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MINISTRY OF WATER RESOURCES, RIVER DEVELOPMENT AND GANGA REJUVENATION

GANGA REJUVENATION

[Action taken by the Government on the recommendations contained in Fifteenth Report (Sixteenth Lok Sabha) of the Committee on Estimates]

COMMITTEE ON ESTIMATES
(2017-18)

TWENTY FOURTH REPORT

(SIXTEENTH LOK SABHA)

LOK SABHA SECRETARIAT
NEW DELHI

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COMMITTEE ON ESTIMATES

(2017-18)

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[Action taken by the Government on the recommendations contained in Fifteenth Report (Sixteenth Lok Sabha) of the Committee on Estimates]

(Presented to Lok Sabha on 21 December, 2017)

LOK SABHA SECRETARIAT

NEW DELHI

December, 2017/Agrahayana 1939 (Saka)

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COMPOSITION OF THE COMMITTEE ON ESTIMATES (2017-18)

Dr. Murli Manohar Joshi – Chairperson

Members

%	2.	Vacant
	3.	Shri A. Arunmozhithevan
	4.	Shri George Baker
	5.	Shri Kalyan Banerjee
@	6.	Vacant
	7.	Shri Dushyant Chautala
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	27.	Shri Janardan Singh Sigriwal
	28.	Shri Jugal Kishore Sharma
@	29.	Vacant
	30.	Shri Jay Prakash Narayan Yadav

% Consequent upon sad demise of Shri Sultan Ahmed, MP on 4th September, 2017 vide Notification No. 21/4(3)/2017/T(B) dated 10 October, 2017.

@ Shri Ashwini Kumar Choubey ceased to be Member of the Committee consequent upon his induction in the Council of Ministers on 3 September, 2017 vide Notification No. 21/1(3)/2017/T(B) dated 14 December, 2017.

 # Resignation of Shri Nanabhau Falgunrao Patole from Lok Sabha accepted w.e.f. 14 December, 2017 vide Notification No. 21/1(3)/2017/T(B) dated 14 December, 2017.

@ Shri Gajendra Singh Shekhawat ceased to be Member of the Committee consequent upon his induction in the Council of Ministers on 3 September, 2017 vide notification No. 21/1(3)/2017/T(B) dated 14 December, 2017.

SECRETARIAT

1.	Smt Sudesh Luthra	-	Additional Secretary
2.	Shri N.C Gupta	-	Joint Secretary
3.	Shri Vipin Kumar	-	Director
4.	Shri R.S Negi	-	Under Secretary
5.	Shri Rajeev Kumar	-	Sr. Executive Assistant

INTRODUCTION

I, the Chairperson of the Committee on Estimates (2017-18) having been authorized by the Committee to submit the Report on their behalf, do present this Twenty-fourth Report on action taken by the Government on the observations/ recommendations contained in the Fifteenth Report of the Committee (2016-17) on the subject 'Ganga Rejuvenation' pertaining to the Ministry of Water Resources, River Development and Ganga Rejuvenation.

2. The Fifteenth Report of the Committee on Estimates was presented to Lok Sabha on 11 May, 2016. Action Taken Notes on observations/ recommendations were received from the Ministry of Water Resources, River Development and Ganga Rejuvenation on 25 April, 2017. The draft Report was considered and adopted by the Committee at their sitting held on 08 August, 2017.

3. An analysis of action taken by the Government on the observations/ recommendations contained in the Fifteenth Report of the Committee is given in Appendix II.

NEW DELHI;
11 November, 2017
20 Kartika, 1939 (Saka)

DR. MURLI MANOHAR JOSHI,
CHAIRPERSON,
ESTIMATES COMMITTEE.

CHAPTER - I
REPORT

This Report of the Committee deals with the action taken by the Government on the recommendations contained in the Fifteenth Report (Sixteenth Lok Sabha) on the subject 'Ganga Rejuvenation' pertaining to the 'Ministry of Water Resources River Development and Ganga Rejuvenation'.

1.2 The Fifteenth Report (Sixteenth Lok Sabha) was presented to Lok Sabha on 11.05.2016. It contained 31 observations/recommendations. Action Taken Notes on all these observations/recommendations were received from the Ministry of Water Resources, River Development and Ganga Rejuvenation on 25.04.2017.

1.3 Replies to the observations and recommendations contained in the Report have broadly been categorized as under:-

(i) Recommendations/Observations which have been accepted by the Government:

Sl. Nos. 1,2,3,7,8,9,11,13,15,16,17,18,19,22,23,24,25,26,27,28,29 and 30 (Total 22)
(Chapter - II)

(ii) Recommendations/Observations which the Committee do not desire to pursue in view of Government's reply:

Sl. Nos. Nil (Chapter - III)

(iii) Recommendations/Observations in respect of which Government's replies have not been accepted by the Committee:

Sl. Nos. 4,5,6,10,12,14,20,21 and 31 (Total 9)
(Chapter - IV)

(iv) Recommendation/Observation in respect of which final replies are still awaited:

Sl. Nos. Nil (Chapter - V)

1.4. The Committee hope and believe that Observations/Recommendations accepted by the Government would be implemented expeditiously. The

Committee desire that response to the comments contained in Chapter - I of this Report should be furnished to them expeditiously.

1.5 The Committee will now deal with the action taken by the Government on some of their recommendations.

Delay in setting up STPs and cost escalation thereto

Observation/Recommendation (Sl. No. 4)

1.6 In their original report, the Committee had observed that the setting up of STPs at Badrinath and Karanprayag with a capacity of 3.0 and 1.4 MLD was sanctioned on 22.08.2008 and 24.12.2008 with an outlay of ₹4.62 and ₹3.49 crore respectively. However, construction of the same could not be commenced and not even a single rupee was spent even after a lapse of about seven years reportedly due to adverse weather conditions, natural disasters, dispute over lands, etc. Similarly, the projects for I&D of the sewage at Badrinath, Deoprayag, Karanprayag, Rudraparyag, Joshimath, were sanctioned in 2008/2009/2010, the physical progress of these projects ranged from 13 - 40% only even after about seven years due to delay in obtaining permission from the Border Road Organization (BRO), natural calamities, delay in land acquisition, etc. Even EAP such as JICA assisted Ganga Action Plan Phase - II project at Varanasi, witnessed massive delays. The project, though sanctioned on 14.07.2010, could not be completed even after about five years. Surprisingly, the physical progress of the project was 22% only as at the end June, 2015 and no further progress was reported to the Committee. Similarly, the project - Sewage System & STP Works (Phase-II) at Kannauj, though sanctioned on 24.02.2011, had seen physical progress of 22% only even after lapse of four years. Asked to furnish the reasons for the extremely tardy progress of these projects, the Ministry of Water Resources, River Development & Ganga Rejuvenation, merely stated that original date of completion of JICA assisted Varanasi project and the sewerage system & STP works at Kannauj were 31.07.2015 and 31.03.2016 respectively and the cost escalation, if any, due to delay would be borne by the Government of Uttar Pradesh without intimating the Committee about the latest progress in the matter. Further, the projects for Sewer network, Sewage Pumping stations (SPS) and STP, funded by World Bank, at Begusarai, Buxar, Hajipur, Munger despite getting the sanction in 2010 as

EAPs, could not be completed even after 5 years. Disturbingly, the physical progress of the projects ranged from 21-45%. Despite such a slow progress, the M/o WR, RD &GR assured that these projects would be completed during 2015-16 and 2016-17. The ministry attributed the delays due to delays in land acquisition, court cases, introduction of new land acquisition bill and thereby changes of compensation eligibility of land owners, etc. The additional cost, if any, due to delay would be borne by the State Government. The Committee note that without assessing the ground realities in acquiring the land for setting up of sewerage projects, sanctions/ approvals were given and funds allocated and allowed to lapse. Unfortunately, this was not confined to one / two projects but across the states such as Bihar, Uttar Pradesh and Uttarakhand. The Committee were deeply concerned to note that for want of approval from BRO, a sewer project got delayed badly. Such avoidable delays, the Committee believed, were due to absence of close coordination in keeping with the salutary principle of cooperative federalism and want of regular interventions by the authorities concerned. Undoubtedly, had there been effective coordination and synergy between the multiple authorities, delays in completion of the projects could have been avoided or overcome. Further, the Committee were informed that many projects are scheduled to be completed/to have been completed during 2015-16. The Committee would like to be apprised of the status of these projects within next six months, State-wise, STP wise indicating clearly the cost and time overruns alongwith the reasons for delays, the revised timelines for their completion and the authorities which would bear such escalated costs.

Observation/Recommendation (Sl. No. 5)

1.7 In their original report, the Committee had deplored that unconscionable inordinate delays in completion of the sewer projects which resulted in continued emptying of untreated hazardous sewer into river Ganga. Further, the cost of the projects had gone up manifold increased the financial burden of the States already reeling under financial crunch. For instance, the State Government of Uttar Pradesh informed the Committee that implementing body (UP Jal Nigam) was already facing financial stress. Hence, the Committee were of the considered view that states may not be able to meet the cost of escalation of the projects thereby casting shadow on the completion of these projects. Some of these ongoing works fall under Component 'A' of the 'Namami Gange

Programme' and were funded as Central Sector Scheme with contribution of GoI and States in the ratio of 70:30. The Committee noted that in order to ensure that the 'nirmalta' and the 'nirantarta' or 'aviralta' of the Ganga is attained by July, 2018, the GoI had made the Ganga Rejuvenation a Hundred Percent Central Sector Scheme as stated in reply to a supplementary to SQ.No. 61 in Lok Sabha on 28.04.2016. The Committee, therefore, recommended that M/o WR,RD&GR may explore the possibility of treating the uncompleted projects as new initiatives and fund them entirely as Central Sector scheme under component 'B' of the 'Namami Gange' for the success of the Programme. Further, the Committee had desired to be apprised of the expenditure incurred so far and to be incurred year-wise and State-wise during the years 2015-16, 2016-17 and 2017-20 (December).

Replies of the Government

1.8 A Statewise statement indicating the projects completed, ongoing alongwith requisite details viz., sanctioned cost, nature of works, progress and time lines is enclosed as **Annexure - I**.

(Reply to recommendation No. 4)

1.9 There are 80 projects continuing under erstwhile NGRBA framework and are being continued under Namami Gange programme. The detailed statement is given at **Annexure - I**. As is seen from the Statement, 66 ongoing projects are scheduled for completion during next two years. 3 projects were reconsidered for revised sanction based on the requests received from the State Governments. The recommendations of the Committee have been noted for future consideration by the Government.

Funds released to the States till 2015-16 &2016-17(30.11.2016) (Rs. In crore)			
States	2015-16*	2016-17*	Grand Total
Bihar	120.23	5.83	126.06
Jharkhand	27.83	34.15	61.98
Uttar Pradesh	147.58	465.75	613.33
Uttarakhand	30.26	6.55	36.81
West Bengal	185.79	6826	254.05

Haryana	30.00	37.00	67.00
Delhi	4.96		4.96
Environmental Planning & Coordination Organisation, Jabalpur	3.39		3.39
Grand Total	550.04	617.54	1,167.58
*Rs.578 crore releases to Ministry of Drinking Water for Swach Bharat Rural), Rs. 263 crore in the year 2015-16 and Rs. 315 crore in the year 2016-17.			

(Reply to recommendation No. 5)

Comments of the Committee

1.10 While noting delays in completion of sewage projects and STPs works, the Committee in their original report had emphasized for coordination and synergy between the multiple authorities and also desired to be apprised of the status of the projects State-wise/STP-wise indicating clearly the cost and time overruns alongwith the reasons for delays, the revised timelines for their completion and the authorities which would bear such escalated costs. The Government in the action taken reply has furnished a statement indicating State-wise status of various projects/works in various States. The analysis of the data is as under:-

State/UT	Work completed	AA&ES issued	Work in progress/ on going	Bid issued/ under bidding	Others	Total
Uttarakhand	9	15	4	3	-	31
Uttar Pradesh	4	1	9	3	2 (Revised tenders to be issued for one project and for another project compliance document being prepared in view of World Bank conditional NOC	19
Bihar	-	1	2	8 (5 under bidding+ 3 re-tendering)	1 (work stopped as BUIDCO proposed termination of contractor	12
Jharkhand	1		1	-	-	2
West Bengal	1	-	5	-	-	6

Haryana	-	-	2	-	-	2
Delhi	-	-	-	8 (Bidding stage)	-	8
Total	14	18	23	22	3	80

The aforesaid analysis reveals that out of 80 projects, work has been completed in 14 projects and work is in progress in another 23 projects, thus in many of the projects i.e. 43 in number, work is yet to commence. So far as the targeted date of completion of the projects is concerned, in two projects the likely date of completion was 2016-17 and in another two, the likely date of completion was May, 2017. The Committee hope that these four projects would have been completed by now and would like to be apprised about the status at the final action taken stage. In 15 projects, the tentative year of completion has been indicated as 2017-18 and in 23 projects, the tentative year of completion has been given as 2018-19. In another six projects, the tentative year of completion has been mentioned as 2019-20. With regard to the projects/works at Jharkhand and Delhi and three projects in Bihar and one in UP, the tentative year of completion has not been mentioned. From the progress of work indicated for the projects/works particularly where the tentative year of completion has been mentioned as 2017-18, the Committee have their doubts about completion of work by the targeted date since the projects are at very initial stages of administrative approvals and work is yet to commence.

Besides not much progress seems to have been made in STP/sewer works as highlighted in the original report, as is evident from the status of STP at Badrinath and STP & I&D at Karanpryag, where the status of financial progress, which was reported as nil at the examination stage remains the same at the action taken stage.

Another revealing feature noticed in the statement is mismatch between physical and financial progress particularly with regard to the works already completed in Uttarakhand. Whereas physical progress has been stated to be 100%, the financial progress reported is between 60% to 96%. The Ministry in the action taken reply has furnished the data with regard to release of funds to various States till 2015-16 and 2016-17. The analysis indicates that funds

allocated during the year 2016-17 in some of the States like Bihar, Uttarakhand and West Bengal were far below the releases made during the previous year, whereas in the States of Uttar Pradesh, Jharkhand and Haryana, the releases are more during 2016-17 as compared to the previous year. The aforesaid situation clearly indicates unrealistic projections on the part of the Ministry/State Governments.

On the recommendation of the Committee, to treat the incomplete projects as new initiatives and fund them entirely as Central Sector Scheme, the Ministry in a very casual way has stated that the recommendation is noted for future consideration. The Ministry has chosen not to respond to the specific information asked for with regard to cost and time overruns as well as need for effective coordination and synergy between the multiple authorities as recommended in the original report.

The aforesaid scenario clearly indicates the sorry state of affairs with regard to the implementation of the programmes relating to sewer projects/works in various States, meant for treatment of sewage and thereby addressing to the issue of dumping of sewage in the water bodies. In this connection the Committee would also like to refer to the fact that the single major source for water source for water resources deterioration contributes 70% of the pollution load to water bodies, as stated in a letter of Chairman, Central Pollution Control Board as appended with the replies as Annexure-I. While noting the deplorable state of affairs, the Committee would like to reiterate their concerns on the inordinate delay of projects/works and would like the Ministry for having round the clock monitoring mechanisms to oversee the progress of work so that these projects are completed in a time bound frame and nirantarta or aviralta of Ganga is attained expeditiously. The use of latest technological tools/applications can also be used for monitoring. The concrete actions on the suggested lines as per the original recommendation and action taken comments may be taken and the Committee apprised accordingly.

Gap between installed and actual utilization capacity of STPs

Observation/Recommendation (Sl. No. 6)

1.11 The Committee had observed that in the State of West Bengal STPs were set up at 31 locations in the cities/ towns situated along the River Ganga with a capacity to treat 355 Million Liters per day (MLD) under Ganga Action Plan-I&II. Out of these 31 STPs, two STPs with a capacity of 11.86 MLD are operating at 100%, 13 are operating at 50%, 4 are operating at less than 50% of the installed capacity. Five STPs are not commissioned at all and one STP has stopped functioning. As a result, out of 355MLD installed treatment capacity, operational / working capacity is 166 MLD (approx). In other words, the operational capacity is less than 50% of the installed capacity. The inescapable conclusion was that more than 50% of sewage, which the STPs were supposed to treat, was being allowed to flow into Ganga due to less than optimal functioning of these STPs. Similarly, in Bihar, the five STPs established at Beur, Saidpur, Pahari, Karmalichak and Bhagalpur under GAP I &II with an installed capacity of 120 MLD are operating at 65MLD (approx 50%) of the installed capacity. The Central Pollution Control Board carried out third party assessment of 51 STPs sanctioned by Ministry of Environment, Forests and Climate Change (MoEF&CC) in Uttarakhand, Uttar Pradesh, Bihar and West Bengal. The Committee noted that the assessment by CPCB revealed that (i) as against the installed capacity of 1009 MLD, the actual capacity utilization is 602 MLD which is 59%, (ii) STPs are violating BOD parameters, 1 STP exceeded the COD for discharge and 14 STPs are found non operational. Surprisingly, the assessment was conspicuously silent as to the reasons for substantial underutilization of installed capacities, exceeding the COD and BOD limits and non operationalisation of 14 STPs. The Committee therefore, recommended that the specific reasons for sub optimal performance of these STPs be ascertained and the problems rectified and the action taken in this regard may be intimated to the Committee within six months of the presentation of this Report.

Reply of the Government

1.12 There are 67 STPs located in various cities/ towns along the river Ganga. Out of these, based on monitoring of 35 STPs carried out by CPCB during April-

December'2016, 17 were found to be complying with the extant standards while 14 were found to be non-operational. While 4 STPs were found to be non-complying. NMCG in association with State government and its agencies has already initiated an exercise to identify the reasons for sub-optimal level of operations of these STPs and also reasons for a large number of them being non-operational. Base-line information so gathered would be utilized to take suitable measures to address these causative reasons for non-functioning of STPs as well as their functioning below optimum levels.

Besides, CPCB has taken various measures for management of sewage and operation of STPs:

- CPCB has issued directions in April, 2015 under section 18 (1) (b) of the Water (Prevention and Control of Pollution) Act, 1974 to the State Pollution Control Boards (SPCBs) of the five Ganga basin states (Uttarakhand, Uttar Pradesh, Bihar, Jharkhand & West Bengal) and asked to direct concerned municipalities and other concerned authorities in the State responsible for treatment and disposal of sewage for treatment of sewage and to evolve methods of utilization of sewage and suitable trade effluents in agriculture **(Annexure - II).**

- CPCB has also issued directions under Section 5 of Environment (Protection) [E (P)] Act, 1986 on October, 2015 to the Commissioner/Mayor/Chief Executive Officer of Nagar Nigam/Palika/Panchayat of 118 towns located on the main stem of River Ganga and regarding treatment and utilization of sewage for restoration of water quality of river **(Annexure - III)** and also directed that
    - Untreated sewage shall not be disposed into the river or any other recipient system.
    - The local urban body shall set STPs of adequate capacity and provide sewerage system to cover the entire local/urban area and to ensure the complete treatment of sewage generated.

- CPCB has issued directions in March, 2017 under section 18 (1) (b) of the Water (Prevention and Control of Pollution) Act, 1974 to the State Pollution Control Boards (SPCBs) of the five Ganga basin states (Uttarakhand, Uttar

Pradesh, Bihar, Jharkhand & West Bengal) and asked to monitor the STPs discharging into river Ganga on monthly basis and to direct STPs operators for continuous operation of STPs without breakdown and to file prosecution against the STP operators, if STPs are found to be non-compliant or not being operated for a long time without justifiable reasons. **(Annexure - IV)**

In addition, due to under utilization of the STPs in few States like Bihar, new projects are sanctioned to take care of the existing sewage load as well as future demands including necessary Operation and Maintenance facility for 10 years. The existing STP capacities have also been upgraded with enhanced treatment capacity in Patna as per the details given below:

S. No.	Treatment Plant Zone	Existing treatment capacity (MLD)	Proposed Treatment Capacity (MLD)	Present Status
1	Pahari-Patna	25	60	Revised Administrative Approval is being issued.
2	Beur-Patna	35	43	Works awarded. Work to commence soon.
3	Saidpur-Patna	45	60	
4	Karmalichak-Patna	4	37	

Comments of the Committee

1.13 The Committee in their original recommendation had noted that the operational capacity of STPs set up in the State of West Bengal at 31 locations in the cities/towns situated along the river Ganga was less than 50 per cent of the installed capacity. In the action taken reply, the Ministry has given the status of 67 STPs located in various cities/towns along the river Ganga. It has been stated that based on monitoring of 35 STPs carried out by CPCB during April-December, 2016, 17 were found to be complying with the extant standards while 14 were found to be non-operational while 4 STPs were found to be non-complying. The Committee note from the reply that more than 50 per cent of the STPs are non-operational/not complying with the extant standards. It is not clear from the

replies whether the standards quoted relate to the working capacity of these STPs. The Committee also note that NMCG in association with State Governments and its agencies has already initiated an exercise to identify the reasons for sub-optimal level of operations of these STPs and also reasons for a large number of them being non-operational. Base-line information so gathered would be utilized to take suitable measures to address these causative reasons for non-functioning of STPs as well as their functioning below optimum levels. The Committee in this regard would like to be apprised about the findings of the exercise being undertaken to identify the reasons for sub-optimal level/non-operational status of the STPs.

The Committee also find that Central Pollution Control Board has issued directions to (i) State Pollution Control Boards of the five Ganga basin States and (ii)Commissioner/Mayor/Chief Executive Officer of Nagar Nigam/Palika/Panchayat of 118 towns located on the main stem of River Ganga. The Chairman, CPCB, in the correspondence as mentioned at (ii) above has given certain directions like setting up of STPs to cover the local/urban areas, complete treatment of sewage and to ensure maintenance of existing sewage plants, while referring to the Hon'ble Supreme Court directions in a case regarding pollution in Delhi, whereby the Hon'ble Supreme Court while referring to Article 21- which guarantees Right of Life, Article 48A which states that the State shall endeavour to protect and improve the environment and to safeguard the forest and wildlife of the country and 51A(g) states to protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures, has observed that the Authorities – entrusted with the work of pollution control – cannot be permitted to sit back with folded hands on the pretext that they have no financial or other means to control pollution and protect the environment.

The Committee fail to understand pitiable condition of various STPs, inspite of strong directions given by the Chairman, CPCB in the backdrop of Hon'ble Supreme Court directions. The Committee strongly emphasize for having mechanisms to fix accountability where there is slackness on the part of officers/contractors or anybody involved in the implementation of various

works/projects. The Committee would like to be apprised of the action taken by the Government in this regard.

O&M of STPs

Observation/Recommendation (Sl. No. 10)

1.14 Many leading hydrologists and other domain experts, who tendered their valuable testimony to Committee, felt that the reasons for sub optimal performance of STPs and Sewage Pumping Stations (SPS) include non availability of funds for Operations & Maintenance (O&M) of sewerage works, Poor supply of electricity, unavailability of technical course material and lack of motivation for O&M staff. Further, the experts informed that postings to O&M plants are seen as punishment. They also admitted that there was dearth of funds for O&M of assets created for pollution control works. The representatives of MoEF&CC conceded shortages of manpower and their inability to attract qualified human resource despite advertisement of the posts due to unattractive pay packages. Since, the O&M services are crucial for ensuring optimal performance of STPs and SPSs, the Committee recommended that (i) suitable provisions may be made to ensure that it is legally binding on the distributor of electricity to supply uninterrupted supply of electricity to STPs; (ii) alternative energy options, such as wind and solar, may be explored for running STPs especially in those areas where there are frequent outages; (iii) selected parameters need to be monitored through automatic monitoring instruments. Such instruments can be online to enable round the clock monitoring; (iv) funds crunch should not be allowed to come in the way of O&M of sewage works; and (v) to perk up the morale of O&M staff and officers and to attract new recruits to the posts, suitable attractive pay structure and adequate posts may be created for running the STPs efficiently and round the clock.

Reply of the Government

1.15 Directions were issued by CPCB u/s 5 of Environment (Protection) Act, 1986 vide letter dated 09/10/2015 to municipal authorities/ULBs for management of sewage from

118 towns identified along R. Ganga. In the directions it is stated in Point no. 4 that "Existing STPs if any, as applicable shall be properly maintained to comply with the proposed standards. At the Inlet and Outlet of the STP, online monitoring devices shall be installed to monitor the consented parameters".

The sewerage projects sanctioned under NGRBA are on DBOT mode which includes O&M by the successful concessionaire for 10 years. First 5 years O&M cost is inbuilt within the project cost whereas for the next five years the cost is to be borne by the State / ULB.

Under Namami Ganga, the new projects shall be approved under central sector scheme with 100% central funding and including the provision for O&M of the assets for 10-15 years.

Comments of the Committee

1.16 The Committee note from the action taken reply that sewerage projects sanctioned under NGRBA are on DBOT mode which includes O&M by the successful concessionaire for 10 years. Besides under Namami Gange, there is a provision for O&M of the assets for 10-15 years for the new projects. For the existing STPs, directions to comply with the proposed standards and installation of online monitoring devices have been issued by CPCB to Municipal Authorities/ULBs. While appreciating the initiatives taken for management of STPs, the Committee would like to emphasize that besides issuing directions. It is utmost required to monitor the compliance of the same by CPCB for which there is an urgent need to have requisite mechanisms. The Ministry has not responded to part of the recommendations viz (i) making suitable provisions to make it legally binding on the distributor of electricity supply for uninterrupted supply to STPs; (ii) exploring alternate energy options, such as wind and solar for running STPs; (iii) to perk up the morale of O&M staff and officers and to attract new recruits to the posts. The Committee would like the Ministry to act on the recommendations of the Committee and apprise the Committee accordingly.

Ideal location for STPs

Observation/Recommendation (Sl. No. 11)

1.17 The experts who deposed before the Committee suggested that STPs must be located on the sand bed site of the river only as this is the only site where inorganic, organic, & microbiological loads will be managed integrally at minimum cost on sustainable basis. The potential of the sand bed must be assessed taking example of Ganga Yamuna confluence site at Allahabad, where during the Kumbh Mela, pollutant load of more than 10 million people at a time is managed by the sand bed. Taking note of the fact that sand is the nucleus of geology, the Committee recommended that due consideration be given to the location and use of sand beds in setting up of the STPs. The Committee further recommended that the feasibility of involving the corporate sector in setting up, operating and maintaining the sewage treatments plants and sewage networks on long term basis may also be explored so as to bring greater professionalism and efficiency to the working of STPs.

Reply of the Government

1.18 The cabinet in its meeting held on 6th January 2016 approved the adoption of Hybrid Annuity based Public Private Partnership (PPP) model for implementation of infrastructure projects under 'NamamiGange' in a financially sustainable, outcome oriented and accountable mode while addressing the following four requirements

a) Assurance of desired levels of performance,
b) Assurance of continued performance over long term,
c) Distinct accountability at entity level, and
d) Sustainability, both technical and financial.

It is expected that responsible corporate entities shall come forward for bidding under hybrid annuity based PPP model which would bring in greater professionalism, efficient & sustainable operations of the STP.

Comments of the Committee

1.19 The Committee note from the action taken reply that the cabinet in its meeting held on 6th January 2016 approved the adoption of Hybrid Annuity based Public Private Partnership (PPP) model for implementation of infrastructure projects under 'Namami Gange'. The Committee hope that corporate entities would come forward for bidding under hybrid annuity based PPP model thereby bringing in greater professionalism, efficiency to the working of STPs.

So far as the recommendation of the Committee to set up STPs on the sand bed site of the river being economical and sustainable, the Ministry has not responded to this part of the recommendation. The Committee would like the categorical response of the Ministry in this regard.

Lack of scientific and technical resources

Observation/Recommendation (Sl. No. 12)

1.20 The Committee had noted that the responsibility of Operations & Maintenance (O&M)of Sewerage works set up in connection with Ganga Rejuvenation rests with the State Governments. The Government of Uttar Pradesh admitted that there was contamination of water bodies and there was an urgent need for setting up state-of-the-art STPs and labs. The Committee had also observed that number of sanctioned posts for technical and scientific personnel are lying vacant in Central Pollution Control Board. Asked about the environmental research being carried out by the universities in the context of depleting sub-surface and surface water resources, rising pollutants and contamination of water bodies, the Secretary, Environment observed that the Committee had 'hit the nail on the head' and conceded the need for such studies given the 'enlarging responsibility' of the MoEF&CC. The Committee further noted that MoEF&CC had requested the Department of Expenditure for carrying out a study to assess the adequacy or otherwise of the extant manpower of CPCB in view of its enlarging responsibilities. The Committee were also apprised that despite

advertisements for filling up of the posts in CPCB, there is no enthusiastic response probably due to the reason that the posts are far from attractive for the talents required for recruitment. The Committee had expressed their serious concern over lack of sufficient technical and scientific manpower in the Central Pollution Control Board and in the State Pollution Control Boards entrusted with the responsibility of pollution control, water quality testing, etc. Further, it is still a matter of far greater worry and concern that the posts are lying vacant as the talent sought to be recruited find the pay and perquisites attached to the posts far from attractive. Considering the level of rising pollution and contamination of water bodies and the need for setting up state-of-the-art STPs and labs, the Committee had recommended that (a) the parameters and pay and perks for the manpower especially technical for STPs and Labs may be revisited to attract right talents; (b) the Department of Expenditure should expedite the study to assess the manpower requirements of CPCB in view of its enlarging responsibilities and complete the same with in specified time and conclusive action be taken for filling up the posts without delay; (c) suitable measures may be taken to ensure availability of appropriately qualified and suitably trained manpower in requisite numbers for surveys and investigation, project preparation, implementation, Operation and Maintenance(O&M) of sewerage works, financial, organisational, legal, regulatory implementation and monitoring strategies of the projects; and (d) the parameters so established may also be shared with the States so that the SPCB also benefit from the action taken by the Union Government.

Reply of the Government

1.21 The work study of non-scientific and non-technical posts of Ministry of Environment, Forest & Climate Change has been winded up due to non-submission of requisite material/data/information by Ministry of Environment, Forest & Climate Change. As regard the work measurement study of scientific and technical posts, Ministry of Environment, Forest and Climate Change has constituted a Committee with a Core Member of SIU. Last meeting of this Committee was held on 2nd February, 2016. The report has not yet been finalized.

The status of manpower required, sanctioned and posts lying vacant in the two projects '***Pollution Inventorization Assessment and Surveillance'*****(PIAS)** and ***'Strengthening of Environmental Regulator- CPCB'*** **(SER)** is as follows:

Technical/Scientific Manpower required to be engaged in PIAS Project						
Positions	**Scientist 'B'**	**RA (I, II & III)**	**SRF**	**JRF**	**DEO**	**Total**
Sanctioned post under PIAS	0	31	31	31	4	*97*
Presently available	0	23	6	0	2	31
Proposed post	30	17	4	10	2	63

Technical/Scientific Manpower required to be engaged in SER Project						
Positions	**Scientist 'B'**	**Scientist 'C'**	**Scientist 'D'**	**Scientist 'E'**	**Scientist 'F'**	**Taxonomist**
Sanctioned post under SER	5	8	6	2	1	2
Presently available	0	7	4	2	0	0

The reason for 66 post lying vacant under PIAS is as under:

The CPCB was not allowed to recruit the entire sanctioned post at once accordingly phase wise recruitment was carried out, however maximum manpower available was 29 RA-I & 4 SRF

The proposal was sanctioned on 29th Mar, 2011, however the permission for the engagement of entire manpower was allowed on April, 2013 and it was again asked not to engage remaining manpower on 18th April, 2015. In between the maximum 30 RA were engaged during 2014-15 and & 16 JRF/SRF in 2013-14 however they did not continue for better opportunity and as on date the manpower available is 31 and that has been frozen on 8th Sep, 2016.

