

Presented to Lok Sabha on.....

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22 DEC 2000

Report of the
Comptroller and Auditor General
of India

for the year ended March 2000

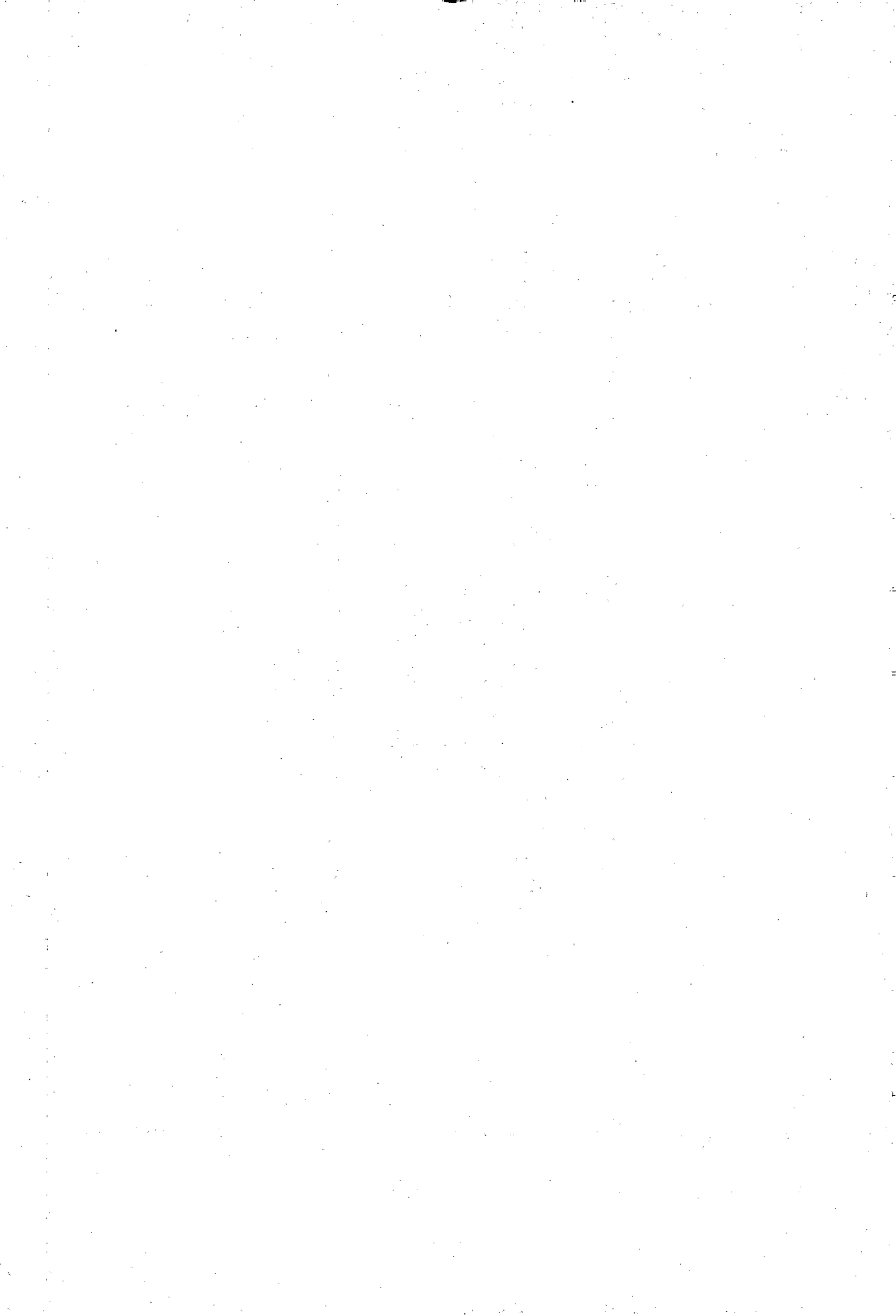
GANGA ACTION PLAN

Union Government
(Scientific Departments)
No. 5A of 2000



Ministry of Environment and Forests

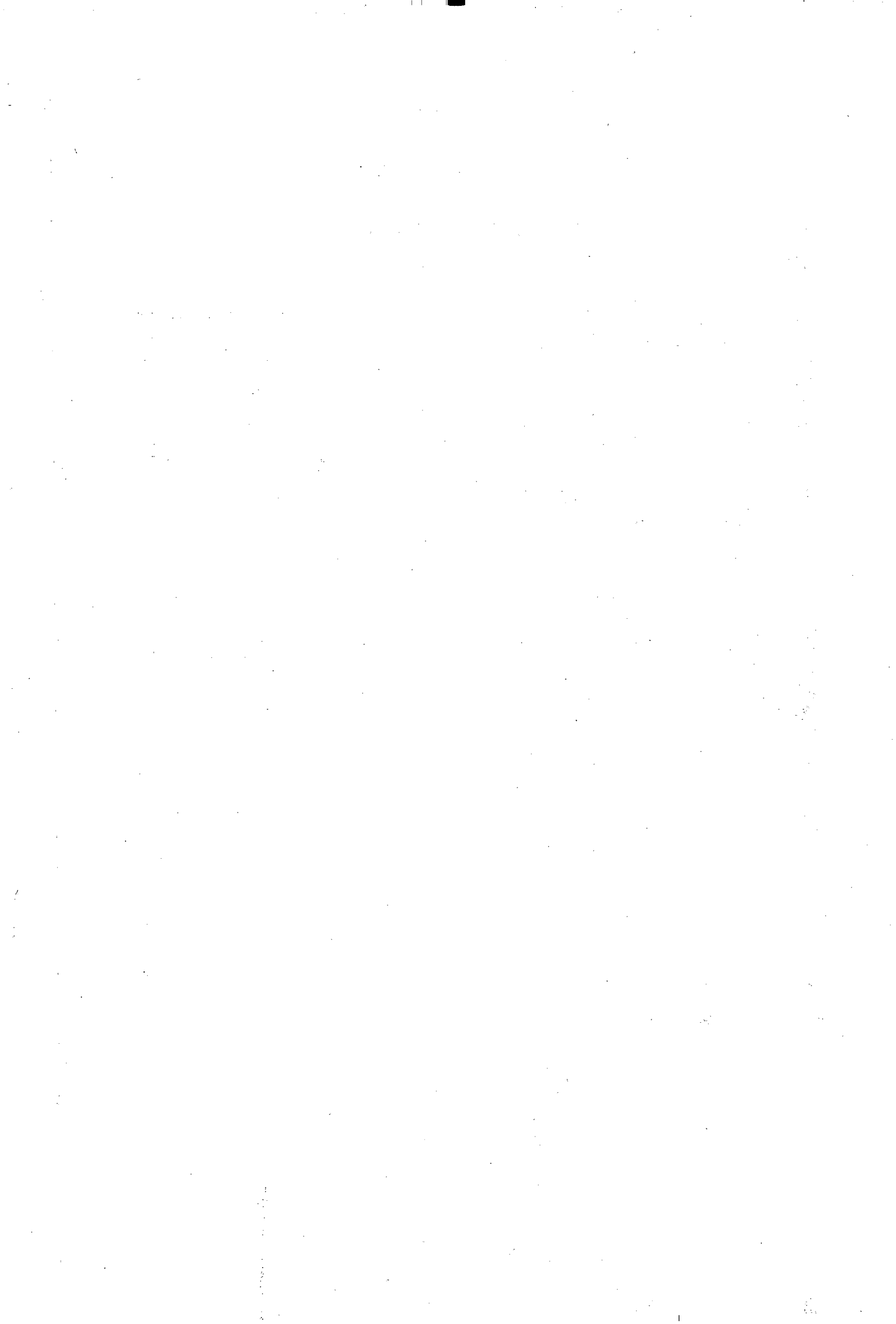
GANGA ACTION PLAN



PREFATORY REMARKS

This Report of the Comptroller and Auditor General of India containing a review on the 'Ganga Action Plan' has been prepared for submission to the President under Article 151 of the Constitution of India.

The findings contained in the review are those which came to the notice in the course of test audit.



Highlights

- The Ganga Action Plan has met only 39 *per cent* of its primary target of sewage treatment, according to the performance reported by the participating States. The Government released a total of Rs 987.88 crore on the Plan since its inception; the states have reported expenditure of Rs 901.71 crore till March 2000. The review covers the period from the year 1993 to 2000, involving Rs 655.23 crore of the total releases.
- There were heavy shortfalls in the achievement of targets of creation of assets and facilities under the plan. Even those "achievements" were poor indicators of the extent of success of the plan, as most of them did not function either fully or partially for a variety of reasons.
- The Ministry left to the States the crucial determinants of sewage characteristics and downstream water quality for selection of towns for phase-II of the plan, leading to non-uniformity in selection across the States and many questionable inclusions and exclusions. The Ministry had no mechanism to evaluate the estimations of sewage by the States. Audit found instances of incorrect estimations in test check.
- The Ministry did not fix any time schedule for submission of Detailed Project Reports, the basic document for expenditure sanction, from the States for phase-II of the plan, till the Supreme Court forced the issue on the basis of a Public Interest Petition.
- Test audit check found delays in submission of Detailed Project Reports by the States and in their sanction by the Ministry. Audit did not find much evidence of a well-defined monitoring mechanism at the Ministry to ensure adherence by the States of the time-schedule prescribed at the instance of the Supreme Court.
- **Monitoring Mechanism.** The apex body headed by the Prime Minister to monitor the plan, viz. the National River Conservation Authority, met only twice, in 1994 and 1997. The National River Conservation Directorate of the Ministry did not show to audit any recorded evidence of the results of field visits, review meetings with the implementing agencies, and follow up actions, as enjoined upon it in the plan. At the States, Haryana, Bihar and Delhi governments did not constitute Citizen Monitoring Committees in any of the towns and West Bengal constituted committees only in 5 out of 42 towns. The constituted committees in West Bengal and Uttar Pradesh met only infrequently. Thus, both at the central and the States level monitoring of the plan was inadequate.
- **Execution of schemes.** Phase-I of the plan is not yet fully complete, even after delay of over 10 years. Phase-II is also far behind its schedule. It is due to end in December 2001, but there are reports of creation of only 13.7 *per cent* of the targeted sewage treatment capacity so far.
- **Core schemes: Interception & Diversion schemes.** Bihar could not obtain any sanction from the Ministry for interception & diversion scheme in the phase-II of the plan, as it did not submit Detailed Project Reports per the Ministry's guidelines.

