generate their own power from biogas when the capital costs of biogas generation and dual-fuel powered generators are taken into account. However, the cost of peak power generation is at least twice this level, and it is likely that off-peak and peak power tariffs will be introduced in the future so that the cost of power consumption reflects better its economic cost. To this end, the National Thermal Power Corporation plans to start charging the SEBs differential rates for peak period power. Therefore, it is likely that within the foreseeable future it will be financially viable (as well as economic from the standpoint of the national economy) for the STPs to generate some or all of their electricity requirements from biogas during the peak periods, and to limit their purchases from the SEBs grid mainly to off-peak periods. The dual-fuel powered generators would therefore be sized to meet the emergency stand-by requirements of the STPs.

Affordability

41. Municipalities. Collection, conveyance, treatment, and disposal of sewage under the GAP will benefit millions of pilgrims who visit the Ganga

and use its water in addition to the beneficiaries in the cities in which the investments take place. On this basis the costs of construction for the GAP, including the Ganga component of the UP project, will be made on a grant basis by GOI to the implementing state and city level agencies. Recovery of capital investment costs is not envisaged. Nevertheless, it is envisaged that the full cost of operation and maintenance of the facilities will have to be met by local authorities within a certain period of time. Moreover, these agencies will themselves have to start assuming responsibilities for replacements and future investments in environmental pollution control.

42. Projections of future income and revenue have been made for the participating towns to ascertain their capacity to afford to continue maintaining the infrastructure to be provided under the GAP. These indicate that investments should be phased over several years, in order to moderate the rate of increase of maintenance costs, since there is a limit to the rate at which municipal revenues can be expected to rise. The initial provision of primary treatment, comprising sedimentation and sludge digestion, would minimize the additional financial burden on the local authorities, who already have ongoing financial commitments for water supply and sewerage. In the longer term, revenue enhancement and improved financial health of the benefiting authorities could provide a basis for further improvement of effluent quality standards.

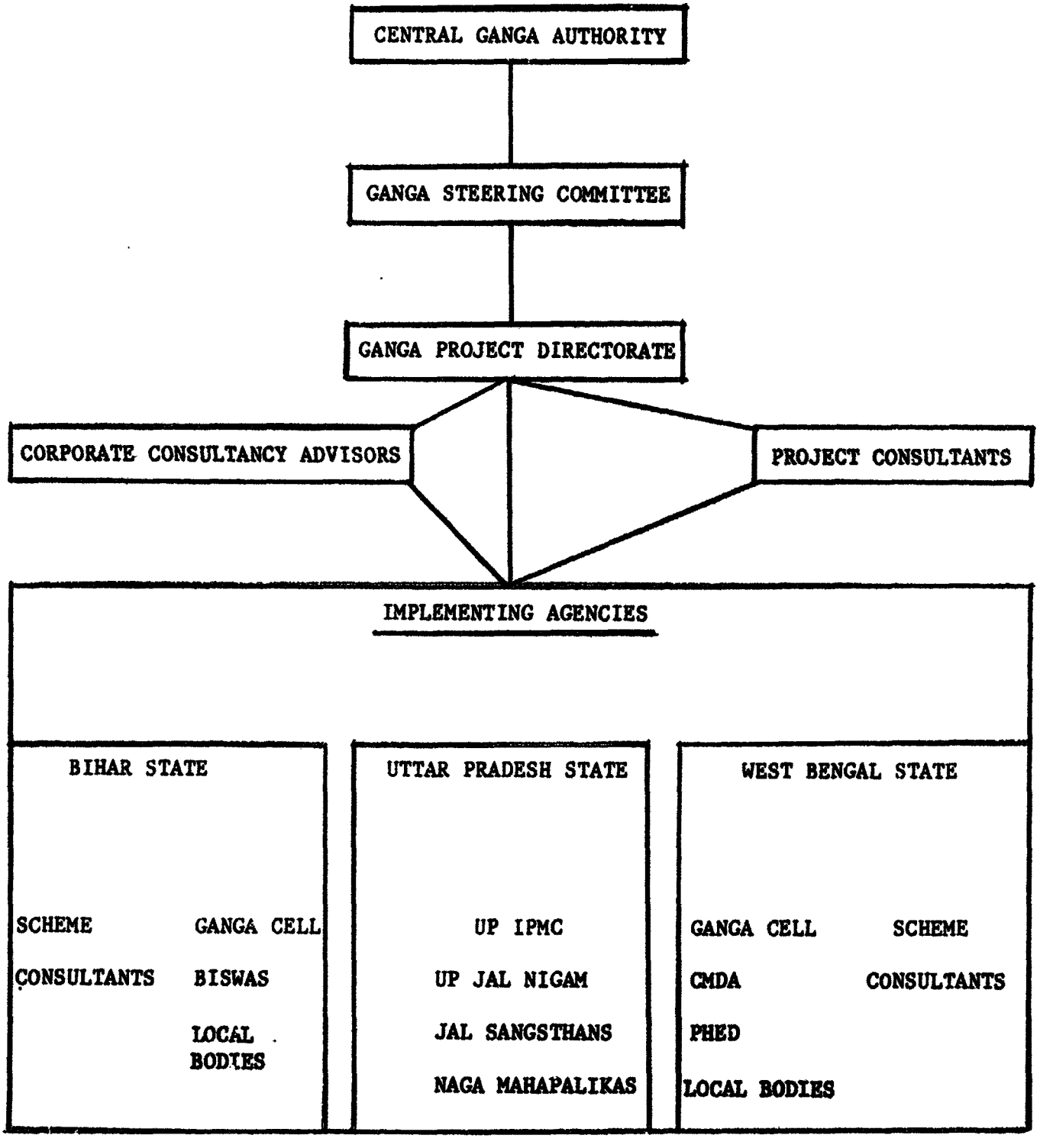
43. Annex Tables 2-4 compare estimated sanitation costs and revenues for Allahabad, Haridwar, and Kanpur on completion of the Phase I of the Ganga Action Plan by 1993/94. Annual expenditures for operation and maintenance will have increased about fourfold, taking into account the cost of maintaining the rehabilitated sewerage system and the cost of operating primary or secondary sewage treatment and sludge digestion. The municipalities estimate that annual revenues for sanitation, which are based on rental values, would also increase considerably by 1993/94 to meet the financial covenants proposed under this project. On this basis, the operating and maintenance deficit for primary treatment is estimated to be about 6-7 percent of the projected income of the three Nagar Mahapalikas for which feasibility studies have been prepared. In the event that secondary treatment is provided, this deficit would be about 8-10 percent of the projected income of the local authorities.

44. Ganga Action Program (GAP). The investment required to provide secondary treatment at Haridwar, Kanpur, and Allahabad, as proposed in the feasibility studies prepared by the UP Jal Nigam, is estimated at about Rs 44 crores, 18 percent of the total Rs 244 crores ($200 million) Phase I of the GAP, which has been sanctioned in the Seventh Five Year Plan. This compares with a figure of Rs 34 crores estimated for the three sewage treatment plants in the GAP (14% of the Plan provision). Primary treatment as a first stage development would reduce the investment in the three STPs by about 35 percent (from Rs 44 crores to Rs 29 crores), thus enabling the overall GAP program to remain within its estimated budget.

Appendix 1

GANGA ACTION PLAN

ORGANIZATION CHART



GANGA ACTION PROGRAM

Table 1 - Mean Monthly Stream Flow in the Ganga (m^3/sec)

	Rishikest (1971-81)	Kanpur (1960-81)	Allahabad (1970-81)
Janaury	160	177	515
February	155	183	458
March	187	151	419
April	246	106	359
May	381	86	349
June	997	311	805
July	2,610	2,127	7,470
August	3,159	4,456	18,224
September	1,387	4,755	15,949
October	460	1,140	2,985
November	263	419	1,044
December	188	224	620
Mean Discharge Sewage Effluent (m^3/sec)	0.21	1.50	0.69

GANGA ACTION PROGRAM

TABLE 2 ALLAHABAD SANITATION COSTS AND REVENUES

	Primary Treatment (Rs lakhs)	Secondary Treatment (Rs lakhs)
1. Annual Maintenance Costs of GAP (1994)		
Naini STP (60 mld)	20	50
Pump Stations, operation, staff	95	95
and maintenance of sewer network	45	45
Total sanitation Costs	160	190
2. Annual Income Water Supply & San. (1994)		
Sales of Sewage Sludge	3	5
Sewage Effluent	7	7
Sewerage Taxes	45	45
Total Annual Income	55	57
3. Net Deficit Sanitation	105	133
4. Income of Naga Mahapalika		
Estimated Total Receipts	1,487	1,487
Estimated Total Expenditure	1,305	1,305
Net Surplus (excl. sanitation)	82	82
5. Net deficit sanitation as percent total income of Naga Mahapalika	7	9

GANGA ACTION PROGRAM

TABLE 3 HARIDWAR SANITATION COSTS AND REVENUES

	Primary Treatment (Rs lakhs)	Secondary Treatment (Rs lakhs)
1. Annual Maintenance Costs of GAP (1994)		
Kankhal STP (18 mld)	6	19
Pump Stations, operation, staff and maintenance of sewer network	35	35
Cost of ongoing program	12	12
Total sanitation Costs	53	66
2. Annual Income Water Supply & San. (1994)		
Sales of Sewage Sludge	1	3
Sewage Effluent	4	4
Sewerage Taxes	13	13
Total Annual Income	18	20
3. Net Deficit Sanitation	35	46
4. Income of Naga Mahapalika		
Estimated Total Receipts	470	470
Estimated Total Expenditure	470	470
Net Surplus/Deficit	-	-
5. Net deficit sanitation as percent total income of Naga Mahapalika	7	10

GANGA ACTION PROGRAM

TABLE 4 KANPUR SANITATION COSTS AND REVENUES

	Primary Treatment (Rs lakhs)	Secondary Treatment (Rs lakhs)
1. Annual Maintenance Costs of GAP (1994)		
JAJMAU STP (130 mld)	70	139
Pump Stations, operation, staff and maintenance of sewer network	206	206
Cost of ongoing program	124	124
Total sanitation Costs (excl. maint. sewers & operation of pump stations	400	469
2. Annual Income Water Supply & San. (1994)		
Sales of Sewage Sludge	14	23
Sewage Effluent	14	14
Sewerage Taxes	135	135
Total Annual Income	163	172
3. Net Deficit Sanitation	237	297
4. Income of Naga Mahapalika		
Estimated Total Receipts	3,887	3,887
Estimated Total Expenditure	3,887	3,887
Net Surplus/Deficit	-	-
5. Net deficit sanitation as percent total income of Naga Mahapalika	6	8

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

City Profiles

The following Group A and B cities were identified for inclusion in the project, based on size, growth rates, urban infrastructure deficits, economic potential, and institutional capacity. They appear in descending order of importance. The city of Meerut (population 540,000) which should appear as No. 6 below (at the top of Group B) has been excluded from the project, since it comes under the National Capital Region for planning and development purposes.

Group A

Kanpur (population 1/ 1,688,000; annual growth rate 2/ 2.8%)

Kanpur, situated in the Central region on the Ganga River, is the largest and most important industrial city in UP, and the eighth largest metropolis in India. The city's industry was initially established in the mid 1800's in cotton and wool textile mills, followed by tanning and leather making industries. After Independence, fertilizer, armaments, light engineering, agricultural and chemical plants were added. The city suffers from a lack of adequate shelter (about 45% of households live in slums), and its environmental and health conditions are regarded as among the worst in the cities of India.

Agra (population 770,000; annual growth rate 2.0%)

Agra is situated in the Western region on the right bank of the Yamuna River about 200 km from Delhi. The city has great historical importance, having been the capital of the Mughals for some time. The Taj Mahal is located in Agra, and other famous relics of the Mughal empire are located nearby. Agra is an important air, rail, and road junction, and is thus well connected to other cities in the state, as well as Delhi, Calcutta, and Patna. The most critical problems facing Agra are scarcity of water and poor environmental and sanitation conditions.

1/ Per 1981 census.

2/ Between 1971-1981.

Varanasi (population 794,000; annual growth rate 2.7%)

Varanasi is situated in the Eastern region about 700 km from Calcutta and Delhi. It stands on a crescent-shaped ridge on the left bank of the Ganga River, which at this point runs approximately south to north. It is one of the most ancient cities of India and from the beginning has been a place for pilgrimage, and a center of religion, culture, and learning. Varanasi lacks adequate shelter, water supply, sewage treatment, and drainage facilities. The project proposes to address these problems.

Allahabad (population 642,000; annual growth rate 2.3%)

Allahabad is situated in the Eastern region on the confluence of the Yamuna and Ganga River. Like Varanasi to the east, it is a sacred Hindu city where the faithful make periodic pilgrimages. It is an important city educationally, culturally, and administratively, with several central and state government offices. Allahabad has good road and rail transportation links with other major cities of the state, and with Calcutta and Delhi. Its main problem areas are in shelter, water supply, sewerage and sewage treatment, and drainage, which the project will address.

Lucknow (population 1,000,000; annual growth rate 2.1%)

Lucknow is in the Central region and is located on both sides of the Gomti river. It is the capital of the state and a city of historic importance beginning in the Nawabi period to the end of British rule in India. It is also important as a cultural, educational, and medical center. Lucknow has proposed investments in all components of the project except area development.

Group B

Bareilly (population 438,000; annual growth rate 3.0%)

Bareilly is in the Western region, about 230 km from Lucknow, and 250 km from Delhi. It is situated on the Ramganga River, and is well connected by road and rail to the other major cities of the state. It is the division headquarters for the Northeastern Railway and an important center for light and heavy industry (rubber, campher, sugar). Urban service deficiencies are mainly water supply, sewerage, and drainage.

Moradabad (population 348,000; annual growth rate 3.0%).

Moradabad, the eighth most populous city of UP, is situated between the Ramganga River in the northeast, and the Ganga River in the southwest. It is famous for its brassware (a big foreign exchange earner) and cottage

industries. There are good road and rail transortation connections to other major urban areas of the state, and to Delhi. The city's main deficiencies are in shelter, water supply, and drainage.

Gorakhpur (population 306,000; annual growth rate 2.8%)

Gorakhpur is in the Eastern region, some 265 km from Lucknow, 210 km from Varanasi, 260 km from Allahabad, 820 km from Calcutta, and 50 km from the Nepalese border. It is located at the confluence of the Rapti and Rohin Rivers. It is the headquarters for the Northeastern Railway. Gorakhpur University and a large fertilizer factory enhance its importance in the region. Shelter, slum upgrading, and water supply are the principal investments proposed.

Aligarh (population 320,000; annual growth rate 2.7%)

Aligarh is in the Western region. It is situated between two major drains: Jafari in the north and east, Aligarh in the south. The city is divided into two parts by the Northern Railway main line. Aligarh is proposing major investments in shelter, water supply, and sewerage.

Saharanpur (population 294,000; annual growth rate 2.7%)

Saharanpur is located in the Western region close to the border with the State of Haryana. The Yamuna River, which separates Haryana from UP, forms the western boundary of the district of Saharanpur. It is well connected by road and rail to Lucknow and other important centers in the state, and to Delhi. It is an important commercial and industrial town. Major improvements are required in the provision of water supply, sewerage, and drainage.

Ghaziabad (population 292,000; annual growth rate 8.4%)

Ghaziabad is in the Western Region, about 30 km from Delhi, and 470 km from Lucknow. The city developed from the amalgamation of three villages in the 18th century. At the end of the 19th century it became famous for its food grain market. Its proximity to Delhi now accounts for its phenomenal growth, and many housing estates have sprung up in recent years. It is also an important industrial base. The Hindon River, flowing north to south, divides the city into two distinct areas: Ghaziabad city, and Trans Hindon Area. Ghaziabad's priorities under the project are water supply, sewerage, and solid waste management.

Standby Towns

Dehradun (population 294,000 - located in Western region)
Jhansi (population 281,000 - located in Bundelkhand region)

Group C

Shaktinagar, in Mirzapur District in the southeast part of the state, is part of the Singrauli area bordering on Madhya Pradesh, where major coal deposits are located. Coal mining, power generation, and related developments are creating unplanned and unserviced colonies in the area. GOUP has set up a Special Area Development Authority to plan for future development. Pending the outcome of studies under the project, a notional allocation of funds is being provided for investments in sites and services, water supply, drainage, and traffic engineering and management.

Standby Towns

Naini Tal (population 27,000; located in Hill region)

Nainital is a popular tourist resort and its chief attraction is the lake. Overdevelopment, however, has led to severe pollution of the lake, which is also the town's chief water source.

Group D

UNDP/TAG has carried out feasibility studies for low cost sanitation in the following towns:

Almora	Khairabad
Ballia	Lakhimpur Kheri
Balrampur	Mahoba
Baraut	Maunathbhanjan
Deoband	Najibadad
Fatehabad	Narendrangar
Ghazipur	Pauri
Kalpi	Sikandararao
Kannauj	Srinagar

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Operational Action Plan

The following operational action plan contains a number of actions to be undertaken. It would be discussed, updated, and agreed to at negotiations. It would then be used as a tool for monitoring progress in project implementation, and could be further added to as agreed during review missions.

UP STATE COMPONENT

Sector/Sub-Component	Responsibility	Due Date
1. Sector Management		
Ensure IPMC has necessary resources to carry out supervisory functions.	GOUP	During the project period
Describe functions of proposed central Traffic and Transportation Appraisal Unit (TTAU), for review by the Bank.	GOUP	Done
Sanction posts of TTAU.	GOUP	April 1, 1988
Employ engineers/planners in TTAU and ensure unit is adequately staffed throughout the project period.	GOUP	July 1, 1988
Develop monitoring and evaluation criteria.	IPMC	Done
2. Training		
Identify existing training institutes and facilities offering courses appropriate to urban management and finance.	IPMC	Done

Sector/Sub-Component	Responsibility	Due Date
Identify appropriate training programs/modules.	IPMC	Done
Prepare training capsules.	IPMC	Done
Draw up training for coming fiscal year and identify personnel to receive such training.	IPMC	April 1, 1987
Review and evaluate current year's training programs.	IPMC	September 30, 1987, and annually thereafter
Identify training programs and personnel in each financial year thereafter.	IPMC	December 31, 1987, and annually thereafter.
3. Procurement		
Prepare draft procurement documentation for review by IDA.	IPMC	Done
Prepare appropriate grouping of equipment to be procured under the project.	IPMC	Done
4. Finance		
Complete financial tables ensuring reasonableness of assumptions used in the projections. Projections should have Administrators' full support.	Project entities	Done
Develop financial targets (i.e. cost recovery, current demand collection, revenue generation) which would form the basis of monitorable indicators.	IPMC	Done: see Attachments 1 and 2.
Introduce double entry accounting systems prepared as part of KUDP preparation, and accepted by GOUP. Systems to provide, inter alia, for full analysis of revenues and expenditures, and address present deficiencies.	Project entities	April 1, 1987

Sector/Sub-Component	Responsibility	Due Date
Initiate steps to comprehensively survey all water supply and sewerage assets for full compilation of assets registers; surveys to be completed to the extent possible by March 31, 1989, pending completion of utility mapping by January 1, 1991.	appropriate entities	April 1, 1987
Subject to the approval of the Comptroller and Auditor General, retain independent commercial auditors acceptable to IDA.	Project entities	Oct. 1, 1987, and annually thereafter by April 1, 1988 and April 1, 1989.
Appoint consultants for tariff study.	IPMC	Dec. 1, 1987
Complete revaluation of water and sewerage assets, in accordance with criteria to be agreed with IDA.	Project towns	April 1, 1992
5. Technical		
A. Sites and Services		
Prepare administrative and financial guidelines for beneficiary selection criteria and disposal of plots, and definition of chargeable costs, etc.	IPMC	Done
B. Slum Upgrading		
Prepare administrative and financial guidelines for conditions of lease and mortgage and definition of chargeable costs (Kanpur ahatas only), home improvement loans, individual service connections, etc.	IPMC	Done
C. Area Development		
Prepare administrative and financial guidelines for conditions of loans to cooperatives, etc.	IPMC	Done
D. Water Supply		
Prepare programs for metering, meter repairs, etc. for review by IPMC.	Project entities	Done

Sector/Sub-Component	Responsibility	Due Date
Engage leak detection and waste prevention consultant.	IPMC	Dec. 1, 1987
E. Sewerage		
Prepare inventory of gully pits, and programs for their regular and adequate cleansing.	Project entities	Done
F. Low Cost Sanitation		
Update existing feasibility studies for Group D Towns, and prepare feasibility studies for Groups A and B Towns.	UNDP/TAG Project towns	Oct. 1, 1987
Adopt/approve/implement bylaws and regulations.	DLB Project towns	Feb. 1, 1988
Ensure Low Cost Sanitation Cell in DLB is adequately staffed with management, finance, engineering and community development disciplines.	GOUP/DLB	During the project period
Prepare, approve, and sanction proposals for strengthening entities responsible for implementation.	GOUP IPMC DLB	Feb. 1, 1987
Strengthen entities if necessary.	Project towns	April 1, 1987
Implement promotion/publicity plan	IPMC DLB Project towns	Oct. 1, 1987
G. Solid Waste Management		
Issue format for base line and monitoring data to all project towns.	IPMC	April 1, 1987
Issue instructions to project towns for restructuring of the organization to handle solid waste management.	GOUP	April 1, 1987
Review and revise, if necessary, in consultation with IPMC, financial limits for local purchase of vehicle spares to reflect current market values.	NM, NP	April 1, 1987
Complete base-line data and forward to IPMC.	Project towns	Done

Sector/Sub-Component	Responsibility	Due Date
H. Maintenance and Mapping		
Amend maintenance component project proposals as per pre-appraisal mission recommendations.	Project towns	Done
Submit copies of existing utility maps to IPMC.	Project towns	Done
Obtain quotations from local surveyors for utility mapping on 1:2,000 scale base maps in two packages: (i) Lucknow and Kanpur initially; and (ii) the remaining project towns.	IPMC	April 1, 1988
Submit maintenance management study for Lucknow and Allahabad to GOUP and IDA for review.	IPMC O&M Sub-Cell	April 1, 1987
Decide on action plan for maintenance study for remaining project towns.	GOUP/IDA	June 1, 1987
Produce large scale base maps 1:2,000 for Lucknow and Kanpur.	IPMC	Feb. 1, 1989
Tidy up depots and auction obsolete equipment.	Project towns	April 1, 1987
Complete utility mapping for Lucknow and Kanpur.	IPMC	Oct. 1, 1989
Complete aerial photography and base map production in scale 1:4,000 for all towns except Lucknow and Kanpur.	IPMC	July 1, 1989
Produce large scale maps (1:2,000) for all towns except Lucknow and Kanpur.	IPMC	Jan. 1, 1990
Complete utility mapping for all project towns except Lucknow and Kanpur.	IPMC	Jan. 1, 1991

Sector/Sub-Component	Responsibility	Due Date
I. Traffic Engineering and Management		
Implement actions contained in separate "notes" on Kanpur traffic component.	Kanpur	Done
Sanction of traffic engineering positions in the four remaining KAVAL towns, and initiate process to find qualified professionals.	GOUP/applicable project towns	April 1, 1987
Issue instructions to police, PWD and utility departments concerning cooperation with TEMCs to improve traffic conditions.	GOUP	April 1, 1987
Employ traffic engineers/planners in remaining four KAVAL towns.	applicable project towns	Jan. 1, 1988
Prepare issues paper on medium and long term transport policy.	Kanpur	July 1, 1988
Create transport policy committee comprising high level decision makers.	Kanpur	July 1, 1988
Develop circulation plans and functional plans for initial traffic schemes.	Agra, Varanasi Allahabad, Lucknow	Jan. 1, 1989
Define action programs to step up traffic enforcement.	Police in Agra, Varanasi, Allahabad, Lucknow	Jan. 1, 1989
Prepare list of equipment for police to be acquired under project.	IPMC/KAVAL towns	Aug. 1, 1988
Convene traffic advisory sub-committees to coordinate implementation of traffic schemes.	Agra, Varanasi, Allahabad, Lucknow	Jan. 1, 1988
Initiate implementation of traffic schemes.	Agra, Varanasi, Allahabad, Lucknow	Jan. 1, 1989
Prepare issues paper on medium and long term transport policy.	TEMC in Agra, Varanasi, Allahabad, Lucknow	Jan. 1, 1989

Sector/Sub-Component	Responsibility	Due Date
Create transport policy committees comprising high level decision makers.	Agra, Varanasi, Allahabad, Lucknow	Jan. 1, 1989
Develop traffic safety programs.	Agra, Varanasi, Allahabad, Lucknow	Jan. 1, 1989

Note: In Kanpur, the above actions have already been taken.

Water Supply and Sanitation
Minimum Percentage Recovery from Internal Sources
of O & M Costs Plus Debt Service (Cash Basis)

City	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94
Kanpur	100	100	100	100	100	100	100	100
Agra	86	84	80	92	86	88	100	100
Varanasi	100	100	100	100	100	100	100	100
Allahabad	100	100	98	93	99	100	100	100
Lucknow	100	100	100	100	100	100	100	100
Bareilly	100	100	97	93	99	100	100	100
Moradabad	100	100	100	94	96	100	91	100
Gorakhpur	100	100	99	97	98	100	100	100
Aligarh	100	100	100	92	94	98	98	100
Saharanpur	100	95	90	91	92	93	98	100
Ghaziabad	100	91	90	83	85	97	97	100

Water Supply and Sanitation
Minimum percentage collection of
current billings

City	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94
Kanpur	80	83	85	85	85	85	85	85
Agra	30	40	50	60	70	75	80	85
Varanasi	50	53	58	64	70	75	80	85
Allahabad	70	72	75	80	82	85	85	85
Lucknow	70	72	75	80	82	85	85	85
Bareilly	45	50	53	58	65	75	80	85
Moradabad	50	53	58	64	70	75	80	85
Gorakhpur	30	40	50	55	65	75	80	85
Aligarh	70	74	77	80	82	83	84	85
Saharanpur	70	73	76	79	81	83	84	85
Ghaziabad	50	53	58	64	70	75	80	85

Municipal Bodies
Interim and Final Financial Performance Targets
Minimum percentage of internally generated revenues to total revenue expenditure, including debt service (cash basis)

City	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94
Kanpur	85	86	87	87	87	87	87	91
Agra	74	75	76	76	76	77	77	77
Varanasi	71	72	73	74	75	78	79	80
Allahabad	80	85	88	89	90	94	95	96
Lucknow	81	87	91	93	95	100	100	100
Bareilly	55	58	61	63	65	69	71	74
Moradabad	71	71	72	74	80	87	93	98
Gorakhpur	66	68	68	68	69	71	74	78
Aligarh	77	79	80	80	82	83	83	85
Saharanpur	69	70	74	81	85	90	92	93
Ghaziabad	100	98	92	87	87	87	90	93

Municipal Bodies
Minimum percentage collection of current General (property) Tax

City	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94
Kanpur	70	72	74	76	80	82	84	85
Agra	50	55	60	65	70	75	80	85
Varanasi	65	68	72	75	79	81	83	85
Allahabad	70	72	74	76	80	82	84	85
Lucknow	70	72	74	76	80	82	84	85
Bareilly	50	53	58	64	70	75	80	85
Moradabad	50	53	58	64	70	75	80	85
Gorakhpur	45	50	55	60	63	75	80	85
Aligarh	63	66	69	73	77	81	84	85
Saharanpur	70	72	74	76	80	82	84	85
Ghaziabad	50	53	58	64	70	75	80	85

CENTRAL GANGA COMPONENT

Sector/Sub-Component	Responsibility	Due Date
1. Consider the report of the Committee of experts and determine financing and institutional arrangements for operation of completed sewerage and sewage treatment facilities beyond 1990, to the satisfaction of the Bank	GPD	Dec. 31, 1987
2. Finalize operational arrangements (satisfactory to the Bank) for use of sewer cleaning equipment.	GPD	Done
3. Appoint Project Management Consultants and/or establish a project monitoring cell satisfactory to the Bank.	GPD	Done
4. Appoint consultants to undertake an initial condition assessment of existing trunk sewers at Allahabad, Kanpur, and Varanasi.	GPD	Sept. 30, 1987
5. Discuss consultants' recommendations following condition assessment of sewers in Item 4 above and prepare action plan for Bank review.	GPD	March 31, 1988
6. Prepare terms of reference for the appointment of consultants to review training requirements.	GPD	Sept. 30, 1987
7. Appoint consultants to review training, manpower requirements, and institutional requirements for operational staff.	GPD	March 31, 1988
8. Evaluate consultants' recommendations for training and recruitment of operational staff and prepare an action plan for Bank review.	GPD	May 31, 1988
9. Implement the agreed action plan for training and recruitment of operational staff.	GPD	Commencing Aug. 31, 1988
10. Appoint additional consultancy services for other projects, if any.	GPD	April 1, 1987 Onwards

Sector/Sub-Component	Responsibility	Due Date
11. Initiate procedures to obtain possession of land for facilities at Allahabad, Hardiwar, and Kanpur.	AJS KJS HNP	Done
12. Determine a land acquisition program satisfactory to the Bank for Allahabad, Hardiwar, and Kanpur, and bring program to negotiations.	AJS KJS HNP	Done
13. The following works to be completed as mutually agreed.	GPD, UPJN, Allahabad, JS	
a) Renovation of Gaughat pump station		June 30, 1988
b) Renovation of intermediate Pump stations		June 30, 1987
c) Routine cleaning of sewers		Dec. 31, 1987
d) Renovation of sewage farms at Naini and Dandi		Dec. 31, 1987
e) Kydganj relief sewer		Dec. 31, 1988
f) Daraganj Ghat sewer and pump station		Dec. 31, 1988
g) Nallah tapping and interceptor sewer		Dec. 31, 1987
14. The following works to be completed as mutually agreed.	GPD, UPJN, Kanpur, JS	
a) Rehabilitation of sewage farm and rising main at Jajmau		March 31, 1988
b) Renovation of Jajmau pump station		March 31, 1988
c) Tapping of Nallahs		March 31, 1988
d) Cleaning of Sewers		March 31, 1988
15. Works to be determined are completed as mutually agreed.	GPD, UPJN, Hardiwar, NP	
a) Sewage pump station in Zone 31		To be decided
b) Sewer from Housing Board Colony Nala to sewage pump station at Jwalapur		To be decided
c) Rising main to new outfall sewer		To be decided
d) Gravity outfall sewer		Oct. 31, 1989
e) Sewage farm works at Kankhal		Oct. 31, 1988
16. Appoint consultants to assist with the location and preparation of tender documents for river monitoring equipment.	GPD	Done

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Detailed Description of Selected Project Components

Sector Management, Technical Assistance, and Training

1. In sector management, the Town and Country Planning Department (TCPD) would retain consultants to prepare an outline development strategy for new urban areas. The strategy initially would be applied in the GROUP C town - Shaktinagar (see para 2.04). Within TCPD also, GOUP would create a Traffic and Transportation Appraisal Unit (TTAU) to assist in evolving appropriate traffic and transport policies, and provide technical support at the city level. At the latter level, traffic engineering and management cells (TEMCs) would be established in the municipal corporations of the KAVAL towns (except Kanpur, where such a cell was set up under KUDP).

