Revised

ACTION PLAN

FOR

RESTORATION & CONSERVATION

OF

SARISWA (SIRSIYA) RIVER, BIHAR

PRIORITY-III

Approved by

River Rejuvenation Committee

(Constituted in compliance of order of the Hon'ble NGT)

बिहार सरकार

Department of Environment, Forest & Climate Change, Govt. of Bihar

Submitted to:

Central Pollution Control Board, Delhi


BIHAR
RIVER MAP
N
INDIA
NEPAL
UTTAR PRADESH
JHARKHAND
WEST BENGAL
BANGLADESH
Burhi Gandak
Gandak
Baghmati
Karcha
Kosi
Konkai
Mahananda
Ghaghra
Ganga
Ghugri
Punpun
Phalgu
Son
Badua
Dhadhar
Bettiah
Motihari
Sitamarhi
Shivhar
Gopalganj
Siwan
Muzaffarpur
Darbhanga
Madhubani
Supaul
Araria
Kishanganj
Madhepura
Saharsa
Samastipur
Chhapra
Hajipur
Purnia
Katihar
PATNA
Buxar
Ara
Khagaria
Begusarai
Munger
Bhagalpur
Arwal
Jahanabad
Bihar Sharif
Luckeesarai
Shekhupura
Bhabhua
Sasaram
Aurangabad
Gaya
Nawada
Jamui
Banka
LEGEND
International Boundary
State Boundary
District Boundary
State Capital
District Headquarter
Map not to Scale
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(Updated on 5th November 2012)

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Executive Summary

Out of 351 polluted river stretches, in addition with other rivers, Sariswa (Sirsiya) river at Raxaul also has been identified as polluted river stretch under category Priority-III in the State of Bihar.

The Hon'ble NGT in its order dated-20.09.2018 directed all the States to prepare action plan within two months for making all the polluted river stretches fit at least for bathing purposes (i.e. BOD <3mg/L and FC <500 MPN/100ml) within six months from the date of finalization of the action plans.

The river, Sariswa (Sirsiya), a small tributary of Sikrahna (Burhi Gandak), originates from Pathlahia hill of the dense Ramban forest in Nepal. It enters in Indian Territory at Raxaul, East Champaran District of Bihar (Latitude: 26°59'18.12'' N Longitude: 84°51'19.15''E). The river joins with Bangari river, which also originates from Nepal, flows about 30 Km from north to south through rural areas in Indian Territory and joins Burhi Gandak river in east of Sugauli in East Champaran District (Latitude: 26°43'39.03''N Longitude: 84°56'13.28''E). As per information, it receives industrial waste water discharge from many industries located at Birganj (in Nepal) in addition to domestic waste water/sewage from the area. It does not receive any industrial discharge in Indian Territory. However, it receives domestic waste water/sewage from 03 significant drains at Raxaul, a sub-divisional town having population of 55532 as per 2011 India census.

Bihar State Pollution Control Board is regularly monitoring the water quality of Sirsiya River at 02 locations under National Water Quality Monitoring Program (NWMP) on monthly basis.

The water quality report of Sirsiya river indicates low DO and high BOD (<20 mg/L, except one day) and FC more than 500 MPN/100ml. The low oxygen balance and high value of BOD in the Sirsiya River reflects the waste discharge in the system and intensity of the bio-degradable matter present in the water body. The presence of higher bacteriological population of TC & FC also confirms the discharge of sewage/domestic waste water in this river.

There is no water polluting or grossly polluting industry on the banks of Sirsiya River in Indian Territory. There is also no industrial cluster/area /estate in this polluted river stretch. However, it receives industrial waste water discharge from many industries located at Birganj, in Nepal.

Presently, there is no sewerage network & STP for sewage management at Raxaul Nagar Parishad area. Ground water quality has been assessed under safe category. Raxaul Municipal Council has been declared open defecation free (ODF). There is no control structure on Sirsiya River and as such maintenance of E-flow is not applicable. Action plan has been formulated in accordance with the order of the Hon'ble NGT dated-20.09.2018.

1. BACKGROUND:

Water is one of the most essential requisites that nature has provided to sustain life on earth. Without water there would be no life. Population growth, rapid development and indiscriminate and excessive use of water have resulted in great depletion and deterioration of water resources. Water bodies are being polluted by discharge of sewages, industrial effluents and run-off water of the catchment area. Therefore, it is a clarion call to take necessary initiatives to maintain & restore the sanctity of water bodies.

The Hon'ble NGT, Principal Bench, New Delhi registered application no. 673/2018 on the basis of news item dated-17.09.2018 authored by Sri Jacob Koshy titled in "The Hindu" under the heading **"More river stretches are now critically polluted: CPCB"**. According to news item CPCB identified a total of 302 polluted river stretches in the country during 2015 which have since increased to 351. The polluted river stretches have been divided into five priority categories i.e. I, II, III, IV & V.

Priority I	BOD greater than or equal to 30 mg/L
Priority II	BOD between 20-30 mg/L
Priority III	BOD between 10-20 mg/L
Priority IV	BOD between 06-10 mg/L
Priority V	BOD between 03-06 mg/L

Out of 351 polluted river stretches, in addition with other rivers, Sariswa (Sirsiya) river at Raxaul also has been identified as polluted river stretch under category Priority-III in the State of Bihar.

2. ACHIEVABLE TARGETS AS PER THE HON'BLE NGT DIRECTIONS:

The Hon'ble NGT in its order dated-20.09.2018 directed all the States to prepare action plan within two months for making all the polluted river stretches fit at least for bathing purposes (i.e. BOD <3mg/L and FC <500 MPN/100ml) within six months from the date of finalization of the action plans.

In compliance of the order, a River Rejuvenation Committee (RRC) has been constituted by the Department of Environment, Forest & Climate Change, Govt. of Bihar vide notification no. 1412(E), dated-31.12.2018 **(Annexure - 1)** which includes Director, Ecology & Environment, Department of Environment, Forest & Climate Change, Govt. of Bihar; Special Secretary, Urban Development & Housing Department, Govt. of Bihar; Director Industries, Department of Industry, Govt. of Bihar & Member Secretary, Bihar State Pollution Control Board, Patna as members.

3. SARISWA (SIRSIYA) RIVER :

The river, Sariswa (Sirsiya), a small tributary of Sikrahna (Burhi Gandak), originates from Pathlahia hill of the dense Ramban forest in Nepal. It enters in Indian Territory at Raxaul, East Champaran District of Bihar (Latitude: 26°59'18.12'' N Longitude: 84°51'19.15''E). The river joins with Bangari river, which also originates from Nepal, flows about 30 Km from north to south through rural areas in Indian Territory and joins Burhi Gandak river in east of Sugauli in East Champaran District (Latitude: 26°43'39.03''N Longitude: 84°56'13.28''E).

As per information it receives industrial waste water discharge from many industries located at Birganj (in Nepal) in addtion to domestic waste water/sewage from the area.

It does not recieve any industrial discharge in Indian Territory. However, it receives domestic waste water/sewage from 03 significant drains at Raxaul, a sub-divisional town having population of 55532 as per 2011 India census.

4. WATER QUALITY MONITORING NETWORK IN SIRSIYA RIVER

Bihar State Pollution Control Board is regularly monitoring the water quality of Sirsiya River at 02 locations under National Water Quality Monitoring Program (NWMP) on monthly basis. The details of the monitoring stations are shown below:-

Sampling location and Station code	Latitute / Longitute	Frequency of Sampling	Remarks
Sirsiya river at Raxaul-Beering Road Bridge Near custom Check Post office, Raxaul, East Champaran **Station code**:1822	26.988154 84.855237	Monthly	U/S of Raxaul Town (ULBs: Nagar Parishad) (Entry point in Indian Territory)

Sirsiya river at Koriya Tola, Raxaul **Station code**:3136	26.980130 84.857273	Monthly	D/S of Raxaul Twon (ULBs: Nagar Parishad)

5. WATER QUALITY REPORT OF SIRSIYA RIVER:

Location: Raxaul at Entry point in Indian Territory (Near Custom Office) during Year (2013-2014 to 2018-19)

Year		pH	D.O. mg/L	B.O.D. mg/L	T.C. MPN/100mL	F.C. MPN/100mL
2013-14	Minimum	7.68	0.0	2.9	16000	3000
	Maximum	8.10	6.0	15	24000	9000
	Average	7.69	4.2	7.0	17600	5400
2014-15	Minimum	6.88	0.0	3.0	16000	5000
	Maximum	7.66	4.8	14.0	24000	5000
	Average	7.33	4.1	10.0	18666	5000
2015-16	Minimum	7.16	0.0	1.8	9000	500
	Maximum	8.24	8.2	18	24000	3000
	Average	7.84	4.51	6.98	16285	1757
2016-17	Minimum	6.99	Nil	7.0	4100	2000
	Maximum	7.79	2.5	12.0	9000	5000
	Average	7.35	0.20	9.03	6425	3075
2017-18	Minimum	6.90	0.0	8.0	5600	2600
	Maximum	8.01	2.1	15.0	15000	7000
	Average	7.36	0.26	11.6	7912	3537
2018-19	Minimum	6.89	0.0	6.0	7000	3100
	Maximum	7.47	0.0	14.0	29000	21000
	Average	7.20	0.0	10.25	14875	8625

Location: Raxaul at Entry point in Indian Territory (Near Custom Office) during Year (2019-20)

Month	Date	pH	D.O mg/L	B.O.D mg/L	C.O.D mg/L	T.C MPN/ 100 ml	F.C MPN/100 ml
May	28.5.19	6.84	Nil	10	60	22000	17000
June	24.6.19	7.32	Nil	6.0	60	43000	1700
Aug.	20.8.19	7.39	Nil	8.4	52	35000	12000
Sept.	17.9.19	7.55	4.4	2.8	32	92000	14000
Oct,	19.10.19	7.36	Nil	30	96	160000	35000
Nov.	19.11.19	7.60	Nil	6.0	48.0	160000	54000
Dec.	27.12.19	7.40	Nil	7.0	36.0	160000	28000

Location: Koriya Tola at Raxaul during Year (2013-2014 to 2018-19)

Year		pH	D.O. mg/L	B.O.D. mg/L	T.C. MPN/100mL	F.C. MPN/100mL
2013-14	Minimum	7.05	0.0	2.9	16000	2400
	Maximum	8.10	6.2	16	24000	9000
	Average	7.68	4.2	7.3	17600	4880
2014-15	Minimum	6.98	0.0	2.8	9000	2400
	Maximum	7.56	5.0	16.0	16000	3000
	Average	7.32	2.8	7.6	11400	2800
2015-16	Minimum	7.19	0.0	2.0	16000	5000
	Maximum	8.86	7.6	20	24000	9000
	Average	8.03	4.27	7.8	19428	7285
2016-17	Minimum	7.16	Nil	5.5	4000	1900
	Maximum	7.73	2.8	12.0	9000	7000
	Average	7.34	0.23	8.6	6041	3075
2017-18	Minimum	6.93	0.0	8.0	7000	3100
	Maximum	7.87	3.8	11.0	22000	11000
	Average	7.39	0.8	9.0	11375	5212
2018-19	Minimum	6.95	0.0	8.0	15000	6100
	Maximum	7.57	0.0	12.0	32000	21000
	Average	7.20	0.0	9.25	22750	13887