The reason for 11 post lying vacant under SER: Applications through advertisement has been received and are being processed for engagement.

Comments of the Committee

1.22 The Committee highly deprecate that despite huge shortage of manpower particularly scientific and technical manpower in CPCB, urgent steps have not been taken to fill-up the vacancies. What is more alarming is that CPCB was not allowed to recruit the entire sanctioned posts at once and phase wise recruitment was carried out, which was also withdrawn later. Not only that the way work studies for non-scientific/non-technical and scientific/technical posts are being handled is deplorable. Whereas the work study of non-scientific and non-technical posts was winded up due to non-submission of requisite data by the Ministry of Environment, Forest & Climate Change, the report of the Committee constituted for work study of scientific and technical manpower in CPCB is being delayed which is evident from the fact that last meeting of this Committee was held more than one year before. What is more worrying is the problem being faced in retention of young manpower being recruited. The Committee conclude from the aforesaid scenario, a sorry state of affairs with regard to recruitment and handling of manpower in CPCBs which calls for urgent and immediate action. The Committee while reiterating their concerns would like the Ministry to take action upon their recommendation and apprise the Committee accordingly.

Incentives to Small Scale Industries for ZLD

Observation/Recommendation (Sl. No. 14)

1.23 The Committee had observed that many of the GPIs are small scale in nature but employing substantial number of people put together. The Government is yet to dispel the apprehension that these units may be using obsolete technology in their production processes which may not be treating the effluents resulting in their being discharged into the river Ganga or its tributaries. The Committee were apprehended that if hefty penalties were imposed on these small scale units or the units were closed down, many

people will lose their employment and source of livelihood. The Committee therefore had recommended that-

(i) tax and non tax incentives may be offered to the units which are adopting new technologies with considerable amount of investments to become Zero Liquid Discharge (ZLD) units; (ii) the availability of easy finance may be ensured at affordable rates from the banks and or Interest Subvention and Viability Gap Funding (VGF) may be given expeditiously; and (iii) these units may be provided technical knowhow from Government owned academic and research institutes at subsidised rates so that they become ZLDs.

Reply of the Government

1.24 Incentives to Small Scale Industries for ZLD

To reduce financial liability on SSI, NMCG has proposed a 20 MLD ZLD – based CETP for tannery cluster at Jajmau after due consideration of applicable environmental regulatory norms, control of O & M mechanism and impact on receiving environment of proposed CETP. Further NMCG has completed the process of Diagnostic Study and Feasibility Report(DS&FR) for management of wastewater generated from textile clusters at Pilkuwa, Farrukhabad, Rooma and Mathura. Process modification cum clean technology adoption has been considered in DPR and DS&FR. All financial liability arising out of these preparatory studies are being met through NMCG fund to support the SSI.

Based on inspection of 355 units during the last one year, the waste water generation from GPIs has been found reduced by achieving ZLD in 4 units of Pulp and paper sector, while 44 out of 67 such units have achieved the prescribed norms of water consumptions. In distillery sector, 17 units out of 32 operational (including two brewery) have installed MEE and Bio-composting/ incineration to achieve ZLD. In sugar sector, 54 out of 57 operational units have provisioned for re-use of treated water for irrigation, and of them 52 units have achieved water conservation norms. Also, 39 sugar units have installed mini-cooling tower for recycling of waste water.

Comments of the Committee

1.25 While taking note of some of the incentives being given to Small Scale Industries for ZLD, which include meeting all the financial liabilities arising out of preparatory studies for 20 MLD ZLD and a project for management of wastewater generated from textiles clusters through NMCG fund, the Committee would like to be apprised about the status of setting up of these projects. The Committee are happy to note the outcome of inspection of 355 units which have installed technology to achieve ZLD/achieved prescribed norms of water consumption/achieved water conservation norms, which clearly indicates the sensitivity of SSI to the environmental issues as observed in the Committee's original recommendation. These Small Scale Industries need more Government support as recommended by the Committee viz. (i) tax and non tax incentives may be offered to the units which are adopting new technologies with considerable amount of investments to become Zero Liquid Discharge (ZLD) units; (ii) the availability of easy finance may be ensured at affordable rates from the banks and or Interest Subvention and Viability Gap Funding (VGF) may be given expeditiously; and (iii) these units may be provided technical knowhow from Government owned academic and research institutes at subsidised rates so that they become ZLDs. The Committee would like to have categorical response of the Ministry in this regard.

It has been stated in the reply that based on inspection of 355 units during the last one year, the waste water generation from GPIs has been found reduced. During the course of examination of the subject, the Committee had been apprised that 727 units were inspected during the year 2014 which indicates reduced number of inspections carried on during last year. The Committee in this regard would like to be apprised of the number of inspections undertaken during each year since 2014 and the reasons for reduction in the number of inspections.

Implementation and status of IMG recommendations on seven rivers

Observation/Recommendation (Sl. No. 20)

1.26 The Committee had observed that the inter-Ministerial Group (IMG) constituted in July, 2012 to study environmental flow of Ganga , noticed that the implementation of all the Hydro Electric Power Projects (HEPPs) on the Bhagirathi and Alakananda will lead to 81% of River Bhagirathi and 65% of River Alakananda getting affected with extensive implications for other needs of the society and the river itself. The expert Committee also noticed that there are a large number of projects which have very small distances between them leaving little space for river to regenerate and revive. They therefore had recommended that seven rivers, including Nayar, Bal Ganga river, Rishi Ganga, Assi Ganga, dhauli Ganga (upper reaches) , birari Gand bhyunde Ganga should be kept in pristine form, no further hydropower developments should take place in this region, and environmental Upgradation should be taken up in these basins extensively. The Committee would like to be apprised of the following :–

(i) acceptance or otherwise of the IMG's recommendations by the Government of India;

(ii) specific steps taken to upgrade the environment in the said basins and the impact of these measures on the environment; and

(iii) approvals granted for hydro power projects, if any, contrary to the recommendations of IMG, along with the specific reasons for such approvals.

Reply of the Government

1.27 The Ministry in their action taken replies apprised the Committee as follows:-

(i) An inter-Ministerial group was set up under the chairmanship of Sh. B.K. Chaturvedi Member (Energy), Planning Commission vide MoEF letter no. B-12014/4/2012-NMCG/NGRBA dated 15.06.2012 for the various objectives including suggesting environmental flow requirement for various stretches of Bhagirathi, Alaknanda and other tributaries of river Ganga and to review the environmental impacts of projects proposed on these tributaries of river Ganga and recommend necessary remedial action. Report of the IMG on issues relating to river Ganga, submitted in April, 2013. Acceptance or

otherwise of IMG's recommendations is to be replied by Ministry of Environment, Forest & Climate Change (MoEF&CC).

(ii) The Environment & Forest Clearance is accorded to a Hydro Electric Project after complying all the statutory norms / requirements laid down by MoEF&CC in this regard. Each and every project passes through a very elaborate and extensive process of environmental clearance. Environmental Impact Assessment (EIA) of every aspect of environment i.e physical, terrestrial and aquatic is carried out for each and every project which requires Environmental clearance as per the extant laws. Based on the findings of the EIA studies, various Environmental Management Plans (EMPs), be it the Catchment Area Treatment for arresting the soil erosion from the degraded catchments; Biodiversity Conservation and Management, to conserve the rich biodiversity of the area; Fisheries Management for conservation, propagation and replenishment of fish in the river system/reservoir; Restoration of much dumping/quarry sites; Landscaping; Green Belt Development etc. are formulated and implemented in true form and spirit. The stipulation regarding the release of Environmental flows is also being laid down by MOEF & CC, while according environmental clearance to a project. Besides, strict monitoring of the implementation of environmental safeguards is required to be undertaken regularly by the Central and State regulatory Agencies.

(iii) No Hydro Electric Project on river Ganga has been concurred by CEA after submission of the aforesaid report in the Hon'ble Supreme Court.

Comments of the Committee

1.28 The Committee are concerned to note the way, the Ministry has tried to sidetrack the recommendation of the Committee by stating that the issue regarding acceptance or otherwise of the inter-Ministerial Group's recommendations is to be replied by the Ministry of Environment, Forests and Climate Change. The Ministry of Water Resources, River Development and Ganga Rejuvenation being the nodal Ministry for water resources and river development on their own would have pursued with the MoEF&CC about the status of recommendations of the inter-Ministerial Group. Even when pointed out by the Committee, the Ministry in a casual way has stated that the issue is be

responded by the Ministry of Environment, Forest and Climate Change. While deploring the way, the Ministry has taken the recommendation of the Committee, they would like the Ministry to pursue the issues with MoEF&CC and respond to the specific points raised in the original recommendations.

Nirmalta and Aviralta of the river

Observation/Recommendation (Sl. No. 21)

1.29 The Committee had noted that in pursuance of Hon'ble Supreme Court's judgment dated 13.08.2013, MoEF&CC constituted an Expert body under the Chairmanship of Dr. Ravi Chopra, member, NGRBA and Director, Peoples' Science Institute, Dehradun (i) to make a detailed study as to whether Hydro Electric Power Projects(HEPPs), existing and under construction, have caused environmental degradation and if so, to what extent , (ii) also whether such projects have contributed to the tragedy which occurred in the month of June, 2013 in Uttarakhand, and (iii) to examine the impact of the proposed 24 HEPPs on the bio diversity in Alakananda and Bhagirathi river basins as identified by Wild Life Institute of India (WII). The Committee had noted that having been dammed at Tehri in western Uttarakhand, the Ganga descends onto the plains, only to be robbed of its water by huge diversions through the Upper Ganga Canal at Haridwar, which reduces its discharge to mere 15 billion m3/yr and then by the Lower Ganga Canal near Aligarh. That leaves so little water in the Ganga that the dry-season discharge at Kanpur is merely 90 to 386 m3/ second, at Allahabad 279 to 997 m3/ second, and at Varanasi 278 to 1160 m3/second. Despite being joined by a number of tributaries, the Ganga is progressively polluted due to heavy discharges at the rate of 3000 million liters per day from towns and cities, despite of sewage treatment plants varying from 13.5% in small cities to 27.8 to 50.4% in big cities - 329 million kilolitres. Nearly 50% of waste waters are discharged untreated into this lifeline of the central Indo-Gangetic Plain. Over 1.3 billion litres of sewage, 260 million litres of industrial waste, runoff from 6 million tonnes of fertilizers and 9000 tonnes of pesticides used in agriculture, and very large quantities of solid waste are daily released into the Ganga. Taking into consideration these facts of pollution, the Ganga water can no longer be described as life-giving and holy. On the contrary the

Ganga has been declared as one of the ten most polluted rivers of the world by WWF International, Switzerland. Notably, Secretary Water Resources candidly admitted the connect between 'nirmalta and aviralta' and stated that there could be no 'nirmalta' without 'aviralta'. Surprisingly, asked whether damming of the river would be useful for controlling pollution or it will help aggravate pollution, Secretary, Environment was not in a position to give a definitive answer as he felt that it would depend on multiple factors. Further, the Government could not furnish the decadal data of the lean and non-lean season flows in the Ganga right from 1951. The Committee were of the considered view that the Government in the CWC must collect and compile the data about the decadal flow, both of lean and non-lean period, at each station/city including the spots from where the water wes diverted/impounded. To a pointed question whether the human ashes pollute the river, expert hydrologist made it emphatically clear that the burnt human ashes instead purify the river. The Committee noted that the expert body, appointed under the direction of the Hon'ble Supreme Court, has since submitted its report with regard to the impact of HEPP existing and under construction and their impact on environment including landslides and biodiversity, they would like to be informed of the action taken or proposed to be taken on each of the recommendations and the impact of acceptance & implementation on the Nirmalta and also Aviralta of the Ganga within six months of presentation of this report. Further, the Committee had desired to be apprised of the decadal data of the lean and non-lean season flows in the Ganga right from 1951 from points of origins to major towns and sites right up to Haldia.

Reply of the Government

1.30 The decadal data of lean season and non-lean season flows in the Ganga from the date of opened site to October, 2016 from point of origins to Haldia is given at (**Annexure - VI).**

Comments of the Committee

1.31 The Committee had desired the Government to furnish the details and outcome of the report submitted by expert body appointed under the direction of Hon'ble Supreme Court to find out the environmental degradation, impact of HEPPs on environment including landslides and biodiversity. The Committee are unhappy to note that the Ministry has not furnished the information with respect to action taken or proposed to be taken on the recommendations contained in the above report. The Committee in this regard would like to be apprised of the status of implementation of each of the recommendations. In pursuance of the other part of the recommendation of the Committee, the Ministry has furnished the decadal data of lean season and non-lean season flows in the Ganga from the date of opened site to October, 2016 from point of origins to Haldia. The glance at the data indicates that at some of the points like Rishikesh, Deoprayag, Kanpur, Gandhighat, Farakka and Fatehgarh particularly at Allahabad and Bhitaura the average monsoon flow has decreased over the years. Similarly, average non-monsoon flow has slightly decreased at Kanpur, Allahabad, Hathidah, Azmabad, Bhitaura, Shahzadpir, Varanasi, Fathegarh and Kachla Bridge. The Committee emphasize that the increase/decrease in water flow and the pollution level/pollutants over decades need to be analyzed in detail by the experts and the Committee be apprised accordingly.

Arsenic in Ganga basin

Observation/Recommendation (Sl. No. 31)

1.32 The Committee in their 1st report (16th Lok Sabha) on Occurrence of High Arsenic Content in Ground Water pertaining to M/o WR,RD &GR, expressing concern over presence of arsenic in ground water in the Ganga-Brahmaputra plain, had recommended that a time bound programme be implemented for identifying the causes and to find effective remedies in arsenic release. The M/o WR,RD&GR in their interim action taken reply submitted that Inter Ministerial Group (IMG) has directed the National Institute of Hydrology (NIH), Roorkee to take up a study

on the genesis of arsenic occurrence in Ganga-Brahmaputra Basin. The Committee had desired to be apprised of time frame within which the study by NIH, Roorkee regarding the genesis of arsenic occurrence in Ganga- Brahmaputra basin would be completed. In the interim, the measures taken by the GoI to warn the people in the affected belts of the presence of arsenic in water and the precautions which should be taken to help minimise or avoid health hazards be given wide publicity. In conclusion, having regard to the enormity of the challenges and taking note of the repeated solemn assertions of the Prime Minister to rejuvenate the Ganga and to make a Swatch Bharat, the Committee had reiterated the imperative need for setting up an overarching and all empowered apex authority/body tasked exclusively with the responsibility of rejuvenation of the Ganga so as to restore its pristine form as expeditiously as possible. Ganga, around which grew Indian civilisation and legend, continues to be the lifeline of 43 per cent of India's population and a river of faith to millions of devotees within and beyond the shores of India. The rising demographic pressure, growing untamed urbanization and industrialization, continue to aggravate pollution in the Ganga rendering the Ganga not only non-potable, unfit for bathing purposes but also extremely hazardous over long stretches. The impounding of river water obstructing its flow, diversion of water for drinking, agricultural and industrial purposes and the pollutant load has rendered the Ganga dry and parch, and a sewer over long stretches in the up-stream areas. Renowned hydrologists and experts on river dynamics and water management testified before the Committee that the Ganga bears no comparison with any river of the world because of its highest point of origin, steep gradient, kinetic energy and water quality. Indiscriminate anthropogenic interventions including indiscriminate construction of HPPs in the upper reaches of the highly fragile Himalayas coupled with 80 to 90 per cent of water diversion and discharge of effluents by 144 drains and entry of solid waste from non point sources have only aggravated the pollutant load of the Ganga. The Committee ardently hoped that the Government would give earnest consideration to their recommendation and implement them expeditiously for rejuvenation of the Ganga, the life line of millions around which India civilization and culture grew, by July, 2018 without further time and cost escalation.

Reply of the Government

A. Brief Scenario of Arsenic concentration and Arsenic genesis in Ganga-Brahmaputra-Meghna Basin

1.33 The Ganga-Brahmaputra-Meghna (GBM) river basin, which have an area of 1.7 million km^2 is drained jointly by the River Ganga, River Brahmaputra (also known as River Jamuna in Bangladesh), River Meghna and their numerous tributaries and distributaries. The GBM basin has population more than 150 million and considered as the world largest fluvio-deltaic systems and also as one of the most populous regions of the planet. In recent few decades, with the increasing demand of groundwater for domestic, irrigation (round the year for food production), industry and the growing population led the extensive exploitations of fresh and potable groundwater. Beside this, indiscriminate use of the rivers and surface water and the introduction of high-yielding dry-season agricultural activities accelerated the demand of irrigation water in the GBM basin (Harvey et al. 2005). This led to the shift of water supply policy from surface water to groundwater. As a consequence, several million wells (ranging from domestic handpump to motor-driven deep tube-well) were installed to meet drinking, irrigation, and industrial water demands (Smith et al. 2000; BGS/DPHE/MML 2001; Harvey et al. 2005; Horneman et al. 2004). However, in the present scenario, a large part of the GBM basin, groundwater was determined to have elevated concentrations of arsenic (As) more than 10 µg/l. Regarding the source of such high level arsenic, it has been hypothesized that the non-point source, geogenic(As), mostly occurs in the Holocene shallow aquifers and probably has been mobilized from the sediments by redox reactions (e.g., Saha 1991; Bhattacharya *et al.* 1997; CGWB 1997; Nickson*et al.* 1998; BGS/DPHE/MML, 2001; McArthur *et al.* 2001, 2004; Ravenscroft et al. 2001; Harvey et al. 2002; Mukherjee 2006). Few previous estimates by researchers showed that more than 25% (McArthur et al. 2004) to 33% (Horneman et al. 2004) of the wells had been identified as contaminated by (As).

There are a number of hypotheses on sources of Arsenic in groundwater and mobilization processes, however, from the researches carried out by investigators worldwide, it was noted that identification of genesis of (As) in Ganga-Brahmaputra

basin and its mobilization processes are still to be established, because a number of issues are associated with the geochemical processes.

B. Initiative taken by NIH-Roorkee on Arsenic genesis study

Based on the recommendations of Inter-Ministerial Group (IMG) for Arsenic Mitigation, NIH-Roorkee to undertake “Studies on genesis of arsenic occurrence in Ganga-Brahamaputra basin”, in addition to four more R & D areas, had submitted a proposal with a budget estimate for Rs. 1785 lakh in the month of February, 2015 to MoWR, RD & GR. However, the decision on the approval of the budget allocation to NIH is awaited. After receiving fund from MoWR, RD & GR, the work envisaged on the study of genesis shall be completed within five years.

As follow-up action of IMG recommendations, NIH under its internally funded R & D activities, has initiated the following two R&D studies, since April 2015.

a) Development of Website and e-Portal on "Mitigation and Remedy of Arsenic Menace in India".
b) Alternate water supply management strategies in arsenic affected/vulnerable areas: Mapping of Arsenic affected zones/regions in Eastern U.P. (Balia district).

Limited progress on the first task was made due to non-availabilityof fund; while the advancement of the second study is satisfactory and its first phase would be completed by end of March, 2017. A brief report on the Arsenic study in the Balia district of U.P. is given at (**Annexure - VIII).**

C. Arsenic genesis study and NIH future plan

Most of the current hypotheses on As-genesis indicated that arsenic bearing sulphide minerals, mainly arsenopyrite (FeAsS) and their alternation products, might have been transported from the foothills of the Himalayas in the geologic past and deposited in the alluvium formation of Ganga-Brahmaputra basin. These deposited As-bearing minerals, under the recent alluvium, have been considered to be responsible for occurrence of arsenic in groundwater from the sediment phase by the process of reductive dissolution owing to the in-situ microbial activities under anxious condition. The relation between the redox behaviour of arsenic and high arsenic anomaly in

groundwater is a subject that needs thorough investigations and geochemical analysis. Genesis study of arsenic in different parts of Ganga-Brahmaputra basin would involve the following course of actions by a number of expert organizations, in addition to NIH:

- Hydro-geochemical and hydro-geological characterization of alluvial sediment at the As-affected zones from depth 20 m to100 m bgl along the different piezometric transect,
- Detailed geomorphological and hydrological characterization of the As-affected areas,
- Seasonal hydro geochemical sampling and analysis of groundwater and surface water of the arsenic affected areas,
- Isotopic characterization of groundwater and sediment samples,
- Mineralogical characterization of the sediments,
- Study of retention or mobility of As under different redox (oxidation–reduction) conditions at the interaction zone of different aqueous phase and mineral phases in the sediments,
- The role of natural and anthropogenic activities and their influences on controlling the redox conditions in concerned aquifers

To study the above aspects in the Ganga basin, NIH together with IIT Kharagpur, IIT Kanpur, CGWB, and National Water Mission in collaboration Herriot Watt University, Edinburgh-UK, and Queen's University Belfast-UK submitted a Project Proposal, entitled *"Study of groundwater dynamics and geochemical processes of arsenic mobilization in the Middle Ganga aquifers for in-situ arsenic remediation"* in the month of October, 2015 in response to the Newton-Bhabha project call by Min. of Earth Sciences, Govt. of India and NERC-UK,. However, the project proposal was declined for support on administrative ground. Currently, NIH-Roorkee has taken another new initiative with a prior consultation, to develop a project proposal on Arsenic study involving potential Indian and UK partners and its submission to the forthcoming 'Newton-Bhabha" call on Water Quality by DST, India & NERC-UK, which is likely to come.

Comments of the Committee

1.34 The Committee are appalled to note the way different Arsenic Genesis Studies proposals have been dealt with by the Government as is apparent from the action taken reply, even when the gravity of the situation has been acknowledged. The proposal submitted by NIH-Roorkee to undertake "Studies on genesis of arsenic occurrence in Ganga-Brahamaputra basin", in addition to four more R & D areas, based on the recommendations of Inter-Ministerial Group (IMG) for Arsenic Mitigation is awaiting financial approval of Rs.1785 lakh MoWR, RD & GR since 2015. Further a Project Proposal, entitled "Study of groundwater dynamics and geochemical processes of arsenic mobilization in the Middle Ganga aquifers for in-situ arsenic remediation", to study various aspects identified for arsenic genesis in the Ganga basin as submitted in October, 2015 by NIH together with IIT Kharagpur, IIT Kanpur, CGWB, and National Water Mission in collaboration Herriot Watt University, Edinburgh-UK, and Queen's University Belfast-UK was declined for support on administrative ground. The Committee also note that limited progress on the task regarding development of Website and e-Portal on "Mitigation and Remedy of Arsenic Menace in India" as taken by NIH could be made due to non-availability of fund. The Committee taken exception to the manner different studies are denied funds/support by the different Ministries/Departments. While expressing strong concern, the Committee would like the Ministry to convey their concerns to the concerned Ministries as well as to Finance Ministry in the strongest terms. The response thereto may be communicated urgently as and when received as a follow-up to the reiteration of the recommendation by the Committee.

The Committee would like to be apprised of the findings of a study being conducted by NIH under its internally funded R&D activities on alternate water supply management strategies in arsenic affected/vulnerable areas: Mapping of Arsenic affected zones/regions in Eastern U.P. (Balia district), the first phase of which was supposed to be completed by the end of March, 2017 as stated in the action taken reply.

CHAPTER - II

RECOMMENDATIONS/OBSERVATIONS WHICH HAVE BEEN ACCEPTED BY THE GOVERNMENT

Introductory

Observation/Recommendation (Sl. No. 1)

The Committee note that two main source tributaries, the Bhagirathi, originating from the Gangotri Glacier at "Gaumukh", and the Alaknanda, originating from the Satopanth glacier in the Himalayas confluence at Devprayag in Uttarakhand and form the Ganga. The Ganga, covering a length of 2525 km, traverses through the States of Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West Bengal passing through 918 towns and 1649 Gram Panchayats taking the pollutants of all human settlements and 144 drains. The Yamuna is the largest tributary of the Ganga in terms of drainage area and accounts for 46% of the Ganga basin. The Ganga river basin inclusive of its all tributaries, is the largest river basin in India covering a landmass of 8,61,404 sq. km and sustaining 43 per cent of India's population, besides being the river of eternal faith from time immemorial for the people. Apart from providing water for drinking and irrigation, it has had great environmental, economic, cultural and religious significance for its water quality hailed as ambrosia and life sustainer. 'The story of the Ganga, from her source to sea, from old times to new', is indeed 'the story of India's Civilization'. However, with the growing uncontrolled urbanization, lopsided industrialization, environmental degradation, over drawl of water from the river and draining of polluting domestic sewage, dangerous industrial effluents and other hazardous anthropogenic interventions have rendered the Ganga as one of the top ten most polluted rivers of the world fuelling the apprehension that if urgent and strong prophylactic and preventive measures are not taken, it may become a dry-dead river in times not very far off. The Committee also note that concerned about the health of the river, the Government of India launched, Ganga Action Plan I (GAP I) in 1985. To make up the shortcomings of GAP I, GAP II was launched in 1993, together incurring an expenditure of ₹4168 crore. Seriously concerned over the burgeoning pollution levels, Government of India set up the NGRBA in 2009 for conservation of the Ganga and for maintenance of environmental flows through a

comprehensive river basin approach, which again proved far from adequate. The Government of India therefore constituted an Integrated Ganga 151 Conservation Mission, called the Namami Gange in 2014 with the resolute will to arrest the pollutants entering into the Ganga with component programmes of rehabilitation and upgradation of the existing STPs and interception and diversion of the drains falling into the river. The flagship programme, Namami Gange was approved on May 13, 2015 with a budget of ₹20,000 crores for the next 5 years, a significant four-fold increase compared to the entire expenditure of ₹4168 crore right from the launching of GAP I in 1985. The Namami Gange Programme, with a multi-layered and multi-Ministerial monitoring mechanism, is a convergence of all existing schemes and new interventions and includes its all tributaries including the Yamuna for Ganga rejuvenation. The repeated assertion of the Government to rejuvenate the Ganga by July, 2018*, gives a message of hope. The Committee now proceed with examination of the ongoing programmes and interventions to rejuvenate the Ganga.

Since it is introductory part, Ministry has not furnished any reply.

Creation of an overarching and empowered authority for Ganga rejuvenation

Observation/Recommendation (Sl. No. 2)

The representative of Ministry of Environment, Forests and Climate Change (MoEF&CC) admitted that pollution load in river Ganga has been increasing over the years due to rapid urbanization , industrialization and increase in population. Extraction of water for irrigation, industrial, drinking purpose, etc. leading to inadequate flows is further compounding the problem. There is huge gap in sewage treatment capacity not only on the Ganga main stem but also in the entire Ganga basin covering 11 states. The total estimated sewage generation in five states (Uttarakhand, Uttara Pradesh, Bihar, Jharkhand and West Bengal) on the Ganga main stem is 7301 Million Liters Per day (MLD) where as the available treatment capacity is only 2126 MLD. Treatment capacity of 1188 MLD is under construction or at approval stage, leaving a gap of 3987 MLD. The consortium of Seven IITs which prepared Ganga River basin management Plan estimated that total sewage generation of 11 states is 12051 MLD as against the available treatment capacity of 5717 MLD leaving a gap of 6334 MLD. There are 764 GPIs such as tanneries,

pulp & paper, sugar, textiles, chemicals, etc, generating 501 MLD of waste water, substantial part of which is being allowed to flow into the Ganga untreated. Eleven Ganga Basin states account for 45 % of the total chemical fertilizer consumption amounting to 10 million tons per year. Such high consumption leads to disposal of high levels of nitrogen and phosphorus which eventually drains into surface and subsurface water which is part of the Ganga river system. As per estimates, run off from arable lands contains up to 70mg/l of nitrogen and phosphorus ranging from .05-1.1 mg/l, with potential to raise the nutrient level to a considerable degree in stream waters. As per 2011 census, 33.64 Lacs households in the five main states do not have an access to toilet facilities and out of these 28.91 Lacs households defecate openly and 4.72 have an access to community toilets. In addition, an estimated 14,000 metric tons per day of Municipal Solid Waste generated from Class-I and Class-II cities/towns situated on the main stem of Ganga out of which substantial part was being dumped into the Ganga until the recent past. Deeply concerned and worried that the Ganga has become one of the top ten most polluted reivers of the world owing to uncontrolled urbanisation, lopsided industrialisation over drawl of water from the river and discharge of extremely hazardous industrial pollutants and domestic sewage, alrmed due to the incalculable damage being caused to the 'Nirmalta' and 'Aviralta' of the river; taking note of the multiplicity of authorities both at the Union and States level, and having regard to lack of effective synergy between the stakeholders, the Committee recommend that an overarching and fully empowered authority, comprising of the representatives of all the concerned Union Ministries and State Governments be set up for securing the 'nirmalta' and 'aviralta' of the Ganga by July 2018. The Committee are quite sanguine that as assured by the Minister for WR, RD&GR in Parliament and solemnly affirmed by the Prime Minister, the Ganga will be reguvenated and restored to its prestine form by July 2018.

Reply of the Government

Towards the objective of rejuvenating & restoring river Ganga to her pristine form, the Union Cabinet in its meeting held on 21st September, 2016 approved "*The River Ganga (Rejuvenation, Protection and Management) Authorities Order, 2016"*

which has since been published in the Gazette of India Extraordinary Part II Section 3 sub section (ii) dated 7th October, 2016. The earlier authority, National Ganga River Basin Authority (NGRBA), constituted under the provisions of the Environment (Protection) Act, 1986 has been dissolved with effect from the 7-10-2016.

The Notification envisages five tier structure at national, state and district level to take measures for prevention, control and abatement of environmental pollution in river Ganga and to ensure continuous adequate flow of water so as to rejuvenate the river Ganga as below;

1. National Ganga Council under chairmanship of Hon'ble Prime Minister of India,
2. Empowered Task Force (ETF) on river Ganga under chairmanship of Hon'ble Union Minister of Water Resources, River Development and Ganga Rejuvenation,
3. National Mission for Clean Ganga (NMCG),
4. State Ganga Committees; and
5. District Ganga Committees in very specified district abutting river Ganga and its tributaries in the states,

Further, NMCG has been provided with two tier management structure comprising of Governing Council and Executive Committee. Both of them are headed by Director General, NMCG. Executive Committee has been authorized to accord approval for all projects up to Rs. 1000 crore. Similar to structure at national level, State Programme Management Groups (SPMGs) act as implementing arm of State Ganga Committees. Thus the newly created structure attempts to bring all stakeholders on one platform to take a holistic approach towards the task of Ganga cleaning and rejuvenation.

