

Training needs for strengthening State Pollution Control Board of Bihar on Environmental Governance

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Perception of Environmental Governance


STOCKHOLM CONFERENCE



Views of India on Stockholm conference, 1972

“The environment problems of developing countries are not side effects of excessive industrialization but reflects the inadequacy of development. The rich countries may worth upon development as the cause of environment destruction but to us it is one of the primary means of improving the environment for living or providing food, water , sanitation and shelter of making deserts green and mountain habitable”.





“We do not want to put the clock back or resign our self simplistic natural state. We want new direction in the wiser direction in the wiser use of the knowledge and tools with which science and has equipped us and this cannot be just one upsurge but a continuous search into the cause and effect and unending effort to match technology with higher level of thinking”.

- “ Pollution is not a technical problem. The fault lies not in science and Technology as such but in the sense of values of the contemporary world which ignores the rights of others and is oblivious of the larger perspective”

Constitutional Provisions

❖ 42nd Amendment Act, 1976:

1. 48A Directive Principle of State Policy – **“State shall endeavor to protect and improve the environment and to safeguard the forests and the wildlife of the country”**
2. 51A Fundamental Duties – It shall be the duty of every citizen of India **“to protect and improve the natural environment including various lakes, rivers & wildlife and have compassion for living creatures”**.

Parliament House of India





Environmental Legislations in India

POLLUTION CONTROL ACTS RULES AND NOTIFICATIONS IN INDIA

(10)

(01)

The Water
(Prevention
and Control
of Pollution)
Act, 1974

(011)

The Rules,
1975

(0111)

- Constitution of Appellate Authority
- Delegation of powers to Union Territory (UT)
- Central Water Laboratory

(02)

The Water
(Prevention
and Control
of Pollution)
Cess Act,
1977

(021)

Cess Rules,
1978

(012)

Procedure for
Transaction of
Business Rules,
1975

(03)

The Air
(Prevention
and Control
of Pollution)
Act, 1981

(031)

Air Rules,
1981

(0311)

- Declaration of air pollution control areas
- Constitution of appellate authority
- Fee for analysis

(032)

Air Rules,
(UT)
1983

(04)

The Air (Prevention and Control of Pollution) Act, 1981

(05)

The Public
Liability
Insurance
Act, 1991

(051)

Rules, 1991

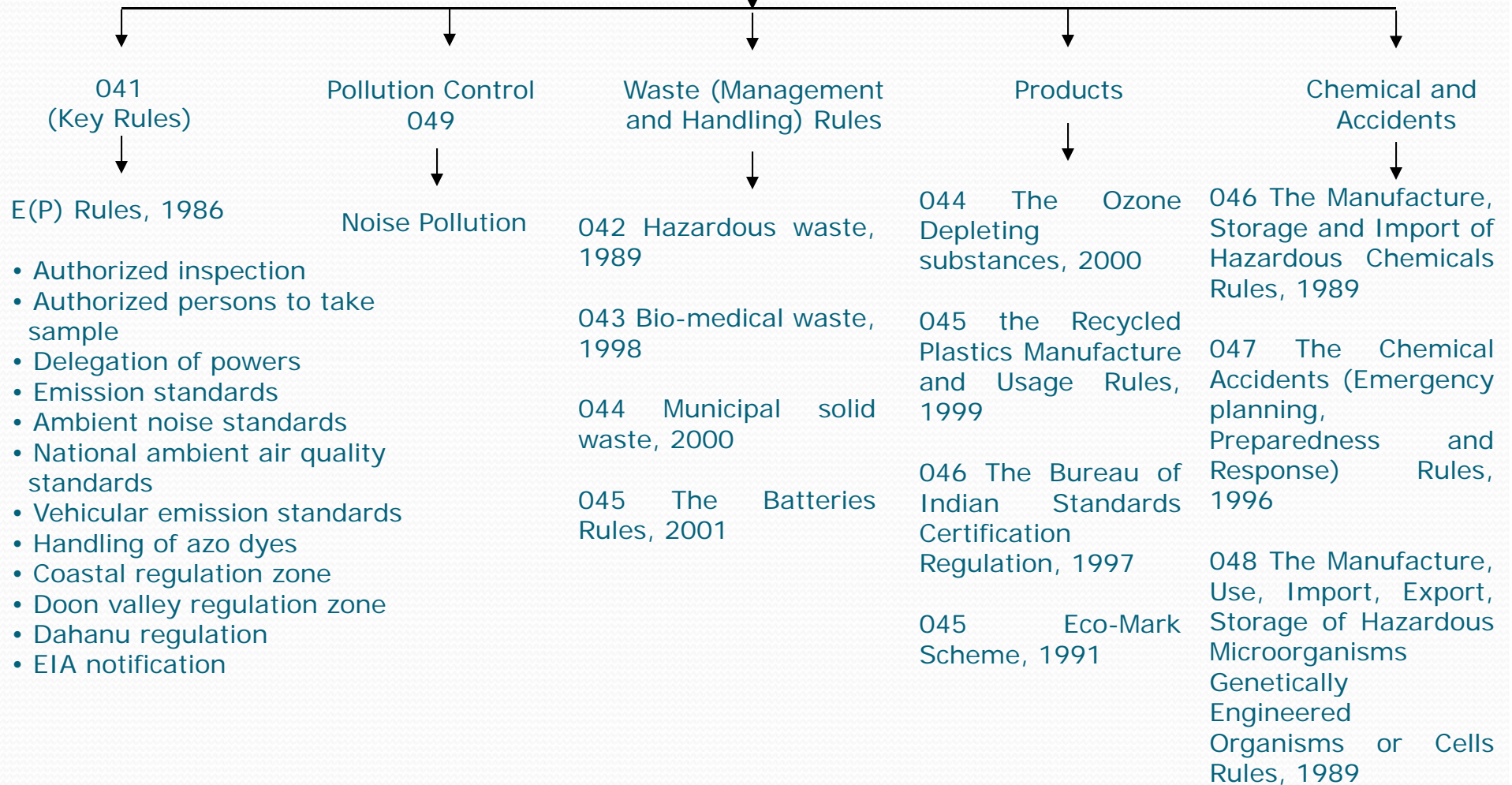
(06)