- Audit test check in the States revealed many instances of administrative delays leading to cost escalations, faulty designs of the schemes, lack of necessary spade work such as soil testing leading to damage to equipment, bad contract management, stolen equipments, idling of expensive equipments, and in general of poor maintenance.
- **Core Schemes: Sewage Treatment Plants.** Bihar and West Bengal could not obtain sanction from the Ministry for any Sewage Treatment Plant in the Phase-II of the plan. For Bihar, that was because of unsatisfactory operation and maintenance of assets during phase-I; and, for West Bengal, because the State Government did not confirm the availability of land.
- Audit test check found many instances of avoidable delays leading to cost escalation, idling of the plants, mismatch with interception & divergence schemes, technical flaws, diversion of resources, etc.
- **Non-Core Schemes.** The objective of the non-core schemes of the plan was to cater to the peripheral environmental concerns, having a bearing on the river pollution. Audit test check in the states generally revealed instances of impairment of assets created at much public expense because of neglect and lack of maintenance, besides delays in their setting up at the first place.
- **Operation and Maintenance of Assets.** The Ministry failed to ensure the optimum utilisation of assets created under the plan. The States and their implementing agencies, too, neglected operation and maintenance of assets.
- **Public Participation.** Audit did not find much evidence of any significant initiative on the part of the Ministry and the States to improve and promote public participation.
- **Water Quality Monitoring.** The Ministry has discontinued the water quality monitoring, a key instrument for technical assessment of the success of the plan, since September 1999 reportedly due to funds constraints. Collateral findings reveal further deterioration of water quality in all its parameters.
- **Control of bacterial load.** The Ministry did not take action on the recommendations of the expert committee for control of bacterial load.
- **Industrial pollution.** Only about 45 *per cent* of the grossly polluting industrial units had installed Effluent Treatment Plants. Over 18 *per cent* of those did not function properly, and did not meet the technical standards. Those units discharged industrial effluent of 2667.16 mld into the rivers. The NRCD had no mechanism to see that the installed plants functioned satisfactorily.
- West Bengal Government was yet to submit a satisfactory Detailed Project Report and obtain the Ministry's sanction for setting up a Common Treatment Plant for treatment of effluents of relocated tanneries in Calcutta, which the Supreme Court had ordered in April 1995.
- **Financial management.** The States reported expenditure of Rs 587.63 crore out of Government funds of Rs 655.23 crore released to the implementing agencies. Audit test check in the States found many instances of financial mismanagement; such as, funds diversion to unauthorised activities (Rs 36.07 crore), incorrect reporting (Rs 6.75 crore), and parking of funds by BRJP in its own personal account (Rs 1.17 crore), and unutilised funds with the implementing agencies (Rs 72.62 crore), etc.

Introduction

Ganga runs its course of over 2500 kms from Gangotri in the Himalayas to Ganga Sagar in the Bay of Bengal through 29 cities with population over 1,00,000 ('class-I cities'), 23 cities with population between 50,000 and 1,00,000 ('class-II cities'), and about 48 towns. It is a river with which the people of India are attached spiritually and emotionally. Department of Environment, in December 1984, prepared an action plan for immediate reduction of pollution load on the river Ganga. The Cabinet approved the GAP¹ in April 1985 as a 100 *per cent* centrally sponsored scheme.

2. To oversee the implementation of the GAP and to lay down policies and programmes, Government of India constituted the CGA² in February 1985, renamed as the NRCA³ in September 1995, under the chairmanship of the Prime Minister. The Government also established the GPD⁴ in June 1985 as a wing of Department of Environment, to execute the projects under the guidance and supervision of the CGA. The Government renamed the GPD as the NRCD⁵ in June 1994.

3. The GAP-I envisaged to intercept, divert and treat 882 mld⁶ out of 1340 mld of wastewater, generated in 25 class-I towns in 3 States of Uttar Pradesh, Bihar and West Bengal. The NRCD had scheduled the GAP-I for completion by March 1990, but extended it progressively up to March 2000. While the GAP-I was still in progress, the CGA decided in February 1991 to take up the GAP-II, covering the following pollution abatement works:

- (a) On the tributaries of river Ganga, *viz.* Yamuna, Damodar and Gomati.
- (b) In 25 class-I towns left out in Phase-I.
- (c) In the other polluting towns along the river.

4. The CCEA⁷ approved the GAP-II in various stages during April 1993 to October 1996 (Annex I). The States of Uttar Pradesh, Bihar, West Bengal, Delhi and Haryana were to implement the GAP-II by treating 1912 mld of sewage. GAP-II is scheduled for completion by December 2001.

¹ Ganga Action Plan

² Central Ganga Authority

³ National River Conservation Authority

⁴ Ganga Project Directorate

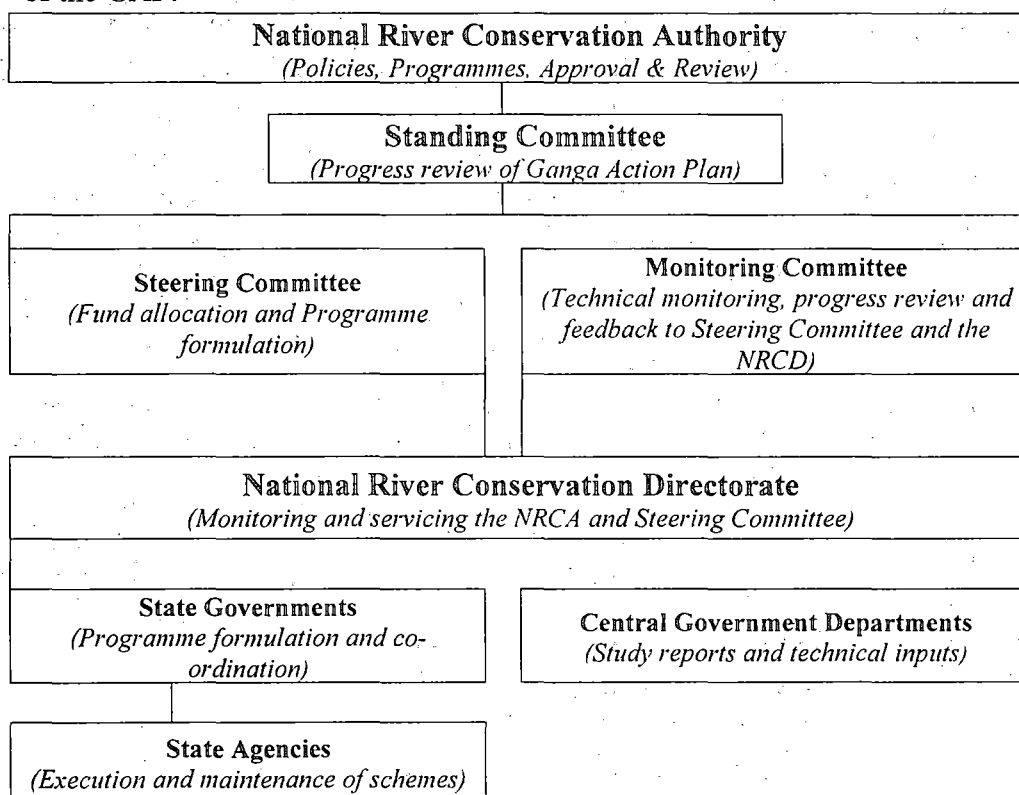
⁵ National River Conservation Directorate

⁶ Million litres per day

⁷ Cabinet Committee on Economic Affairs

Organisational structure

5. The following chart shows the organisational structure for implementation of the GAP:



Annex II gives the composition of each of the bodies mentioned in the chart.

Operational profile

6. The GAP aimed to tackle 2794 mld of sewage; 882 mld under the GAP-I and 1912 mld under the GAP-II. The NRCD records put the estimates of total sewage generation in towns along river Ganga and its tributaries as 5044 mld. Delhi alone accounts for 2270 mld. The GAP-II was to tackle only 20 mld in Delhi, and Delhi Government was to handle the balance 2250 mld separately from augmentation of its own available installed capacity.

7. To achieve the objective of pollution abatement, the GAP took up core and non-core schemes. The core sector schemes consist of interception & diversion schemes and STPs⁸, designed to tackle 'point pollution', i.e. pollution that is from measurable sources such as drains, sewage pumping stations and sewage systems. Non-core schemes comprise low cost sanitation schemes, river front development schemes, electric and improved wood crematoria; and, tackle non-point, non-measurable pollution, such as dumping of solid waste and open defecation, dumping of unburnt / half-burnt dead bodies etc.

⁸ Sewage Treatment Plants

8. For each of the GAP schemes, the States had to obtain administrative approval to the PFRs⁹ of the targeted towns, and expenditure sanction to DPRs¹⁰ of each of the schemes. The following tables give operational status of core and non-core schemes along with details of sewage treatment under the GAP I and II, as reported by the NRCD and the concerned States:

I: Status of Core Schemes

March 2000

State	Phase	Interception and Diversion				Sewage Treatment Plants			
		Schemes		Sewer Lines (in kms)		Schemes		Sewage Treatment (in mld)	
		T	A	T	A	T	A	T	A
Uttar Pradesh	I	40	40	136.00	136.00	13	13	375.09	375.09
	II	51	30	95.49	72.94	16	3	1098.14	13.00
West Bengal	I	31	31	173.14	173.14	15	14	371.60	341.60
	II	4	0	NA	NA	0	0	373.63	0.00
Bihar	I	17	17	53.71	53.71	7	5	135.50	118.00
	II	0	0	28.68	0.00	0	0	92.18	0.00
Haryana	II	19	9	130.56	122.63	12	8	323.00	228.00
Delhi	II	0	0	0.00	0.00	2	2	20.00	20.00
Total	I	88	88	362.85	362.85	35	32	882.19	834.69
	II	74	39	254.67	195.57	30	13	1911.95	261.00

T: Target; A – Achievement

II: Status of Non-Core Schemes

March 2000

State	Phase	Low Cost Sanitation		Crematoria		River front Development	
		T	A	T	A	T	A
Uttar Pradesh	I	14	14	3	3	8	8
	II	28	11	11	10	10	2
West Bengal	I	22	22	17	17	24	24
	II	0	0	0	0	0	0
Bihar	I	7	7	8	8	3	3
	II	8	0	1	0	9	0
Haryana	II	6	4	6	6	1	1
Delhi	II	0	0	1	0	0	0
Total	I	43	43	28	28	35	35
	II	42	15	19	16	20	3

T: Target; A – Achievement

N.B: The figures of reported achievement are subject to test audit comments on the core and non-core schemes in the report.

⁹ Preliminary Feasibility Reports

¹⁰ Detailed Project Reports

Financial profile

9. Approved outlays for the GAP-I and the GAP-II were Rs 462.04 crore and Rs 1276.25 crore respectively. The Central Government was to bear the entire expenditure on schemes under the GAP-I, and to share it equally with the States in the GAP-II. The Government of India decided in November 1998 to bear the entire expenditure on schemes from April 1997, as the States found it difficult to provide their matching share.

10. The following table, prepared from the records of the NRCD shows the position of release of funds and actual expenditure under the GAP-I and II during 1993-94 to 1999-2000:

Rs in crore

Year	GAP-I		GAP-II			
	Central Release	Expenditure	Release			Expenditure
			Centre	State	Total	
Till 92-93	332.65	314.08	-	The NRCD could not provide annual break up		-
93-94	46.85	46.01	11.93			1.05
94-95	27.22	20.00	8.40			17.04
95-96	12.28	19.29	13.12			19.82
96-97	12.11	15.30	94.23			128.93
97-98	3.29	13.90	80.81			101.70
98-99	2.50	3.69	86.00			108.99
99-2k	Nil	0.41	88.54			91.50
Total	436.9	432.68	383.03	167.95	550.98	469.03
Total for the GAP-I & II					987.88	901.71

Scope of Audit

11. The review covers the implementation of the GAP-I and II, spanning the period 1993-94 to 1999-2000, involving Government releases of Rs 655.23 crore. For this purpose, Audit test checked documents in the NRCD, the offices of the nodal departments and the implementing agencies in the States of Bihar, Haryana, Uttar Pradesh, West Bengal and Delhi (Annex-III).