2. The component includes initiatives to address some of the state's fundamental policy issues. There would be a major effort to strengthen municipal finances (see paras 6.08). The issue of rent control will also be addressed. In the context of the Bombay Urban Development Project, GOI has provided its statement of intent in the Approach Paper to the Seventh Five Year Plan as an indication of its commitment to move ahead on this issue. In the Gujarat Urban Development Project, the Municipal Corporation Act has been amended to enable corporations to value rental properties on the basis of actual, as opposed to 'standard' rent as a first step towards more fundamental changes in property valuation. The proposed amendment to the Delhi Rent Control Act, which could guide other states seeking to pass similar legislation, and the efforts of Maharashtra and Gujarat to seek rent control reform, are welcome signs of movement in this direction.

3. Technical assistance would be sought for (i) leak detection and repair in the KAVAL towns, (ii) base and utility mapping and inventory in all project towns, and (iii) a water tariff study to rationalize the tax and meter charge elements in pricing, including recommendations for alternative methods of recovering costs of sewerage and sanitation operations.

4. GOUP recognize that a sustained training program is required to complement the policy initiatives begun during project preparation, and to improve the management and efficiency of service delivery. To that end, at least eight clusters of training requirements ranging from daily operations and maintenance activities to city level planning have been identified. Existing State and National level training institutes would be used to train senior and middle level management, supplemented in some cases by overseas fellowships and training. After the 'training of trainers,' substantial numbers of operational level staff would be trained at frequent intervals locally. IPMC would be responsible for coordinating all training programs

for which it has retained the services of a training consultant. In some cases (e.g. leak detection and repair consultancy, purchase of specialized equipment) an element of training would form an integral part of the contract.

Sites and Services

5. All project towns (except Kanpur, where sites and services schemes were constructed under KUDP) would for the first time be implementing schemes designed for more efficient land use with up to 50% more saleable land than in their previous schemes, and differential land pricing to reduce plot costs for EWS and LIG. Site design is to be based on a model site layout for about eight hectares of land serving about 5,500 population. The design characteristics would make about 78% of the plots affordable to low income (EWS and LIG) households (average 5.5 persons) earning Rs. 1,500 per month or less. An average of about 65% of each site would be marketable. Plot sizes would vary from 27-42 m2 for EWS to 162-300 m2 for HIG. An average density of about 432 persons per hectare would be achieved in these sites.

6. All sites would have independent water supply and low cost sanitation except in Lucknow and Kanpur, where connection to existing sewerage networks is available. Most EWS plots would front on to 3-4.5 m pedestrian lanes of brick paving. Larger plots for LIG, MIG, HIG and industrial and commercial plots would front on to vehicular roads of 6-12 m width with single or double lane bituminous surfacing. All sites would be served by electricity networks and street lighting. Community facilities like primary schools, primary health centers, police posts, and post offices would be provided.

Slum Upgrading

7. The program would improve the provision of basic services such as water supply, sanitation, access, electricity, etc., to meet the communities' needs on the basis of their ability to pay. Community participation would be sought in planning the improvements, with individual home improvement to be carried out on a self-help basis. GOUP proposes to supplement the ongoing Environmental Improvement of Slums under its Minimum Needs Program (MNP) with project funds to ensure an adequate level of upgrading. Project funds would be on-lent to the municipal bodies for off-site infrastructure, and to beneficiaries for individual water connections and low cost sanitation.

8. If Kanpur elects to upgrade its remaining 'ahatas' 1/ also, they would first be acquired under the Slum Areas (Clearance and Improvement) Act of 1962, as amended in the light of experience gained under KUDP. If difficulties in acquisition continue to arise notwithstanding amendments to the above act, Kanpur could proceed to improve its ahatas under MNP. The use of project funds for on-site infrastructure would not be permitted in such cases since residents do not have legal tenure. However, the costs of any off-site

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1/ slums on privately owned land, generally in the center of the city.

infrastructure associated with any ahata improved under MNP would be eligible for financing.

Water Supply

9. The KAVAL towns (Group A) all use as their major source of water supply the rivers on which they are sited, 1/ with some use of groundwater as well. The Group B towns are wholly dependent on groundwater for their supplies.

10. All the towns are short of water, particularly in the summer months. Allahabad and Varanasi have special problems; both attract enormous crowds of pilgrims (up to 10 million, it has been estimated) over short periods and are in even more serious difficulties at these times than normally. To take the example of Kanpur (Group A), supply at present is thought to be about 70% of demand. However, there, and in all the other towns, production figures are little more than estimates, since there are few measurements of water being put into supply. Similarly, although metering of consumer connections is widespread, many meters are out of order and there are also many unmetered connections. The project will place special emphasis on metering - production, zonal, and consumption. In addition, leak detection and repair, and waste prevention will form an important part of the project, and technical assistance will be provided to train staff in the use of appropriate techniques and equipment.

11. The works to be carried out under the project will follow existing patterns. Kanpur, Varanasi, and Lucknow will develop further their river intake arrangements and increase treatment capacity, either by extending existing plants or constructing new ones. Raw water and clear water pumping arrangements together with associated transmission mains have been included in the proposals. Dredging operations will be necessary at Lucknow but more particularly at Kanpur because the main streams of the rivers have receded from the intake locations. The channels leading from the main river streams to the intakes are constantly dredged, and the project includes provision for overhauling existing dredgers.

12. At Allahabad, and at all the Group B towns, groundwater will be developed to provide additional supplies. The numbers of tubewells to be provided under the project will be Allahabad 16, Bareilly 7, Moradabad 1, Gorakhpur 5, Aligarh 8, Saharanpur 9, and Ghaziabad 17; 63 in all. Chlorinators, overhead tanks, pumphouses, and other ancillary works would be provided to an appropriate scale.

13. Agra's principal source of water is the Yamuna River. During the summer months, when water is drawn from the Yamuna at a barrage many miles upstream of Agra to feed an irrigation canal, flow in the river is reduced to

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1/ Kanpur, Varanasi - Ganga; Agra - Yamuna; Allahabad - Ganga and Yamuna; Lucknow - Gomti.

a level insufficient to meet Agra's needs. To deal with this difficulty an arrangement has been made to release water from the canal into Keetham Lake and from the lake back into the Yamuna. This arrangement will become permanent, and the project will include those works needed to utilize the arrangement efficiently. Keetham is about 10 miles west of Agra and the city is expanding in that direction, away from the existing intake. Under the project, a new intake will be built about 5 miles west of Agra with associated pumping station, raw water main, treatment plant, and clear water transmission main to the city.

14. In all the project towns, the project would provide for distribution mains, connections, consumers' meters, zonal meters, and production meters; in some towns handpumps will also be provided.

Sewerage

15. The main thrust of the program will be towards maximizing utilization of existing sewerage networks, with emphasis on connecting properties to the sewers. To achieve this, sewers in some cases wil have to be cleaned, repaired or replaced to be compatible to flows to be carried. Up to 15,000 new connections are projected. To encourage households to connect, the municipalities will lay that part of the house connection which lies within the street, and in this way the burden on the householder will be reduced.

16. The municipalities will use, to the extent possible, mechanical joints for sewer construction and will review their standard specifications for sewers and manholes. It is expected that the practice of using manholes as points of connection will cease, and that future connections will be made directly to the sewers. The project also includes procurement of sewer cleaning equipment and mobile gully emptiers.

Solid Waste Management (SWM)

17. In all towns, the SWM service is the largest employer of labor and transport and normally spends the largest proportion of the revenue budget, but in no town is there a senior officer employed exclusively on SWM operations. In some towns the medical officer is nominally responsible, but only at the third or fourth tier management level is there anyone engaged full-time on SWM duties. In some of the larger towns the medical officer is responsible for the labor-intensive street sweeping and primary collection service; a section of the engineer's department providing and maintaining the transport and employing the drivers and loaders. The present service suffers as a result of divided control, and it becomes difficult to alter working methods or systems in one department because of the effect it may have on the other.

18. Ideally, each town should have a separate conservancy or cleansing department with its own administrative, financial, and technical support staff, headed by a technical officer with SWM experience and directly responsible to the administrator or executive officer for all aspects of SWM.

However, such a change would involve radical restructuring and may not be supportable in the smaller towns.

19. GOUP has accepted the principle of centralized control and will issue the necessary changes in the manner most appropriate to local conditions and staff resources. The designated officers will receive SWM training under the training and technical assistance component, and the new management organization will be built up from the existing structure by inter-departmental staff transfers. In the largest town, Kanpur, the establishment of a centralized SWM department was a covenanted requirement under KUDP, and has been complied with.

20. The primary collection system will be improved by the provision of simple low-cost indigenous equipment, such as improved design hand-carts and tricycle or auto rickshaws for congested areas, transferring the wastes collected to containers or feeder tipping vehicles, and eliminating, where possible, the present roadside heaps. "Once only" handling will be achieved by replicating the primary collection systems developed by All India Institute of Hygiene and Public Health (AIIHPH) in the Calcutta Metropolitan Area under a project partly financed by the Bank. The SWM sub-cell of IPMC will initiate demonstration projects in selected project towns, adapting the AIIHPH methodology to suit UP conditions. To cope with the increased tonnage collected by improved service delivery, tipping vehicles of varying capacities tailored to local needs will be provided.

21. Existing maintenance and workshop facilities are generally poor and, with one exception, no routine servicing of vehicles is carried out. Existing workshops will be improved or new workshops provided in more convenient locations for first line repair and servicing. Major repairs will continue to be carried out by private sector garages. Where compaction type collection vehicles are being provided, the towns will enter into operation and maintenance contracts with the supplier to ensure maximum vehicle availability.

22. Except in Kanpur, where an existing compost plant will shortly become operational, all disposal of wastes will be by landfill. Where required, all-weather roads will be constructed, operational methods improved, and bulldozers and payloaders provided for spreading and leveling the wastes.

Maintenance

23. Many investments to be made under this project in infrastructure and equipment rehabilitation are necessitated by neglect of maintenance needs which has resulted in significant backlogs of deferred maintenance in all service sectors. Substantial amounts of unaccounted-for water in the distribution systems, deteriorated treatment works, clogged drains and sewers, and defects in road pavements bear witness to the lack of proper maintenance in the project cities. Insufficient maintenance not only results in premature needs for rehabilitation or replacement but also significantly affects the cities' ability to sustain urban productivity and employment, and results in increased costs to the users of urban roads and other infrastructure.

24. A special study on maintenance management will be carried out in all project cities by the operations and maintenance (O&M) sub-cell which was established under the IPMC to assist project cities in this area on a continuous basis. IDA has provided draft terms of reference for this study.

25. Utility mapping will be carried out in all project cities to establish necessary inventories and records of assets as a precondition for a systematic maintenance effort.

26. Lastly, priority items of vehicles and equipment as well as improvements to municipal workshops and depots will be provided in all cities except Aligarh and Ghaziabad which, because of their proximity to New Delhi can contract out equipment and intensive maintenance works to the many contractors located in the capital area.

ANNEX 6
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UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Summary Cost(Kanpur)

	Rupees Crores)				USD(Million)				% foreign exchange	% total base cost
	Local	Taxes	Foreign	Total	Local	Taxes	Foreign	Total		
SECTOR MGT, T.A. & TRG.	0.38	.00	.00	0.38	0.29	.00	.00	0.29	0	1.31
SITES & SERVICES	7.04	0.41	0.75	8.19	5.41	0.32	0.57	6.30	9	28.33
SLUM UP-GRADING	1.13	0.07	0.13	1.33	0.87	0.05	0.10	1.02	10	4.60
AREA DEV-ELOPMENT	1.57	0.09	0.10	1.85	1.21	0.07	0.14	1.42	10	6.39
WATER SUPPLY	6.13	0.38	1.11	7.63	4.72	0.29	0.86	5.87	15	26.37
SEWERAGE	1.84	0.11	0.34	2.29	1.41	0.09	0.26	1.76	15	7.91
DRAINAGE	1.80	0.11	0.21	2.12	1.38	0.08	0.16	1.63	10	7.31
LOW COST SANITATION	1.46	0.09	0.17	1.71	1.12	0.07	0.13	1.32	10	5.93
SOLID WASTE	1.02	0.07	0.29	1.38	0.78	0.05	0.22	1.06	21	4.77
MAINTENANCE	0.58	0.04	0.21	0.83	0.45	0.03	0.16	0.64	25	2.87
TRAFFIC ENG. & MANAGEMENT	1.04	0.06	0.12	1.22	0.80	0.05	0.09	0.94	10	4.22
TOTAL BASE COSTS	23.97	1.43	3.52	28.92	18.44	1.10	2.71	22.24	12	100.0%
PHYSICAL CONT-INGENCIES	1.90	0.11	0.28	2.30	1.47	0.09	0.22	1.77	12	7.95
DESIGN,SUPER-VISION & MANAGEMENT	2.80	0.17	0.41	3.38	2.15	0.13	0.32	2.60	12	11.69
PRICE CONT-INGENCIES	7.97	0.48	1.17	9.63	6.13	0.37	0.90	7.41	12	33.29
TOTAL PROJECT COSTS	36.65	2.19	5.38	44.22	28.19	1.69	4.14	34.02	12	

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Summary Cost(Agra)

	Rupees Crores)				US$(Million)				% foreign exchange	% total base cost
	Local	Taxes	Foreign	Total	Local	Taxes	Foreign	Total		
SECTOR MGT, T.A. & TRG.	0.57	0.00	0.00	0.57	0.44	0.00	0.00	0.44	0	2.31
SITES & SERVICES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
SLUM UP-GRADING	1.86	0.11	0.22	2.19	1.43	0.08	0.17	1.69	10	8.92
AREA DEV-ELOPMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
WATER SUPPLY	9.55	0.67	3.17	13.39	7.35	0.51	2.44	10.30	24	54.52
SEWERAGE	1.37	0.09	0.25	1.71	1.06	0.07	0.19	1.31	15	6.95
DRAINAGE	1.11	0.07	0.13	1.30	0.85	0.05	0.10	1.00	10	5.29
LOW COST SANITATION	0.91	0.05	0.11	1.07	0.70	0.04	0.08	0.82	10	4.37
SOLID WASTE	0.53	0.04	0.17	0.75	0.41	0.03	0.13	0.57	23	3.04
MAINTENANCE	0.92	0.06	0.25	1.24	0.71	0.05	0.20	0.95	21	5.05
TRAFFIC ENG. & MANAGEMENT	1.99	0.12	0.23	2.34	1.53	0.09	0.18	1.80	10	9.55
										0.00
TOTAL BASE COSTS	18.82	1.20	4.54	24.56	14.48	0.92	3.49	18.89	18	100.0%
PHYSICAL CONT-INGENCIES	1.74	0.11	0.43	2.28	1.34	0.09	0.33	1.75	19	9.27
DESIGN,SUPER-VISION & MANAGEMENT	2.24	0.15	0.55	2.93	1.72	0.11	0.42	2.26	19	11.94
PRICE CONT-INGENCIES	6.27	0.41	1.54	8.23	4.83	0.32	1.19	6.33	19	33.50
TOTAL PROJECT COSTS	29.07	1.87	7.06	38.00	22.36	1.44	5.43	29.23	19	

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Summary Cost(Varanasi)

	Rupees Crores)				US$(Million)				% foreign exchange	% total base cost
	Local	Taxes	Foreign	Total	Local	Taxes	Foreign	Total		
SECTOR MGT, T.A. & TRG.	0.05	0.00	0.00	0.05	0.04	0.00	0.00	0.04	0	0.37
SITES & SERVICES	0.45	0.03	0.04	0.52	0.34	0.02	0.03	0.40	9	3.60
SLUM UP-GRADING	0.69	0.04	0.08	0.81	0.53	0.03	0.06	0.62	10	5.65
AREA DEV-ELOPMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
WATER SUPPLY	7.01	0.44	1.31	8.76	5.39	0.34	1.01	6.74	15	61.14
SEWERAGE	0.87	0.05	0.16	1.09	0.67	0.04	0.13	0.84	15	7.61
DRAINAGE	1.29	0.08	0.15	1.52	0.99	0.06	0.12	1.17	10	10.59
LOW COST SANITATION	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
SOLID WASTE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
MAINTENANCE	0.48	0.03	0.14	0.65	0.37	0.03	0.11	0.50	22	4.55
TRAFFIC ENG. & MANAGEMENT	0.79	0.05	0.09	0.93	0.61	0.04	0.07	0.71	10	6.49
TOTAL BASE COSTS	11.62	0.71	1.99	14.32	8.94	0.55	1.53	11.02	14	100.0%
PHYSICAL CONT-INGENCIES	1.03	0.06	0.17	1.26	0.79	0.05	0.13	0.97	14	8.83
DESIGN,SUPER-VISION & MANAGEMENT	1.60	0.10	0.27	1.97	1.23	0.08	0.21	1.51	14	13.75
PRICE CONT-INGENCIES	4.01	0.25	0.68	4.94	3.08	0.19	0.52	3.80	14	34.48
TOTAL PROJECT COSTS	18.25	1.12	3.12	22.50	14.04	0.86	2.40	17.30	14	

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Summary Cost(Allahabad)

	Rupees Crores)				US$(Million)				% foreign exchange	% total base cost
	Local	Taxes	Foreign	Total	Local	Taxes	Foreign	Total		
SECTOR MGT. T.A. & TRG.	0.23	.00	0.00	0.24	0.18	.00	0.00	0.18	0	1.63
SITES & SERVICES	1.24	0.07	0.13	1.44	0.95	0.06	0.10	1.11	9	9.98
SLUM UP-GRADING	1.40	0.08	0.17	1.65	1.08	0.06	0.13	1.27	10	11.41
AREA DEV-ELOPMENT	0.63	0.04	0.07	0.74	0.49	0.03	0.06	0.57	10	5.14
WATER SUPPLY	3.81	0.24	0.69	4.75	2.93	0.18	0.53	3.65	15	32.82
SEWERAGE	1.13	0.07	0.21	1.42	0.87	0.05	0.16	1.09	15	9.79
DRAINAGE	0.71	0.04	0.08	0.83	0.54	0.03	0.06	0.64	10	5.76
LOW COST SANITATION	0.80	0.05	0.09	0.94	0.62	0.04	0.07	0.73	10	6.52
SOLID WASTE	0.61	0.04	0.20	0.85	0.47	0.03	0.15	0.66	23	5.90
MAINTENANCE	0.66	0.05	0.21	0.91	0.51	0.04	0.16	0.70	23	6.32
TRAFFIC ENG. & MANAGEMENT	0.58	0.03	0.07	0.68	0.45	0.03	0.05	0.53	10	4.72
TOTAL BASE COSTS	11.81	0.71	1.93	14.46	9.09	0.55	1.49	11.12	13	100.0%
PHYSICAL CONT-INGENCIES	0.99	0.06	0.16	1.21	0.76	0.05	0.12	0.93	13	8.37
DESIGN,SUPER-VISION & MANAGEMENT	1.41	0.09	0.23	1.73	1.09	0.07	0.18	1.33	13	11.97
PRICE CONT-INGENCIES	3.95	0.24	0.65	4.84	3.04	0.19	0.50	3.73	13	33.49
TOTAL PROJECT COSTS	18.17	1.10	2.97	22.24	13.98	0.85	2.28	17.11	13	

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Summary Cost(Lucknow)

	Rupees Crores)				US$(Million)				% foreign exchange	% total base cost
	Local	Taxes	Foreign	Total	Local	Taxes	Foreign	Total		
SECTOR MGT, T.A. & TRG.	0.39	0.00	0.00	0.39	0.30	0.00	0.00	0.30	0	1.59
SITES & SERVICES	4.28	0.25	0.42	4.95	3.30	0.19	3.32	3.81	8	20.35
SLUM UP-GRADING	0.79	0.05	0.09	0.93	0.61	0.04	0.07	0.71	10	3.81
AREA DEV-ELOPMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
WATER SUPPLY	4.84	0.34	1.57	6.75	3.73	0.26	1.21	5.20	23	27.77
SEWERAGE	1.01	0.06	0.19	1.26	0.78	0.05	0.15	0.97	15	5.19
DRAINAGE	3.46	0.20	0.41	4.07	2.66	0.16	0.31	3.13	10	16.73
LOW COST SANITATION	0.35	0.02	0.04	0.42	0.27	0.02	0.03	0.32	10	1.71
SOLID WASTE	1.09	0.07	0.33	1.49	0.84	0.06	0.25	1.15	22	6.13
MAINTENANCE	2.09	0.14	0.58	2.81	1.61	0.11	0.44	2.16	21	11.54
TRAFFIC ENG. & MANAGEMENT	1.07	0.06	0.13	1.26	0.82	0.05	0.10	0.97	10	5.18
TOTAL BASE COSTS	19.37	1.20	3.75	24.32	14.90	0.92	2.89	18.71	15	100.0%
PHYSICAL CONT-INGENCIES	1.69	0.11	0.33	2.12	1.30	0.08	0.25	1.63	15	8.74
DESIGN,SUPER-VISION & MANAGEMENT	2.36	0.15	0.46	2.97	1.82	0.11	0.35	2.28	15	12.20
PRICE CONT-INGENCIES	6.52	0.41	1.27	8.20	5.02	0.32	0.98	6.31	15	33.72
TOTAL PROJECT COSTS	29.95	1.86	5.81	37.61	23.04	1.43	4.47	28.93	15	

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Summary Cost(Bareilly)

	Rupees Crores)				US$(Million)				% foreign exchange	% total base cost
	Local	Taxes	Foreign	Total	Local	Taxes	Foreign	Total		
SECTOR MGT, T.A. & TRG.	0.10	0.00	0.00	0.10	0.08	0.00	0.00	0.08	0	0.99
SITES & SERVICES	0.73	0.04	0.06	0.83	0.56	0.03	0.05	0.64	8	8.16
SLUM UP-GRADING	1.03	0.06	0.12	1.21	0.79	0.05	0.09	0.93	10	11.80
AREA DEV-ELOPMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
WATER SUPPLY	1.65	0.10	0.30	2.04	1.27	0.08	0.23	1.57	14	19.97
SEWERAGE	0.49	0.03	0.09	0.61	0.37	0.02	0.07	0.47	15	5.92
DRAINAGE	2.86	0.17	0.34	3.36	2.20	0.13	0.26	2.59	10	32.87
LOW COST SANITATION	0.73	0.04	0.09	0.86	0.56	0.03	0.07	0.66	10	8.42
SOLID WASTE	0.61	0.04	0.21	0.86	0.47	0.03	0.16	0.66	24	8.41
MAINTENANCE	0.26	0.02	0.07	0.35	0.20	0.01	0.06	0.27	21	3.47
TRAFFIC ENG. & MANAGEMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
TOTAL BASE COSTS	8.45	0.51	1.27	10.23	6.50	0.39	0.98	7.87	12	100.0%
PHYSICAL CONT-INGENCIES	0.85	0.05	0.13	1.03	0.65	0.04	0.10	0.79	12	10.05
DESIGN,SUPER-VISION & MANAGEMENT	1.09	0.07	0.16	1.31	0.84	0.05	0.12	1.01	12	12.84
PRICE CONT-INGENCIES	2.90	0.18	0.43	3.51	2.23	0.13	0.33	2.70	12	34.29
TOTAL PROJECT COSTS	13.29	0.80	1.99	16.08	10.23	0.61	1.53	12.37	12	

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Summary Cost(Moradabad)

	Rupees Crores)				US$(Million)				% foreign exchange	% total base cost
	Local	Taxes	Foreign	Total	Local	Taxes	Foreign	Total		
SECTOR MGT, T.A. & TRG.	0.06	0.00	0.00	0.06	0.05	0.00	0.00	0.05	0	0.80
SITES & SERVICES	1.17	0.07	0.08	1.32	0.90	0.05	0.06	1.01	6	17.36
SLUM UP-GRADING	0.33	0.02	0.04	0.39	0.26	0.02	0.03	0.30	10	5.18
AREA DEV-ELOPMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
WATER SUPPLY	1.17	0.07	0.21	1.46	0.90	0.06	0.16	1.12	15	19.26
SEWERAGE	0.10	0.01	0.02	0.13	0.08	.00	0.01	0.10	15	1.68
DRAINAGE	2.18	0.13	0.26	2.56	1.67	0.10	0.20	1.97	10	33.75
LOW COST SANITATION	0.79	0.05	0.09	0.93	0.61	0.04	0.07	0.71	10	12.24
SOLID WASTE	0.43	0.03	0.14	0.61	0.33	0.02	0.11	0.47	24	8.00
MAINTENANCE	0.09	0.01	0.03	0.13	0.07	0.01	0.03	0.10	25	1.73
TRAFFIC ENG. & MANAGEMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
TOTAL BASE COSTS	6.34	0.38	0.87	7.59	4.87	0.29	0.67	5.84	12	100.0%
PHYSICAL CONT-INGENCIES	0.55	0.03	0.07	0.65	0.42	0.03	0.06	0.50	11	8.62
DESIGN,SUPER-VISION & MANAGEMENT	0.74	0.04	0.10	0.89	0.57	0.03	0.08	0.68	11	11.68
PRICE CONT-INGENCIES	2.13	0.13	0.29	2.55	1.64	0.10	0.22	1.96	11	33.61
TOTAL PROJECT COSTS	9.76	0.58	1.34	11.68	7.51	0.45	1.03	8.98	11	

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Summary Cost(Gorakhpur)

	Rupees Crores)				US$(Million)				% foreign exchange	% total base cost
	Local	Taxes	Foreign	Total	Local	Taxes	Foreign	Total		
SECTOR MGT, T.A. & TRG.	0.05	0.00	0.00	0.05	0.04	0.00	0.00	0.04	0	0.84
SITES & SERVICES	1.62	0.09	0.16	1.87	1.24	0.07	0.12	1.44	8	29.45
SLUM UP-GRADING	0.65	0.04	0.08	0.76	0.50	0.03	0.06	0.59	10	12.04
AREA DEV-ELOPMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
WATER SUPPLY	1.00	0.06	0.18	1.24	0.77	0.05	0.14	0.95	15	19.54
SEWERAGE	0.13	0.01	0.02	0.17	0.10	0.01	0.02	0.13	15	2.61
DRAINAGE	0.44	0.03	0.05	0.51	0.33	0.02	0.04	0.39	10	8.08
LOW COST SANITATION	0.20	0.01	0.02	0.24	0.16	0.01	0.02	0.18	10	3.78
SOLID WASTE	0.97	0.06	0.18	1.21	0.75	0.05	0.14	0.93	15	19.01
MAINTENANCE	0.21	0.01	0.07	0.29	0.16	0.01	0.06	0.23	25	4.64
TRAFFIC ENG. & MANAGEMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
TOTAL BASE COSTS	5.26	0.31	0.76	6.34	4.05	0.24	0.59	4.88	12	100.0%
PHYSICAL CONT-INGENCIES	0.51	0.03	0.07	0.61	0.39	0.02	0.06	0.47	12	9.63
DESIGN,SUPER-VISION & MANAGEMENT	0.68	0.04	0.10	0.82	0.52	0.03	0.08	0.63	12	12.95
PRICE CONT-INGENCIES	1.80	0.11	0.26	2.17	1.39	0.08	0.20	1.67	12	34.24
TOTAL PROJECT COSTS	8.25	0.49	1.19	9.94	6.35	0.38	0.92	7.65	12	

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Summary Cost(Aligarh)

	Rupees Crores)				US$(Million)				% foreign exchange	% total base cost
	Local	Taxes	Foreign	Total	Local	Taxes	Foreign	Total		
SECTOR MGT, T.A. & TRG.	0.14	0.30	0.00	0.14	0.11	0.00	0.00	0.11	0	2.47
SITES & SERVICES	0.70	0.04	0.06	0.81	0.54	0.03	0.05	0.62	8	13.93
SLUM UP-GRADING	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
AREA DEV-ELOPMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
WATER SUPPLY	2.20	0.14	0.40	2.74	1.70	0.11	0.31	2.11	15	47.40
SEWERAGE	0.82	0.05	0.15	1.02	0.63	0.04	0.11	0.78	15	17.62
DRAINAGE	0.38	0.02	0.05	0.45	0.29	0.02	0.03	0.35	10	7.78
LOW COST SANITATION	0.25	0.01	0.03	0.29	0.19	0.01	0.02	0.22	10	4.99
SOLID WASTE	0.24	0.02	0.07	0.34	0.19	0.01	0.06	0.26	22	5.81
MAINTENANCE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
TRAFFIC ENG. & MANAGEMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
TOTAL BASE COSTS	4.74	0.28	0.76	5.79	3.65	0.22	0.59	4.45	13	100.0%
PHYSICAL CONT-INGENCIES	0.42	0.03	0.07	0.52	0.33	0.02	0.05	0.40	13	8.98
DESIGN,SUPER-VISION & MANAGEMENT	0.55	0.03	0.09	0.68	0.42	0.03	0.07	0.52	13	11.68
PRICE CONT-INGENCIES	1.57	0.10	0.26	1.92	1.21	0.07	0.20	1.48	13	33.24
TOTAL PROJECT COSTS	7.29	0.44	1.18	8.91	5.60	0.34	0.91	6.85	13	

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Summary Cost(Saharanpur)

	Rupees Crores)				US$(Million)				% foreign exchange	% total base cost
	Local	Taxes	Foreign	Total	Local	Taxes	Foreign	Total		
SECTOR MGT, T.A. & TRG.	0.16	0.00	0.00	0.16	0.12	0.00	0.00	0.12	0	2.57
SITES & SERVICES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
SLUM UP-GRADING	0.22	0.01	0.03	0.26	0.17	0.01	0.02	0.20	10	4.27
AREA DEV-ELOPMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
WATER SUPPLY	1.88	0.12	0.34	2.34	1.45	0.09	0.26	1.80	15	38.06
SEWERAGE	1.45	0.09	0.26	1.80	1.11	0.07	0.20	1.39	15	29.33
DRAINAGE	1.01	0.06	0.12	1.18	0.77	0.05	0.09	0.91	10	19.28
LOW COST SANITATION	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
SOLID WASTE	0.18	0.01	0.06	0.24	0.14	0.01	0.04	0.19	23	3.98
MAINTENANCE	0.11	0.01	0.04	0.15	0.08	0.01	0.03	0.12	25	2.51
TRAFFIC ENG. & MANAGEMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
TOTAL BASE COSTS	5.00	0.30	0.84	6.14	3.85	0.23	0.65	4.73	14	100.0%
PHYSICAL CONT-INGENCIES	0.47	0.03	0.08	0.57	0.36	0.02	0.06	0.44	14	9.35
DESIGN,SUPER-VISION & MANAGEMENT	0.57	0.04	0.10	0.70	0.44	0.03	0.08	0.54	14	11.41
PRICE CONT-INGENCIES	1.66	0.10	0.28	2.04	1.27	0.08	0.22	1.57	14	33.25
TOTAL PROJECT COSTS	7.69	0.47	1.31	9.46	5.92	0.36	1.01	7.28	14	