The National
Green Tribunal
Act, 2010

RULES AND NOTIFICATION UNDER E (P) ACT

E (P) ACT

(O4)

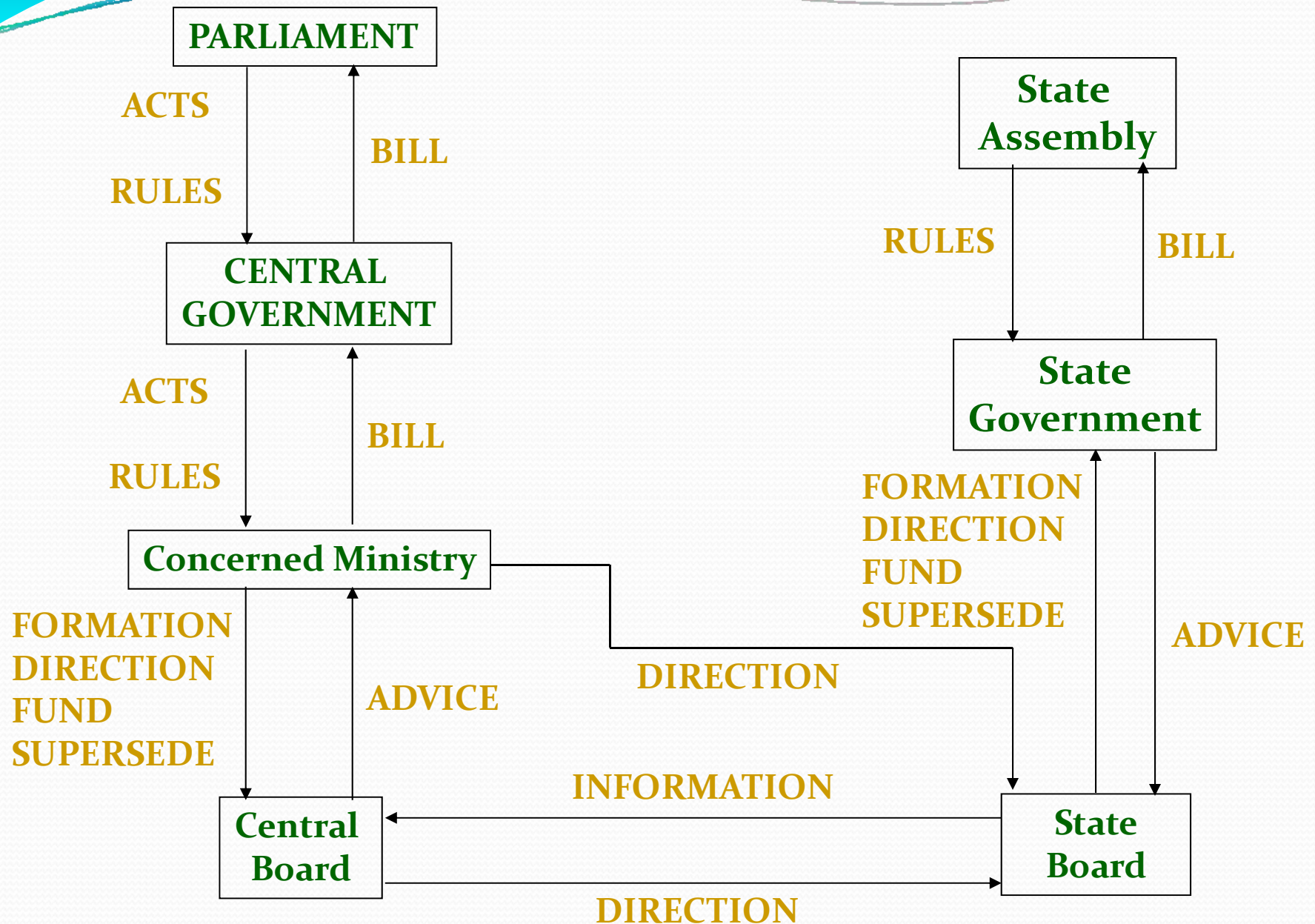




REGULATORS

- **CENTRAL GOVERNMENT**
- **STATE GOVERNMENT**
- **CENTRAL POLLUTION CONTROL BOARD**
- **STATE POLLUTION CONTROL BOARD/COMMITTEE**

INTER AUTHORITY NETWORK



FUNCTIONS OF THE STATE BOARD UNDER WATER AND AIR ACT.