Consultation with States about mode of execution and speedy approvals

Observation/Recommendation (Sl. No. 3)

The Committee observe that the objective of 'Namami Gange' Programme is to arrest the pollution entering into and to rejuvenate the Ganga. In order to achieve the objective, the programme proposes to undertake activities such as rehabilitation and upgradation of existing STPs; Interception & Diversion of all 114 drains falling into the

river through 5 basin states (Uttarakhand, Uttar Pradesh, Bihar, Jharkhand & West Bengal) and creation of additional treatment capacity. The Committee also note that the programme will be executed in accordance with NGRBA Programme Framework through (a) the States in conventional mode, *i.e.* in the implementation arrangement (with current and other appropriate implementing agencies) and/or (b) PPP mode and/or (c) SPV mode with up to 100 percent capital infusion by Government) and/or (d) Central Public Sector Undertakings/ Central Government Departments and/or (e) Academic Institutes/Research Institutes / Autonomous Bodies or any other appropriate mode for executing the activities of this proposal. On being enquired by the Committee, the State Government of Uttar Pradesh, vide their letter dated 26.11.2015, referring to their 23 project proposals sent to the 'National Mission for Clean Ganga' (NMCG), submitted that the proposals which have been sent to the GoI were yet to be approved even after a lapse of six months. The State government apprehended that Government of India was planning to implement these projects through PPP Mode which seems to be a remote possibility in the State of Uttar Pradesh. Further, State Government felt that abatement of pollution in river Ganga can be achieved with implementation of upgraded parameters for treatment of sewage schemes i.e. including sewage network in all main towns and with simultaneous upgradation of existing sewage treatment units under 'Namami Gange'. The Committee are concerned to note that State Governments' views have, apparently, not been taken into consideration before finalizing the mode of execution of sewage projects under 'Namami Gange' as one of the major states (Uttar Pradesh) is not in favour of execution of the projects through PPP Mode. Since the rehabilitation, upgradation and construction of additional sewage treatment projects under 'Namami Gange' is a time bound programme, and the Ganga has to be rejuvinated by July 2018, the Committee recommend that the views of the state Governments may be taken on board before deciding on the mode of execution of a sewage treatment project with the sole objective of commissioning of the projects as expeditiously as possible. Further, the proposals submitted by the State Governments may be approved with due dispatch and without further loss of time. Besides, simultaneous upgradation of the existing sewage works and provision of comprehensive sewage schemes including sewage networks in all major towns may be given urgent consideration by the Government of India and urgent and necessary policy corrections

made under intimation to the Committee within six months of presentation of this report to the House.

Reply of the Government

Sewerage management of the town is essentially the mandate of the concerned Urban Local Bodies (ULBs). However, it has been observed that ULBs have not been able to create adequate Sewerage Infrastructure, primarily because of non-availability of adequate funds. Further, it has been observed that significant sewage treatment capacity (STP) under earlier schemes such as Ganga Action Plan (GAP) – I, GAP-II, National River Conservation Plan (NRCP), etc. are either non-functional or operating at sub optimal performance due to poor operation and maintenance of the assets by the ULBs.

In order to address the issues that acted as road blocks for previous efforts to clean river Ganga, a proposal for putting in place a financial model for execution of infrastructure projects under Namami Gange Programme on Hybrid Annuity based Public Private Partnership (PPP) model has been approved by the Cabinet in its meeting held on 6th January, 2016. The approved model aims at implementation of infrastructure projects under 'Namami Gange' in a financially sustainable, outcome oriented and accountable mode while addressing the following four requirements

a) Assurance of desired levels of performance,
b) Assurance of continued performance over long term,
c) Distinct accountability at entity level, and
d) Sustainability, both technical and financial.

However, considering the implementation difficulties and taking into account the views of the State Governments, sewage infrastructure projects are also being taken up under Engineering Procurement and Construction (EPC) / Design Built Operate and Transfer (DBOT) mode.

As per notification dated 07.10.2016, Executive Committee of NMCG is competent to sanction projects upto Rs. 1,000 crore. In the two Executive Committee meeting held during the month of March, 2017, 19 project have been sanctioned for a total amount of Rs. 2,785 crore. The proposals received from States as well as the

proposals based on condition Assessment and Feasibility studies done by NMCG are being processed expeditiously with a view to sanction them at the earliest.

National Mission for Clean Ganga is primarily funding creation of Sewage Infrastructure by way of Interception and Diversion and Sewage Treatment Plants. Sewage network is mainly taken up under Atal Mission for Rejuvenation and Urabn Transformation (AMRUT). However, need-based sewage network is also being included in the projects being sanctioned by NMCG.

Optimum operation of STPs

Observation/Recommendation (Sl. No. 7)

The Committee note that due to huge gap between the installed capacity and actual sub-optimal operation of the STPs in the riparian states of the Ganga, the quantum of sewage which the STPs are supposed to have treated, is being allowed to flow into river Ganga untreated. Further, the constantly increasing demographic pressure and expanding, industrial and commercial activities continue to exacerbate the pollution levels as more sewage is allowed to be emptied into the river Ganga untreated. Taking note of the huge gap between the installed capacity and actual operational capacities of the STPs and deeply concerned over the aggravated pollution levels and the shrinking of the river, the Committee recommend that:- (i) specific reasons may be ascertained for the STPs operating at sub optimal capacities and since how long STP-wise and State-wise and the measures being taken to bridge the gaps; (ii) responsibility be fixed for sub-optimal utilisation of STPs; (iii) the capacities of existing STPs, SPSs and sewage networks may be suitably enhanced or new ones set up to cater to the increasing demographic pressure, expanding urbanisation, industrialisation and the shrinking river with a clear perspective plan for next two decades. (iv) the approximate fund requirement to make the STPs operational at optimal levels and to set up new ones be worked out taking into account the rising pollution of at least for next two decades; and (v) penalties be imposed for violating the COD and BOD limits by the polluting industries/cities. The Committee should like to be apprised of the tangible action taken in the matter within six months of the presentation of this Report.

Reply of the Government

There are 67 STPs located in various cities/ towns along the river Ganga with an installed capacity of 1240 MLD. Out of these, based on monitoring of 35 STPs carried out by CPCB during April-December'2016, 17 were found to be complying with the extant standards while 14 were found to be non-operational. While 4 STPs were found to be non-complying. NMCG in association with State government and its agencies has already initiated an exercise to identify the reasons for sub-optimal level of operations of these STPs and also reasons for a large number of them being non-operational. Base-line information so gathered would be utilized to take suitable measures to address these causative reasons for non-functionality of STPs as well as their functioning below optimum levels.

During December 2015 to January 2017, 573 inspection have been carried out covering 302 GPIs. 141 were complying, 96 were found non complying and 65 were found closed. Closure directions were issued to 45 non complying units, show cause notices to 37 and letters to 14 non complying units.

As on 8th March 2017, 577 GPIs have installed online continuous effluent monitoring system (OCEMS) system, out of which, real time reports are being captured at dashboard from 384 such installations.

Directions were issued by CPCB u/s 18 (1) (b) of Water (Prevention and Control of Pollution) Act, 1974 vide letter dated 21/04/2015 to all State Pollution Control Boards/Pollution Control Committees to make mandatory for local/urban bodies to set up STPs of adequate capacity and provide underground sewerage system to cover the entire local/urban areas and to bridge the treatment gap (**Annexure - II**).

Directions were issued by CPCB u/s 5 of Environment (Protection) Act, 1986 vide letter dated 09/10/2015 for submission of action plan for management of sewage and municipal solid waste generated from 118 towns identified along river Ganga to municipal authorities/ULBs. A copy of the directions issued is given in **Annexure - III.**

Setting up of STPs in all 118 towns, periodic testing of treated water and setting up of river hydrology institute

Observation/Recommendation (Sl. No. 8)

The Committee note that Government have planned that the work of sewage treatment facilities in all 118 towns on the main stem of the Ganga will be tendered by June, 2016 and completed by 2019. It was also submitted that DPRs will be prepared for all the 118 priority towns by December, 2015. During field visit, it was brought to the notice of the Committee that there is a serious apprehension about the quality of agricultural products from the fields irrigated by treated industrial waste water. There have also been reports of the people in certain areas of the riparian States prone to specific life-threatening diseases. The experts who deposed before the Committee also underlined the need for setting up institutions of river hydrology and dynamics. Taking note of the fact that the work of sewage treatment facilities in 118 towns on the main stamp of the Ganga are to be tendered by June 2016 and completed by 2019 and having regard to the assurance of the Minister for WR, RD&GR, the Commitee would like the work of construciton of sewage treatment projects to be expedited well before the deadline of June 2018. The Committee also recommend that the treated waste water be tested periodically so as to allay the fear of farmers and citizens about the fitness of the treated water for agricultural uses. The results of such tests should be available in public domain. Further, taking cognizance of the fact that there is no exclusive institution for river hydrology and river dynamics in the country, the Committee recommend that a national institute of hydrology be set up in the Ganga basin and the works being done in this regard in BHU and the Mahamana Institute of river hydrology, may be replicated or suitably financed by the Government to help understand river anatomy, river morphology, dynamics, biota and other allied aspects for speedy rejuvenation of the Ganga and other rivers of the country.

Reply of the Government

National Institute of Hydrology is already functioning as an autonomous institution under Ministry of Water Resources, River Development & Ganga Rejuvenation. It is one of premier institute in the area of hydrology and water resources in India established with the main objective of undertaking, aiding, promoting and

coordinating systematic and scientific work in all aspects of hydrology. The Institute has its Headquarters at Roorkee (Uttarakhand), four regional centres at Belgaum, Jammu, Kakinada and Bhopal and two centres for Flood Management Studies at Guwahati and Patna. The Institute is well equipped to carry out computer, laboratory & field oriented studies.

The work of monitoring and performance evaluation of installed STPs in 118 towns is being carried out by CPCB. The monitoring is being carried out quarterly. The findings are tabulated below:

State	STP Status		STPs Monitored				
	No. of STPs State	Installed Capacity (MLD)*	No. of STPs State	Installed Capacity (MLD)	Utilized Capacity (MLD)	STPs Exceeding BOD Limits	No. of STPs not functional
Uttarakhand	09	99.5	7	88	87	0	0
Uttar Pradesh	16	466.01	11**	293.6	211.95	3	2
Bihar	06	153	Not monitored				
West Bengal	36	521.45	17	204.91	35.2	1	12
Total	67	1239.96	35	586.51	334.15	4	14

*Not measured capacity given by CPCB

**Includes Muzaffarnagar STP which is not on main stem of River Ganga

The STPs, existing as well as being set up under the Namami Gange programme, are being provided with facilities of sampling and testing the samples at the designated laboratories so as to ensure that the extant standards are met by the operating STPs at all times. There is a provision to equip new STPs with on-line effluent water quality monitoring for similar purpose. The O&M provisions for newly established STPs provides that all payments are linked to performance of the STPs through on-line monitoring of effluents.

STPs in Bihar

Observations/Recommendations (Sl. No. 9)

The Committee note that CPCB assessment shows that there are 5 STPs in Bihar with an installed capacity of 140 Million Liters Per Day (MLD) and the actual utilization is 100 MLDs. However, the data furnished by the M/o WR,RD &GR on the status of STPs established under GAP I&II (Annexure-VII) shows that there are five STPs in Bihar with installed capacity of 120MLD only as against 140MLD stated by CPCB in their assessment. The Committee, therefore, ask the MOEF&CC and M/o WR, RD and GR to reconcile the data and furnish the same to the Committee along with reasons for such discrepancies and the mechanism established to obviate such statistical mismatches which are critical to formulation of pollution control strategy.

Reply of the Government

The data of STPs for Bihar has been reconciled. Discrepancy was noted in the data reported by CPCB as 140 MLD installed capacity whereas the MOWR, RD& GR reported 120 MLD for STPs in Bihar. The present status of installed capacity of STPs of Bihar given by CPCB and MoWR, RD and GR is tabulated below:

CPCB Data			**MoWR, RD and GR Data**	
S.No.	**STPs**	**Installed Capacity (MLD)**	**STPs**	**Installed Capacity (MLD)**
1.	Pahari, Patna	25	Pahari, Patna	25
2	Chapara, Patna	2		
3.	Beur, Patna	35	Beur, Patna	35
4.	Saidpur, Patna	45	Saidpur, Patna	45
5.	Mattagajpur	33		
6.			Karmalichak	4
7.			Bhagalpur	11
	Total	**140**	**Total**	**120**

The difference is due to the two STPs i.e. Mattagajpur (33 MLD) and Chapara (2 MLD) in CPCB data which are replaced by Karmalichak STP (4 MLD) and Bhagalpur STP (11 MLD) in MoWR, RD & GR data.

The capacity of STPs given above in MoWR,RD&GR table is correct. This has been reconciled from the web site of Bihar Rajya Jal Parishad, which is responsible for maintaining the STPs in Bihar.

Ideal location for STPs

Observation/Recommendation (Sl. No. 11)

The experts who deposed before the Committee suggested that STPs must be located on the sand bed site of the river only as this is the only site where inorganic, organic, & microbiological loads will be managed integrally at minimum cost on sustainable basis. The potential of the sand bed must be assessed taking example of Ganga Yamuna confluence site at Allahabad, where during the Kumbh Mela, pollutant load of more than 10 million people at a time is managed by the sand bed. Taking note of the fact that sand is the nucleus of geology, the Committee recommend that due consideration be given to the location and use of sand beds in setting up of the STPs. The Committee further recommend that the feasibility of involving the corporate sector in setting up, operating and maintaining the sewage treatments plants and sewage networks on long term basis may also be explored so as to bring greater professionalism and efficiency to the working of STPs.

Reply of the Government

The cabinet in its meeting held on 6th January 2016 approved the adoption of Hybrid Annuity based Public Private Partnership (PPP) model for implementation of infrastructure projects under 'Namami Gange' in a financially sustainable, outcome oriented and accountable mode while addressing the following four requirements

a) Assurance of desired levels of performance,
b) Assurance of continued performance over long term,
c) Distinct accountability at entity level, and
d) Sustainability, both technical and financial.

It is expected that responsible corporate entities shall come forward for bidding under hybrid annuity based PPP model which would bring in greater professionalism, efficient & sustainable operations of the STP.

Comments of the Committee

(Please see para no. 1.19 of Chapter - I)

Timeline for securing ZLD by industrial units

Observation/Recommendation (Sl. No. 13)

The Committee observe that apart from 144 drains spread across Uttarakhand, Uttar Pradesh, Bihar and West Bengal discharging 6614 Million Liters Per Day (MLD) of waste water into river Ganga, there are 13 drains discharging 853 MLD of waste water into tributaries of river Ganga viz. Ramganga and Kali –East. Further, hundreds of Pulp & Paper industries, distilleries, Sugar, textile plants and tanneries are emptying untreated industrial effluents into Ganga. The Committee are deeply concerned to note that 440 tanneries operating in the main stem of Ganga are discharging about 22 MLD of waste water, containing toxic chemical like Chromium (Cr6+), associated with birth defects, and carcinogenic into the river Ganga. As a part of the drive to identify the industries discharging untreated industrial effluents in the Ganga, the Committee observe that under NGRBA programme, 764 GPIs have been identified and the Central Pollution Control Board has completed one round of inspections of 704 industries and has issued suitable directions. Reportedly, action has been taken against 165 non-complying industries under The Water (Prevention & Control of Pollution) Act, 1974 and The Environment (Protection) Act, 1986. Closure notices have been issued to 48 GPIs. Further, the Committee note that CPCB has issued direction to all the 11 basin SPCBs on 5th February, 2014 to ensure that the GPIs install real-time effluent monitoring system for effective compliance through self-regulatory mechanism before discharging effluents outside their premises. The MoEF&CC in their presentation to the Committee submitted that distilleries and textile units discharging untreated effluents into river Ganga will be made Zero Liquid Discharge (ZLD) units by September and December, 2016 respectively. However, furnishing a different set of targeted dates for the same

purpose, M/o WR, RD and GR in a written reply submitted that distilleries and textile units will be made ZLD units by March, 2016 and March, 2017 respectively. Similarly, as per the action plan furnished by MoEF&CC, tanneries are proposed to be made ZLD units within 2 years from DPR preparation (July, 2015) which is different from the targeted date (March, 2017) furnished by M/o WR, RD &GR. In respect of polluting pulp and paper units both the Ministries stated that by March, 2017 these will be made ZLD units.

The Committee also observe that the work on making the polluting units ZLD units is in incipient stage as the Ministries are still considering and evaluating the proposals received for CETPs and identifying the institutes for preparing DPRs for the purpose. Further, to minimize the water consumption and waste water discharge from the Pulp and Paper sector and to make them ZLD units , CPCB is still in the process of developing protocols in consultation with technical experts. The Committee find the deadlines prescribed for the grossly polluting units to become ZLD units rather unrealistic and far from practical. The Committee, therefore recommend that (i) both the Ministries of EF&CC & WR, RD & GR should jointly have a relook at the targets set for completion of the said works and ensure that both the industries become ZLD by March, 2017; and (ii) The evaluation of the projects be done on regular basis and position of the review reflected in the Report of the Ministry laid in Parliament annually. The Committee be apprised of the actual progress of the projects within six months of submission of this report to Parliament.

Reply of the Government

Proposal for ZLD based system for Tannery cluster at Jajmau, Kanpur has been prepared and discussed with stakeholders. However, the industrial association have still to respond to the proposal for its adoption.

For Textile, 5 clusters in UP (Phikua, Mathura, Rooma, Bhadoi and Farukabad) have been identified. Diagnostic Study and feasibility report for adoption of ZLD based system has been completed. The industrial association are yet to give their consent on the proposal for its adoption.

MoEF has notified effluent standards for Textile units (10 Oct 2016) as well as CETP (1 Jan 2016). The draft proposal had envisaged ZLD, but the final notification

doesn't mandate adoption of ZLD based system. This has facilitated the individual units as well as CETP to adhere with the discharge norms instead of adopting the ZLD based system, which is optional.

Action Plans for water conservation and attaining Zero Liquid Discharge (ZLD) for all the five key sectors have been finalized and a draft proposal for revision standards including stringency of provisions has been submitted by CPCB.

Funding of STPs and O&Ms

Observation/Recommendation (Sl. No. 15)

The Committee note that sewage infrastructure projects such as STPs, I&D, sewage pumping stations, etc., are awarded on the basis of competitive tenders under 'Namame Gange' programme. However, as stated by Government of Bihar, the Union Government provides funds for these projects on the basis of project approval cost. Further, the Committee note that U.P. Jal Niagam, the Implementing Agency for all pollution control works on behalf of Urban Local Bodies in U.P. do not have sufficient funds for Operation & Maintenance (O&M) of pollution control works. Similarly, the Government of Bihar stated that purchase of land for STPs and other sewage infrastructure works is creating a heavy burden on the state Government. Since the STPs and I&D projects are awarded on the basis of open competitive biddings, the Committee recommend that the project proposals may be considered based on tendering cost by the Government of India. As any delay in creating required sewage infrastructure will result in delay in completion of 'Namami Gange Programme', the Committee recommend that suitable remedial action may be taken by the Government of India to address the financial constraints faced by the state Governments concerned at the earliest so that the laudable objective of the 'Namami Gange Programme are attained within the stipulated timeline, that is by July 2018.

Reply of the Government

With a view to addressing the financial constraints faced by the state government concerned, all new initiatives under the Namami Gange Program are being taken up as

Central Sector Projects wherein entire project cost will be borne by the Government of India. Restructuring of continuing projects under the NGRBA Program is also in progress. After the NGRBA Program restructured entire project cost of all new infrastructure projects to be taken up under the World Bank aided NGRBA Program will be borne by the Government of India.

Great rural-urban water divide and the need for bio-digesters

Observation/Recommendation (Sl. No. 16)

The Committee note the testimony of experts that the toilets being built under Swachh/Nirmal Bharat Abhiyan are not being used by the beneficiaries as they lack privacy, comfort and generate stinking smell forcing the family members to defecate in the open fields thereby defeating the very purpose of provision of the toilets at their homes. Further, lack of availability of water in sufficient quantities also seems to be one of the reasons for their abandoning the toilets at home and opting for open field defecations. The Committee were informed of the availability of biodigester toilets which are environmental friendly, long lasting, maintenance free and low cost. The experts who testified before the Committee suggested for provision of biodigester toilets in the towns /villages along the river Ganga to ensure that the people in these areas do not defecate in the open and thereby save Ganga from pollution. Further and notably, as admitted by the experts, the human excreta if thrown in the soil it becomes manure and if discharged in water it poisons the water. Toilets need more water to flush the excreta and the flushed excreta pollutes the water in a big way and it involves a huge and recurring cost to convert the polluted water into pure or semi-pure water. Further, mass scale urbanization in the name of modernization has brought its own attendant problems which are likely to assume yawning proportions in the next few years as India may become water scarce country. The nation can ill-afford the luxury of water import, water being heavier than crude oil. The pace of uncontrolled urbanization has already created a situation where some people, especially poor people and rural folks do not get drinking water whereas people living in luxurious urban houses use excessive water for flushing, eventually contaminating the water bodies where it is discharged. Such a differential treatment and deprivation in the name of urbanization and modernization is not acceptable. Bearing in mind the expert testimony that human excreta if burried in

soil, converts into manure and if discharged in the water poisons the water; taking note of the fact that toilets need water to flush and the flushed excreta pollutes the water in a bigway and considering the fact that it involves huge recurring cost to convert the polluted water into pure or semipure water and mindful of the alarming rural-urban disparity in water supply, the Committee recommend that suitable provision may be incorporated under 'Namami Gange' to provide biodigester toilets in all the villages and towns on the banks of Ganga and its tributaries in a time bound manner. Further, futuristic technologies be developed which can process all waste on site within hours at the household, colony, village levels with a view to eliminate or minimize the need for laying expensive trunk lines, STPs, and other cost prohibitive pollution control infrastructure. The Committee should like to be apprised of the outcome within six months of the presentation of this Report.

Reply of the Government

Task pertaining to rural sanitation which covers; construction of Individual Household Latrines (IHHLs), solid and Liquid Waste Management (SLWM), and IEC, in the Gram Panchayats in the riparian states has been assigned to the Ministry of Drinking Water and Sanitation. The National Mission for Clean Ganga in very beginning requested to MoDWS to adopt appropriate technology option preferably based on the concept of bio-digester for construction of IHHLs and other toilets in the Gram Panchayats falling under high water table along the river Ganga to prevent from contamination of nearby water bodies.

NMCG had invited EOI in June, 2016 for taking up innovative waste water treatment technology as pilot/ demonstration project for treatment of Drains joining river Ganga. Till date, around 90 proposals have been received from different parts of the Globe. Proposals received are in various stages of scrutiny. There are several small packaged modular type treatment systems, which may eliminate or minimize the need for laying expensive trunk lines, STPs etc. by bringing about significant reduction in pollution load in the drains before they empty into the river. These systems are pre-fabricated and can be installed in very short time.

Use of bio-fertilizers, organic and less water consuming crops

Observation/Recommendation (Sl. No. 17)

The Committee note that conventional irrigation techniques need huge amount of water, much of which is lost to evaporation, causing over extraction of the water needed to sustain life elsewhere. The representatives of the Government also conceded that the runoff from chemical pesticides and fertilizers into rivers /aquifers is exceedingly detrimental to human health and to the already threatened eco system. The Committee, therefore, recommend that: (i) farmers may be encouraged to avoid cultivation of water guzzling variety of crops and incentivized to switch over to less water intensive methods of irrigation and less water consuming crops; (ii) the farmers may be encouraged and incentivised by the M/o Agriculture and state governments for erecting dikes so that rain water is conserved in the fields; (iii) optimal use of fertilizers and pesticides should be promoted by M/o Agriculture in consultation with tthe ICAR and excessive use avoided; (iv) irrigation subsidies may be gradually eliminated to prevent use of water intensive agricultural practices and water saving techniques such as drip irrigation, etc be propagated and incentivised; (v) organic and less water consuming crops should be propagated and grown in order to help ensure that more water is left in the Ganga and other key aquifers; (vi) all farms located within specific distance of the Ganga and other important aquifers should become mandated organic farming zones. Producers should be incentivized suitably and also be educated about the advantages of organic farming in the long run; (vii) special subsidies, lending assistance and help in securing access to markets, domestic and foreign, which have special interest in organic goods may be given to the farmers who switch over to organic farming and use drip irrigation or similar non water intensive irrigation technology; and (viii) the benefits of organic fertilizers and the incentives being given to organic agriculture be effectively publicised so that farmers turn to organic agriculture in a big way.

Reply of the Government

NMCG has entered into an MOU with Ministry of Agriculture in September 2016. As per the MOU, the role of Ministry of Agriculture is

- Development of organic farming in the villages along Ganga with each Gram Panchayat representing a single cluster
- Promote organic farming through awareness programmes, self help groups, mobile apps launched etc.
- Create awareness about balanced use of chemicals fertilizers and pesticides.
- Promote micro irrigation for water conservation in Ganga Basin.

Government of India is implementing Crop Diversification Programme (CDP) in Original Green Revolution States viz: Punjab, Haryana and Western Uttar Pradesh as a sub scheme of I RKVYsince 2013-14 to divert the area of water guzzling paddy to alternate crops like pulses, oilseeds, maize, cotton and agro forestry with the objective of tackling the problem of declining of soil fertility and depleting water table in these states. A brief note related to avoid water guzzling crops under CDP is enclosed as **Annexure - V.**

Government of India is providing incentives to the farmers under National Food Security Mission (NFSM) and Bringing Green Revolution to Eastern India (BGREI) for encouraging efficient and judicious use of irrigation water. Support is being given to the farmers by providing water carrying pipes, pump sets, sprinkler set, mobile rain gun under NFSM-Pulses and NFSM-Wheat component. Similarly, support is given to the farmers through BGREI for dug well, bore well, shallow tube well and pump set.

By carrying out demonstration/ training, farmers are advised to use method of efficient water use like raised bed, broad bed cultivation, direct seeded rice cultivation, zero tillage etc. These programmes on crop production under NFSM and BGREI are implemented through State Agriculture Departments.

Under National Food Security Mission (NFSM)-Pulses, use of bio-fertilizers such as Rhizobium, Phosphate Solubilizing Bacteria (PSB) in pulses crop are encouraged and assistance is provided to the farmers.

Cost Effective Solid Waste Management and donations for Ganga cleaning

Observation/Recommendation (Sl. No. 18)

The Committee note that effective solid waste management is becoming a stupendously challenging task in cities and towns. The Solid Waste, if not disposed of andtreated properly, enters the water bodies and the rivers. There is, therefore, a paramountneed for segregating the metalic, plastic and bio-degradable waste for their environment friendly disposal and re-use. The solid city waste and its harmful residue that enters the Ganga and its tributaries pollutes and chokes the rivers threatening the acquatic life. The Committee note that solid waste management has become a stupendouly challenging task in megatowns, which for want of proper segregation and disposal, eventually enters, chokes and pollutes the rivers. The Committee, therefore, are of the considered view that treating pollution at source is a long term and enduring solution to combat and control the pollution in the Ganga. The Committee accordingly recommend that:- a) segregation and proper treatment of household and institutional waste water /sewage and solid waste at source may be enforced strictly, if need be, by offering subsidy on effective waste management technology; b) natural cleaning / treatment systems like bioremediation for drains flowing into rivers may also be tried out; c) the crucial task of solid waste management may be taken up on Mini Mission Mode so as to ensure that rivers and water bodies do not become city waste dumping places; and d) donations for the purpose of Ganga cleaning or setting up of 'Clean Ganga Fund' may be treated as permissible activity for Corporates under Corporate Social Responsibility (CSR) to ensure receipt of sizable sums for the purpose. Suitable action in consultation with M/o Corporate Affairs (MoCA) may be taken at the earliest and the Committee apprised.

Reply of the Government

In order to reduce the pollution from the solid waste entering into river Ganga following initiatives have been taken up :

1. Provision of mechanical Trash skimmer at Allahabad, Kanpur, Varanasi, Mathura-Vrindavan and Garmukteshwar to remove the floating trash from the river surface.

2. Ghat cleaning works at Varanasi to ensure arresting the solid waste disposal in the river and keeping the ghats neat and clean.

The Ministry of Corporate Affairs informed that no action arises for Ministry of Corporate Affairs as 'Clean Ganga Fund' is an enlisted activity under item no. (iv) of Schedule VII of the Companies Act, 2013 which is reproduced below :

"ensuring environmental sustainability, ecological balance, protection of flora and fauna, animal welfare, agro forestry, conservation of natural resources and maintaining quality of soil, air and water **including contribution to the 'Clean Ganga Fund' set-up by the Central Government for rejuvenation of river Ganga"**

Environmental Flows

Observation/Recommendation (Sl. No. 19)

The Committee observe that the environmental flow is a water regime needed to maintain the ecological integrity of a river and is essential for survival of river biota from onslaught of human interference or river engineering. It helps in self purification of the river, sustains aquatic life and vegetation, recharges ground water and supports livelihood. Flows, the Committee note, are the soul of the river. A river and its biota become extinct if there is no flow, no current. Notably, as early as 1916, the Britishers were compelled by Pt. Mahamana Madan Mohan Malviya to secure release of 1000 cusec feet per second water continuously at Haridwar to ensure 'Aviral Ganga' (Annexure-XXVI). The river regime – its environment and its eco system – is solely dependent on its flow in different seasons. The Committee also observe that the concept of e-flow is still evolving and there is no universally acceptable norm for estimation of environmental flow. Different institutions / Committees have suggested different quantities of e-flows during lean and non lean seasons for river Ganga without any finality by the Government. For instance , IIT Roorkee , Wild Life Institute of India (WII), Inter Ministerial Group (IMG), Prof Ravi Chopra Committee and CWC have recommended 20%, 30%, 30%, 50 % &20 % during lean season and 20-30%, 20%, 25%,30%&20% during non lean season respectively in river Ganga. However, neither the M/o WR, RD&GR nor the M/o Power nor M/o EFCC have specified the e-

flow which is being followed currently. The Committee are distressed to note that many species of acquatic life have vanished or are on the verge of extinction. The dolphins, turtles, trout and gold fish and other vital species have disappeared from large parts of the river due to life threatening pollution and obstruction in free aquatic movement caused by dams on the river. Notably, the dams have adversely affected the spawning in fishes of certain types leading to their disappearance. The hydrologists and experts who deposed before the Committee stressed the need for free aquatic movement as a barometer of the health of the river. The Committee, therefore, recommend that: (a) e-flows be fixed for each river and for each place where dams/reservoirs/irrigation canals are built taking into consideration the mean figures of the last 50 years of the water flow during lean and non-lean season, (b) the new dams be so constructed as to facilitate unhindered aquatic movement; (c) the approved e-flows be measured by the CWC during lean and non-lean seasons at all stations including the places where the rivers have been dammed or where water is diverted and the reports submitted to Parliament as part of the annual report of the M/o WR, and (d) a detailed report be submitted to the Committee about the presence of each reverine specie like dolphine, turtles, gold fish, trout and others every six month; and (e) a third Party assessment of e-flows may also be considered periodically.

Reply of the Government

Ministry of Water Resources, River Development & Ganga Rejuvenation has constituted a Committee consisting of representatives of Central Water Commission, National Institute of Hydrology (NIH) and IIT, Delhi to prepare a policy paper on implementation of environmental flows. The report of the committee is awaited.

A meeting with IIT Consortium and other experts has been proposed to finalize the recommendations on e-flows particularly the approach and methodology to be used for assessing the e-flows for any river reach.

For Aqualife conservation of Ganga, NMCG has entrusted projects to Wildlife Institute of India (WII), Dehradun for the conservation of higher aquatic vertebrates and central Inland Fishery Research Institute (CIFRI), Barrackpoor for the restoration of

indigenous fish species in Ganga. These institutes will also be recording the status of the Aqualife of Ganga.

The report submitted by the above said institute will be submitted to the Estimate Committee, Lok Sabha for information.