Location: Koriya Tola at Raxaul during during Year (2019-20)							
Month	Date	pH	D.O mg/L	B.O.D mg/L	C.O.D mg/L	T.C MPN/ 100 ml	F.C MPN/100 ml
May	28.5.19	6.92	Nil	6.8	48	35000	17000
June	24.6.19	7.23	Nil	5.6	52	35000	1400
Aug.	20.8.19	7.34	Nil	7.6	44	43000	15000
Sept.	17.9.19	7.27	5.1	2.6	24	160,000	21000
Oct.	19.10.19	7.27	Nil	30	100	160,000	28000
Nov.	19.11.19	7.20	Nil	6.0	40	160000	28000
Dec.	27.12.19	7.20	Nil	6.3	32.0	160000	54000

6. PRIMARY WATER QUALITY CRITERIA FOR VARIOUS USES:

Quality Class (Use Class) Designated best use		Parameter			
		pH	Dissolved Oxygen (D.O.) mg/L Min.	Bio-Chemical Oxygen Demand (B.O.D.) mg/L Max.	Total Coliform MPN/100ml Max.
A	Drinking water source without conventional treatment but after disinfections	6.5-8.5	6	2	50
B	Outdoor bathing organized	6.5-8.5	5	3	500
C	Drinking water source with conventional (treatment followed by disinfections)	6.0-9.0	4	3	5000
D	Propagation of Wild life, fisheries	6.5-8.5	4	-	-
E	Irrigation, Industrial Cooling, Controlled Waste Disposal	6.5-8.5	-	-	-

Primary Water Quality Criteria for bathing

pH	6.5 to 8.5
Dissolved Oxygen (DO)	5 mg/L or more
Biochemical Oxygen Demand (BOD)	3 mg/L or less
Fecal Coliform	2500 MPN/100mL

7. STATUS OF WATER QUALITY OF SIRSIYA RIVER:

The Dissolved Oxygen (DO) is the amount of the oxygen present in the water in the dissolved form. It is one of the most important parameters for assessment of water quality/health of the river/surface water. It's presence is essential for survival of equatic life. Low oxygen content or nil in water can be detrimental to fishes and many other organisms present in the quatic system. The BOD measures the oxygen consumed by microorganisms in the oxidation of organic matter under specified conditions.

The water quality report of Sirsiya river indicates low DO and high BOD (<20 mg/L, except one day) and FC more than 500 MPN/100ml. The low

oxygen balance and high value of BOD in the Sirsiya River reflects the waste discharge in the system and intensity of the bio-degredable matter present in the water body.The presence of higher bacteriological population TC & FC also confirms the discharges of sewage/domestic waste water in this river.

8. INDUSTRIAL POLLUTION ALONG THE SIRSIYA RIVER:

There is no any water polluting or grossly polluting industry on the banks of Sirsiya River in Indian Territory. There is also no industrial cluster /area/estate in this polluted river stretch. However, it receives industrial waste water discharge from many industries located at Birganj, in Nepal.

9. IDENTIFICATION FOR TOWNS IN CATCHMENT OF SIRSIYA RIVER :

Raxaul, a sub-divisioanl town of East Champaran District in Bihar is a Municipal council (Nagar Parishad). Total geographical area of Raxaul Nagar Parishad is 5.82 km^2 with 8794 households and population of 55536 as per census 2011. Population density of the city is 9542 persons per km^2. There are 25 wards in the city, among them ward no.04 is the most populous ward with population of 3235 and ward no.06 is the least populous ward with population of 1286. The source of water supply is ground water.

There is no any other urban area in catchment of Sirsiya river. Sirsiya river after entry in Indian Territory at custom office passes through Raxaul and then its travels through rural area and finally joins Burhi Gandak (Sikrahna River).

10. IDENTIFICATION OF SOURCES OF POLLUTION:

Major sources of pollution of Sirsiya River are:-

i. Discharge of industrial effluents in the territory of Nepal (Birganj) in addition with domestic waste water.
ii. Discharge of sewage/domestic waste water from the drains in Raxaul town (Municipla Council).
iii. Improper disposal of solid waste into the river through municipal drains.

11. ESTIMATION OF QUANTITY OF SEWAGE/DOMESTIC WASTE WATER GENERATION AND EXISTING SEWAGE TREATMENT FACILITY

The population of Raxaul urban area as per previous census of India and projected population with average growth rate and estimated sewage/ domestic waste water generation are hereunder:-

Population as per census 2001	Population as per census 2011	Projected Population in 2021	Projected Population in 2031	Total waste consumption (@ 135 LPCD) in MLD	Estimated sewage/ domestic waste water generation (80% of water consumption) In MLD	Existing STP
41,610	55,536	72,196	93,854	12.5 MLD	10 MLD	No STP

Presently, there is no sewerage network & STP for sewage management at Raxaul Nagar Parisad area. There are three (3) drains (at Naga Road, at Chhatiaya Ghat and near Custom Check Post Bridge) in Raxaul town through which domestic waste water is discharge to Sirsiya River. The total sewage/waste water discharges through aforesaid drains have been assessed to 14.89 MLD. The details of the drains are hereunder:-

Sl. No.	Name of drain	Average flow (MLD)	Recipient	Sewage/waste water Quality
1.	Drain at Naga Road, Shivpuri Mohalla, Raxaul	6.03	Sirsiya River	pH: 7.04 BOD: 62 mg/L COD:232 mg/L TSS: 38 mg/L
2.	Drain at Chhatiaya Ghat, near Railway Bridge, Raxaul	3.1	Sirsiya River	pH: 7.25 BOD: 9 mg/L COD: 44 mg/L TSS: 36 mg/L
3	Drain near Custom Check Post Bridge, Raxaul	5.76	Sirsiya River	pH: 7.31 BOD: 16 mg/L COD: 60 mg/L TSS: 38 mg/L
	Total	**14.89**		

Reports of individual drains are enclosed as **Annexure-2.**

12. COMMON EFFLUENT TREATMENT PLANTs (CETP):

The State is contemplating to have CETPs for the industrial areas: Fatuha (02 MLD) in Patna; Barari (01 MLD) in Bhagalpur; Hajipur (06 MLD) in Vaishali and Bela (05 MLD) in Muzaffarpur). Environmental Clearance (EC) has been accorded by SEIAA for aforesaid proposed CETPs in Bihar. Industries Department has been requested to expedite early setting up of aforesaid CETPs in Bihar.

There is no Industrial Cluster/Area/Estate in the polluted river stretches other than that on Ganges, hence no requirement for setting up of CETP in the area.

13. GROUND WATER STATUS IN CATCHMENT AREA OF SIRSIYA RIVER IN BIHAR:

Central Ground Water Board (Ministry of Water Resources River Development & Ganga Rejuvenation, GoI) carries out periodic assessment of ground water resources of the State of Bihar in consultation with Minor Irrigation Department, GoB. Last assessment was carried out for the year 2017 and publication of the report is awaited. As per report published in 2014 (as on 31.03.2011) and 2017 (as on 31.03.2013) there was no over exploited and critical zone/block in the State of Bihar but as per latest report (31.03.2017) the total no. of blocks under semi critical, critical and over expolited have been observed 72, 18 and 12 respectively. The details are hereunder:-

Particulars	**As on 31.03.2011**	**As on 31.03.2013**	**As on 31.03.2017**
No. of assessment blocks/ units	533	534	535
Category			
1. Safe	522	519	433
2. Semi critical	11	08	72
3. Critical	Nil	Nil	18
4. Over exploited	Nil	Nil	12

All 26 assessment blocks/units including Raxaul of East Champaran district having 01 polluted river stretch (Sirsiya River at Raxaul) were observed in safe category except Madhuvan block under semi critical.

Ground water quality also has been assessed by Public Health Engineering Department, Govt. of Bihar at different locations in Raxaul block. The ground water quality has been observed complying with the drinking water standards (**Annexure-3**).

CGWB scrutinizes the applications for permission for withdrawal of ground water to industries in Bihar as per norms and guidelines of CGWA and forwards to CGWA, New Delhi with recommendation for according NOC.

14. GROUND WATER RECHARGING/RAIN WATER HARVESTING

Government of Bihar has initiated drives for recharging of ground water by providing roof top rain water hervesting structures and construction of soak pits/recharge pits near public well, hand pump, tubewell and other water bodies under Jal-Jeevan-Hariyali Abhiyan.

Bihar Govt. has also notified The Bihar Ground Water (Regulation & Control of Development & Management) Act, 2006 for regulating and management of ground water. The authority may impose stipulated conditions for providing roof top rain water harvesting structures in the building plan in an area of the 1000 Sqm or more while according approval for construction.

15. CROP DIVERSIFICATION & DRIP IRRIGATION:

Crop diversification is one of the means to minimize the risk due to climate change. It is also adopted for avoiding or minimizing the adverse effects of current system of crop specialization and mono culture for better use of resources, recycling of nutrients and regaining soil fertility. It also provides better economic variability with value added products and improvement of ecology. Changing climatic conditions like erratic and scanty rainfall, depletion of water resources, decline in net sown area and existing cropping pattern are becoming less productive. Cultivators are moving towards crop intensification through mixed cropping and by including high value crops.

Department of Agriculture Bihar is promoting cultivation of pulses and coarse cereals under National Food Security Mission and oil seeds under National Mission on oil seeds and palms, as these crops need less water. Crop diversification program is also being implemented in Bihar to diversify the cropping pattern from water guzzling paddy to pulses, oil seeds, maize and agro forestry with the objective of tackling the problem of declining soil fertility and depleting water table in the State. To reduce utilization of water in paddy, water conservation technique like direct seeded rice, system of rice intensification, alternate wetting and drying method, laser and labeling, adoption of short duration and drought tolerant verities, etc are promoted through various crop development programs.

In order to enhance water use efficiency in water intensive crop, assistance is given for promotion of water saving tools/ technologies like sprinkler and drip irrigation, creation of farm ponds, efficient delivery

and distribution system and adoption of agronomic practices like alternate row/ furrow irrigation, mulching, etc. Pradhan Mantri Krishi Sinchai Yojana also focuses on creating protective irrigation by harnessing rain water at micro level through 'Jal Sanchay' and 'Jal Sinchan' to ensure 'Per Drop More Crop'. The state is implementing Pradhan Mantri Krishi Sinchai Yojana (Per Drop More Crop) for development of Micro Irrigation in Bihar during the year 2018-19 with the cost of Rs 133.00 Crore by providing 90% subsidy to all categories of Farmers under Drip Irrigation and 75% Subsidy to all categories of farmers under Sprinkler Irrigation. State Govt. is also implementing community Tube well Scheme for benefit of small and marginal farmers with 100 % subsidy to provide water source for installation of Drip Irrigation System under the State Plan. As Horticultural and Commercial crops like Sugarcane require heavy water during summer season, Drip Irrigation is highly beneficial because about 60% of conventional Irrigation water is saved under this system. The productivity of the crops under this system increases by about 25-30 % while cost of production decreases 30-35% in comparison to Conventional Irrigation System.