ADVISORY

AWARENESS

RESEARCH

REGULATORY

ADVISORY UNDER WATER ACT:-

- ❖ To plan a comprehensive programme for the prevention , control or abatement of pollution of streams and wells in the state and to secure the execution thereof;
- ❖ To advise the state government on any matter concerning the prevention, control or abatement of water pollution;
- ❖ To advise the State Government with respect to the location of any industry the carrying on of which is likely to pollute a stream or well;
- ❖ To evolve economical and reliable methods of treatment of sewage and trade effluents, having 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;
- ❖ to evolve methods of utilization of sewage and suitable trade effluents in agriculture;

ADVISORY UNDER AIR ACT:-

- ❖ to plan a comprehensive programme for the prevention, control or abatement of air pollution and to secure the execution thereof;
- ❖ to advise the State Government on any matter concerning the prevention , control or abatement of air pollution.
- ❖ to advise the State Government with respect to the suitability of any premises or location for carrying on any industry which is likely to cause air pollution;



AWARENESS UNDER WATER AND AIR ACTS

- ❖ To collect and disseminate information relating to water pollution and the prevention ,control or abatement of water and air pollution.
- ❖ to collaborate with the Central Board in organizing the training of persons engaged or to be engaged in programs relating to prevention , control or abatement of water pollution and to organize mass education programs relating thereto;



RESEARCH UNDER WATER AND AIR ACTS

- ❖ To encourage , conduct and participate in investigations and research relating to problems of water pollution and prevention , control or abatement of water and air pollution;

REGULATORY FUNCTION UNDER WATER AND AIR ACTS

- ❖ To grant consent under Water and Air Act.
- ❖ To inspect industries under Water and Air act.
- ❖ To inspect Sewage Treatment Plant under Water Act.
- ❖ To lay down effluent and emission stands in consultation with central pollution control board.

Regulatory function under E(P) Act, 1986

- ❖ Grant authorization under the Hazardous wastes(Management , Handling and transboundary Movement) Rules, 2008 to the generator , facilitator and transporter.
- ❖ Grant authorization under the Bio medical wastes(Managing and Handling)Rules, 1998 to the generator , facilitator and transporter.
- ❖ Granting registration under the plastic Manufacture , Sale and usage rules, 1999.
- ❖ granting authorization to municipality or the operator under the Municipal solid wastes (management and Handling) Rules , 2000.

Regulatory function under the Manufacture , Storage and Import of Hazardous Chemical rules, 1989

- ❖ State Pollution control Board under Environment(Protection) Act, 1986 should enforce of directions and procedures in respect of isolated storage of hazardous chemicals, regarding –
 - 1) Notification of major accidents as per Rules 5(1) and 5(2)
 - 2) Notification of sites as per rules 7 to 9.
 - 3) Safety reports in respect of isolated storages as per Rule 10 to 12 .
 - 4) Preparation of on-site emergency Plans as per Rule 13.
 - 5) Import of hazardous chemicals and enforcement of directions and procedures on import of hazardous chemicals as per Rule 18.

PROBLEM OF THINNESS

- ❖ THINNESS OF MANPOWER
- ❖ THINNESS OF FUND

HOW TO OVERCOME THE THINNESS ??

- ❖ OUTSOURCING
- ❖ STRENGTHENING THE ADVISORY AND PLANNING A COMPREHENSIVE PROGRAMME FOR THE PREVENTION , CONTROL OR ABATEMENT OF POLLUTION AND TO SECURE THE EXECUTION THEREOF;

PARADIGM SHIFT:-

- ❖ MERE INSPECTOR TO PARTNER OF SUSTAINABLE DEVELOPMENT

STATE OF ENVIRONMENT OF BIHAR

❖ Bihar is a state in northern India. It is the 12th largest state in terms of geographical size at 38,202 sq mi and 3rd largest by population.

Area: 94,163 km².



POPULATION:

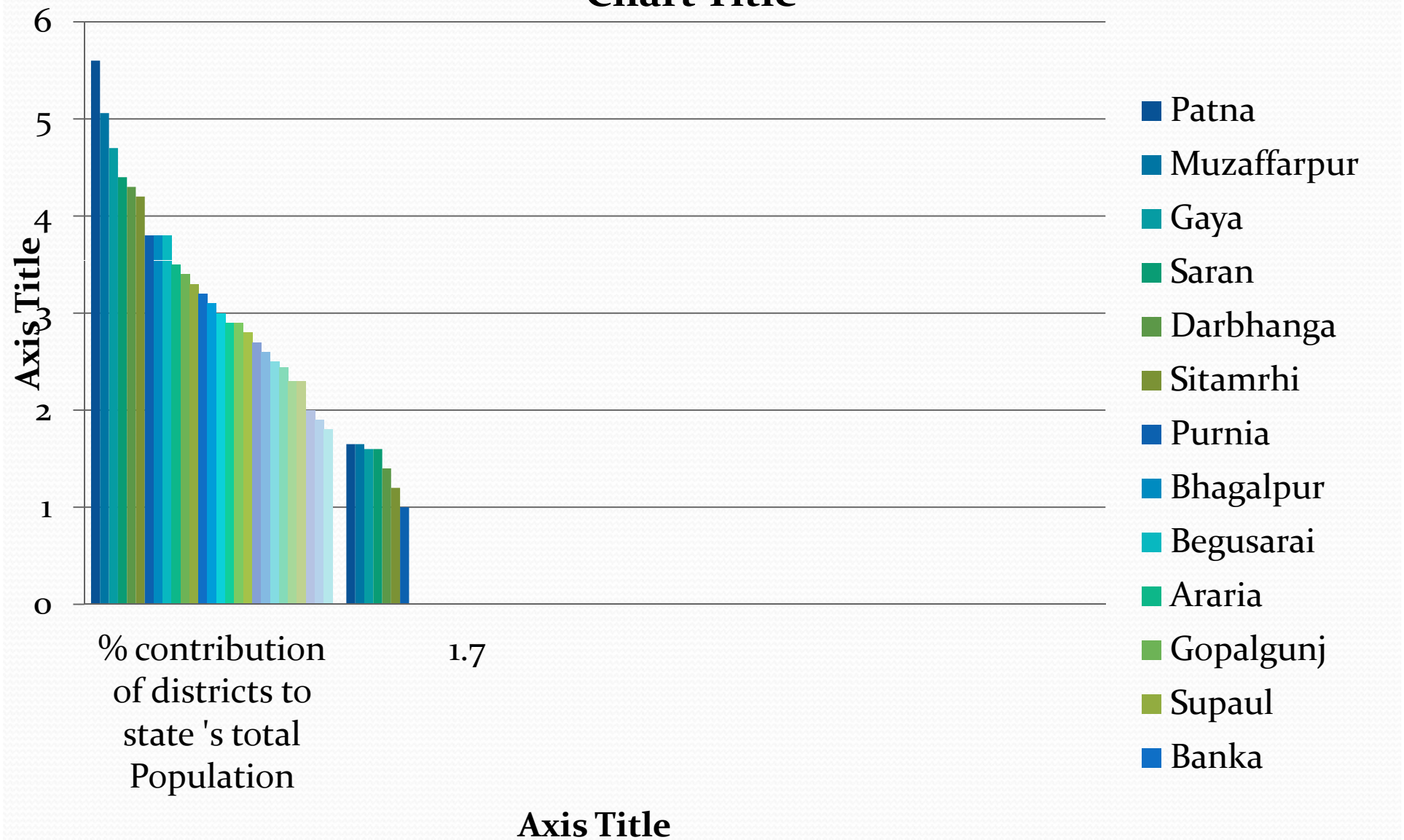
Total population of Bihar as per 2011 census is **10,38,04,637**