Decision of Government on construction of new Dams in Uttarakhand

Observation/Recommendation (Sl. No. 22)

The Committee take a serious note of the casual and evasive reply furnished by the M/o WR, RD &GR to the following important points contained in the memorandum submitted by the NGO Ganga Aahvan: (i) acceptance *vide* the affidavit submitted to Supreme court of the findings of Ravi Chopra Committee that irredeemable damages has been caused due to dam projects in the Himalayan regions of Ganga and that dam projects were directly/indirectly responsible for the June 2013 disaster; (ii) surprising change in the attitude of the MOEF&CC after filing the affidavit in December 2014. It points out the intervention of Prime Minister Office in the matter. A meeting held on 13th January, 2015 chaired by PMO chief Secretary and attended by all chief / other secretaries, Ministry of Power, Ministry of Environment, representatives of Uttarakhand Government. It goes further to say that it was decided that the Government would lobby in favor of the power projects citing energy requirement of the country as a priority, putting aside the aviralta-nirmalta aspect of Ganga rejuvenation, sought more time from the Hon'ble Supreme Court; (iii) Hon'ble SC directing the Centre to decide on 6 dams (out of 24 proposed dam projects recommended for closure/cancellation by the teams of experts); (iv) Central Government's stance was exposed on 17 February 2015, when the Attorney General's made a statement to the Hon'ble court that the Centre can go ahead with the construction of the 6 dams, quoting the findings of another 4-member committee which was constituted in the end of December 2014; (v) Decision of the MOEF&CC forming another Expert Group (DAS-Committee) in June 2015 to explore means to give go-ahead to these E-dam projects ignoring prior studies and reports; (vi) Committee submitting its report justifying the construction of these 6 dam projects. The Centre submitted an affidavit to the Hon'ble court in November 2015 in favor of the report and submitted that inter-ministerial group will soon

decide on it; and (vii) MOEF&CC submitted an affidavit giving the green signal for construction of dams on river Ganga in January 2016." The Committee are anguished to note that the reply submitted by the Ministry to the Committee, simply stated that NMCG, which is mandated to fund and execute pollution abatement measures in river Ganga, does not directly deal with the issues raised in the memorandum as it is mainly concerned with the decision of the Government on construction of dams on river Ganga. Deprecating the casual reply, the Committee ask the Ministry to submit point wise replies, if necessary by collecting the information, to them within six month of the presentation of this report.

Reply of the Government

No study has clearly established that dam/hydro power projects were responsible for June, 2013 Uttarakhand disaster. As per study carried out by Central Water Commission and Central Electricity Authority, a joint report was submitted to Ministry of Environment, Forest and Climate Change in April, 2014, wherein it is stated that there is no link (direct or indirect) between the development of hydro power project with Uttarakhand tragedy. Alaknanda and Bhagirathi rivers in Uttarakhand have experienced similar catastrophes in the past also. This is due to the inherent geological and geo-morphological character of the area and has nothing to do with the structures needed for dam/hydropower projects.

Preservation and construction of water bodies in the catchment areas

Observation/Recommendation (Sl. No. 23)

The Committee observe that water bodies such as lakes, ponds, tanks and streams, play an important role in rejuvenating the rivers. These water bodies accumulate rain water, recharge the groundwater and the ground water in turn charges the river in lean months. A renowned activist (Shri Anupam Mishra) working in the field of water management and rejuvenation of water bodies testified that there were 25 to 30 lakh ponds before the British came to India. The Indian irrigation system was based on sound traditional water management techniques as there were no engineering colleges or certified hydro-engineers those days. The Committee were informed that excessive withdrawal of water from rivers for irrigation, industry and domestic use has depleted the

flow of rivers and has also contaminated the rivers as all used/polluted water is discharged into the rivers. It was asserted that a lopsided, recurringly cost prohibitive system can't clean the rivers. The experts emphasized that the pure rain water must be stored into lakes, ponds and local water bodies, known variously in different parts of the country. An expert especially referred to the ancient system of water preservation in 'tals' 'khals' and 'chals' etc. in the Himalayan regions which collected rainwater, met local needs round the year, created forest cover and charged the ground water and, were a steady source of water to the tributaries of the Ganga. The expert also referred to examples of community work to revive these traditional water bodies of Pauri Garhwal district of Uttarakhand which revived the 'Gad Ganga' which was extinct for 70-80 years. Prof. Tare, IIT Kanpur, a renowned hydrologist was also of the considered view that all tanks, lakes and water bodies are an integral part of a perennial source of water supply to the river. These water bodies must be restored and conserved as all water bodies in the entire catchment basin are closely inter-linked and rejuvenate the river especially during the lean period. Besides, these water bodies serve the drinking water and irrigational needs of the surrounding towns and villages and also help controlling the effects of the floods. Having regard to the fact that the traditional time tested methods of water conservation like the lakes, ponds, tals, zheels, baolis, wetlands and flood plains have been abandoned or encroached upon; mindful of the fact that the Government's focus mostly remains on managing the droughts and floods and considering the fact that the surface and subsurface water are an integral part of the hydrological cycle, the Committee recommend that; (a) all big and small water bodies in the catchment areas of the rivers including the Ganga must be restored and new water bodies constructed with a view to harvesting water; (b) all such water bodies must be inventorised district-wise as part of integral national strategy to conserve and augment water supply on perennial basis to local settlements, environment, aquifers and the rivers; and (c) a massive programme of rejuvenation of water bodies and aquifers be undertaken after consulting the premier national organisations like CWC, CGWB, National Institute of Hydrology and also the district gazetteers about the ancient ponds, lakes, tals and baolis so that all the traditional water bodies are rejuvenated in a mission mode with the help of schemes like MNREGA or such or similar schemes. They further stress that suitable measure may be taken urgently to protect and restore water related eco systems including the forests,

wetlands, lakes, ponds, taals, zheels, etc. in the Ganga catchment basin as this will contribute in a big way to the perennial rejuvenation of the Ganga and the ground water which is an integral subsurface and surface part of the hydrological cycle. Further, a massive programme of rejuvenation of water bodies and aquifers be undertaken after consulting the district gazetteers and even schemes like MNGRA should be in mission mode.

Reply of the Government

a):- GOI is implementing the Scheme for **Repair, Renovation and Restoration (RRR)** of water bodies which has multiple objectives like Comprehensive improvement and restoration of water bodies thereby increasing tank storage capacity, ground water recharge, increased availability of drinking water, improvement in agriculture/horticulture productivity, improvement of catchment areas of tank commands, environmental benefits through improved water use efficiency; by promotion of conjunctive use of surface and ground water, community participation and self-supporting system for sustainable management for each water body, capacity building of communities in better water management and development of tourism, cultural activities, etc. This is a continuing scheme since X Plan and is presently being implemented during XII Plan also.

The scheme of RRR of Water Bodies in XII Plan envisages to take up RRR works in 10,000 water bodies (9000 water bodies from Rural areas and 1000 water bodies from Urban areas) with a Central Assistance of Rs. 6235 crore covering Culturable Command Area of 6.235 lakh ha. The Scheme is a continuation scheme and has been approved by Cabinet Committee on Economics Affairs on 20.09.2013 and the new Guidelines were circulated by MOWR to all the State Governments during October 2013. Rural water bodies having an original CCA up to 2000 ha with minimum water spread area of 5 ha and above and Urban water bodies having water spread from 2 ha to 10 ha are eligible to be included under the scheme. RRR of water bodies scheme in rural areas is proposed to be implemented in convergence with Integrated Water Management Programme (IWMP) so that the catchment area of the selected water bodies are located either where the IWMP programme is implemented OR selected for implementation of IWMP in the next year OR two. Further, as para 4.2.6 of Guidelines

of RRR of Water Bodies, in case, the scheme of IWMP is being considered for implementation in the state based on IWMP programme, the water bodies of such area will also be included in the scheme received upto March, 2013. A certificate from State Government will be required for speedily implementation of IWMP in those areas. This will ensure that the catchment area treatments shall be implemented on all catchment areas of water bodies which are proposed to be taken up for central funding under the RRR of water bodies scheme. The scheme covers only public and community owned water bodies and private owned water bodies are not covered.

As per the guidelines, the State Government needs to take necessary steps for declaring the water body boundary through a GO and to ensure removal of encroachments in the water body spread area/water body boundary before submitting the proposal for 2nd installment release.

XI plan:

Under the scheme of RRR of water bodies with Domestic Support, 3341 water bodies were taken up and so far, works of 2801 water bodies have been completed. The works of 499 water bodies are still in progress.

Under the scheme of RRR of water bodies with External Assistance, 8747 water bodies were taken up and so far, works of 8054 water bodies have been completed. The works of 693 water bodies are still in progress.

XII plan:

Empowered Committee (EC) of MOWR,RD &GR in its 5 meetings held has so far cleared a total of 1354 water bodies from 9 states to include under the scheme of RRR of water bodies. Works of 1236 water bodies were taken up and so far, 506 water bodies have been restored. The works in 730 water bodies are in progress.

So far as construction of new water bodies is concerned, it is not covered under the present scheme. However, the State Govts. can construct new water bodies with a view to harvesting water with the help of schemes like MNREGA or such or similar schemes.

Jal Kranti Abhiyan is being celebrated to consolidate water conservation and management in the country through a holistic and integrated approach involving all stakeholders, making it a mass movement.

The objectives of Jal Kranti Abhiyan are :-

1. Strengthening grass root involvement of all stakeholders including Panchayati Raj Institutions and local bodies in the water security and development schemes (e.g.Participatory Irrigation Management (PIM));
2. Encouraging the adoption/utilization of traditional knowledge in water resources conservation and its management;
3. To utilize sector level expertise from different levels in government, NGO's, citizens etc; and
4. Enhancing livelihood security through water security in rural areas.

The activities/components being undertaken in the Abhiyan are :-

1. Jal Gram Yojana
2. Development of Model Command Area
3. Pollution abatement
4. Mass Awareness Programme
5. Other Activities

Pradhan Mantri Krishi Sinchayee Yojana (PMKSY):

Under Pradhan Mantri Krishi Sinchayee Yojana (PMKSY), RRR of Water Bodies scheme is a sub-component under Har Khet ko pani.

PMKSY has been formulated amalgamating ongoing schemes viz. Accelerated Irrigation Benefit Programme (AIBP) of the Ministry of Water Resources, River Development & Ganga Rejuvenation (MoWR,RD&GR), Integrated Watershed Management Programme (IWMP) of Department of Land Resources (DoLR) and the On Farm Water Management (OFWM) of Department of Agriculture and Cooperation (DAC). PMKSY has been approved for implementation across the country with an outlay of Rs. 50,000 crore in five years.

b) As per the guidelines, the State Government will also undertake census of water bodies and allot Unique code for all the water bodies. So far, total 3782 proposals of water bodies have been received from 21 states for their inclusion under RRR scheme of water bodies during XII Plan. Out of 3782 proposals, 1354 water bodies have been approved for their inclusion under the scheme while remaining 2428 water bodies are in process of their inclusion under the scheme following the "Guidelines for the Continuation of Scheme on Repair, Renovation and Restoration (RRR) of Water Bodies in XII Plan".

Further, as per the 4th Minor Irrigation (MI) census which was conducted with reference year 2006-07 across all over the country, there are about 6 lakh tanks and storages under surface flow. Out of these 6 lakh, 5 lakh schemes are in use and remaining 1 lakh schemes are not in use for various reasons. The 5th MI census is being conducted with reference year 2013-14. The details of water bodies are proposed to be collected in the 6th MI census.

Moreover, Under India-WRIS project, 7,98,908 water bodies of size more than 0.01 ha have been mapped using satellite imageries of 2009-10. The details are available on website (URL-www.india-wris.nrsc.gov.in). As part of Jal Kranti Abhiyan, one of the activity would to be undertaken is allotting Unique Identification number to every water body from data available on WRIS (use of space technology for mapping of water).

c):- The steps taken for recharging and rejuvenation of aquifers include -

- CGWB has prepared a conceptual document entitled "Master Plan for Artificial Recharge to Ground Water in India" during the year 2013, which envisages construction of different types of Artificial Recharge and Rainwater Harvesting structures in the country including the States covering Ganga basin by harnessing surplus monsoon runoff to augment ground water resources. The Master Plan has been circulated to all states for implementation.
- The National Water Policy (2012), which has been forwarded to all State Governments/UTs and concerned Ministries/Departments of Central

Government for appropriate action, also highlights the need for augmenting the availability of water through direct use of rainfall.

- MoWR, RD & GR has also launched 'Jal Kranti Abhiyan' (2015-16 to 2017-18) in order to consolidate water conservation and management in the country through a holistic and integrated approach involving all stakeholders, making it a mass movement.
- CGWB has been organizing mass awareness programmes in the country to promote rain water harvesting and artificial recharge to ground water
- Water conservation and artificial recharge to ground water are being undertaken by the States/ Union Territories under various schemes including Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), Watershed Development Component (WDC) of the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) etc.
- National Groundwater Management Improvement Scheme (NGMIS) aimed at sustainable management of ground water with emphasis on demand side management measures through community participation is under consideration of the Government. The key objectives of the program include improving investments and management actions for addressing ground water depletion and degradation, strengthening institutional capacity and framework for effective groundwater management, incentivizing communities to sustainably manage groundwater and convergence with ongoing Government programs. Supply side management measures including artificial recharge and water conservation will also form part of the scheme. The scheme is proposed to be taken up in parts of seven States viz. Haryana, Rajasthan, Gujarat, Uttar Pradesh, Madhya Pradesh, Maharashtra and Karnataka.

Impact of navigation on, and navigability of, the Ganga

Observation/Recommendation (Sl. No. 24)

On being enquired, the Committee were apprised by the Ministry of Shipping that navigation is a nonconsumptive use of water and therefore navigation would neither be helpful nor harmful for rejuvenation of the Ganga. The Ministry also stated that maintenance dredging undertaken by IWAI for navigation purpose in totality does not

affect significantly the hydromorphological parameters of the Ganga. Asked whether the Government would be able to make Ganga navigable in the stretch between Varanasi and Haldia, the representative of the Ministry could not give any definitive answer but informed that the World Bank aided Jal Marg Vikas Project, a consultancy, is exploring the feasibility of developing reliable navigation channel for commercially viable cargo vessels and the outcome of the study would be available by mid 2016. According to one memorandum submitted to the Committee by an NGO, the movement of barges/inland vessels in the rivers improves the BOD by agitation of the water. The Committee would like the definitive reply of the Ministry of Shipping as to the stretches of the Ganga they wish to make navigable throughout the year and time frame thereof and the water draft that would be needed and the assurance that the spillage would not affect the water quality or the biota adversely. The Committee would also like to be apprised of the navigationable stretch of the Ganga prior to independence.

Reply of the Government

Under Phase-I of the Jal Marg Vikas Project on river Ganga, the main objective is augmentation of navigation facilities including fairway development between Haldia and Varanasi (1380 kms) by providing an assured depth of 2.2 meters to 3.0 meters and bottom channel width of 45.0 meters for at least 330 days in a year. This shall make the stretch of river Ganga navigable for vessels up to 2000 DWT capacity. The stretch wise chainage in kms and the Least Available Depth (LAD) in meters are tabulated below:

Stretch	Chainage (in kms)	LAD (in m)
Haldia – Barh	35-891	3.0
Barh – Ghazipur	891-1178	2.5
Ghazipur - Varanasi	1178-1311	2.2

The timelines for various activities under the Jal Marg Vikas Project is seven years from September, 2016-17 to August, 2022-23.

Inland Waterways Authority of India (IWAI) will undertake necessary measures to mitigate the effects of spillage (if any) during the navigation on Ganga under Jal Marg Vikas Project.

In order to ensure safe navigational activities, IWAI has undertaken a detailed Environmental Impact Assessment (EIA) for the proposed components to identify the environmental issues associated with the project and prepared an elaborate Environmental Management Plan (EMP).

Opportunities for environmental enhancement were incorporated in the project design, such as (i) supporting introduction of 'cleaner' vessels which will follow international standards for discharge of ballast, wastewater, and use of cleaner more efficient fuel (ii) conservation of protected aquatic areas; (iii) the highest health and safety standards for operation of terminal facilities and navigation operations and (iv) and state-of-art river information systems which will minimize the chances of accidents and also provide available LAD to obviate risks of collision.

The following mitigation measures have been proposed for the protection of water quality and aquatic ecology during navigation period:

(a) All wastewater and solid waste or maintenance waste will be disposed at the designated barge maintenance facility.

(b) Material having potential to generate the dust will be transported under covered conditions to minimize dust generation and its settlement on river surface. Terminals will have facility to control dust pollution during barge loading and unloading actions.

(c) Immediate/quick clean-up of oil/other spills will be undertaken in case of accidental release.

(d) Vessel speed will be restricted in Vikramshila Gangetic Dolphin Sanctuary and Kashi Turtle Sanctuary areas to reduce the noise generation from propeller. Provision of propeller guards with vessel to minimize injury to the aquatic fauna.

(e) Barge/vessel movement will be restricted to the designate route only over the Sanctuary areas to minimize disturbance of Aquatic life.

In addition, IWAI also proposes to develop an Emergency Preparedness and Response Strategy which shall outline the potential foreseeable emergency scenarios, classification, resources, incident command structure, and a documented emergency management plan encompassing prevention, control, recovery and remediation measures to deal with any emergency event that may occur within the National Waterway-1 (NW-1) during construction and operation phase under Jal Marg Vikas Project.

Oil Spill Contingency Management Plan has been prepared for NW-1. Also, the Terms of References for the proposed Disaster Management Plan (DMP) for NW-1 is under finalization. After detailed DMP is prepared, IWAI will be equipped to handle emergency risks on NW-1. The proposed DMP program will have the following components as well:

- Protocol for speed control, monitoring and vessel tracking.
- Protocol of waste management for barge operations and terminals management.
- Bio-diversity protection including accident reporting with aquatic mammals.
- Oil spills reporting and control and remediation.
- Lessons learned and corrective actions programme.
- Risk assessment procedures to assess and manage risks to personnel, vessels and the environment.
- Internal and external audit procedures and frequency.

IWAI was established in 1986 and it does not possess data on the navigable stretch of the Ganga prior to independence.

River front development and check on sand mining

Observation/Recommendation (Sl. No. 25)

The Government of Bihar stated that the current practices of sand mining in the river Ganga and its tributaries are seriously damaging the aquatic flora and fauna. Accordingly, they suggested that sand mining policy for Ganga and its tributaries should

be clearly defined and effectively enforced. The Committee note that MoUD has a programme for river front development and beautification. An apprehension was raised about the possible aspect of cemented long embankment of the river. The representative of IIT, Kanpur (Prof. Vinod Tare) when asked his view for channelizing of river Ganga, stated that there was no programme to channelize the river Ganga. He opined that the Ganga should flow in its natural form and as far as possible we should channelize Ganga in short spans. He further clarified that channelizing means plastering of river Ganga, you can plaster small sections of the river but it will not good for the health of river to plaster its banks completely. The Committee were further informed that channelization will not be able to maintain natural flow of the river helps in natural purification when the flowing water comes in touch with natural sand and gravel embankments. Keeping in view the considered advice of experts based on empirical studies that natural sand and gravel embankments help cleanse the river, the Committee wish to caution and counsel the Government especially the Ministries of Urban Development, Tourism and the municipal authorities to ensure that the natural sand embankments and the flood plains are not altered, damaged or encroached upon. The protection of flood plains from any encroachment, sand extraction and channelisation of the river must be prohibited at all cost to safeguard the natural cleansing and rejuvenation of the river.

Reply of the Government

Ministry of Tourism has noted the recommendations of the Committee for compliance.

Ministry of Urban Development informed that there is no programme called River Front Development & Beautification with them. As per the recommendation of the Committee, the Ministry is not involved in altering the flood plains etc. Also, the matters of sand mining and prevention of encroachments are looked after by the respective State Government and the Municipal Authorities.

Through the Swachh Bharat Mission and the AMRUT Programmes, the Ministry is involved in creating public awareness for sanitation as well as for capacity building of State and municipal authorities through training, guidelines, Manuals etc. Ministry of

Urban Development peruse and approve the comments above for forwarding the same to the Ministry of Environment, Forest & Climate Change and the Ministry of Water Resources, River Development & Ganga Rejuvenation.

Impact of dams on water quality of Ganga

Observation/Recommendation (Sl. No. 26)

The Committee note that the energy potential of the Ganga river system is unique since the Ganga originates from the highest point as compared to the origin point of all rivers of the world. An expert referred to the difference of 75 km between the origin points of the Ganga and the Yamuna and the material difference in the colour of their waters, Ganga water completely 'whitish' and the Yamuna water 'blue' and therefore asserted that this signifies that the quality, quantity and dynamics of every river system like the human system is different. His lament was that dams have been built without adequate knowledge of the anatomy, morphology, cross section of the river, etc. The Committee note that the Himalayan rocks are sedimentary, fragile and the region has steep slopes. For example, the height of the three Gorges Dam (TGD) in China is 181 meters and the Tehri Dam is 260.5 meters but the reservoir of TGD is 660 kms and of Tehri Dam – 44 kms. The Himalayan slopes are 18 times more steep than the slopes of TGD. According to domain experts, slope defines energy but due to high degree of sedimentation and landslides in the Himalayas, the energy generation is much less that is 800 Megawatt in Tehri as against 900 Megawatt in TGD. The Committee were informed that the recurring landslides and the high rate of sedimentation reduce the storage capacity of the reservoir very fast. Besides, the Committee were apprised that due to sedimentation of the dam reservoir, the density of water increases, it changes the colour of the water and reduces, more markedly, its oxygen content deteriorating the water quality – the 'nirmalta' of the Ganga it was known for and revered from hoary past. Also, creation of huge water bodies in active seismic zone of the Himalaya further induces seismicity, posing threat to the structure as well as to the human settlements both upstream and downstream. Another closely related issue of serious worry is about the proposed construction of 450 big and small hydro power projects in the State of Uttarakhand, a matter of constant concern in Parliament. The representative of non-governmental organization, namely Ganga Ahwaan, in their presentation before the

Committee pointed construction of bumper to bumper hydro projects and long dry stretch of the river bed due to water diversion. It was claimed that 53 per cent of river Bhagirathi is completely affected, impacted and gone, despite the assurance of ecological flow and 'aviralta' (continuity) of the Ganga. The representatives expressed grave anxiety and trepidation due to ongoing cutting, crushing, blasting, tunneling, mining in the sensitive-fragile Himalayas doing incalculable and irretrievable damage to the Himalayan ecology and sending shivers down the spine of local residents whose houses have developed cracks or have been pulverized by blasting of the Loharinath-Pala, Pala-Maneri and Bhairon Ghaati projects. Besides, due to blasting, the water springs have disappeared, aggravating water scarcity in the hills. The witness also quoted from the affidavit filed in the Supreme Court by the Government containing the findings of an expert Committee appointed by the Union Government under the direction of the Supreme Court. It was submitted that, according to such findings, 'the construction of hydro power projects in 'Ganga, Bhagirathi and Alaknanda basins has overburdened the local ecology' and that there are 'clear sightings of irreversible damages of environment in terms of loss of forest, degraded water quality, geological and social impact' and that these hydro power projects' enhance landslides and other disasters.' Further, in the context of the imperative need to maintain the 'nirmalta' contingent upon the 'aviralta' of the Ganga, the Committee were shocked to learn from the testimony of the NGO who deposed before them that '115' kms of the Ganga has been diverted into tunnels and lakes, depriving the people of the glimpse of the Ganga over such stretches. It was also their lament that people have to plead with the construction companies to release some water so that they could perform the last rites of their deceased dear ones or perform other sacred religious ceremonies. They also submitted that by tampering with the waters right at the source, the most important, significant quality of the Ganga is being destroyed and therefore the Ganga jal after Rishikesh is no longer the same jal that we were consuming since centuries. However, the Ministry of Power submitted to the Committee that survey conducted by HNB Garhwal University, Botanical Survey of India and NEERI indicate that Tehri reservoir has no adverse impact on the ecology of the surrounding area. Having regard to the testimony of experts and the views of the local people and the submissions made by the Government representatives, the Committee recommend that: (a) construction of new hydro projects in the Himalayas may be halted, given the holocaust of

Kedarnath, till the judgement of the Supreme Court and the entire hydro policy with respect to construction of hydro projects in the seismically active Himalayan zone be revisited; (b) in order that the Ganga flows incessantly and eternally, every dam must release water at least in the same ratio as enshrined in the agreement of 1916 between Pt. Mahamana Madan Mohan Malviya and the Britishers. The GoI must abide by the agreement of 1916 which guarantees uninterrupted flow of Ganga, an agreement still in force in view of Article 363 of the Constitution; (c) the flow of river must be measured during lean and non-lean seasons at all stations where the Ganga water including its tributaries is impounded or diverted, before and after such incidence and reported to Parliament annually by the MoWR,RD&GR; (d) the water quality must be monitored during lean and non-lean season at all such locations before and after impounding and diversion; and (e) the pollution caused in the cities and towns must also be measured city/town wise before and after draining of sewer/affluent and the statistics placed in Parliament annually and the monitoring being done on regular basis for preventing pollution of the river.

Reply of the Government

The point (26-a) has been noted and circulated to concerned Directorate of Central Water Commission (CWC) for compliance. However the following facts are submitted for consideration.

1. In case of Uttarakhand there is ban for taking up any further constructions in 24 Hydel Projects by the Hon'ble Supreme Court vide Judgment dated: 07.05.2014. The matter is under sub-judice.
2. Further ,for taking up any hydro project costing above Rs.1000 crore, clearance is given by CEA after exhaustive examination and vetting through related ministries/apprising agencies like, MoWR,RD&GR, CWC, GSI, CSMRS, MoEF&CC, MOTA etc. Accordingly all important aspects including hydrological, geological, Dam/Barrage design, project general layout, hydel civil design, construction material, power potential studies, interstate/international aspects etc. are being examined thoroughly for optimum development of the hydropower projects.

3. Projects costing below Rs. 1000 crore are being cleared by the respective state governments. Small hydro projects (less than 25 MW) are being handled by Ministry of New and Renewable Energy (MNRE) or respective state governments.
4. It is also submitted that as per the study carried out by CWC and CEA a joint report was submitted to MoEF&CC in April, 2014, wherein it is stated that there is no link, direct or indirect, between the developments of hydropower projects with Uttarakhand tragedy. Alaknanada and Bhagirathi rivers in Uttarakhand have experienced similar catastrophes in the past also. This is due to the inherent geological and geo-morphological character of the area and has nothing to do with structures needed for dam / hydropower projects.

The point (26-b) has been noted and circulated to concerned Directorate of CWC for compliance. However it is submitted that the Minimum flow considerations are taken care of during DPR stage. Further regulation of flow during operation is not regulated by CWC.

The point (26-c) has been noted and circulated to concerned Directorate of CWC for compliance. However the network details of CWC are furnished below.

1. At present, CWC is operating a network of 283 hydrological observation stations in Ganga River Basin to collect (i) Water Level (Gauge), (ii) Discharge, (iii) Water Quality and (iv) Silt. Out of which, 80 stations are Gauge, 73 stations Gauge & Discharge, 8 stations Gauge, Discharge & Silt, 91 stations Gauge, Discharge, Silt & Water Quality, 28 stations Gauge, Discharge & Water Quality and 2 stations Gauge & Water Quality. Amongst above, 218 stations are used for Flood Forecasting activities in Ganga River Basin. The total WQ monitoring stations maintained by CWC are 121 in Ganga Basin. The hydrological data collected from sites are scrutinized, validated and published in the form of Water Year Book, Water Quality Year Book and Sediment Year Book, etc. by CWC.

CPCB has identified 144 drains discharging into river Ganga having flow of effluent of 6614 MLD with organic load of 426 TPD; 4 drains discharging into river Ramganga carrying effluent of 258 MLD and organic load of 53 TPD and 9 drains discharging into river Kali-East having effluent of 595 MLD and organic load of 165 TPD. The effluent

being discharged through these drains carry both domestic sewage and industrial effluent. The monitoring of these drains is being carried by CPCB twice a year.

Need for framing Silt Management Policy

Observation/Recommendation (Sl. No. 27)

The Government of Bihar stated that on the one hand, intensive deforestation in the catchment area of Ganga has resulted in increased inflow of silt, on the other hand, the adverse impact on outflow of silt due to Farakka barrage has resulted in rise of bed level, reduction in carrying capacity, rise of meandering and breading tendencies and formation of shoals in the Ganga. The change in morphology of the Ganga due to Farakka barrage and deposition of silt in the upstream has also resulted in increase of flood fury in North Bihar. Hence, they suggested to develop an effective Silt Management Policy at the national level, which will help in silt management of not only of the Ganga but also of other rivers which would contribute towards maintenance of "Aviralta" and "Nirmalta" of the rivers. The Government of Bihar have also informed that despite their raising the issue for so many years , the Government of India are yet to frame such a policy. The Committee are in concurrence with the views of the Bihar Government and accordingly recommend that Government of India frame suitable National Silt Management Policy for the Ganga.

Reply of the Government

MoEF has issued sustainable Sand Mining Management Guidelines 2016 which has been prepared with extensive consultations with states and other stakeholders. The guidelines amongst its other objectives are also aimed at :

a. Ensuring conservation of the river equilibrium and its natural environment by protection and restoration of the ecological system,
b. Ensuring that the rivers are protected from bank and bed erosion beyond its stable profile,
c. Avoiding pollution of river water leading to water quality deterioration,
d. Maintaining the river equilibrium with the application of sediment transport principles.

Further, a committee has been constituted under the chairmanship of Dr. M.A. Chitale with Secretary (MoWR, RD&GR) and Secretary (MoEF) as Members to study the problem of silt deposits in river Ganga owing to Farakka Dam. The report titled "Report of the Committee constituted for preparation of guidelines for works on desiltat ion from Bhimgauda (Uttarakhand) to Farakka (West Bengal) "has been submitted whose recommendations are attached at **(Annexure - VII)**

Community participation and publicity campaign

Observation/Recommendation (Sl. No. 28)

The Committee find lack of effective and sustained community participation as one of the main reasons for not so encouraging success of GAP I&II. Community participation enhances the long term sustainability of a mission and enables people to feel connected and motivated towards working for the common goals. The experts who testified before the Committee also emphasized the importance of community participation on a sustained basis for the success of the massive and long term Programme of Ganga Rejuvenation. The Secretary W/R conceded that effective and sustained participation of the community leaders and the representatives of the people was a sine qua non for the success of the programme. Considering the importance of mass scale participation of the community in Ganga Rejuvenation, the Committee recommend that an effective awareness generation programme for stakeholders be devised and duly publicised. The awareness generation should be efficacious enough to sensitise the officials in the towns and cities covered under NGRBA programme such as sarpanches of the Panchayats, City mayors, councilors, corporators, municipal officers, Town planners, officials of Urban Local bodies(ULBs) and associations of citizens. The objective of such a programme should be creation of public awareness and an informed civil society, in particular active involvement of the political leadership and the bureaucracy in the Urban Local Bodies (ULBs), that will participate in and own the rejuvenation programmes, aware of the objectives of National Mission for Clean Ganga and new developments in technology that can be used efficiently and effectively.

Reply of the Government

While the ecological damage caused to river Ganga over the years could be rectified and subsequently restrained through scientific methods and by employing new technologies, the reverence this 2525-kilometer flowing lifeline for millions of people deserves, can only be garnered through social mobilization. Ridding the Ganga of its impurities and restoring its bio-diversity may be a time-bound task, which NMCG, now an Authority,is leaving no stone unturned to achieve, but, indisputably, it is far more important to arouse a social movement to ensure long lasting *Aviral* and *Nirmal* flow of our national river Ganga. Simply put, cleaning Ganga is rather a continuous process, than a momentary one that requires unceasing public support more than anything else. This exactly makes Namami Gange Programme's Public Outreach and Awareness segment of unparalleled importance. To cover the ground between Namami Gange activities and local dwellers/visitors, the need for a targeted and effective awareness campaigns engendering clean Ganga consciousness is indispensable. Equally pre-requisite is to evoke public participation for amelioration of the condition of the polluting waters of the holy Ganges.