16. FORESTRY & PLANTATION ACTIVITIES ALONG SIRSIYA RIVER:

The Department of Environment, Forest and Climate Change, Government of Bihar has been carrying out various plantation activities both inside the notified forest areas as well as in the agricultural fields outside the forest areas in the Ganga River Basin, with special emphasis on agroforestry.

Increasing Tree Cover: The target for raising plantations both inside the forest area and as well as outside the forest areas in the agricultural fields is guided by the Bihar Krishi Road Map (Bihar Agriculture Road Map) Phase-II for the period 2017-18 to 2021-22. Phase-I of the Bihar Agriculture Road Map had a target of taking the total tree cover (both inside and outside the forest area) from 12.11% in 2012 to 15% by 2017. The Bihar state has successfully achieved the total tree cover target of 15% for the Phase-I of Bihar Agriculture Road Map. For the Phase-II of Bihar Agriculture Road Map for the period 2017-18 to 2021-22 a target of 17% total tree cover has to be achieved by 2022.

As part of this drive to achieve 17% of green cover in the state, the areas falling along the river like Sirisia (Raxaul, East Champaran) and entire stretch of Ganga Basin in Bihar shall be given preference in taking up plantation activities; soil and moisture conservation efforts in the catchment areas (Forest areas) and plantations in the agricultural fields in the form of

agro-forestry. The target for the Plantation activities under the Agricultural Road Map, Phase-II, 2017-18 to 2021-22 for the state of Bihar is given in the **Annexure-4.**

The Sirisia river in Raxaul in East Champaran district originates from Nepal. This river forms part of the Burhi Gandak river, which is a tributary of river Ganga. Agro-forestry is actively encouraged with financial incentives for growing trees through different plantation activities under various schemes of Forest Department including the Namame Gange–Forestry Intervention for Ganga scheme.

The Department of Environment, Forest and Climate Change, Government of Bihar has been striving to achieve the target for tree cover as given under the Bihar Agriculture Road Map: Phase–I: 2017-18 – 2021-22 with the available resources. There will emphasis to achieve the target of tree cover outside the forest areas through agroforestry on a massive scale. The catchments area, agricultural lands falling on either side of the Sirisia River (Raxaul, East Champaran) in addition with other tributaries of Ganga will form part of this plantation drive by the department.

17. STATUS OF OPEN DEFECATION FREE (ODF):

Sl. No.	Name of City/ULBs	Status of ODF declared	Date of QCI Certificate	Remarks
1	Raxaul Nagar Parishad	ODF	11.08.2018	

18. STATUS OF SOLID WASTE, PLASTIC WASTE, BIO-MEDICAL WASTE, E-WASTE AND HAZARDOUS WASTE MANAGEMENT

SWM:

Sl. No.	Name of City/ULBs	Waste generation TPD	Total Project Cost (Rs. in Lakh)	Remarks/ Timelines for execution
1	Raxaul Nagar Parishad	11	532.93	DPR submitted to MoHUA, GoI, dated-19.11.2018.

PWM: The Government of Bihar has banned the use of plastic carry bags (irrespective of their size & thickness) in the jurisdiction of all Urban Local Bodies and Gram Panchayats in the State of Bihar vide Gazette Notification No. 943, dated-24.10.2018 & 1043, dated-11.12.2018. Penalty provisions have been made in the Plastic Waste Management Byelaws, 2018, if anyone is involved in production, distribution, trading, storage, sale and use of plastic carry bags irrespective of its thickness and sizes.

BMW: Bio-medical wastes from the HCFs are collected treated and disposed by the M/s Medicare Environmental Management (P) Ltd., Muzaffarpur Industrial Area, P.O.-Bela, Dist-Muzaffarpur, a Common Bio-Medical Waste Treatment Facilities (CBWTF).

e-Waste: There is no any manufacturer and e-Waste dismantlers, recyclers and re-furbishers in this State. Producers have been directed for collection & channilization of e-waste under EPR authorization by CPCB.

HW: There is no significant HW generation from this area.

19. FLOOD PLAIN ZONE (FPZ):

Govt. of India, initially prepared a draft flood plain zoning bill in the nineties and sent to State Governments for passing the bill. Issue of flood plain zoning was discussed in Bihar State Second Irrigation Commission during 1993-94. Govt. of Bihar has not concurred with the Flood Plain Zoning Regulation on account of densely populated northern plain terrain and mostly embanked river. This has been communicated to Govt. of India. However, buffer zone has to be assessed by the Govt. with respect to Sirsiya river.

20. MAINTENANCE OF ECOLOGICAL/ENVIRONMENTAL (E-FLOW)

This river originates from hilly area of Nepal and travels a distance of approx. 30 Km in Indian Territory. There is no control structure on Sirsiya river and as such maintenace of E-flow is not applicable.

21. COMPONENTS OF ACTION PLAN:

Following components have been identified for preparation of action plan for rejuvenation and conservation of Sirsiya river in compliance with the order of the Hon'ble NGT dated-20.09.2018 in O.A. No. 673/2018.

A	**Identification of Polluting Sources**
	a. Industrial Pollution Control.
	i. Inventorisation of Industries.
	ii. Categories of industry & effluent quality.
	iii. Treatment of effluents, compliance with standards and mode of disposal of effluent.
	iv. Regulatory regime.
	b. Channelization, treatment, utilization & disposal of treated domestic sewage.
	i. Identification of towns in the catchment of river and estimation of quantity of sewage generated and existing sewage treatment capacities to arrive at the gap between the sewage generation and treatment capacities.
	ii. Storm water drains now carrying sewage & sullage joining river and

		interception & diversion of sewage to STP
	iii.	Treatment and disposal of septage and controlling open defecation.
	iv.	Identification of towns for installing sewerage system and sewage treatment plants.
B	**River catchment /Basin Management -controlled ground water extraction and periodic quality assessment.**	
	i.	Periodic assessment of ground water resources and regulation of ground water extraction by industries particularly in over exploited and critical zones/ blocks.
	ii.	Ground water re-charging/rain water harvesting.
	iii.	Periodic ground water quality assessment and remediation actions in case of contaminated ground water tube wells/bore wells or hand pumps.
	iv.	Assessment of the need for regulation use of ground water for irrigation purposes.
C	**Flood Plain Zone**	
	i.	Regulating activities in flood plain zone.
	ii.	Management of Municipal, Plastic, Hazardous, Bio-medical and Electrical and Electronic wastes.
	iii.	Greenery development-plantation plan
D	**Ecological/Environmental Flow (E-Flow)**	
	i.	Issues relating to E-Flow.
	ii.	Irrigation practices.
E	iii.	Such other issues which may be found relevant for restoring water quality to the prescribed standards.

22. DETAILED GAP ANALYSIS:

Detail gap analysis with regard to industrial effluent, sewage, solid waste (municipal solid waste, plastic waste, bio-medical waste and e-waste and industrial hazardous waste) are detailed below:-

A. Industrial Effluent Management: There is no water polluting or grossly polluting industry on the banks of Sirsiya River in Indian Territory. There is also no industrial cluster/area/estate in this polluted river stretches. However, it receives industrial waste water discharge from many industries located at Birganj, in Nepal.

There is no gap in industrial effluent management in the catchment area of sirsiya river in Indian Territory. However, to control industrial pollution from Nepal, efforts have to be taken by the Nepal Govt. and hence issue should be addressed by CPCB through Ministry of External Affairs, Govt. of India.

B. Sewage Management: Raxaul town has been identfied as the only source of sewage generation in the catchment area of Sirsiya River in Indian Territory. The quantity of sewage generated from Raxaul has been assessed to 15 MLD through 03 drains namely Naga Road drain (Shivpuri Mohalla), Chhatiya Ghat drain (near Railway Bridge) and drain near Custom Check Post Bridge. The recipient of aforesaid drains is Sirsiya River in Raxaul.

Presently, there is no sewerage network & STP for sewage management at Raxaul Nagar Parisad area. DPR for I & D with STP is under preparation. After approval of DPR from NMCG work will be completed by June, 2021.

There is 100% gap in sewage management in the catchment area of sirsiya river in Indian Territory. However, to control sewage/domestic waste water pollution from Nepal, efforts have to be taken by the Nepal Govt. and hence issue should be addressed by CPCB through Ministry of External Affairs, Govt. of India.

C. Septage and Controlling Open Defecation: Raxaul urban local body has been declared ODF with effect from 11.08.2018. *There is no gap in septage and controlling open defecation in the catchment area of Sirsiya River in Indian Territory.*

D. Solid Waste Management: Raxaul Municipal Council is the prescribed authority for solid waste management generated from its area. Solid wastes are collected from households and commercial establishments but its processing and disposal facility has not been developed so far. One site for waste processing facility is under construction. Door to door collection started in all 25 wards, household bins for collection and segregation of wet and dry wastes have been distributed. Land is available for sanitary landfills facility. Solid waste generation has been estimated to tune of 23 TPD for projected population of 2031 (93854 x 0.2kg/day). DPR has been prepared for Raxaul Minucipal Council under Swachh Bharat Mission and sumitted to the Ministry of Housing and Urban Affairs (MoHUA), Govt. India with a total cost of Rs. 532.93 Lakh for its approval. Status of MSW in polluted River Stretches attached as **(Annexure - 5).**

There is 50% gap in* solid waste management *in the catchment area of Sirsiya River in Indian Territory as solid wastes are only collected but its processing and disposal facility has not been developed so far.

E. Plastic Waste Management: The Government of Bihar has banned the use of plastic carry bags (irrespective of their size & thickness) in the jurisdiction of all Urban Local Bodies and Gram Panchayats in the State of

Bihar vide Gazette Notification No. 943, dated-24.10.2018 & 1043, dated-11.12.2018. Penalty provisions have been made in the Plastic Waste Management Byelaws, 2018, if anyone is involved in production, distribution, trading, storage, sale and use of plastic carry bags irrespective of its thickness and sizes. However, its implementation has to be completly ensured. Presently, there is no proper inventory with regard to plastic waste generation and its disposal.

There is 50% gap in plastic waste management in the catchment area of Sirsiya River in Indian Territory.

F. Bio-Medical Waste Management: There is only one big hospital (Duncan Hospital) in addition with few 14 HCFs in Raxaul town. Bio-medical wastes from the HCFs are collected treated and disposed by the M/s Medicare Environmental Management (P) Ltd., Muzaffarpur Industrial Area, P.O.-Bela, Dist-Muzaffarpur, a Common Bio-Medical Waste Treatment Facilities (CBWTF).

There is 25% gap in bio-medical waste management in the catchment area of Sirsiya River in Indian Territory.

G. e-Waste Management:-There is no any manufacturer and e-Waste dismantlers, recyclers and re-furbishers in this State. Producers have been directed for collection & channelization of e-waste under EPR authorization by CPCB. Presently, there is no proper inventory with regard to generation of e-waste and its channelization for its treatment and disposal and hence **it is not possible to estimate the gap in *e-waste management in the catchment area of Sirsiya River in Indian Territory.***

H. Industrial Hazardous Waste Management:-There is no hazardous waste generation in the area. IOC oil depot located at Raxaul generates used oil (1 KLA) which is a recyclabe waste.