Population	Figures	%
Male	54278157	52.28
Female	49821295	47.99
Child(o-6)	92075028	
Rural	92075028	88.7
Urban	11729609	11.3
Growth Rate	-	25.42
Density/Km2	1106	

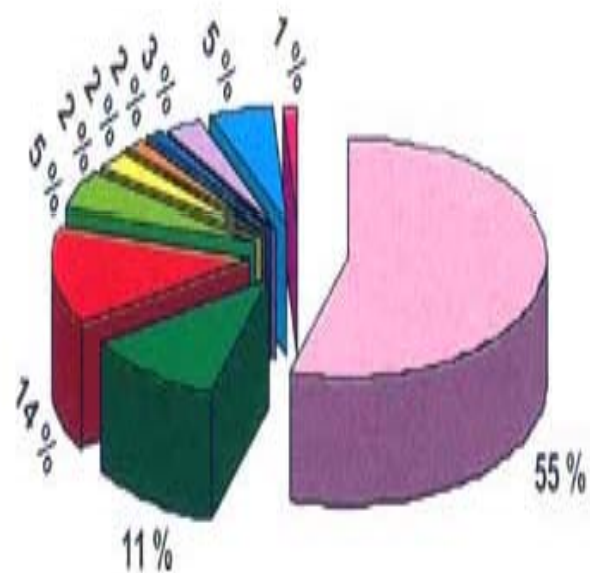
- Highest Population density in Sheohar (1882/ sq Km).
- Lowest Population density in Kaimur (488 / sq Km).