In view of the foregoing considerations, a slew of measures viz-a-viz Information, Education and Communication (I.E.C) activities for Namami Gange Programme have been taken by NMCG. Whereas national dialogues like *Ganga Manthan*(2014) and *Ganga Gramin Sehbhagita* (2016) were organised over the years to encourage ruminations on a cleaner Ganga involving all stakeholders, word about Namami Gange Programme was spread through scores of I.E.C activities and exhibitions in locations along the river, especially during occasions of cultural importance (ArdhKumbh, MaghMela etc.). Dissemination of information was ensured not only through distribution of pamphlets, posters, brochures etc. but also by handing out subject-specific booklets like *Ganga RahiPukar* to school children in rural areas, attempting to inculcate clean practises in the young. Here, in the National Capital, in 2016 alone, NMCG participated in as many as three exhibitions to popularize Namami Gange Programme - (India Water Week (April), International Trade Fair (November) and India International Science Festival (December)- among variety of stake holders. A special emphasis was laid on showcasing activities for river surface cleaning through trash skimmers.At least three

market conferences since the inception of NMCG to sensitize the market about Hybrid Annuity-PPP model for sewage treatment infrastructure has helped immensely in building private-public partnerships. Several seminars and workshops were also organised by NMCG to instigate people's participation. The launch of 231 projects in July 2016 at various locations generated much enthusiasm about Namami Gange Programme.

In August 2016, *Ganga Gram Yojana* was launched, aimed at making villages along the river Open Defecation Free (ODF), abate direct discharge of untreated liquid waste water from these villages into the river and develop proper solid waste disposal facilities. Based on Sant Balbir Singh's Seechewal village model, the Ganga Gram Yojana envisages educating 1,657 Gram Panchayats along Ganga representing 5,216 villages. So far, more than 300 Gram Panchayats have been included in under this Yojana for development.

Jan Samvaad, a comprehensive media strategy and action plan for public outreach 2016-17 also got an in-principle approval from Hon. Minister of Water Resources, River Development and Ganga Rejuvenation. An all-encompassing blueprint, *Jan Samvaad* lists the pre-eminence of outdoor publicity, mass awareness through TV/Radio/Social Media, media to "strike a spark". Involvement of NGOs and religious leaders in bringing the people together was also stressed upon in the media plan.

Because supervision should be followed by proper monitoring, a Nirikshan Abhiyaan was initiated by the Hon. Minister for Water Resources, River Development and Ganga Rejuvenation at two locations (Garh Mukhteshwar and Anup Sahar) in January 2016 to inspect, review and assess the on-going projects. More such exercises are lined up in the coming months to ensure effective implementation of Namami Gange Programme.

Project for involvement of Youth in villages has been approved and Nehru Yuva Kendra Sangathan shall mobilise volunteers in 29 districts for next 3 years from April 2017. These volunteers will mobile and sensisitise Sarpanch, councillors, influencer. They will also organise public awareness activities.

In addition to this the following events were organized by NMCG pertaining to Communication, public outreach, consultation and monitoring.

- **Ganga Manthan:** One-day national dialogue on Ganga Rejuvenation was organised at Vigyan Bhawan in New Delhi on 7th July 2014.
- **Hon. Minister's Meetings with State Chief Ministers:** Between December 2014 and February 2015.
- **Nirikshan Abhiyan:** Hon. Minister for Water Resources, River Development and Ganga Rejuvenation flagged-off an inspection programme from GarhMukhteshwar on 4th January, 2016. It was followed by a subsequent visit to Anup Sahar on 5th January, 2016.
- **Ganga Gramin Sehbhagita:** Yet anothernational policy dialogue was organised at Talkatora stadium in New Delhi on 30th January 2016.
- **Namami Gange Theme song:** Trichur Brothers" (Ram Kumar Mohan & Sri Krishna Mohan) Renowned south Indian Musicians has offered Namami Gange Theme song- a music video, to National Mission for Clean Ganga. The music video was produced by National Film Development Corporation and funded by State Bank of India.
- **Market Conference on Hybrid Annuity-PPP Model:** The first market conference on Hybrid Annuity-PPP model for sewage treatment infrastructure took place at Vigyan Bhawan in New Delhi on 24th February 2016 to sensitize the market about this model.
- **Awareness activities and Photo Exhibition during MaghMela, Allahabad and ArdhKumbh, Haridwar:**
- **Ganga Gram Yojana:** It was launched on 10th March 2016.
- **India Water Week Exhibition-2016:** NMCG participated in India Water Week exhibition in April 2016 in New Delhi. The forum was used as a platform to induce interest in Hybrid Annuity-PPP model and showcase river surface cleaning activities through trash skimmers.
- **Launch of Projects:** To give a major fillip with a renewed impetus to expedite progress of the Namami Gange Programme, various projects were launched on 7th July, 2016 with main function held at Haridwar, Uttarakhand and

simultaneous launch of 231 projects including Entry-level activities focusing on river surface cleaning, Ghat& crematoria development, Ganga Grams, afforestation and bio-diversity, environment literacy and STP rehabilitation worth more than INR 1500 crore were launched at various locations in five riparian States of Ganga Basin

- **Sarpanch Sammelan:** This programme was conducted in Allahabad on 20th August 2016 during which Hon. Minister for Water Resources, River Development and Ganga Rejuvenation addressed 1651 Sarpanchs of villages along river Ganga. During this programme, Seechewal village model was adopted for waste water management in villages along the river.
- **NMCG pavilion at International Trade Fair-2016:** In anattempt topopularise NamamiGange programme and showcase the activities and steps taken to cleanse river Ganga, a pavilion was put up at International Trade Fair in November 2016 in New Delhi.
- **India International Science Festival-2016:** NMCG also participated in IISF in December 2016 in New Delhi.
- **PravasiBharatiya Divas-2017:** NMCG participated in the PravasiBharatiya Divas in January 2017 in Bangalore.
- **Market Conference on Hybrid Annuity-PPP Model:** The second market conference, a consultative meeting, was organised on 18th January 2017 to invite prospective developers to invest in sewage treatment infrastructure for projects (Haridwar and Varanasi) approved under HybridAnnuity-PPP model**.**
- **CSR workshop:** A CSR workshop on Ganga Rejuvenation was conducted on 19th January 2017, which was attended by representatives of PSUs, banks and corporate.

Formation of GPS

Observation/Recommendation (Sl. No. 29)

The Committee also recommend that the Government consider forming Ganga Protection Societies (GPS) at the ward level in urban areas and the gram sabha level in rural areas involving participation of men and women and students with specific

functions assigned to them. Besides suitable and catchy advertisement campaigns in local languages in print and visual media, may be launched. Jingles for broadcasting in All India radio and FM radio may also be done. Further, publicly accessible and well publicized time tables and a daily updated website, featuring videos, photos, and peoples own stories regarding the revitalization of the ganga River system may be formulated and given regular publicity with the objective of Ganga rejuvenation as a test case.

Reply of the Government

Within the Information, Education and Communication segment, several activities were taken up to enhance the involvement of people living in Ganga basin states in NamamiGangeprogramme. Scores of persons were educated about the river's bio-diversity, ecology through rallies, pad-yatras, Ganga chaupals, cleanliness drives, competition for children, shramdaan, adoption of ghats, talk shows, dialogues etc. To reach the masses, mediums like TV/Radio, advertisements, publication of special featured articles, advertorials were resorted to.

Need for legislative framework for integrated river basin management

Observation/Recommendation (Sl. No. 30)

The Committee observe that as mentioned elsewhere in the report, there were inordinate delays in setting up of STPs , laying of sewage lines, putting up of sewage pumping stations, etc at many places in the basin states along the river Ganga under Ganga Action Plan-I and II, which resulted in huge cost escalation. The reasons stated for delay include delay in acquisition of land, obtaining statutory approvals, adverse climatic conditions, etc. These problems could have been well addressed had there been a robust coordination mechanism having representation from all the stakeholders. Realizing the need for such a body, the Committee observe that Government of India created National Ganga River Basing Authority (NGRBA) on 20 February, 2009 under section 3(3) of the Environment (Protection) Act, 1986 with a mandate for planning, financing, monitoring and coordinating with the Centre and State Governments in connection

with Ganga rejuvenation. However, even after the formation of NGRBA, the delay in the afore mentioned sewage works continued, putting a question mark on the efficacy of the NGRBA for Ganga rejuvenation. The Committee also observe that many activities of Ganga rejuvenation fall under the domain of not only different Ministries/ Departments of the Central Government but also under the domain of state Governments. Further, and more important, many vital aspects of river management, the paramount need for securing the purity of river water, its continuous environmental flow, definition of environmental flow, protection of river biota and its unhindered movement in the length and breadth of the river including construction of river passes, protection of river ecology, maintenance of ground water table and its connect with the river water, regulation of water withdrawal for industrial, agricultural and human use, imposition of fines on the polluters, impounding of river water, navigation protection of flood plains, etc. need to be regulated by law by Parliament in exercise of the legislative power conferred by article 246 read with entry 56, List I of the Seventh Schedule to the Constitution. The Ministry of Environment, Forests & Climate Change admitted that the existing laws of pollution control, whether it is the Water (Prevention of Control Pollution) Act, 1974 and 'the Air (Prevention of Control Pollution) Act 1981 or the EP Act, 1986, they are a little weak with regard to enforcement provisions. However, the M/o Water Resources, River Development and Ganga rejuvenation furnishing a different view stated that the afore mentioned enactments have adequate provisions to deal with industrial pollution control. Further, the Committee also note that MoEF&CC are working to make the penal provisions of the afore mentioned acts more stringent by way of criminalization of violation and also imposition of deterrent financial penalties. Mindful of the fact that the gargantuan task of Ganga rejuvenation, being a problem of life and development, cannot be accomplished through a piecemeal fragmented approach, the Committee recommend that the Ministry of MoWR,RD&GR take appropriate action expeditiously so that a strong, comprehensive and credible legislative framework is put in place envisaging, among others, the creation of an empowered overarching authority to deal with all aspects of the Ganga for ensuring that the Ganga remains 'nirmal' and flows incessantly. The Committee should like to be apprised of the outcome within next six months of the presentation of this report.

Reply of the Government

Towards the objective of rejuvenation & restoring river Ganga to her Pristine forum, the Union Cabinet in its meeting held on 21st September, 2016 approved "*The River Ganga (Rejuvenation, Protection and Management) Authorities Order, 2016"* which had since been published in the Gazette of India Extraordinary Part II Section 3 sub section (ii) dated 7th October, 2016. The earlier authority, National Ganga River Basin Authority (NGRBA), constituted under the provisions of the Environment (Protection) Act, 1986 had been dissolved with effect from the 7-10-2016.

The Notification envisages five tier structure at national, state and district level to take measures for prevention, control and abatement of environmental pollution in river Ganga and to ensure continuous adequate flow of water so as to rejuvenate the river Ganga as below;

1. National Ganga Council under chairmanship of Hon'ble Prime Minister of India,
2. Empowered Task Force (ETF) on river Ganga under chairmanship of Hon'ble Union Minister of Water Resources, River Development and Ganga Rejuvenation,
3. National Mission for Clean Ganga (NMCG),
4. State Ganga Committees; and
5. District Ganga Committees in very specified district abutting river Ganga and its tributaries in the states,

Further, NMCG has been provided with two tier management structure comprising of Governing Council and Executive Committee. Both of them are headed by Director General, NMCG. Executive Committee has been authorized to accord approval for all projects up to Rs. 1000 crore. Similar to structure at national level, State Programme Management Groups (SPMGs) act as implementing arm of State Ganga Committees. Thus the newly created structure attempts to bring all stakeholders on one platform to take a holistic approach towards the task of Ganga cleaning and rejuvenation.

CHAPTER - III

RECOMMENDATIONS/OBSERVATIONS WHICH THE COMMITTEE DO NOT DESIRE TO PURSUE IN VIEW OF GOVERNMENT'S REPLY

-NIL-

CHAPTER - IV

RECOMMENDATIONS/OBSERVATIONS IN RESPECT OF WHICH GOVERNMENT'S REPLIES HAVE NOT BEEN ACCEPTED BY THE COMMITTEE

Delay in setting up STPs

Observation/Recommendation (Sl. No. 4)

The Committee observe that the setting up of STPs at Badrinath and Karanprayag with a capacity of 3.0 and 1.4 MLD was sanctioned on 22.08.2008 and 24.12.2008 with an outlay of ₹4.62 and ₹3.49 crore respectively. However, construction of the same could not be commenced and not even a single rupee was spent even after a lapse of about seven years reportedly due to adverse weather conditions, natural disasters, dispute over lands, etc. Similarly, the projects for I&D of the sewage at Badrinath, Deoprayag, Karanprayag, Rudraparyag, Joshimath, were sanctioned in 2008/ 2009 /2010, the physical progress of these projects range from 13 - 40% only even after about 7 years due to delay in obtaining permission from the Border Road Organization (BRO), natural calamities, delay inland acquisition, etc. Even EAP such as JICA assisted Ganga Action Plan Phase - II project at Varanasi, witnessed massive delays. The project, though sanctioned on 14.07.2010, could not be completed even after about five years. Surprisingly, the physical progress of the project was 22 % only as at the end June, 2015 and no further progress was reported to the Committee. Similarly, the project - Sewage System & STP Works (Phase-II) at Kannauj, though sanctioned on 24.02.2011 , has seen physical progress of 22% only even after four years. Asked to furnish the reasons for the extremely tardy progress of these projects, the Ministry of Water Resources, River Development & Ganga Rejuvenation, merely stated that original date of completion of JICA assisted Varanasi project and the sewerage system & STP works at Kannauj were 31.07.2015 and 31.03.2016 respectively and the cost escalation, if any, due to delay would be borne by the Government of Uttar Pradesh without intimating the Committee about the latest progress in the matter. Further, the projects for Sewer network, Sewage Pumping stations (SPS) and STP, funded by World Bank, at Begusarai, Buxar, Hajipur, Munger despite getting the sanction in 2010 as EAPs, could not be completed even after 5 years. Disturbingly, the physical progress of the projects range from 21-45%. Despite such a slow progress, the M/o WR, RD &GR assured that these projects are likely to be

completed during 2015-16 and 2016-17. The ministry attributed the delays due to delays in land acquisition, court cases, introduction of new land acquisition bill and thereby changes of compensation eligibility of land owners, etc. The additional cost, if any, due to delay would be borne by the State Government. The Committee note that without assessing the ground realities in acquiring the land for setting up of sewerage projects, sanctions/ approvals were given and funds allocated and allowed to lapse. Unfortunately, this is not confined to one/two projects but across the states such as Bihar, Uttar Pradesh and Uttarakhand. The Committee are deeply concerned to note that for want of approval from BRO, a sewer project got delayed badly. Such avoidable delays, the Committee believe, are due to absence of close coordination in keeping with the salutary principle of cooperative federalism and want of regular interventions by the authorities concerned. Undoubtedly, had there been effective coordination and synergy between the multiple authorities, delays in completion of the projects could have been avoided or overcome. Further, the committee were informed that many projects are scheduled to be completed/ to have been completed during 2015-16. The Committee would like to be apprised of the status of these projects within next six months, Statewise, STP wise indicating clearly the cost and time overruns alongwith the reasons for delays, the revised timelines for their completion and the authorities which would bear such escalated costs.

Reply of the Government

A State-wise statement indicating the projects completed, ongoing alongwith requisite details viz., sanctioned cost, nature of works, progress and time lines is enclosed as **Annexure-I**.

Comments of the Committee

(Please see para no. 1.10 of Chapter - I)

Cost escalation in setting up STPs

Observation/Recommendation (Sl. No. 5)

The Committee deplore that unconscionable inordinate delays in completion of the sewer projects resulted in continued emptying of untreated hazardous sewer into river Ganga. Further, the cost of the projects might have gone up manifold increasing the financial burden of the states already reeling under financial crunch. For instance, the

State Government of Uttar Pradesh informed the Committee that implementing body (UP Jal Nigam) is already facing financial stress. Hence, the Committee are of the considered view that states may not be able to meet the cost of escalation of the projects thereby casting shadow on the completion of these projects. Some of these ongoing works fall under Component 'A' of the 'Namami Gange Programme' and are funded as Central Sector Scheme with contribution of GoI and States in the ratio of 70:30. The Committee note that in order to ensure that the 'nirmalta' and the 'nirantarta' or 'aviralta' of the Ganga is attained by July, 2018, the GoI have made the Ganga Rejuvenation a Hundred Percent Central Sector Scheme as stated in reply to a supplementary to SQ.No. 61 in Lok Sabha on 28.04.2016. The Committee, therefore, recommend that M/o WR,RD&GR may explore the possibility of treating the uncompleted projects as new initiatives and fund them entirely as Central Sector scheme under component 'B' of the 'Namami Gange' for the success of the Programme. Further, the Committee would like to be apprised of the expenditure incurred so far and to be incurred year-wise and State-wise during the years 2015-16, 2016-17 and 2017-20 (December).

Reply of the Government

There are 80 projects continuing under erstwhile NGRBA framework and are being continued under Namami Gange programme. The detailed statement is given at **Annexure - I**. As is seen from the Statement, 66 ongoing projects are scheduled for completion during next two years. 3 projects were reconsidered for revised sanction based on the requests received from the State governments. The recommendations of the Committee have been noted for future consideration by the government.

Funds released to the States till 2015-16 &2016-17(30.11.2016) (Rs. In crore)			
States	2015-16*	2016-17*	Grand Total
Bihar	120.23	5.83	126.06
Jharkhand	27.83	34.15	61.98
Uttar Pradesh	147.58	465.75	613.33
Uttarakhand	30.26	6.55	36.81
West Bengal	185.79	6826	254.05

Haryana	30.00	37.00	67.00
Delhi	4.96		4.96
Environmental Planning & Coordination Organisation, Jabalpur	3.39		3.39
Grand Total	550.04	617.54	1,167.58
*Rs.578 crore releases to Ministry of Drinking Water for Swach Bharat Rural), Rs. 263 crore in the year 2015-16 and Rs. 315 crore in the year 2016-17.			

Comments of the Committee

(Please see para no. 1.10 of Chapter - I)

Gap between installed and actual utilization capacity of STPs

Observation/Recommendation (Sl. No. 6)

The Committee observe that in the state of West Bengal STPs were set up at 31 locations in the cities/ towns situated along the River Ganga with a capacity to treat 355 Million Liters per day (MLD) under Ganga Action Plan-I&II. Out of these 31 STPs, two STPs with a capacity of 11.86 MLD are operating at 100%, 13 are operating at 50%, 4 are operating at less than 50% of the installed capacity. Five STPs are not commissioned at all and one STP has stopped functioning. As a result, out of 355MLD installed treatment capacity, operational / working capacity is 166 MLD (approx). In other words, the operational capacity is less than 50% of the installed capacity. The inescapable conclusion is that more than 50% of sewage, which the STPs are supposed to treat, is being allowed to flow into Ganga due to less than optimal functioning of these STPs. Similarly, in Bihar, the five STPs established at Beur, Saidpur, Pahari, Karmalichak and Bhagalpur under GAP I &II with an installed capacity of 120 MLD are operating at 65MLD (approx 50%) of the installed capacity. The Central Pollution Control Board carried out third party assessment of 51 STPs sanctioned by Ministry of Environment, Forests and Climate Change (MoEF&CC) in Uttarakhand, Uttar Pradesh, Bihar and West Bengal. The Committee note that the assessment by CPCB revealed that (i) as against the installed capacity of 1009 MLD, the actual capacity utilization is 602 MLD which is 59%, (ii) STPs are violating BOD parameters, 1 STP exceeded the COD for discharge and 14 STPs are

found non operational. Surprisingly, the assessment is conspicuously silent as to the reasons for substantial underutilization of installed capacities, exceeding the COD and BOD limits and non operationalisation of 14 STPs. The Committee therefore, recommend that the specific reasons for sub optimal performance of these STPs may be ascertained and the problems rectified and the action taken in this regard may be intimated to the Committee within six months of the presentation of this Report.

Reply of the Government

There are 67 STPs located in various cities/ towns along the river Ganga. Out of these, based on monitoring of 35 STPs carried out by CPCB during April-December'2016, 17 were found to be complying with the extant standards while 14 were found to be non-operational. While 4 STPs were found to be non-complying. NMCG in association with State government and its agencies has already initiated an exercise to identify the reasons for sub-optimal level of operations of these STPs and also reasons for a large number of them being non-operational. Base-line information so gathered would be utilized to take suitable measures to address these causative reasons for non-functioning of STPs as well as their functioning below optimum levels.

Besides, CPCB has taken various measures for management of sewage and operation of STPs:

- CPCB has issued directions in April, 2015 under section 18 (1) (b) of the Water (Prevention and Control of Pollution) Act, 1974 to the State Pollution Control Boards (SPCBs) of the five Ganga basin states (Uttarakhand, Uttar Pradesh, Bihar, Jharkhand & West Bengal) and asked to direct concerned municipalities and other concerned authorities in the State responsible for treatment and disposal of sewage for treatment of sewage and to evolve methods of utilization of sewage and suitable trade effluents in agriculture **(Annexure - II).**

- CPCB has also issued directions under Section 5 of Environment (Protection) [E (P)] Act, 1986 on October, 2015 to the Commissioner/Mayor/Chief Executive Officer of Nagar Nigam/Palika/Panchayat of 118 towns located on the main

stem of River Ganga and regarding treatment and utilization of sewage for restoration of water quality of river **(Annexure - III)** and also directed that

- Untreated sewage shall not be disposed into the river or any other recipient system.
- The local urban body shall set STPs of adequate capacity and provide sewerage system to cover the entire local/urban area and to ensure the complete treatment of sewage generated.

- CPCB has issued directions in March, 2017 under section 18 (1) (b) of the Water (Prevention and Control of Pollution) Act, 1974 to the State Pollution Control Boards (SPCBs) of the five Ganga basin states (Uttarakhand, Uttar Pradesh, Bihar, Jharkhand & West Bengal) and asked to monitor the STPs discharging into river Ganga on monthly basis and to direct STPs operators for continuous operation of STPs without breakdown and to file prosecution against the STP operators, if STPs are found to be non-compliant or not being operated for a long time without justifiable reasons. **(Annexure - IV)**

In addition, due to under utilization of the STPs in few States like Bihar, new projects are sanctioned to take care of the existing sewage load as well as future demands including necessary Operation and Maintenance facility for 10 years. The existing STP capacities have also been upgraded with enhanced treatment capacity in Patna as per the details given below:

S. No.	Treatment Plant Zone	Existing treatment capacity (MLD)	Proposed Treatment Capacity (MLD)	Present Status
1	Pahari-Patna	25	60	Revised Administrative Approval is being issued.
2	Beur-Patna	35	43	Works awarded. Work to commence soon.
3	Saidpur-Patna	45	60	
4	Karmalichak-Patna	4	37	

Comments of the Committee

(Please see para no. 1.13 of Chapter - I)

O&M of STPs

Observation/Recommendation (Sl. No. 10)

Many leading hydrologists and other domain experts, who tendered their valuable testimony to Committee, felt that the reasons for sub optimal performance of STPs and Sewage Pumping Stations (SPS) include non availability of funds for Operations & Maintenance (O&M) of sewerage works, Poor supply of electricity, unavailability of technical course material and lack of motivation for O&M staff. Further, the experts informed that postings to O&M plants are seen as punishment. They also admitted that there was dearth of funds for O&M of assets created for pollution control works. The representatives of MoEF&CC conceded shortages of manpower and their inability to attract qualified human resource despite advertisement of the posts due to unattractive pay packages. Since, the O&M services are crucial for ensuring optimal performance of STPs and SPSs, the Committee recommend that (i) suitable provisions may be made to ensure that it is legally binding on the distributor of electricity to supply uninterrupted supply of electricity to STPs; (ii) alternative energy options, such as wind and solar, may be explored for running STPs especially in those areas where there are frequent outages; (iii) selected parameters need to be monitored through automatic monitoring instruments. Such instruments can be online to enable round the clock monitoring; (iv) funds crunch should not be allowed to come in the way of O&M of sewage works; and (v) to perk up the morale of O&M staff and officers and to attract new recruits to the posts, suitable attractive pay structure and adequate posts may be created for running the STPs efficiently and round the clock.

Reply of the Government

Directions were issued by CPCB u/s 5 of Environment (Protection) Act, 1986 vide letter dated 09/10/2015 to municipal authorities/ULBs for management of sewage from 118 towns identified along R. Ganga. In the directions it is stated in Point no. 4 that

“Existing STPs if any, as applicable shall be properly maintained to comply with the proposed standards. At the Inlet and Outlet of the STP, online monitoring devices shall be installed to monitor the consented parameters”.

The sewerage projects sanctioned under NGRBA are on DBOT mode which includes O&M by the successful concessionaire for 10 years. First 5 years O&M cost is inbuilt within the project cost whereas for the next five years the cost is to be borne by the State / ULB.

Under Namami Gange, the new projects shall be approved under central sector scheme with 100% central funding and including the provision for O&M of the assets for 10-15 years.

Comments of the Committee

(Please see para no. 1.10 of Chapter - I)

Lack of scientific and technical resources

Observation/Recommendation (Sl. No. 12)

The Committee note that the responsibility of Operations & Maintenance (O&M)of Sewerage works set up in connection with Ganga Rejuvenation rests with the state Governments. The Government of Uttar Pradesh admitted that there was contamination of water bodies and that there was an urgent need for setting up state-of-the-art STPs and labs. The Committee also observe that the number of sanctioned posts for technical and scientific personnel are lying vacant in Central Pollution Control Board. Asked about the environmental research being carried out by the universities in the context of depleting sub-surface and surface water resources, rising pollutants and contamination of water bodies, the Secretary, Environment observed that the Committee had 'hit the nail on the head' and conceded the need for such studies given the 'enlarging responsibility' of the MoEF&CC. The Committee further note that MoEF&CC requested the Department of Expenditure for carrying out a study to assess the adequacy or otherwise of the extant manpower of CPCB in view of its enlarging responsibilities. The Committee were also apprised that despite advertisements for filling up of the posts in CPCB, there is no enthusiastic response probably due to the

reason that the posts are far from attractive for the talents required for recruitment. The Committee expresses their serious concern over lack of sufficient technical and scientific manpower in the Central Pollution Control Board and in the State Pollution Control Boards entrusted with the responsibility of pollution control, water quality testing, etc. Further, it is still a matter of far greater worry and concern that the posts are lying vacant as the talent sought to be recruited find the pay and perquisites attached to the posts far from attractive. Considering the level of rising pollution and contamination of water bodies and the need for setting up state-of-the-art STPs and labs, the Committee recommend that (a) the parameters and pay and perks for the manpower especially technical for STPs and Labs may be revisited to attract right talents; (b) the Department of Expenditure should expedite the study to assess the manpower requirements of CPCB in view of its enlarging responsibilities and complete the same with in specified time and conclusive action be taken for filling up the posts without delay; (c) suitable measures may be taken to ensure availability of appropriately qualified and suitably trained manpower in requisite numbers for surveys and investigation, project preparation, implementation, Operation and Maintenance(O&M) of sewerage works, financial, organisational, legal, regulatory implementation and monitoring strategies of the projects; and (d) the parameters so established may also be shared with the States so that the SPCB also benefit from the action taken by the Union Government.

Reply of the Government

The work study of non-scientific and non-technical posts of Ministry of Environment, Forest & Climate Change has been winded up due to non-submission of requisite material/data/information by Ministry of Environment, Forest & Climate Change. As regard to work measurement study of scientific and technical posts, Ministry of Environment, Forest and Climate Change has constituted a Committee with a Core Member of SIU. Last meeting of this Committee was held on 2nd February, 2016. The report has not yet been finalized.

The status of manpower required, sanctioned and posts lying vacant in the two projects '***Pollution Inventorization Assessment and Surveillance'*****(PIAS)** and ***'Strengthening of Environmental Regulator- CPCB'*** **(SER)** is as follows:

Technical/Scientific Manpower required to be engaged in PIAS Project						
Positions	**Scientist 'B'**	**RA (I, II & III)**	**SRF**	**JRF**	**DEO**	**Total**
Sanctioned post under PIAS	0	31	31	31	4	*97*
Presently available	0	23	6	0	2	31
Proposed post	30	17	4	10	2	63

Technical/Scientific Manpower required to be engaged in SER Project						
Positions	**Scientist 'B'**	**Scientist 'C'**	**Scientist 'D'**	**Scientist 'E'**	**Scientist 'F'**	**Taxonomist**
Sanctioned post under SER	5	8	6	2	1	2
Presently available	0	7	4	2	0	0

The reason for 66 post lying vacant under PIAS is as under:

The CPCB was not allowed to recruit the entire sanctioned post at once accordingly phase wise recruitment was carried out, however maximum manpower available was 29 RA-I & 4 SRF.

The proposal was sanctioned on 29th Mar, 2011, however the permission for the engagement of entire manpower was allowed on April, 2013 and it was again asked not to engage remaining manpower on 18th April, 2015. In between the maximum 30 RA were engaged during 2014-15 and & 16 JRF/SRF in 2013-14 however they did not continue for better opportunity and as on date the manpower available is 31 and that has been frozen on 8th Sep, 2016.

The reason for 11 post lying vacant under SER: Applications through advertisement has been received and are being processed for engagement.

Comments of the Committee

(Please see para no. 1.22 of Chapter - I)

Incentives to Small Scale Industries for ZLD

Observation/Recommendation (Sl. No. 14)

The Committee observe that many of the GPIs are small scale in nature but employing substantial number of people put together. The government is yet to dispel the apprehension that these units may be using obsolete technology in their production processes which may not be treating the effluents resulting in their being discharged into the river Ganga or its tributaries. The Committee are apprehensive that if hefty penalties are imposed on these small scale units or the units are closed down, many people will lose their employment and source of livelihood. The Committee therefore recommend that- (i) tax and non tax incentives may be offered to the units which are adopting new technologies with considerable amount of investments to become Zero Liquid Discharge (ZLD) units; (ii) the availability of easy finance may be ensured at affordable rates from the banks and or Interest Subvention and Viability Gap Funding (VGF) may be given expeditiously; and (iii) these units may be provided technical knowhow from Government owned academic and research institutes at subsidised rates so that they become ZLDs.

Reply of the Government

Incentives to Small Scale Industries for ZLD

To reduce financial liability on SSI, NMCG has proposed a 20 MLD ZLD – based CETP for tannery cluster at Jajmau after due consideration of applicable environmental regulatory norms, control of O & M mechanism and impact on receiving environment of proposed CETP. Further NMCG has completed the process of Diagnostic Study and Feasibility Report(DS&FR) for management of wastewater generated from textile clusters at Pilkuwa, Farrukhabad, Rooma and Mathura. Process modification cum clean

technology adoption has been considered in DPR and DS&FR. All financial liability arising out of these preparatory studies are being met through NMCG fund to support the SSI.

Based on inspection of 355 units during the last one year, the waste water generation from GPIs has been found reduced by achieving ZLD in 4 units of Pulp and paper sector, while 44 out of 67 such units have achieved the prescribed norms of water consumptions. In distillery sector, 17 units out of 32 operational (including two brewery) have installed MEE and Bio-composting/ incineration to achieve ZLD. In sugar sector, 54 out of 57 operational units have provisioned for re-use of treated water for irrigation, and of them 52 units have achieved water conservation norms. Also, 39 sugar units have installed mini-cooling tower for recycling of waste water.