There is no gap in hazardous waste management in the catchment area of Sirsiya River in Indian Territory.

I. Ground Water Quality Monitoring:-Ground water is an important source for drinking as well as for other useful activities. 100% population in Raxaul and other rural areas of the Sirsiya River catchment depend on ground water. Central Ground Water Board (Ministry of Water Resources River Development & Ganga Rejuvenation, GoI) carries periodic assessment of ground water resource of the State of Bihar in consultation with Minor Irrigation Department, GoB. Last assessment has been carried out for the year 2017 and publication of the completed report is awaited. As per report published in 2014 (as on 31.03.2011) and 2017 (as on 31.03.2013) the status is as hereunder:-

Particulars	As on 31.03.2011	As on 31.03. 2013	As on 31.03.2017
No. of assessment blocks /units	533	534	535
Category			
1. Safe	522	519	433
2. Semi critical	11	08	72
3. Critical	Nil	Nil	18
4. Over exploited	Nil	Nil	12

A total no. of 26 assessment blocks including Raxaul/units out of 27 blocks of East Champaran district were observed in safe category except Madhuvan block under semi critical.

Ground water quality also has been assessed by Public Health Engineering Department, Govt. of Bihar at different locations in Raxaul block. The ground water quality with respect to pH, Turbidity, TDS, TH, Ca, Mg,Cl, Fe, NO_3, SO_4, F, As, TC has been observed complying with the drinking water standards (**Annexure-6**).

There is no gap in ground water quality in the catchment area of Sirsiya River in Indian Territory.

23. ACTION PLAN FOR RESTORATION & CONSERVATION OF SIRSIYA RIVER:

A. Action Plan for Industrial Pollution Control:

(Implementing Agency: BSPCB, Implementation Period: Short, Time Target for implementation: Immediate)

a. There is no any water polluting or grossly polluting industry on the banks of Sirsiya River in Indian Territory. There is also no industrial cluster/area/estate in this polluted river stretches. However, it receives industrial waste water discharge from many industries located at Birganj, in Nepal to the best of information.

However, to control industrial pollution, efforts have to be taken by the Nepal Govt. and hence issue should be addressed by CPCB through Ministry of External Affairs.

b. BSPCB will regulate the provisions of the Water Act, 1974 and E(P) Act, 1986, and direct the concerned industries to have captive ETP and ensure compliance to discharge standards, if any, water polluting industry is established/operated in the catchment area of Sirsiya river.

c. All the water polluting industries to be installed will be directed to have Online Continuous Effluent Monitoring System (OCEMS).

d. All the water polluting industries to be installed will be directed to adopt best practices to minimize water consumption and recycling of treated waste water as far as possible.

B. Action Plan for Sewage Management:

(Implementing Agency: UD&HD, Raxaul Municipal Council, BSPCB Implementation Period: Short & Long, Time Target for implementation: 30.06.2021)

a. UD&HD, Govt. of Bihar in association with concerned ULBs will identify drains and their recepients along with quantity of sewage generation from its area in catchment area of Sirsiya river. The assessment of flow should exclude monsoon flow.
b. UD&HD, Govt. of Bihar in association with concerned ULBs will develop sewerage network and set up STP of adequate capacity on projected population of 2031. The STP should be properly designed with Interception and Diversion (I&D) plan.
c. The STP shall not be constructed closed to the river bed. Preferably, there should be a distance of 500 meter or more from edge of the river.
d. The status of Open Defecation Free (ODF) will be ensured & maintained.
e. Hotels and Restaurants will be directed to install STP to comply with discharge standards. If, the effluent from Hotels is discharged into municipal sewere leading to STP, the hotel or restaurant shall provide oil and grease trap to comply with General Standards for discharge under E(P) Act, 1986.

C. Action Plan for utilization of treated sewage:

(Implementing Agency: UD&HD, Minor Water Resoruces Department Implementation Period: Long, Time Target for implementation: 30.06.2021)

a. Treated sewage after setting up of STP, will be utilized for irrigation or agricultural or construction activities and other bulk consumers by Indian Railway, infrastructure projects in the Raxaul with the water channel network to reduce ground water consumption.

D. Action Plan for Management of Solid Waste:-

(Implementing Agency: UD&HD, ULBs, Implementation Period: Short & Medium, Time Target for implementation: Immediate to 30.06.2020)

a. Ensuring of implentation of Door-to-door collection of solid waste.
b. Ensuring source segregation as biodegradable and non-biodegradable wastes.
c. Transporation of municipal solid wastes under covered system.
d. Construction of waste processing facility by 30.06.2020.
e. Identification and development of landfill for disposal of residual or inert solid waste.
f. Ensuring restriction on disposal of solid waste on banks of river.

g. There shall be no dumping or landfill sites for any kind of waste irrespective of any technology for waste processing within 500 meter from the edge of river.

E. Action Plan for Plastic Waste Management:

(Implementing Agency: UD&HD, ULBs, Implementation Period: Short, Time Target for implementation: Immediate)

a. Ensuring impementation of ban on use of plastic carry bags (irrespective of their size and thickness) in the catchment area of the Sirsiya River.
b. Ensuring plastic waste management through EPR of producers, Brand Owners etc.

F. Action Plan for Bio-Medical Waste Management:

(Implementing Agency: BSPCB, Health Deparment, Implementation Period: Short, Time Target for implementation: Immediate)

a. Implementation of provisions of the Bio-Medical Waste Management Rules, 2016.
b. Ensuring collection, treatment and diposal of BMW through Common Bio-Medical Waste Treatment Facility (CBWTF) from all HCFs.

G. Action Plan for e- Waste Management:

(Implementing Agency: BSPCB, Implementation Period: Short, Time Target for implementation: Immediate)

a. Ensuring e-waste management through EPR of producers.

H. Action Plan Management of Flood Plain Zone (FPZ):

(Implementing Agency: Water Resources Department, Implementation Period: Medium, Time Target for implementation: 30.06.2020)

a. Buffer zone has to be assessed by the Govt. with respect to Sirsiya river as there is no regulation on flood plain zone in Bihar.
b. Plantation in buffer zone of Sirsiya river Flood Plain Zone to be done.
c. Checking and removal of encroachments periodically.
d. Prohibition of disposal of municipal and bio-medical waste particularly in drains and on the banks of river.

I. Action Plan for maintenance of Ecological/Environmental(E-Flow):

(Implementing Agency: Water Resources Department, Implementation Period: Medium, Time Target for implementation: 30.06.2020)

a. This river originates from hilly area of Nepal and travels a distance of approx. 30 Km in Indian Territory. There is no control structure on Sirsiya River and as such maintenace of E-flow is not applicable.

J. Action Plan for development of Greenery:

(Implementing Agency: DoEF&CC, GoB, Implementation Period: Long, Time Target for implementation: 31.12.2020)

a. Department of Environment, Forest & Climate Change, Govt. of Bihar shall ensure the development of greenery under Namami Gange Scheme and Krishi Road Map in the available land in the catchment area of Sirsiya River.

K. Action Plan for Ground Water Recharging/Rain Water Harvesting:-

(Implementing Agency: Rural Development Department, Implementation Period: Long, Time Target for implementation: 2022)

a. To ensure initiatives of drives for recharging of ground water by providing roof top rain water hervesting structures and construction of soak pits/recharge pits near public well, hand pump, tubewell and other water bodies under Jal-Jeevan-Hariyali Abhiyan.
b. Imposition of condition for providing roof top rain water harvesting structures in the building plan in an area of the 1000 Sqm or more while according approval for construction.

L. Action Plan for Ground Water Quality Assessement:-

(Implementing Agency: PHED, Implementation Period: Medium, Time Target for implementation: Dec. 2020)

a. PHED shall ensure groud water quality assessment at different location in catchment area of Sirsiya River on defined frequency.

M. Action Plan related with other Activities:-

(Implementing Agency: BSPCB, Implementation Period: Short, Time Target for implementation: Immediate)

a. Water quality of polluted river strech shall be displayed on the BSPCB website.
b. Separate website for River Rejuvenation Committee-polluted River stretches in the State of Bihar has been developed (http://forestonline.bih.nic.in/rrc/Background.aspx linked with BSPCB website http://bspcb.bih.nic.in/)
c. District Level Implementation Committee has been tasked with supervising the implementation of action plan within their jurisdiction.

24. MONITORING OF THE ACTION PLANS:

"River Rejuvenation Committee" constituted by DoEF&CC, Govt. of Bihar vide notification no. 1412(E), dated-31.12.2018 in compliance with the order of the Hon'ble National Green Tribunal (NGT) Principal Bench, New Delhi dated-20.09.2018 in O.A. No. 673/2018 shall monitor the implementation of action plan under the supervision and chairmanship of the Principal Secretary, DoEF&CC, Govt. of Bihar.

State Level Advisory Committee under chairmanship of the Chief Secretary, Bihar shall over all guide and monitor the implentation of action plan prepared for rejuvenation of polluted river stretches in the State of Bihar including Sirsiya River.

Annexure-1

CONSTITUTION OF RIVER REJUVENATION COMMITTEE BIHAR

Government of Bihar
Department of Environment, Forest & Climate Change

Notification

No. Parya/Van-84/2018..... Dated.....

Vide Order dated 20.09.2018 in Original Application (O.A.) No. 673/2018: News Item Published in "the Hindu" Authored by Shri Jacob Koshy titled "More river stretches are now critically polluted-CPCB", the Hon'ble National Green Tribunal (NGT) has directed to prepare action plans within two months for bringing all the polluted river stretches to be fit at least for bathing purposes (i.e. BOD <3mg/L and FC<500 MPN/100ml) within six months from the date of finalisation of the action plan. For preparation of the action plan a four member committee, to be known as the "River Rejuvenation Committee" has also been prescribed by the NGT. This Committee will also be the Monitoring Committee for execution of the action plan and has to function under the overall supervision and co-ordination of the Additional Chief Secretary/ Principal Secretary, Department of Environment, Forest & Climate Change.

Accordingly in compliance with the directions of the Hon'ble NGT, a four member "Bihar River Rejuvenation Committee" is Constituted as under:

1.	Director, Ecology and Environment, Department of Environment, Forest & Climate Change, Government of Bihar	Member
2.	Special Secretary, Urban Development & Housing Department, Government of Bihar	Member
3.	Director Industries, Department of Industry, Government of Bihar	Member
4.	Member Secretary, Bihar State Pollution Control Board	Member Convener

Sd/-

Additional Chief Secretary,
Department of Environment, Forest & Climate Change,
Government of Bihar.

Memo No-Parya/Van-84/8018- 1412(E) **EF &CC Patna-15, dated** 31\12\18

Copy to-Principal Secretary, Urban Development & Housing Department, government of Bihar/ Principal Secretary, Industry Department, Government of Bihar/Chairman, Bihar State Pollution Control Board, Patna/Special Secretary, Urban Development & Housing Department, Government of Bihar/Director Industries, Department of Industry, Government of Bihar/Director, Ecology and Environment, Department of Environment, Forest & Climate change, Government of Bihar/ Member Secretary, Bihar State Pollution Control Board, Patna/Principal Private Secretary to the Additional Chief Secretary, Environment, Forest & Climate change Department for information and necessary action.