Percent Contribution of Districts to State's Total Population

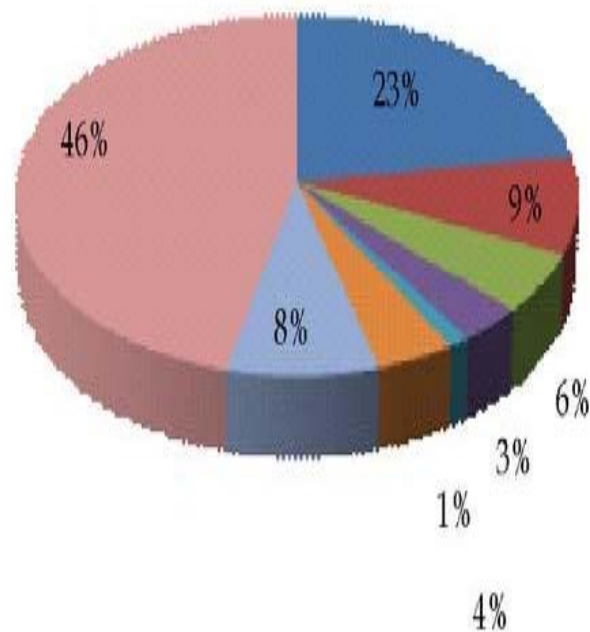
Chart Title



Land Use Pattern:-



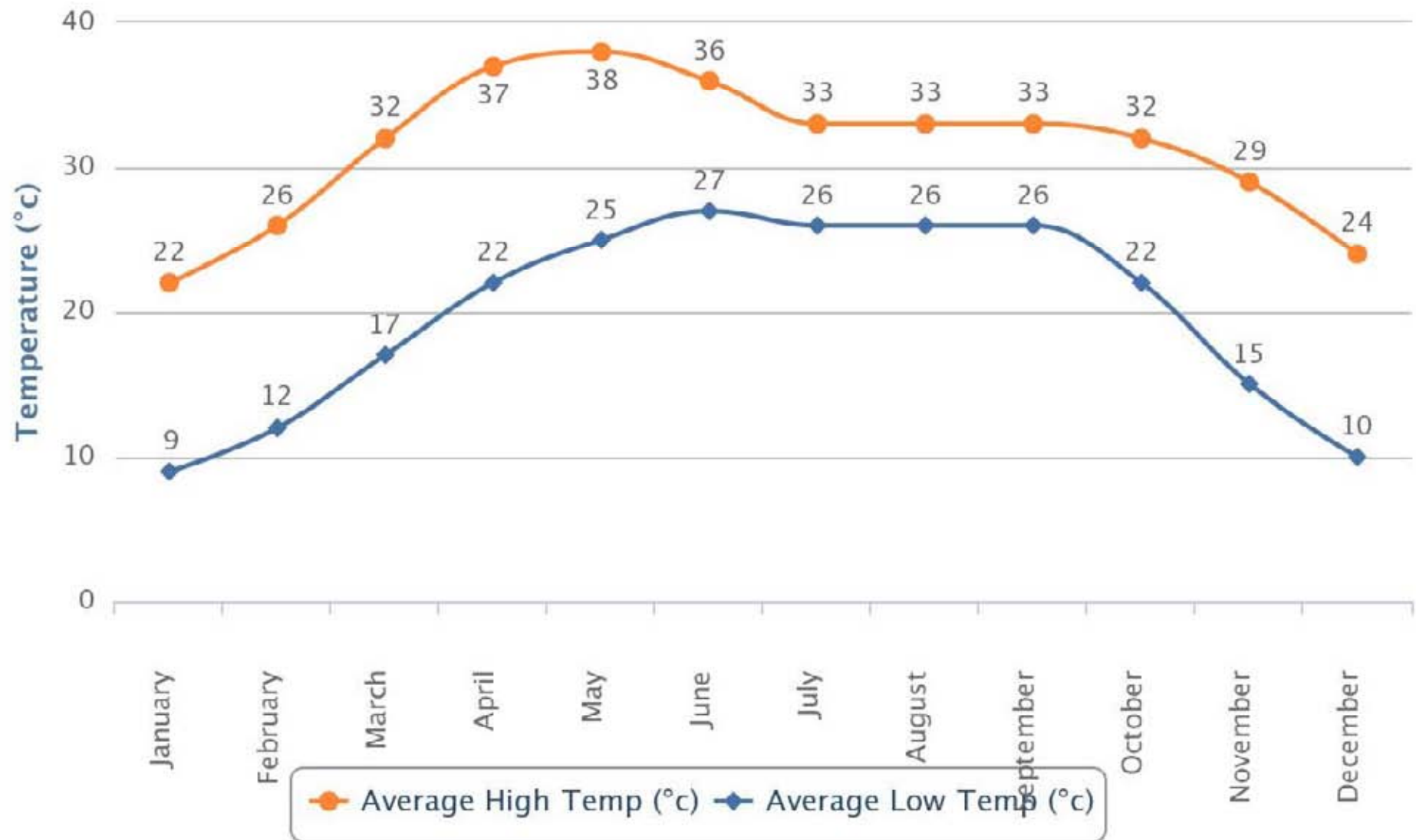
- Cereals
- Pulses
- Oilseeds
- Fodder crops
- Sugar
- Condiments & spices
- Fruits
- Vegetables
- Fibres
- Plantation crops



- Forest
- Area Under Non agricultural Uses
- Barren & Unculturable Land
- Permanent Pasture & other Grazing Land
- Under Miscellaneous Tree Crops & Groves
- Culturable Waste Land
- Fallow Lands
- Net Area Sown

CLIMATE:-

Average Temperature (°C) Graph for Bihar



• Rainfall Distribution in different distribution of Bihar

Districts	Range
Kishanganj	(1841-2995.5)
Purnia	(1340.51-1841)
E.champaran,sitamrhi	(1284.9-1340.51)
Jehnabad,Supaul, Arahria, Katihar	(1229.29-1284.9)
Muzaffarpur ,Shiohar,Madhepura	(1173.68-1229.29)
Nalanda, Arwal	(1118.07-1173.68)
Saran,Nawade,Gopalgunj,W.Champaran,Vaishali	(1062.46-1118.07)
Patna,Rohtas,Samastipur,Lakhisarai,Banka	(1006.85-1062.46)
Bhagalpur,Bhojpur,buxar, Darbhanga,Khagaria	(951.24-1006.85)
Madhubani,Beghusarai,Jamui,Kaimur,Aurangabad	(895.63-951.24)
N.A	(840.02-895.63)
Saharsa	(784.41-840.02)
Gaya,Munger,Silwan	(728.8-784.41)



Pollutant Pathways:



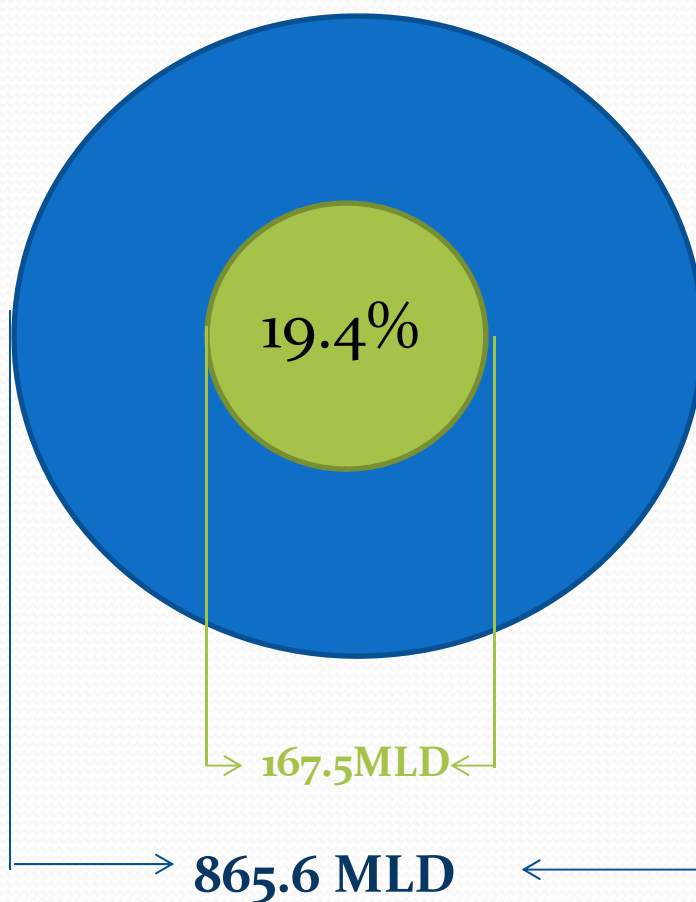
- Industry
- urban system
- vehicle

- Meteorological condition
- Hydrological

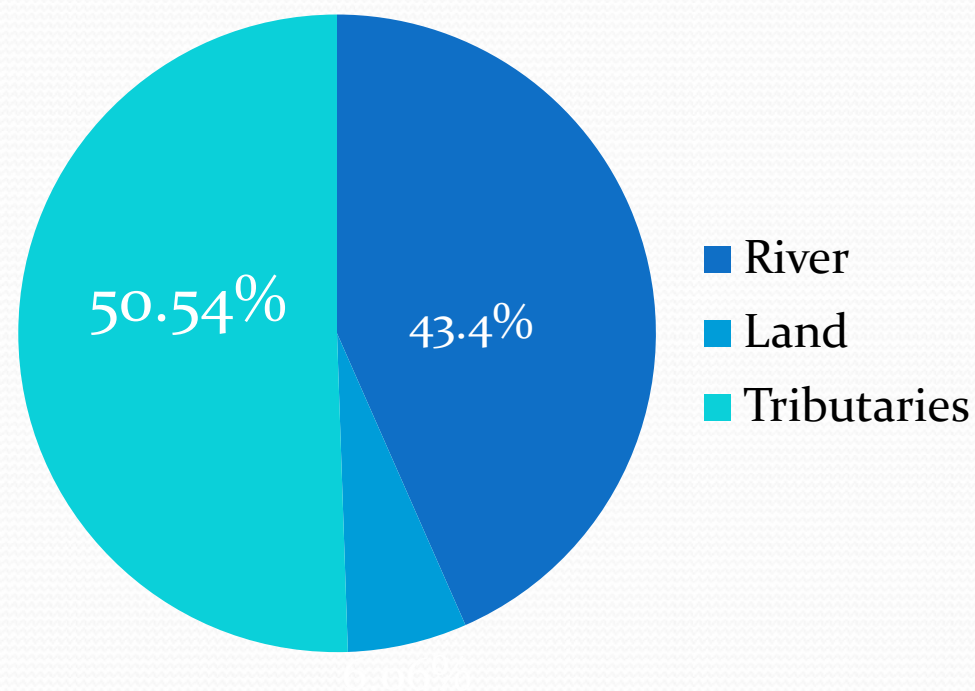
- Public health
- Ecosystem

Status of Sewage Generation ,Treatment and Disposal in Class I cities of Bihar

- Sewage Generation
- Treatment Capacity




Disposal



Status of O& M of STPs in Bihar:

Sl. NO.	State	Status operation	Characteristics			
			Inlet		Outlet	
			BOD (mg/l)	COD (mg/l)	BOD (mg/l)	COD (mg/l)
1.	Chapara, Patna	Not Operational				
1.	Beur, Patna	Operational	72	169	38	50
1.	Saidpur, Patna	Operational	130	315	5	8
1.	Mattagajpur	Operational	28	78	17	67