Comments of the Committee

(Please see para no. 1.25 of Chapter - I)

Implementation and status of IMG recommendations on seven rivers

Observation/Recommendation (Sl. No. 20)

The Committee observe that the Inter Ministerial Group (IMG) constituted in July, 2012 to study environmental flow of Ganga , noticed that the implementation of all the Hydro Electric Power Projects (HEPPs) on the Bhagirathi and Alakananda will lead to 81% of River Bhagirathi and 65% of River Alakananda getting affected with extensive implications for other needs of the society and the river itself. The expert Committee also noticed that there are a large number of projects which have very small distances between them leaving little space for river to regenerate and revive. They therefore had recommended that seven rivers, including Nayar, Bal Ganga river, Rishi Ganga, Assi Ganga, dhauli Ganga (upper reaches) , birari Gand bhyunde Ganga should be kept in pristine form, no further hydropower developments should take place in this region, and environmental Upgradation should be taken up in these basins extensively. The Committee would like to be apprised of the - (i) acceptance or otherwise of the IMG's recommendations by the Government of India; (ii) specific steps taken to upgrade the environment in the said basins and the impact of these measures on the environment;

and (iii) approvals granted for hydro power projects, if any, contrary to the recommendations of IMG, along with the specific reasons for such approvals.

Reply of the Government

Implementation and status of IMG recommendations on seven rivers:

The Committee observe that the Inter Ministerial Group (IMG) constituted in July, 2012 to study environmental flow of Ganga, noticed that the implementation of all the Hydro Electric Power Projects (HEPPs) on the Bhagirathi is and Alakananda will lead to 81% of River Bhagirathi and 65% of river Alakananda getting affected with extensive implications for other needs of the society and the river itself. The expert committee also noticed that there are a large number of projects which have very small distances between them leaving little space for river to regenerate and revive. They therefore had recommended that seven rivers, including Nayar, Bal Ganga river, Rishi Ganga, Assi Ganga, Dhauli Ganga (upper reaches), Birhi and Bhyunder Ganga should be kept in pristine form, no further hydropower developments should take place in this region, and environmental upgradation should be taken up in these basins extensively. The Committee is apprised of the following:-

(i) An inter-ministerial group was set up under the chairmanship of Sh. B.K. Chaturvedi Member (Energy), Planning Commission vide MoEF letter no. B-12014/4/2012-NMCG/NGRBA dated 15.06.2012 for the various objectives including suggesting environmental flow requirement for various stretches of Bhagirathi, Alaknanda and other tributaries of river Ganga and to review the environmental impacts of projects proposed on these tributaries of river Ganga and recommend necessary remedial action. Report of the IMG on issues relating to river Ganga, submitted in April, 2013. Acceptance or otherwise of IMG's recommendations is to be replied by Ministry of Environment, Forest & Climate Change (MoEF&CC).

(ii) The Environment & Forest Clearance is accorded to a Hydro Electric Project after complying all the statutory norms / requirements laid down by MoEF&CC in this regard. Each and every project passes through a very elaborate and extensive process of environmental clearance. Environmental Impact Assessment (EIA) of every aspect of environment i.e. physical, terrestrial and aquatic is carried out for each and every project which requires Environmental clearance as per the extant laws. Based on the findings of the EIA studies, various Environmental Management Plans (EMPs), be it the

Catchment Area Treatment for arresting the soil erosion from the degraded catchments; Biodiversity Conservation and Management, to conserve the rich biodiversity of the area; Fisheries Management for conservation, propagation and replenishment of fish in the river system/reservoir; Restoration of muck dumping/quarry sites; Landscaping; Green Belt Development etc. are formulated and implemented in true form and spirit. The stipulation regarding the release of Environmental flows is also being laid down by MOEF & CC, while according environmental clearance to a project. Besides, strict monitoring of the implementation of environmental safeguards is required to be undertaken regularly by the Central and State regulatory Agencies.

(iii) No Hydro Electric Project on river Ganga has been concurred by CEA after submission of the aforesaid report in the Hon'ble Supreme Court.

Comments of the Committee

(Please see para no. 1.10 of Chapter - I)

Nirmalta and Aviralta of the river

Observation/Recommendation (Sl. No. 21)

The Committee note that in pursuance of Hon'ble Supreme Court's judgment dated 13.08.2013, MoEF&CC constituted an Expert body under the Chairmanship of Dr. Ravi Chopra, member, NGRBA and Director, Peoples' Science Institute, Dehradun (i) to make a detailed study as to whether Hydro Electric Power Projects(HEPPs), existing and under construction, have caused environmental degradation and if so, to what extent , (ii) also whether such projects have contributed to the tragedy which occurred in the month of June, 2013 in Uttarakhand, and (iii) to examine the impact of the proposed 24 HEPPs on the bio diversity in Alakananda and Bhagirathi river basins as identified by Wild Life Institute of India (WII). The Committee note that having been dammed at Tehri in western Uttarakhand, the Ganga descends onto the plains, only to be robbed of its water by huge diversions through the Upper Ganga Canal at Haridwar, which reduces its discharge to mere 15 billion m3/yr and then by the Lower Ganga Canal near Aligarh. That leaves so little water in the Ganga that the dry-season discharge at Kanpur is merely 90 to 386 m3/ second, at Allahabad 279 to 997 m3/ second, and at Varanasi 278 to 1160 m3/second. Despite being joined by a number of tributaries, the Ganga is

progressively polluted due to heavy discharges at the rate of 3000 million liters per day from towns and cities, despite of sewage treatment plants varying from 13.5% in small cities to 27.8 to 50.4% in big cities - 329 million kilolitres. Nearly 50% of waste waters are discharged untreated into this lifeline of the central Indo-Gangetic Plain. Over 1.3 billion litres of sewage, 260 million litres of industrial waste, runoff from 6 million tonnes of fertilizers and 9000 tonnes of pesticides used in agriculture, and very large quantities of solid waste are daily released into the Ganga. Taking into consideration these facts of pollution, the Ganga water can no longer be described as life-giving and holy. On the contrary the Ganga has been declared as one of the ten most polluted rivers of the world by WWF International, Switzerland. Notably, Secretary Water Resources candidly admitted the connect between 'nirmalta and aviralta' and stated that there could be no 'nirmalta' without 'aviralta'. Surprisingly, asked whether damming of the river would be useful for controlling pollution or it will help aggravate pollution, Secretary, Environment was not in a position to give a definitive answer as he felt that it would depend on multiple factors. Further, the Government could not furnish the decadal data of the lean and non-lean season flows in the Ganga right from 1951. The Committee are of the considered view that the Government in the CWC must collect and compile the data about the decadal flow, both of lean and non-lean period, at each station/city including the spots from where the water is diverted/impounded. To a pointed question whether the human ashes pollute the river, expert hydrologist made it emphatically clear that the burnt human ashes instead purify the river. The Committee note that the expert body, appointed under the direction of the Hon'ble Supreme Court, has since submitted its report with regard to the impact of HEPP existing and under construction and their impact on environment including landslides and biodiversity, they would like to be informed of the action taken or proposed to be taken on each of the recommendations and the impact of acceptance & implementation on the Nirmalta and also Aviralta of the Ganga within six months of presentation of this report. Further, the Committee may be furnished the decadal data of the lean and non-lean season flows in the Ganga right from 1951 from points of origins to major towns and sites right up to Haldia.

Reply of the Government

The decadal data of lean season and non-lean season flows in the Ganga from the date of opened site to October, 2016 from point of origins to Haldia is given at (**Annexure - VI).**

Comments of the Committee

(Please see para no. 1.31 of Chapter - I)

Arsenic in Ganga basin

Observation/Recommendation (Sl. No. 31)

The Committee in their 1st report (16th Lok Sabha) on Occurrence of High Arsenic Content in Ground Water pertaining to M/o WR,RD &GR, expressing concern over presence of arsenic in ground water in the Ganga-Brahmaputra plain, had recommended that a time bound programme be implemented for identifying the causes and to find effective remedies in arsenic release. The M/o WR,RD&GR in their interim action taken reply submitted that Inter Ministerial Group (IMG) has directed the National Institute of Hydrology (NIH), Roorkee to take up a study on the genesis of arsenic occurrence in Ganga-Brahmaputra Basin. The Committee would like to be apprised of time frame within which the study by NIH, Roorkee regarding the genesis of arsenic occurrence in Ganga- Brahmaputra basin would be completed. In the interim, the measures taken by the GoI to warn the people in the affected belts of the presence of arsenic in water and the precautions which should be taken to help minimise or avoid health hazards be given wide publicity. In conclusion, having regard to the enormity of the challenges and taking note of the repeated solemn assertions of the Prime Minister to rejuvenate the Ganga and to make a Swatch Bharat, the Committee reiterate the imperative need for setting up an overarching and all empowered apex authority/body tasked exclusively with the responsibility of rejuvenation of the Ganga so as to restore its pristine form as expeditiously as possible. Ganga, around which grew Indian civilisation and legend, continues to be the lifeline of 43 per cent of India's population and a river of faith to millions of devotees within and beyond the shores of India. The

rising demographic pressure, growing untamed urbanization and industrialization, continue to aggravate pollution in the Ganga rendering the Ganga not only non-potable, unfit for bathing purposes but also extremely hazardous over long stretches. The impounding of river water obstructing its flow, diversion of water for drinking, agricultural and industrial purposes and the pollutant load has rendered the Ganga dry and parch, and a sewer over long stretches in the up-stream areas. Renowned hydrologists and experts on river dynamics and water management testified before the Committee that the Ganga bears no comparison with any river of the world because of its highest point of origin, steep gradient, kinetic energy and water quality. Indiscriminate anthropogenic interventions including indiscriminate construction of HPPs in the upper reaches of the highly fragile Himalayas coupled with 80 to 90 per cent of water diversion and discharge of effluents by 144 drains and entry of solid waste from non point sources have only aggravated the pollutant load of the Ganga. The Committee ardently hope that the Government would give earnest consideration to their recommendation and implement them expeditiously for rejuvenation of the Ganga, the life line of millions around which India civilization and culture grew, by July, 2018 without further time and cost escalation.

Reply of the Government

A. Brief Scenario of Arsenic concentration and Arsenic genesis in Ganga-Brahmaputra-Meghna Basin

The Ganga-Brahmaputra-Meghna (GBM) river basin, which have an area of 1.7 million km^2 is drained jointly by the River Ganga, River Brahmaputra (also known as River Jamuna in Bangladesh), River Meghna and their numerous tributaries and distributaries. The GBM basin has population more than 150 million and considered as the world largest fluvio-deltaic systems and also as one of the most populous regions of the planet. In recent few decades, with the increasing demand of groundwater for domestic, irrigation (round the year for food production), industry and the growing population led the extensive exploitations of fresh and potable groundwater. Beside this, indiscriminate use of the rivers and surface water and the introduction of high-yielding dry-season agricultural activities accelerated the demand of irrigation water in the GBM basin (Harvey et al. 2005). This led to the shift of water supply policy from surface water

to groundwater. As a consequence, several million wells (ranging from domestic handpump to motor-driven deep tube-well) were installed to meet drinking, irrigation, and industrial water demands (Smith et al. 2000; BGS/DPHE/MML 2001; Harvey et al. 2005; Horneman et al. 2004). However, in the present scenario, a large part of the GBM basin, groundwater was determined to have elevated concentrations of arsenic (As) more than 10 µg/l. Regarding the source of such high level arsenic, it has been hypothesized that the non-point source, geogenic(As), mostly occurs in the Holocene shallow aquifers and probably has been mobilized from the sediments by redox reactions (e.g., Saha 1991; Bhattacharya *et al.* 1997; CGWB 1997; Nickson*et al.* 1998; BGS/DPHE/MML, 2001; McArthur *et al.* 2001, 2004; Ravenscroft et al. 2001; Harvey et al. 2002; Mukherjee 2006). Few previous estimates by researchers showed that more than 25% (McArthur et al. 2004) to 33% (Horneman et al. 2004) of the wells had been identified as contaminated by (As).

There are a number of hypotheses on sources of Arsenic in groundwater and mobilization processes, however, from the researches carried out by investigators worldwide, it was noted that identification of genesis of (As) in Ganga-Brahmaputra basin and its mobilization processes are still to be established, because a number of issues are associated with the geochemical processes.

B. Initiative taken by NIH-Roorkee on Arsenic genesis study

Based on the recommendations of Inter-Minstrel Group (IMG) for Arsenic Mitigation, NIH-Roorkee to undertake “Studies on genesis of arsenic occurrence in Ganga-Brahamaputra basin”, in addition to four more R & D areas, had submitted a proposal with a budget estimate for Rs. 1785 lakh in the month of February, 2015 to MoWR, RD & GR. However, the decision on the approval of the budget allocation to NIH is awaited. After receiving fund from MoWR, RD & GR, the work envisaged on the study of genesis shall be completed within five years.

As follow-up action of IMG recommendations, NIH under its internally funded R & D activities, has initiated the following two R&D studies, since April 2015.

a) Development of Website and e-Portal on "Mitigation and Remedy of Arsenic Menace in India".

b) Alternate water supply management strategies in arsenic affected/vulnerable areas: Mapping of Arsenic affected zones/regions in Eastern U.P. (Balia district).

Limited progress on the first task was made due to non-availabilityof fund; while the advancement of the second study is satisfactory and its first phase would be completed by end of March, 2017. A brief report on the Arsenic study in the Balia district of U.P. is given at (**Annexure - VIII).**

C. Arsenic genesis study and NIH future plan

Most of the current hypotheses on As-genesis indicated that arsenic bearing sulphide minerals, mainly arsenopyrite (FeAsS) and their alternation products, might have been transported from the foothills of the Himalayas in the geologic past and deposited in the alluvium formation of Ganga-Brahmaputra basin. These deposited As-bearing minerals, under the recent alluvium, have been considered to be responsible for occurrence of arsenic in groundwater from the sediment phase by the process of reductive dissolution owing to the in-situ microbial activities under anxious condition. The relation between the redox behaviour of arsenic and high arsenic anomaly in groundwater is a subject that needs thorough investigations and geochemical analysis. Genesis study of arsenic in different parts of Ganga-Brahmaputra basin would involve the following course of actions by a number of expert organizations, in addition to NIH:

- Hydro-geochemical and hydro-geological characterization of alluvial sediment at the As-affected zones from depth 20 m to100 m bgl along the different piezometric transect,
- Detailed geomorphological and hydrological characterization of the As-affected areas,
- Seasonal hydro geochemical sampling and analysis of groundwater and surface water of the arsenic affected areas,
- Isotopic characterization of groundwater and sediment samples,
- Mineralogical characterization of the sediments,
- Study of retention or mobility of As under different redox (oxidation–reduction) conditions at the interaction zone of different aqueous phase and mineral phases in the sediments,
- The role of natural and anthropogenic activities and their influences on controlling the redox conditions in concerned aquifers

To study the above aspects in the Ganga basin, NIH together with IIT Kharagpur, IIT Kanpur, CGWB, and National Water Mission in collaboration Herriot Watt University, Edinburgh-UK, and Queen's University Belfast-UK submitted a Project Proposal, entitled *"Study of groundwater dynamics and geochemical processes of arsenic mobilization in the Middle Ganga aquifers for in-situ arsenic remediation"* in the month of October, 2015 in response to the Newton-Bhabha project call by Min. of Earth Sciences, Govt. of India and NERC-UK,. However, the project proposal was declined for support on administrative ground. Currently, NIH-Roorkee has taken another new initiative with a prior consultation, to develop a project proposal on Arsenic study involving potential Indian and UK partners and its submission to the forthcoming 'Newton-Bhabha" call on Water Quality by DST, India & NERC-UK, which is likely to come.

Comments of the Committee

(Please see para no. 1.34 of Chapter - I)

CHAPTER - V

RECOMMENDATIONS/OBSERVATIONS IN RESPECT OF WHICH FINAL REPLIES ARE STILL AWAITED

-Nil-

NEW DELHI;
14 December, 2017
23 Agrahayana, 1989 (Saka)

Dr. MURLI MANOHAR JOSHI,
CHAIRPERSON,
ESTIMATES COMMITTEE

Annexure-I

Statewise Statement indicating the Projects Completed and Ongoing under Namami Gange Programme

Sl. No.	State/ Town	Name/Nature of works	Sanction cost (Rs in Cr)		Date of Sanction		Nature of Works			Expenditure			Progress (%)		Reason for delay	Tentative year of completon
							STP Capacity to be created (in MLD)	I &D	Sewer Network(Km)	GoI	State	Total	Physical	Financial		
			Original	Revised	Original	Revised										
Uttarakhand																
Completed Projects																
1	Devprayag	Sewage Treatment Plant (STP)	3.66		22.07.09		1.40			2.45	1.05	3.50	100	96	Work Completed	
2	Devprayag	Restoration and Reconstruction of Sewerage Scheme due to disaster in Devprayag	4.50		25.06.15					1.32	2.35	3.67	100	82	Work Completed	
3	Joshimath	Interception and Diversion (I&D)	9.61		17.03.10		0.00		12.47	5.81	2.48	8.29	100	86	Work Completed	
4	Rishikesh	Sewerage Scheme at Triveni Ghat	7.23		23.03.11		0.00		1.02	3.05	1.31	4.36	100	60	Work Completed	
5	Tapovan (Tehri)	Sewerage system and STP for Tapovan area	24.12		23.03.11		3.50		11.04	10.39	4.46	14.85	100	62	Work Completed	
6	Haridwar	Sewerage Scheme at Ahbab Nagar Jwalapur Zone E-2 at Haridwar	24.84		23.03.11		0.00		13.49	11.89	5.09	16.98	100	66	Work Completed	
7	Haridwar	Construction of 18 mld STP at Sarai, Haridwar	24.91		23.03.11		18.00			14.49	6.20	20.69	100	83	Work Completed	
8	Gopeshwar	Interception and Diversion (I&D)	10.18		18.03.10				21.83	6.64	2.86	9.50	100	93	Work Completed	
9	Gangotri	Restoration and Reconstruction of Sewerage Scheme due to disaster in Gangotri	0.45		25.06.15					0.23	0.09	0.32	100	71	Work Completed	
	Total		109.50				22.90		59.85	56.27	25.89	82.16				
Ongoing																
1	Devprayag	Interception and Diversion (I&D)	7.27		06.07.09		0.00	yes	7.50	3.94	1.69	5.63	80	77	Work in progress Laying of Sewer line, Rising main and construction of SPS 1 no. completed and partially commissioned. SPS 0.075 mld progress 21.02% (Construction of SBR is in progress) and STP 0.150mld progress 25.03 % (Raft Foundation work completed work in progress) 6Nos Nala tapping/Galy pits constructed.	May-17
2	Joshimath	Interception and Diversion (I&D)with STP	48.42		16.03.17		3.78							0	AA&ES issued.	2018-19
3	Rishikesh	Interception and Diversion (I&D)with STP	157.19		16.03.17		26.00							0	AA&ES issued.	2018-19
4	Tapovan (Tehri)	upgradation of 3.50 MLD STP	2.19		16.03.17									0	AA&ES issued.	2017-18
5	Haridwar	Sewage Treatment Plant (STP) at Jagjeetpur(68MLD) & Sarai(14MLD)	230.32		16.03.17		82.00							0	Bid Invited	2018-19

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6	Haridwar	Tertiary treatment of existing 27 MLD STP at Jagjeetpur & Upgradation of existing 18 MLD STP at Sarai	24.22		16.03.17									0	Bid invited	2019-20
7	Haridwar	Interception and Diversion works at Sarai & Jagjeetpur	116.28		16.03.17									0	Bid invite	2018-19
8	Gangotri	Sewerage System and STP for Gangotri Dham	10.48		23.03.11		1.00		1.81	3.86	1.05	5.51	75	53	Work in Progress.(B)1.81 Km laid out of 2.25 Km sewer line, 0.35 Km out of 0.5 km rising main laid, 75% progress achieved in construction of 3 nos of SPS, 80% progress achieved in construction in STP.Expected date of completion is May 2017	2017-18
9	Badrinath	Interception and Diversion (I&D)	16	12.03	16.10.08	24.03.17	0.00		4.41	0.00	0.17	5.58	100	0	Work in Progress.(B)Total sewer line-5.11 km, laid 4.41 km and 0.372 rising main Proposed date of completion June-2017	2017-18
10	Badrinath	Sewage Treatment Plant (STP)					1.01			0.00	0.00	0.00	0	0	AA&ES issued	2017-18
11	Uttarkashi	Restoration and Reconstruction of Sewerage Scheme due to disaster in Uttarkashi.	4.84		23.07.15					1.08	0.08	1.54	80.00	32	Work in Progress.(B)Restoration works of rising main and sewer line - 75%, Construction of SPS, 1 No - 70% Repair and Cleaning of sewer line 100%.Manhole raising & construction of new manhole -00% Work in progress.	May-17
12	Rudraprayag	Sewage Treatment Plant (STP) and I&D	9.1	12.09	24.12.08 for STP-I, 97.08 for I&D Ext.	16.03.17	0.15		0.94	0.66	0.08	0.09	12	0	AA&ES issued	2018-19
13	Rudraprayag	Interception and Diversion (I&D)	22.63	13.14	22.09.08	16.03.17	0.00		1.92	0.57	0.20	0.87	12	1	AA&ES issued	2018-19
		Sewage Treatment Plant (STP)					3.00			0.00	0.00	0.00	0	0		2018-19
14	Gopeshwar	Interception & Diversion and STP	61.83		24.03.17		4.38							0	AA&ES issued	2018-19
15	Kirtinagar	Pollution Abatement works for River Alaknanda (STP creation of 10KLD & 50KLD)	4.23		16.03.17		0.06							0	AA&ES issued.	2018-19
16	Uttarkashi	Upgradation of 2 MLD STP(Gyansu)	10.03		16.03.17									0	AA&ES issued.	2018-19
17	Srinagar	Interception & Diversion and STP	22.51		24.03.17		1.00							0	AA&ES issued.	2018-19
18	Srinagar	Upgradation of Existing STP (3.5 MLD)	15.40		24.03.17									0	AA&ES issued.	2018-19
19	Nandprayag	Interception & Diversion and STP	6.46		24.03.17		0.15							0	AA&ES issued.	2018-19
20	Munl Ki Reti	Rising main (500m) and STP of 12.5MLD	80.46		24.03.17		12.50							0	AA&ES issued.	2018-19
21	Kedarnath	Pollution Abatement and Ghat development	3.65		16.03.2017		0.02							0	AA&ES issued.	2017-18
22	Swarashram (Paudi Garhwal)	Upgradation of Existing STP (3.0 MLD)	4.52		24.03.2017									0	AA&ES issued.	2018-19
	Total		843.61				135.65		16.38	13.69	5.85	18.60		2		

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	Grand Total		953.11				158.55		76.23	69.06	31.74	100.76						
	Uttar Pradesh																	
Completed																		
1	Allahabad*	Sewerage & Non-Sewerage schemes for Pollution abatement of River Ganga at District-'B' & 'E' of Allahabad	199.26		6.05.2010		85.00		10.88	116.78	50.55	169.83	100	84	Works Completed			
2	Allahabad*	Sewerage & Non-Sewerage schemes for Pollution abatement of River Ganga at District-'A' of Allahabad	106.08		6.05.2010		20.00		9.24	62.67	26.95	89.62	100	85	Works Completed			
3	Allahabad*	Sewerage work in Sewerage District-E	142.00		22.02.2011		-		109.20	91.97	39.41	131.38	100	93	Work Completed			
4	Allahabad*	14 mld STP at Salori, Allahabad -	42.40		27.11.2013		14.00			16.84	7.22	24.06	100	57	Work completed			
		Total	489.74	9.60	0.00	9.60	119.00		129.32	288.46	123.63	412.09		84				
Ongoing																		
1	Allahabad*	Sewerage System in Sewerage District-C & Allahpur, Allahabad	146.87		27.11.2013				81.00	28.97	12.42	41.39	55	28	Work in progress ; Network (60%); SPS (7 %); SPS Land procurement issues stands resolved in Dec'16	2017-18		
2	Allahabad*	Sewerage Works in Sewerage District-A of Allahabad	268.94		20.02.2014				92.00	51.79	22.19	73.98	46	26	Work in progress ; Network (45%),SPS(12%)	2017-18		
3	Allahabad*	Sewerage system with Sewer network-(District B)	265.86		30.12.2014				22.00	29.41	12.60	42.01	19	16	Work in Progress ; Network (15%); SPS (4 %).	2018-19		
4	Allahabad*	Sewer Network in District E of Allahabad -Part 2 (Additional Work) under Component "A"	52.78		28.09.2016									0	World Bank's conditional NOC received (11/01/2017) to award the work to the same vendor who undertook works for the rest of the sewerage district E of Allahabad; UPJN preparing compliance document - expected to be submitted by 30/01/17)	2018-19		
5	Garmuktesheswar	Sewerage system & STP works	46.51		24.02.2011		9.00		65.00	22.85	9.79	32.64	87	70	Works in Progress ; Network (90%); SPS (62%); STP (79%); 3 mld STP at Brijghat though created but not operational in the absence of house connection.	2017-18		
6	Moradabad (Ramganga)	Sewerage system & STP works (Phase I.)	279.91		24.02.2011		58.00		174.90	130.12	23.04	153.16	84	55	Works in Progress ; Network (66%); SPS (86%); STP (95%).	2017-18		
7	Kashipur (Kali)	Sewerage system & STP works (Phase II)	43.66		24.02.2011		1.00		46.00	17.06	7.31	24.37	88	56	Works in Progress ; Network (78%); SPS (52%); STP now proposed under state sector (under construction).	2017-18		
8	Varanasi	JICA assisted Ganga Action Plan Phase-II Project at Varanasi (EAP - JICA)	495.90		14.07.2010		140.00		24.00	225.55	39.80	265.35	61	53	Works in Progress; Network (55%); SPS (87%); STP (46%); CTC (70%).	2018-19		
9	Varanasi	Sewerage Treatment Plant (STP) for Assi-BHU Sewerage District at Ramana (under Hybrid annuity based PPP model-Namami Ganga Programme)	150.95		02.03.2017		50.00							0	Under Bidding Process	2018-19		

10	Bulandshar	Sewerage scheme at Narora, Bulandshar	34.87		04.04.2014		4.00		21.00	19.42	8.32	27.74	61	60	Work in Progress ; Network (100%); SPS (85 %); STP (70%); IPS (10%); Land transfer from Irrigation dept for IPS pending	2017-18
11	Anup Shahar	Sewerage Works in Anup Shahar, Bulland Shahar	75.79		19.05.2014		2.50		29.00	8.23	3.53	11.76	40	16	Work In Progress ; Network (50%); SPS (%); STP (5%);	2018-19
12	Bilhaur, Kanpurnagar	Sewerage scheme and STP at Bilhaur Kanpurnagar, (UP)	59.68		26.12.2013		2.40							0	Revised Proposal In the review meeting held on 9/1/17, it has been decided that the tender may be cancelled and a fresh DPR may be prepared & tendered afresh.Revised Proposal	
13	Kanpur City	Interception/Diversion of Sisamau Nala of Kanpur City under Component "B" of Namami Ganga Programme	63.80		3.10.2016									0	Under Bidding	
14	Kanpur (District 1)	Sewerage Works in Sewerage District 1 of Kanpur	370.40		18.10.2016									0	Under Bidding	2019-20
15	Mathura - Vrindavan	Rehabilitation of Sewerage Infrastructure & Augmentation/Upgradation of STP (6MLD)	33.82		24.03.2017									0	AA&ES Issued	
	Total		2416.74				286.93		598.00	533.40	139.00	672.40				
	Grand Total		2900.48				365.95		687.32	821.06	787.63	1084.49				
Bihar																
Ongoing																
1	Begusarai	Sewer Network, SPS and STP	65.40		08.03.2010		17.00		105.00	7.39	1.72	9.11	14	14	16.23km out of 110km pipe laying and 543 out of 5374 Nos manholes completed,16Km road restoration completed. Work is in progress Issues: Work at present is stopped. BUIDCo proposed termination of contractor, Government of Bihar has taken a view to terminate the Contractor for the Project.	
2	Buxar	Sewer Networks, SPS and STP	74.05		08.03.2010		16.00		95.21	11.13	5.32	16.45	58	32	Work is Progress."Boundry wall completed, 39.50 km out of 95.21 km pipe laying and 1340 Nos. out 4015 Nos. manholes completed.39km Road Restoration work completed out of 5977 cum. Issues: 1. There were issued with land earlier, But now these issues resolved, Some progress is made now. Contractor proposes to completed within next 6 months. The contractors are given one month time to provide adequate progress by Government of Bihar. If the progress is found suitable then another 6 months' time will be given to contractor to complete project.	