3/1/19

(Surendra Singh)
CF-Cum-Additional
Secretary

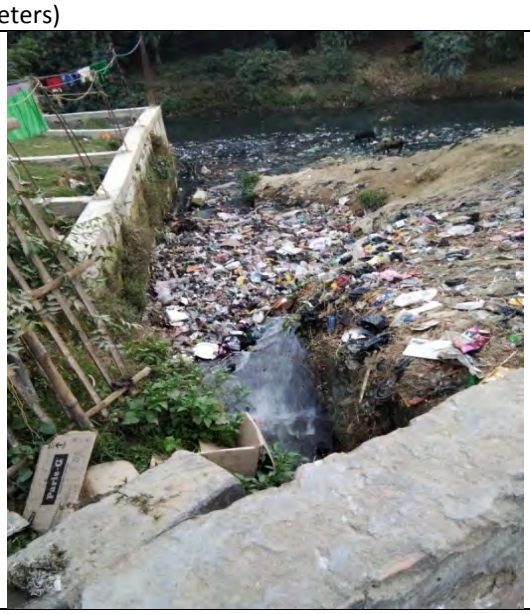
MONITORING REPORTS OF INDIVIDUAL DRAINS

Date of Sampling: 17/11/2018

1	Name of the Drain		Drain at Naga Road, Shivpuri Mohalla, Raxaul			
2	Meeting Sirsiya River		At right bank along the flow			
3	Name of Regional Office of SPCB		Muzaffarpur R.O.			
4	Source of Pollution Load		Domestic waste water			
5	If Industrial / Mixed (Please indicate type of sector)		N.A.			
6	Traceable length of drain (in Km) before meeting Sirsiya river (through Google earth/Map)		0.5 Km approx.			
7	Catchment Area		Raxaul Main Road Market, Naga Road, Ward No. 11, 12, 20, 21, 22			
8	Co-ordinate of the confluence Point (if not reachable indirect through google earth/map) (Decimal Units)	Latitude	26.978563			
		Longitude	84.854459			
	Distance of the sampling point from confluence point (may the find out over google earth / map), KM		0.03 Km approx.			
9	Co-ordinate of the Sampling Point (Decimal Units)	Latitude	26.978734			
		Longitude	84.854484			
10	Landmarks / Address of the Location		Naga Road			
11	Flow if in MLD, if zero indicate whether dry or stagnant		7.45 AM	2.00 PM	5.10 PM	Average Flow
			8.3 MLD	**3.63 MLD**	**6.17 MLD**	**6.03 MLD**
12	Observations					

(General Parameters)

SL. No.	Parameters	Standards	Results
1	pH	6.5-9.0	7.04
2	BOD (mg/l)	20 for Patna & 30 for other places	62
3	COD (mg/l)	-	232
4	TSS (mg/l)	<50 for Patna &<100 for other places	38
5	TDS ((mg/l)	-	410
6	TC (MPN/100 ml)	-	$14*10^5$
7	FC (MPN/100 ml)	<1000	$79*10^4$



Date of Sampling: 17/11/2018

1	Name of the Drain		Drain at ChhatiayaGhat, near Railway Bridge, Raxaul			
2	Meeting Sirsiya River		At right bank along the flow			
3	Name of Regional Office of SPCB		Muzaffarpur R.O.			
4	Source of Pollution Load		Domestic waste water			
5	If Industrial / Mixed (Please indicate type of sector)		N.A.			
6	Traceable length of drain (in Km) before meeting Sirsiya (through Google earth/Map)		0.5 Km approx.			
7	Catchment Area		Ward NO. 6, 9, 10, 11, 12, 13, 14, 15, Railway Colony			
8	Co-ordinate of the confluence Point (if not reachable indirect through google earth/map) (Decimal Units)	Latitude	26.983423			
		Longitude	84.857462			
	Distance of the sampling point from confluence point (may the find out over google earth / map), KM		0.02 Km Apporx.			
9	Co-ordinate of the Sampling Point (Decimal Units)	Latitude	26.983490			
		Longitude	84.857309			
10	Landmarks / Address of the Location		ChhathiyaGhat, near Railway Bridge			
11	Flow if in MLD, if zero indicate whether dry or stagnant		8.15 AM	1.30 PM	4.40 PM	Average Flow
			3.43 MLD	**2.6 MLD**	**3.27 MLD**	**3.1 MLD**
12	Observations					

(General Parameters)

SL. No.	Parameters	Standards	Results
1	pH	6.5-9.0	7.25
2	BOD (mg/l)	20 for Patna & 30 for other places	9.0
3	COD (mg/l)	-	44.0
4	TSS (mg/l)	<50 for Patna &<100 for other places	36
5	TDS ((mg/l)	-	356
6	TC (MPN/100 ml)	-	$17*10^5$
7	FC (MPN/100 ml)	<1000	$11*10^5$

Date of Sampling: 17/11/2018

1	Name of the Drain		Drain near Custom Check Post Bridge, Raxaul			
2	Meeting Sirsiya River		At right bank along the flow			
3	Name of Regional Office of SPCB		Muzaffarpur R.O.			
4	Source of Pollution Load		Domestic waste water			
5	If Industrial / Mixed (Please indicate type of sector)		N.A.			
6	Traceable length of drain (in Km) before meeting Sirsiya (through Google earth/Map)		1.0 Km approx.			
7	Catchment Area		Dankan Hospital Road, Custom Office			
8	Co-ordinate of the confluence Point (if not reachable indirect through google earth/map) (Decimal Units)	Latitude	26.988496			
		Longitude	84.855304			
	Distance of the sampling point from confluence point (may the find out over google earth / map), KM		0.02 Km Apporx.			
9	Co-ordinate of the Sampling Point (Decimal Units)	Latitude	26.988411			
		Longitude	84.855739			
10	Landmarks / Address of the Location		near Custom Check Post Bridge, Raxaul			
11	Flow if in MLD, if zero indicate whether dry or stagnant		9.00 AM	1.00 PM	4.00 PM	Average Flow
			3.97 MLD	**10.47 MLD**	**2.85 MLD**	**5.76 MLD**
12	Observations					

(General Parameters)

SL. No.	Parameters	Standards	Results
1	pH	6.5-9.0	7.31
2	BOD (mg/l)	20 for Patna & 30 for other places	16.0
3	COD (mg/l)	-	60.0
4	TSS (mg/l)	<50 for Patna &<100 for other places	38.0
5	TDS ((mg/l)	-	336.0
6	TC (MPN/100 ml)	-	$17*10^5$
7	FC (MPN/100 ml)	<1000	$11*10^5$

REPORT ON
DYNAMIC GROUND WATER RESOURCES
OF
BIHAR STATE

(As on 31st March 2011)

Prepared By

Central Ground Water Board
Mid-Eastern Region, Patna
Ministry of Water Resources, RD & GR
Government Of India

&

Ground Water Directorate
Minor Water Resources
Department
Government Of Bihar

JUNE, 2011

Table 5.5 Summary of Assessment Units and Subunits and Categorization

Sl. No.	Name of the district	No of assessment Blocks \ Units	No of assessment units	No of assessment Sub-units		Number of Assessment Units						
						Non Command areas					Total No. of Affected Blocks	Total No. of 'Safe' Blocks \ Units
				Alluvium	Hard Rock	Over Exploited	Critical	Semi-Critical	Safe	Total (non- command area)		
1	Araria	9	9	9	0	0	0	0	9	9	0	9
2	Arwal	5	5	5	0	0	0	0	5	5	0	5
3	Aurangabad	11	11	11	0	0	0	0	11	11	0	11
4	Banka	11	11	11	11	0	0	0	11	11	0	11
5	Begusarai	18	18	18	0	0	0	2	16	18	2	16
6	Bhabhua	11	11	10	4	0	0	0	11	11	0	11
7	Bhagalpur	16	16	16	0	0	0	0	16	16	0	16
8	Bhojpur	14	14	14	0	0	0	0	14	14	0	14
9	Buxar	11	11	11	0	0	0	0	11	11	0	11
10	Darbhanga	18	18	18	0	0	0	0	18	18	0	18
11	East Champaran	27	27	27	0	0	0	0	27	27	0	27
12	Gaya	24	24	22	16	0	0	2	22	24	2	22
13	Gopalganj	14	14	14	0	0	0	0	14	14	0	14
14	Jamui	10	10	6	6	0	0	0	10	10	0	10
15	Jehanabad	7	7	7	0	0	0	1	6	7	1	6
16	Katihar	16	16	16	0	0	0	0	16	16	0	16
17	Khagaria	7	7	7	0	0	0	0	7	7	0	7
18	Kishanganj	7	7	7	0	0	0	0	7	7	0	7
19	Lakhisarai	7	6	6	4	0	0	0	6	6	0	6
20	Madhepura	13	13	13	0	0	0	0	13	13	0	13
21	Madhubani	21	21	21	0	0	0	0	21	21	0	21
22	Munger	9	9	9	7	0	0	0	9	9	0	9
23	Muzaffarpur	16	16	16	0	0	0	1	15	16	1	15
24	Nalanda	20	20	20	0	0	0	3	17	20	3	17
25	Nawada	14	14	13	7	0	0	1	13	14	1	13
26	Patna	23	23	23	0	0	0	2	21	23	2	21
27	Purnia	14	14	14	0	0	0	0	14	14	0	14
28	Rohtas	19	19	19	5	0	0	0	19	19	0	19
29	Saharsa	10	10	10	0	0	0	0	10	10	0	10
30	Samastipur	20	20	20	0	0	0	1	19	20	1	19
31	Saran	20	20	20	0	0	0	0	20	20	0	20

Sl. No.	Name of the district	No of assessment Blocks \ Units	No of assessment units	No of assessment Sub-units		Number of Assessment Units						
						Non Command areas					Total No. of Affected Blocks	Total No. of 'Safe' Blocks \ Units
				Alluvium	Hard Rock	Over Exploited	Critical	Semi-Critical	Safe	Total (non- command area)		
32	Sheihkpura	6	6	6	1	0	0	0	6	6	0	6
33	Sheohar	5	5	5	0	0	0	0	5	5	0	5
34	Sitamarhi	17	17	17	0	0	0	0	17	17	0	17
35	Siwan	19	19	19	0	0	0	0	19	19	0	19
36	Supaul	11	11	11	0	0	0	0	11	11	0	11
37	Vaishali	16	16	16	0	0	0	1	15	16	1	15
38	W Champaran	18	18	18	0	0	0	0	18	18	0	18
	STATE TOTAL =	**534**	**533**	**525**	**61**	**0**	**0**	**14**	**519**	**533**	**14**	**519**

Note: In Lakhisari district, Chanan block has been assessed as part of Lakhisari block

Earlier estimation (2011) categorized 11 blocks as 'Semi Critical' out of 534 assessed blocks. In contrast present estimation categorized 14 blocks as '*Semi Critical*' out of 534 assessed administrative units.

High stage of development is due to agricultural activities in Bihar state. The status of categorization for blocks other than 'Safe' in the State as per present estimation is given in **Table 5.6**.