12. Report of the Comptroller and Auditor General of India for the year ended 31 March 1994, Union Government (Scientific Departments), had made observations on the GAP-I. Some of the more important observations in that Report were: delay in the completion of schemes and resultant cost escalation in 3 States of Uttar Pradesh, Bihar and West Bengal; under-performance of

completed STPs, inadequate treatment of effluents, especially in tackling the problem of bacterial load; ineffective monitoring leading to unauthorised use and diversion of funds by the implementing agencies; deficient public awareness and participation.

13. In the present review, audit has taken its earlier work further, and has sought to evaluate the overall impact of schemes of pollution abatement of river Ganga and its tributaries at present.

Achievement of targets of sewage treatment

14. The following table shows the achievements of the States in treatment of sewage under the GAP, per reports of the NRCDC and the States. Even per reported achievement, the GAP has met only 39 per cent of its primary target of sewage treatment:

State	Targeted Sewage	Capacity created
	(In mld)	
Uttar Pradesh	1473.23	388.09
Bihar	227.48	118.00
West Bengal	750.23	341.60
Delhi	20.00	20.00
Haryana	323.00	228.00
Total	2793.94	1095.69

March 2000

Selection of towns

15. The table below shows the numbers of selected towns in the States.

River	No of towns					Total
	UP	Bihar	WB	Haryana	Delhi	
GAP-I						
Ganga	6	4	15			25
GAP-II						
Ganga	16	10	23			*49
Yamuna	8			12	1	**21
Gomati	3					3
Damodar		8	4			12
Total	33	22	42	12	1	110

* 12 towns in Uttar Pradesh, 3 in Bihar and 15 in West Bengal taken up on directives from the Supreme Court.

**6 towns in Haryana taken up on direction of the Supreme Court.

16. The GAP-I had sought to address the issue of pollution abatement in class I towns along Ganga. For the GAP-II, the NRCD did not fix any clear parameters in terms of sewage characteristics or downstream water quality for selection of towns; and had left the selection to the States. The EFC¹¹ recommended, however, in its first meeting held in August 1996, that the States might not include towns with BOD¹² less than 3 mg/l¹³ downstream of the river. Towns approved by the NRCD included 23 towns in West Bengal, Bihar and Uttar Pradesh, where BOD levels were below 3 mg/l. The NRCD did not have information about BOD levels of 5 towns it had approved (Annex IV.)

17 On the other hand, Uttar Pradesh Government excluded Kannauj where BOD was always above 3 mg/l during 1994 to 1999 and touched 4.8 mg/l in 1999. Danapur in Bihar, with 8 drains discharging 0.6 mld of raw sewage direct into Ganga, did not get selected. Likewise, Uluberia in West Bengal with a BOD of 43.07 mg/l of wastewater also remained excluded, even though this exclusion violated the State Government's adapted parameters of 30 mg/l BOD of wastewater.

Estimates of sewage generation

18. Under the GAP-I, the NRCD sewage estimates were based on population and water supply rate, with the sewage generation taken as 80 per cent of water supplied. The NRCD found that criterion to be flawed which led to over estimation of sewage in several cases; and, fixed the criteria of actual flow of drains at the outfalls to estimate the generation of sewage in the towns in the GAP-II. The NRCD also had no mechanism to evaluate and check the estimations of sewage by the States. Test audit observations on estimations of sewage are as follows:

- (a) The sewage estimation of 70 mld in Noida town of Uttar Pradesh was incorrect as it did not include the sewage of Shahadra drain, which discharges 404 mld sewage in the river Yamuna at Okhla barrage.
- (b) The estimate of 200 mld sewage in Varanasi did not include 50 mld sewage by-passed into the river Varuna, which finally meets the river Ganga.

¹¹ Expenditure Finance Committee

¹² Bio-chemical Oxygen Demand

¹³ Milligram Per Litre

Delay in approval of DPRs

19. The following table gives the status of receipt and sanction by the NRCD of DPRs from the States, as seen in the NRCD records.

March 2000

State	Number of DPRs				
	Expected	Received	Sanctioned	*Returned	Pending
Uttar Pradesh	224	211	146	60	5
West Bengal	154	67	10	30	27
Bihar	119	65	18	47	Nil
Haryana	86	85	74	11	Nil
Delhi	5	3	3	Nil	Nil
Total	588	431	251	148	32

* For revision

20. The NRCD had not fixed any time schedule for submission of DPRs of the GAP-II by the States and their sanction. It was only in January 1996, on intervention of the Supreme Court, that the NRCD prescribed that the States would submit the DPRs within 3 months of the date of approval of PFRs. The NRCD was to approve DPRs within 1 month from the date of their receipt. In August 1996, the Steering Committee also asked the States to submit all pending DPRs by November 1996. Yet only 73 per cent of the expected DPRs reached the NRCD from the States till March 2000. The NRCD approved only 58 per cent of the submitted DPRs. The NRCD did not maintain any record for dates of receipt and sanction of DPRs, because of which the audit could not fully evaluate the diligence with which NRCD followed its assurance to the apex court.

21. Audit test checked 40 DPR files, and found inordinate delays in 12 cases ranging from 2 to 33 months in submission of DPRs by the States. The NRCD also took 2 to 10 months in approving DPRs (Annex V). The NRCD attributed the delay in approval to lack of manpower. It also stated in October 1999 that preparation of DPRs for core schemes required surveys, investigations, design, and estimation of the least cost alternative by the implementing agencies, and as such it was not possible for the States to submit DPRs within 90 days. This stand is not consistent as it was the NRCD that fixed the time schedule. Clearly, the NRCD did not have adequate monitoring mechanism to ensure adherence by the States of the time-schedule prescribed at the instance of the Supreme Court.

Execution of schemes

22. The CGA had at the outset emphasised that the project should be implemented in a time bound manner. It expected the States and the NRCD to work together and to avoid time overruns. Even after delay of over 10 years, the GAP-I is not fully complete. Audit found that the GAP-II is also far behind its schedule. December 2001 is its time of completion, yet it has reportedly created only 13.7 *per cent* of the targeted sewage treatment capacity so far. Audit also noticed several cases of mismatch in planning and execution of schemes and of infructuous and avoidable expenditure, as narrated in the following paragraphs:

Core schemes: Interception & Diversion schemes

Bihar

23. The NRCD sanctioned 17 interception & diversion schemes under the GAP-I, which involved laying of 53.71 km of sewer line. The BRJP¹⁴ had reportedly achieved that target by March 2000. It was to lay 23.66 km of sewer line and to strengthen 5.02 km of sewer line under the GAP-II. The BRJP did not, however, take up laying and strengthening of sewer line till March 2000. It could not submit the DPRs per guidelines of the NRCD; and, consequently, could not obtain sanction for any interception & diversion scheme for the GAP-II from the NRCD.

24. The GPD sanctioned Rs 20.70 lakh for recommissioning of Exhibition Road Pumping Station, Patna for diversion of 6.9 mld of sewage. The BRJP did not correctly assess the incoming and outgoing flow of raw sewage. It laid 4 sewer lines, 1 of 9 inches diameter, 2 of 15 inches diameter and 1 of 18 inches diameter for incoming sewage, but one of 18 inches diameter for outgoing sewage. Defective designing resulted in overflow of sewage from 4 manholes, and non-achievement of targeted sewage treatment.

25. The BRJP executed the work of diversion of sewage from Krishnaghat in December 1988 for Rs 14.72 lakh. It could not, however, divert the sewage due to unauthorised connection of the drains by the PMC¹⁵ directly to the sewer line, resulting in overflow of sewage and its continuous discharge directly to Ganga from Krishnaghat.

¹⁴ Bihar Rajya Jal Parshad

¹⁵ Patna Municipal Committee

West Bengal

26. The NRCD sanctioned 4 schemes of interception & diversion under the GAP-II. The implementing agencies could complete none till March 2000, though stipulated dates for 3 schemes were already over. CMDA¹⁶ did not furnish the details of targeted and laid sewer lines under the GAP-II. Test check in Audit revealed the following cases of mismanagement of works.

(a) The CMDA entrusted the work of construction of 3 pumping stations at Cossipore-Chitpur, West Bengal to a contractor in December 1988, without making available the land. The contractor left the work in December 1992 after completing pumping station II and supplying the equipment worth Rs 68.23 lakh. The CMDA took over the possession of the equipment only in February 1997, by which time some of the equipment was reportedly lost. The CMDA had to purchase replacements for Rs 12.75 lakh. It arranged alternative land for pumping stations I & III and invited tenders in January 1995. The CMDA could not finalise the tenders within the validity period of 4 months. The lowest tenderer did not agree to extend the validity period of his offer. The CMDA had to invite fresh tenders in December 1995 and had to award the work in July 1996 at a cost, which was higher than the earlier offer by Rs 41.85 lakh. There was also a delay of 39 months in completion of the work (March 1999), despite the assurance of the Ministry in their ATN¹⁷ to the previous Audit Report to complete the work by December 1995.

(b) The PHED¹⁸ entrusted the work of laying of sewer line at Nabadwip in 1989, without undertaking soil investigations, even though the sub soil of Nabadwip town was sandy in nature. It commissioned the scheme in January 1994. Soon after, in June 1994, it noticed defects in sewer lines. The PHED had to repair the damaged pipeline thrice from July 1994 to October 1996 at a cost of Rs 11.10 lakh. It also had to abandon 385 metre pipe line costing Rs 6.10 lakh laid in the sand boiling zone in December 1996. The PHED incurred avoidable expenditure of Rs 17.20 lakh, because it did not do the basic work of soil investigation beforehand.

(c) The CMW&SA¹⁹ awarded the work of construction of lifting station at Howrah in July 1990 at Rs 51.93 lakh, for completion by July 1991, and approved a design without conducting soil test, not suitable to sand boiling nature of soil. It made the site available to the contractor only in

¹⁶ Calcutta Metropolitan Development Authority

¹⁷ Action taken Note

¹⁸ Public Health Engineering Directorate

¹⁹ Calcutta Metropolitan Water and Sanitation Authority

September 1992. It found huge leakages in October 1994, which the contractor failed to rectify. The CMW&SA terminated the contract in October 1995, after paying Rs. 25.85 lakh. Another contractor completed the balance work in March 1997 at Rs 85.04 lakh, including Rs. 38.50 lakh for rectification of defects and Rs. 21.27 lakh towards cost escalation. The CMW&SA thus incurred avoidable expenditure of Rs 59.77 lakh because it had earlier approved defective design.