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3	Hajipur (Sandaq)	Sewer Networks, SPS and STP	113.62		08.03.2010		22.00		198.90	15.65	17.21	32.87	27	14	Work in Progress. Boundry wall of STP completed. 51.34 km out 198 km pipe laying and 1755 out of 11382 manholes completed. 50km road restoration completed.The contractors are given one month time to provide adequate progress by Government of Bihar. If the progress is found suitable then another 6 months' time will be given to contractor to complete project.	
4	Patna	Sewage Treatment Plant at Paharl - Patna, Bihar	127.00		26.12.2013		35.00							26	Revised Proposal, Approval of retendering of the packages with revised cost through DBOT mode is in process.	2019-20
5	Patna	Sewerage scheme at Paharl (Zone IVA (S)), Patna, Bihar	133.64		26.12.2013				87.69					0	Revised Proposal,Approval of retendering of the packages with revised cost through DBOT mode is in process.	
6	Patna	Sewerage scheme at Pahad Zone V, Patna, Bihar	214.31		20.02.2014				110.55					0	Revised Proposal, Approval of retendering of the packages with revised cost received. Received Bid document with comments of NMCG & World Bank to be submitted by BUIDCO.	
7	Patna	Sewage Treatment Plant - Beur for Patna, Bihar	68.16		15.07.2014		23.00							0	Under Bidding Process.Cabinet approval received, NOC from NMCG given to Govt of Bihar to issue LOI to contractor. World Bank has also extended the bid validity till 23.02.2017.	2018-19
8	Patna	Sewage Treatment Plant - Kamalichak for Patna, Bihar	77.04		15.07.2014		33.00					0.00		0	Under Bidding Process.Cabinet approval received, NOC from NMCG given to Govt of Bihar to issue LOI to contractor. World Bank has also extended the bid validity till 23.02.2017.	
9	Patna	Sewerage system with Sewer network,Patna Beur	225.77		33.12.2014				179.74			0.00		0	Under Bidding Process.Cabinet approval received, NOC from NMCG given to Govt of Bihar to issue LOI to contractor. World Bank has also extended the bid validity till 23.02.2017.	2019-20
10	Patna	Sewerage system with Sewer network ,Patna Kamalichak	277.42		16.03.2017				96.54			0.00		0	AA&ES Issued	2019-20

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11	Patna	Saidpur STP and adjoining Network for Patna, Bihar	184.93		01.04.2015		60.00	55.10						0	Under Bidding Process.Cabinet approval received, NOC from NMCG given to Govt of Bihar to issue LOI to contractor. World Bank has given extension of bid validity till 23.02.2017.	2018-19
12	Patna	Saidpur Sewer Network, Patna, Bihar	268.63		01.04.2015				172.50					0	Under Bidding Process.Cabinet approval received, NOC from NMCG given to Govt of Bihar to issue LOI to contractor. World Bank has given extension of bid validity till 23.02.2017.	2019-20
	Sub Total		1831.17	0.00	0.00	0.00	206.00	55.10	1049.33	34.17	24.25	58.42	79.69			
Jharkhand																
Ongoing																
1	Sahibganj	Sewerage scheme and STP	99.36		26.12.13		12.00		55.00	6.26	6.31	12.57	18.88	13	Work in Progress	Work in Progress (B)
2	Rajmahal	Sewerage scheme and STP	58.35		02.03.17		3.5		34.21	0	0	0	0	0	AA&ES Issued	AA&ES Issued
	Total		157.71				15.5		89.21	6.26	6.31	12.57				
West Bengal																
Completed																
1	Gayeshpur	Sewerage system & STP	168.67		22.02.11		8.23		61.00	97.14	41.63	138.77	100	82	Work Completed	2015-17
	Total		168.67				8.23		61.00	97.14	41.63	138.77		82		
Ongoing																
1	Barrackpore	Sewerage system with Sewer network and STP -	272.52		30.12.14		24.60		247.14	16.61	7.12	23.73	NA	9	Work in Progress .L.O.I/Notification of award issued on 5.10.2016 & Work order issued on 27.10.2016.Survey work & Geotechnical investigation started.	2018-19
2	Halisahar	Sewerage scheme & STP Halisahar	274.76		28.02.14		16.00		226.99	21.61	9.22	30.73	7	11	Work in Progress Sewerage network in progress, piling work in STP location is peogress,B.W. Manhole in progress.	2017-18
3	Budge-Budge	Sewerage System and STP at Budge-Budge	145.00		11.07.14		9.30		131.59	16.31	6.99	23.30	15.3	16	Work in Progress ,Sewerage network in progress, piling work in STP location is peogress,B.W. Manhole in progress.	2017-18
4	Kalyani	Sewerage system & STP	57.87		01.03.11		4.00		46.33	40.51	61.09	101.60	97	176	Work is in progress, STP -92.71% , Network - 99.93 % and Pumping Station - 93.79 %.	2016-17
5	Bhatpara	Sewerage system & STP	229.52		01.03.11		31.00		125.00	143.36	91.46	264.65	78	90	Work in progress STP - 91.50% , Network - 81.60 % and Pumping Station - 58 % .	
	Total		373.45				84.3		777.05	238.33	145.88	384.21	197.3	39		

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	Grand Total		1148.12				92.83		836.05	335.47	187.51	522.98			
Haryana															
Ongoing															
1	Panipat	Sewerage and Sewage Treatment Plant (STP)	129.51		17.07.2012		45		24.19			112.90		87.17	On-going	2017-18
2	Sonepat	Sewerage and Sewage Treatment Plant (STP)	88.36		17.07.2012		25.00		16.78			78.33		66.65	On-going	2017-18
	Total		217.87				70		40.97	0	0	191.23		87.77		
Delhi																
Ongoing																
1	Delhi -YAP-III - Okhla zone (O)	Construction of 564 MLD (124 MGD) Waste Water Treatment Plant (WWTP) with Effluent Standards of BOD – 10mg/l, TSS – 10 mg/l or better and Power Generation on DBO basis at Okhla on Turnkey Basis and Demolition of Existing 136 MLD (Phase-I), 55 MLD (Phase-II), 204 MLD (Phase-III) and 168 MLD (Phase-IV) WWTPs	665.75		16.03.17		564.00			0	0	0		0.00	Bidding Stage	
2	Delhi -YAP-III - Kondli zone (K1)	Rehabilitation of Trunk Sewer No.4	87.43		05.05.2016				8.49	0	0	0		0.00	Bidding Stage	
3	Delhi -YAP-III - Kondli zone (K2)	Rehabilitation of Trunk Sewer No.5	80.40		05.05.2016				7.71	0	0	0		0.00	Bidding Stage	
4	Delhi -YAP-III - Kondli zone (K3)	Rehabilitation and upgradation of Kondli Phase-I STP (45 MLD), Phase-II STP (114 MLD) & Phase-IX STP (45 MLD)	239.11		05.05.2016		204.00			0	0	0		0.00	Bidding Stage	
5	Delhi -YAP-III - Kondli zone (K4)	Rehabilitation of Rising Mains	56.13		16.03.2017				6.13	0	0	0		0.00	Bidding Stage	
6	Delhi -YAP-III - Rithala zone (R1a)	Rehabilitation of Trunk Sewers	43.62		05.05.16				5.09	0	0	0		0.00	Bidding Stage	
7	Delhi -YAP-III - Rithala zone (R1b)	Rehabilitation of Rising Main	45.40		16.03.17				6.16	0	0	0		0.00	Bidding Stage	
8	Delhi -YAP-III - Rithala zone (R2)	Rehabilitation and up-gradation of Phase-I STP (182 MLD)	211.79		05.05.2016		182.00			0	0	0		0.00	Bidding Stage	
	Total		1433.66				950		35.582	0	0	0				

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ANNEXURE-II

ANNEXURE-II

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
(पर्यावरण एवं वन मंत्रालय, भारत सरकार)
(MINISTRY OF ENVIRONMENT & FORESTS, GOVT. OF INDIA)

File No. A-19014/43/06-MON

Date: 21 April, 2015

To,

The Chairman,
Uttarakhand Environment Protection & Pollution Control Board,
ParyavaranBhavan, E-115, Nehru Colony,
Dehradun -248001

Directions Under Section 18(1)(b) of the Water (Prevention and Control of Pollution) Act, 1974 regarding treatment and utilization of sewage.

Whereas, amongst others, under Section 16 of the Water (Prevention and Control of Pollution) Act, 1974, one of the functions of the Central Pollution Control Board (CPCB) constituted under the Water (Prevention & Control of Pollution) Act, 1974 is to coordinate activities of the SPCBs/PCCs and to provide technical assistance and guidance to SPCBs/PCCs; and

Whereas, amongst others, under Section 17 of the Water (Prevention and Control of Pollution) Act, 1974, one of the functions of the State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs), constituted under the Water (Prevention & Control of Pollution) Act, 1974 is to plan a comprehensive programme for prevention, control or abatement of pollution of streams and wells in the State and to secure the execution thereof;

Whereas, sewage, the single major source for water resources deterioration contributes 70% of the pollution load to water bodies.Consumption of polluted water adversely impact human health and aquatic life.Quality of treated sewage generally of lower standard further adding to problem.Very sizeable gap is observed in generation and treatment of sewage.

Whereas, the Central Pollution Control Board reported during 2010-2011 that out of 38254 MLD of sewage generated by class I cities and class II towns, only 11787 MLD has been treated and thereby leaving huge gap between sewage generation and sewage treatment. Central Pollution Control Board, reassessed sewage generation and treatment capacity for Urban Population of India for the year 2015. The sewage generation estimated to be 62000 MLD approximately and sewage treatment capacity developed so far is only 23277 MLD from 816 STPs.

Whereas, sewage treatment capacity of Uttarakhand State is 152.9 MLD in contrast to sewage generation of 495 MLD. 342.1 MLD untreated sewage discharge to water bodies that is responsible for deteriorating its water quality.

Whereas, water quality monitoring results of rivers as indicated that water quality has been affected because of disposal of untreated or partially treated sewage into the water bodies and as a result, there are high number of faecal bacteria making the water body unfit for human consumption or for other uses.

परिवेश भवन, पूर्वी अर्जुन नगर, दिल्ली-110032
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Whereas, the cities and the towns are not having adequate system for sewage collection and its treatment and thus entire waste water either falls into rivers or lakes or remains inundated on land causing potential risk to the ground water contamination.

Whereas, the majority of the municipal authorities have not sought consents under the Water (Prevention and Control of Pollution) Act, 1974 which is a statutory requirement and also have not provided facilities for sewage treatment.

Whereas, the State Pollution Control Board under Section 17 of the Water Act has been mandated with the following functions which inter-alia including;

(f) to inspect sewage or trade effluents, works and plants for the treatment of sewage and trade effluents and to review plans, specifications or other data relating to plants set up for the treatment of water, works for the purification thereof and the system for the disposal of sewage or trade effluents or in connection with the grant of any consent as required by this Act;

(g) lay down, modify or annul effluent standards for the sewage and trade effluents and for the quality of receiving waters (not being water in an inter-State stream) resulting from the discharge of effluents and to classify waters of the State;

(h) to evolve economical and reliable methods of treatment of sewage and trade effluents, having regard to the peculiar conditions of soils, climate and water resources of different regions and more especially the prevailing flow characteristics of water in streams and wells which render it impossible to attain even the minimum degree of dilution;

(i) to evolve methods of utilization of sewage and suitable trade effluents in agriculture;]

(j) to evolve efficient methods of disposal of sewage and trade effluents on land, as are necessary on account of the predominant conditions of scant stream flows that do not provide for major part of the year the minimum degree of dilution;

(k) to lay down standards of treatment of sewage and trade effluents to be discharged into any particular stream taking into account the minimum fair weather dilution available in that stream and the tolerance limits of pollution permissible in the water of the stream, after the discharge of such effluents;

(m) to lay down effluent standards to be complied with by persons while causing discharge of sewage or sullage or both and to lay down, modify or annul effluent standards for the sewage and trade effluents;

Whereas,the Central Board in its 168th meeting held on 27/03/2015 resolved to notify the standards for treated sewage. These standards for discharge of treated sewage from STPs have also been endorsed in the Minster's Conference held during April 6-7, 2015 and 59th Conference of Chairmen & Member Secretaries of Pollution Control Boards and Pollution Control committees held on april 8, 2015;

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Whereas, Government of Tamilnadu mandated to develop sewerage system in all the municipalities and all household to mandatorily connect to sewerage system as well as to pay monthly fee for sewage management to cover CAPEX and OPEX;

NOW THEREFORE, in view of the above stated facts and realizing that rivers and water bodies have been polluted and to prevent further deterioration ofsurface, sub-surface and coastal waters, it is essential to issue following directions under section 18(1)(b) of the Water(Prevention and Control of Pollution) Act, 1974. The following directions are hereby issued for compliance;

1. State Pollution Control Board shall make mandatory for local/urban bodies to set up a sewerege system for sewage collection, underground conveyance, treatment and its disposals to cover the entire local/urban area to bridge the widening treatment gap along with enforcement of consent management in line with standards for sewage treatment (Annexure-I).
2. SPCB/PCC shall issue directions to all municipalities and other concerned authorities in the State/UT responsible for treatment and disposal of sewage to the following effect

(I) The existing STPs which are being operated before issuance of these directions shall meet the standards within two years from the date of issuance of these directions.

(II) All the local bodies shall seek consent under Water (Prevention and Control of Pollution) Act, 1974 from the SPCB/Committee within a period of 60 Days.

(III) Secondary treated sewage should be mandatorily sold for use for non potable purposes such as industrial process, railways & bus cleaning, flushing of toilets through dual piping, horticulture and irrigation. No potable water to be allowed for such activities. They will also digest methane for captive power generation to further improve viability of STPs.

(IV) Dual piping system should be enforced in new housing constructions for use of treated sewage for flushing propose.

(V) Each municipal authority and the concerned authority shall submit a time bound action plan for setting up sewerage system covering proper collection, treatment and disposal of sewage generated in the local/urban area and such plan shall be submitted by the municipal authority to the State Board within a period of 90-120 Days.

(VI) In case of disposal of effluents on land or river or any water body including constal water/creek or a drain, the treated effluents shall meet the suggested standards annexed to these direction.

(VII) The new sewage treatment plants which will come in existence after the issuance of these directions shall be designed to treat and achieve standards as per the suggested standards.

3. The State Board shall acknowledge the receipt of this direction within 10 days and shall communicate the status on the actions taken to achieve before 30 September 2015 informing the status of consents along with the action plan for treatment and disposal of sewage.

Shashi Shekhar 2/4/15
(Shashi Shekhar)
Chairman

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Copy to :

1. PPS to Secretary,
   Ministry of Environment, Forests, & Climate Change
   Indira Bhawan, Aliganj, Jorbagh Road,
   New Delhi-110003
2. PPS to Secretary
   Ministry of Water resource,
   River Development & Ganga Rejuvenation
   626, Shram Shakti Bhawan, Rafi Marg.
   New Delhi 110001
3. Mission Director,
   National Mission for Clean Ganga,
   (Ministry of Water Resources, River Development & Ganga Rejuvenation),
   Rear Wing, 3rd Floor, MDDS Building
   9, CGO Complex, Lodi Road, New Delhi-110003
4. Adviser (CP Divison),
   Ministry of Environment, Forests, & Climate Change
   Indira Bhawan, Aliganj, Jorbagh Road,
   New Delhi 110013
5. The Incharge, All Zonal Offices
   Central Pollution Control Board
6. The Incharge, IT Division, CPCB
7. The Incharge, NGRBA Cell, CPCB
8. PPS to Secretary
   Ministry of Urban Development

(A.B. Akolkar)
Member Secretary

~~462~~

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ANNEXURE I

EFFLUENT DISCHARGED STANDARDS FOR SEWAGE TREATMENT PLANT

Sl. No.	Parameters	Parameters Limit (Standards for New STPs Design after notification date) *
1.	pH	6.5-9.0
2.	BOD (mg/l)	Not more than 10
3.	COD (mg/l)	Not more than 50
4.	TSS (mg/l)	Not more than 20
5.	NH_4-N (mg/l)	Not more than 5
6.	N-total (mg/l)	Not more than 10
7.	Fecal Coliform (MPN/100ml)	Less than 100

Note:

(i) These standards will be applicable for discharge in water resources as well as for land disposal. The standards for Fecal Coliform may not be applied for use of treated sewage in industrial purposes.

(ii) * Achievements of Standards for existing STPs within 05 years from the date of notification.

ANNEXURE-III

Speed -Post

File No. B-19001/NGRBA/CPCB/2012-2013 12433-12469 Date: 09/10/2015

To,

The Commissioner/ Executive Officer/ Mayor/ Chairman,
Municipal Corporation
(As per the list enclosed)

DIRECTIONS UNDER SECTION 5 OF THE ENVIRONMENT (PROTECTION) ACT, 1986 REGARDING TREATMENT AND UTILIZATION OF SEWAGE FOR RESTORATION OF WATER QUALITY OF RIVER

Whereas, sewage is a major cause for poor water quality and adversely impacts human health and aquatic life.The discharge of untreated, partially treated and treated sewage not meeting standardsisfurther adding to the problem of water pollution and very sizeable gap exist in generation and treatment of sewage.

Whereas,Central Pollution Control Board assessed sewage generation and treatment capacity for Urban Population of India for the year 2015. The sewage generation is estimated to be 62000 MLD approximately and installed sewage treatment capacity of 816 STPs developed so far is only 23277 MLD.

Whereas, sewage generated from....., in Uttrakhandis responsible for deterioration ofthe water quality of river Ganga.

Whereas, water quality monitoring results of rivers indicate that water quality has been affected because of disposal of untreated or partially treated sewage into the rivers and as a result, there is high level of Bio-Chemical Oxygen Demand (BOD) making water unfit for human consumption or for other uses.

Whereas, the cities and the towns have not created adequate systems for sewage collection and its treatment and thus untreated waste water either goes into rivers or lakes or remains inundated on land causing ground water contamination.

Whereas, the majority of the municipal authorities have not sought consents under the Water (Prevention and Control of Pollution) Act, 1974 which is a statutory requirement and also have not provided facilities for sewage treatment.

Whereas, over the years, storm water drainage systems have been used as convenient system with increase in urbanization for disposal of sewage andsullage by Municipalities. These drains dispose sewage and mixed effluents into rivers and lakes or dispose it on land.

Whereas, the State Pollution Control Boards/Pollution Control Committees have also been directed under Section 18 (1) b of Water (Prevention and Control of Pollution) Act,1974 to direct concerned agencies in the State/Union Territory to develop infrastructure for sewage management.

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Whereas, CPCB has requested the Municipal Corporation to build capacity for treatment, utilization of sewage and restoration of water quality of receipient systems and for identification of drains in the city and the place of disposal of the effluents and action proposed to treat sewage vide letter dated 10/09/2015.

Whereas, CPCB has also communicated guidelines for Rejuvenation/Improving sanitary conditions of open drains carrying sewage – sullage to Municipal Corporations, vide letter dated 28/09/2015.

Whereas, Hon'ble Supreme Court had cited in the matter of Dr. B.L. Wadhera vs Union of India and Others (1996) INSC 352 (1 arch 1996) regarding pollution in Delhi as under :

> *....."It is no doubt correct that rapid industrial development, urbanization and regular flow of persons from rural areas to urban areas have made major contribution towards environmental degradation but at the same time the Authorities – entrusted with the work of pollution control – cannot be permitted to sit back with folded hands on the pretext that they have no financial or other means to control pollution and protect the environment. Apart from Article 21 of the Constitution of India, which guarantees 'Right of Life', Article 48A and 51A(g) of the Constitution are as – 48A, protection and improvement of environment and safeguarding of forests and wildlife – the State shall endeavour to protect and improve the environment and to safeguard theforest and wildlife of the country and 51(g) – to protect and improve the natural environment including forests, lakes, rivers and wildlife and tohave compassion for living creatures";*

WHEREAS, the water quality monitoring carried out by CPCB at 1275 locations covering 445 rivers for assessing suitability of water quality for various purposes revealed that 718 locations are not meeting the water quality criteria with respect to BOD and Fecal Coliform bacteria. The water quality assessment has further indicated that there are 302 polluted river stretches on 275 rivers which are along the 35 metropolitan cities and 615 other urban centres. The exceedance of criteria pollutants has been observed in the downstream stretches of rivers passing through the urban centres.

WHEREAS, water quality of river Ganga hasbeen monitored at 57 locations and observed that water quality is deteriorated on account of disposal of sewage through various drains. The sewage carrying drains after joning the river Ganga have affected the water quality and the sanctity of the river. This also holds true for the other polluted river stretches. The comprehensive assessment of water quality of river Ganga has also pointed out that the Fecal Coliform bacteria as one of the major contributory factor for pollution.

WHEREAS, based on the performance studies carried out by CPCB on STPs, it has been observed thatcapacity of the STPs is either under utilized and the operating plants also not meeting with the standards. The poor operation and maintenance of the STPs has also been observed.

WHEREAS, the Central Government has notified the general discharge standards of environmental pollutants from various sources including municipal wastewatef under the Environment (Protection) Act,1986 and the rules framed there under; and

WHEREAS, the Ministry of Environment & Forests, Govt. of India, vide notification S.O.157(E) of 27.02.1996 has delegated powers vested under Section 5 of the Environment

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(Protection) Act,1986 (29 of 1986) to the Chairman ;Central Pollution Control Board (CPCB), to issue direction to any Industry, Municipal Corporation, Municipal Council, Cantonment Board to any local or other Authority for the violation of emission and effluent standards notified under the Environment (Protection) Rules,1986 and other standards and norms; and

AND NOW, THEREFORE, in view of the above stated facts and realizing that rivers and water bodies are getting polluted and to prevent further deterioration of surface, sub-surface and coastal waters, it is essential to issue following directions in exercise of the powers delegated to the Chairman, CPCB under section 5 of the Environment (Protection) Act, 1986, to the Municipal Authority of.....:

1) Untreated sewage shall not be disposed into the river or at any other receipient system.
2) Local/urban body to set up STPs of adequate capacity and provide sewerage system to cover the entire local/urban areas and to ensure complete treatment of sewage generated.
3) In case of disposal of effluents on land or river or any water body including coastal water/creek or a drain, the treated effluents shall meet the standards given in Annexure - I.
4) Existing sewage treatment plants, if any, as applicable shall be properly maintained to comply with the standards given in Annexure - I. At the inlet and outlet of the sewage treatment plant, online monitoring devices should be installed to monitor the consented parameters.
5) The local bodies shall seek consent under Water (Prevention and Control of Pollution) Act, 1974 from the SPCB/Committee within a period of 60 Days.
6) The Municipal Authority shall properly manage the wastewater flowing in drains and take required actions to ensure that such wastewater is treated and disposed off in accordance with standards given in Annexure – I.
7) Municipal authority and the concerned authority shall submit a time bound action plan to the effect for proper collection, treatment and disposal of sewage and such plan shall be submitted by the municipal authority to the State Pollution Control Board and copy to CPCB within a period of 90 Days. The Action Plan shall be brought in public domain.

You are requested to acknowledge the receipt of this direction within 15days and shall communicate the status on the action plan andits implementation.

(Arun Kumar Mehta)
Chairman

Copy to :

i. **The Chief Secretary**
Government ofUttrakhand,
4, Subhash Road
Secretariat, Dehradun
Uttarkhand-248001

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
निगम
17/10/15

ii PPS to Secretary
Ministry of Environment, Forests & Climate Change
Indira Paryavaran Bhawan, Aliganj, Jorbagh Road
New Delhi-110003

iii PPS to Secretary
Ministry of Water resource
River Development & Ganga Rejuvenation
526, Shram Shakti Bhawan, Rafi Marg
New Delhi-110001

iv PPS to Secretary
Ministry of Urban Development
Mulana Azad Road, Rajpath Area
Central Sectarat, New Delhi- 110001

v Mission Director
National Mission for Clean Ganga,
(Ministry of Water Resources, River Development & Ganga Rejuvenation),
Rear Wing, 3rd Floor, MDDS Building
9, CGO Complex, Lodi Road, New Delhi-110003

vi Advisor (CP Divison)
Ministry of Environment, Forests & Climate Change
Indira Paryavaran Bhawan, Aliganj, Jorbagh Road,
New Delhi-110003

vii Advisor (NRCD),
Ministry of Environment, Forests & Climate Change
Indira Paryavaran Bhawan, Aliganj, Jorbagh Road
New Delhi-110003

viii Incharge ZO (North)
Central Pollution Control Board,
Ground Floor, PICUP Bhawan, Vibhuti Khand,
Gomti Nagar, Lucknow, U.P.-226010

ix Incharge, ZO (East),
Central Pollution Control Board
502, Southend Conclave
1562, Rajdanga Main Road, Kolkata – 700107

x Incharge IT Division, CPCB, Delhi

(A.B. Akolkar)
Member Secretary

9.10.14

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Uttrakhand	
1.	Mayor/ Chairman, Haridwar Nagar PalikaParishad, Haridwar Dist, Uttarakhand, India-247663
2.	Mayor/ Chairman, Rishikesh Nagar PalikaParishad,DehradunDist, Uttarakhand, India-249201
3.	Mayor/ Chairman, Gopeshwar Nagar PalikaParishad,ChamoliDist, Uttarakhand, India-246401
4.	Mayor/ Chairman, Gopeshwar Nagar PalikaParishad,ChamoliDist, Uttarakhand, India-249192
5.	Mayor/ Chairman, Srinagar Nagar PalikaParishad, TehriGarhwalDist, Uttarakhand-246174.
6.	Mayor/ Chairman, Joshimath Nagar PalikaParishad, ChamoliDist, Uttarakhand, India-246472.
7.	Mayor/ Chairman, Uttarkashi Nagar PalikaParishad, Uttarkashi Dist, Uttarakhand, India-249171.
8.	Mayor/ Chairman, Muni kiReti Nagar Palika, TehriGarhwalDist, Uttarakhand, India- 249 201
9.	Mayor/ Chairman, Gaucher Nagar Palika, ChamoliDist, Uttarakhand, India-246429.
10.	Mayor/ Chairman, Karnaprayag Nagar Palika, ChamoliDist, Uttarakhand, India-246444
11.	Mayor/ Chairman, Rudraprayag Nagar PalikaParishad, RudraprayagDist, Uttarakhand, India-246475
12.	Mayor/ Chairman, Kirtinagar Nagar Palika, ChamoliDist, Uttarakhand, India-249161
13.	Mayor/ Chairman, Nandprayag Nagar Palika, ChamoliDist, Uttarakhand, India-246449
14.	Mayor/ Chairman, Badrinath Nagar Palika, ChamoliDist, Uttarakhand, India-246422
15.	Mayor/ Chairman, Devprayag Nagar Palika, TehriGarhwalDist, Uttarakhand, India-249301

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ANNEXURE-IV

Speed Post

F. No.: B-190172/NGRBA/CPCB/2015-16/ Dated: 10.03.2017

To,

The Chairman,
As per the list of 5 Ganga main stem State PCBs
(Uttarakhand, Uttar Pradesh, Bihar, Jharkhand & West Bengal)

DIRECTIONS ISSUED UNDER SECTION 18 (1) (b) OF THE WATER (PREVENTION AND CONTROL OF POLLUTION) ACT, 1974 FOR RESTORATION OF WATER QUALITY OF RIVER GANGA

WHEREAS, amongst others, under Section 17 of the Water (Prevention and Control of Pollution) Act, 1974, one of the function of the State Pollution Control Board (SPCB), constituted under the Water (Prevention & Control of Pollution) Act, 1974 is to plan a comprehensive programme for prevention, control or abatement of pollution of streams and wells located in the State and to secure the execution thereof; and

WHEREAS, amongst others, under section 16 of the Water (Prevention and Control of Pollution) Act, 1974, one of the function of the Central Pollution Control Board (CPCB), constituted under Water (Prevention and Control of Pollution) Act, 1974 is to coordinate activities of the State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs) and to provide technical assistance and guidance to SPCBs / PCCs; and

WHEREAS, amongst others, under section 16 of the Water (Prevention and Control of pollution) Act, 1974, one of the function of the Central Pollution Control Board, is to promote cleanliness of streams and wells in different areas of the States; and

WHEREAS, holistic approach has been adopted to cover entire Ganga Basin which cover the states of; Uttarakhand, Uttar Pradesh, Bihar, Delhi, and parts of Haryana, Himachal Pradesh, Rajasthan, Madhya Pradesh, Chhattisgarh, Jharkhand and West Bengal; and

WHEREAS, water quality of river Ganga has been monitored at 57 locations and observed that water quality has deteriorated because of disposal of untreated/partially treated sewage and trade effluent making the river not fit for human bathing/consumption; and

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WHEREAS, Hon'ble Supreme court of India has issued directions from time to time regarding stoppage of discharging untreated effluent into Ganga vide Orders dated 09.09.1985, 22.09.1987, 10.12.1981, 12.01.1988, 04.08.1992, 23.07.1993, 17.09.1993, 01.11.1995, 10.10.2006 and October 29,2014 in the writ petition (Civil) no 3727/1985; and

WHEREAS, Hon'ble National Green Tribunal (NGT) has passed several orders and is still continuing hearing on segmentwise approach. CPCB and concerned SPCBs of Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West Bengal have been jointly inspecting the industries and verifying the compliance as per directions of Hon'ble NGT from time to time; and

WHEREAS, Water Quality of river Ganga has been threatened due to disposal of untreated sewage and sullage from drains and small, micro and tiny industries operating without consent of SPCBs and discharging effluents which are mixed with drain effluents and reaching to Ganga directly or through its tributaries; and

WHEREAS, CPCB vide letter no. B190019/NGRBA/CPCB/2011-12/5248-5251 dated 14.10.2015 requested PCBs of Uttarakhand, Uttar Pradesh, Bihar and West Bengal to take action regarding water quality monitoring, industrial pollution control, sewage treatment, solid waste management and River front and Ghat improvement; and

WHEREAS, industrial effluents particularly from Distilleries, Sugar, Textiles, Pulp & Paper and tanneries require special attention as they are seriously water polluting industries. The main emphasis of SPCBs should be on regulating these sectors to abstract lesser quantity of water and limit the discharges; and

WHEREAS, SPCBs are required to keep updated information on number of industries registered in the state particularly in the districts of Ganga and tributaries and consenting the water polluting industries so that sewage is not contaminated with industrial effluents. Also SPCBs should have details of drains joining River Ganga and its tributaries to assess overall sewage load entering the River; and

WHEREAS, the overall objective and target for cleaning the river Ganga is that;

a) It flows uninterruptedly.
b) The water quality should be of notified bathing standards.
c) For maintaining the sanctity of the river, the faecal and pathogenic bacteria should be almost 'Nil' and;
d) The river Ganga and its tributaries support good quality of life with high biodiversity score;

WHEREAS, CPCB along with concerned SPCBs and state urban agencies is monitoring sewage drains, capacity & performance of sewage treatment plants.

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NOW, THEREFORE, in view of above mentioned observations and in the interest of Rejuvenation of River Ganga and in exercise of the power conferred under Section 18 (1) (b) of the Water (Prevention & Control of Pollution) Act, 1974 you are directed to comply with the following directions:

1. SPCB shall submit the implementation status of Action Plan enclosed with letter forwarded vide letter no. B190019/NGRBA/CPCB/2011-12/5248-5251 dated 14.10.2015 (Uttarakhand, UP, Bihar & West Bengal).
2. The SPCB shall take up water quality monitoring of river Ganga, Ramganga (Uttar Pradesh & Uttarakhand) and river Kali-East (Uttar Pradesh) along with adjoining drains and tributaries on monthly basis for physico-chemical parameters and on quarterly basis for micro pollutants (Metals & Pesticide) at the downstream of major urban centres and industrial clusters with a view to prevent pollution load on Ganga starting from March, 2017. In case SPCBs do not have the facilities for analysis of micro pollutants, the samples can be analysed at MoEF & CC accredited labs or delivered at CPCB laboratory for analysis.
3. The SPCB shall take up monitoring of Sewage Treatment Plants (STPs) discharging into river Ganga on monthly basis and forward monthly reports to CPCB starting from March, 2017.
4. The SPCB shall take up monitoring of sewage carrying drains discharging into river Ganga and its tributaries on monthly basis (initially for one year) (including metals and pesticides analysis on quarterly basis starting from March, 2017).
5. SPCB shall regularly monitor compliance of industries and grant consent-to-operate to industries having requisite effluent treatment facilities and complying with the prescribed standards and shall update status online through India e-track web portal hosted by CPCB. SPCB shall ensure that no industry operates without a valid consent and industries operating without consents should be closed down.
6. SPCB shall ensure that no industry disposes coloured effluent into any drain/tributaries so that river Ganga and its tributaries do not receive any coloured effluent.
7. SPCB shall ensure that the drains/small tributaries should be neatly maintained and no filthy material/ garbage or any other solid waste should be disposed in these drains/ tributaries. SPCB shall also take action if solid waste is dumped along drains or bank of river/tributaries. Drains/tributaries should not have any blockage and they should have flow measuring devices. Simultaneously, efforts should be made to rejuvenate the drains by adopting appropriate measures or having STPs at terminal points, as far as possible, considering availability of space.
8. SPCB shall ensure that the religious places and Ghats are provided with public amenities and the effluent generated from these public amenities shall be properly treated and disposed through STPs.
9. SPCB shall ensure complete collection of solid waste arising out of religious activities/temples from Ghats and such waste shall be processed through as per appropriate technology. The Ghats shall be

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well maintained and no floatable material should be visible on river surface.

10. SPCB shall ensure that the cities/towns located on main stem of river Ganga should have clearly notified cremation/ funeral sites and such sites should be properly supervised and half-burnt bodies should not be disposed into river Ganga and its tributaries.
11. Sewage Treatment Plants (STPs) set up for treatment and disposal of domestic sewage before letting it off into river Ganga, shall meet the standards of BOD <10 mg/l, TSS ≤ 10 mg/l and Faecal Coliform Bacteria <230 MPN/100 ml. The STP operator shall be directed to ensure continuous operation of STPs without breakdown. During failure of STPs the time/duration for which untreated effluent is by-passed or disposed untreated shall be regularly informed to the SPCB. The SPCB shall file prosecution against the STP operators, if STPs are found to be non-compliant or are not being operated for a long time without justifiable reasons.
12. SPCB shall monitor the performance of CETPs in the State on monthly basis and also ensure that the online data for treated effluent is transmitted to the server of CPCB/SPCB. SPCB shall prescribe PETP standards to the member industries of CETP and ensure that their monitoring is done at least on monthly basis. In case of failure of CETPs meeting with the standards, the member units shall be held responsible for ensuring that CETPs meet the stipulated standards. In case of failure of compliance, the member units shall close down their operations immediately.
13. SPCB shall ensure that the closure directions issued by CPCB are enforced and compliance reports in respect of each such unit shall be reported within 4 days from the date of receipt of the closure order by SPCB.

SPCB shall acknowledge the receipt of these directions in 15 days and submit pointwise action plan along with roadmap to implement each direction within 30 days from the date of issue of these directions.