Table 5.6 List of blocks categorised other than *'Safe'* in Bihar State based on Dynamic Groundwater Resource Assessment (as on 31st march, 2013)

Sl.	District	Block	SOD %	Category	Category as was in 2011
1.	Begusarai	Naokothi	98.71	Semi-Critical	Semi-Critical
		Bhagwanpur	91.32	Semi-Critical	Safe
2.	Gaya	Gaya Sadar	89.48	Semi-Critical	Semi-Critical
		Imamganj	96.93	Semi-Critical	Safe
3.	Jehanabad	Kako	83.35	Semi-Critical	Safe
4.	Muzaffarpur	Mushari	97.75	Semi-Critical	Semi-Critical
5.	Nalanda	Nagarnausa	96.01	Semi-Critical	Semi-Critical
		Rajgir	78.24	Semi-Critical	Semi-Critical
		Silao	93.83	Semi-Critical	Safe
6.	Nawada	Meskaur	95.67	Semi-Critical	Semi-Critical
7.	Patna	Sanpatchak	84.29	Semi-Critical	Semi-Critical
		Patna Sadar	95.39	Semi-Critical	Safe
8.	Samastipur	Tajpur	77.58	Semi-Critical	Semi-Critical
9.	Vaishali	Hazipur	96.45	Semi-Critical	Safe

Latest status of Ground Water in Bihar as reported CGWB

Sl. No.	District	Block	Sub- Unit	Total Area	Hilly Area	GW Worthy Area	Net GW Resource	Gross GW Draft for irrigation	Gross GW Draft for Domestic Purposes	Gross GW Draft by Industry	Gross Draft (All Uses)	Stage Of GW Development	Category
				(ha)	(ha)	(ha)	(ha-m)	(ha-m)	(ha-m)	(ha-m)	(ha-m)	(%)	
3	Darbhanga	Baheri	Alluvium	21482	0	21482	6801.04	2381.55	498.20	143.99	3023.74	44.46	Safe
4	Darbhanga	Benipur	Alluvium	16259	0	16259	5606.96	1735.50	660.09	152.36	2547.95	45.44	Safe
5	Darbhanga	Biraul	Alluvium	18443	0	18443	6912.01	1703.55	470.98	108.73	2283.26	33.03	Safe
6	Darbhanga	Darbhanga	Alluvium	20612	0	20612	14066.93	575.85	1949.44	235.94	2761.24	19.63	Safe
7	Darbhanga	Ghanashyampur	Alluvium	10345	0	10345	2554.90	1234.95	219.28	72.71	1526.94	59.77	Safe
8	Darbhanga	Goura-bouram	Alluvium	11619	0	11619	3295.06	553.80	250.40	40.21	844.41	25.63	Safe
9	Darbhanga	Hanumannagar	Alluvium	13979	0	13979	4521.99	2013.00	254.55	113.38	2380.93	52.65	Safe
10	Darbhanga	Hayaghat	Alluvium	8601	0	8601	2864.25	1482.45	243.76	86.31	1812.52	63.28	Safe
11	Darbhanga	Jale	Alluvium	18679	0	18679	4110.71	694.80	434.99	56.49	1186.28	28.86	Safe
12	Darbhanga	Keoti	Alluvium	15008	0	15008	5857.61	599.25	445.65	52.24	1097.14	18.73	Safe
13	Darbhanga	Kiratpur	Alluvium	6236	0	6236	1309.46	323.70	134.03	22.89	480.62	36.70	Safe
14	Darbhanga	Kusheshwar Asthan	Alluvium	11659	0	11659	4049.85	1439.10	268.11	85.36	1792.57	44.26	Safe
15	Darbhanga	Kusheshwar Asthan (E)	Alluvium	12124	0	12124	5986.36	1170.00	212.05	69.10	1451.15	24.24	Safe
16	Darbhanga	Manigacchi	Alluvium	13620	0	13620	4124.42	864.45	376.34	62.04	1302.83	31.59	Safe
17	Darbhanga	Singhwara	Alluvium	17038	0	17038	5938.45	1443.45	440.51	94.20	1978.16	33.31	Safe
18	Darbhanga	Tardih	Alluvium	8370	0	8370	3567.08	325.65	202.97	26.43	555.05	15.56	Safe
	District	Darbhanga		250429	0	250429	87982.07	20754.30	7743.54	1568.69	30066.53	34.17	
1	East Champaran	Adapur	Alluvium	15318	0	15318	6715.76	1791.87	335.01	106.34	2233.22	33.25	Safe
2	East Champaran	Areraj	Alluvium	18947	0	18947	6699.67	1596.97	355.49	108.39	2060.84	30.76	Safe
3	East Champaran	Bankatwa	Alluvium	8846	0	8846	3763.37	1120.15	192.37	65.63	1378.15	36.62	Safe
4	East Champaran	Banjharia	Alluvium	13935	0	13935	4326.46	770.99	267.80	51.94	1090.73	25.21	Safe
5	East Champaran	Chakia (Pipra)	Alluvium	17335	0	17335	4714.40	2100.64	424.12	133.88	2658.64	56.39	Safe
6	East Champaran	Chhouradanu (Narkati	Alluvium	13490	0	13490	4295.49	975.94	281.09	62.85	1319.88	30.73	Safe
7	East Champaran	Chiraiya	Alluvium	20533	0	20533	6228.10	2651.75	455.67	155.37	3262.79	52.39	Safe
8	East Champaran	Dhaka	Alluvium	16906	0	16906	7184.07	2592.04	662.19	178.27	3432.51	47.78	Safe
9	East Champaran	Ghorasahan	Alluvium	11901	0	11901	4346.74	1112.26	287.85	70.01	1470.12	33.82	Safe
10	East Champaran	Harsidhi	Alluvium	19010	0	19010	8596.31	5047.59	366.35	270.70	5684.64	66.13	Safe
11	East Champaran	Kalyanpur	Alluvium	23811	0	23811	7608.50	2529.33	440.46	148.49	3118.28	40.98	Safe
12	East Champaran	Kesaria	Alluvium	18825	0	18825	7127.25	1215.12	382.80	88.58	1686.50	23.66	Safe
13	East Champaran	Kotwa	Alluvium	15203	0	15203	4771.62	1635.40	277.85	95.66	2008.91	42.10	Safe
14	East Champaran	Madhuban	Alluvium	12150	0	12150	3408.13	2527.70	322.28	149.53	2999.51	88.01	Semi-Critical
15	East Champaran	Mehsi	Alluvium	12168	0	12168	3829.26	1470.77	370.60	101.88	1943.24	50.75	Safe
16	East Champaran	Motihari	Alluvium	25158	0	25158	6235.19	1652.39	578.39	125.24	2356.02	37.79	Safe
17	East Champaran	Paharpur	Alluvium	15466	0	15466	5407.66	1663.20	301.27	98.22	2062.69	38.14	Safe
18	East Champaran	Pakaridayal	Alluvium	11655	0	11655	2661.15	438.98	338.09	50.85	827.91	31.11	Safe
19	East Champaran	Patahi	Alluvium	11849	0	11849	3975.77	1388.33	273.99	83.12	1745.44	43.90	Safe
20	East Champaran	Phenhara	Alluvium	5459	0	5459	1347.34	678.42	132.23	40.53	851.18	63.18	Safe
21	East Champaran	Piprakothi	Alluvium	4882	0	4882	1513.85	790.55	126.90	45.87	963.32	63.63	Safe
22	East Champaran	Ramgarhwa	Alluvium	16766	0	16766	5963.78	1840.44	330.87	108.57	2279.88	38.23	Safe

Sl. No.	District	Block	Sub- Unit	Total Area	Hilly Area	GW Worthy Area	Net GW Resource	Gross GW Draft for irrigation	Gross GW Draft for Domestic Purposes	Gross GW Draft by Industry	Gross Draft (All Uses)	Stage Of GW Developme nt	Category
				(ha)	(ha)	(ha)	(ha-m)	(ha-m)	(ha-m)	(ha-m)	(ha-m)	(%)	
23	East Champaran	Raxaul	Alluvium	13137	0	13137	4806.95	1032.30	372.81	76.24	1481.35	30.82	Safe
24	East Champaran	Sangrampur	Alluvium	14766	0	14766	4686.47	935.36	237.16	58.63	1231.15	26.27	Safe
25	East Champaran	Sugouli	Alluvium	16725	0	16725	5900.33	1500.20	507.73	116.18	2124.11	36.00	Safe
26	East Champaran	Tetaria	Alluvium	8035	0	8035	2664.81	1207.40	169.24	68.83	1445.47	54.24	Safe
27	East Champaran	Turkaulia	Alluvium	13611	0	13611	4930.60	1872.35	296.91	108.46	2277.72	46.20	Safe
	District	East Champaran		395887	0	395887	133709.02	44138.44	9087.55	2768.24	55994.23	41.88	
1	Gaya	Amas	Alluvium / Hard rock	10844	0	10844	2223.33	1161.70	172.89	66.73	1401.32	63.03	Safe
2	Gaya	Atri	Alluvium / Hard rock	13002	0	13002	1634.84	709.65	135.47	42.25	887.37	54.28	Safe
3	Gaya	Banka Bazar	Alluvium / Hard rock	20718	0	20718	2645.52	880.20	213.38	54.68	1148.26	43.40	Safe
4	Gaya	Barachatti	Alluvium / Hard rock	29529	2749	26780	2812.42	1080.69	234.63	65.76	1381.08	49.11	Safe
5	Gaya	Belaganj	Alluvium	19795	0	19795	5567.09	3524.06	365.45	194.48	4083.99	73.36	Semi-Critical
6	Gaya	Bodhgaya	Alluvium / Hard rock	29484	0	29484	9368.46	6532.34	478.13	372.69	7383.16	78.81	Semi-Critical
7	Gaya	Dobhi	Alluvium / Hard rock	18313	1312	17001	3001.72	1167.68	255.83	71.17	1494.68	49.79	Safe
8	Gaya	Dumaria	Hard Rock	32098	1687	30411	3435.75	2780.52	211.86	149.62	3142.00	91.45	Critical
9	Gaya	Fatehpur	Alluvium / Hard rock	33594	680	32914	5826.63	2300.53	387.85	134.42	2822.80	48.45	Safe
10	Gaya	Gaya Sadar	Alluvium	18849	500	18349	4382.20	1178.72	1741.43	297.02	3217.17	73.41	Semi-Critical
11	Gaya	Guraru	Alluvium / Hard rock	16498	0	16498	4502.50	2240.82	220.90	124.97	2586.69	57.45	Safe
12	Gaya	Gurua	Alluvium	18941	0	18941	5269.34	2494.41	303.36	139.89	2937.66	55.75	Safe
13	Gaya	Imamganj	Alluvium / Hard rock	26418	0	26418	3313.80	3412.19	317.40	186.47	3916.06	118.17	Over Exploited
14	Gaya	Khizirsarai	Alluvium	18456	0	18456	4333.08	3100.43	289.80	169.51	3559.74	82.15	Semi-Critical
15	Gaya	Konch	Alluvium	25559	0	25559	8217.33	5757.16	332.39	304.48	6394.03	77.81	Semi-Critical
16	Gaya	Mouhra	Alluvium	14764	0	14764	3938.32	1911.04	165.96	103.85	2180.85	55.38	Safe
17	Gaya	Manpur	Alluvium / Hard rock	12423	0	12423	2964.82	3312.50	244.32	177.84	3734.66	125.97	Over Exploited
18	Gaya	Mohanpur	Alluvium / Hard rock	34309	680	33629	5689.22	1355.08	329.47	84.23	1768.78	31.09	Safe
19	Gaya	Nimchak Bathani	Alluvium	11848	0	11848	2787.16	1125.30	162.32	64.38	1352.00	48.51	Safe
20	Gaya	Paraiya	Alluvium	14190	0	14190	5243.56	2326.01	167.86	124.69	2618.56	49.94	Safe
21	Gaya	Sherghati	Alluvium / Hard rock	13879	0	13879	4250.03	1779.96	348.71	123.76	2252.43	53.00	Safe
22	Gaya	Tankupa	Alluvium / Hard rock	15015	0	15015	3267.29	1167.08	205.67	68.64	1441.39	44.12	Safe
23	Gaya	Tekari	Alluvium	23496	0	23496	7364.01	5558.80	480.73	309.21	6348.73	86.21	Semi-Critical
24	Gaya	Wazirganj	Alluvium / Hard rock	26564	0	26564	5802.49	2350.46	365.00	135.78	2851.24	49.14	Safe
	District	Gaya		498586	7608	490978	107840.86	59207.33	8130.81	3566.53	70904.67	65.75	
1	Gopalganj	Baikunthpur	Alluvium	20408	0	20408	7285.64	4217.85	357.49	228.77	4804.11	65.94	Safe
2	Gopalganj	Barauli	Alluvium	18432	0	18432	6665.47	3956.70	572.25	240.07	4769.02	71.55	Semi-Critical
3	Gopalganj	Bijaipur	Alluvium	13041	0	13041	4759.05	4871.25	219.00	254.51	5344.76	112.31	Over Exploited
4	Gopalganj	Bhore	Alluvium	14761	0	14761	5446.79	4161.15	293.34	222.72	4677.21	85.87	Semi-Critical
5	Gopalganj	Gopalganj	Alluvium	19548	0	19548	7183.62	2634.45	350.29	156.50	3141.24	43.73	Safe
6	Gopalganj	Hathwa	Alluvium	14660	0	14660	6215.63	4589.85	388.68	251.94	5230.47	84.15	Semi-Critical
7	Gopalganj	Kateyan	Alluvium	12614	0	12614	5359.95	3603.60	281.85	201.74	4087.19	76.25	Semi-Critical
8	Gopalganj	Kuchaikot	Alluvium	25136	0	25136	11087.42	5880.45	546.59	321.35	6748.39	60.87	Safe