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Summary Cost(Ghaziabad)

	Rupees Crores)				US$(Million)				% foreign exchange	% total base cost
	Local	Taxes	Foreign	Total	Local	Taxes	Foreign	Total		
SECTOR MGT, T.A. & TRG.	0.24	0.00	0.00	0.24	0.18	0.00	0.00	0.18	0	2.67
SITES & SERVICES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
SLUM UP-GRADING	1.12	0.07	0.13	1.31	0.86	0.05	0.10	1.01	10	14.62
AREA DEV-ELOPMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
WATER SUPPLY	3.54	0.22	0.65	4.41	2.73	0.17	0.50	3.39	15	49.14
SEWERAGE	1.52	0.09	0.28	1.90	1.17	0.07	0.21	1.46	15	21.11
DRAINAGE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
LOW COST SANITATION	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
SOLID WASTE	0.79	0.06	0.27	1.12	0.61	0.04	0.21	0.86	24	12.46
MAINTENANCE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
TRAFFIC ENG. & MANAGEMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
TOTAL BASE COSTS	7.22	0.44	1.32	8.98	5.55	0.34	1.02	6.91	15	100.0%
PHYSICAL CONT-INGENCIES	0.60	0.04	0.11	0.75	0.46	0.03	0.09	0.57	15	8.32
DESIGN,SUPER-VISION & MANAGEMENT	0.75	0.05	0.14	0.93	0.57	0.04	0.11	0.72	15	10.37
PRICE CONT-INGENCIES	2.35	0.15	0.44	2.93	1.80	0.11	0.34	2.25	15	32.63
TOTAL PROJECT COSTS	10.91	0.67	2.01	13.58	8.39	0.51	1.55	10.45	15	

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Summary Cost(Shaktinagar)

	Rupees Crores)				US$(Million)				% foreign exchange	% total base cost
	Local	Taxes	Foreign	Total	Local	Taxes	Foreign	Total		
SECTOR MGT, T.A. & TRG.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
SITES & SERVICES	0.27	0.02	0.03	0.32	0.21	0.01	0.02	0.24	9	16.53
SLUM UP-GRADING	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
AREA DEV-ELOPMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
WATER SUPPLY	0.60	0.04	0.11	0.75	0.46	0.03	0.09	0.58	15	39.27
SEWERAGE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
DRAINAGE	0.38	0.02	0.04	0.44	0.29	0.02	0.03	0.34	10	23.16
LOW COST SANITATION	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
SOLID WASTE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
MAINTENANCE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
TRAFFIC ENG. & MANAGEMENT	0.34	0.02	0.04	0.40	0.26	0.02	0.03	0.31	10	21.04
TOTAL BASE COSTS	1.59	0.10	0.22	1.91	1.22	0.07	0.17	1.47	12	100.00
PHYSICAL CONT-INGENCIES	0.17	0.01	0.02	0.21	0.13	0.01	0.02	0.16	12	10.94
DESIGN,SUPER-VISION & MANAGEMENT	0.26	0.02	0.04	0.31	0.20	0.01	0.03	0.24	12	16.35
PRICE CONT-INGENCIES	0.57	0.03	0.08	0.68	0.44	0.03	0.06	0.52	12	35.80
TOTAL PROJECT COSTS	2.59	0.16	0.37	3.11	1.99	0.12	0.28	2.39	12	

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Summary Cost(Group D:20 Towns)

	Rupees Crores)				US$(Million)				% foreign exchange	% total base cost
	Local	Taxes	Foreign	Total	Local	Taxes	Foreign	Total		
SECTOR MGT, T.A. & TRG.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
SITES & SERVICES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
SLUM UP-GRADING	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
AREA DEV-ELOPMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
WATER SUPPLY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
SEWERAGE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
DRAINAGE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
LOW COST SANITATION	2.03	0.12	0.24	2.39	1.56	0.09	0.18	1.83	10	100.00
SOLID WASTE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
MAINTENANCE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
TRAFFIC E G. & MANAGEMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
TOTAL BASE COSTS	2.03	0.12	0.24	2.39	1.56	0.09	0.18	1.83	10	100.0%
PHYSICAL CONT-INGENCIES	0.20	0.01	0.02	0.24	0.16	0.01	0.02	0.18	10	10.00
DESIGN,SUPER-VISION & MANAGEMENT	0.33	0.02	0.04	0.39	0.26	0.02	0.03	0.30	10	16.50
PRICE CONT-INGENCIES	0.72	0.04	0.08	0.85	0.55	0.03	0.07	0.65	10	35.50
TOTAL PROJECT COSTS	3.29	0.19	0.39	3.87	2.53	0.15	0.30	2.97	10	

ANNEX 7

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

PROPOSED FUNDS USAGE BY GOUP AND GPD
(Rs. Lakhs)

City	1986/87	1987/88	1988/89	1989/90	1990/91	Total
A. Kanpur	153.00	714.10	1,247.83	1,105.08	943.27	4,163.28
Agra	274.89	1,066.91	1,126.50	704.70	272.86	3,445.86
Varanasi	132.07	495.70	810.76	582.80	22.65	2,043.98
Allahabad	195.30	604.92	620.07	357.66	241.19	2,019.14
Lucknow	298.37	806.57	1,026.26	717.15	618.14	3,466.49
B. Bareilly	169.58	446.85	412.63	271.00	153.12	1,453.18
Moradabad	172.61	261.30	312.83	215.81	88.45	1,051.00
Gorakhpur	126.41	221.56	232.30	193.06	132.34	905.67
Aligarh	107.91	254.30	258.66	139.63	35.96	796.46
Saharanpur	71.57	200.49	264.01	182.57	155.14	873.78
Ghaziabad	179.52	363.21	362.66	209.59	105.85	1,220.83
Total (A & B)	1,881.23	5,435.91	6,674.51	4,679.05	2,768.97	21,439.67
Group-C	-	-	112.19	122.47	65.34	300.00
Group-D	62.93	66.97	69.97	74.80	80.33	355.00
Sect Mgt. T.A. & Training	53.63	95.82	104.04	101.92	99.92	455.33
TOTAL GOUP	1,997.79	5,598.70	6,960.71	4,978.24	3,014.56	22,550.00
GPD Component	354.90	1,399.86	1,961.92	2,060.32	-	5,777.00
GRAND TOTAL	2,352.69	6,998.56	8,922.63	7,038.56	3,014.56	28,327.00

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Salient Data and Service Levels (Water Supply)

Group A

Kanpur Jal Sansthan

Items	1986/7	1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4	1996/7	2001/2
1 Population (000s)	1796	1856	1917	1977	2038	2098	2191	2284	2562	3026
2 Population served	1436	1489	1541	1594	1646	1699	1775	1860	2101	2511
2.01 By connections (000s)	1077	1114	1150	1186	1223	1259	1335	1411	1640	1997
% of total population	60	60	61	61	62	62	62	63	64	66
Average No. per connection										
2.02 By Standpost (000s)	359	367	375	383	391	399	411	424	461	514
% of total population	20	20	20	19	19	19	19	19	18	17
Average No. per connection		646	1292	1939	2585	3231	3285	3339	3500	3825
2.03 By other means (000s)	359	367	375	383	391	399	411	424	461	514
% of total population	20	20	20	19	19	19	19	19	18	17
3 Connections/Standposts										
3.01 Domestic										
Metered	38789	42481	46173	49866	53558	57250	59715	62180	69575	84500
Unmetered	9503	8202	6902	5601	4301	3000	2400	1800	0	0
Total	48292	50684	53075	55467	57858	60250	62115	63980	69575	84500
3.02 Commertial (metered)	3416	3448	3480	3511	3543	3575	3600	3625	3700	3900
3.03 Industrial (metered)	158	161	165	168	172	175	185	195	225	300
3.04 Total Connections (Nos.)	51866	53693	55520	57346	59173	61000	63500	66000	73500	88500
3.05 Standposts (Nos.)	2803	2889	2974	3060	3145	3231	3285	3339	3500	3825
4 Water Demand (Max/day lcd)										
4.01 Domestic	270	270	270	270	270	270	270	270	270	270
4.02 Standposts	270	270	270	270	270	270	270	270	270	270
5 Water Demand (M3/day)										
5.01 Domestic Consumption	291096	303420	315745	328069	340394	352718	369614	386510	437198	542784
5.02 Standpost Consumption	97032	99244	101456	103667	105879	108091	111065	114039	122961	139808
5.03 Commertial Consumption	48516	51897	55279	58660	62042	65423	68733	72044	81975	102800
5.04 Industrial Consumption	8400	8500	8600	8700	8800	8900	9020	9140	9500	10000
5.05 Others	9703	9469	9235	9002	8768	8534	8193	7853	6831	8224
5.06 % of Demand Unaccounted for	8	8	7	7	6	6	6	6	5	4
5.07 Total Demand (M3/day	493560	510408	527256	544104	560952	577800	600764	623729	692622	832400
6 Water Production Cap. (M3/day)										
6.01 Surface Water	180000	202000	224000	246000	268000	290000	290000	290000	290000	290000
6.02 Groundwater	60000	60000	60000	60000	60000	60000	60000	60000	60000	60000
No. of Tubewells	44	44	44	44	44	44	44	44	44	44
6.03 Total	240000	262000	284000	306000	328000	350000	350000	350000	350000	350000
7 Water Supply Systen										
7.01 Storage Reservoirs (Nos.)	30	30	30	30	30	30	30	30	30	30
Capacity (M3)	116860	117000	117140	117280	117420	117560	117560	117560	117560	117560
7.02 Transmission Mains (Km)	44	49	54	59	64	69	69	69	69	69
7.03 Distribution Mains (Km)	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Salient Data and Service Levels (Water Supply)

Group A

Agra Jal Sansthan

Items	1986/7	1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4	1996/7	2001/2
1 Population (000s)	845	866	887	908	929	950	980	1010	1100	1300
2 Population served	760	778	796	814	832	850	870	890	950	1150
2.01 By connections (000s)	494	506	518	529	541	553	566	578	616	748
% of total population	65	65	65	65	65	65	65	65	65	65
Average No. per connection										
2.02 By Standpost (000s)	190	186	182	178	174	170	165	159	143	173
% of total population	25	24	23	22	21	20	19	18	15	15
Average No. per connection										
2.03 By other means (000s)	38	47	57	66	76	85	96	108	142	172
% of total population	5	6	7	8	9	10	11	12	15	15
3 Connections/Standposts										
3.01 Domestic										
Metered	46400	49620	52840	56060	59280	62500	65360	68220	76800	93900
Unmetered	3400	3120	2840	2560	2280	2000	1680	1200	0	0
Total	49800	52740	55680	58620	61560	64500	66960	69420	76800	93900
3.02 Commertial (metered)	5000	5040	5080	5120	5160	5200	5240	5280	5400	5600
3.03 Industrial (metered)	200	220	240	260	280	300	320	340	400	500
3.04 Total Connections (Nos.)	55000	58000	61000	64000	67000	70000	73000	76000	85000	100000
3.05 Standposts (Nos.)	1800	1480	1160	840	520	200	200	200	200	200
4 Water Demand (Max/day lcd)										
4.01 Domestic	146	155	164	173	182	191	191	191	191	191
4.02 Standposts	56	56	56	56	56	56	56	56	56	56
5 Water Demand (M3/day)										
5.01 Domestic Consumption	55500	58600	61700	64800	67900	71000	91000	111000	171000	171000
5.02 Standpost Consumption	33300	31240	29180	27120	25060	23000	20700	18400	11500	11500
5.03 Commertial Consumption	22200	29560	36920	44280	51640	59000	79100	99200	159500	159500
5.04 Industrial Consumption										
5.05 Others										
5.06 % of Demand Unaccounted for	35	31	27	23	19	15	14	13	10	10
5.07 Total Demand (M3/day	171000	172800	174600	176400	178200	180000	220000	260000	380000	380000
6 Water Production Cap. (M3/day)										
6.01 Surface Water	180000	180000	180000	180000	180000	180000	220000	260000	380000	380000
6.02 Groundwater	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
No. of Tubewells	3	3	3	3	3	3	2	2	0	0
6.03 Total	181000	181000	181000	181000	181000	181000	221000	261000	381000	381000
7 Water Supply System										
7.01 Storage Reservoirs (Nos.)	11	11	11	12	12	12	12	12	12	12
Capacity (M3)	47910	48110	48310	48510	48710	48910	48910	48910	48910	48910
7.02 Transmission Mains (Km)	30	48	66	84	102	120	124	128	140	140
7.03 Distribution Mains (Km)	600	640	680	720	760	800	840	880	1000	1200

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Salient Data and Service Levels (Water Supply)

Group A

Varanasi Jal Sansthan

Items	1986/7	1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4	1996/7	2001/2
1 Population (000s)	860	878	896	914	932	950	970	990	1050	1175
2 Population served	700	720	740	760	780	800	830	860	950	1100
2.01 By connections (000s)	430	458	486	514	542	570	603	636	735	940
% of total population	50	52	54	56	58	60	62	64	70	80
Average No. per connection	9	9	9	9	9	9	8	8	8	8
2.02 By Standpost (000s)	270	262	254	246	238	230	227	224	215	160
% of total population	31	30	28	27	25	24	23	23	21	14
Average No. per connection										
2.03 By other means (000s)	160	158	156	154	152	150	140	130	100	75
% of total population	19	18	18	17	17	16	15	14	10	6
3 Connections/Standposts										
3.01 Domestic										
Metered	31300	35540	39780	44020	48260	52500	57860	63220	79300	114500
Unmetered	16500	16100	15700	15300	14900	14500	14100	13700	12500	10500
Total	47600	51480	55360	59240	63120	67000	71960	76920	91800	12500
3.02 Commertial (metered)	8800	9300	9800	10300	10800	11300	11800	12300	13800	16300
3.03 Industrial (metered)										
3.04 Total Connections (Nos.)	56400	60780	65160	69540	73920	78300	83760	89220	105600	144300
3.05 Standposts (Nos.)	1380	1388	1396	1404	1412	1420	1430	1440	1470	1520
4 Water Demand (Max/day lcd)										
4.01 Domestic	180	198	216	234	252	270	270	270	270	270
4.02 Standposts	25	25	25	25	25	25	25	25	25	25
5 Water Demand (M3/day)										
5.01 Domestic Consumption	77400	92700	108000	123300	138600	153900	162810	171720	198450	253800
5.02 Standpost Consumption	6750	6550	6350	6150	5950	5750	5675	5600	5375	4000
5.03 Commertial Consumption	12050	14550	16250	17950	19650	21350	70430	119510	266750	28200
5.04 Industrial Consumption										
5.05 Others	8000	8400	8800	9200	9600	10000	10400	10800	12000	12000
5.06 % of Demand Unaccounted for	41	40	38	37	35	34	33	31	27	20
5.07 Total Demand (M3/day	170000	194000	218000	242000	266000	290000	298000	306000	330000	374000
6 Water Production Cap. (M3/day)										
6.01 Surface Water	80000	110000	140000	170000	200000	230000	234000	238000	250000	280000
6.02 Groundwater	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000
No. of Tubewells	60	60	60	60	60	60	60	60	60	60
6.03 Total	180000	210000	240000	270000	300000	330000	334000	338000	350000	380000
7 Water Supply System										
7.01 Storage Reservoirs (Nos.)	23	23	24	24	25	25	25	26	27	31
Capacity (M3)										
7.02 Transmission Mains (Km)	32	35	38	42	45	48	49	50	54	58
7.03 Distribution Mains (Km)	475	480	485	490	495	500	506	512	530	580

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Salient Data and Service Levels (Water Supply)

Group A

Allahabad Jal Sansthan

Items	1986/7	1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4	1996/7	2001/2
1 Population (000s)	822	839	856	874	891	908	927	946	1003	1107
2 Population served	716	729	742	754	767	780	802	824	890	1000
2.01 By connections (000s)	495	512	529	546	563	580	600	620	680	780
% of total population	60	61	62	62	63	64	65	66	68	71
Average No. per connection	10	10	10	10	10	10	10	10	10	10
2.02 By Standpost (000s)	190	192	194	196	198	200	202	204	210	220
% of total population	23	23	23	22	22	22	22	22	21	20
Average No. per connection	100	100	100	100	100	100	100	100	100	100
2.03 By other means (000s)	137	135	133	132	130	128	125	122	113	107
% of total population	17	16	16	15	15	14	13	13	11	10
3 Connections/Standposts										
3.01 Domestic										
Metered	35000	39200	43400	47600	51800	56000	58400	60800	68000	78000
Unmetered	12000	10000	8000	6000	4000	2000	1600	1200	0	0
Total	47000	49200	51400	53600	55800	58000	60000	62000	68000	78000
3.02 Commertial (metered)	2500	2600	2700	2800	2900	3000	3100	3200	3500	4000
3.03 Industrial (metered)										
3.04 Total Connections (Nos.)	49500	51800	54100	56400	58700	61000	63100	65200	71500	82000
3.05 Standposts (Nos.)	1900	1920	1940	1960	1980	2000	2020	2040	2100	2200
4 Water Demand (Max/day lcd)										
4.01 Domestic	150	150	150	150	150	150	150	150	150	150
4.02 Standposts	100	100	100	100	100	100	100	100	100	100
5 Water Demand (M3/day)										
5.01 Domestic Consumption	70500	73200	75900	78600	81300	84000	87600	91200	102000	117000
5.02 Standpost Consumption	28500	28800	29100	29400	29700	30000	30300	30600	31500	33000
5.03 Commertial Consumption	25000	26000	27000	28000	29000	30000	31000	32000	35000	40000
5.04 Industrial Consumption										
5.05 Others	5000	5000	5000	5000	5000	5000	5200	5400	6000	7000
5.06 % of Demand Unaccounted for	30	29	28	28	27	26	26	25	24	21
5.07 Total Demand (M3/day	185000	188000	191000	194000	197000	200000	206000	212000	230000	250000
6 Water Production Cap. (M3/day)										
6.01 Surface Water	70000	73000	76000	79000	82000	85000	85000	85000	85000	85000
6.02 Groundwater	110000	116000	122000	128000	134000	140000	141000	142000	145000	165000
No. of Tubewells	54	56	59	61	64	66	66	67	68	76
6.03 Total	180000	189000	198000	207000	216000	225000	226000	227000	230000	250000
7 Water Supply Systen										
7.01 Storage Reservoirs (Nos.)	14	15	16	16	17	18	18	18	18	18
Capacity (M3)	287625	304125	320625	337125	353625	370125	370125	370125	370125	370125
7.02 Transmission Mains (Km)	450	465	480	495	510	525	530	535	550	600
7.03 Distribution Mains (Km)	0	0	0	0	0	0	0	0	0	0

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Salient Data and Service Levels (Water Supply)

Group A

Lucknow Jal Sansthan

Items	1986/7	1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4	1996/7	2001/2
1 Population (000s)	1271	1321	1371	1421	1471	1521	1592	1664	1878	2306
2 Population served	1016	1071	1126	1182	1237	1292	1372	1451	1690	2190
2.0 By connections (000s)	716	781	846	912	977	1042	1127	1211	1465	1990
% of total population	56	59	61	64	66	69	70	72	78	86
Average No. per connection										
2.02 By Standpost (000s)	300	290	280	270	260	250	245	240	225	200
% of total population	24	22	21	19	18	16	16	15	12	9
Average No. per connection										
2.03 By other means (000s)	255	250	245	239	234	229	221	213	188	116
% of total population	20	19	18	17	16	15	14	13	10	5
3 Connections/Standposts										
3.01 Domestic										
Metered	51901	58964	66026	73089	80151	87214	92214	97214	112214	142214
Unmetered	15313	14250	13188	12125	11063	10000	8000	6000	0	0
Total	67214	73214	79214	85214	91214	97214	100214	103214	112214	142214
3.02 Commertial (metered)	7136	7336	7536	7736	7936	8136	8336	8536	9136	11000
3.03 Industrial (metered)										
3.04 Total Connections (Nos.)	74350	80550	86750	92950	99150	105350	108550	111750	121350	153214
3.05 Standposts (Nos.)	2300	2300	2300	2300	2300	2300	2300	2300	2300	2300
4 Water Demand (Max/day led)										
4.01 Domestic	270	270	270	270	270	270	270	270	270	270
4.02 Standposts	25	25	25	25	25	25	25	25	25	25
5 Water Demand (M3/day)										
5.01 Domestic Consumption	193320	210924	228528	246132	263736	281340	304182	327024	395550	537300
5.02 Standpost Consumption	7500	7250	7000	6750	6500	6250	6125	6000	5625	5000
5.03 Commertial Consumption	14000	14400	14800	15200	15600	16000	16400	16800	18000	22000
5.04 Industrial Consumption										
5.05 Others										
5.06 % of Demand Unaccounted for	37	35	33	31	28	26	24	23	17	9
5.07 Total Demand (M3/day	343170	356670	370170	383670	397170	410670	429948	449226	507060	622620
6 Water Production Cap. (M3/day)										
6.01 Surface Water	171000	191000	211000	231000	251000	271000	311000	351000	471000	471000
6.02 Groundwater	110000	116000	122000	128000	134000	140000	141000	142000	145000	150000
No. of Tubewells	110	116	122	128	134	140	141	142	145	150
6.03 Total	281000	307000	333000	359000	385000	411000	452000	493000	616000	621000
7 Water Supply System										
7.01 Storage Reservoirs (Nos.)	31	31	31	31	31	31	33	35	41	46
Capacity (M3)										
7.02 Transmission Mains (Km)	80	82	84	86	88	90	91	92	95	100
7.03 Distribution Mains (Km)	720	726	732	738	744	750	755	760	775	800

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Salient Data and Service Levels (Water Supply)

Group B

Bareilly Nagar Mahapalika

Items	1986/7	1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4	1996/7	2001/2
1 Population (000s)	526	536	546	556	566	576	587	599	634	699
2 Population served	435	444	453	461	470	479	489	499	530	586
2.01 By connections (000s)	224	238	252	266	280	294	305	316	350	406
% of total population	43	45	46	48	49	51	52	53	55	58
Average No. per connection										
2.02 By Standpost (000s)	211	206	201	195	190	185	184	183	180	180
% of total population	40	38	37	35	34	32	31	30	28	26
Average No. per connection										
2.03 By other means (000s)	92	93	94	94	95	96	98	99	104	112
% of total population	17	17	17	17	17	17	17	17	16	33
3 Connections/Standposts										
3.01 Domestic										
Metered	27950	29820	31690	33560	35430	37300	38240	39180	42000	47100
Unmetered	50	40	30	20	10	0	0	0	0	0
Total	28000	29860	31720	33580	35440	37300	38240	39180	42000	47100
3.02 Commertial (metered)	3500	3600	3700	3800	3900	4000	4600	5200	7000	9500
3.03 Industrial (metered)	500	540	580	620	660	700	760	820	1000	1400
3.04 Total Connections (Nos.)	32000	34000	36000	38000	40000	42000	43600	45200	50000	58000
3.05 Standposts (Nos.)	412	412	412	412	412	412	412	412	412	412
4 Water Demand (Max/day lcd)										
4.01 Domestic	200	200	200	200	200	200	200	200	200	200
4.02 Standposts	100	100	100	100	100	100	100	100	100	100
5 Water Demand (M3/day)										
5.01 Domestic Consumption	39150	40120	41090	42060	43030	44000	44740	45480	47700	76000
5.02 Standpost Consumption	15660	16328	16996	17664	18332	19000	19600	20200	22000	35000
5.03 Commertial Consumption	4350	4440	4530	4620	4710	4800	4680	4560	4200	8900
5.04 Industrial Consumption	1740	1772	1804	1836	1868	1900	2160	2420	3200	5300
5.05 Others	8700	8500	8300	8100	7900	7700	8060	8420	9500	21200
5.06 % of Demand Unaccounted for	20	20	20	19	19	19	19	19	18	17
5.07 Total Demand (M3/day	87000	88760	90520	92280	94040	95800	97840	99880	106000	177000
6 Water Production Cap. (M3/day)										
6.01 Surface Water	0	0	0	0	0	0	0	0	0	0
6.02 Groundwater	56900	63620	70340	77060	83780	90500	91860	93220	97300	98400
No. of Tubewells	20	21	23	24	26	27	28	28	30	32
6.03 Total	56900	63620	70340	77060	83780	90500	91860	93220	97300	98400
7 Water Supply Systen										
7.01 Storage Reservoirs (Nos.)	13	14	15	16	17	18	18	18	19	20
Capacity (M3)	11200	13200	15200	17200	19200	21200	21660	22120	23500	27500
7.02 Transmission Mains (Km)	11	12	13	13	14	15	15	15	16	17
7.03 Distribution Mains (Km)	215	220	225	230	235	240	241	242	245	250

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UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Salient Data and Service Levels (Water Supply)

Group B

Moradabad Nagar Palika

Items	1986/7	1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4	1996/7	2001/2
1 Population (000s)	376	386	396	405	415	425	436	447	481	544
2 Population served	281	290	299	307	316	325	337	349	384	489
2.01 By connections (000s)	160	178	196	214	232	250	265	280	325	425
% of total population	43	46	49	53	56	59	61	63	68	78
Average No. per connection	10	10	10	10	10	10	9	9	7	8
2.02 By Standpost (000s)	121	112	103	93	84	75	72	69	59	55
% of total population	32	29	26	24	21	18	17	16	12	10
Average No. per connection										
2.03 By other means (000s)	95	96	97	98	99	100	99	99	97	119
% of total population	25	25	24	24	23	23	22	22	20	12
3 Connections/Standposts										
3.01 Domestic										
Metered	5685	5848	6011	6174	6337	6500	6900	7300	8500	9500
Unmetered	10205	10824	11443	12062	12681	13300	14900	16500	21300	30200
Total	15890	16672	17454	18236	19018	19800	21800	23800	29800	39700
3.02 Commertial (metered)	110	128	146	164	182	200	210	220	250	300
3.03 Industrial (metered)										
3.04 Total Connections (Nos.)	16000	16800	17600	18400	19200	20000	22000	24000	30000	40000
3.05 Standposts (Nos.)	519	520	521	523	524	525	526	527	530	540
4 Water Demand (Max/day lcd)										
4.01 Domestic	36000	37800	39600	41400	43200	45000	49500	54000	67500	90000
4.02 Standposts	27000	24160	21320	18480	15640	12800	11540	10280	6500	6700
5 Water Demand (M3/day)										
5.01 Domestic Consumption	36000	37800	39600	41400	43200	45000	49500	54000	67500	90000
5.02 Standpost Consumption	18100	16740	15380	14020	12660	11300	9980	8660	4700	4500
5.03 Commertial Consumption	825	960	1095	1230	1365	1500	1560	1620	1800	2300
5.04 Industrial Consumption										
5.05 Others										
5.06 % of Demand Unaccounted for	20	20	19	19	18	18	17	17	15	12
5.07 Total Demand (M3/day	55000	55560	56120	56680	57240	57800	61040	64280	74000	96700
6 Water Production Cap. (M3/day)										
6.01 Surface Water	0	0	0	0	0	0	0	0	0	0
6.02 Groundwater	41800	44780	47760	50740	53720	56700	56700	56700	56700	56700
No. of Tubewells	13	14	14	15	15	16	16	16	16	16
6.03 Total	41800	44780	47760	50740	53720	56700	56700	56700	56700	56700
7 Water Supply System										
7.01 Storage Reservoirs (Nos.)	6	6	7	7	8	8	8	8	8	8
Capacity (M3)	7200	8140	9080	10020	10960	11900	11900	11900	11900	11900
7.02 Transmission Mains (Km)	3	3	4	4	5	5	5	5	5	5
7.03 Distribution Mains (Km)	122	130	137	145	152	160	160	160	160	170

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UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Salient Data and Service Levels (Water Supply)

Group B

Gorakhpur Nagar Mahapalika

Items	1986/7	1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4	1996/7	2001/2
1 Population (000s)	457	471	486	500	515	529	546	563	613	691
2 Population served	369	385	401	417	433	449	470	490	552	691
2.01 By connections (000s)	335	344	353	363	372	381	403	425	490	656
% of total population	52	56	60	64	68	72	74	75	80	95
Average No. per connection	10	10	10	10	10	8	10	10	6	4
2.02 By Standpost (000s)	68	66	64	62	60	58	57	55	51	34
% of total population	15	14	13	13	12	11	10	10	8	5
Average No. per connection	157	148	140	131	123	114	108	103	86	51
2.03 By other means (000s)	21	19	17	15	13	11	11	11	11	0
% of total population	5	4	4	3	3	2	2	2	2	0
3 Connections/Standposts										
3.01 Domestic										
Metered	31585	34797	38008	41220	44431	47643	54479	61316	81825	164045
Unmetered	2000	1600	1200	800	400	0	0	0	0	0
Total	33585	36397	39208	42020	44831	47643	54479	61316	81825	164045
3.02 Commertial (metered)	200	1920	3640	5360	7080	8800	9040	9280	10000	15000
3.03 Industrial (metered)	50	160	270	380	490	600	880	1160	2000	8000
3.04 Total Connections (Nos.)	33853	38331	42809	47287	51765	56243	63759	71276	93825	187045
3.05 Standposts (Nos.)	435	437	439	441	443	445	448	451	460	480
4 Water Demand (Max/day lcd)										
4.01 Domestic	225	225	225	225	225	225	225	225	225	225
4.02 Standposts	225	225	225	225	225	225	225	225	225	225
5 Water Demand (M3/day)										
5.01 Domestic Consumption	56405	58371	60337	62304	64270	66236	70071	73907	85413	115003
5.02 Standpost Consumption	15466	14745	14025	13304	12584	11863	11687	11510	10981	7770
5.03 Commertial Consumption	6368	6478	6589	6699	6810	6920	7244	7568	8541	10878
5.04 Industrial Consumption	910	924	938	953	967	981	1029	1077	1220	1554
5.05 Others	2729	2776	2824	2871	2919	2966	3105	3244	3660	4662
5.06 % of Demand Unaccounted for	10	10	10	10	10	10	10	10	10	10
5.07 Total Demand (M3/day	90976	92553	94130	95706	97283	98860	103492	108124	122019	155409
6 Water Production Cap. (M3/day)										
6.01 Surface Water	0	0	0	0	0	0	0	0	0	0
6.02 Groundwater	56160	65376	74592	83808	93024	102240	106832	111424	125200	155520
No. of Tubewells	35	42	49	55	62	69	72	75	85	108
6.03 Total	56160	65376	74592	83808	93024	102240	106848	111456	125280	155520
7 Water Supply System										
7.01 Storage Reservoirs (Nos.)	7	8	10	11	13	14	16	18	24	36
Capacity (M3)	8263	11895	15527	19159	22791	26423	30963	35503	49123	71823
7.02 Transmission Mains (Km)	17	18	18	19	19	20	21	22	25	35
7.03 Distribution Mains (Km)	375	450	525	600	675	750	800	850	1000	1200

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UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Salient Data and Service Levels (Water Supply)