STATUS OF WASTE WATER GENERATION **AND TREATMENT IN LARGE INDUSTRIES IN** **BIHAR**

Sl No	Name of Unit	Sector	Etp Units	Emission Control System	ETP Status	ETU Status	Water Consumption	Waste water Generation
1.	Bata India Ltd, Hathidah, Patna	Tannery	ETP	Multi Cyclone Dust Collector	OPRS	OPRS	1200	700
2.	Bharat Sugar Mills Ltd, Sidhwalia, Gopalganj	Sugar	ETP-Aerobic cum activated sludge process	Wet scrubber	OPRS	OPRS	1168	450
3.	Harinagar Sugar Mill, Hariinagar, West Champaran	Sugar	ETP- Aerobic Process	Wet Scrubber	OPRS	OPRS	653.8	500
4.	Hari Nagar Sugar Mill Ltd, Distillery Division, Harinagar, West Champaran		Bio-methanation, methane recovery, Bio-composting, zero discharge	Multi cyclone dust collector	OPRS	OPRS	N.A	N.A
5.	Hasanpur Sugar Mills Ltd, Hasanpur, Samastipur	Sugar	ETP-Aerobic cum activated sludge process	Wet Scrubber	OPRS	OPRS	1100	289
6.	HPCL Bio-fuels, Lauriya, W Champaran	Sugar	Aerobic, Anaerobic, Bio-methanation, bio-compositing, zero discharge	ESP	OPRS	OPRS	N.A	N.A
7.	HPCL Bio-fuels, Sugauli, W Champaran	Sugar	Aerobic, Anaerobic, Bio-methanation, bio-compositing, zero discharge	ESP	OPRS	OPRS	NA	NA
8.	Indian Oil Corporation, Barauni, Begusarai	Oil Refinery	ETP	APCU unit Adequate	OPRS	OPRS	NA	450m ³
9.	Kahalgaoon Super Thermal Power Station (NTPC), Kahalgaoon STP, Bhagalpur, Bihar	Power Plant	Ash Dyke, Neutralization pits, Liquid based treatment plant, STP	ESP & Stack	OPRS	OPRS	158598 cum /day	500 cum/hr
10	Kalyanpur Cement Ltd, Banjari, Rohtas	Cement	STP	ESP	OPRS	OPRS	Na	Na
11.	MJ & Sons Distilleries & Breweries Pvt Ltd, Amarpur, Banka	Distillery	Effluents are evaporated in multi effect evaporators, condensate is used in the process & wet cake is used as cattle feed.	Bag Filter and Stack	OPRS	OPRS	no discharge	no discharge
12	Motilal Padampat,	Sugar	ETP Aerobic Process	Wet Scrubber	OPRS	OPRS	2288	350



MUNICIPAL WASTE OF CLASS I **CITIES AND CLASS II TOWNS**

Status of municipal Waste in Bihar:

For Class 1 Cities:-

S. No.	City/Town	States/UT	Population	Municipal Waste
1	Bhagalpur	Bihar	381190	106733.2
2	Patna	Bihar	1542184	431811.52
3	Munger	Bihar	209790	58741.2
4	Katihar	Bihar	196190	54933.2

Municipality Waste of Class - I Cities

S. No.	City/ Towns	States/UTs	Population	Municipal Waste
5	Muzaffarpur	Bihar	342120	95793.6
6	Bihar Sharif	Bihar	259810	72746.8
7	Gaya	Bihar	429180	120170.4
8	Bettiah	Bihar	130700	36596
9	Motihari	Bihar	113690	31833.2
10	Hajipur	Bihar	133590	37405.2
11	Darbhanga	Bihar	298850	83678
12	Chapra	Bihar	200300	56084
13	Sasaram	Bihar	146770	41095.6
14	Siwan	Bihar	121150	33922
15	Arrah	Bihar	227800	63784
16	Dehri	Bihar	133290	37321.2
17	Saharsa	Bihar	138900	38892

Municipal Waste of Class - II towns

S. No.	City/Town	States/UTs	Population	Total Municipality Waste (Kg/day)
1	Jehanabad	Bihar	98070	27459.6
2	Aurangabad Total	Bihar	95220	26661.6
3	Lakhisarai	Bihar	93410	26154.8
4	Madhubani	Bihar	79540	22271.2
5	Jamalpur	Bihar	115990	32477.2
6	Nawada	Bihar	98750	27650
7	Bagaha	Bihar	109660	30704.8
8	Samastipur	Bihar	66710	18678.8
9	Araria	Bihar	72710	20358.8
10	Gopalganj	Bihar	65300	18284
11	Jamui	Bihar	80100	22428
12	Kishanganj	Bihar	102590	28725.2
13	Phulwari Sharif	Bihar	63800	17864
14	Supaul	Bihar	64820	18149.6

Municipality Waste of Class-II Towns :

S. No.	City/Town	States/UTs	Population	Total Municipality Waste (kg/day)
15	Buxar	Bihar	82975	23233
16	Sitamarhi	Bihar	56769	15895.32
17	Begusarai	Bihar	93378	26145.84
18	Mokameh	Bihar	56400	15792
				= 418933.76

Total Municipality waste from **Class - I Cities , Class –II Towns** and **Hospitals** is

1825 Tonnes/day



Biomedical and Hazardous Waste Generation

District-wise Number of Hospitals, Dispensaries, Beds, Doctors

Sl . No.	District	Hospitals and Dispensaries	Beds	Waste Generated Kg/day		
1.	2.	3.	4.	Infectious Waste	Municipality Waste	Total
1.	W. Champaran	0	0	0	0	0
2.	E. Champaran	0	0	0	0	0
3.	Sheohar	0	0	0	0	0
4.	Sitamarahi	71	424	84.8	339.2	424
5.	Madhubani	92	742	148.4	593.6	742
6.	Supaul	0	0	0	0	0
7.	Arahria	0	0	0	0	0
8.	Kishanganj	0	0	0	0	0
9.	Purnea	105	1070	214	856	1070
10.	Katihar	21	280	56	224	280
11.	Madhepura	0	0	0	0	0
12.	Saharsa	0	0	0	0	0
13.	Darbhanga	56	390	78	312	390
14.	Muzaffarpur	68	873	174.6	698.4	873
15.	Gopalgunj	0	0	0	0	0
16.	Siwan	58	594	118.8	475.2	594
17.	Saran	79	695	139	556	695
18.	Vaishali	54	432	86.4	345.6	432
19.	Samastipur	0	0	0	0	0
20.	Bhegusarai	41	396	79.2	316.8	396
21.	Khagaria	31	238	47.6	190.4	238



Hazardous waste generation:

Sl.No	Name of State	Year	No. of Units generating HW	Quantity of	Hazardous	Waste Gen.	(MTA)
				Landfillable	Incinerable	Recyclable	Total
1	Bihar	2010	53	3612	8	725	4345