(d) The PHED commissioned interception & diversion and STP schemes at Behrampore for treatment of 4 mld sewage at the total cost of Rs 2.32 crore. The sewer line collapsed in different stretches in 1996 as the soil was sand boiling, and the STP remained non-functional. The PHED could not restore the damaged sewer line till March 2000 due to encroachment on its alignment. Clearly, failure to do necessary spadework such as proper soil investigation has resulted in wasteful expenditure of Rs 2.32 crore.

(e) The CMDA commissioned an interception & diversion scheme at Hooghly-Chinsurah at a cost of Rs 4.91 crore in June 1994. It noticed severe depression of road surfaces along the alignment of sewer lines in June 1997, due to displacement of the sewer line from the alignment. The defects occurred, as the CMDA did not cast bed concrete before laying the sewer lines. Thus, technical flaws in execution of work, led to failure of the sewer lines. The CMDA noticed similar road subsidence during 1998-99 along different alignments of sewer lines in Bhatpara. Though CMDA took up repairing of damaged sewer lines as well as surface roads, the work remained incomplete as of March 2000.

Uttar Pradesh

27. The NRCD sanctioned 51 interception & diversion schemes under the GAP-II. The UPJN²⁰ could complete only 30 by March 2000. Stipulated dates of 17 of the remaining 21 schemes were over. Against the target of laying 95.49 km of sewer line, the UPJN laid 72.94 km of sewer line till March 2000. Test check in audit revealed the following cases of mismanagement:

(a) As against the target of procurement and installation of 103 pumping sets, the UPJN purchased 96 sets at a cost of Rs 9.85 crore between June 1998 to December 1999 and installed only 70 sets as of March 2000. The UPJN did not install 26 pumping sets in Mathura and Etawah till March 2000 as it had not completed the civil works.

²⁰ Uttar Pradesh Jal Nigam

(b) The UPJN purchased 10 diesel generating sets at a cost of Rs 0.73 crore during 1997-99 for Mathura and Vrindavan. It delayed installation of 6 sets by 5 to 19 months and did not install 4 sets purchased at a cost of Rs 46 lakh as of March 2000 as generating rooms were reportedly not ready. The warranty period of 18 months of 2 out of 4 uninstalled sets has already expired.

(c) The NRCD sanctioned Rs 7.88 crore in October 1997 for 'Rehabilitation of MPS²¹, Rising Main and Effluent Channel Part-I' at Agra for completion by March 1999. The works included mainly electrical and mechanical works, viz. installation of pumps, diesel generating sets, electric sub-station and transmission line. The work remained incomplete, reportedly due to change in its scope by the State Government. The UPJN had incurred a total expenditure of Rs 8.63 crore till March 2000.

Haryana

28. The NRCD sanctioned 19 interception & diversion schemes in 12 towns of Haryana. The implementing agency could not complete 10 of these schemes, even though the stipulated dates of their completion were over.

29. The PHD²², Faridabad allotted the work of construction of 1530 meter of brick circular sewer in June 1995 at a cost of Rs 64 lakh for completion by April 1996. It sought the approval of the Forest Department, the owners of the land, only in August 1995 and obtained it by May 1996. Later, on the ground of compliance of the orders of the Supreme Court to complete the works by 30 June 1997, the PHD laid RCC²³ pipe sewer by April 1997 in place of brick circular sewer, and incurred an expenditure of Rs 1.99 crore. That expenditure was much higher than what the PHD had originally envisaged for brick circular sewer. The Ministry's reply of August 1999 to audit justified Haryana's action to time constraints arising out of the Court orders. This should be viewed in the light of the facts that there were avoidable delays prior to the Court orders because of which the work could not be completed as contemplated and in time at the first place.

²¹ Main Pumping Station

²² Public Health Division

²³ Re-inforced cement concrete

Core Schemes: Sewage Treatment Plants

West Bengal

30. To tackle 750.23 mld of sewage in West Bengal, the NRCD sanctioned 15 STPs of 371.60 mld under the GAP-I. The implementing agency completed 14 STPs of 341.60 mld by March 2000. The NRCD did not sanction any STP under the GAP-II as the State Government did not confirm the availability of land. Test check revealed the following instances of mismanagement:

(a) The CMDA awarded the construction of 30 mld STP at South Suburban East in Calcutta in January 1994 for completion by June 1994. West Bengal Government did not however, provide total required land reportedly due to resistance from the owners. The CMDA had to change the alignment of approach road and embankment of the ponds, involving an extra liability of Rs 12.94 lakh. Further, it terminated the contract in August 1996 and entrusted the balance work of Rs. 29.31 lakh at an escalated cost of Rs 39.99 lakh in February 1997, which resulted in total extra expenditure of Rs 23.62 lakh, besides delay. The work remained incomplete till March 2000. There was also a mismatch in the execution of schemes as the CMDA had already completed the 2 interception & diversion schemes for Tollygunge-Jadavpur area in March 1994 at a cost of Rs 6.45 crore and that of South Suburban East in March 1997 at a cost of Rs. 9.06 crore. Due to non-completion of the STP, the 30 mld sewage, though diverted, remained to be treated.

(b) The CMDA constructed Matkal and Bangur STPs at a total cost of Rs 26. 46 crore in March 1994 and December 1998 respectively. These STPs have capacity to treat 85 mld sewage. The treated sewage flows in to Bajgola Khal, which is an arterial drainage channel carrying the bulk of raw sewage and spoils of Calcutta and adjoining Municipalities. It flows eastwards, joins river Bidyadhari which flows into the Bay of Bengal through Kulti Gang. The river Ganga lies to the west of STPs. Bagjola Khal, into which the treated sewage flows, does not join River Ganga. The construction of 2 cited STPs from the GAP funds was, therefore, not correct, as it did not control the pollution of Ganga.

(c) The CMDA awarded the work of construction of 40 mld STP at Baranagar, Kamarhati West Bengal in November 1990 after delay of 10 months. The tenders received in September 1989 were valid for 4 months. The price escalation was payable to the contractor from the first day of the second year from the date of submission of price bid. The CMDA paid escalation of Rs 38.10 lakh, of which Rs 8.47 lakh accrued on account of

the delay of 10 months in award of the work. West Bengal Government stated, in August 1999, that it approached the NRCD in March 1990 for expenditure sanction but the NRCD accorded the sanction only in October 1990 after which the CMDA awarded the work. The reply is not tenable as the State Government took action after the expiry of validity period in January 1990. The NRCD also further delayed the matter. Thus, both the CMDA and the NRCD were responsible for the delay.

(d) The CMDA acquired 112.69 acres of land valued at Rs 45 lakh in June 1990 for construction of the STP and the MPS at Garden Reach, Calcutta from the GAP funds. It utilized only 50.997 acres in construction work. The surplus land valued at Rs 24.64 lakh remained unutilised with the CMDA.

Uttar Pradesh

31. The NRCD sanctioned 16 STPs of 433.31 mld capacity under the GAP-II between June 1994 to January 1999. Those sanctions also left a large portion of estimated sewage uncovered. The UPJN could complete only 2 STPs of 13 mld capacity by March 2000.

32. In the previous Report, Audit had brought out the facts of unsatisfactory progress and the consequent termination of contracts in 60 mld STP at Allahabad and 130 mld STP at Kanpur under the GAP-I. In the ATN, the Ministry had stated that they had suitably advised the State Government of the recommendations of the Committee which the NRCD had set up to resolve the contractual disputes. Further examination of the 2 STPs revealed as follows:

(a) The UPJN re-assigned the work of Allahabad STP to the same contractor at an additional cost of Rs 1.2 crore, per advice of the NRCD. The contractor completed the work in March 1998, after a delay of 5 years.

(b) The UPJN reduced the scope of work of Kanpur STP from Rs. 18.60 crore to Rs 13.70 crore by excluding installation of imported dual fuel generating set. The UPJN commissioned the STP in January 1999, after a delay of 63 months and after incurring an excess expenditure of Rs 0.72 crore. Besides, there was infructuous expenditure of Rs 0.89 crore on electricity charges for the pre-commissioning period between April 1997 to December 1998.

Haryana

33. To treat 323 mld of sewage in Haryana, the NRCD sanctioned 12 STPs of 306.5 mld capacity between May 1996 to November 1997. Haryana's implementing agency completed 8 STPs of 228 mld by March 2000. Audit findings in following cases in test check are given below:

(a) Out of 10 STPs and 1 oxidation pond of 303 mld capacity contracted for construction by May 1996 for completion in 12 months, PHDs could commission only 7 STPs and the oxidation pond as of March 2000. There were delays ranging from 14 to 34 months. The NRCD ascribed the delay in August 1999, to non-release of the matching share during the year 1997-98 by the State. This reply is not tenable as the implementing agency had surplus unspent funds ranging between Rs 20.17 crore and Rs 27 crore during 1997-98 to 1999-2000.

(b) Faridabad (Zone II) STP processed only 15 to 20 mld sewage against the installed capacity of 45 mld as of December 1999. The anticipated quantity of sewage from areas developed by the HUDA²⁴ did not reach the STP, as the HUDA and the Municipal Corporation, Faridabad did not complete ancillary works.

(c) The NRCD approved acquisition of land for the construction of STP Gurgaon in November 1993. The State acquired 15.6 hectares of land in December 1994 out of the GAP funds, which was in excess of land required per the NRCD norms by 5.2 hectares, involving excess expenditure of Rs 69.80 lakh. The excess land was not in use since its acquisition.

(d) The PHDs executed the works of 6 STPs, 2 each in Yamunanagar and Faridabad and 1 each in Karnal and Panipat. As against embedding of 46137 meters of electrical cables required to be done at a tendered cost of Rs 1.80 crore, the electrical cable actually embedded was only 13579 meters. The actual payment made was Rs 1.55 crore till March 2000, which was in excess by Rs 1.02 crore on pro rata basis.

(e) The PHD-I, Sonapat detected defects in September 1998 in mechanical screen bars of 30 mld MPS at Sonapat and in the STP at Gurgaon, constructed in June 1997 at the cost of Rs 2.53 crore and Rs 10.58 crore respectively. Because of that, bulk material and polythenes passed into pumping stations. That choked the pumps and the STP. The implementing

²⁴ Housing Urban Development authority.

agency had not got the bars repaired or replaced as of March 2000, impairing the functioning of the MPS and the STP.

(f) The Executive Engineer, PHD-I, Yamuna Nagar allotted the work of construction of 2 STPs in Yamunanagar in May 1996 at Rs 6.50 crore and Rs 3.08 crore respectively for completion within 12 months. The Executive Engineer recovered a penalty of Rs 65 lakh for slow progress of work. In February 1998, the Superintending Engineer ordered release of 50 *per cent* of penalty amount on assurance by contractor to complete the work by March 1998. The work, however, remains incomplete as of April 2000.

Bihar

34. To tackle 227.48 mld sewage in Bihar, the NRCD sanctioned construction of 7 STPs of 135.5 mld capacity under the GAP-I. The BRJP completed 5 STPs of 118 mld capacity as of March 2000. The NRCD did not sanction any STP under the GAP-II, due to unsatisfactory operation and maintenance of assets created under the GAP-I. Test check in Audit revealed the following cases of mismanagement:

(a) The previous Audit Report had brought out the delay in starting the work of 8 mld STP of Chapra, due to frequent revisions in its design capacity. The GPD sanctioned a further revision in the STP in March 1995 from 8 mld UASB to 2 mld oxidation pond, as it considered the BRJP's calculations of the wastewater characteristics arbitrary. The BRJP actually completed revised STP after a delay of about 4 years in December 1999. Meanwhile, the feeder interception & diversion scheme completed in February 1990 at a cost of Rs 1.21 crore, remained idle.