Group B

Aligarh Nagar Palika

Items	1986/7	1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4	1996/7	2001/2
1 Population (000s)	390	394	398	402	406	410	428	446	500	780
2 Population served	73	78	83	87	92	97	100	103	112	290
2.01 By connections (000s)										
% of total population	20	21	22	22	23	24	24	23	22	38
Average No. per connection										
2.02 By Standpost (000s)	280	280	280	281	281	281	289	297	320	400
% of total population	75	74	73	71	70	69	68	67	64	51
Average No. per connection										
2.03 By other means (000s)	23	25	27	28	30	32	39	46	68	90
% of total population	6	6	7	7	8	8	9	10	14	10
3 Connections/Standposts										
3.01 Domestic										
Metered	12000	12840	13680	14520	15360	16200	16560	16920	18000	22000
Unmetered	1680	1744	1808	1872	1936	2000	2000	2000	2000	1000
Total	13680	14584	15488	16392	17296	18200	18600	19000	20200	23000
3.02 Commertial (metered)	1000	1040	1080	1120	1160	1200	1280	1360	1600	1800
3.03 Industrial (metered)										
3.04 Total Connections (Nos.)	14680	15624	16568	17512	18456	19400	19560	19720	20200	24800
3.05 Standposts (Nos.)	550	560	570	580	590	600	800	1000	1600	1000
4 Water Demand (Max/day led)										
4.01 Domestic										
4.02 Standposts										
5 Water Demand (M3/day)										
5.01 Domestic Consumption	14771	15777	16783	17788	18794	19800	20160	20520	21600	24750
5.02 Standpost Consumption	63000	63900	64800	65700	66600	67500	72000	76500	90000	1125000
5.03 Commertial Consumption	1125	1170	1215	1260	1305	1350	1440	1530	1800	2025
5.04 Industrial Consumption										
5.05 Others	4950	5400	5850	6300	6750	7200	8820	10440	15300	20250
5.06 % of Demand Unaccounted for	70	70	69	69	68	68	67	67	65	71
5.07 Total Demand (M3/day	84375	85950	87525	89100	90675	92250	96300	100350	112500	168750
6 Water Production Cap. (M3/day)										
6.01 Surface Water										
6.02 Groundwater	47520	50112	52704	55296	57888	60480	60480	60480	60480	60480
No. of Tubewells	15	20	25	30	35	40	40	40	40	40
6.03 Total										
7 Water Supply Systen										
7.01 Storage Reservoirs (Nos.)	4	5	5	6	6	7	7	7	7	7
Capacity (M3)	2700	3105	3510	3915	4320	4725	4725	4725	4725	4725
7.02 Transmission Mains (Km)										
7.03 Distribution Mains (Km)	122	126	131	135	140	144	146	148	155	160

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UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Salient Data and Service Levels (Water Supply)

Group B

Saharanpur Nagar Palika

Items	1986/7	1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4	1996/7
1 Population (000s)	330	343	355	368	380	393	404	415	448
2 Population served	237	246	255	265	274	283	283	283	282
2.01 By connections (000s)	169	180	191	202	213	224	221	217	207
% of total population	50	51	53	54	56	57	58	59	63
Average No. per connection	18	18	18	17	17	17	17	16	15
2.02 By Standpost (000s)	68	66	64	63	61	59	58	57	54
% of total population	20	19	18	17	16	15	14	14	12
Average No. per connection									
2.03 By other means (000s)	0	0	0	0	0	0	0	0	0
% of total population	0	0	0	0	0	0	0	0	0
3 Connections/Standposts									
3.01 Domestic									
Metered	18800	19620	20440	21260	22080	22900	23800	24700	27400
Unmetered	0	0	0	0	0	0	0	0	0
Total	18800	19620	20440	21260	22080	22900	23800	24700	27400
3.02 Commertial (metered)	0	0	0	0	0	0	0	0	0
3.03 Industrial (metered)									
3.04 Total Connections (Nos.)	18800	19620	20440	21260	22080	22900	23800	24700	27400
3.05 Standposts (Nos.)	892	903	914	925	936	947	960	973	1013
4 Water Demand (Max/day lcd)									
4.01 Domestic	136	140	145	149	154	158	162	167	180
4.02 Standposts									
5 Water Demand (M3/day)									
5.01 Domestic Consumption	540	558	575	593	610	628	646	663	716
5.02 Standpost Consumption	136	140	145	149	154	158	162	167	180
5.03 Commertial Consumption	825	960	1095	1230	1365	1500	1560	1620	1800
5.04 Industrial Consumption									
5.05 Others									
5.06 % of Demand Unaccounted for	23	23	23	23	23	23	23	23	23
5.07 Total Demand (M3/day	879	908	936	965	993	1022	1051	1079	1165
6 Water Production Cap. (M3/day)									
6.01 Surface Water	0	0	0	0	0	0	0	0	0
6.02 Groundwater	570	617	663	710	756	803	803	803	803
No. of Tubewells	14	16	17	19	20	22	22	22	22
6.03 Total	570	617	663	710	756	803	803	803	803
7 Water Supply System									
7.01 Storage Reservoirs (Nos.)	7	7	8	8	9	9	9	9	9
Capacity (M3)	5130	6030	6930	7830	8730	9630	9630	9630	9630
7.02 Transmission Mains (Km)	25	28	31	35	39	41	41	41	41
7.03 Distribution Mains (Km)	216	228	239	251	262	274	274	274	274

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UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Salient Data and Service Levels (Water Supply)

Group B

Ghaziabad City Board

Items	1986/7	1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4	1996/7
1 Population (000s)	318	454	591	727	864	1000	1050	1100	1250
2 Population served	191	313	435	556	678	800	856	912	1080
2.01 By connections (000s)	152	262	371	481	590	700	752	804	960
% of total population	48	52	57	61	66	70	72	74	80
Average No. per connection	5	5	5	5	5	5	5	0	5
2.02 By Standpost (000s)	38	50	63	75	88	100	104	108	120
% of total population	12	12	11	11	10	10	10	10	10
Average No. per connection									
2.03 By other means (000s)	127	142	156	171	185	200	184	168	120
% of total population	40	36	32	28	24	20	18	16	10
3 Connections/Standposts									
3.01 Domestic									
Metered	24000	41200	58400	75600	92800	110000	116000	122000	140000
Unmetered	0	0	0	0	0	0	0	0	0
Total	24000	39200	54400	69600	84800	100000	100000	116000	140000
3.02 Commertial (metered)	4000	8200	12400	16600	20800	25000	28000	31000	40000
3.03 Industrial (metered)	1000	1800	2600	3400	4200	5000	6000	7000	10000
3.04 Total Connections (Nos.)	29000	51200	73400	95600	117800	140000	150000	160000	190000
3.05 Standposts (Nos.)	442	604	765	927	1088	1250	1300	1350	1500
4 Water Demand (Max/day led)									
4.01 Domestic	225	225	225	225	225	225	225	225	225
4.02 Standposts	100	100	100	100	100	100	100	100	100
5 Water Demand (M3/day)									
5.01 Domestic Consumption	42900	61320	79740	98160	116580	135000	140400	145800	162000
5.02 Standpost Consumption	10700	15300	19900	24500	29100	33700	29760	25820	14000
5.03 Commertial Consumption	7100	10180	13260	16340	19420	22500	23400	24300	27000
5.04 Industrial Consumption	3500	5040	6580	8120	9660	11200	11660	12120	13500
5.05 Others	3500	5040	6580	8120	9660	11200	11660	12120	13500
5.06 % of Demand Unaccounted for	5	5	5	5	5	5	5	5	5
5.07 Total Demand (M3/day	71500	102200	132900	163600	194300	225000	234000	243000	270000
6 Water Production Cap. (M3/day)									
6.01 Surface Water	59000	92200	125400	158600	191800	225000	234000	243000	270000
6.02 Groundwater	0	0	0	0	0	0	0	0	0
No. of Tubewells	41	64	87	110	133	156	162	168	187
6.03 Total	59000	92200	125400	158600	191800	225000	234000	243000	270000
7 Water Supply System									
7.01 Storage Reservoirs (Nos.)	13	15	18	20	23	25	26	27	30
Capacity (M3)	9400	14640	19880	25120	30360	35600	36920	38240	42200
7.02 Transmission Mains (Km)	15	20	25	30	35	40	42	44	50
7.03 Distribution Mains (Km)	414	491	568	646	723	800	840	880	1000

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UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Salient Data and Service Levels (Sewerage)

Group A

Agra Jal Sansthan

Items	1986/7	1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4	1996/7	2001/2
1 Population (000s)	845	866	887	908	929	950	980	1010	1100	1300
2 Catchment Population	507	520	532	545	557	570	588	606	660	730
3 Population served	338	346	355	363	372	380	392	404	440	520
3.01 By connections (000s)	203	208	213	218	223	228	235	242	264	312
% of (2)	40	40	40	40	40	40	40	40	40	40
% of (1)	24	24	24	24	24	24	24	24	24	24
Persons per connection	15	15	15	15	15	15	15	15	15	15
3.02 By septic tank (000s)	68	70	71	73	74	76	78	81	88	100
% of (1)	8	8	8	8	8	8	8	8	8	8
3.03 By conservancy systems (000s)	51	52	53	55	56	57	59	61	66	78
% of (1)	6	6	6	6	6	6	6	6	6	6
3.04 By other means (000s)	16	17	17	18	18	19	20	20	22	30
% of (1)	2	2	2	2	2	2	2	2	2	2
4 Connections										
Domestic	12000	12200	12400	12600	12800	13000	13600	14200	16000	20000
Commertial	1800	1840	1880	1920	1960	2000	2050	2100	2250	2500
Industrial	200	210	220	230	240	250	260	270	300	400
Total	14000	14410	14820	15230	15640	16050	16550	17050	18550	22900
5 Sewerage System										
Laterals (Km)	150	160	170	180	190	200	210	220	250	300
Interceptors (Km)	30	34	38	42	46	50	55	60	75	100
Outfalls (Km)	1	1	1	1	1	1	1	1	2	2
Pumping Stations (Nos.)	2	2	2	2	2	2	2	2	3	3
Treatment Works (Nos.)	0	0	0	0	0	0	0	0	0	0

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UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Salient Data and Service Levels (Sewerage)

Group A

Allahabad Jal Sansthan

Items	1986/7	1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4	1996/7	2001/2
1 Population (000s)	822	839	856	874	891	908	927	946	1003	1107
2 Catchment Population	642	642	642	642	642	642	642	642	642	642
3 Population served										
3.01 By connections (000s)	180	204	228	252	276	300	330	360	450	600
% of (2)	22	24	26	29	31	33	35	38	45	54
% of (1)	28	32	36	39	43	47	52	56	70	93
Persons per connection	10	10	10	10	10	10	10	10	10	10
3.02 By septic tank (000s)	120	132	144	156	168	180	198	216	270	400
% of (1)	15	16	17	18	19	20	21	23	27	36
3.03 By conservancy systems (000s)	200	186	172	158	144	130	114	98	50	0
% of (1)	34	30	26	22	18	14	12	10	5	0
3.04 By other means (000s)	242	253	264	276	287	298	285	272	233	107
% of (1)	30	31	31	32	32	33	31	29	23	10
4 Connections										
Domestic	16800	19440	22080	24720	27360	30000	33000	36000	45000	60000
Commertial	1200	1260	1320	1380	1440	1500	1560	1620	1800	2100
Industrial										
Total	18000	20700	23400	26100	28800	31500	34560	37620	46800	62100
5 Sewerage System										
Laterals (Km)	95	100	105	110	115	120	126	132	150	200
Interceptors (Km)	25	26	27	28	29	30	31	32	35	40
Outfalls (Km)	10	10	10	10	10	10	11	12	15	18
Pumping Stations (Nos.)	5	5	5	5	5	5	6	6	8	10
Treatment Works (Nos.)	0	0	0	0	0	0	0	1	2	3

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UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Salient Data and Service Levels (Sewerage)

Group B

Bareilly Nagar Mahapalika

Items	1986/7	1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4	1996/7	2001/2
1 Population (000s)	526	536	546	556	566	577	588	600	634	699
2 Catchment Population	109	118	132	146	160	174	188	202	244	314
3 Population served										
3.01 By connections (000s)	77	90	102	115	127	140	152	164	200	215
% of (2)	73	74	76	77	79	80	80	81	82	68
% of (1)	15	17	19	20	22	24	26	27	32	31
Persons per connection	7	7	7	7	7	7	7	7	7	7
3.02 By septic tank (000s)	104	103	102	102	101	100	99	98	94	110
% of (1)	20	19	19	18	18	17	17	16	15	16
3.03 By conservancy systems (000s)	287	290	293	296	299	302	302	301	300	315
% of (1)	55	54	54	53	53	52	51	50	47	45
3.04 By other means (000s)	58	53	48	44	39	34	35	36	40	59
% of (1)	11	10	9	8	7	6	6	6	6	8
4 Connections										
Domestic	10500	12400	14300	16200	18100	20000	21900	23800	29500	39000
Commertial	500	600	700	800	900	1000	1100	1200	1500	2000
Industrial	0	0	0	0	0	0	0	0	0	0
Total	11000	13000	15000	17000	19000	21000	23000	25000	31000	41000
5 Sewerage System										
Laterals (Km)	100	104	108	112	116	120	121	122	125	135
Interceptors (Km)	10	10	11	11	12	12	12	12	13	15
Outfalls (Km)	3	3	3	3	3	3	3	3	4	6
Pumping Stations (Nos.)	2	2	1	1	0	0	0	0	1	1
Treatment Works (Nos.)	1	1	1	0	0	0	0	0	0	0

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Salient Data and Service Levels (Sewerage)

Group B

Moradabad Nagar Palika

Items	1986/7	1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4	1996/7	2001/2
1 Population (000s)	376	386	396	405	415	425	436	447	481	544
2 Catchment Population	13	14	16	17	19	20	21	22	25	30
3 Population served										
3.01 By connections (000s)	3	3	3	3	3	3	4	4	6	10
% of (2)										
% of (1)										
Persons per connection										
3.02 By septic tank (000s)	130	144	158	172	186	200	240	280	400	500
% of (1)	37	40	42	45	47	50	51	52	55	95
3.03 By conservancy systems (000s)	200	210	220	230	240	250	270	290	350	400
% of (1)	57	57	57	56	56	56	59	63	73	74
3.04 By other means (000s)	17	18	18	19	19	20	22	24	30	40
% of (1)	5	5	5	5	5	5	5	5	6	7
4 Connections										
Domestic	0	40	80	120	160	200	220	240	300	700
Commertial										
Industrial										
Total										
5 Sewerage System										
Laterals (Km)	6	6	6	6	6	6	6	6	6	7
Interceptors (Km)	1	1	2	2	3	3	3	3	3	6
Outfalls (Km)	4	4	4	4	4	4	4	4	4	4
Pumping Stations (Nos.)	3	3	3	3	3	3	3	3	3	3
Treatment Works (Nos.)										

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UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Salient Data and Service Levels (Sewerage)

Group B

Gorakhpur Nagar Mahapalika

Items	1986/7	1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4	1996/7	2001/2
1 Population (000s)	456	471	485	500	514	529	546	563	613	691
2 Catchment Population	417	409	402	394	387	379	366	353	314	371
3 Population served										
3.01 By connections (000s)	50	70	90	110	130	150	180	210	300	320
% of (2)	12	18	23	29	34	40	51	62	96	86
% of (1)	11	14	18	21	25	28	32	36	48	46
Persons per connection	5	5	5	5	5	5	5	5	5	5
3.02 By septic tank (000s)	100	120	140	160	180	200	220	240	300	370
% of (1)	21	24	28	31	35	38	40	42	49	53
3.03 By conservancy systems (000s)	200	196	192	187	183	179	146	113	14	0
% of (1)	22	24	27	29	32	34	28	21	2	0
3.04 By other means (000s)	157	126	94	63	31	0	0	0	0	0
% of (1)	34	27	20	14	7	0	0	0	0	0
4 Connections										
Domestic	950	1340	1730	2120	2510	2900	3470	4040	5750	6000
Commertial	50	60	70	80	90	100	120	140	200	300
Industrial	0	0	0	0	0	0	0	0	50	100
Total	1000	1400	1800	2200	2600	3000	3600	4200	6000	6400
5 Sewerage Systen										
Laterals (Km)	8	8	8	8	8	8	10	13	20	20
Interceptors (Km)	12	12	12	12	12	12	16	19	30	30
Outfalls (Km)	3	3	3	2	2	2	2	2	2	2
Pumping Stations (Nos.)	2	2	1	1	0	0	1	2	6	6
Treatment Works (Nos.)	0	0	0	0	0	0	0	0	0	1

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Salient Data and Service Levels (Sewerage)

Group B

Aligarh Nagar Palika

Items	1986/7	1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4	1996/7	2001/2
1 Population (000s)	390	394	398	402	406	410	420	446	500	780
2 Catchment Population	19	27	35	42	50	58	60	61	66	80
3 Population served										
3.01 By connections (000s)	5	6	7	7	8	9	9	9	10	10
% of (2)	27	25	22	20	17	15	15	15	15	13
% of (1)	1	1	1	2	2	2	2	2	2	2
Persons per connection	5	5	5	5	5	5	5	5	5	5
3.02 By septic tank (000s)										
% of (1)										
3.03 By conservancy systems (000s)	370	376	382	388	394	400	402	403	408	619
% of (1)	84	84	84	85	85	85	84	84	82	79
3.04 By other means (000s)	15	12	9	7	4	1	17	33	80	151
% of (1)	4	3	2	2	1	0	3	7	16	19
4 Connections										
Domestic	1020	1172	1324	1476	1628	1780	1820	1860	1980	2000
Commertial										
Industrial										
Total	1020	1172	1324	1476	1628	1780	1820	1860	1980	2000
5 Sewerage System										
Laterals (Km)	22	22	22	22	22	22	23	24	27	30
Interceptors (Km)										
Outfalls (Km)										
Pumping Stations (Nos.)	3	3	3	3	3	3	3	3	3	3
Treatment Works (Nos.)	0	0	0	0	0	0	0	0	0	0

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UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Salient Data and Service Levels (Sewerage)

Group B

Saharanpur Nagar Palika

Items	1986/7	1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4	1994/7
1 Population (000s)	338	349	360	371	382	393	404	415	448
2 Catchment Population	8	9	10	12	13	14	14	14	14
3 Population served	101	122	142	163	183	204	218	232	273
3.01 By connections (000s)									
% of (2)	28	28	29	29	30	30	30	30	30
% of (1)	30	34	39	43	48	52	54	56	61
Persons per connection	29	28	27	27	26	25	25	25	25
3.02 By septic tank (000s)									
% of (1)	20	20	19	19	18	18	18	17	16
3.03 By conservancy systems (000s)									
% of (1)	30	28	26	24	22	20	19	18	15
3.04 By other means (000s)	10	10	10	10	10	10	10	9	8
% of (1)									
4 Connections									
Domestic	12000	12800	13600	14400	15200	16000	16100	16800	18000
Commertial									
Industrial									
Total									
5 Sewerage System									
Laterals (Km)	15	16	17	19	20	21	21	21	21
Interceptors (Km)	80	80	81	81	82	82	83	83	85
Outfalls (Km)	10	10	10	10	10	10	10	10	10
Pumping Stations (Nos.)	4	4	4	5	5	5	5	5	5
Treatment Works (Nos.)									

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UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Salient Data and Service Levels (Sewerage)

Group B

Ghaziabad City Board

Items	1986/7	1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4	1996/7
1 Population (000s)	500	600	700	800	900	1000	1050	1100	1250
2 Catchment Population	150	220	290	360	430	500	560	620	800
3 Population served									
3.01 By connections (000s)	110	158	206	254	302	350	400	450	600
% of (2)	73	72	72	71	71	70	71	72	75
% of (1)	22	25	27	30	32	35	38	40	48
Persons per connection	7	7	7	8	8	8	8	9	10
3.02 By septic tank (000s)	15	18	21	24	27	30	33	36	45
% of (1)	3	3	3	3	3	3	3	3	4
3.03 By conservancy systems (000s)	200	240	280	320	360	400	395	390	375
% of (1)	40	40	40	40	40	40	38	36	30
3.04 By other means (000s)	175	184	193	202	211	220	222	224	230
% of (1)	35	32	30	27	25	22	21	20	18
4 Connections									
Domestic									
Commertial									
Industrial									
Total	16800	22190	27580	32970	38360	43750	47000	50250	60000
5 Sewerage System									
Laterals (Km)									
Interceptors (Km)	200	260	320	380	440	500	530	560	650
Outfalls (Km)	9	13	17	22	26	30	32	34	40
Pumping Stations (Nos.)	4	5	6	8	9	10	10	11	12
Treatment Works (Nos.)	3	3	4	4	5	5	5	5	5

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UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Water Supply and Sanitation Income and Expenditure Statements

Group A

Kanpur Jal Sansthan

(Rs Lakhs)
(Cash basis)

REVENUE	Actual 1983/4	Actual 1984/5	Estimate 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
Water Supply											
Water - all consumers	119.0	103.0	124.0	143.7	153.7	164.5	176.0	220.0	231.0	242.6	254.7
Water tax	141.5	149.1	190.0	256.5	274.5	293.7	314.2	336.2	453.6	476.3	500.1
Other water	30.6	21.6	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Meter rent	0.0	0.0	0.5	5.8	6.0	6.2	6.4	6.5	6.8	6.8	6.8
Development charge											
Service charges											
Sanitation											
Sanitation tax	28.8	31.7	45.0	60.8	63.8	67.0	70.4	73.9	99.8	104.8	110.0
Direct charges	0.0	0.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total revenue	319.1	305.4	365.0	477.0	508.2	541.6	577.2	646.8	801.4	840.6	881.8
OPERATING AND MAINTENANCE EXPENDITURE											
Water Supply											
Labor	98.6	135.0	126.5	127.0	133.4	140.0	147.0	154.4	162.1	170.2	178.7
Power	98.7	25.5	122.0	128.1	134.5	141.2	148.3	155.7	163.5	171.7	180.2
Materials (incl.sanitation)	16.6	24.9	27.8	29.7	31.8	34.1	36.4	39.0	41.7	44.6	47.8
Other	8.9	20.3	25.2	15.8	15.5	16.3	17.1	17.9	18.8	19.8	20.8
Sanitation											
Labor	42.9	64.3	51.3	53.9	56.6	59.4	62.4	65.5	68.7	72.2	75.8
Power	0.0	0.0	27.8	30.6	33.6	37.0	40.7	44.8	49.2	54.2	59.6
Materials											
Other	17.9	23.4	18.0	18.0	19.3	20.6	22.1	23.6	25.2	27.0	28.9
Total O & M costs	283.6	293.4	398.6	402.3	424.6	448.6	473.9	500.8	529.4	559.7	591.8
OPERATING SURPLUS/DEFICIT	35.5	12.0	-25.6	74.7	83.6	93.0	103.3	146.0	272.0	281.0	290.0
Less:Depreciation	60.0	60.0	60.0	60.0	60.0	59.0	59.0	58.0	58.0	58.0	58.0
Less:Interest Charges	0.0	0.0	0.0	0.0	5.9	18.5	36.5	60.7	81.4	100.5	114.7
NET SURPLUS/DEFICIT	-24.5	-48.0	-85.6	14.7	17.7	15.5	7.7	27.3	132.6	122.4	117.3
Memorandum items											
1. Price contingency assumptions for costs rate				1.060	1.060	1.060	1.070	1.070	1.040	1.040	1.040
factor				1.030	1.100	1.175	1.257	1.345	1.399	1.455	1.513
2. Arrears in current year											
3. Working ratio	1.13	1.04	0.93	1.19	1.20	1.21	1.22	1.29	1.51	1.50	1.49
4. Operating ratio	1.13	1.04	0.93	1.19	1.18	1.16	1.13	1.15	1.31	1.27	1.23
5. % collection current (water) demand				80	83	85	85	85	85	85	85
6. Assumed interest charges on Project loans =			8.75 %								
7. Note: In this context Working ratio is revenue divided by O & M costs and Operating ratio is revenue divided by O & M plus debt service.											
8. Repayment of Principal on Project Loan				0	0	0	0	0	0	3.38	10.59

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Water Supply and Sanitation Sources and Application of Funds

Group B

(Rs Lakhs)

Kanpur Jal Sansthan

SOURCES	Actual 1983/4	Actual 1984/5	Estimate 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
Internally Generated											
Net surplus/deficit before int.	-24.5	-48.0	-85.6	14.7	23.6	34.0	44.3	88.0	214.0	223.0	232.0
Less: Debt service	0.0	0.0	0.0	0.0	5.9	18.5	36.5	60.7	81.4	103.9	125.3
Less: Change in working capital	0.0	14.5	-5.4	0.0	2.3	2.4	2.5	2.6	2.7	2.9	3.0
Add: Depreciation	60.0	60.0	60.0	60.0	60.0	59.0	59.0	58.0	58.0	58.0	58.0
External											
GOUP loan				67.6	144.2	205.9	275.0	236.6	218.7	162.6	101.6
Other loans											
GOUP capital grant											
Total sources	35.5	-2.5	-28.2	141.5	219.6	278.0	340.0	319.3	486.6	336.8	263.3
APPLICATIONS											
Capital Expenditure on Projects				67.6	144.2	205.9	275.0	236.6	218.7	162.6	101.6
Other											
Total apps.	0.0	0.0	0.0	67.6	144.2	205.9	275.0	236.6	218.7	162.6	101.6
BALANCE TO BE FINANCED	0.0	2.5	28.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Income and Expenditure Statement

Group A

(Rs Lakhs)
(Cash basis)

Kanpur Nagar Mahapalika

INCOME	Actual 1983/4	Actual 1984/5	Actual 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
Revenue Account											
General tax	240.0	231.3	275.5	400.0	420.0	441.0	463.1	486.2	656.4	689.2	723.7
Octroi	748.5	1129.1	1234.2	1295.9	1360.7	1428.7	1500.2	1575.2	1653.9	1736.6	1823.5
Other taxes	25.7	29.8	31.1	34.0	36.0	38.0	40.0	42.0	44.0	46.0	48.0
Other income	86.1	76.4	99.4	104.4	109.6	115.1	120.8	126.9	133.2	139.9	146.9
Sub-total	1100.3	1466.6	1640.2	1834.3	1926.3	2022.8	2124.0	2230.3	2487.6	2611.7	2742.0
Revenue grants	409.9	515.8	640.0	511.0	600.0	625.0	650.0	675.0	700.0	715.0	725.0
Total revenue	1510.2	1982.4	2280.2	2345.3	2526.3	2647.8	2774.0	2905.3	3187.6	3326.7	3467.0
Capital Account											
Capital loans	56.1	120.3	144.8	232.1	199.9	185.3	258.9	294.5	247.2	170.7	105.0
Capital grants	10.9	23.4	28.1	45.3	39.1	36.2	27.0	16.9	12.6	6.0	5.0
Total capital	67.0	143.7	172.9	277.4	239.0	221.5	285.9	311.4	259.8	176.7	110.0
Capital a/c Deficit											
TOTAL RECEIPTS	1577.2	2126.1	2453.1	2622.7	2765.3	2869.3	3059.9	3216.7	3447.4	3503.4	3577.0
EXPENDITURES											
Revenue Expenditures											
Gen. supervision & rev. colln.	127.3	149.2	161.7	197.8	207.0	217.0	227.0	237.0	247.0	257.0	268.0
Drainage & conservancy	514.1	645.5	709.1	801.5	771.5	783.8	801.9	865.1	964.8	914.4	927.8
Medical, pub. health etc.	105.9	118.7	137.8	160.9	170.0	180.0	190.0	200.0	210.0	217.0	225.0
Public safety & convenience	139.4	198.7	204.6	234.7	245.7	258.0	270.0	282.0	310.8	320.0	332.0
Public works	246.8	375.5	434.4	379.0	400.0	425.0	450.0	475.0	500.0	520.0	550.0
Miscellaneous	248.9	243.2	289.8	342.7	361.0	371.0	381.0	391.0	401.0	411.0	421.0
Sub-total	1381.6	1730.8	1937.4	2116.6	2155.2	2234.8	2319.9	2450.1	2632.8	2639.4	2723.8
Debt service	0.0	4.8	17.7	46.1	70.5	93.1	128.0	153.7	223.2	280.6	277.2
Total revenue expenditure	1381.6	1735.6	1955.1	2162.7	2225.7	2327.9	2447.9	2603.8	2856.0	2920.0	3001.0
Capital Expenditure											
Total capital expenditure	67.0	143.7	162.9	277.4	239.0	221.5	285.9	311.4	259.8	176.7	110.0
Capital a/c Surplus	128.6	246.8	335.1	182.6	300.6	319.9	326.1	301.5	331.6	406.7	466.0
TOTAL EXPENDITURE	1577.2	2126.1	2453.1	2622.7	2765.3	2869.3	3059.9	3216.7	3447.4	3503.4	3577.0
Memorandum items											
1. Internally Generrated Revenue as % of revenue expenditure	79.6%	84.5%	83.9%	84.8%	86.5%	86.9%	86.8%	85.7%	87.1%	89.4%	91.4%
2. General tax as % of:											
(a) Current demand			70	70	72	74	76	80	82	84	85
(b) Arrears demand											
(c) Total demand											

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UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Income and Expenditure Statement

Group A

(Rs Lakhs) Kanpur Development Authority

	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2
INCOME						
Sales	1600.0	1652.0	2037.0	2597.0	2993.0	3307.0
Less: Cost of Sales	1292.9	1335.0	1645.9	2098.4	2418.4	2672.1
Sub-total	307.1	317.0	391.1	498.6	574.6	634.9
Other Income	155.8	171.4	188.6	207.4	228.2	251.0
Total	462.9	488.4	579.7	706.0	802.8	885.9
EXPENDITURE						
Gen. Establishment & Admin.	193.9	208.2	246.9	314.8	362.6	400.8
Other Expences	46.8	51.4	56.6	62.2	68.5	75.3
Depreciation	76.0	70.0	65.0	60.0	55.0	50.0
Sub-total	316.7	321.6	368.5	437.0	486.1	526.1
Interest on Debt	113.1	116.8	144.1	183.6	211.6	233.8
Total	429.8	438.4	512.6	620.6	697.7	759.9
NET INCOME	33.1	50.0	67.1	85.4	105.1	126.0

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UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Balance Sheet Statement

Group A

(Rs Lakhs) Kanpur Development Authority

	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2
ASSETS						
Net Fixed Assets	8600.0	11120.0	13890.0	15700.0	19220.0	21890.0
Work in Progress	900.0	1360.0	2510.0	2430.0	1312.0	1130.0
Sub-total	9500.0	12480.0	16400.0	18130.0	20532.0	23020.0
Deposits & Investments	500.0	400.0	400.0	400.0	450.0	500.0
Current Assets	3400.0	3870.0	3840.0	4225.0	4650.0	5300.0
TOTAL	13400.0	16750.0	20640.0	22755.0	25632.0	28820.0
LIABILITIES						
Reserves	7550.0	8615.0	9150.0	10049.0	10424.0	12170.0
Profit/Loss Account	350.0	375.0	400.0	400.0	400.0	400.0
Sub-total	7900.0	8990.0	9550.0	10449.0	10824.0	12570.0
Long Term Loans						
GOUP	3050.0	4250.0	8360.0	6474.0	7582.0	7650.0
Other	2300.0	3710.0	3120.0	6530.0	7940.0	8000.0
Less: Current maturities	250.0	500.0	750.0	1000.0	1250.0	300.0
Sub-total	13000.0	16450.0	20280.0	22453.0	25096.0	27920.0
Current Liabilities	400.0	300.0	360.0	302.0	536.0	900.0
TOTAL	13400.0	16750.0	20640.0	22755.0	25632.0	28820.0