Latest status of Ground Water in Bihar as reported CGWB						
Sl. No.	District	Blocks	Safe	Category Station		
				Semi Critical	Critical	Over Exploited
1	Araria	9	9/9	-	-	-
2	Arwal	6	6/6	-	-	-
3	Aurangabad	11	11/11	-	-	-
4	Banka	11	11/11	-	-	-
5	Begusarai	18	15/18	-	-	-
		Bhagwanpur	-	-	Critical	-
		Khudawanpur	-	Semi Critical	-	-
		Nawkothi	-	-	Critical	-
6	Bhabhua	11	11/11	-	-	-
7	Bhagalpur	16	16/16	-	-	-
8	Bhojpur	14	8/14	-	-	-
		Arrah	-	Semi Critical	-	-
		Behea	-	-	Critical	-
		Jagdishpur	-	Semi Critical	-	-
		Koilbar	-	-	Critical	-
		Piro	-	Semi Critical	-	-
		Shahpur	-	Semi Critical	-	-
9	Buxar	11	9/11	-	-	-
		Chaungai	-	Semi Critical	-	-
		Siamri	-	Semi Critical	-	-
10	Darbhanga	18	18/18	-	-	-
11	East Champaran	27	26/27	-	-	-
		Madhuban	-	Semi Critical	-	-
12	Gaya	24	15/24	-	-	-
		Belaganj	-	Semi Critical	-	-
		Bodhgaya	-	Semi Critical	-	-
		Dumaria	-	-	Critical	-
		Gaya Sadar	-	Semi Critical	-	-
		Imamganj	-	-	-	Over Exploited
		Khizirsarai	-	Semi Critical	-	-
		Donch	-	Semi Critical	-	-
		Manpur	-	-	-	Over Exploited
		Tekari	-	Semi Critical	-	-
13	Gopalganj	14	5/14	-	-	-
		Barauli	-	Semi Critical	-	-
		Bijaipur	-	-	-	Over Exploited
		Bhore	-	Semi Critical	-	-
		Hathwa	-	Semi Critical	-	-
		Kateyan	-	Semi Critical	-	-

		Manjha	-	Semi Critical	-	-
		Panchdeori	-	Semi Critical	-	-
		Thawe	-	-	-	Over Exploited
		Uchkagaon	-	-	-	Over Exploited
14	Jamui	10	10/10	-	-	-
15	Jehanabad	7	0/7	-	-	-
		Ghosi	-	-	Critical	-
		Hulasganj	-	Semi Critical	-	-
		Jehanabad	-	-	Critical	-
		Kako	-	-	Critical	-
		Modanganj	-	Semi Critical	-	-
		Makhdumpur	-	Semi Critical	-	-
		Ratni Faridpur	-	-	-	Over Exploited
16	Katihar	16	8/16	-	-	-
		Azamnagar	-	Semi Critical	-	-
		Balrampur	-	Semi Critical	-	-
		Barsoi	-	Semi Critical	-	-
		Dandkhora	-	-	Critical	-
		Dedwa	-	Semi Critical	-	-
		Kursela	-	Semi Critical	-	-
		Mansahi	-	Semi Critical	-	-
		Samili	-	Semi Critical	-	-
17	Khagaria	7	7/7	-	-	-
18	Kishanganj	7	7/7	-	-	-
19	Lakhisarai	7	7/7	-	-	-
20	Madhepura	13	7/13	-	-	-
		Bihariganj	-	Semi Critical	-	-
		Gamaharia	-	Semi Critical	-	-
		Gwalpara	-	Semi Critical	-	-
		Shankarpur	-	Semi Critical	-	-
		Singheswar	-	Semi Critical	-	-
		Uda Kishanganj	-	Semi Critical	-	-
21	Madhubani	21	21/21	-	-	-
22	Munger	9	9/9	-	-	-
23	Muzaffarpur	16	10/16	-	-	-
		Bochaha	-	Semi Critical	-	-
		Kurhani	-	Semi Critical	-	-
		Minapur	-	Semi Critical	-	-
		Moraul (Dhoili)	-	Semi Critical	-	-
		Mushari	-	-	-	Over Exploited
		Sakra	-	-	-	Over Exploited
24	Nalanda	20	9/20	-	-	-

		Asthawan	-	-	Critical	-
		Ben	-	Semi Critical	-	-
		Bind	-	-	Critical	-
		Giriak	-	-	-	Over Exploited
		Harnaut	-	Semi Critical	-	-
		Islampur	-	Semi Critical	-	-
		Karai Parsurai	-	-	Critical	-
		Noorsarai	-	Semi Critical	-	-
		Pawapuri	-	Semi Critical	-	-
		Rahui	-	Semi Critical	-	-
		Rajgir	-	-	Critical	-
25	Nawada	14	11/14	-	-	-
		Meskaur	-	-	Critical	-
		Nawada	-	Semi Critical	-	-
		Roh	-	Semi Critical	-	-
26	Patna	23	15/23	-	-	-
		Athmalgola	-	-	-	Over Exploited
		Belchi	-	Semi Critical	-	-
		Khusrupur	-	Semi Critical	-	-
		Masuarih	-	Semi Critical	-	-
		Patna Sadar	-	-	Critical	-
		Phulwarisharif	-	-	-	Over Exploited
		Punpur	-	-	Critical	-
		Sampatchak	-	-	Critical	-
27	Purnia	14	11/14	-	-	-
		Amaur	-	Semi Critical	-	-
		Baisi	-	Semi Critical	-	-
		Dagaura	-	Semi Critical	-	-
28	Rohtas	19	19/19	-	-	-
29	Saharsa	10	10/10	-	-	-
30	Samastipur	20	19/20	-	-	-
		Ujiarpur	-	Semi Critical	-	-
31	Saran	20	16/20	-	-	-
		Garkha	-	Semi Critical	-	-
		Lahladpur	-	Semi Critical	-	-
		Manjhi	-	Semi Critical	-	-
		Nagra	-	-	Critical	-
32	Saikhpura	6	6/6	-	-	-
33	Sheohar	5	5/5	-	-	-
34	Sitamarhi	17	16/17	-	-	-
		Bajpatti	-	Semi Critical	-	-
35	Siwan	19	13/19	-	-	-
		Basantpur	-	Semi Critical	-	-
		Daraunda	-	Semi Critical	-	-

		Guthani	-	Semi Critical	-	-
		Sussainganj	-	Semi Critical	-	-
		Jeradei	-	Semi Critical	-	-
		Siswan	-	Semi Critical	-	-
36	Supaul	11	11/11	-	-	-
37	Vaishali	16	8/16	-	-	-
		Bhagwanpur	-	Semi Critical	-	-
		Chehra Kala	-	Semi Critical	-	-
		Hazipur	-	Semi Critical	-	-
		Jandaha	-	Semi Critical	-	-
		Lalganj	-	Semi Critical	-	-
		Patepur	-	-	-	Over Exploited
		Premraj/Desri	-	Semi Critical	-	-
		Rajapakar	-	Semi Critical	-	-
38	West Champaran	18	18/18	-	-	-
	Total	**535**	**433**	**72**	**18**	**12**

Annexure-4

Department of Environment, Forest and Climate Change
Physical & Financial Target of Agriculture Road Map 2017-18 to 2021-22