(b) The previous Audit Report had brought out the delay in completion of 4 mld STP in Eastern Zone Patna. The BRJP awarded the contract in October 1995 without resolving the dispute with the owners of the land required for construction of approach road. The contractor commenced the work in November 1995 but stopped it in February 1996 due to continued resistance of the landowners, after incurring expenditure of Rs 95.60 lakh.

(c) The previous Audit Report had brought out the delay in completion of 45 mld STP in Saidpur, scheduled for completion by December 1993, due to encroachment of a portion of plant site. Despite clearance of the site in November 1996, the contractor could complete the work only after 3 years in October 1999, against its scheduled gestation of 15 months.

(d) The previous Audit Report had brought out non-completion of 13.5 mld STP at Munger, despite completion of interception & diversion scheme which had costed Rs 2.50 crore in May 1993. The Ministry had committed in its ATN that the STP would be operationalised by December 1995. Audit found that the STP is still incomplete, even though the implementing agency spent over Rs 1.70 crore on it. The contractor abandoned the work in May 1997 for want of release of necessary funds by the BRJP.

(e) Out of 2 transformers of 200 KVA each, installed in November 1993 at Patna Southern Zone STP, the BRJP transferred 1 transformer to Anjuman Ismania hall in March 1994 for general water supply not related to the GAP.

Delhi

35. Of the total sewage of 2270 mld in Delhi, the DJB²⁵ could achieve the treatment capacity of only 1574 mld as of March 2000. The GAP in Delhi covers treatment of only 20 mld of sewage for which the NRCD sanctioned 2 STPs of 10 mld capacity each at Dr. Sen Nursing Home and at Delhi Gate drains in May 1995. The DJB awarded the construction work in May 1995 itself on negotiated tendered cost of Rs 5.39 crore and Rs 6.31 crore respectively. The stipulated date of completion of both the STPs was December 1996. The DJB could commission the STPs in January 1999 and November 1999 respectively, after delays of 25 and 35 months respectively.

Non-Core Schemes

Low cost sanitation

Bihar

36. The BRJP could complete none of the 8 schemes sanctioned by the NRCD under the GAP-II till March 2000, Audit observations on the 7 schemes of low cost sanitation completed by it under the GAP-I are as follows:

(a) The BRJP constructed 40 community toilets for Rs 1.09 crore in 9 towns²⁶ of Bihar in the campuses of Government/semi Government/private institutions, in violation of the GAP guidelines that toilets were to be made in substitution of those contributing sewage pollution to the river.

²⁵ Delhi Jal Board

²⁶ Chapra, Patna, Hazipur, Sonapur, Mokama Barauni, Buxar, Munger, Bhagalpur and Sultanganj

(b) The BRJP constructed 20 community toilets at a cost of Rs 57.37 lakh in 7 towns²⁷ of Bihar. These either remained unused due to closure or unauthorised occupation or were partly used for a few days in a year during fairs and locked up for the rest of the period. The State Government and municipal bodies did not take effective steps for their regular use.

(c) Bihar Government and the maintenance agency, M/s Sulabh International failed to keep 10 community toilets of 4 towns²⁸ in proper condition. The toilets were impaired variously for want of repairs of the doors, buildings, drains, pipes, pans, urinals, hand pumps, electric fitting, septic tanks etc. The GAP fund of Rs 35.82 lakh spent on their construction did, therefore, not yield the desired benefits.

River front Development

Haryana

37. The Public Health Branch, YAP²⁹ PWD constructed 2 bathing ghats in Yamunanagar in July 1995 at a cost of Rs 72.64 lakh. The design and site chosen were defective because of which the ghats could not be put to public use, resulting in wasteful expenditure of Rs 72.64 lakh

Electric Crematoria

West Bengal

38. The MED³⁰ in West Bengal did not uniformly follow population and death rate criteria while constructing ECs³¹. It constructed 1 electric crematorium in each of the towns of Bhatpara, Nabadwip, Hooghly-Chinsurah and Barrackpore with a population of 2.65 lakh, 1.30 lakh, 1.29 lakh and 1.16 lakh respectively; and, 2 at Behrampore, which had a population of only 1.02 lakh.

39. The BMA³² awarded electrical and mechanical works of construction of 2 electric crematoria at Khagra and Gorabazar in May 1988 for Rs 20.89 lakh; and, civil works in July 1989 for Rs 25.31 lakh. The scheduled time for completion of the project was March 1990. The BMA diverted the GAP funds for payment of staff salary and did not supply cement and steel to the contractor for civil works. The State Government withdrew the works from the BMA in November 1990 and entrusted those to the MED in November 1992.

²⁷ Chapra, Buxar, Sonapur, Hazipur, Mokama, Sultanganj and Bhagalpur

²⁸ Chapra, Munger, Barauni and Bhagalpur

²⁹ Yamuna Action Plan

³⁰ Municipal Engineering Directorate

³¹ Electric Crematoria

³² Behrampore Municipal Authority

The MED completed the scheme in March 1997 after incurring a total extra expenditure of Rs 9.36 lakh on civil, electrical and mechanical works through fresh contracts.

Delhi

40. The MCD³³ awarded the work of construction of EC at Sarai Kale Khan at a cost of Rs 99.60 lakh in January 1995, for completion by May 1996. The work was incomplete as of March 2000, due to late release of payments to the contractor by the MCD. For the construction of a sub-station for electric crematorium, the DVB³⁴ demanded Rs 43.62 lakh from the MCD in January 1997 as connection charges. The MCD deposited the amount in October 1998 after more than 18 months. The DVB did not commence the construction work of sub-station as of November 1999. Even if civil works of electric crematorium had been completed, the MCD could not have commissioned it for want of electricity supply.

Operation and Maintenance of Assets

41. The NRCD did not show due diligence to ensure the optimum utilisation of assets created under the GAP. The state agencies also neglected their operation and maintenance. Out of 45 STPs commissioned as of March 2000, 19 STPs did not perform to their full treatment capacity due to erratic power supply, non-rectification of defects, and non-release of funds by the State Governments. The effluent quality from 6 STPs did not meet the desired standards. The crematoria were not properly maintained. Out of 28 electric crematoria constructed under the GAP-I, 8 electric crematoria were either closed or inoperational. Audit observations on operation and maintenance of assets are as follows:

(a) The BRJP commissioned 25 mld capacity STP in Southern Zone. Patna in June 1994 at a cost of Rs 4.04 crore. It treated an average of only 2 mld of sewage during 1998-99, further reduced to 0.81 mld after April 1999, as the pumping stations did not function due to erratic power supply and reported paucity of funds. Thus, poor maintenance of the plant resulted in discharge of almost entire quantity of untreated sewage to the river.

(b) The BRJP spent Rs 2.09 crore up to September 1992 on interception & diversion and Rs 1.79 crore up to June 1994 on STP to tackle 11 mld of sewage of Bhagalpur town. It commissioned the project in June 1994. The

³³ Municipal Corporation of Delhi

³⁴ Delhi Vidyut Board

average actual flow of sewage to the plant was, however, only 3 mld. as the BSEB³⁵ did not provide high tension electric connection to the pumping stations at Maharaja Ghat and Koelaghat till August 2000. Further, out of 7 out-falls to the STP Bhagalpur, sluice gates of 5 were broken. Pumping station at Manik Sarkar was also out of order. The BRJP did not take any steps for repairs of pumping station and sluice gates. It took up the matter with the BSEB only in February 1997 after over 5 years. The STP had not been functioning since March 2000 due to disconnection of power supply. The BRJP's negligence has, therefore, led to non-utilisation of interception & diversion scheme and the STP created at a cost of Rs 3.88 crore.

(c) The BRJP constructed Buxar STP in September 1995 at a cost of Rs 43.54 lakh for treatment of 2 mld sewage, but closed it in September 1996, reportedly due to break down of submersible pumps and their motors. The BRJP did not release funds for operation and maintenance of plant. The BRJP's negligence led to the entire sewage flowing directly to Ganga after September 1996.

(d) The BRJP completed a 35 mld capacity Beur STP at Patna in December 1993 for Rs. 3.61 crore. The STP treated only 10.32 mld during 1999-2000, because of inadequate power of pumping stations. The BRJP did not carry out repairs to the pumping stations due to paucity of funds. Resultantly, a major portion of the sewage continued to be discharged directly into Ganga.

(e) The CMDA commissioned 14 STPs of 341.60 mld in West Bengal during the period from December 1991 to December 1997 at a total cost of Rs 69.36 crore, under the GAP-I. The STPs treated only 181.98 mld of sewage, as the municipal authorities did not provide direct house connection to the intercepting sewers and existing sewerage net work was inadequate.

(f) The NRCD norms require the treated effluents from the STPs to contain BOD less than 30 mg/l and suspended solids less than 50 mg/l for discharge into water. The NRCD entrusted the performance monitoring studies of 16 STPs to external agencies/laboratories. Those studies found that 6 STPs, at Mirzapur, Dinapur, and Swarg Ashram in Uttar Pradesh

³⁵ Bihar State Electricity Board

and at Gurgaon, Faridabad Zone-I & II in Haryana, did not meet the prescribed standards.

(g) 31 quarters constructed by the CMDA for operation & maintenance staff, within STP premises at Baranagar-Kamarhati, Garden Reach and Chandannagar at a cost of Rs 38.66 lakh between March 1987 and September 1994, remained idle, as the CMDA engaged private agencies for the upkeep of the STPs.

(h) The CMDA constructed a laboratory at Garden Reach STP in December 1995. Cost of the laboratory including test equipment was Rs 11.16 lakh. The CMDA, however, entrusted the testing performance of the STP to an outside agency; and, the expenditure on the laboratory proved infructuous.

(i) Two electric crematoria at Mokama and Barauni commissioned in Bihar in November 1992, at a cost of Rs 62.54 lakh remained non-functional since January 1994 and July 1997 respectively, due to the State Government's failure to pay electricity bills.

(j) Bhagalpur electric crematorium, commissioned at a cost of Rs 37.25 lakh in 1991-92 remained non-operational since October 1993 due to non-payment of electricity bills by Bhagalpur Municipal Corporation.

(k) The floods damaged Munger electric crematorium in April 1999, constructed at a cost of Rs 42.10 lakh during 1992-93. It is lying closed for want of repairs.

(l) The electric crematorium at Pahlezghat, constructed at a cost of Rs 38.27 lakh, did not function since the date of its commissioning in March 1990 due to erratic power supply, although the implementing agency transferred some equipment costing Rs 5.70 lakh in January 1996 to the Banghat electric crematorium at Patna.