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UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Water Supply and Sanitation Income and Expenditure Statements

Group A

Agra Jal Sansthan

(Rs Lakhs)
(Cash basis)

REVENUE	Actual 1983/4	Actual 1984/5	Estimate 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
Water Supply											
Water - all consumers	78.7	67.8	83.8	125.7	138.3	152.1	228.2	251.0	276.1	455.6	501.2
Water tax	17.7	36.5	40.7	68.4	75.2	82.8	91.0	100.1	135.0	148.5	163.4
Other water	21.4	26.5	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meter rent											
Development charge											
Service charges											
Sanitation											
Sanitation tax	1.6	4.5	7.0	9.5	10.4	11.4	12.6	13.8	18.6	20.5	22.5
Arrears Collected (in water)											
Total revenue	119.4	135.3	151.5	203.6	223.9	246.3	331.8	365.0	429.7	624.6	687.0
OPERATING AND MAINTENANCE EXPENDITURE											
Water Supply											
Labor	79.4	90.1	104.4	109.6	115.1	120.9	126.9	133.2	139.9	146.9	154.2
Power	25.7	3.3	1.5	75.0	86.3	99.2	114.1	131.2	150.9	173.5	199.5
Materials	3.3	6.3	12.0	12.6	13.2	13.9	14.6	15.3	16.1	16.9	17.7
Other	49.4	42.4	38.5	40.4	42.4	44.6	46.8	49.1	51.6	54.2	56.9
Sanitation (in water)											
Labor											
Power											
Materials											
Other											
Total O & M costs	157.8	142.1	156.4	237.6	257.0	278.5	302.3	328.9	358.4	391.4	428.4
OPERATING SURPLUS/DEFICIT	-8.4	-6.8	-4.9	-34.1	-33.1	-32.2	29.5	36.1	71.3	233.1	258.7
Less:Depreciation	40.0	40.0	40.0	40.0	44.2	51.0	57.0	60.0	62.0	61.0	60.0
Less:Interest Charges					9.2	28.9	57.1	94.9	127.4	157.4	179.8
NET SURPLUS/DEFICIT	-48.4	-46.8	-44.9	-74.1	-86.5	-112.1	-84.6	-118.8	-118.1	14.7	18.9
Memorandum items											
1. Price contingency assumptions for costs											
rate				1.060	1.060	1.060	1.070	1.070	1.040	1.040	1.040
factor				1.030	1.100	1.175	1.257	1.345	1.399	1.455	1.513
2. Arrears in current year											
3. Working ratio	0.95	0.95	0.97	0.86	0.87	0.88	1.10	1.11	1.20	1.60	1.60
4. Operating ratio	0.95	0.95	0.97	0.86	0.84	0.88	0.92	0.86	0.88	1.14	1.13
5. % collection current (water) demand				30.00	40.00	50.00	53.00	55.00	58.00	61.00	65.00
6. Assumed interest charges on Project loans =			8.75 %								
7. Note: In this context Working ratio is revenue divided by O & M costs and Operating ratio is revenue divided by O & M plus debt service.											
8. Repayment of Principal on Project Loan				0.00	0.00	0.00	0.00	0.00	0.00	5.27	11.26

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Water Supply and Sanitation Sources and Application of Funds

Group A

(Rs Lakhs)

Agra Jal Sansthan

SOURCES	Actual 1983/4	Actual 1984/5	Estimate 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
Internally Generated											
Net surplus/deficit before int.	-40.4	-46.8	-44.9	-74.1	-77.3	-83.2	-27.5	-23.9	9.3	172.1	198.7
Less: Debt service	0.0	0.0	0.0	0.0	9.2	28.9	57.1	94.9	127.4	162.7	191.0
Less: Change in working capital	0.0	2.7	3.6	1.3	1.4	1.4	1.5	1.6	1.7	1.7	1.8
Add: Depreciation	40.0	40.0	40.0	40.0	44.2	51.0	57.0	60.0	62.0	61.0	60.0
External											
GOUP loan				105.4	225.2	322.0	432.0	371.0	343.3	255.5	159.7
Other loans											
GOUP capital grant											
Total sources	-0.4	-9.5	-8.5	70.0	101.5	259.4	402.9	310.6	286.6	324.2	225.5
APPLICATIONS											
Capital Expenditure on Projects				105.4	225.2	322.0	432.0	371.0	343.3	255.5	159.7
Other											
Total apps.	0.0	0.0	0.0	105.4	225.2	322.0	432.0	371.0	343.3	255.5	159.7
BALANCE TO BE FINANCED	0.4	9.5	8.5	35.4	43.7	62.6	29.1	60.4	57.7	0.0	0.0

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Income and Expenditure Statement

Group A

(Rs Lakhs)
(Cash basis)

Agra Nagar Mahapalika

	Actual 1983/4	Actual 1984/5	Estimate 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
INCOME											
Revenue Account											
General tax	57.3	56.5	69.1	100.0	105.0	110.3	115.8	121.6	164.2	172.4	181.0
Octroi	243.0	255.6	320.6	418.0	459.8	505.8	556.4	612.0	673.2	740.5	814.6
Other taxes	10.7	14.4	18.4	20.0	21.0	22.1	23.2	24.3	25.5	26.8	28.1
Other income	48.3	42.6	27.2	45.3	49.8	54.8	60.3	66.3	73.0	80.3	88.3
Sub-total	359.3	369.1	435.3	583.3	635.6	692.9	755.6	824.2	935.9	1020.0	1112.0
Revenue grants	113.9	222.5	256.2	335.3	270.0	300.0	346.0	386.0	420.0	420.0	420.0
Total revenue	473.2	591.6	691.5	918.6	905.6	992.9	1101.6	1210.2	1355.9	1440.0	1532.0
Capital Account											
Capital loans	0.0	0.0	0.0	60.9	130.6	187.2	252.0	217.0	201.1	150.0	93.8
Capital grants	0.0	0.0	0.0	11.5	24.6	29.6	47.7	41.1	38.2	28.5	17.8
Total capital	0.0	0.0	0.0	72.4	155.2	216.8	299.7	258.1	239.3	178.5	111.6
Capital a/c Deficit											
TOTAL RECEIPTS	473.2	591.6	691.5	991.0	1060.8	1209.7	1401.3	1468.3	1595.2	1618.5	1643.6
EXPENDITURES											
Revenue Expenditures											
Gen. supervision & rev. colln.	49.4	60.1	61.3	64.4	67.6	71.0	74.5	78.2	82.1	86.3	90.6
Drainage & conservancy	234.4	258.9	286.7	351.0	386.0	405.0	433.4	463.7	496.1	530.9	568.0
Medical, pub. health etc.	23.0	25.3	26.5	34.7	38.0	40.0	44.0	48.0	52.0	56.0	60.0
Public safety & convenience	13.7	16.7	13.2	36.9	40.0	42.0	46.0	50.0	55.0	60.0	65.0
Public works	84.5	144.9	159.8	233.6	260.0	285.0	310.0	340.0	360.0	380.0	400.0
Miscellaneous	38.1	48.9	41.8	62.4	50.0	55.0	60.0	65.0	72.0	77.0	82.0
Sub-total	443.1	554.8	589.3	783.0	841.6	898.0	967.9	1044.9	1117.3	1190.1	1265.6
Debt service	1.2	1.0	3.0	3.0	5.3	16.7	33.1	62.5	97.3	137.7	181.6
Total revenue expenditure	444.3	555.8	592.3	786.0	846.9	914.7	1001.0	1107.4	1214.6	1327.8	1447.2
Capital Expenditure											
Total capital expenditure	0.0	0.0	0.0	72.4	155.2	216.8	299.7	258.1	239.3	178.5	111.6
Capital a/c Surplus	28.9	35.8	99.2	132.6	58.7	78.2	100.6	102.8	141.3	112.2	84.8
TOTAL EXPENDITURE	473.2	591.6	691.5	991.0	1060.8	1209.7	1401.3	1468.3	1595.2	1618.5	1643.6
Memorandum items											
1. Internally Generrated Revenue as % of revenue expenditure	80.9%	66.4%	73.5%	74.2%	75.1%	75.8%	75.5%	74.4%	77.1%	76.8%	76.8%
2. General tax as % of:											
(a) Current demand	39.70	42.50	46.10	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00
(b) Arrears demand	8.60	6.00	8.20								
(c) Total demand	17.20	16.50	17.00								

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Income and Expenditure Statement

Group A

(Rs Lakhs) Agra Development Authority

	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2
INCOME						
Sales	531.7	584.9	643.3	707.7	778.4	856.3
Less: Cost of Sales	411.3	452.4	497.6	547.4	602.1	662.3
Sub-total	120.4	132.5	145.7	160.3	176.3	194.0
Other Income	100.4	110.5	121.5	133.7	147.1	161.8
Total	220.8	243.0	267.2	294.0	323.4	355.8
EXPENDITURE						
Gen. Establishment & Admin.	52.0	57.2	62.9	69.2	76.1	83.7
Other Expences	29.4	32.3	35.6	39.1	43.1	47.4
Depreciation	33.0	36.3	39.3	43.9	48.3	53.2
Sub-total	114.4	125.8	137.8	152.2	167.5	184.3
Interest on Debt	84.9	93.4	102.8	113.1	124.4	136.8
Total	199.3	219.2	240.6	265.3	291.9	321.1
NET INCOME	21.5	23.8	26.6	28.7	31.5	34.7

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UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Balance Sheet Statement

Group A

(Rs Lakhs) Agra Development Authority

	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2
ASSETS						
Net Fixed Assets	1650.0	1815.0	1966.5	2196.2	2415.8	2657.3
Work in Progress	255.0	280.0	315.0	350.0	390.0	440.0
Sub-total	1905.0	2095.0	2281.5	2546.2	2805.8	3097.3
Deposits & Investments	46.5	51.2	56.3	61.9	68.1	74.9
Current Assets	321.0	352.0	388.5	427.3	470.0	517.0
TOTAL	2272.5	2498.2	2726.3	3035.4	3343.9	3689.2
LIABILITIES						
Reserves	861.0	945.4	1017.9	1156.6	1277.3	1415.9
Profit/Loss Account	21.5	23.8	26.6	28.7	31.5	34.7
Sub-total	882.5	969.2	1044.5	1185.3	1308.8	1450.6
Long Term Loans						
GOUP	840.1	924.1	1016.5	1118.2	1230.0	1353.0
Other	253.0	278.3	306.1	336.7	370.4	407.5
Less: Current maturities						
Sub-total	1975.6	2171.6	2367.1	2640.2	2909.2	3211.1
Current Liabilities	296.9	326.6	359.2	395.2	434.7	478.1
TOTAL	2272.5	2498.2	2726.3	3035.4	3343.9	3689.2

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Water Supply and Sanitation Income and Expenditure Statements

Group A

(Rs Lakhs)
(Cash basis)

Varanasi Jal Sansthan

REVENUE	Actual 1983/4	Actual 1984/5	Estimate 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
Water Supply											
Water - all consumers	60.0	65.0	70.0	115.5	127.1	139.8	153.7	169.1	186.0	279.0	293.0
Water tax	68.0	70.0	72.0	100.0	110.0	121.0	133.1	146.4	197.6	207.5	217.9
Other water	0.0	0.0	0.0	20.0	22.0	25.0	28.0	32.0	36.0	40.0	44.0
Meter rent	0.6	0.8	1.0	7.8	8.0	8.2	8.4	9.0	11.5	13.0	14.5
Development charge	2.6	2.8	2.9	3.0	3.5	4.0	6.0	8.0	12.0	14.0	16.0
Service charges											
Sanitation											
Sanitation tax	8.0	9.0	9.7	13.1	14.4	15.9	17.4	19.2	25.9	27.2	28.6
Arrears Collected	26.3	15.0	30.0	109.0	96.9	87.6	81.8	78.8	77.1	50.0	25.0
Total revenue	165.5	162.6	185.6	368.4	381.9	401.4	428.5	462.5	546.1	630.7	638.9
OPERATING AND MAINTENANCE EXPENDITURE											
Water Supply											
Labor	65.7	70.0	72.5	80.0	84.0	88.2	92.6	97.2	102.1	107.2	112.6
Power	1.5	0.0	10.0	100.0	105.0	110.3	115.8	121.6	127.6	134.0	140.7
Materials	5.3	5.9	6.0	6.0	6.4	7.0	12.0	13.0	14.0	15.0	16.0
Other	10.9	9.0	9.0	7.0	8.5	10.5	12.0	13.5	15.0	16.5	18.0
Sanitation											
Labor	1.4	2.4	2.5	5.0	11.0	13.2	15.4	17.6	22.0	24.2	26.4
Power	0.6	0.0	0.0	10.0	12.0	14.0	16.0	20.0	22.0	24.0	26.0
Materials (in water)											
Other	0.0	0.0	0.0	2.0	2.0	3.5	4.3	5.0	5.0	6.3	7.0
Total O & M costs	85.4	87.3	100.0	210.0	229.7	246.7	268.1	287.9	308.5	327.2	346.7
OPERATING SURPLUS/DEFICIT	80.1	75.3	85.6	158.4	152.2	154.8	160.4	174.6	237.6	303.5	292.2
Less:Depreciation	30.0	29.8	28.0	28.0	34.5	50.8	54.5	56.5	58.5	58.0	58.0
Less:Interest Charges	0.0	0.0	0.0	0.0	5.8	18.1	32.9	56.6	77.0	95.8	109.9
NET SURPLUS/DEFICIT	50.1	46.3	57.6	130.4	111.9	85.9	73.0	61.5	102.1	149.6	124.3
Memorandum items											
1. Price contingency assumptions for costs											
rate				1.060	1.060	1.060	1.070	1.070	1.040	1.040	1.040
factor				1.030	1.100	1.175	1.257	1.345	1.399	1.455	1.513
2. Arrears in current year											
3. Working ratio	1.94	1.86	1.86	1.75	1.66	1.63	1.60	1.61	1.77	1.93	1.84
4. Operating ratio	1.94	1.86	1.86	1.75	1.62	1.52	1.42	1.34	1.42	1.49	1.40
5. % collection current (water) demand				50.00	53.00	58.00	64.00	70.00	74.00	77.00	80.00
6. Assumed interest charges on Project loans =			8.75 %								
7. Note: In this context Working ratio is revenue divided by O & M costs and Operating ratio is revenue divided by O & M plus debt service.											
8. Repayment of Principal on Project Loans				0.00	0.00	0.00	0.00	0.00	0.00	3.29	10.33

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Water Supply and Sanitation Sources and Application of Funds

Group A

(Rs Lakhs)

Varanasi Jal Sansthan

SOURCES	Actual 1983/4	Actual 1984/5	Estimate 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
Internally Generated											
Net surplus/deficit before int.	50.1	46.3	57.6	130.4	117.7	104.0	105.9	118.1	179.1	245.5	234.2
Less: Debt service	0.0	0.0	0.0	0.0	5.0	18.1	32.9	56.6	77.0	99.1	120.2
Less: Change in working capital	0.8	1.3	0.7	2.5	2.5	1.6	1.7	1.7	2.3	1.8	1.9
Add: Depreciation	30.0	29.0	28.8	28.0	34.5	50.8	54.5	56.5	58.5	58.0	58.0
External											
GOUP loan				65.8	140.8	169.9	270.6	232.7	215.5	160.5	100.4
Other loans				5.0	5.5	6.0	6.8	7.5	8.5		
GOUP capital grant				50.8	60.8	70.0	80.0	90.0	100.0		
Total sources	80.1	74.0	85.0	276.7	350.2	391.0	483.2	446.5	482.3	363.0	270.5
APPLICATIONS											
Capital Expenditure on Projects				65.8	140.8	169.9	270.6	232.7	215.5	160.5	100.4
Other				55.0	65.5	76.0	86.6	97.5	108.5		
Total apps.	0.0	0.0	0.0	120.8	206.3	245.9	357.2	330.2	324.0	160.5	100.4
BALANCE TO BE FINANCED	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Income and Expenditure Statement

Group A

(Rs Lakhs)
(Cash basis)

Varanasi Nagar Mahapalika

	Actual 1983/4	Actual 1984/5	Estimate 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
INCOME											
Revenue Account											
General tax	54.1	53.4	63.2	85.3	89.6	94.0	98.7	103.7	140.0	147.0	154.4
Octroi	237.3	255.8	292.6	336.5	387.0	445.0	511.8	588.5	676.8	778.3	895.1
Other taxes	25.9	22.9	24.1	33.1	36.4	40.0	44.0	48.4	53.2	58.6	64.4
Other income	46.3	53.6	51.0	53.6	56.2	59.0	62.0	65.1	68.3	71.8	75.4
Sub-total	363.6	385.7	430.9	508.4	569.2	638.1	716.5	805.7	938.3	1055.7	1189.2
Revenue grants	111.4	194.1	156.3	184.1	202.5	222.8	245.1	269.6	296.5	326.2	358.8
Total revenue	475.0	579.8	587.2	692.5	771.7	860.9	961.6	1075.3	1234.8	1381.9	1548.0
Capital Account											
Capital loans	9.3	15.0	0.0	27.4	58.7	73.5	113.4	97.7	90.6	67.5	42.3
Capital grants	0.0	129.8	39.6	2.9	6.2	7.5	12.0	10.4	9.6	7.5	4.5
Total capital	9.3	144.8	39.6	30.3	64.9	81.0	125.4	108.1	100.2	75.0	46.8
Capital a/c Deficit			63.1	26.0	20.9	15.9	8.3	3.4			
TOTAL RECEIPTS	484.3	724.6	689.9	748.8	857.5	957.8	1095.3	1186.8	1335.0	1456.9	1594.8
EXPENDITURES											
Revenue Expenditures											
Gen. supervision & rev. colln.	58.6	76.3	81.7	81.7	89.9	98.9	108.7	119.6	131.6	144.7	159.2
Drainage & conservancy	221.4	306.5	274.5	302.0	332.1	365.4	401.9	442.1	486.3	534.9	588.4
Medical, pub. health etc.	32.9	46.1	41.4	47.9	52.7	58.0	63.7	70.1	77.1	84.8	93.3
Public safety & convenience	45.4	29.7	38.3	60.3	66.3	72.9	80.2	88.2	97.0	106.7	117.4
Public works	61.3	105.3	133.2	154.1	169.5	186.5	205.1	225.6	248.2	273.0	300.3
Miscellaneous	32.8	42.2	44.4	72.5	79.7	87.6	96.4	106.0	116.6	128.3	141.1
Sub-total	452.4	606.1	613.5	718.5	790.2	869.3	956.0	1051.6	1156.8	1272.4	1399.7
Debt service	0.0	0.0	0.0	0.0	2.4	7.5	13.9	27.1	42.8	59.7	79.5
Total revenue expenditure	452.4	606.1	613.5	718.5	792.6	876.8	969.9	1078.7	1199.6	1332.1	1479.2
Capital Expenditure											
Total capital expenditure	17.2	65.5	76.4	30.3	64.9	81.0	125.4	108.1	100.2	75.0	46.8
Capital a/c Surplus	14.7	53.0							35.2	49.8	68.8
TOTAL EXPENDITURE	484.3	724.6	689.9	748.8	857.5	957.8	1095.3	1186.8	1335.0	1456.9	1594.8
Memorandum items											
1. Internally Generated Revenue as % of revenue expenditure	80.4%	63.6%	70.2%	70.8%	71.8%	72.8%	73.9%	74.7%	78.2%	79.2%	80.4%
2. General tax as % of:											
(a) Current demand			59.00	65.00	68.00	72.00	75.00	79.00	81.00	83.00	85.00
(b) Arrears demand											
(c) Total demand			42.00								

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Income and Expenditure Statement

Group A

(Rs Lakhs)

Varanasi Development Authority

	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2
INCOME						
Sales	252.9	270.5	306.3	337.0	370.9	408.0
Less: Cost of Sales	248.6	273.8	301.2	331.3	364.7	401.1
Sub-total	4.3	4.7	5.1	5.7	6.2	6.9
Other Income	110.5	115.3	124.4	130.1	143.2	157.5
Total	114.8	120.0	129.5	135.8	149.4	164.4
EXPENDITURE						
Gen. Establishment & Admin.	40.1	44.1	48.5	53.4	58.7	64.6
Other Expences	25.0	25.4	25.9	26.5	27.0	27.5
Depreciation	10.8	9.8	8.8	7.9	7.1	6.4
Sub-total	75.9	79.3	83.2	87.8	92.8	98.5
Interest on Debt	30.3	33.4	38.8	40.5	44.5	49.0
Total	106.2	112.7	122.0	128.3	137.3	147.5
NET INCOME	8.6	7.3	7.5	7.5	12.1	16.9

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Balance Sheet Statement

Group A

(Rs Lakhs)

Varanasi Development Authority

	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2
ASSETS						
Net Fixed Assets	103.3	113.7	125.0	137.5	151.3	166.4
Work in Progress	248.6	273.8	301.2	331.3	364.7	401.1
Sub-total	351.9	387.5	426.2	468.8	516.0	567.5
Deposits & Investments	2.6	3.0	3.0	3.3	3.8	4.2
Current Assets	55.0	57.8	60.0	63.0	66.2	69.5
TOTAL	409.5	448.3	489.2	535.1	586.0	641.2
LIABILITIES						
Reserves	-216.6	-121.1	-91.9	-61.3	-34.4	-7.4
Profit/Loss Account	8.6	7.3	7.5	7.5	12.1	16.9
Sub-total	-208.0	-113.8	-84.4	-53.8	-22.3	9.5
Long Term Loans						
GOUP	504.0	478.8	506.2	536.3	569.7	606.2
Other						
Less: Current maturities	50.4	47.9	50.6	53.6	57.0	60.6
Sub-total	245.6	317.1	371.2	428.9	490.4	555.1
Current Liabilities	163.9	131.2	118.0	106.2	95.6	86.1
TOTAL	409.5	448.3	489.2	535.1	586.0	641.2

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Water Supply and Sanitation Income and Expenditure Statements

Group A

(Rs Lakhs)
(Cash basis)

Allahabad Jal Sansthan

REVENUE	Actual 1983/4	Actual 1984/5	Actual 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
Water Supply											
Water - all consumers	33.5	35.9	46.1	76.4	97.4	120.2	138.1	192.9	202.5	253.0	291.0
Water tax	57.7	59.0	59.6	125.0	131.3	137.8	144.7	151.9	205.1	220.0	230.0
Other water	3.9	4.1	4.5	5.0	5.3	5.5	5.8	6.1	6.4	6.7	7.0
Meter rent	0.6	0.5	0.5	0.6	1.1	1.3	1.5	1.8	2.0	2.3	2.6
Development charge											
Service charges											
Sanitation											
Sanitation tax etc.	0.1	0.2	0.3	25.5	26.8	28.1	29.5	31.0	41.9	44.0	46.2
Arrears Collected (in water supply)											
Total revenue	95.8	99.7	111.0	232.5	261.8	292.9	319.6	383.7	457.9	526.0	576.8
OPERATING AND MAINTENANCE EXPENDITURE											
Water Supply											
Labor	76.2	93.3	104.1	103.1	113.3	124.7	137.2	150.8	165.9	177.6	191.6
Power	16.8	0.0	0.0	90.0	106.0	123.9	135.0	145.8	156.9	172.6	188.8
Materials (incl.sanitation)	3.5	5.1	5.8	7.1	8.0	9.6	11.5	13.8	16.6	18.2	20.0
Other	12.9	15.1	21.6	33.3	27.5	30.7	35.4	41.0	46.8	51.5	56.6
Sanitation (in water supply)											
Total O & M costs	109.4	113.5	131.5	233.5	254.8	288.9	319.1	351.4	386.2	419.9	449.0
OPERATING SURPLUS/DEFICIT	-13.6	-13.8	-20.5	-0.9	7.0	4.1	0.6	32.3	71.8	106.1	127.8
Less:Depreciation	60.0	60.0	60.0	67.6	70.8	74.1	77.2	80.3	83.5	83.5	83.5
Less:Interest Charges	0.0	0.0	0.0	0.0	3.7	11.6	22.8	30.0	51.0	63.0	71.9
NET SURPLUS/DEFICIT	-73.6	-73.8	-80.5	-68.5	-67.5	-81.6	-99.5	-86.0	-62.7	-40.3	-27.6
Memorandum items											
1. Price contingency assumptions for costs											
rate				1.060	1.060	1.060	1.070	1.070	1.040	1.040	1.040
factor				1.030	1.100	1.17%	1.257	1.345	1.399	1.455	1.513
2. Arrears in current year											
3. Working ratio	0.88	0.88	0.84	1.00	1.03	1.01	1.00	1.09	1.19	1.25	1.28
4. Operating ratio	0.88	0.88	0.84	1.00	1.01	0.98	0.93	0.99	1.05	1.09	1.11
5. % collection current (water) demand	60	61	70	70	72	75	80	82	85	85	85
6. Assume 8.75% interest on loans											
7. Note: In this context Working ratio is revenues divided by O & M costs, whilst Operating ratio is revenues divided by O & M plus debt service.											
8. Repayment of Principal on Project Loans				0	0	0	0	0	0	2.11	6.62

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Water Supply and Sanitation Sources and Application of Funds

Group A

(Rs Lakhs) Allahabad Jal Sansthan

SOURCES	Actual 1983/4	Actual 1984/5	Actual 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
Internally Generated											
Net surplus/deficit before int.	-73.6	-73.8	-80.5	-68.5	-63.8	-70.8	-76.6	-48.0	-11.7	22.6	44.3
Less: Debt service	0.0	0.0	0.0	0.0	3.7	11.6	22.8	38.8	51.0	65.1	78.5
Less: Change in working capital	0.0	4.3	2.7	-0.3	2.6	2.8	3.1	3.4	3.8	2.9	3.5
Add: Depreciation	60.0	60.0	60.0	67.6	70.8	74.1	77.2	80.3	83.5	83.5	83.5
External											
GOUP loan				42.2	98.1	128.8	172.8	148.4	137.3	102.2	63.9
Other loans											
GOUP capital grant											
Total sources	-13.6	-18.1	-23.2	41.5	98.8	118.5	147.4	139.3	154.3	148.3	109.7
APPLICATIONS											
Capital Expenditure on Projects				42.2	90.1	128.8	172.8	148.4	137.3	102.2	63.9
Other				14.4	11.2						
Total apps.	0.0	0.0	0.0	56.6	101.3	128.8	172.8	148.4	137.3	102.2	63.9
BALANCE TO BE FINANCED	13.6	18.1	23.2	15.1	10.5	10.3	25.4	9.1	0.0	0.0	0.0

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Income and Expenditure Statement

Group A

(Rs Lakhs)
(Cash basis)

Allahabad Naga Mahapalika

	Actual 1983/4	Actual 1984/5	Actual 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
INCOME											
Revenue Account											
General tax	42.6	44.0	56.9	80.0	100.0	110.0	121.0	131.1	177.0	185.8	204.4
Octroi	252.9	275.7	281.6	375.0	431.3	495.9	570.3	655.9	754.3	867.4	997.5
Other taxes	14.8	17.1	12.4	19.5	20.5	21.5	22.6	23.7	24.9	26.1	27.4
Other income	64.4	98.0	106.0	109.2	114.7	120.4	126.4	132.7	139.4	146.3	153.7
Sub-total	374.7	434.8	456.9	583.7	666.4	747.8	840.3	943.4	1095.5	1225.7	1383.0
Revenue grants	132.7	309.1	223.4	150.4	155.0	165.0	175.0	190.0	200.0	210.0	220.0
Total revenue	507.4	743.9	680.3	734.1	821.4	912.8	1015.3	1133.4	1295.5	1435.7	1603.0
Capital Account											
Capital loans	0.0	0.0	0.0	40.1	86.0	123.3	165.7	142.7	132.2	98.5	61.7
Capital grants	23.9	12.7	0.0	7.1	15.2	18.2	29.3	25.3	23.5	17.5	11.0
Total capital	23.9	12.7	0.0	47.2	101.2	141.5	195.0	168.0	155.7	116.0	72.7
Capital a/c Deficit			52.7								
TOTAL RECEIPTS	531.3	756.6	733.0	781.3	922.6	1054.3	1210.3	1301.4	1451.2	1551.7	1675.7
EXPENDITURES											
Revenue Expenditures											
Gen. supervision & rev. colln.	56.4	71.3	75.7	80.6	88.6	97.5	107.2	117.9	129.7	142.7	156.9
Drainage & conservancy	227.7	308.2	322.3	341.3	375.4	412.9	454.2	499.6	549.6	604.6	665.0
Medical, pub. health etc.	21.5	25.7	25.3	31.3	34.4	37.8	41.6	45.7	50.4	55.4	61.0
Public safety & convenience	31.1	69.4	47.8	50.5	55.6	61.2	67.3	74.0	81.4	89.5	98.5
Public works	81.0	183.4	180.6	97.6	107.4	118.1	129.9	142.9	157.2	172.9	190.2
Miscellaneous incl. loan maturity	84.4	76.0	65.7	128.8	119.9	115.5	120.0	127.8	135.0	140.0	145.0
Sub-total	502.1	734.0	717.4	730.1	781.3	843.0	920.2	1007.9	1103.3	1205.1	1316.6
Debt service				0.0	3.5	11.0	21.8	41.2	64.2	90.9	119.8
Total revenue expenditure	502.1	734.0	717.4	730.1	784.8	854.0	942.0	1049.1	1167.5	1296.0	1436.4
Capital Expenditure											
Total capital expenditure	23.1	15.7	15.6	47.2	101.2	141.5	195.0	168.0	155.7	116.0	72.7
Capital a/c Surplus	6.1	6.9		4.0	36.6	58.8	73.3	84.3	128.0	139.7	166.6
TOTAL EXPENDITURE	531.3	756.6	733.0	781.3	922.6	1054.3	1210.3	1301.4	1451.2	1551.7	1675.7
Memorandum items											
1. Internally Generated Revenue as % of revenue expenditure	74.6%	59.2%	63.7%	79.9%	84.9%	87.6%	89.2%	89.9%	93.8%	94.6%	96.3%
2. General tax as % of:											
(a) Current demand	66	65	70	70	72	74	76	80	82	84	85
(b) Arrears demand	45	48	67								
(c) Total demand											

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Income and Expenditure Statement