MAJOR RIVERS IN BIHAR:-

Name of the River	Drainage Basin (Sq Km)	Length of main river (KM)	Name of Tributaries
Burhi Gandak	9601	320	Masan, Balor, Pandai, Sikita, Tilawe, Tiur, Dhanauti, Kohra, Danda
Bagmati	6500	394	Lalbakeya, Lakhandei, Darbanga-Bagmati, Old Kamla, Hasanpur Bagmati
Kamla	4488	120	Mainawati, Dhauri, Soni, Balan, Trisula
Kosi	11410	260	Bagmati, Kamla Balan, Bhuthi balan, Trijuga, Fariani dhar, Dhemama Dhar
Ganga		405	Kosi, Gandhak, Kamali (Ghaghra), Bagmati, Sone, Buri Gandak

Water Quality Monitoring Stations

Sl . No.	District	River	No. of Station
1.	Buxar, Chausa ,Karmnasa, Kaunhara Ghat, Hajipur, District-Vaishali , Kursela, district Katihar.	Ganga	8
2.	Saran	Chapara	3
3.	Guthani of Siwan district, Revilganj , Siwan , Saran ,Sonepur	Ghaghara	3
4.	West Champaran, East Champaran, Gopalganj, Saran, Muzaffarpur and Vaishali	Gandak	
5.	Aurangabad, Dehri – on - son, Rohtas, Daudnagar (Jahanabad), Koilwer, and rural areas of Patna district	Sone	5
6.	Aurangabad, Gaya and Patna districts	Punpun	3
7.	Bhimnagar, district Supaul	Kosi	2
8.	Sitamarhi, Sheohar,Muzaffarpur and Darbhanga	Bagmati	4
9.	West Champaran, East Champaran, Muzaffarpur,Samastipur,Begusarai	BudhiGandak	5
10.	siliguri,Thakurganj,Kishanganj, Purnea & Katihar	Mahananda	5
		TOTAL	38

Arsenic affected Districts and Blocks in Bihar

Sl. No.	District	Block	Arsenic (µg/ml)
1	Arwal	Arwal, Kurtha	10.1-11.6
2	Begusarai	Bhagawanpur, Teghra, Begusarai, Barauni, Bakhri, Balia, Dandari, Garhpura,	1.7-24.2
3	Bhagalpur	Jagdishpur, Sabour, Bihpur, Narayanpur, Ismailpur, Nathnagar, Navgachia, Rangrachowk	1.4-51.1
4	Bhojpur-Aara	Aara Sadar, Barhara, Koilwar, Shahpur,	1.1-121.5
5	Buxar	Simri, Brahmpur, Rajpur, Simri, Buxar, Nawanagar, Chakki, Chaungaon, Dumraon	1.6-121.5
6	Darbhanga	Gaura Vauram, Ghanshyampur, Kusheswarsthan West, Kusheswarsthan East, Benipur, Biraul, Darbhanga	1.4-24.8
7	East Champaran	Raxaul, Motihari	1.4-23
8	Gaya	Dobhi	1.3
9	Gopalganj	Sindhwalia	7.3
10	Katihar	Pranpur, Korha	1.2-2.6
11	Khagaria	Khagaria, Mansi	3.7-3.9
12	Kishanganj	Terhagachh, Thakuganj	2.7- 5.1
13	Luckeesarai	Luckeesarai, Halsi	7.8-19.2
14	Nalanda	Islampur	1.3
15	Purnia	Purnia, Rupauli, Barharakothi	3-9.7
16	Rohtas	Nasirganj	3.3
17	Samastipur	Khanpur, Mohanpur, Mohiuddinagar, Mohanpur, Rosara, Bithan, Hasanpur, Patori	3.6-28.1
18	Sheohar	Parsauni, Sheohar	7.3-26
19	Sitamarhi	Runni Saidpur	5.7
20	Siwan	Pachrukhi	7
21	Vaishali	Desari	14.5
22	West Champaran	Bagha-I, Manjhaulia, Lauria, Narkatiyaganj, Chanpattia	2.6-45.7

Air Quality Monitoring Station

Sl No.	Name of Station	No. of Operating station	Non Operating station
1.	Patna	2	
2.	Barauni	0	3
3.	Muzaffarpur	0	3
4.	Gaya	0	3
	TOTAL	2	9

2010

Operating Stations	SO2			NO2			PM10		
Beltron Bhawan, Shastri Nagar	MAX	MIN.	AVG.	MAX.	MIN.	AVG.	MAX.	MIN.	AVG.
	10	2	5	57	11	26	656	36	118
Gandhi Maidaan , Auto Exhaust test Centre	MAX.	MIN.	AVG.	MAX.	MIN.	AVG.	MAX.	MIN.	AVG.
	28	4	9	82	25	55	489	45	243

PROBLEMS AND APPROACH

- Waste Management (MSW , BMW , HW)
- Waste Water Collection, Treatment and Disposal in Class I,II cities.
- Effectiveness of Environmental Governance with respect to Compliance and Monitoring with Thin but experienced SPCB personnel.
- **APPROACH ON TRAINING:**
- Training for Trainers.
- How to become a catalyst and Advisor on Waste and Waste Water Management (with possibilities of green business)
- Laboratory development and Measurement.
- Effectiveness of Environmental Governance with respect to Compliance and Monitoring with Thin but experienced SPCB personnel.(Effective Outsourcing).

If you Salute your Duty,
You no need to Salute
Anybody,
But
If you pollute your
Duty, You have to
Salute Everybody
-Kalam