(m) Electric crematoria at Allahabad and Haridwar, commissioned in January 1993 and March 1992 at a total cost of Rs 97.25 lakh, are non functional since October 1999 and July 1999 respectively due to power disconnection, as the respective municipal bodies failed to pay the electric bills. Kanpur electric crematorium, commissioned in May 1991 at a cost of Rs 77.22, was lying closed since March 1997, due to technical fault and non-supply of power.

Public Participation

42. The previous Audit Report had pointed out lack of progress in promoting public awareness and participation and under-utilisation of corresponding budget provision. The CGA too had laid great emphasis on the need to maximise public participation, particularly of people living on banks of river Ganga, and of the local bodies, social organisations and Non-Government Organisation through wider publicity. The NRCDC and the State Governments continued to give only routine attention to that aspect, as may be evinced from the paltry total expenditure of only Rs. 38.60 lakh during the period from 1995 to 2000 by the participating States on the activities relating to enhancing public participation.

Water Quality Monitoring under the GAP

43. The Steering Committee decided in December 1986 to bring the water quality of river to bathing levels, which were as follows:

Dissolved Oxygen	Not less than 5 mg/l
Bio-chemical Oxygen Demand	Not more than 3 mg/l
Bacterial load (Coliform Count)	Not more than 10000 per 100 ml

44. Water quality monitoring is an important function of the GAP. Till 1994, CPCB and Central Water Commission carried out water quality monitoring of river Ganga on 27 stations identified for sampling, at the NRCDC's behest. The NRCDC transferred the function to other research organisations afterwards; and, included 33 more stations for sampling for monitoring the water quality of Ganga's tributaries in 1996. The NRCDC has since discontinued the water quality monitoring of river Ganga since September 1999 reportedly due to funds constraints.

45. Annex VI shows the BOD, Dissolved Oxygen and coliform levels for all 60 stations as furnished by the NRCDC for the period 1995-2000. It clearly shows that the water quality of Ganga has deteriorated over the period 1993-1999. During 1999 BOD exceeded the permissible limit at 10 out of 27 sampling stations, viz. Kannauj up stream, Kannauj down stream, Kannauj at Ramganga, Kannauj at Kalindi, Kanpur up stream, Kanpur down stream, Varanasi down stream, Palta, Dakshineshwar and Uluberia, as against only at 1 sampling station, viz. Kanpur down stream in 1993. The water quality of river Yamuna also did not improve over the period 1996-99. The BOD exceeded the permissible limits at 14 sampling stations during 1999, as against

13 out of 25 sampling stations during 1996. The coliform levels exceeded in 17 out of 60 stations sampled during 1999.

46. The CPCB and pollution control bodies of Haryana and Delhi carried out joint sampling at Palla, Agra canal and Madanpur Khadar of Yamuna during 31 August 1999 to 4 September 1999 on the directives of the Supreme Court, and found that the water quality at Palla, before entering Delhi, was fit for propagation of wild life fisheries. But after leaving Delhi at Madanpur Khadar, it worsened due to 19 drains of Delhi discharging untreated effluents into river. The water quality was found fit for only industrial cooling and irrigation etc.

Control of bacterial load

47. The previous Audit Report had brought out that the GAP schemes did not provide for control of bacterial load. It exceeded the permissible limits at all 27 sampling stations. In order to find a techno-economically viable technology, the NRCD sanctioned 4 research projects during December 1993 to December 1995 using ultra-violet radiation, gama radiation, chlorination and biological means in favour of research organisations at Haridwar, Baroda, Lucknow and Delhi respectively. All the projects were completed by 1998-99. The NRCD found that technologies developed were either cost intensive and economically unviable or these required a large land area for construction of stabilisation ponds, which was not available in large towns. A committee of experts constituted by the NRCD under Chairman, CPCB reviewed the standards and technology options and recommended in September 1999 that waste stabilisation pond technology was the only cost effective technology capable of making the levels of microbial pollution in treated water safe for bathing. The committee also recommended that all conventional technologies needed to be supplemented by maturation ponds for control of bacterial load. The NRCD, however, did not take any steps for inclusion of maturation ponds and the objective of reducing the bacterial load to the desired levels remained to be achieved.

Industrial pollution

48. The GAP envisaged tackling of domestic sewage only to bring the pollution level of rivers under permissible limits. The treatment of entire sewage as envisaged in the GAP cannot bring the water quality to the acceptable standards of bathing without effective steps to check/control the discharge of industrial effluents into the rivers. The CGA, however, observed in its first meeting held in October 1985 that though treatment of industrial waste was not included in the Action Plan, it was necessary to take special

steps due to seriousness of industrial pollution in specific locations. The CGA made CPCB and SPCBs directly responsible to ensure compliance to environmental laws by grossly polluting industries³⁶. The GPD was to monitor progress on installation of ETPs³⁷ by grossly polluting industries. As per directives of the NRCA, CPCB submitted a report to the NRCD regarding installation of ETPs by the grossly polluting units. Based on this, the NRCA issued directives in July 1997 to all grossly polluting industries discharging their effluents into the river to install the requisite ETPs within 3 months, failing which closure notices should be issued.

49. The following table gives the status of installation of ETPs in the States:

State	Number of Units				
	Grossly polluting units	ETPs installed	Closed	ETPs under construction	ETPs not functioning properly
Haryana	56	47	9	-	18
West Bengal	96	77	16	3	33
Uttar Pradesh	117	96	21	-	8
Delhi	428	80	-	-	-
Bihar	35	35	-	-	3
Total	732	335	46	3	62

Source: Reports of the Pollution Control Boards of the participating States.

50. Only about 45 per cent of the grossly polluting industrial units had installed ETPs, and over 18 per cent of those did not function properly, and did not meet the standards for discharge of effluents developed by CPCB. Those units discharged industrial effluent of 2667.16 mld into the rivers. The NRCD had no mechanism to see that the installed ETPs functioned satisfactorily and treated effluents did not violate the prescribed standards. The following paragraphs narrate the instances noticed by audit in the participating States:

- (a) Out of 35 grossly polluting industries in Bihar, the ETPs installed in 3 industries, viz. Bokaro Thermal Power Stations 'A' and 'B' and Chandrapura Thermal Power Station discharged 637.95 mld effluents in Damodar river directly.

³⁶ CPCB, identified a grossly polluting industry as one which handled hazardous substances or industries discharging effluent having BOD load of 100 kg per day or more

³⁷ Effluent Treatment Plants

(b) ETPs in 18 industrial units in 5 towns of Haryana, viz. Faridabad, Gurgaon, Panipat, Sonapat and Yamuna Nagar, discharged 12.615 mld effluents into river Yamuna.

(c) ETPs in 33 out of 77 grossly polluting industrial units in West Bengal, discharged 2007 mld effluents.

(d) In Uttar Pradesh, ETPs in 18 out of 96 grossly polluting industrial units did not function. UPSPCB³⁸ did not furnish the details of pollution load discharged by these industries. Audit test check of 9 grossly polluting industries revealed that those industrial units discharged pollution load of 9.593 mld into the river.

51. The Supreme Court of India, in a public interest litigation case, directed in April 1995 that 538 tanneries located in 3 clusters in Calcutta generating about 30 mld of effluents be shifted from the city to a leather complex and a CETP³⁹ be provided to treat the effluent generated from the complex. The CCEA approved construction of CETP at Calcutta in August 1995 for completion in November 1997. The Central and the State governments were to equally share the cost of Rs 65 crore of CETP. The West Bengal Government is yet to submit the DPR for CETP to the satisfaction of the NRCD.

Financial management

52. The Central and the participating State Governments released a total sum of Rs 655.23 crore to the implementing agencies during the period covered by audit, i.e. from 1993 to 2000. As of March 2000, the States reported utilisation of Rs 587.63 crore, which consisted of Rs 118.60 crore on the GAP-I and Rs 469.03 crore on the GAP-II. The utilisation of funds must be viewed, however, with reference to audit comments in the following paragraphs, which highlight, in the test checked cases alone, financial mismanagement, especially funds diversion to unauthorised activities (Rs 36.07 crore), incorrect reporting (Rs 6.75 crore), and parking of funds by the BRJP in its own personal account (Rs 1.17 crore), and unutilised funds with the implementing agencies (Rs 72.62 crore).

(a) **Diversion/misuse of funds:** The implementing agencies in Uttar Pradesh, Bihar and West Bengal diverted Rs 36.07 crore on establishment, operation and maintenance of plants, construction of circle office, purchase of vehicle, computer, xerox machine, custom duty, supervision charges on low cost sanitation etc., which were not covered under the

³⁸ Uttar Pradesh State Pollution Control Board

³⁹ Common Effluent Treatment Plant

programme and construction of STPs, not affecting the water quality of river Ganga (Annex VII).

(b) **Inflated reporting of expenditure:** The implementing agencies in Haryana and Uttar Pradesh charged excess centages on works to the extent of Rs 4.12 crore and 2.63 crore respectively, which resulted in excess reporting of expenditure of Rs 6.75 crore on the GAP.

(c) **Parking of funds:** The Managing Director, BRJP deposited the GAP funds during 1995-96 to 1997-98 totalling Rs 1.17 crore in their general operating account, which unauthorisedly cushioned ways and means position of BRJP, to the detriment of application of needed funds on the GAP schemes.

(d) **Loss of interest:** The implementing agencies in Bihar, West Bengal and Delhi incurred loss of interest of Rs 2.55 crore by not investing the unspent balances in interest bearing accounts (Annex-VIII).

(e) Besides, the implementing agencies in Bihar and West Bengal did not report to the NRCD the interest of Rs 25 lakh and Rs 66.40 lakh respectively earned on the GAP funds despite pointing out in the previous Audit Report.

(f) **Unutilised balances:** Unutilised balance of Rs. 67.90 crore, Rs. 0.41 crore and Rs. 4.31 crore were lying with the implementing agencies in Uttar Pradesh, Delhi and Bihar respectively as on March 2000. This was due to slow progress of works and release of funds by the Government of India/the State Governments, without proper assessment of requirements.

Monitoring Mechanism

53. The monitoring of the GAP at the Central level left much to be desired. During the period of review, the CGA, the apex body constituted in 1985 and headed by the Prime Minister, met only twice, in 1994 and 1997. The GAP required the NRCD to undertake field visits, hold review meetings with the implementing agencies, and to obtain physical and financial reports from the States and their implementing agencies. Audit found that while the NRCD did compile some data from the reports it received on physical and financial achievements from the States and the implementing agencies, there was little recorded evidence of follow up action on the shortcomings and irregularities mentioned in the reports. The NRCD could not show to audit any recorded minutes of the Review meetings it might have held.

54. At the state level, the State Governments were to constitute CMCs⁴⁰ for each town, as per directives of the NRCD issued in March 1995, to monitor the progress of execution and timely completion of schemes and their operation and maintenance, and to facilitate public awareness and participation. The CMCs were to meet once in a month. Audit noticed that Haryana, Bihar and Delhi governments did not constitute CMCs in any of the towns and West Bengal government constituted CMCs only in 5 out of 42 towns. The constituted CMCs in West Bengal and Uttar Pradesh met only infrequently. In Uttar Pradesh, CMCs in 6 towns met only once, CMCs in 2 towns met twice and CMCs in another 2 towns met only thrice since their constitution.