Group A

(Rs Lakhs) Allahabad Development Authority

	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2
INCOME						
Sales	1696.0	2135.0	2568.0	3122.0	3776.0	4480.0
Less: Cost of Sales	1562.0	1962.0	2342.0	2842.0	3439.0	4076.0
Sub-total	134.0	173.0	226.0	280.0	337.0	404.0
Other Income	88.0	109.0	131.0	161.0	185.0	172.0
Total	222.0	282.0	357.0	441.0	522.0	576.0
EXPENDITURE						
Gen. Establishment & Admin.	45.0	48.0	55.0	60.0	65.0	65.0
Other Expenses	25.0	26.0	30.0	32.0	35.0	39.0
Depreciation	7.0	8.0	9.0	10.0	11.0	12.0
Sub-total	77.0	82.0	94.0	102.0	111.0	116.0
Interest on Debt	85.0	110.0	150.0	180.0	220.0	270.0
Total	162.0	192.0	244.0	282.0	331.0	386.0
NET INCOME	60.0	90.0	113.0	159.0	191.0	190.0

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Balance Sheet Statement

Group A

(Rs Lakhs) Allahabad Development Authority

	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2
ASSETS						
Net Fixed Assets	155.0	160.0	165.0	170.0	175.0	180.0
Work in Progress	1669.0	1870.0	2327.0	2842.0	3439.0	4076.0
Sub-total	1824.0	2030.0	2492.0	3012.0	3614.0	4256.0
Deposits & Investments	40.0	45.0	45.0	45.0	45.0	45.0
Current Assets	87.0	73.0	79.0	108.0	112.0	93.0
TOTAL	1951.0	2148.0	2616.0	3165.0	3771.0	4394.0
LIABILITIES						
Reserves	278.0	242.0	248.0	245.0	265.0	329.0
Profit/Loss Account	60.0	90.0	113.0	159.0	191.0	190.0
Sub-total	338.0	332.0	361.0	404.0	456.0	519.0
Long Term Loans						
GOUP	164.0	67.0	69.0	35.0		
Other	1300.0	1650.0	2150.0	2750.0	3400.0	4000.0
Less: Current maturities	87.0	171.0	249.0	324.0	400.0	500.0
Sub-total	1715.0	1878.0	2331.0	2865.0	3456.0	4019.0
Current Liabilities	236.0	270.0	285.0	300.0	315.0	375.0
TOTAL	1951.0	2148.0	2616.0	3165.0	3771.0	4394.0

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Water Supply and Sanitation Income and Expenditure Statements

Group A

Lucknow Jal Sansthan

(Rs Lakhs)
(Cash basis)

REVENUE	Actual 1983/4	Actual 1984/5	Actual 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
Water Supply											
Water - all consumers	89.0	93.6	106.0	185.5	194.8	204.5	214.7	375.7	394.5	414.2	434.9
Water tax	85.5	94.7	110.0	163.5	171.7	180.3	189.3	198.7	268.2	281.6	295.7
Other water	6.3	13.8	26.2	22.1	23.2	24.4	25.6	26.9	28.2	29.6	31.1
Meter rent	0.6	0.9	1.5	2.0	2.5	3.0	3.8	4.5	5.5	6.0	6.5
Development charge											
Service charges											
Sanitation											
Sanitation tax	8.0	9.1	15.0	23.1	24.3	25.5	26.7	28.1	37.9	39.8	41.8
Arrears Collected	0.0	0.0	0.0	88.0	105.0	161.0	179.6	155.4	136.7	100.0	100.0
Total revenue	189.4	212.1	258.7	484.2	521.4	598.6	639.7	789.3	871.0	871.2	910.0
OPERATING AND MAINTENANCE EXPENDITURE											
Water Supply											
Labor	66.0	108.5	116.0	121.8	127.9	134.3	141.0	148.0	155.5	163.2	171.4
Power	43.7	16.0	0.2	156.6	172.3	189.5	208.4	229.3	252.2	277.4	305.2
Materials (incl.sanitation)	34.4	54.0	64.6	68.0	72.0	77.9	83.3	89.1	95.4	102.0	109.2
Other	1.4	6.8	8.5	8.5	10.0	12.0	13.0	14.0	15.0	16.0	17.0
Sanitation											
Labor	5.0	24.6	41.0	47.0	50.0	54.0	58.0	63.0	67.0	70.0	75.0
Power	10.0	0.0	30.0	30.0	35.2	38.8	42.7	47.1	51.8	55.3	59.0
Materials											
Other	0.0	1.2	1.5	2.0	3.5	4.5	5.5	7.0	8.0	9.0	10.0
Total O & M costs	160.5	211.1	261.8	433.9	471.6	510.9	552.0	597.5	644.8	693.0	746.8
OPERATING SURPLUS/DEFICIT	28.9	1.0	-3.1	50.3	49.8	87.7	87.8	191.7	226.2	178.2	163.2
Less:Depreciation	91.0	90.8	90.6	90.5	92.0	94.0	97.0	100.0	110.0	116.0	120.5
Less:Interest Charges	0.0	0.0	0.0	0.0	4.9	15.3	30.2	50.1	67.2	83.0	91.8
NET SURPLUS/DEFICIT	-62.1	-89.8	-93.7	-40.2	-47.1	-21.6	-39.4	41.6	49.0	-20.8	-52.1
Memorandum items											
1. Price contingency assumptions for costs											
rate				1.060	1.060	1.060	1.070	1.070	1.040	1.040	1.040
factor				1.030	1.100	1.175	1.257	1.345	1.399	1.455	1.513
2. Arrears in current year			209	265.5	345.8	206.5	117.1	164.4			
3. Working ratio	1.18	1.00	0.99	1.12	1.11	1.17	1.16	1.32	1.35	1.26	1.22
4. Operating ratio	1.18	1.00	0.99	1.12	1.09	1.14	1.10	1.22	1.22	1.12	1.08
5. % collection current (water) demand				70	72	75	80	82	85	85	85
6. Assumption for interest rate on Project loans = 8.75 %											
8. Working ratio is revenue divided by O & M costs and Operating ratio is revenue divided by O & M costs plus debt service											
8. Repayment of Principal on Project Loans				0	0	0	0	0	0	2.78	8.73

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Water Supply and Sanitation Sources and Application of Funds

Group A

(Rs Lakhs) Lucknow Jal Sansthan

SOURCES	Actual 1983/4	Actual 1984/5	Actual 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
Internally Generated											
Net surplus/deficit before int.	-62.1	-89.8	-93.7	-48.2	-51.9	-36.8	-69.5	-8.5	-18.2	-103.8	-146.9
Less: Debt service	0.0	0.0	0.0	0.0	4.9	15.3	38.2	58.1	67.2	85.8	103.5
Less: Change in working capital	0.0	15.5	6.0	3.0	2.3	2.6	2.7	3.0	2.9	2.7	3.3
Add: Depreciation	91.0	90.8	90.6	90.5	92.0	94.0	97.0	100.0	110.0	116.0	120.5
External											
GOUP loan				55.6	110.9	170.1	228.3	195.2	180.5	135.1	84.5
Other loans											
GOUP capital grant											
Total sources	28.9	-14.5	-9.1	102.9	207.4	328.3	393.0	461.8	397.4	239.4	86.4
APPLICATIONS											
Capital Expenditure on Projects				55.6	110.9	170.1	228.3	195.2	180.5	135.1	84.5
Other											
Total apps.	0.0	0.0	0.0	55.6	110.9	170.1	228.3	195.2	180.5	135.1	84.5
BALANCE TO BE FINANCED	0.0	14.5	9.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Income and Expenditure Statement

Group A

(Rs Lakhs)
(Cash basis)

Lucknow Nagar Mahapalika

INCOME	Actual 1983/4	Actual 1984/5	Actual 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
Revenue Account											
General tax	143.4	157.9	195.3	350.0	420.0	441.0	463.0	486.2	656.4	689.2	723.6
Octroi	282.1	301.6	304.3	411.0	472.7	543.5	625.1	718.8	826.7	950.7	1093.3
Other taxes	25.0	24.5	23.9	30.0	31.5	33.1	34.7	36.5	38.3	40.0	42.0
Other income	125.4	100.5	159.3	155.0	165.4	165.4	170.0	175.4	180.6	182.0	184.0
Sub-total	575.9	584.5	682.8	946.0	1089.6	1183.0	1292.8	1416.9	1702.0	1861.9	2042.9
Revenue grants	99.5	142.4	108.7	110.0	121.3	131.9	139.0	139.5	148.2	155.0	160.0
Total revenue	675.4	726.9	791.5	1056.0	1210.9	1314.9	1431.8	1556.4	1850.2	2016.9	2202.9
Capital Account											
Capital loans	0.0	5.0	0.0	75.1	160.8	230.5	309.9	266.8	247.2	184.2	115.2
Capital grants	138.1	612.3	461.5	3.6	7.6	9.2	14.8	12.8	11.8	8.8	5.5
Total capital	138.1	617.3	461.5	78.7	168.4	239.7	324.7	279.6	259.0	193.0	120.7
Capital a/c Deficit	50.1		111.6	114.1	18.9						
TOTAL RECEIPTS	863.6	1344.2	1364.6	1248.8	1398.2	1554.6	1756.5	1836.0	2109.2	2209.9	2323.6
EXPENDITURES											
Revenue Expenditures											
Gen. supervision & rev. colln.	104.5	119.4	128.7	182.9	192.0	201.6	211.7	222.3	233.4	245.0	257.3
Drainage & conservancy	355.9	405.2	448.8	590.3	619.8	650.8	683.3	717.5	753.3	790.9	830.4
Medical, pub. health etc.	17.5	21.2	16.3	33.0	34.6	36.4	38.2	40.1	42.1	44.2	46.4
Public safety & convenience	77.0	64.4	77.1	138.2	145.1	152.4	160.0	168.0	176.4	185.2	194.5
Public works	31.5	38.4	33.0	106.4	106.4	111.7	117.4	123.2	129.3	133.0	135.0
Miscellaneous	66.1	61.4	86.9	119.3	125.3	131.6	138.1	145.0	152.3	160.0	167.8
Sub-total	652.5	710.0	790.8	1170.1	1223.2	1284.5	1348.7	1416.1	1486.8	1558.3	1631.4
Debt service	9.3	0.3	0.0	0.0	6.6	20.7	40.9	77.2	120.2	170.0	224.0
Total revenue expenditure	661.8	710.3	790.8	1170.1	1229.8	1305.2	1389.6	1493.3	1607.0	1728.3	1855.4
Capital Expenditure											
Total capital expenditure	201.8	382.3	573.8	78.7	168.4	239.7	324.7	279.6	259.0	193.0	120.7
Capital a/c Surplus		251.6				9.7	42.2	63.1	243.2	288.6	347.5
TOTAL EXPENDITURE	863.6	1344.2	1364.6	1248.8	1398.2	1554.6	1756.5	1836.0	2109.2	2209.9	2323.6
Memorandum items											
1.Internally Generated Revenue as % of revenue expenditure	87.0%	82.3%	86.3%	80.9%	88.6%	90.6%	93.0%	94.9%	105.9%	107.7%	110.1%
2. General tax as % of:											
(a) Current demand			69.6	70	72	74	76	80	82	84	85
(b) Arrears demand			28.6								
(c) Total demand											

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Income and Expenditure Statement

Group A

(Rs Lakhs)

Lucknow Development Authority

INCOME	Actual 1983/4	Actual 1984/5	Estimate 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2
Sales	2239.4	2570.6	2552.6	3800.0	4180.0	4390.0	4610.0	4840.0	5082.0
Less: Cost of Sales	1930.4	2181.1	2204.8	3250.0	3506.7	3586.5	3767.7	4010.3	4349.0
Sub-total	309.0	389.5	347.8	550.0	673.3	803.5	842.3	829.7	733.0
Other Income	200.9	205.7	361.7	376.0	410.0	415.0	456.0	500.0	650.0
Total	509.9	595.2	709.5	926.0	1083.3	1218.5	1298.3	1329.7	1383.0
EXPENDITURE									
Gen. Establishment & Admin.	131.0	156.5	169.0	229.4	252.3	277.5	305.3	320.0	336.0
Other Expences									
Depreciation	45.9	29.8	30.1	45.0	51.0	56.0	58.0	59.0	62.0
Sub-total	176.9	186.3	199.1	274.4	303.3	333.5	363.3	379.0	398.0
Interest on Debt	158.9	195.3	256.8	300.0	410.0	470.0	480.0	490.0	510.0
Total	335.8	381.6	455.9	574.4	713.3	803.5	843.3	869.0	908.0
NET INCOME	174.1	213.6	253.6	351.6	370.0	415.0	455.0	459.9	475.0

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Balance Sheet Statement

Group A

(Rs Lakhs)

Lucknow Development Authority

ASSETS	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2
Net Fixed Assets	760.0	920.0	938.0	1220.0	1344.0	14788.0
Work in Progress	810.0	840.0	856.0	1110.0	1220.0	1344.0
Sub-total	1570.0	1760.0	1794.0	2330.0	2564.0	16132.0
Deposits & Investments	350.0	300.0	350.0	400.0	350.0	300.0
Current Assets	4875.0	5020.0	5166.0	5470.0	5696.0	6003.0
TOTAL	6795.0	7060.0	7310.0	8200.0	8610.0	22435.0
LIABILITIES						
Reserves	407.0	240.0	245.0	290.0	275.0	13600.0
Profit/Loss Account	352.0	370.0	415.0	455.0	460.0	475.0
Sub-total	759.0	610.0	660.0	745.0	735.0	14075.0
Long Term Loans						
GOUP	1360.0	1425.0	1495.0	1665.0	1800.0	1600.0
Other	2350.0	2415.0	2495.0	2575.0	2630.0	2410.0
Less: Current maturities	285.0	315.0	390.0	410.0	430.0	425.0
Sub-total	4184.0	4135.0	4260.0	4575.0	4735.0	17660.0
Current Liabilities	2611.0	2945.0	3050.0	3625.0	3875.0	4775.0
TOTAL	6795.0	7080.0	7310.0	8200.0	8610.0	22435.0

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Water Supply and Sanitation Income and Expenditure Statements

Group B

(Rs Lakhs)
(Cash basis)

Bareilly Nagar Mahapalika

REVENUE	Actual 1983/4	Actual 1984/5	Estimate 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
Water Supply											
Water - all consumers	6.1	4.8	5.3	15.9	17.5	19.2	21.2	33.9	37.1	40.8	46.9
Water tax	19.7	24.3	25.4	35.0	38.5	42.4	46.6	51.2	69.1	76.0	83.6
Other water	1.2	1.2	0.9	1.3	1.6	1.7	1.9	2.0	2.2	2.4	2.6
Meter rent	0.1	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.3
Development charge											
Service charges											
Sanitation											
Sanitation tax	0.0	0.0	0.0	4.0	4.2	4.4	4.6	4.8	6.5	6.8	7.5
Other sanitation	1.1	1.2	1.5	1.7	2.1	2.3	2.6	2.9	3.2	3.4	3.6
Total revenue	28.2	31.5	33.2	58.0	64.1	70.2	77.1	95.0	118.4	129.7	144.5
OPERATING AND MAINTENANCE EXPENDITURE											
Water Supply											
Labor	14.2	15.1	15.9	16.5	18.5	19.5	20.5	22.0	24.5	25.5	26.5
Power	24.0	20.0	19.5	32.0	34.0	37.0	39.0	41.0	43.0	45.0	47.0
Materials	0.1	0.4	0.2	0.5	1.0	1.3	1.5	1.8	2.0	2.2	2.4
Other	5.6	2.9	3.7	5.0	6.0	7.5	9.0	11.5	14.0	15.5	17.0
Sanitation											
Labor	0.3	0.7	0.8	0.8	0.8	1.1	1.3	1.4	1.5	1.6	1.7
Power	0.3	0.4	0.4	0.5	0.5	0.8	0.9	1.0	1.1	1.2	1.3
Materials (in water)											
Other	0.0	0.0	0.1	0.1	0.2	0.2	0.6	0.8	0.9	1.1	1.2
Total O & M costs	44.5	39.5	40.6	55.4	61.0	67.4	72.8	79.5	87.0	92.1	97.1
OPERATING SURPLUS/DEFICIT	-16.3	-8.0	-7.4	2.6	3.1	2.8	4.3	15.5	31.4	37.6	47.4
Less:Depreciation	5.9	5.9	5.8	5.8	9.9	11.7	13.9	15.9	17.4	17.3	17.2
Less:Interest Charges	0.0	0.0	0.0	0.0	1.6	5.0	9.8	16.3	21.8	27.0	30.8
NET SURPLUS/DEFICIT	-22.2	-13.9	-13.2	-3.2	-8.4	-13.9	-19.4	-16.6	-7.8	-6.6	-0.6
Memorandum items											
1. Price contingency assumptions for costs											
rate				1.060	1.060	1.060	1.070	1.070	1.040	1.040	1.040
factor				1.030	1.100	1.175	1.257	1.345	1.399	1.455	1.513
2. Arrears in current year											
3. Working ratio	0.63	0.80	0.82	1.05	1.05	1.04	1.06	1.20	1.36	1.41	1.49
4. Operating ratio	0.63	0.80	0.82	1.05	1.02	0.97	0.93	0.99	1.09	1.09	1.13
5. % collection current (water) demand				45.00	50.00	53.00	58.00	63.00	67.00	71.00	75.00
6. Assumed interest charges on Project loans =			8.75 %								
7. Note: In this context Working ratio is revenue divided by O & M costs and Operating ratio is revenue divided by O & M plus debt service.											
8. Repayment of Principal on Project Loans				0.00	0.00	0.00	0.00	0.00	0.00	0.91	2.84

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Water Supply and Sanitation Sources and Application of Funds

Group B

(Rs Lakhs)

Bareilly Nagar Mahapalika

SOURCES	Actual 1983/4	Actual 1984/5	Estimate 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
Internally Generated											
Net surplus/deficit before int.	-22.2	-13.9	-13.2	-3.2	-6.8	-8.9	-9.6	-8.4	14.8	28.3	38.2
Less: Debt service	0.0	0.0	0.0	0.0	1.6	5.0	9.8	16.3	21.8	27.9	33.6
Less: Change in working capital	0.0	0.3	0.2	0.1	0.5	0.3	0.3	0.4	0.7	0.3	0.3
Add: Depreciation	5.9	5.9	5.8	5.8	9.9	11.7	13.9	15.9	17.4	17.3	17.2
External											
GOUP loan				18.1	38.7	55.3	74.0	63.5	58.7	43.7	27.3
Other loans											
GOUP capital grant											
Total sources	-16.3	-8.3	-7.6	20.6	39.7	52.8	68.2	62.4	67.6	53.2	49.8
APPLICATIONS											
Capital Expenditure on Projects				18.1	38.7	55.3	74.0	63.5	58.7	43.7	27.3
Other											
Total apps.	0.0	0.0	0.0	18.1	38.7	55.3	74.0	63.5	58.7	43.7	27.3
BALANCE TO BE FINANCED	16.3	8.3	7.6	0.0	0.0	2.5	5.8	1.1	0.0	0.0	0.0

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Income and Expenditure Statement

Group B

(Rs Lakhs)
(Cash basis)

Bareilly Nagar Mahapalika

	Actual 1983/4	Actual 1984/5	Estimate 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
INCOME											
Revenue Account											
General tax	9.5	12.2	12.5	16.9	18.6	20.4	22.5	24.7	33.3	36.6	40.3
Octroi	97.4	98.9	106.1	121.9	140.2	161.2	185.4	213.2	245.2	282.0	324.3
Other taxes	12.2	11.3	12.6	14.5	16.0	17.5	19.0	21.0	23.0	25.0	27.0
Other income	78.2	86.3	149.0	116.7	130.7	146.4	164.0	183.6	205.7	230.3	258.0
Sub-total	119.1	122.4	131.2	153.3	174.8	199.2	226.9	258.9	301.5	343.6	391.5
Revenue grants	33.4	36.9	39.5	41.0	45.0	49.0	54.0	60.0	66.0	68.0	70.0
Total revenue	152.5	159.3	170.7	194.3	219.8	248.2	280.9	318.9	367.5	411.6	461.5
Capital Account											
Capital loans	20.7	5.1	2.0	46.1	98.9	141.9	190.9	164.5	152.6	113.7	71.2
Capital grants	64.8	80.0	102.6	104.2	107.7	111.9	118.6	124.4	129.8	133.8	136.3
Total capital	85.5	85.1	104.6	150.3	206.6	253.8	309.5	288.9	282.4	247.5	207.5
Capital a/c Deficit	89.3	82.4	96.7	85.4	82.7	79.8	80.0	79.7	71.0	69.7	66.7
TOTAL RECEIPTS	327.3	326.8	372.0	430.0	509.1	581.8	670.4	687.5	720.9	728.8	735.7
EXPENDITURES											
Revenue Expenditures											
Gen. supervision & rev. colln.	24.7	25.4	28.4	30.0	33.0	35.0	36.4	42.0	43.5	45.0	46.5
Drainage & conservancy	164.1	172.3	180.9	190.0	199.5	209.4	219.9	230.9	242.5	254.6	267.3
Medical, pub. health etc.	4.5	4.4	5.0	5.2	6.0	6.0	7.0	8.0	8.5	9.5	11.0
Public safety & convenience	18.4	20.7	20.3	20.8	23.0	24.0	25.0	26.2	28.5	29.0	30.0
Public works	33.5	24.0	15.4	19.0	21.0	22.5	25.0	26.0	28.0	29.0	30.0
Miscellaneous	11.3	11.6	13.6	15.0	16.0	18.5	22.6	23.8	25.8	27.0	29.0
Sub-total	256.5	258.4	263.6	280.0	298.5	315.4	335.9	356.9	376.8	394.1	413.8
Debt service	0.0	0.0	0.0	0.0	4.0	12.6	25.0	41.7	61.7	87.2	114.4
Total revenue expenditure	256.5	258.4	263.6	280.0	302.5	328.0	360.9	398.6	438.5	481.3	528.2
Capital Expenditure											
Total capital expenditure	70.8	68.4	108.4	150.3	206.6	253.8	309.5	288.9	282.4	247.5	207.5
Capital a/c Surplus											
TOTAL EXPENDITURE	327.3	326.8	372.0	430.3	509.1	581.8	670.4	687.5	720.9	728.8	735.7
Memorandum items											
1. Internally Generated Revenue as % of revenue expenditure	46.4%	47.4%	49.8%	54.8%	57.8%	60.7%	62.9%	65.0%	68.8%	71.4%	74.1%
2. General tax as % of:											
(a) Current demand			45.00	50.00	53.00	58.00	64.00	70.00	74.00	77.00	80.00
(b) Arrears demand			6.00								
(c) Total demand			12.70								

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Income and Expenditure Statement

Group B

(Rs Lakhs) — Bareilly Development Authority

INCOME	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
Sales	60.0	70.0	80.0	85.0	90.0	94.0	99.0	102.0
Less: Cost of Sales	50.0	58.0	62.0	67.0	70.0	75.0	80.0	83.0
Sub-total	10.0	12.0	18.0	18.0	20.0	19.0	19.0	19.0
Other Income	48.0	51.0	51.0	60.0	59.0	61.0	64.0	65.0
Total	58.0	63.0	69.0	78.0	79.0	80.0	83.0	84.0
EXPENDITURE								
Gen. Establishment & Admin.	15.0	16.5	18.0	19.8	21.0	22.5	24.0	24.0
Other Expences	2.0	2.2	2.4	2.6	2.9	3.1	3.5	4.0
Depreciation	13.0	13.0	13.0	13.0	13.0	12.0	12.0	12.0
Sub-total	30.0	31.7	33.4	35.4	36.9	37.6	39.5	40.0
Interest on Debt	25.0	30.0	35.0	40.0	40.0	40.0	40.5	41.0
Total	55.0	61.7	68.4	75.4	76.9	77.6	80.0	81.0
NET INCOME	3.0	1.3	1.4	2.6	2.1	2.4	3.0	3.0

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Balance Sheet Statement

Group B

(Rs Lakhs) — Bareilly Development Authority

ASSETS	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
Net Fixed Assets	434.6	444.6	454.6	464.6	469.6	469.6	472.6	476.6
Work in Progress	154.6	172.6	172.6	177.6	177.6	187.6	190.6	193.6
Sub-total	589.2	617.2	627.2	642.2	647.2	657.2	663.2	670.2
Deposits & Investments	10.0	12.0	14.0	16.0	18.0	20.0	22.0	23.0
Current Assets	94.9	109.2	116.6	130.2	143.3	160.7	177.7	194.7
TOTAL	694.1	738.4	757.8	788.4	808.5	837.9	862.9	887.9
LIABILITIES								
Reserves	39.0	55.0	69.3	83.7	199.3	113.4	127.8	142.8
Profit/Loss Account	3.0	1.3	1.4	2.6	2.1	2.4	3.0	3.0
Sub-total	42.0	56.3	70.7	86.3	201.4	115.8	130.8	145.8
Long Term Loans								
GOUP	292.8	322.8	342.8	352.8	272.8	392.8	412.8	432.8
Other	140.5	140.5	170.5	200.5	175.5	150.5	140.5	130.5
Less: Current maturities	60.0	40.0	50.0	55.0	55.0	55.0	55.0	55.0
Sub-total	415.3	479.6	534.0	584.6	594.7	604.1	629.1	654.1
Current Liabilities	278.8	258.8	223.8	203.8	213.8	233.8	233.8	233.8
TOTAL	694.1	738.4	757.8	788.4	808.5	837.9	862.9	887.9

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Water Supply and Sanitation Income and Expenditure Statements

Group B

(Rs Lakhs)
(Cash basis)

Moradabad Nagar Palika

REVENUE	Actual 1983/4	Actual 1984/5	Actual 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
Water Supply											
Water - all consumers	10.1	10.9	12.1	12.1	12.7	13.3	14.0	19.6	20.6	22.1	34.2
Water tax	0.0	0.0	0.0	13.0	14.5	15.2	16.0	16.8	22.7	24.4	25.6
Other water	0.1	0.1	0.1	0.1	0.1	0.7	0.2	0.2	0.2	0.2	0.2
Meter rent	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6
Development charge											
Service charges											
Sanitation											
Sanitation tax				2.2	2.3	2.4	2.5	2.7	3.6	3.8	4.0
Other sanitation	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9
Total revenue	10.7	11.5	12.7	29.5	30.9	33.0	34.0	40.5	48.5	51.9	65.5
OPERATING AND MAINTENANCE EXPENDITURE											
Water Supply											
Labor	5.5	6.0	6.2	9.5	10.0	10.5	11.0	11.6	12.2	12.8	13.4
Power	4.0	3.4	2.3	14.4	15.8	18.0	18.5	20.0	21.0	22.0	23.0
Materials	0.1	0.2	0.2	0.8	0.8	1.0	1.1	1.2	1.5	1.7	1.9
Other											
Sanitation (in water)											
Labor											
Power											
Materials											
Other											
Total O & M costs	9.6	9.6	8.7	24.7	26.6	29.5	30.6	32.8	34.7	36.5	38.3
OPERATING SURPLUS/DEFICIT	1.1	1.9	4.0	4.8	4.3	3.5	3.4	7.8	13.8	15.4	27.2
Less:Depreciation	7.7	7.6	7.5	7.6	9.3	11.4	13.5	14.2	15.8	14.9	14.8
Less:Interest Charges					0.9	2.9	5.6	9.4	12.5	15.5	17.6
NET SURPLUS/DEFICIT	-6.6	-5.7	-3.5	-2.8	-6.0	-10.8	-15.7	-15.8	-13.7	-14.9	-5.2
Memorandum items											
1. Price contingency assumptions for costs											
rate				1.060	1.060	1.060	1.070	1.070	1.040	1.040	1.040
factor				1.030	1.100	1.175	1.257	1.345	1.399	1.455	1.513
2. Arrears in current year											
3. Working ratio	1.11	1.20	1.46	1.19	1.16	1.12	1.11	1.24	1.40	1.42	1.71
4. Operating ratio	1.11	1.20	1.46	1.19	1.12	1.02	0.94	0.96	1.03	1.00	1.17
5. % collection current (water) demand				50.00	53.00	58.00	64.00	70.00	74.00	77.00	80.00
6. Assumed interest charges on Project loans =			8.75 %								
7. Note: In this context Working ratio is revenue divided by O & M costs and Operating ratio is revenue divided by O & M plus debt service.											
8. Repayment of Principal on Project Loans					0.00	0.00	0.00	0.00	0.00	0.53	1.64

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Water Supply and Sanitation Sources and Application of Funds

Group B

(Rs Lakhs) Moradabad Nagar Palika

SOURCES	Actual 1983/4	Actual 1984/5	Estimate 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
Internally Generated											
Net surplus/deficit before int.	-6.6	-5.7	-3.5	-2.8	-5.0	-7.9	-10.1	-6.4	-1.2	0.5	12.4
Less: Debt service	0.0	0.0	0.0	0.0	0.9	2.9	5.6	9.4	12.5	16.0	19.3
Less: Change in working capital	0.0	0.1	0.1	0.8	0.1	0.1	0.1	0.1	0.1	0.2	0.2
Add: Depreciation	7.7	7.6	7.5	7.6	9.3	11.4	13.5	14.2	15.0	14.9	14.8
External											
GOUP loan				10.5	22.3	31.7	42.4	36.3	33.5	24.9	15.4
Other loans											
GOUP capital grant											
Total sources	1.1	1.8	4.0	14.5	25.5	32.2	40.0	34.6	34.7	24.2	23.2
APPLICATIONS											
Capital Expenditure on Projects				10.5	22.3	31.7	42.4	36.3	33.5	24.9	15.4
Other											
Total apps.	0.0	0.0	0.0	10.5	22.3	31.7	42.4	36.3	33.5	24.9	15.4
BALANCE TO BE FINANCED	0.0	0.0	0.0	0.0	0.0	0.0	2.4	1.7	0.0	0.7	0.0

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Income and Expenditure Statement

Group B

(Rs Lakhs)
(Cash basis)