14/3/17

(S. P. Singh Parihar)
Chairman

Copy to:

1) Director General,
National Mission for Clean Ganga (NMCG)
1st Floor, Major Dhyan Chand National Stadium
India Gate, New Delhi - 110002

2) The Adviser (CP Division)
Ministry of Environment, Forests &
Climate Change,
Paryavaran Bhawan, CGO Complex, Lodi Road,
New Delhi - 110 003

-56- 120

3) Regional Director,
Regional Directorate -Lucknow/ Kolkata
Central Pollution Control Board :for follow & update the status

4) The Incharge, IT Division, CPCB :for uploading on Website

5) Master copy : for record

6) Copy to Guard file

(A.B. Akolkar)
Member Secretary

-57- (2)

Sl. No.	List of 5 Ganga main stem SPCBs
1.	Uttarakhand Environment Protection & Pollution Control Board, 29/20 , Nemi Road, Dehradun-248001
2.	U.P. Pollution Control Board, Building.No. TC-12V Vibhuti Khand, Gomti Nagar Lucknow-226 010
3.	Bihar Pollution Control Board, 2nd floor, Beltron Bhawan, Jawaharlal Nehru Marg, Shastri Nagar, Patna-8000 23
4.	Jharkhand State Pollution Control Board, T.A.Bldg. HEC, P.O.Dhurwa, Ranchi-834004
5.	West Bengal Pollution Control Board, Paribesh Bhavan, 10-A, Block LA, Sector 3, Salt Lake City, Kolkata-700 091 West Bengal

ANNEXURE-V

Crop Diversification Programme (CDP), a sub scheme of RKVY

A. CDP in Original Green Revolution States

Crop Diversification Programme is being implemented in Original Green Revolution States *viz*: Punjab, Haryana and Western Uttar Pradesh as a sub scheme of RKVY since 2013-14 to divert the area of water guzzling paddy to alternate crops like pulses, oilseeds, maize, cotton and agro forestry with the objective of tackling the problem of declining of soil fertility and depleting water table in these states.

States and Districts covered (2016-17)

Punjab: 19 districts namely Amritsar, Barnala, Bathinda, Faridkot, Fatehgarh Sahib, Fazilka, Ferozepur, Gurdaspur, Hoshiarpur, Jalandhar, Kapurthala, Ludhiana, Mansa, Moga, Muktsar, Patiala, Sangrur, SBS Nagar and Tarn Taran.

Haryana: 10 districts namely Ambala, Yamuna Nagar, Karnal, Kaithal, Jind, Fatehabad, Sirsa, Panipat, Kurukshetra and Sonipat.

Western Uttar Pradesh: 11 districts namely Aligarh, Bulandshahar, Badaun, Bareilly, Bijnor, Moradabad, Pilibhit, Rampur, Saharanpur, Shahjahanpur and Mainpuri.

Interventions covered : Major activities / interventions covered under CDP are given below:

1. **Alternate Crop Demonstrations (40%):** Allocation is made for assistance on cluster demonstrations of alternate crops like pulses, oilseeds, maize, cotton, agro forestry and intercropping with agro forestry during Kharif season for replacing paddy crop.
2. **Farm Mechanization and Value Addition (28%):** In order to create sustainability in diversion of paddy area to alternate crops, allocation is made for farm machinery, processing and value addition.
3. **Site Specific Activities (30%):** The allocation is made for providing assistance to the farmers for the activities taken by the states according to their local needs.
4. **Contingency for awareness, training, implementation, monitoring, etc (2%):** An amount of 2% of total state allocation is earmarked for awareness trainings, implementation & monitoring of the programme.

Pattern of Assistance under Crop Diversification Programme (CDP)

A. CDP in Original Green Revolution States

The details of financial assistance for the alternate crop demonstrations and other components during 2016-17 under Crop Diversification in Original Green Revolution States is as under:

Sl.No.	Component/Intervention	Rate of Assistance
1.	Alternate crop demonstrations	
i.	Pulses	NFSM norms
ii.	Oilseeds	NMOOP norms
iii.	Coarse cereals including maize	NFSM norms
iv.	Cotton	NFSM norms
v.	Agro forestry system as sole crop	Rs. 10,000/ha
vi.	Plantation of trees on farm bunds	Cost of saplings limited to Rs.2000/ha
vii.	Inter cropping with agro forestry system	Rs. 5000/ha
2.	Farm Mechanization & Value Addition	According to norms approved under Sub-Mission on Agricultural Mechanization / any Centrally Sponsored Scheme / State scheme
3.	Site Specific Activities	According to norms approved under any Centrally Sponsored Scheme / State scheme
4.	Contingency for awareness training, implementation, monitoring, etc	According to norms approved under any Centrally Sponsored Scheme / State scheme

ANNEXURE - VI

Decadal (Flow Data in Cum/sec)

description	avg mosoon	avg non monsoon
KARANPRAYAG		
Last 10 yrs	169.33	34.62
10-20 yrs	151.03	31.96
20-30 yrs	156.03	30.97
30-38 yrs	154.83	30.56
Rishikesh		
Last 10 yrs	1364.48	311.89
10-20 yrs	1479.27	242.10
20-30 yrs	1372.31	251.86
30-40 yrs	1645.29	231.65
40-44 yrs	1824.95	240.99
DEOPRAYAG		
Last 10 yrs	1095.80	347.65
10-20 yrs	1394.06	226.79
20-30 yrs	1374.45	243.98
30-40 yrs	1223.95	235.08
40-43 yrs	1235.90	233.49
KANPUR		
Last 10 yrs	2047.94	236.20
10-20 yrs	1778.37	212.21
20-30 yrs	1551.76	141.17
30-40 yrs	2095.85	172.05
40-50 yrs	2101.67	163.52
50-56 Yrs	2637.67	259.32
ALLAHABAD		
Last 10 yrs	4543.96	465.20
10-20 yrs	6339.27	604.64
20-30 yrs	5659.68	449.08
30-40 yrs	8229.99	565.48
40-44 yrs	12099.39	496.76
GANDHIGHAT		
Last 10 yrs	13536.49	1762.32
10-20 yrs	16674.64	1708.22
20-30 yrs	15432.68	1876.72
30-40 yrs	15739.58	1640.47
40-50 yrs	13620.76	1355.70
HATHIDAH		
Last 10 yrs	18046.18	2188.31
10-20 yrs	18757.71	2399.92
20-30 yrs	18267.62	1908.28
30-40 yrs	20882.52	2289.66
40-49 yrs	17954.97	2214.79
AZMABAD		
Last 10 yrs	21162.44	1947.20
10-20 yrs	18206.69	2376.60
20-30 yrs	18318.72	2220.76

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30-40 yrs	26308.02	2611.52
40-50 yrs	17002.63	2225.91
FARAKKA		
Last 10 yrs	19726.50	3115.83
10-20 yrs	24849.73	3489.74
20-30 yrs	24397.86	2910.72
30-39 yrs	26948.05	2983.17

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Decadal (Flow Data in Cum/sec)		
description	avg mosoon	avg non monsoon
BHITAURA		
Last 9 yrs	9187	27.17
10-20 yrs	7798.35	23.7
20-30 yrs	7653.29	29.04
30-40yrs	4833.46	27.8
40-37 yrs	66444.48	37.24
SHAHZADPIR		
Last 10 yrs	17765.54	26.98
10-20 yrs	10098.93	11.18
20-30 yrs	5991.62	25.55
30-40 yrs	3862.89	32.82
40-50 yrs	5458.55	27.27
VARANASI		
Last 10 yrs	34701.97	117.67
10-20 yrs	46186.86	123.36
20-30 yrs	44961.07	116.42
30-40 yrs	42131.5	143.62
40-50yrs	33971.82	130.26
FATEHGARH		
Last 10 yrs	10904.30	5.25
10-20 yrs	7034.52	6.59
20-30 yrs	5684.40	27.26
30-40 yrs	5742.24	9.09
40-46 yrs	11690.76	8.15
KACHLA BRIDGE		
Last 10 yrs	9554.27	5.59
10-20 yrs	9643.53	5.98
20-30 yrs	8764.35	10.89
30-40 yrs	5169.85	3.98
40-46 yrs	9426.11	9.95
MIRZAPUR		
Last 10 yrs	49596.47	129.28
10-20 yrs	72833.79	124.04
20-30 yrs	42166.2	131.47
30-40 yrs	36134.63	129.71
40-41 yrs	20186.1	105.65

ANNEXURE-VII

CHAPTER 4:

RECOMMENDATIONS

4.1 Introduction

The Terms of Reference (ToR) of the Committee were;

(i) To establish need for de-silting for ecology and e-flow of the river
(ii) To form Guidelines for works on de-siltation from Bhimgauda (Uttarakhanda) to Farakka (West Bengal) and will provide necessary approvals for de-siltation works; and
(iii) To complete the report within three months

Based on discussions with the State Governments, existing Guidelines/Practices, literature review, etc., point wise recommendations on the above Terms of Reference are as under;

4.2 De-siltation and Ecology

The wording of the Terms of Reference indicates that de-silting would improve ecology and e-flow of the river. This concept might have emerged from few case studies where conservation and diversions works, which included inter-alia de-siltation works, have contributed to river restoration. But actually, it is conservation and diversion work which has contributed to augmentation in river flow and consequently towards restoration of river. De-siltation, per se, has no relation with ecology and/or environmental flow in the river. At best, de-siltation, if carried out properly, would improve hydraulic performance of the river, and thereby, may contribute towards betterment of ecology.

Generally, de-siltation works do more harm to ecology and environment flow, which has compelled Hon'ble Supreme Court and National Green Tribunal to pronounce judgement making environment impact assessment and clearance mandatory for sand mining / de-siltation works. The impacts of gravel/sand mining on ecology have already been brought out by GSI (para 3.2.2 ante). There is a need to realise the value of sediment and to view it as an asset. Gravel has a role to play in providing spawning habitat for fish, aerating water with oxygen by increasing local roughness and inducing turbulent flows. Fine sediment is important for species such as lamprey, whilst the process of floodplain deposition is vital for nutrient transfer between the aquatic and terrestrial environment. As examples, the gravel supports fisheries, which pay their way through rod-licensing and the fine sediment promotes grass growth in water meadows, which provide an ecosystem service in the form of pasture for cattle grazing and improved in-stream water quality.De-silting/dredging may restrict over bank flow, thereby reducing ground water

recharge and flood detention in adjoining low lying areas, and consequently, reduction in base flow. The above has also been observed through a study to assess the impact of sand dredging along parts of New Calabar River channel morphology and the implication for biological resources conservation. The study has concluded that intense and uncontrolled sand dredging in the study area would mean detrimental impact on river management systems as well as future of the aquatic biodiversity and biological resources in the area (Mmom, et.al. 2012).

Thus, the Committee has the opinion that de-siltation works can at best improve hydraulic performance of the river and have no direct role in improving ecology and/or environment flow in the river. On the other hand, indiscriminate de-silting or sand mining would cause adverse impacts on river ecology and/or environment flow.

4.3 Guidelines for De-siltation Works

Recognizing the importance of sediment transport in rivers, the Committee proposes certain following basic principles of siltation in rivers, which should be kept in mind while considering de-siltation works;

a. Catchment Area Treatment and Watershed Development works along with good agricultural practices and river bank protection/anti-erosion works are necessary to reduce silt inflow into the river system and must be undertaken in a comprehensive way.

b. Erosion, movement and deposition of sediment in a river are natural regulating functions of a river. The river stream has to complete its geo-morphological cycles from youth, mature to old age. A stable river is able to constantly transport the flow of sediments produced by watershed such that it's dimensions (width and depth) pattern and vertical profile are maintained without aggrading (building up) or degrading (scouring down).

c. The de-siltation quantity should not exceed deposition rate, i.e., the amount of boulders, cobbles, pebbles, and sand deposited in river bed, which is the amount delivered to the river from catchment area and from bank erosion minus amount transported downstream each year. In another words, dredging should generally be avoided.

d. It is compulsive nature of river to meander in their beds and therefore they will have to be provided with adequate corridor for meandering without hindrance. Any attempt to diminish the width of the corridor (floodway) and curb the freedom to meander would prove counterproductive. In other words, latitudinal connectivity must be ensured.

e. Instead of "keeping the silts away", strategy to "giving the silts way" should be adopted. This means that we should not cause all sediment loads to deposit within the river and form hidden peril, but let them deposit on suitable lands under reasonable planning, such as silting up new platforms, consolidating levee backs and reforming the waterlogged lowlands. Thoughts of utilization of silts should be paid due attention to, such as flood and silt diversion, as well as silt trapping and land reclamation in the reservoir region.

4.4 DE-SILTATION WORKS GUIDELINES

In order to better assess and manage de-silting works in the reach under consideration, following steps are recommended:

- Reach wise sediment transport processes must be studied along with establishing annual sediment budgets to guide de-silting activities;
- Annual reports be produced describing the previous year's de-silting/ dredging activity (this requires the ability to track removals through a "Sand Registry"); and
- A technical institute be entrusted to conduct the sediment budget, morphological and flood routing studies that would substantiate the necessity of the de-silting of the reach under consideration.

In specific reference to de-siltation works in river Ganga, in addition to MoEF&CC Sand Mining Guidelines, which are statutory in nature, and the GSI Guidelines, following Guidelines are suggested;

1. River Ganga tends to achieve equilibrium on its own given the hydrology, sediment and natural bed and bank disposition. It is necessary to provide the river sufficient flood plain areas and lakes along the river to moderate the flood level. Any encroachment of flood plain, reclamation of lakes or disconnection of lakes from river should be avoided, rather adjoining lakes/depressions may be de-silted to increase their storage capacities. The de-silting of lakes, etc., shall be in such a manner that the sediment continuity is maintained and should not lead to head cut that creates safety issues for the river crossings, water intakes or river training works locally or upstream.

2. Upstream reaches of natural constriction works, like barrages/bridges, etc., tend to get silted leading to wandering of river. In cases of high Looseness Factor, that is, ratio of actual width to the regime (lacey's) width, there is a tendency for shoal formation upstream of the structures, which is seen in case of Bhimgauda or Farakka Barrages. Possibly river training, cut-off developments and provision of extra water way near the constrictions could be tried after proper assessment without impacting the morphology of river elsewhere. The area freed from the

development in the form of oxbow lakes should be used for flood moderation rather than reclaiming it for other purposes.

3. In case where constriction is causing large scale siltation, de-siltation along the preselected channel to deepen and attract the flow could be tried to guide the main course of flow. The dredged material may be dumped along the alternate channel which was to be closed to avoid bank erosion. Care shall be taken to develop stable channel which do not affect the flow either on upstream or downstream. Efforts should be made to provide silt continuity along the weirs and barrages.

4. Embankments, spurs and river training measures provided to protect the banks should not encroach upon the flood plains and delink the lakes, flood plains and other riverine environment from the river.

5. The proposed de-silting of any river reach need to be justified bringing outclearly the flooding caused due to siltation along with technical comparisons of the alternative flood mitigation measures with "do nothing" or "proposed de-silting/ dredging" being other options. It should invariably be associated with sediment flux studies and morphological studies to confirm no significant adverse effect on downstream or upstream reach of the river including the safety and effectiveness of river crossings, water intakes, existing river bank / flood protection measures etc.

6. De-silting of the confluence points, especially with huge silt carrying tributaries, such as Ghagra, Sone, etc., may be necessary to make confluence hydraulically efficient.

7. Reservoirs in main river Ganga and its tributaries, particularly in upper reaches, should be operated in such a manner that first floods, having high silt load, are allowed to pass through without storage and river flows in later phases of the monsoon are only stored for use during non-monsoon season. This would require quantitative long term forecast with decision support system to be established for optimum reservoir operations.

8. Agricultural practices along the flood plains should be such that it does not disturb the passage of flood by increasing the resistance to flow causing aggradation.

9. River morphological studies should be carried out to initiate in-stream channel improvement works. It shall be ensured that the headcut induced upstream should automatically de-silt the reach. The headcut induced should progress upstream slowly so that the flora and fauna will have sufficient time to re-adjust its habitat.

10. The proposal should also contain environmentally acceptable, practically possible silt disposal plan. River gravels/sands/silts could be used gainfully in construction works, including housing, roads, embankment and reclamation works. Under no circumstances, disposal should create any contamination of the water bodies,

harmful to the flora and fauna existing adjacent to the disposal sites or disposed material should come back into the river again.

11. In view of specific issues being raised about siltation in front of the Farakka Barrage, it is suggested that the shoals formed may be de-silted/dredged by taking care of the river training works around it. The sediment removed may be used for re-grading the Farakka Feeder Canal or may be used for strengthening the existing embankments around the barrage pond. Sediment sluicing may be incorporated to maintain sediment continuity from upstream to downstream reaches after carrying out necessary studies.

4.5 Institutional Arrangement for Appraisal of De-siltation Works

The Terms of Reference stipulated the Committee to provide necessary approvals for de-siltation works. But, as stated earlier, that provide necessary approvals for de-siltation works would require extensive manpower and infrastructure. Considering limited tenure and wherewithal available, the Committee cannot be expected to appraise and grant necessary approvals for de-siltation works, which would be a process of continuous nature. However, the Committee intends to recommend an institutional arrangement for appraisal of de-siltation works.

The MoEF&CC Guidelines and Sand Mining Notifications S.O. No. 141(E) dated 15th January, 2016 has set up District Level Environment Impact Assessment Authority (DEIAA) for grant of environmental clearance for Category 'B2' Projects for mining of minor minerals, for all the districts in the country under the Chairpersonship of District Magistrate or District Collector of the district. A District Level Expert Appraisal Committee for all the districts of the country under the Chairpersonship of Senior most Executive Engineer, Irrigation Department has also been set up primarily to prepare District Survey Report for sand mining or river bed mining and mining of other minor minerals and to assist the above Authority. The said notification has, however, exempted dredging and de-silting of dams, reservoirs, weirs, barrages, river, and canals for the purpose of their maintenance, upkeep and disaster management from the requirement of environmental clearance. Therefore, envisaged de-siltation works in river Ganga would fall out of the purview of the said Authority. Moreover, district or even State level authorities cannot comprehensively study large river like Ganga, which passes through five States and the basin includes as much as eleven States. Therefore, there is a need for a national level technical agency, with active involvement of all States, to carry out the intended studies and appraise any proposal for de-siltation works.

Incidentally, there exists a Ganga Flood Control Commission (GFCC), which inter-alia includes technical experts of all riparian States and representatives of Central Water Commission, Ministry of Road Transport and Highways and Railway Board. Its main functions inter-alia include preparation of comprehensive plan for flood control in the Ganga Basin, to draw out a phased and co-ordinated programme of implementation of

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works included in the comprehensive flood management plans and to techno-economic appraisal of all major and medium flood control, drainage, anti-waterlogging and anti-erosion schemes of by and large entire Ganga basin. The Committee recommends that GFCC be entrusted with additional mandate to carry out necessary studies with regard to sediment management in river Ganga and incorporate sediment management strategies in their comprehensive plans prepared for all sub-basins of river Ganga. These integrated plans could serve as base documents for Central, State and District Level Authorities for considering proposals for environment clearances for works related to river Ganga.

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ANNEXURE-VIII

A brief report on "Alternate water supply management strategies in arsenic affected/vulnerable areas: Mapping of Arsenic affected zones/regions in Eastern U. P. (Balia district)"

Introduction

The study is aimed at the identification of arsenic safe aquifer along with the vulnerable and arsenic affected zones/regions in Eastern U. P. (Balia district). In the study, we have setup the framework for chemical analysis of surface water and hydrogeochemical characterization of groundwater. For sampling campaign, we have identified different highly arsenic affected villages along with the villages which have not been affected by arsenic.

Study area description

Balia is the eastern most district of Uttar Pradesh, covering an area of 2981 sq.km, lies in between 25°33' and 26°11'N latitude and 83° 38' and 84° 39'E longitude. The district is bounded on the north by Ghagra River and in the south by Chhoti Saryu and Ganga River (Figure 1). The entire area forms an interfluves zone of Ghagra and Ganga River and possesses plain flat topography. The geological formations within the district are Gangetic alluvium consisting of older alluvium with a thin cover of soil. The age of these formations is ranged from upper Pleistocene to recent. Three blocks namely Dubhar, Belhari and Bairiyan of Ballia district have been selected for groundwater and surface water sampling. The selection of sampling locations has been based on the local geology and morphology.

Surface and Ground water sampling

Surface and ground water samples have been collected for two different sampling events (April, 2015 and May, 2016) from different depth of tube-well (India-marked-hand pump) and the Ganga and Ghagra River. In April, 2016, surface and ground water samples have been collected from 26 different locations of Dubhar, Belhari and Bairiyan administrative blocks of Ballia district. In May 2016, water samples from both surface and ground water have been collected from 148 different locations, which covered all 17 administrative blocks of Balia district. The details of the sampling locations are in Figure 2. The collected samples were analyzed to determine major solute concentration after taking all precautionary measures as required for preservation of samples for detection of cation, anion and bicarbonate.

Findings

Followings have been noted from the analysed data:

1. Groundwater with As concentration (>50 µg/L, maximum of 461 µg/L) has been extensively observed mainly in the Holocene alluvial aquifers of Balia (UP) District.
2. The dominant cations have been found Ca^{2+} followed by Na^{2+}, Mg^{2+}, and K^{+}, and Bicarbonate (HCO_3^-), which represent the primary source of alkalinity. HCO_3^- concentration ranged between 151.2 to 591.4 mg/L. High HCO_3^- concentration in the groundwater is because of the presence of carbonaceous sandstones in the aquifers and weathering of carbonate minerals related to the flushing of CO_2 rich water from unsaturated zone, where it is formed by decomposition of organic matter
3. Weathering of carbonate and silicate minerals, surface water interactions, ion exchange, redox processes, and anthropogenic activities are the primary parameters responsible for high concentrations of cations, anions and As in the groundwater.

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4. Arsenic concentration varied in the range of 0- 461 µg/L; the enriched concentration of As has been found in the area close to the convergences of Ghagra and Ganges river (Figure 3).
5. The strongly positive correlation ($(R^2=0.73)$ between $(Ca^{2+}+Mg^{2+})$ vs Tz^{+} (Total cations) reflects the high abundance of $(Ca^{2+}+Mg^{2+})$ in the groundwater. This is attributed by carbonate weathering, which is consistent with the lithology of the study area.
6. In the groundwater, Fe^{2+} has been found to be positively correlated with As ($R^2=0.633$), likewise, SO_4^{2-} also showed a moderate positive correlation (0.572) with As, which reaffirmed that pyrite/sulphide oxidation may be one of the governing processes for As liberation/mobilization.
7. Speciation modeling carried out by using program PHREEQC to check the possibility of solubility control for As and other species showed that most of the groundwater was under saturated on poorly crystalline Fe (III) phases such as, Fe(OH)3, but supersaturated on well-crystalline phases such as, goethite. Some samples were supersaturated with respect to siderite ($FeCO_3$), suggesting that this phase may be a sink for dissolved iron. Groundwater has been strongly under saturated with respect to mackinawite (FeS) and other sulphide minerals. However, these results need rigorous analysis because of uncertain redox status.

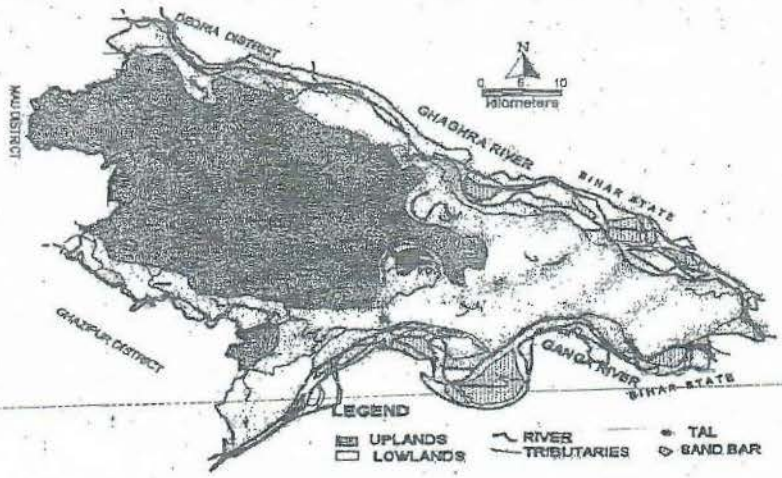

Figure 1: Geomorphology and drainage map of Balia District, UP (Source CGWD-2011)

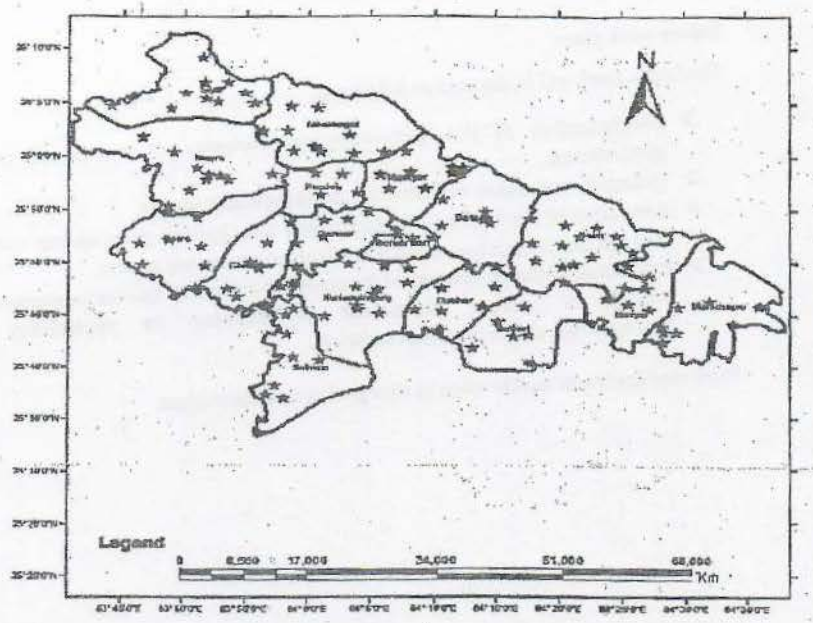

Figure 2: Details of hydrogeochemical sampling locations in Balia.

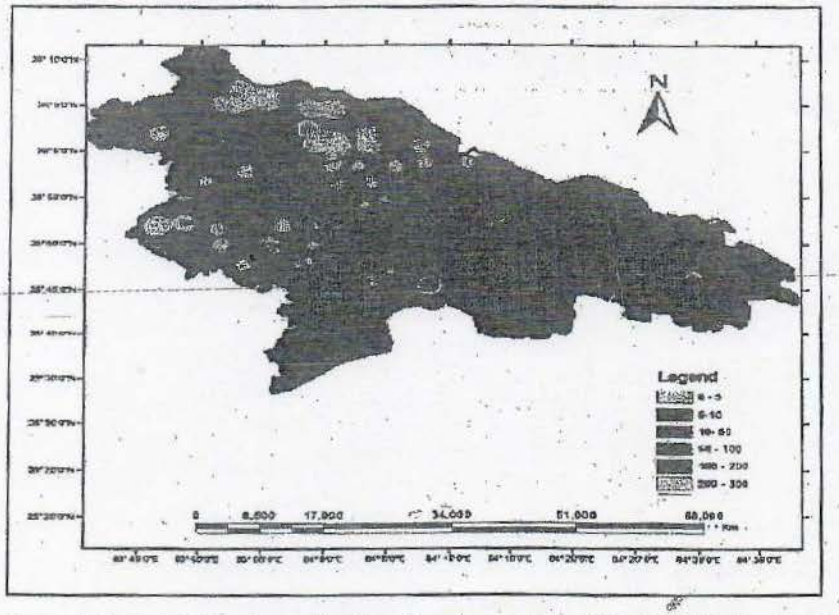

Figure 3: Spatial distribution of the Arsenic concentration within the Balia district. The values are in µg/L.

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Future work plan:

The future work will be focused on following:

- Determination of the spatio-temporal variation of arsenic in shallow/deep groundwater.
- Delineation of arsenic safe zone for drinking water supply.
- Evaluation of the controls of regional and local hydrology on arsenic contamination through continuous in-situ monitoring of contaminated aquifer
- Evaluation of the mechanism of transport of arsenic in geo-environmental condition through a column experiment to examine its dependency on any hydrogeological/geochemical condition.

These envisaged tasks shall be taken up after getting financial support.

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APPENDIX - I

MINUTES OF THE EIGHTH SITTING OF THE COMMITTEE ON ESTIMATES

(2017-18)

The Committee sat on Tuesday, the 8th August, 2017 from 1500 hrs. to 1640 hrs. in Committee Room 'C', Parliament House Annexe, New Delhi.

PRESENT

Dr. Murli Manohar Joshi – Chairperson

Members

2 Shri George Baker
3 Shri Ashwini Kumar Choubey
4 Shri Dushyant Chautala
5 Shri Ram Tahal Choudhary
6 Col. (Retd.) Sona Ram Choudhary
7 Shri Ramen Deka
8 Shri Sanjay Dhotre
9 Shri P.C. Gaddigoudar
10 Smt. Raksha Khadse
11 Dr. Sanjay Jaiswal
12 Shri Rajesh Pandey
13 Shri Ravindra Kumar Pandey
14 Shri Nanabhou Falgunrao Patole
15 Dr. Bhagirath Prasad
16 Shri Y.V. Subba Reddy
17 Shri Janardhan Singh Sigriwal
18 Shri Jugal Kishore Sharma
19 Shri Ganjendra Singh Shekhawat

SECRETARIAT

1. Smt Sudesh Luthra - Additional Secretary
2. Shri N. C Gupta - Joint Secretary
3. Shri Vipin Kumar - Director

2. At the outset, the Chairperson welcomed the members to the sitting of the Committee.

3. The Committee then took up for consideration the following draft Report(s):-

(i) *** *** ***

(ii) Draft Report on the Action Taken by the Government on the Observations/ Recommendations contained in the 15th Report of the Committee on Estimates (2016-17) on the subject "Ganga Rejuvenation" pertaining to Ministry of Water Resources, River Development and Ganga Rejuvenation; and

(iii) *** *** ***

4. *** *** *** With regard to Draft Report on (ii) Ganga Rejuvenation, the Committee desired that critical data/information furnished in the Appendices of the Action Taken Replies of the Report may be analysed and incorporated in this Report. With the aforesaid modification/addition, the Committee adopted *** the Report(s) and authorised the Chairperson to finalise the Report(s) in the light of factual verification from the Ministry concerned and present the same to Lok Sabha.

5. *** *** ***

The Committee then adjourned with vote of thanks to the Chair.

*** Matter not related to this Report

APPENDIX - II

ANALYSIS OF THE ACTION TAKEN BY GOVERNMENT ON THE RECOMMENDATIONS CONTAINED IN THE FIFTEENTH REPORT OF THE COMMITTEE ON ESTIMATES (SIXTEENTH LOK SABHA)

(i)	Total number of recommendations/observations	31
(ii)	Recommendations/Observations which have been accepted by the Government Sl. Nos. 1,2,3,7,8,9,11,15,16,17,18,19,22,23,24,25,26,27,28,29 and 30	22
	Percentage of total recommendations	70.97%
(iii)	Recommendation/Observation which the Committee do not desire to pursue in view of the Government's reply Percentage of total recommendations	Nil
	Percentage of total recommendations	Nil
(iv)	Recommendations/Observations in respect of which Government's replies have not been accepted by the Committee Sl. No. 4,5,6,10,12,13,14,20,21 and 31	9
	Percentage of total recommendations	29.03%
(v)	Recommendation/Observation in respect of which final replies of Government is still awaited.	Nil
	Percentage of total recommendations	Nil