55. West Bengal government constituted a High Powered Committee in May 1998 under the Chairmanship of Chief Minister and Bihar government constituted the Steering Committee under the Chairmanship of Chief Secretary, to monitor the implementation of the programme. The High powered committee in West Bengal met only twice in January 1999 and January 2000. The Steering committee in Bihar met only once during 1994-2000.

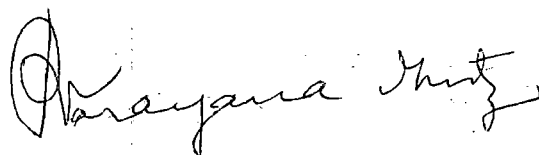
Conclusion and recommendation

56. The GAP, launched in 1985, with the objective of bringing water quality of river Ganga and its tributaries to bathing levels, was not able to achieve its objectives, despite a total expenditure of Rs 901.71 crore over a period of 15 years.

57. There were shortfalls in allocation of resources. Of the total domestic sewage of 5044 mld, in 110 towns selected for pollution abatement along the banks of river Ganga and its tributaries, the GAP addressed itself to process only 2794 mld. The reported achievement of the participating States was 1095.69 mld, i.e. only 39 *per cent* of truncated target. The assets created in the Scheme suffered impairment and closure because of technical design flaws, *inter se* mismatch of the schemes and their components, problems in land acquisition, contract mismanagement, lack of adequate maintenance, and in general because of lackadaisical attitude of the States and their implementing agencies. Technologies adopted by the NRCD for construction of STPs were often questionable inasmuch as they could not adequately address the problem of reducing bacterial load in the river to the desired level. The NRCD has abandoned the crucial activity of monitoring the water quality monitoring on river Ganga since September 1999, reportedly for want of funds, and deprived

⁴⁰ Citizen Monitoring Committees

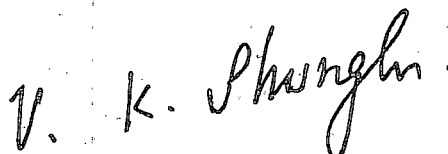
itself of a key instrument of overall performance monitoring of the GAP. The NRCD could not show to Audit any satisfactory recorded evidence that it discharged its coordinating and monitoring functions properly vis-à-vis the participating States and the implementing agencies. The Ministry of Environment and Forests needs to: seriously review the implementation of the entire GAP; evolve a financing arrangement whereby the States and the implementing agencies develop a more involved stake in creation of assets, their maintenance, and their functionality at all times; revive and strengthen technical and administrative monitoring to ensure the value for money of assets created at great public expense; and, not the least, facilitate competent technological support for optimum utilisation of resources.



(P.NARAYANA MURTY)
Principal Director of Audit,
Scientific Departments

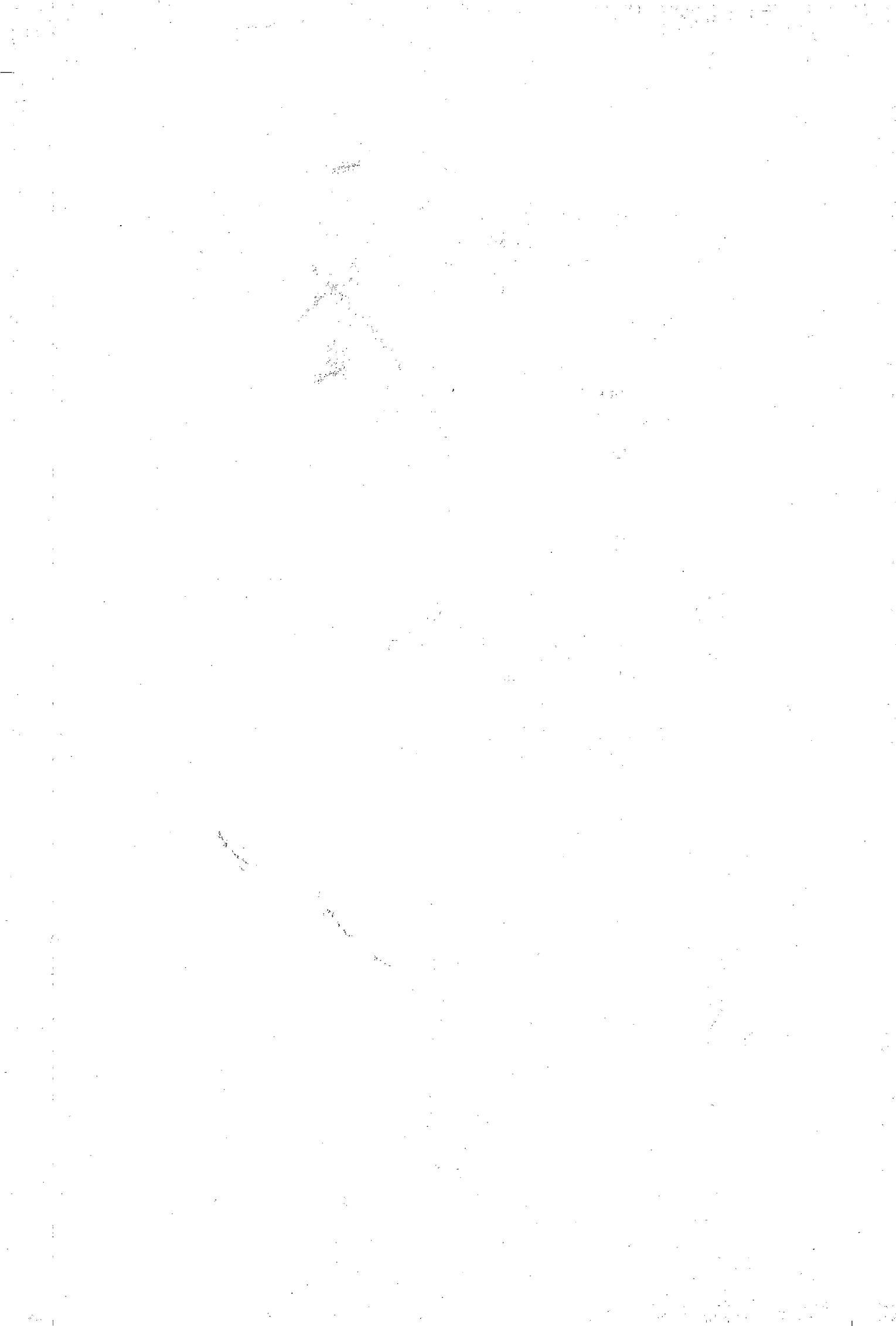
New Delhi
Dated :

Countersigned



(V.K. SHUNGLU)
Comptroller and Auditor General of India

New Delhi
Dated :



ANNEX-I

Approval of Schemes in various stages

Action Plan	U.P.	Haryana	Delhi	Bihar	West Bengal	Month of Approval	Scheduled date of completion
YAP	8	6	1	-	-	April 1993	March 1999
YAP	-	6	-	-	-	April 1996	March 1999
Gomati	3	-	-	-	-	April 1993	March 1999
Damodar	-	-	-	8	4	October 1996	March 2001
Ganga (Main stem)	4	-	-	7	-	July 1995	-do-
-do-	-	-	-	-	8	October 1996	December 2001
Ganga (Supreme Court Towns)	12	-	-	3	15	October 1996	December 2001
Total	27	12	1	18	27		

ANNEX-II

Composition of various bodies

S. No.	Body	Chairman	Members
1.	NRCA	Prime Minister	Concerned Chief Ministers, Central Ministers and MPs
2.	Standing Committee	Minister for Environment and Forests Member Secretary	Planning Commission, Secretary-Ministry of Environment and Forests, Director Centre for Science and Environment Additional Secretary and Project Director NRCD
3.	Steering Committee	Secretary Environment and Forests	Chief Secretaries of the Concerned states, representatives of Central Ministries, Specialised Organisations and Action Plan Approval experts
4.	Monitoring Committee	Member (Environment), Planning Commission, New Delhi	Secretary (Environment and Forests), Special Secretary (Planning Commission), Specialists/Experts of some organisations
5.	National River Conservation Directorate	Project Director	
6.	Central Government	-	Specialised Department and Central Pollution Control Board, Central Water Commission and Ministry of Non-Conventional Energy Sources
7.	State Agencies		Water and Sewage Boards, Pollution Control Boards, Development Authorities, Local Bodies.
8.	Research Committee	Dr. M.S. Swaminathan	-

ANNEX-III

Names of Nodal / implementing agencies.

Sl. No.	State	Nodal Agency	Implementing Agency
1.	Haryana	Public Health Branch, PWD Haryana <i>up to 1997</i> and Public Health Branch, Yamuna Action Plan Project	(i) Public Health Department
2	Delhi	Department of Urban Development	(i) Delhi Jal Board for sewage works (ii) Municipal Corporation of Delhi for non sewerage works
3.	Uttar Pradesh	Urban Development Department	(i) Uttar Pradesh Jal Nigam
4.	Bihar	Urban Development Department	(i) Bihar Rajya Jal Parshad for the GAP (ii) Mineral Area Development Authority for Damodar Action Plan
5.	West Bengal	Urban Development Department	(i) Calcutta Metropolitan Development Authority (ii) Irrigation and Water Directorate (iii) Public Health Engineering Directorate (iv) Municipal Engineering Directorate (v) Calcutta Metropolitan Water and Sanitation Authority (vi) Calcutta Municipal Corporation

ANNEX-IV

Statement showing number of towns included in the GAP where BOD down stream of the town does not exceed 3 Mg/l

Sl.No.	Name of Town	State	BOD
1.	Jharia	Bihar	1.4 -3.0
2.	Chirkunda	Bihar	1.4 - 3.0
3.	Sudamdih	Bihar	0.2 - 2.8
4.	Bokaro- Kargil	Bihar	0.4 - 1.0
5.	Sindri	Bihar	NA
6.	Telumochu	Bihar	NA
7.	Kahalgaon	Bihar	0.80
8.	Hazipur	Bihar	2.20
9.	Mokama	Bihar	2.21
10.	Ranipur (BHEL) Haridwar	U.P.	1.9
11.	Bijnor	U.P.	3.0
12.	Chunar	U.P.	3.0
13.	Kashimath	U.P.	Nil
14.	Gopeshwar	U.P.	Nil
15.	Karanprayag	U.P.	Nil
16.	Rudraprayag	U.P.	0.7
17.	Badrinath	U.P.	NA
18.	Srinagar	U.P.	Nil
19.	Deoprayag	U.P.	NA
20.	Uttarkashi	U.P.	NA
21.	Circular Canal	W.B	1.2
22.	Tolly's Nalla	W.B	1.2
23.	Asansol	W.B	2.0 - 3.0
24.	Andal	W.B	2.0 - 3.0
25.	Jangipur	W.B	2.6
26.	Mahestala	W.B	2.8
27.	Chakdah	W.B	2.8
28.	Murshidabad	W.B	2.0