Moradabad Nagar Palika

INCOME	Actual 1983/4	Actual 1984/5	Actual 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
Revenue Account											
General tax	28.0	30.9	30.1	40.6	44.7	49.1	54.0	59.4	80.2	88.2	97.0
Octroi	59.9	63.9	93.7	107.8	123.9	142.5	163.9	188.5	216.7	249.2	286.6
Other taxes	2.6	2.4	2.6	2.7	2.9	3.0	3.2	3.3	3.5	3.7	3.8
Other income	50.1	59.9	56.6	66.0	69.3	72.8	76.4	80.2	84.2	88.4	92.9
Sub-total	140.6	157.1	183.0	217.1	240.7	267.4	297.5	331.4	384.7	429.6	480.4
Revenue grants	48.7	71.2	55.5	81.0	85.0	90.0	90.0	91.0	92.0	93.0	94.0
Total revenue	189.3	228.3	238.5	298.1	325.7	357.4	387.5	422.4	476.7	522.6	574.4
Capital Account											
Capital loans	0.0	0.0	4.2	32.0	68.7	98.6	132.6	114.3	106.0	79.0	49.5
Capital grants	0.0	0.0	0.0	2.8	6.0	7.2	11.7	10.1	9.3	7.0	4.4
Total capital	0.0	0.0	4.2	34.8	74.7	105.8	144.3	124.4	115.3	86.0	53.9
Capital a/c Deficit				9.1	12.2	14.4	14.9				
TOTAL RECEIPTS	189.3	228.3	242.7	342.0	412.6	477.6	546.7	546.8	592.0	608.6	628.3
EXPENDITURES											
Revenue Expenditures											
Gen. superuision & rev. colln.	27.8	19.2	22.4	26.6	26.0	26.4	26.6	26.6	26.7	26.9	30.3
Drainage & conservancy	88.2	92.7	114.2	127.2	136.0	145.0	155.0	155.0	155.0	155.0	155.0
Medical, pub. health etc.	0.5	0.8	0.7	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Public safety & convenience	6.5	11.4	10.0	14.5	14.5	14.5	14.5	15.0	15.0	15.0	15.0
Public works	25.5	66.4	40.5	85.4	85.0	85.0	90.0	90.0	90.0	90.0	90.0
Miscellaneous	22.7	37.2	33.1	52.4	72.5	91.0	97.8	97.3	112.0	115.0	117.0
Sub-total	171.2	227.7	220.9	307.2	335.1	363.0	385.0	385.0	399.8	403.0	408.4
Debt service	0.0	0.0	0.0	0.0	2.8	8.8	17.4	29.0	42.9	60.6	79.6
Total revenue expenditure	171.2	227.7	220.9	307.2	337.9	371.8	402.4	414.0	442.7	463.6	488.0
Capital Expenditure											
Total capital expenditure	0.0	0.0	0.0	34.8	74.7	105.8	144.3	124.4	115.3	86.0	53.9
Capital a/c Surplus	18.1	0.6	21.8					8.4	34.0	59.0	86.4
TOTAL EXPENDITURE	189.3	228.3	242.7	342.0	412.6	477.6	546.7	546.8	592.0	608.6	628.3
Memorandum items											
1.Internally Generated Revenue as % of revenue expenditure	82.1%	69.0%	82.8%	70.7%	71.2%	71.9%	73.9%	80.1%	86.9%	92.7%	98.4%
2. General tax as % of:											
(a) Current demand	40.20	26.60	30.50	50.00	53.00	58.00	64.00	70.00	74.00	77.00	80.00
(b) Arrears demand	24.00	30.00	20.00								
(c) Total demand											

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Income and Expenditure Statement

Group B

(Rs Lakhs)

Moradabad Development Authority

	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2
INCOME						
Sales	140.0	150.0	165.0	177.0	190.0	205.0
Less: Cost of Sales	126.0	132.0	145.0	155.0	169.0	180.0
Sub-total	14.0	18.0	20.0	22.0	21.0	25.0
Other Income	60.0	80.0	90.0	95.0	98.0	102.0
Total	74.0	98.0	110.0	117.0	119.0	127.0
EXPENDITURE						
Gen. Establishment & Admin.	17.0	25.0	26.0	27.0	28.5	30.0
Other Expences	1.0	2.0	2.0	2.0	2.0	2.5
Depreciation	1.5	2.0	2.0	2.5	2.5	2.5
Sub-total	19.5	29.0	30.0	31.5	33.0	35.0
Interest on Debt	52.0	65.0	74.0	78.5	80.0	85.0
Total	71.5	94.0	104.0	110.0	113.0	120.0
NET INCOME	2.5	4.0	6.0	7.0	6.0	7.0

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Balance Sheet Statement

Group B

(Rs Lakhs)

Moradabad Development Authority

	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2
ASSETS						
Net Fixed Assets	180.0	187.0	190.0	195.0	198.0	202.0
Work in Progress	150.0	159.0	165.0	168.0	175.0	178.0
Sub-total	330.0	346.0	355.0	363.0	373.0	380.0
Deposits & Investments	195.0	203.0	215.0	220.0	224.0	228.0
Current Assets	15.0	18.0	25.0	27.0	33.0	35.0
TOTAL	540.0	567.0	595.0	610.0	630.0	643.0
LIABILITIES						
Reserves	31.0	41.0	44.0	46.0	49.0	53.0
Profit/Loss Account	2.5	4.0	6.0	7.0	6.0	7.0
Sub-total	33.5	45.0	50.0	53.0	55.0	60.0
Long Term Loans						
GOUP	50.0	60.0	75.0	77.0	80.0	85.0
Other	250.0	245.0	260.0	250.0	255.0	265.0
Less: Current maturities	44.0	59.0	35.0	90.0	98.0	105.0
Sub-total	289.5	291.0	350.0	290.0	292.0	305.0
Current Liabilities	250.5	276.0	245.0	320.0	338.0	338.0
TOTAL	540.0	567.0	595.0	610.0	630.0	643.0

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Water Supply and Sanitation Income and Expenditure Statements

Group B

(Rs Lakhs)
(Cash basis)

Gorakhpur Nagar Mahapalika

REVENUE	Actual 1983/4	Actual 1984/5	Actual 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
Water Supply											
Water - all consumers	1.4	0.6	0.4	2.0	2.4	2.9	3.5	6.1	6.4	6.7	7.1
Water tax	8.5	7.8	11.8	28.0	30.8	33.9	37.3	41.0	55.4	58.2	61.1
Other water	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2
Meter rent	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2
Development charge											
Service charges											
Sanitation											
Sanitation charges	0.3	0.8	0.5	1.0	1.1	1.1	1.2	1.2	1.6	1.7	1.8
Other sanitation	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.5	0.6
Total revenue	10.2	9.2	12.8	31.1	34.4	38.3	42.3	48.8	64.2	67.5	70.9
OPERATING AND MAINTENANCE EXPENDITURE											
Water Supply											
Labor	6.2	7.9	7.5	9.0	9.5	9.9	10.4	10.9	11.5	12.1	12.7
Power	3.1	5.1	5.2	10.0	11.1	12.2	13.3	14.4	15.5	16.6	17.7
Materials	0.4	0.5	0.7	1.3	1.4	1.5	1.6	1.8	1.9	2.1	2.2
Other	2.2	2.5	2.7	4.7	5.1	5.5	5.9	6.4	6.9	7.5	8.1
Sanitation											
Labor	3.2	3.7	4.7	5.3	5.6	5.8	6.1	6.4	6.8	7.1	7.5
Power	0.1	0.1	0.0	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3
Materials	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Other	0.4	0.3	0.1	0.2	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Total O & M costs	15.6	19.6	20.9	30.7	33.5	35.9	38.3	40.8	43.6	46.3	49.1
OPERATING SURPLUS/DEFICIT	-5.4	-10.4	-8.1	0.4	0.9	2.4	4.0	8.0	20.6	21.2	21.8
Less:Depreciation	0.0	0.0	0.0	0.0	0.4	1.0	2.0	4.0	5.1	6.0	6.0
Less:Interest Charges	0.0	0.0	0.0	0.0	0.9	2.7	5.3	8.8	11.9	14.7	16.8
NET SURPLUS/DEFICIT	-5.4	-10.4	-8.1	0.4	-0.4	-1.3	-3.4	-4.9	3.7	0.5	-0.9
Memorandum items											
1. Price contingency assumptions for costs											
rate				1.060	1.060	1.060	1.070	1.070	1.040	1.040	1.040
factor				1.030	1.100	1.175	1.257	1.345	1.399	1.455	1.513
2. Arrears in current year											
3. Working ratio	0.66	0.47	0.61	1.01	1.03	1.07	1.10	1.20	1.47	1.46	1.44
4. Operating ratio	0.65	0.47	0.61	1.01	1.00	0.99	0.97	0.98	1.16	1.11	1.06
5. % collection current (water) demand				30	40	50	53	55	58	61	65
6. Assumes 8.75%interest charges on project loans.											
7. Note: In this context Working ratio is revenues divided by O & M costs, whilst Operating ratio is revenues divided by O & M plus debt service.											
8. Repayment of Principal on Project Loans				0	0	0	0	0	0	0.49	1.54

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Water Supply and Sanitation Sources and Application of Funds

Group B

(Rs Lakhs)

Gorakhpur Nagar Mahapalika

SOURCES	Actual 1983/4	Actual 1984/5	Actual 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
Internally Generated											
Net surplus/deficit before int.	-5.4	-10.4	-8.1	0.4	0.5	1.4	2.0	4.0	15.5	15.2	15.0
Less: Debt service	0.0	0.0	0.0	0.0	0.9	2.7	5.3	8.8	11.9	15.2	18.3
Less: Change in working capital	0.0	0.4	0.3	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Add: Depreciation	0.0	0.0	0.0	0.0	0.4	1.0	2.0	4.0	5.1	6.0	6.0
External											
GOUP loan				9.0	21.0	30.0	40.3	34.6	32.0	23.0	14.9
Other loans											
GOUP capital grant											
Total sources	-5.4	-10.0	-8.4	9.7	20.8	29.5	38.8	33.5	40.5	29.6	18.2
APPLICATIONS											
Capital Expenditure on Projects				9.0	21.0	30.0	40.3	34.6	32.0	23.0	14.9
Other											
Total appn.	0.0	0.0	0.0	9.0	21.0	30.0	40.3	34.6	32.0	23.0	14.9
BALANCE TO BE FINANCED	5.4	10.0	8.4	0.1	0.2	0.5	1.5	1.1	0.0	0.0	0.0

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Income and Expenditure Statement

Group B

(Rs Lakhs)
(Cash basis)

Gorakhpur Nagar Mahapalika

	Actual 1983/4	Actual 1984/5	Actual 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
INCOME											
Revenue Account											
General tax	5.9	5.7	12.8	17.3	19.9	22.9	26.3	30.3	40.9	45.0	49.5
Octroi	67.2	78.0	107.1	125.0	143.8	165.3	190.1	218.6	251.4	289.1	332.5
Other taxes	11.2	10.5	19.3	40.0	44.0	48.4	53.2	58.6	64.4	70.9	77.9
Other income	37.7	30.2	52.2	50.0	55.0	60.5	66.5	73.0	80.3	85.0	90.0
Sub-total	122.0	124.4	191.4	232.3	262.6	297.1	336.2	380.4	437.0	490.0	549.9
Revenue grants	56.1	108.1	153.2	150.0	165.0	182.0	200.0	220.0	242.0	245.0	250.0
Total revenue	178.1	232.5	344.6	382.3	427.6	479.1	536.2	600.4	679.0	735.0	799.9
Capital Account											
Capital loans	0.0	0.0	1.0	20.7	44.5	63.0	85.0	73.9	60.5	51.0	31.9
Capital grants	0.0	20.5	6.4	3.0	6.4	7.7	12.4	10.7	10.0	7.4	4.7
Total capital	0.0	20.5	7.4	23.7	50.9	71.5	98.2	84.6	70.5	58.4	36.6
Catital a/c Deficit	8.9										
TOTAL RECEIPTS	187.0	253.0	352.0	406.0	478.5	550.6	634.4	685.0	757.5	793.4	836.5
EXPENDITURES											
Revenue Expenditures											
Gen. supervision & rev. collm.	16.4	19.2	23.0	25.0	27.5	35.0	38.5	42.4	46.6	49.0	52.0
Drainage & conservancy	71.4	77.6	92.0	121.0	133.0	146.3	160.9	177.0	194.7	205.0	215.0
Medical, pub. health etc.	3.2	3.3	4.2	4.5	5.0	7.5	10.0	12.0	15.0	18.0	21.0
Public safety & convenience	7.0	12.1	13.1	15.0	16.5	20.5	25.0	27.5	30.0	32.5	35.0
Public works	68.8	87.9	137.3	151.1	166.2	182.8	201.1	221.2	243.3	255.0	270.0
Miscellaneous	8.3	9.0	30.9	34.0	37.4	41.1	45.2	49.7	54.7	57.0	60.0
Sub-total	175.1	214.1	300.5	350.6	385.6	433.2	480.7	529.8	584.3	616.5	653.0
Debt service					1.8	5.1	11.3	21.3	33.2	47.0	56.0
Total revenue expenditure	175.1	214.1	300.5	350.6	387.4	438.3	492.0	551.1	617.5	663.5	709.0
Capital Expenditure											
Total capital expenditure	11.9	26.3	19.0	23.7	50.9	71.5	98.2	84.6	70.5	58.4	36.6
Capital a/c Surplus		12.6	32.5	31.7	40.2	40.8	44.2	49.3	61.5	71.5	90.9
TOTAL EXPENDITURE	187.0	253.0	352.0	406.0	478.5	550.6	634.4	685.0	757.5	793.4	836.5
Memorandum items											
1. Internally Geneerated Revenue as % of revenue expenditure	69.7%	58.1%	63.7%	66.3%	67.8%	67.8%	68.3%	69.0%	70.8%	73.8%	77.6%
2. General tax as % of:											
(a) Current demand		17	40	45	50	55	60	63	66	70	75
(b) Arrears demand		30	30								
(c) Total demand		25	35								

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Income and Expenditure Statement

Group B

(Rs Lakhs) Gorakhpur Development Authority

	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2
INCOME						
Sales	234.0	198.0	220.0	247.5	275.0	302.5
Less: Cost of Sales	207.2	179.5	200.0	225.0	250.0	275.0
Sub-total	26.8	18.5	20.0	22.5	25.0	27.5
Other Income	30.0	33.0	36.3	39.9	43.9	48.3
Total	56.8	51.5	56.3	62.4	68.9	75.8
EXPENDITURE						
Gen. Establishment & Admin.	8.0	8.8	9.7	10.6	11.7	12.9
Other Expenses)	5.0	5.5	6.0	6.7	7.3	8.0
Depreciation)						
Sub-total	13.0	14.3	15.7	17.3	19.0	20.9
Interest on Debt	12.0	13.2	14.5	16.0	17.6	19.3
Total	25.0	27.5	30.2	33.3	36.6	40.2
NET INCOME	31.8	24.0	26.1	29.1	32.3	35.6

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Balance Sheet Statement

Group B

(Rs Lakhs) Gorakhpur Development Authority

	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2
ASSETS						
Net Fixed Assets	104.0	88.0	98.0	113.0	133.0	143.0
Work in Progress	150.0	180.0	200.0	225.0	250.0	275.0
Sub-total	254.0	268.0	298.0	338.0	383.0	418.0
Deposits & Investments	108.0	118.0	130.0	143.0	157.0	172.0
Current Assets	126.0	138.0	150.0	165.0	180.0	198.0
TOTAL	488.0	524.0	578.0	646.0	720.0	788.0
LIABILITIES						
Reserves	191.6	210.2	234.9	270.9	307.7	335.4
Profit/Loss Account	31.8	24.0	26.1	29.1	32.3	35.6
Sub-total	223.4	234.2	261.0	300.0	340.0	371.0
Long Term Loans						
GOUP	217.0	238.0	262.0	288.0	317.0	348.0
Other	7.9	7.2	6.9	6.4	6.0	5.5
Less: Current maturities						
Sub-total	448.3	479.4	529.9	594.4	663.0	724.5
Current Liabilities	39.7	44.6	48.1	51.6	57.0	63.5
TOTAL	488.0	524.0	578.0	646.0	720.0	788.0

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Water Supply and Sanitation Income and Expenditure Statements

Group B

(Rs Lakhs)
(Cash basis)

Aligarh Nagar Palika

REVENUE	Actual 1983/4	Actual 1984/5	Actual 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
Water Supply											
Water - all consumers	9.4	9.8	13.8	14.6	19.8	16.5	17.2	27.5	28.9	33.5	48.5
Water tax	0.0	0.0	0.0	25.0	26.0	27.5	29.0	30.0	39.0	44.0	52.1
Other water	2.7	3.6	4.0	4.9	5.8	6.0	7.2	8.2	9.0	9.9	10.9
Meter rent											
Development charge											
Service charges											
Sanitation											
Sanitation charges	0.2	0.2	0.5	0.6	0.6	0.7	0.8	0.9	1.0	1.5	1.7
Other sanitation		0.2	0.3	0.4	7.7	7.8	8.2	8.5	11.1	11.6	12.8
Total revenue	12.3	13.8	18.6	44.5	54.9	58.5	62.4	75.1	89.0	100.5	126.0
OPERATING AND MAINTENANCE EXPENDITURE											
Water Supply											
Labor)		12.3	12.5	25.0	45.0	50.0	52.5	55.0	58.0	61.0	65.0
Power)											
Materials)											
Other)											
Sanitation)											
Labor)		0.5	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3
Power)											
Materials)											
Other)											
Total O & M costs	0.0	12.8	13.0	25.6	45.7	50.8	53.4	56.0	59.1	62.2	66.3
OPERATING SURPLUS/DEFICIT	12.3	1.0	5.6	18.9	9.2	7.7	9.0	19.1	29.9	38.3	59.7
Less:Depreciation	0.0	0.0	0.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Less:Interest Charges	0.0	0.0	0.0	0.0	2.3	7.2	14.3	23.8	31.9	39.4	45.0
NET SURPLUS/DEFICIT	12.3	1.0	5.6	-1.1	-13.1	-19.5	-25.3	-24.7	-22.0	-21.1	-5.3
Memorandum items											
1. Price contingency assumptions for costs											
rate				1.060	1.060	1.060	1.070	1.070	1.040	1.040	1.040
factor				1.038	1.100	1.175	1.257	1.345	1.399	1.455	1.513
2. Arrears in current year											
3. Working ratio		1.08	1.43	1.74	1.20	1.15	1.17	1.34	1.51	1.62	1.90
4. Operating ratio		1.08	1.43	1.74	1.14	1.01	0.92	0.94	0.98	0.98	1.09
5. % collection current (water) demand	70	70	70	70	74	77	80	82	83	84	85
6. Assumes 8.75%interest charges on project loans.											
7. Note: In this context Working ratio is revenues divided by O & M costs, whilst Operating ratio is revenues divided by O & M plus debt service.											
8. Repayment of Principal on Project Loans					0	0	0	0	0	1.32	4.14

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Water Supply and Sanitation Sources and Application of Funds

Group B

(Rs Lakhs)

Aligarh Nagar Palika

SOURCES	Actual 1983/4	Actual 1984/5	Actual 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
Internally Generated											
Net surplus/deficit before int.	12.3	1.0	5.6	-1.1	-10.0	-12.3	-11.0	-0.9	9.9	18.3	39.7
Less: Debt service	0.0	0.0	0.0	0.0	2.3	7.2	14.3	23.0	31.9	40.0	49.2
Less: Change in working capital	0.0	3.2	.0	3.2	5.0	1.3	0.7	0.7	0.0	0.0	1.0
Add: Depreciation	0.0	0.0	0.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
External											
GOUP loan				26.4	56.4	80.7	108.2	93.0	86.0	64.0	40.0
Other loans											
GOUP capital grant											
Total sources	12.3	-2.2	5.6	42.2	58.3	79.9	102.2	87.7	83.2	60.0	49.5
APPLICATIONS											
Capital Expenditure on Projects				26.4	56.4	80.7	108.2	93.0	86.0	64.0	40.0
Other											
Total appn.	0.0	0.0	0.0	26.4	56.4	80.7	108.2	93.0	86.0	64.0	40.0
BALANCE TO BE FINANCED	0.0	2.2	0.0	0.0	0.0	0.8	6.0	5.3	2.8	3.2	0.0

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Income and Expenditure Statement

Group B

(Rs Lakhs)
(Cash basis)

Aligarh Nagar Palika

INCOME	Actual 1983/4	Actual 1984/5	Actual 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
Revenue Account											
General tax	85.9	43.0	37.4	75.0	80.0	85.0	90.0	112.5	120.0	126.0	132.0
Octroi	63.8	69.2	80.7	150.0	160.0	170.0	180.0	190.0	200.0	210.0	225.0
Other taxes	1.8	1.4	4.3	14.9	15.6	20.0	24.0	30.0	35.0	40.0	45.0
Other income	59.8	58.6	48.3	90.2	95.0	96.0	97.0	98.0	99.0	100.0	101.0
Sub-total	210.5	172.2	170.7	330.1	350.6	371.0	391.0	430.5	454.0	476.0	503.0
Revenue grants	60.0	95.2	82.2	100.0	110.0	115.0	120.0	125.0	130.0	135.0	140.0
Total revenue	270.5	267.4	252.9	430.1	460.6	486.0	511.0	555.5	584.0	611.0	643.0
Capital Account											
Capital loans	0.0	0.0	0.0	7.3	15.7	22.5	30.2	26.0	24.1	18.0	11.3
Capital grants	0.0	2.0	0.0	0.8	1.8	2.1	3.4	3.0	2.8	2.1	1.3
Total capital	0.0	2.0	0.0	8.1	17.5	24.6	33.6	29.0	26.9	20.1	12.6
Capital a/c Deficit											
TOTAL RECEIPTS	270.5	270.2	252.9	438.2	478.1	510.6	544.6	584.5	610.9	631.1	655.6
EXPENDITURES											
Revenue Expenditures											
Gen. supervision & rev. colln.	18.8	20.0	22.3	25.9	30.0	32.0	34.0	39.5	43.0	45.0	47.0
Drainage & conservancy	83.9	97.7	108.0	141.1	145.0	148.0	152.0	160.0	165.0	170.0	175.0
Medical, pub. health etc.	5.2	6.1	6.8	10.3	11.0	12.0	13.0	14.0	15.0	16.0	17.0
Public safety & convenience	5.7	11.5	12.0	12.4	13.0	14.0	15.0	16.0	17.0	18.0	19.0
Public works	54.3	49.5	64.9	130.4	136.0	138.0	143.0	150.0	155.0	160.0	165.0
Miscellaneous	42.8	76.8	36.6	109.7	110.0	120.0	130.0	140.0	145.0	150.0	153.0
Sub-total	210.7	261.6	250.6	429.8	445.0	464.0	487.0	519.5	540.0	559.0	576.0
Debt service	0.0	0.0	0.0	0.0	0.7	2.0	4.0	6.6	9.8	13.8	18.1
Total revenue expenditure	210.7	261.6	250.6	429.8	445.7	466.0	491.0	526.1	549.8	572.8	594.1
Capital Expenditure											
Total capital expenditure	0.0	0.0	0.0	8.1	17.5	24.6	33.6	29.0	26.9	20.1	12.6
Capital a/c Surplus	59.8	8.6	2.3	0.3	14.9	20.0	20.0	29.4	34.2	38.2	48.9
TOTAL EXPENDITURE	270.5	270.2	252.9	438.2	478.1	510.6	544.6	584.5	610.9	631.1	655.6
Memorandum items											
1. Internally Genererated Revenue as % of revenue expenditure	99.9%	65.8%	68.1%	76.8%	78.7%	79.6%	79.6%	81.8%	82.6%	83.1%	84.7%
2. General tax as % of:											
(a) Current demand	60	60	60	63	66	69	73	77	81	84	85
(b) Arrears demand	39										
(c) Total demand	50										

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Income and Expenditure Statement

Group B

(Rs Lakhs) — Aligarh Development Authority

	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2
INCOME						
Sales	166.0	397.6	591.9	922.7	995.0	1203.0
Less: Cost of Sales	145.0	320.1	469.3	732.4	791.9	966.2
Sub-total	21.0	77.5	122.6	190.3	203.1	236.8
Other Income	16.0	8.5	12.0	18.0	25.0	37.0
Total	37.0	86.0	134.6	208.3	228.1	273.8
EXPENDITURE						
Gen. Establishment & Admin.	8.0	16.0	27.0	39.0	44.0	59.0
Other Expenses	2.0	3.5	4.5	5.9	7.9	10.0
Depreciation	0.4	0.5	0.8	1.2	2.1	2.4
Sub-total	10.4	20.0	32.3	46.1	54.0	71.4
Interest on Debt	18.1	39.1	70.7	110.8	150.4	146.5
Total	28.5	59.1	103.0	156.9	204.4	217.9
NET INCOME	8.5	26.9	31.6	51.4	23.7	55.9

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UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Balance Sheet Statement

Group B

(Rs Lakhs) — Aligarh Development Authority

	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2
ASSETS						
Net Fixed Assets	3.0	3.5	8.0	13.0	23.0	27.0
Work in Progress	294.3	455.8	631.9	689.6	886.0	1080.5
Sub-total	297.3	459.3	639.9	702.6	909.0	1027.5
Deposits & Investments	10.0	10.0	10.0	10.0	15.0	15.0
Current Assets	144.2	320.4	558.2	928.8	711.8	445.8
TOTAL	451.5	789.7	1208.1	1641.4	1635.8	1488.3
LIABILITIES						
Reserves	.0	8.6	35.9	67.0	118.6	142.2
Profit/Loss Account	8.5	26.9	31.6	51.4	23.7	55.9
Sub-total	8.5	35.5	67.5	118.4	142.3	198.1
Long Term Loans						
GOUP	227.0	276.0	337.0	409.0	368.0	313.0
Other	145.2	398.0	718.0	1023.7	1026.9	876.3
Less: Current maturities						
Sub-total	380.7	709.5	1122.5	1551.1	1537.2	1387.4
Current Liabilities	70.8	80.2	85.6	90.3	98.6	100.9
TOTAL	451.5	789.7	1208.1	1641.4	1635.8	1488.3

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Water Supply and Sanitation Income and Expenditure Statements

Group B

(Rs Lakhs)
(Cash basis)

Saharanpur Nagar Palika

REVENUE	Actual 1983/4	Actual 1984/5	Actual 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
Water Supply											
Water - all consumers	2.2	1.9	2.0	3.1	3.7	4.4	5.3	8.0	8.8	10.7	11.7
Water tax	23.1	23.0	25.6	31.0	36.8	40.9	47.1	54.0	64.8	81.8	99.0
Other water	0.8	0.7	0.7	1.0	1.3	1.5	1.8	2.0	2.3	2.5	2.0
Meter rent	0.0	0.0	0.1	0.2	0.5	1.0	1.5	2.0	2.5	3.0	3.0
Development charge											
Service charges											
Sanitation											
Sanitation tax					3.0	5.2	6.8	8.1	8.2	8.3	8.3
Other sanitation											
Total revenue	26.1	25.6	28.4	35.3	45.3	53.0	62.5	74.1	86.6	106.3	124.0
OPERATING AND MAINTENANCE EXPENDITURE											
Water Supply											
Labor)	32.3	18.6	14.9	35.0	45.0	51.1	53.0	55.0	58.0	63.8	70.0
Power)											
Materials)											
Other)											
Sanitation (in water)											
Labor											
Power											
Materials											
Other											
Total O & M costs	32.3	18.6	14.9	35.0	45.0	51.1	53.0	55.0	58.0	63.8	70.0
OPERATING SURPLUS/DEFICIT	-6.2	7.0	13.5	0.3	0.3	1.9	9.5	19.1	28.6	42.5	77.8
Less:Depreciation	2.8	3.5	3.1	2.8	2.6	2.3	2.2	2.0	1.8	1.7	1.7
Less:Interest Charges	0.0	0.0	0.0	0.0	2.5	7.9	15.6	25.9	34.7	42.9	49.0
NET SURPLUS/DEFICIT	-9.0	3.5	10.4	-2.5	-4.8	-8.3	-8.3	-8.8	-7.9	-2.1	27.1
Memorandum items											
1. Price contingency assumptions for costs											
rate				1.060	1.060	1.060	1.070	1.070	1.040	1.040	1.040
factor				1.030	1.100	1.175	1.257	1.345	1.399	1.455	1.513
2. Arrears in current year											
3. Working ratio	0.81	1.38	1.91	1.01	1.01	1.04	1.18	1.35	1.49	1.67	1.77
4. Operating ratio	0.81	1.38	1.91	1.01	0.95	0.90	0.91	0.92	0.93	0.98	1.00
5. % collection current (water) demand	64.00	63.00	69.00	70.00	73.00	76.00	79.00	81.00	83.00	84.00	85.00
6. Assumed interest charges on Project loans =			8.75 %								
7. Note: In this context Working ratio is revenue divided by O & M costs and Operating ratio is revenue divided by O & M plus debt service.											
8. Repayment of Principal on Project Loans				0.00	0.00	0.00	0.00	0.00	0.00	1.44	4.51

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Income and Expenditure Statement

Group B

(Rs Lakhs)
(Cash basis)

Saharanpur Nagar Palika

INCOME	Actual 1983/4	Actual 1984/5	Actual 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
Revenue Account											
General tax	21.9	20.8	24.2	32.7	34.3	36.1	37.9	39.7	53.6	56.3	59.2
Octroi	43.6	47.0	50.3	62.5	71.9	82.7	95.1	109.3	125.7	144.6	165.8
Other taxes	26.1	26.1	28.7	30.1	31.6	33.2	34.9	36.7	38.5	40.3	42.4
Other income	22.3	26.0	30.4	40.3	48.5	58.6	71.6	93.6	103.0	110.8	117.5
Sub-total	113.9	119.9	133.6	165.6	186.3	210.6	239.5	279.3	320.8	351.2	384.9
Revenue grants	35.3	53.1	53.3	59.3	62.7	66.4	70.5	75.1	80.1	85.8	90.2
Total revenue	149.2	173.0	186.9	224.9	249.0	277.0	310.0	354.4	400.9	436.2	475.1
Capital Account											
Capital loans	0.0	0.0	0.0	12.8	27.5	39.4	53.1	45.7	42.4	31.6	19.8
Capital grants	2.9	18.1	11.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total capital	2.9	18.1	11.8	12.8	27.5	39.4	53.1	45.7	42.4	31.6	19.8
Capital a/c Deficit	16.5			16.1	17.6	9.6					
TOTAL RECEIPTS	168.6	191.1	198.7	253.8	294.1	326.0	363.1	400.1	443.3	467.8	494.9
EXPENDITURES											
Revenue Expenditures											
Gen. supervision & rev. colln.	15.9	19.0	22.4	24.8	26.4	29.1	32.0	35.2	38.8	42.8	48.7
Drainage & conservancy	93.3	104.8	107.9	146.0	162.7	171.9	170.0	185.8	199.2	210.0	221.3
Medical, pub. health etc.	10.2	11.5	11.0	12.1	13.3	14.6	16.1	17.7	19.5	21.0	22.6
Public safety & convenience	4.5	6.8	4.5	12.1	13.2	14.5	16.0	17.6	19.3	21.0	22.8
Public works	25.1	7.6	9.1	31.3	32.9	34.3	35.5	36.8	38.3	40.0	41.7
Miscellaneous	11.2	11.7	11.8	15.5	17.0	18.7	20.5	22.6	25.0	27.0	29.2
Sub-total	160.2	161.4	166.7	241.0	265.5	283.1	290.1	315.7	340.1	361.0	386.3
Debt service	0.0	0.0	0.0	0.0	1.1	3.5	6.9	11.5	15.5	20.7	26.9
Total revenue expenditure	160.2	161.4	166.7	241.0	266.6	286.6	297.0	327.2	355.6	381.7	413.2
Capital Expenditure											
Total capital expenditure	8.4	18.9	14.2	12.8	27.5	39.4	53.1	45.7	42.4	31.6	19.8
Capital a/c Surplus		10.8	17.8				13.0	27.2	45.3	54.5	62.0
TOTAL EXPENDITURE	168.6	191.1	198.7	253.8	294.1	326.0	363.1	400.1	443.3	467.8	494.9
Memorandum items											
1. Internally Generated Revenue as % of revenue expenditure	71.1%	74.3%	80.1%	68.7%	69.9%	73.5%	80.6%	85.4%	90.2%	92.0%	93.2%
2. General tax as % of:											
(a) Current demand	64.00	63.00	69.00	70.00	72.00	74.00	76.00	80.00	82.00	84.00	85.00
(b) Arrears demand	19.60	18.40	20.10	25.00							
(c) Total demand	40.00	37.90	41.20	48.00							