Sl.	Type of Land	Item	Area	Year 2017-18			Year 2018-19			Year 2019-20			Year 2020-21			Year 2021-22			Year 2017-22 Consolidated Target		
			Unit	Area	No. of Plants (in Lakh)	Fin. Target (Rs. in Lakh)	Area	No. of Plants (in Lakh)	Fin. Target (Rs. in Lakh)	Area	No. of Plants (in Lakh)	Fin. Target (Rs. in Lakh)	Area	No. of Plants (in Lakh)	Fin. Target (Rs. in Lakh)	Area	No. of Plants (in Lakh)	Fin. Target (Rs. in Lakh)	Area	No. of Plants (in Lakh)	Fin. Target (Rs. in Lakh)
1	Forest land	Rehabilitation of Degraded Forest *	Ha	20000	186.4	24201	20000	186.4	24004	20000	163.9	21565	20000	163.9	21565	20000	146.4	19080	100000	847	110415
2	Plantation on govt. land outside the forest	River embankment	K.M	350	3.5	2499	300	3	2142	300	3	2142	300	3	2142	250	2.5	1785	1500	15	10710
		Canal embankment	K.M	1300	13	10595	1300	13	10595	1200	12	9780	1200	12	9780	1000	10	8150	6000	60	48900
		RCD roads	K.M	1000	10	3950	1000	10	3950	800	8	3160	600	6	2370	400	4	1580	3800	38	15010
3	Degraded, Wasteland & Urban Land	Urban & Institution Plantation	Ha	2050	4.1	1932.16	2050	4.1	1932.16	1975	3.95	1601.38	1975	3.95	1601.38	1950	3.9	1491.12	10000	20	8558.2
		Park Development	Park	43	&	3500	32	&	2500	22	&	2000	12	&	1500	11	&	1000	120	&	10500
4	Wet Land area	Wet Land conservation & Dev.	Wet Land area Dev.	&	&	1500	&	&	1500		&	1000	&	&	1000	&	&	500	&	&	5500
5	Farmers Land	Agro-forestry	Ha	113000	169.5	4068	67000	100.5	2412	60000	90	2160	60000	90	2160	53333	80	1920	353333	530	12720
		Total			386.5	52245.16		317	49035.16		280.85	43408.38		278.85	42118.38		246.8	35506.12		1510	222313.2
6		Development of Nursery		&	234.5	4374.4	&	229.5	4250.8	&	229.5	4250.8	&	229.5	4250.8	&	219.5	4092.4	&	1142.5	21219.2
		Gross Total				56619.56			53285.96			47659.18			46369.18			39598.52			243532.4

* Soil and Moisture conservation, Weeds control, development of grassland and Bamboo plantation

Annexure - 6

Urban Development and Housing Department, Report of Bihar Polluted River Stretches in the State of Bihar and Status of Municipal Solid Waste Management (MSW)																	
S.No	Action Point	Characterization of Municipal Waste (Quantity)					Terms	Total No. of Wards	No. of Wards with Door to Door Collection	Gap in Door to Door Collection	No. of Wards started Segregation at source	Gap in Segregation at Source	No. of Sites in which Composting Started	Action Taken	Project complition date as per plan	Amentment in timeline, If any	Total Cost in Lakh
		Biodegradable Others	Recyclables	Non Biodegradables	Inert Waste	Total											
I	Ganga River: (Category-V)																
1	Patna Municipal Corporation					900	Ongoing	75	75	0	0	75	0		Target of Project Execution to be completed by June, 2020	-	19908.67
2	Chhapra Municipal Corporation	47.4	19	19	9.5	94.9	Ongoing	45	45	0	0	45	1		Target of Project Execution to be completed by June, 2020	-	1937.5
3	Munger Municipal Corporation	42.7	17.1	17.1	8.5	85.4	Ongoing	45	45	0	40	5	1 (Also through Windrow and Bio Composter in 10 wards)		Target of Project Execution to be completed by March, 2020	-	1953.69
4	Begusarai Municipal Corporation	72	28.8	28.8	14.4	144	Ongoing	45	45	0	10	35	1		Target of Project Execution to be completed by June, 2020	-	3142.57
5	Barh Municipal Council					4.76	Ongoing	27	27	0	0	27	0		Target of Project Execution to be completed by June, 2020	-	643.73
6	Hajipur Municipal Council					76.79	Ongoing	39	39	0	0	39	0		Target of Project Execution to be completed by June, 2020	-	1363.7
7	Mokama Municipal Council	13.3	5.3	5.3	2.7	26.6	Ongoing	28	28	0	0	28	0		Target of Project Execution to be completed by June, 2020	-	583.27
8	Bakhtiyarpur Municipal Council	10.9	4.4	4.4	2.2	21.9	Ongoing	27	27	0	0	27	0		Target of Project Execution to be completed by June, 2020	-	509.55
9	Buxar Municipal Council	28.8	11.5	11.5	5.8	57.6	Ongoing	34	34	0	0	34	0	SWM DPR has been approved from MoHUA, Govt. of India and 50% central share fund also has been released on dated 11th April, 2019.	Target of Project Execution to be completed by June, 2020	-	1130.16
10	Khagariya Municipal Council	11.23	4.5	4.5	2.25	22.48	Ongoing	26	26	0	0	26	0		Target of Project Execution to be completed by June, 2020	-	496.5
11	Jamalpur Municipal Council	27.3	10.9	10.9	5.5	54.6	Ongoing	36	36	0	0	36	0		Target of Project Execution to be completed by June, 2020	-	1094.86
12	Sultanganj Municipal Council					24.07	Ongoing	25	25	0	0	25	0		Target of Project Execution to be completed by June, 2020	-	535.71
13	Teghra Nagar Panchayat	12.8	5.1	5.1	2.6	25.6	Ongoing	25	25	0	0	25	0		Target of Project Execution to be completed by June, 2020	-	527.23
14	Maner Nagar Panchayat	9.1	3.6	3.6	1.8	18.1	Ongoing	19	19	0	0	19	0		Target of Project Execution to be completed by June, 2020	-	400.17
15	Barahiya Nagar Panchayat	9.81	3.92	3.92	1.96	19.61	Ongoing	24	15	9	15	9	0		Target of Project Execution to be completed by June, 2020	-	431.07
16	Manihari Nagar Panchayat					12.12	Ongoing	15	15	0	5	10	0		Target of Project Execution to be completed by June, 2020	-	274.47
17	Sonepur Nagar Panchayat	8.6	3.4	3.4	1.7	17.1	Ongoing	21	21	0	0	21	0		Target of Project Execution to be completed by June, 2020	-	389.17
18	Naugachhiya Nagar Panchayat	12.79	5.12	5.12	2.56	25.59	Ongoing	23	23	0	10	13	1		Target of Project Execution to be completed by June, 2020	-	479.31
19	Danapur Nagar Parishad	47.4	19	19	9.5	94.9	Ongoing	40	40	0	0	40	0		Target of Project Execution to be completed by June, 2020	-	1877.76
20	Kahalgaon Nagar Panchayat	7.7	3.1	3.1	1.5	15.4	Ongoing	17	17	0	2	15	1		Target of Project Execution to be completed by June, 2020	-	365.39
21	Dighwara Nagar Panchayat	7.22	2.89	2.89	1.44	14.44	Ongoing	18	18	0	18	0	1 (Mechanical Composting)		Target of Project Execution to be completed by June, 2020	-	299.97
22	Bhagalpur Municipal Corporation					234	Ongoing	51	51	0	0	51	0		Target of Project Execution to be completed by June, 2020	-	3862.36
	Total	369.05	147.63	147.63	73.91	1989.96	0	705	696	9	100	605	4				
II	Punpun River: (Category-V)																

2	Fatuha Nagar Parishad					27	Ongoing	27	27	0	0	27	0	SWM DPR has been approved from MoHUA, Govt. of India and 50% central share fund also has been released on dated 11th April, 2019.	Target of Project Execution to be completed by June, 2020	-	483.42
III	Ramrekha River:- (Category-V)																
1.	Hunnagar (Ramnagar) Nagar Panchayat						Proposed project	23	23	0	0	23	0	SWM DPR is in under preparation and to be prepared by March, 2020	Target of Project Execution to be completed by June, 2020.	-	-
IV	Sikrahna River:- (Category-V)																
2	Narkatiaganj Nagar Parishad						Ongoing	25	25	0	0	25	0	SWM DPR has been approved from MoHUA, Govt. of India	Target of Project Execution to be completed by June, 2020		482.04
V	Parmar River:- (Category-V)																
1	Jogbani Nagar Panchayat						Proposed project	19	19	0	0	19	0	SWM DPR is in under preparation and to be prepared by March, 2020	Target of Project Execution to be completed by June, 2020.	-	-
VI	Sirsia River:- (Category-III)																
1	Raxual Nagar Parishad						Ongoing	25	25	0	0	25	0	DPR submitted to MoHUA, Govt. of India dated 19.11.2018.	Target of Project Execution to be completed by March, 2020	-	532.93

Annexure-6

STATE LEVEL WATER TESTING LABORATORY (SLWTL)

PHED, GOVT. OF BIHAR, CHHAJJUBAGH, PATNA-800001

Technical Consultancy by: Scientific Research Laboratory, 90, Lake East (4thRoad), Santoshpur, Jadavpur, Kolkata-700075

TEST CERTIFICATE

Report No: SLWTL/2019/GW - 26860-26863
Name of the Organisation: Departmental
Date of Sampling: 24.12.2019

River Name: Sirsia
Source of Sample: Drinking Water

Date of Reporting: 03.01.2020
Sample Collected By: SLWTL
Sample Received on: 27.12.2019

PHYSICO-CHEMICAL & BACTERIOLOGICAL TEST REPORT

Sl. No.	District Name	Block Name	Panchayet Name	Village Name	Habitation Name	Location Details	Physico - Chemical and Bacteriological Parameters														
							pH	Turb.	EC	TDS	TH	Ca	Mg	Cl	Alka.	Fe	NO_3	SO_4	F	As	Mn	T.Coli
						Unit	-	*NTU*	*µmho/cm*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*mg/l*	*MPN/100ml*
						*Desirable Limit**	*6.5-8.5*	*1.00*	-	*500*	*200*	*75.00*	*30.00*	*250.00*	*200*	*1.00*	*45.00*	*200.00*	*1.00*	*0.010*	*0.10*	-
						Permissible Limit in absence of alternate source*	*NR*	*5.00*	-	*2000*	*600*	*200.00*	*100.00*	*1000.00*	*600*	*NR*	*NR*	*400.00*	*1.50*	*NR*	*0.30*	**
1	East Champaran	Raxaul	Kodiyar	Kodiyar	Ward No-19	Subidar Yadav	7.10	1.0	622	436	352	65.36	27.68	36.14	302	0.85	0.24	31.59	0.14	BDL	BDL	Absent
2	East Champaran	Raxaul	Nagarpalika	Parouna	Ward No-17	Manshi Ram	6.96	1.0	639	420	326	88.41	28.15	36.84	306	0.81	0.37	30.28	0.32	BDL	BDL	Absent
3	East Champaran	Raxaul	Nunia Dih	Nunia Dih	Nunia Dih	Braham Asthan	7.11	2.0	598	390	340	76.31	25.13	31.52	318	0.70	0.32	29.16	0.36	BDL	BDL	Absent
4	East Champaran	Raxaul	Pantoka	Singhpur	Singhpur	Kuwadari Devi	7.15	2.0	630	412	236	33.41	29.95	16.92	214	0.55	0.22	19.20	0.45	BDL	BDL	Absent

Note: * (i) Drinking Water Specification Second Revision -IS:10500:2012., (ii) All the testing methods are taken from APHA 22nd Edition 2012., (iii) BDL means Below Detection Limit., (iv) NR means no relaxation. (v) ** Shall not be detectable in any 100 ml sample

Copy forwarded for kind information to:

(i) Consultant Water Quality Cell , PHED, Govt. of Bihar, (ii) Director, Water Quality Cell, PHED, Govt. of Bihar, (iii) Engineer-in-Chief cum Special Secretary, PHED, Govt. of Bihar

The results are reported based on the materials received. Sample will be destroyed after 15 days from the date of issue of the certificate unless otherwise specified. Sample will be preserved according to standard method. The test report shall not be reproduced except in full, without the written permission of Laboratory.

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Signature of the Lab Incharge