ANNEX-V

Delay in submission and approval of DPRs

Sl. No.	Name of Scheme	Time taken by states in submission of DPRs.	Time taken by NRCD in communicating comments	Time taken by state Govts. in responding to comments of NRCD	Time taken by NRCD in approval of DPRs	Total time taken in submission and approval	Total Delay (Col.7-4)
1	2	3	4	5	6	7	8
1.	Renovation of existing sewer and pumping stations in old Kanpur	31 (8/95 to 2/98)	-	-	3 (2/98 to 5/98)	34	30
2.	78 mld STP at CIS Yamuna Agra	36 (11/93 to 11/96)	-	-	8 (12/96 to 8/97)	44	40
3.	Interception and Diversion Zone-I Panipat	5 (11/93 to 4/94)	-	-	10 (4/94 to 2/95)	15	11
4.	Interception and Diversion Zone-I Faridabad	5 (11/93 to 4/94)	5 (4/94 to 7/94) (8/94 to 10/94)	(7/94 to 8/94) (10/94 to 5/95)	1 (5/95 to 6/95)	19	15
5.	LCS Garhmukteshwar	16 (8/95 to 12/96)	(12/96 to 12/96)	5 (1/97 to 6/97)	2 (7/97 to 8/97)	24	20
6.	LCS Vindhyachal (Mirzapur)	11(8/95 to 7/96)	-	-	4 (7/96 to 11/96)	15	11
7	STP at Sain Nursing Home Nala, Delhi	7 (11/93 to 6/94)	-	-	10 (7/94 to 5/95)	17	13
8	STP/MPS Gohana	15 (5/96 to 8/97)	-	-	2 (9/97 to 11/97)	17	13
9.	27 mld STP at Noida	33 (11/93 to 8/96)	2 (9/96 to 10/96)	1 (11/96 to 12/96)	8 (12/96 to 8/97)	45	41
10	Interception and Diversion restoration work at Part V Mathura	12 (11/93 to 10/94)	-	-	3 (11/94 to 2/95)	15	11
11.	STP at CIS Hindon Ghaziabad	33 (11/93 to 8/96)	2 (9/96 to 11/96)	1 (12/96)	8 (1/97 to 8/97)	45	41
12.	Interception and Diversion Part-II Noida	28 (11/93 to 3/96)	2 (4/96 to 6/96)	2 (7/96 to 9/96)	1 (10/96)	35	31

ANNEX-VI

DO/BOD Level in mg/l (March)

Sl.No.	Station	1995		1996		1997		1998		1999		2000		Total Coliform
		DO	BOD	DO	BOD	DO	BOD	DO	BOD	DO	BOD	DO	BOD	
1.	Rishikesh	9.2	1.3	8.9	1.0	10.0	1.3	9.3	1.0	9.7	0.8			80
2.	Haridwar	8.6	1.6	8.4	1.1	9.9	1.4	9.9	1.1	9.3	1.0			140
3.	Garhmukteshwar	NA	1.8	8.2	1.4	8.8	1.6	8.1	2.7	8.7	1.2			300
4.	Kannauj (U/S)	NA	NA	8.4	2.8	7.5	3.0	8.6	4.2	8.8	10.8			170
5.	Kannauj (D/S)	NA	NA	7.9	3.2	7.8	3.6	8.0	3.0	10.0	7.2			220
6.	Kanpur (U/S)	NA	NA	8.2	2.8	7.9	2.8	8.4	3.6	10.0	7.2			2700
7.	Kanpur (D/S)	NA	NA	6.9	5.6	6.8	5.6	8.0	6.0	9.8	5.4			170000
8.	Allahabad (U/S)	8.8	3.8	9.4	1.6	8.4	1.4	NA	NA	9.6	2.0			800
9.	Allahabad (D/S)	8.2	3.4	8.6	2.8	8.8	1.6	NA	NA	8.8	2.2			340
10.	Varanasi (U/S)	8.4	1.4	8.4	2.6	8.7	1.5	NA	NA	9.5	2.0			90
11.	Varanasi (D/S)	7.8	1.2	8.5	2.8	7.7	3.0	NA	NA	8.6	3.2			170
12.	Patna (U/S)	7.9	1.7	7.6	1.5	NA	NA	7.6	2.0	8.5	1.7			2300
13.	Patna (D/S)	7.9	1.6	7.2	NA	NA	NA	8.0	2.6	8.8	2.4			11000
14.	Rajmahal	8.1	1.4	8.5	2.3	NA	NA	7.6	1.2	7.7	0.8			50000
15.	Mokamah	8.9	2.3	6.6	1.7	NA	NA	8.2	1.6	8.0	0.9			24000
16.	Trighat	8.5	1.2	8.6	1.8	7.4	3.9	NA	NA	9.0	2.0			70
17.	Palta	7.6	3.4	5.8	1.4	NA	NA	7.8	1.5	7.5*	3.2*			NA
18.	Ulberia	7.0	2.1	4.8	3.2	NA	NA	5.4	1.4	5.9*	3.85*			NA

* Taken from Data furnish by West Bengal Pollution Control Board

19	Behrampur	9.2	6.0	5.4	0.5	NA	NA	8.3	0.2	7.5*	2.0*			NA
20.	Dakshineswar	7.4	2.2	4.8	0.7	NA	NA	7.4	3.0	7.2*	3.5*			NA
21.	Koelwar on sone	8.3	0.6	7.2	1.0	NA	NA	8.0	2.4	8.1	1.2			5000
22.	Gandak	NA	NA	7.3	1.5	NA	NA	7.0	0.6	NA	NA			NA
23.	Ghagra at Chapra	NA	NA	7.4	1.0	NA	NA	8.0	8.1	7.9	1.4			3000
24.	Kannauj at Ramganga	NA	NA	NA	3.8	8.3	3.2	8.8	3.6	10.0	9.0			170
25.	Kannauj on Kalindi	NA	NA	8.3	3.2	7.6	4.0	8.6	3.0	9.8	6.0			500
26.	Allahabad on Yamuna	8.8	1.8	8.8	2.3	7.6	2.9	NA	NA	NA	NA			1700
27.	Buxer	8.31	1.9	7.7	1.6	NA	NA	8.2	1.9	9.0	3.0			5000
28.	Nimsar	NA	NA	7.8	3.8	10.6	2.2	7.4	4.6	7.9	5.3			200
29.	Bhatpur	NA	NA	9.2	1.7	9.2	1.7	6.5	3.6	8.6	5.8			400
30.	Gaughat	NA	NA	8.3	1.6	9.8	2.1	7.3	4.6	7.9	6.3			400
31.	Mohan Mekins D/S	NA	NA	3.2	10.0	4.8	6.5	3.1	18.1	3.8	24.0			300000
32.	Pepraghat	NA	NA	0.9	20.0	NA	5.5	NA	29.0	NA	34.0			80000000
33.	Barabanki D/S	NA	NA	5.9	8.3	3.1	4.3	2.8	14.5	4.1	23.0			17000
34.	Sultanpur D/S	NA	NA	9.9	3.8	10.5	2.8	8.7	6.8	9.1	6.9			1700
35.	Jaunpur D/S	NA	NA	8.0	1.6	7.7	3.4	8.1	6.2	7.7	6.8			8000
36.	Yamunanagar U/S	NA	NA	8.7	1.2	8.1	1.8	9.3	1.1	8.7	1.0			170
37.	Yamunanagar D/S	NA	NA	8.5	1.1	8.3	1.7	8.7	1.6	8.6	1.1			220
38.	Karnal	NA	NA	8.8	1.0	7.6	2.3	8.1	1.8	8.5	1.3			240
39.	Panipat	NA	NA	8.5	1.1	7.7	2.0	9.1	1.4	8.2	1.4			280
40.	Sonepat W.Y.	NA	NA	7.6	1.3	8.3	1.6	9.0	1.5	8.0	1.6			300
41.	Maheshpur	NA	NA	0.0	26.7	0.0	29.0	1.9	11.1	0.0	24.6			460000
42.	Burnawa	NA	NA	0.0	12.8	0.0	22.8	0.0	9.6	3.0	12.6			200

43.	Daruhera	NA	NA	0.9	8.1	1.2	16.2	2.4	3.2	3.5	15.3			400
44.	Mohannagar	NA	NA	0.0	9.9	NA	10.5	2.8	7.1	2.0	14.6			NIL
45.	Noida	NA	NA	5.0	6.9	1.3	9.0	0.8	7.5	2.5	16.5			460000
46.	Tajewala	NA	NA	13.2	1.4	12.5	<1	8.2	<1	8.6	1.0	7.3	<1	400
47.	Kalanaur	NA	NA	11.0	1.1	12.0	<1	8.1	1.0	8.2	1.0	9.4	<1	700
48.	Sonepat- Yamuna	NA	NA	10.5	3.0	8.5	1.0	8.3	11.0	6.9	3.0	8.7	2	1000
49.	Palla	NA	NA	13.6	5.0	8.0	2.0	8.2	13.0	8.5	2.0	12.0	2	15000
50.	Nizamuddin	NA	NA	0.6	17.0	0.0	35.0	7.9	48.0	0.0	11.0	0.0	21	544000
51.	Agra Canal	NA	NA	0.7	23.0	0.0	58.0	7.1	95.0	0.0	5.0	0.0	15	474000
52.	Mazawali	NA	NA	0.1	25.0	0.0	34.0	8.2	19.0	3.9	8.0	2.0	21	126000
53.	Mathura U/S	NA	NA	11.1	3.0	5.3	6.0	8.2	8.0	17.2	8.0	14.0	12	24000
54.	Mathura D/S	NA	NA	9.4	2.0	8.7	4.0	8.3	25.0	15.7	7.0	6.9	17	126000
55.	Agra U/S	NA	NA	9.0	5.2	9.4	13.0	8.1	25.0	8.1	7.0	9.0	9	13000
56.	Agra D/S	NA	NA	3.3	8.0	3.8	4.0	8.0	50.0	6.5	8.0	3.7	24	134000
57.	Batteshwar	NA	NA	19.8	14.0	11.2	4.0	8.1	14.0	14.7	8.0	5.6	14	8000
58.	Etawah	NA	NA	13.7	7.0	7.5	4.0	8.0	29.0	17.8	8.0	7.6	-	3000
59.	UDI	NA	NA	8.8	2.0	10.7	<1	8.2	4.0	11.3	3.0	8.9	1	400
60.	Juhika	NA	NA	6.3	2.0	9.8	<1	8.2	11.0	17.1	3.0	9.9	2	3000

ANNEX-VII

Diversion of funds towards activities not connected with programme

(Rs. in crore)

State	Activity	Period	Amount
West Bengal	Construction of STPs not affecting water quality of Ganga	-	26.46
Bihar	Purchase of computer, Xerox machine, vehicle and construction of circle office	1986-89	0.24
Uttar Pradesh	Schemes not related to the GAP	-	7.06
	Supervision Charges on low cost sanitation		0.20
	Office establishment and contingencies		2.11
Total			36.07

ANNEX-VIII

Loss of Interest

(Rs. in lakh)

Sl. No.	Action Plan	State	Period	Amount
1.	GAP	West Bengal	1991-95	71.11
2.	YAP	Delhi	1993-2000	27.78
3.	GAP	Bihar	1986-2000	1,56.36
Total				255.25