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Water Supply and Sanitation Income and Expenditure Statements

Group B

(Rs Lakhs)
(Cash basis)

Ghaziabad City Board

	Actual 1983/4	Actual 1984/5	Actual 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
REVENUE											
Water Supply											
Water - all consumers	7.4	5.1	6.0	8.1	8.7	9.3	11.3	20.3	22.3	24.5	27.0
Water tax	47.0	51.6	74.0	77.7	81.6	85.7	89.9	94.4	122.7	135.0	155.5
Other water											
Meter rent											
Development charge											
Service charges											
Sanitation											
Sanitation tax	0.0	0.0	0.0	0.0	25.0	35.0	45.0	66.6	99.8	110.0	120.0
Arrears Collected (in water)											
Total revenue	54.4	56.7	80.0	85.8	115.3	130.0	146.2	181.3	244.8	269.5	302.5
OPERATING AND MAINTENANCE EXPENDITURE											
Water Supply											
Labor)	10.0	11.0	15.0	74.1	109.0	116.4	133.8	153.9	176.0	186.0	196.0
Power)	18.0	19.0	25.0								
Materials)	7.0	7.1	18.7								
Other)											
Sanitation											
Labor)	6.0	9.0	3.4	10.8	13.8	15.9	18.3	21.0	24.1	25.0	26.0
Power)											
Materials)											
Other)											
Total O & M costs	41.0	46.1	62.1	84.9	122.8	132.3	152.1	174.9	200.1	211.0	222.0
OPERATING SURPLUS/DEFICIT	13.4	10.6	17.9	0.9	-7.5	-2.3	-5.9	6.4	44.7	58.5	80.5
Less:Depreciation	30.0	31.0	32.0	34.0	55.0	70.0	80.0	90.0	100.0	105.0	104.0
Less:Interest Charges	0.0	0.0	0.0	0.0	3.8	12.0	23.0	39.5	53.0	65.4	74.7
NET SURPLUS/DEFICIT	-16.6	-20.4	-14.1	-33.1	-66.4	-84.4	-109.6	-123.0	-108.3	-111.9	-98.2
Memorandum items											
1. Price contingency assumptions for costs											
rate				1.060	1.060	1.060	1.070	1.070	1.040	1.040	1.040
factor				1.038	1.100	1.176	1.257	1.345	1.399	1.455	1.513
2. Arrears in current year											
3. Working ratio	1.33	1.23	1.29	1.01	0.94	0.90	0.96	1.04	1.22	1.28	1.36
4. Operating ratio	1.33	1.23	1.29	1.01	0.91	0.90	0.83	0.85	0.97	0.97	1.00
5. % collection current (water) demand				50.00	53.00	58.00	64.00	70.00	74.00	77.00	80.00
6. Assumed interest charges on Project loans =			8.75 %								
7. Note: In this context Working ratio is revenue divided by O & M costs and Operating ratio is revenue divided by O & M plus debt service.											
8. Repayment of Principal on Project Loans				0.00	0.00	0.00	0.00	0.00	0.00	2.19	6.88

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Water Supply and Sanitation Sources and Application of Funds

Group B

(Rs Lakhs)

Ghaziabad City Board

SOURCES	Actual 1983/4	Actual 1984/5	Actual 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
Internally Generated											
Net surplus/deficit before int.	-16.6	-20.4	-14.1	-33.1	-62.5	-72.3	-85.9	-83.6	-55.3	-16.5	-23.5
Less: Debt service	0.0	0.0	0.0	0.0	3.0	12.0	23.0	39.5	53.0	67.6	81.6
Less: Change in working capital	0.0	1.0	-0.4	16.6	9.5	2.4	5.0	5.7	6.3	2.7	2.0
Add: Depreciation	30.0	31.0	32.0	34.0	55.0	70.0	80.0	90.0	100.0	105.0	104.0
External											
GOUP loan				43.9	93.7	133.9	179.6	154.2	142.6	106.1	66.3
Other loans											
GOUP capital grant											
Total sources	13.4	9.6	18.3	28.2	72.9	117.2	145.0	115.5	128.1	91.3	62.5
APPLICATIONS											
Capital Expenditure on Projects	12.0	23.6	20.0	43.9	93.7	133.9	179.6	154.2	142.6	106.1	66.3
Other				55.0	65.5	76.0	86.6	97.5	108.5		
Total appn.	12.0	23.6	20.0	98.9	159.2	209.9	266.2	251.7	251.1	106.1	66.3
BALANCE TO BE FINANCED	0.0	14.0	1.7	70.7	86.3	92.8	121.2	136.2	123.1	11.9	3.8

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Income and Expenditure Statement

Group B

(Rs Lakhs)
(Cash basis)

Ghaziabad City Board

	Actual 1983/4	Actual 1984/5	Actual 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
INCOME											
Revenue Account											
General tax	67.6	71.3	77.9	100.0	110.0	121.0	131.1	146.4	190.3	209.3	230.3
Octroi	95.2	104.5	117.0	150.0	172.5	198.4	228.1	262.4	301.7	347.0	399.0
Other taxes	47.0	51.6	57.5	60.4	63.4	66.6	69.9	73.4	77.1	80.9	85.0
Other income	28.8	27.0	45.4	48.1	52.9	58.1	63.9	80.3	87.3	95.0	100.0
Sub-total	238.6	254.4	297.8	358.5	398.8	444.0	493.0	562.4	656.4	732.2	814.3
Revence grants	25.1	26.0	26.5	30.0	33.0	36.3	39.9	43.9	48.3	52.0	55.0
Total revenue	263.7	280.4	324.3	388.5	431.8	480.3	532.9	606.3	704.7	784.2	869.3
Capital Account											
Capital loans	0.0	10.5	4.6	16.3	35.0	50.1	67.3	57.9	53.6	39.9	25.0
Capital grants	19.1	44.0	37.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Loans fron GOA	0.0	0.0	0.0	100.0	100.0	100.0	100.0	100.0	100.0	0.0	0.0
Total capital	19.1	54.5	42.4	116.3	135.0	150.1	167.3	157.9	153.6	39.9	25.0
Capital a/c Deficit	1.1	0.9				1.1	25.1	37.1	46.8	28.0	10.8
TOTAL RECEIPTS	283.9	335.8	366.7	504.8	566.8	631.5	725.3	801.3	905.0	852.1	905.0
EXPENDITURES											
Revenue Expenditures											
Gen. supervision & rev. calln.	23.5	25.9	25.1	34.0	39.1	45.0	51.7	59.5	68.4	75.0	83.0
Drainage & conservancy	116.0	128.0	155.7	200.0	230.0	294.5	315.2	349.8	402.2	420.0	440.0
Medical, pub. health etc.	15.4	18.6	20.0	30.0	34.5	39.7	45.6	52.5	60.3	68.0	75.0
Public safety & convenience	16.4	15.1	28.0	30.0	34.5	39.7	45.6	52.5	60.3	68.0	76.0
Public works	40.5	40.7	50.0	50.0	57.5	70.1	76.1	87.5	110.6	122.0	133.0
Miscellaneous	9.6	9.9	5.1	5.0	6.5	7.5	8.6	9.8	11.2	13.0	15.0
Sub-total	221.4	238.2	283.9	349.0	402.1	496.5	542.8	611.6	713.0	766.0	822.0
Debt service	0.0	0.0	0.0	0.0	5.8	18.9	26.2	31.8	38.4	46.2	58.0
Total revenue expenditure	221.4	238.2	283.9	349.0	407.9	515.4	569.0	643.4	751.4	812.2	880.0
Capital Expenditure											
Total capital expenditure	62.5	97.6	78.1	116.3	135.0	150.1	167.3	157.9	153.6	39.9	25.0
Capital a/c Surplus			4.7	39.5	23.9						
TOTAL EXPENDITURE	283.9	335.8	366.7	504.8	566.8	665.5	736.3	801.3	905.0	852.1	905.0
Memorandum items											
1. Internally Generated Revenue as % of revenue expenditure	107.8%	106.8%	104.9%	102.7%	97.8%	86.2%	86.6%	87.4%	87.4%	90.1%	92.5%
2. General tax as % of:											
(a) Current demand				50.00	53.00	58.00	64.00	70.00	74.00	77.00	80.00
(b) Arrears demand											
(c) Total demand											

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UTTAR PRADESH URBAN DEVELOPMENT PROJECT

Water Supply and Sanitation Sources and Application of Funds

Group B

(Rs Lakhs)

Saharanpur Nagar Palika

SOURCES	Actual 1983/4	Actual 1984/5	Estimate 1985/6	Budget 1986/7	Projected 1987/8	1988/9	1989/90	1990/1	1991/2	1992/3	1993/4
Internally Generated											
Net surplus/deficit before int.	-9.0	3.5	10.4	-2.5	-2.3	-8.4	7.3	17.1	26.8	40.8	76.1
Less: Debt service	0.0	0.0	0.0	0.0	2.5	7.9	15.6	25.9	34.7	44.4	53.5
Less: Change in working capital	0.0	-3.4	-0.9	5.0	2.5	1.5	0.5	0.5	0.8	1.5	1.5
Add: Depreciation	2.8	3.5	3.1	2.8	2.6	2.3	2.2	2.0	1.8	1.7	1.7
External											
GOUP loan				28.8	61.5	87.9	117.8	101.2	93.6	69.6	43.5
Other loans											
GOUP capital grant											
Total sources	-6.2	10.4	14.4	24.1	56.8	80.3	111.2	93.9	86.7	66.3	66.2
APPLICATIONS											
Capital Expenditure on Projects				28.8	61.5	87.9	117.8	101.2	93.6	69.6	43.50
Other											
Total apps.	0.0	0.0	0.0	28.8	61.5	87.9	117.8	101.2	93.6	69.6	43.5
BALANCE TO BE FINANCED	6.2	0.0	0.0	4.7	4.7	7.5	6.6	7.3	6.9	3.3	0.0

Summary of Assumptions for Financial Projections

1. Extended financial projections have been prepared for all the Group A and Group B project towns covering the following entities or activities:

(a) For water supply and sanitation, the Jal Sansthans as implementing agencies for water supply and sanitation components in Group A towns, and for the water supply and sanitation activities of Nagar Palikas (Municipal Bodies) in Group B towns.

(b) Municipal Bodies -- Nagar Mahapalikas in Group A towns and Nagar Palikas in Group B towns.

(c) Development Authorities in those Group A and Group B towns where there are project components which will be implemented by these Authorities.

2. The projections are for all fiscal years up to 1993/94. Where appropriate they are made from a base of actual data for fiscal years 1983/84 to 1985/86, or final estimates for 1985/86 where data were not yet available.

3. All figures in the projections are expressed in Rs. lakhs at current prices using the following price escalation assumptions:

Year	Price Change (%)
1986/87	-
1987/88	6.8
1988/89	6.8
1989/90	7.0
1990/91	7.1
1991/92	4.0
1992/93	4.0
1993/94	4.0

A. Water Supply and Sanitation

4. Two separate projections have been prepared:

(a) Income and expenditure on a cash basis.
(b) Sources and applications of funds.

5. Underlying each projection is an eight-year profile of project capital expenditures with the associated operation and maintenance cost implications and revenues. These are overlayed on the continuing operations of the entities to provide a global performance projection. The project financing

terms are for 20 year annuities at 8.75 percent, with a five year period of grace for the repayment of principal.

Income and Expenditure

Operation and Maintenance and Other Expenses

6. In the past, some towns were unable to meet out of their revenues all their working expenses. Non-payment of electricity bills and interest charges has been a common occurrence. The projections assume all expenses will be met, except in Agra, Saharanpur and Ghaziabad.

7. Wherever possible expenses are broken down according to labor, power, materials and other expenses and are shown for water supply and sanitation separately. Interest charges and depreciation are also shown separately but depreciation is invariably an unreliable estimate (see balance sheets, below).

8. In the past the levels of operation and maintenance expenditures often have been inadequate for the tasks. Accordingly it would be in order to project increases in the levels of O and M costs as a reflection of expenditure needs to achieve enhanced standards, as well as for the enlarged tasks to be performed under the project. On the other hand, there is scope for efficiency gains. Accordingly the projections of O and M costs are a combination of these factors which are working in different directions. Under the project, a Maintenance Study will be carried. One of its objectives will be to identify the resources needed for appropriate levels of maintenance.

Revenues

9. Revenues are receivables from consumers as water charges and as water and sewer taxes (based on a percentage of the assessed value of properties). Some towns are in the process of introducing a drainage tax in lieu of a sewer tax where there are no sewer services. Between October 1985 and July 1986 all project towns introduced new tariffs and/or new tax rates, and are undertaking property reassessments. There are also, other minor receivables. These actions will have the consequence of significant upward movements in revenues during 1986/87 and 1987/88 when compared with earlier years in all towns, although the magnitudes of the increases will vary.

10. A major concern in all towns is the magnitude of arrears. Unpaid bills cannot be written off under Government accounting rules so the "true" measure of arrears, in the sense of being receivables rather than bad debts, is not known. Current demand appears at face value to be unduly large but this is partly because discounts are offered by the entities for prompt payment and for owner-occupier dwellings. Nevertheless, these matters cannot conceal the fact that much more revenue can, and should, be collected. All towns are taking active steps to reduce arrears through improved billings, resort to the courts, adverse publicity, and so on. These actions will gradually improve the revenue position of the entities over the project period. Often the worst offenders are institutions such as the police, fire

service and hospitals where action to cut off supplies would be inappropriate.

11. With their improving revenue achievements arising from the various actions outlined above, project towns except Agra, Saharanpur and Ghaziabad would be in a position tc meet at least their anticipated water supply and sanitation operation and maintenance costs (i.e. working expenses) throughout the whole of the project period. The three exceptions would meet their working expenses as from the following dates:

Agra	-	1989/90 onwards
Saharanpur	-	1988/89 " "
Ghaziabad	-	1990/91 " "

12. An objective of GOUP is for project towns to cover 100% of their operation and maintenance and debt service expense by 1993/94 (See Annex 4, Attachment 1). A number of towns are able to do so earlier, and accordingly earlier dates have been set for achieving this objective. The financial projections include the following:

i) Assumptions

35% increase in water and sewer/drainage taxes in 1986/87 and 1991/92 in concert with the quinquennial assessment of urban properties;

ii) Requirements

Water tariff increases as follows:

a) Kanpur - 25% in 1990/91

b) Agra - 50% in 1989/90
65% in 1992/93

c) Varanasi - 50% in 1992/93

d) Allahabad - 40% in 1990/91
15% in 1993/94

e) Lucknow - 75% in 1990/91

f) Bareilly - 60% in 1990/91
15% in 1993/94

g) Moradabad - 40% in 1990/91
60% in 1993/94

h) Gorakhpur - 75% in 1990/91

i) Aligarh - 60% in 1990/91
25% in 1992/93

j) Saharanpur - 50% in 1990/91

k) Ghaziabad - 80% in 1990/91

The above are "illustrative" since it might be possible to achieve the desired result by different means, such as improved billing and collection of current demand over projections, and improved collection of arrears.

Sources and Application of Funds

13. Statements have been constructed from the Income and Expenditure Statements project cost summaries to provide a projection of water supply and sanitation funds flow. However, instances occur where, from the data at hand, sources do not balance with applications. Where they are inadequate a balancing item has been shown representing the amount needed to fund the operations either out of reserves or by some external subvention.

14. Changes in working capital requirements are assessed using changes in one month's labor costs plus three month's materials.

Balance Sheets

15. Balance sheets projections have not been included as fixed asset values are unreliable due to inadequacies of existing assets registers which provide, at best, only a guide to the true valuation and may be misleading. During the project period all water supply and sanitation assets will be surveyed and asset valuations will be updated. Project towns would then be encouraged to produce projected balance sheets.

B. Municipal Bodies

16. Income and expenditure projections have been prepared on a cash basis for the Nagar Mahapalikas (Group A) and Nagar Palikas (Group B).

17. Revenues are derived from general tax, octroi and various other taxes and direct sources of income, and from GOUP in the form of revenue grants. During 1986/87 and 1987/88 there will be significant increases in own revenues arising from the effects of reassessments of properties and some changes to tax rates, including octroi. An approximately 35% increase in general tax is projected in 1991/92 when the next quinquennial reassessment of properties is due.

18. Revenue grants are in part determined by formulae -- e.g. municipal bodies receive 22 percent of their salaries expenditure as grants, and otherwise at the discretion of GOUP.

19. Capital accounts consist, on the income side, of loans and capital grants where the grants are at a rate of 50 percent of qualifying capital expenditure for low cost sanitation and certain other items.

20. A GOUP objective is for project towns to finance an increasing share of its revenue expenditures from internally generated revenues (See Annex 4, Attachment 2). This can be achieved by making assumptions on the increases in the general tax (see para 17 above), other revenue enhancement measures introduced/to be introduced by GOUP (see para 6.08), improved collection of current demand, and improved collections of arrears.

21. All towns, except possibly Bareilly, are capable of financing their respective investment programs. The program for Bareilly would be reviewed in depth after one/two years implementation to determine whether, in the light of their resource mobilization progress, the scale of their original investment program should be reduced.

22. General (property) tax is much underexploited (being governed by the Rent Control Act), and efforts will be made as part of the project to increase revenues from this source. GOUP, in consultation with GOI, would prepare proposals by March 31, 1989 to eliminate rent control, or further ease its negative effects, and implement mutually acceptable proposals in the remaining project period (see para 6.08).

23. In addition to the general improvement in their revenue base, all bodies would continue to increase the quality of services provided and the efficiency of service delivery. Achievement of this objective is difficult to demonstrate in the tables although all bodies are capable of increasing revenue expenditure over the project period. As mentioned in paragraph 8 of this Annex, a Maintenance Study, to be carried out under the project, would help determine appropriate levels of revenue expenditure to ensure, inter alia, improved service delivery.

C. Development Authorities

24. Income and expenditure and balance sheet projections have been prepared for all Development Authorities which are project implementing entities. In all cases the project represents a small proportion of their total investment program.

25. The income and expenditure projections demonstrate that all the Authorities can recoup through sales and leases their full costs including debt service charges, at real rates of interest and after making allowance for overheads and depreciation.

INDIA

UTTAR PRADESH URBAN DEVELOPMENT PROJECT

ECONOMIC ANALYSIS ASSUMPTIONS - WATER SUPPLY AND SANITATION

1. An economic analysis has been performed on the water supply and sanitation components of the project for each Group A and Group B town. Detailed working papers are held in the project file.

2. All costs are expressed in Rs lakhs at 1986 prices. Capital expenditure is phased over eight years and includes contingencies but not design, supervision, and management. Operating and maintenance expenditure has been derived incrementally from fiscal year 1986/87. After 1993/94, O and M costs are assumed constant other than for labor, which has been assumed to rise at 1 percent per annum to reflect general growth in real wages offset by productivity gains.

3. Benefits have been measured by incremental revenues from 1986/87. Revenues have been taken from all sources, including taxes, and are for water supply and sanitation services combined. Revenues overstate benefits to the extent that taxes are paid by some people who do not receive services, but they understate the benefits, since prices have not limited demand to the supplies available. Revenues also include some arrears, which may not measure current benefits. On the other hand, current arrears are benefits which are not measured by revenues, so these two effects are offsetting, to some extent. Revenue projections include the substantial effects of tariff and tax increases introduced in 1986/87, and the quinquennial reassessment of properties in 1991/92. They also include adjustments to water charges as outlined in Annex 10, Summary of Assumptions for Financial Projections. No further revenue increases are incorporated other than a 0.5 percent per annum general rise after 1993/94, which reflects an increase in the usage of facilities and services by the project as towns grow.

4. No formal assessment has been possible of health benefits and other social benefits of the project other than those incorporated into revenues, but they undoubtedly are important in the overall justification of the project.

5. Labor shadow prices have been assumed alternatively at 100 percent and 70 percent of nominal wages. The labor content of capital expenditure was assumed to be 50 percent. The labor content of O and M costs was measured directly.

6. The project life has been assumed at 40 years from the start of construction in 1986/87.

7. The economic rates of return for all towns, along with the net present values of the net benefit streams at discount rates of 6 and 8 percent, are as follows:

Labor	ERR	NPV at 6% (Rs lakhs)	NPV at 8% (Rs lakhs)
100%	10.2%	2,842	810
70%	13.5%	5,089	2,647

UP Urban Development Project
Urban Poverty Impacts
(US$ millions)

Component	Component Cost	% Spent on Poor	Amount Spent on Poor	Total Number of Beneficiaries	Cost Per Capita	Urban Poor Beneficiaries
Sites & Services	24.15	78	18.84	75,000	322	59,000
Slum Upgrading	14.14	90	12.73	221,000	64	199,000
Area Development	3.23	60	1.94	26,360	122	16,000
Low Cost Sanitation	11.03	100	11.03	356,000	31	356,000
Other Components (water supply, sewerage, drainage, maintenance, solid waste management, traffic engineering and management, technical assistance)	185.28	50	92.64	2,800,000	66	1,400,000
TOTAL	237.83	58	137.18			

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UTTAR PRADESH URBAN DEVELOPMENT PROJECT

List of Selected Documents in Project File

1. Urban Sector Review - Uttar Pradesh, April 1985
   - by the Government of Uttar Pradesh (GOUP).

2. Urban Sector Review - Uttar Pradesh, 1985
   - by Uttar Pradesh Development Systems Corporation Ltd (UPDESCO).

3. Urban Sector Review - A Note on the Financial Position of Local Bodies in UP
   - by UPEDESCO.

4. Urban Sector Review - A Synoptic View of UP Economy
   - by UPEDESCO.

5. Preliminary Project Report, April 1985.

6. Project Report, March 1986
   - by Housing and Urban Development Department (HUDD), GOUP.

7. Summary Project Reports, March 1986
   - prepared for each component by project cities.

8. Report on Slums - Some Policy Issues, March 1986
   - by GOUP.

9. Technical Assistance and Training Component, June 1986
   - by HUDD, GOUP.

10. Compliance with Action Plan, July 1986.

11. Working papers on economic analysis.

12. Design Criteria for Water Supply Schemes
    - by UP Jal Nigam (UPJN).

13. Design Criteria for Sewerage Schemes
    - by UPJN.

14. Policies on Operation and Maintenance of Water Treatment Plants, Pumping Machinery and Distribution Systems - by UPJN.

15. UP Municipalities Act 1916.

16. UP Nagar Mahapalika Adhiniyam (act governing municipal corporations).

17. Amendments to UP Nagar Mahapalika Adhiniyam 1959 and UP Municipalities Act 1916, dated January 1987.

18. UP Urban Buildings (Regulation of Letting, Rent and Eviction Bill, 1970.

19. UP Slum Areas (Improvement and Clearance) Act 1962, as amended

20. The Uttar Pradesh Water Supply and Sewerage Act 1975 and Amendment, 1978 (Uttar Pradesh Jal Nigam Act).

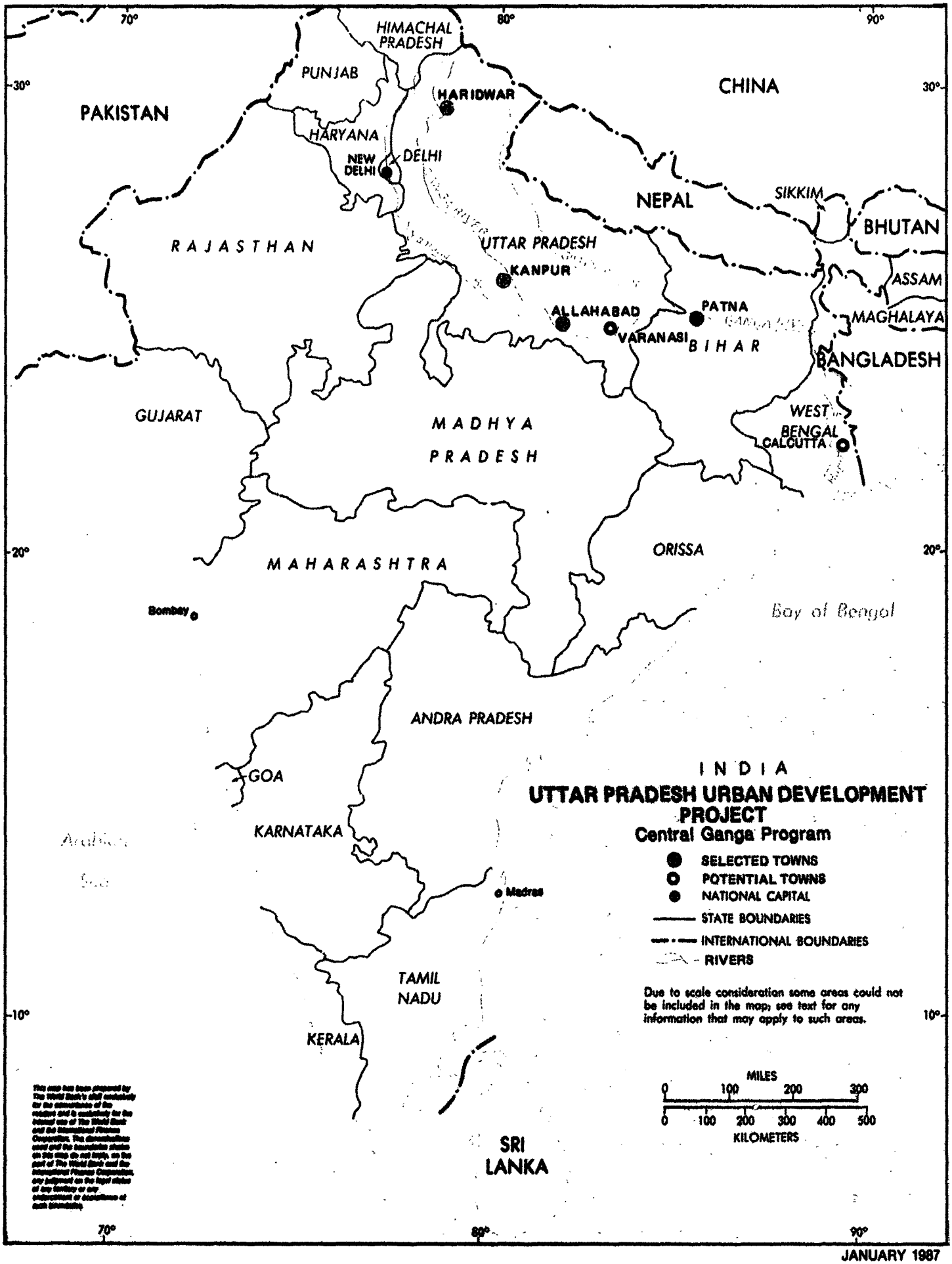
21. Gazette Notice of February 1985 creating the Central Ganga Authority.

22. UP Special Area Development Authorities Ordinance 1985.

23. Notifications dated July 16, 1986, regarding water tariff, and water and sewer/drainage tax increases in project towns.

24. Draft Report on Study for Options to introduce Private Bus Services in Kanpur.

IBRD 19880



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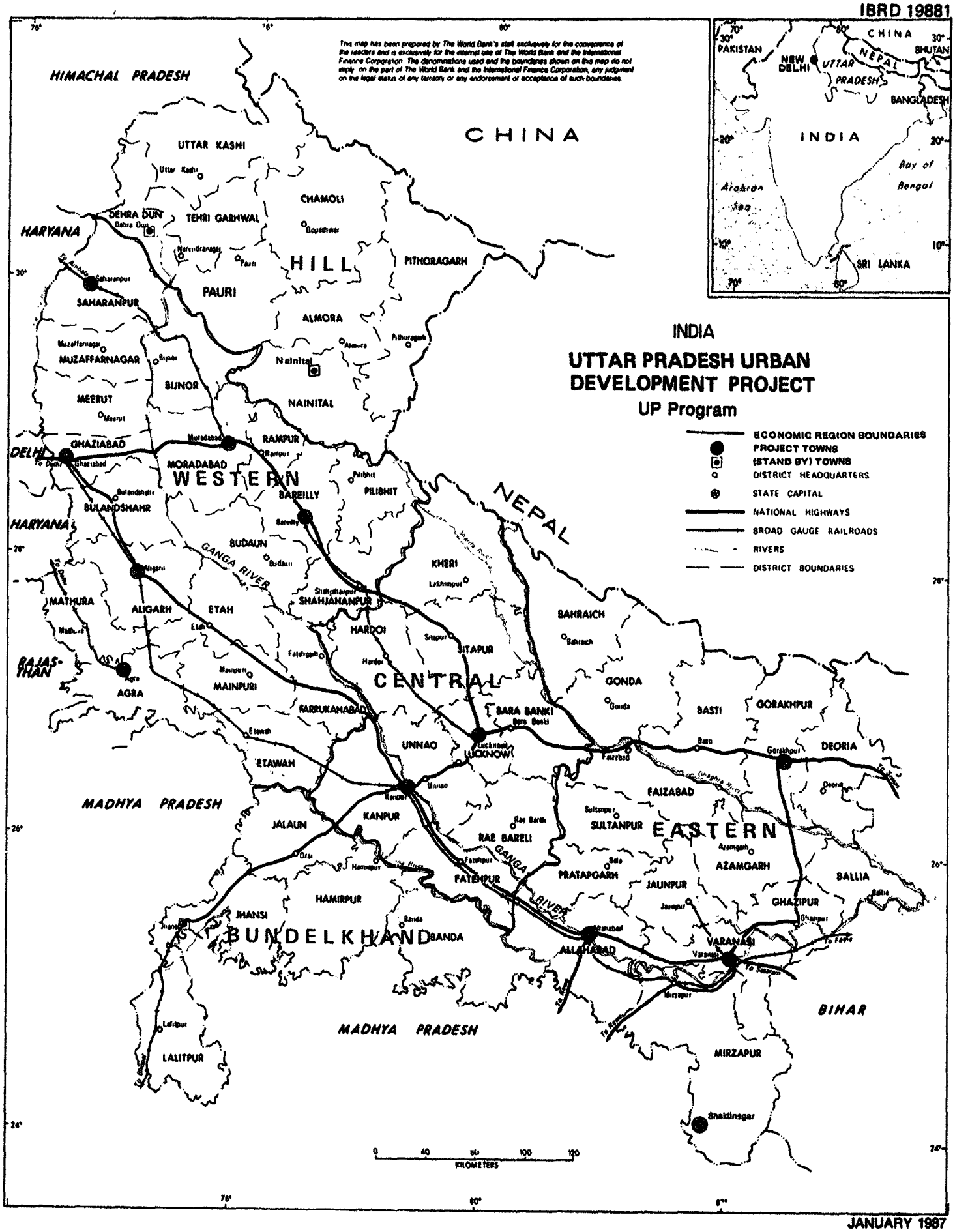

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