DISTRICT ENVIRONMENT PLAN
BHILWARA DISTRICT

District Environment Plan: Bhilwara District

(As Per Hon'ble NGT in O.A. No. 710 – 713 / 2017 Dated 15.07.2019)

District Collector, Bhilwara:Shri

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Abbreviations:

Abbreviations	Detail
BMC	Biodiversity Management Committee
BMW	Bio-Medical Waste
BS-VI	Bharat Stage VI Standards
C&D	Construction and Demolition
CAAQMS	Continuous Ambient Air Quality Monitoring Stations
CAPEX	Capital Expenditure
CBMWTF	Common Bio-Medical Waste Treatment Facility
CEPI	Comprehensive Environment Pollution Index
CETP	Common Effluent Treatment Plants
CGWA	Central Ground Water Authority
COP	Conference of Parties
CPCB	Central Pollution Control Board
CS	Chief Secretary
CTO	Chief Technical Officer
DC	District Collector
DEC	District Environment Committee
DEP	District Environment Plan
DFO	District Forest Officer
DM	District Magistrate
DPR	Detailed Project Report
EC	Environmental Compensation
ENV	Environment
EPR	Extended producers Responsibility
ETP	Effluent Treatment Plan
EWM	Electronics Waste Management
FI	Financial Institution
GHG	Green House Gas
GP	Gram Panchayat
GPS	Global Positioning System
GRAP	Graded Response Action Plan
HCF	Health Care Facility

HW	Hazardous Waste
ICDS	Integrated Child Development Services
IEC	Information Education and Communication
IMD	Indian Meteorological Department
ISFR	India State of Forest Report
IWMP	Integrated watershed Management Programme
IWW	Integrated Waste Water
LPG	Liquefied Petroleum Gas
MLD	Million Liter Per Day
MoEF&CC	Ministry of Environment, Forest and Climate Change
MSME	Micros, Small and Medium Enterprises
MSW	Municipal Solid Waste
MT	Metric Tone
NCEPC	National Committee on Environmental Planning and Co-ordination
NGO	Non Governmental Organization
NGT	National Green Tribunal
NHAI	National Highways Authority of India
NLCP	National Lake Conservation Plan
NPCA	National Plan for Conservation of Aquatic Eco-system
NRDWP	National Rural Drinking Water Programme
NURM	National Urban Renewal Mission
NWC	National Wetland Committee
NWCP	National Wetlands Conservation Programme
OCEMS	Online Continuous Emission Monitoring System
OCEEMS	Online Continuous Effluent & Emission Monitoring System
OPEX	Operating Expenses
PBR	People Biodiversity Register
PCC	Pollution Control Committee
PDS	Public Distribution System
PM	Particulate Matter
PPP	Polluter Pays Principle or Pollution Prevention Pays
PRI	Panchayati Raj Institution
PWD	Public Works Department
PWM	Plastic Waste Management

PW	Plastic Waste
RTO	Regional Transport Officer
RDF	Refuse-derived Fuel
RPCB	Rajasthan Pollution Control Board
RWH	Rain Water Harvesting
SDGs	Sustainable Development Goals
SPCB	State Pollution Control Board
SPVs	Special Purpose Vehicles
STP	Sewage Treatment Plant
SWA	State Wetlands Authority
SWOT	Strengths, Weaknesses, Opportunities and Threats
SW	Solid Waste
TK	Traditional Knowledge
TSDF	Treatment Storage and Disposal Facilities
ULB	Urban Local Body
WEEE	Waste Electrical and Electronic Equipment
WQMP	Water Quality Management Plan
ZLD	Zero Liquid Discharge

Foreword

As per the directions of the Hon'ble National Green Tribunal (NGT), the work on the preparation of the District Environment Plan (DEP) was initiated. The Maharshi Dayanand Saraswati University, Ajmer was given the responsibility of becoming the Knowledge Partner for the preparation of District Environment Plans for four districts namely- Ajmer, Bhilwara, Tonk and Nagaur. The University then assigned the responsibility of the DEP to the undersigned as the Nodal Officer. The work of the DEP started with meetings and visits to the four districts and collecting and compilingdata with the help of the respective Collectors. The task was cumbersome and time consuming as there was a large volume of data which was to be collected and interpreted.

The idea behind bringing up District Environment Plans is to prepare a unique composite plan covering all issues related to micro level environment management. DEP deals with environmental conservation planning, pollution mitigation, management of wastes, conservation of natural resources including wetlands and ground water and necessary measures for ecological balance with the Principles ofSustainable Development. Hence the purpose is to restore the ecological balance ofall the cities/ districts through smart planning for waste minimization, control of different types of pollution and intense drive for tree plantation.

Developing countries have to give environmental planning importance and priority if they want a future for their people. Development and environmental planning are intertwined. We can't deal with one without dealing with the other. And we have to change the current mindset of people which is, to put economic development and sustainable development in different boxes. We have to change this thinking that protecting the environment impedes development. But rather think the environment in terms of the natural services it provides, then that mindset can change. We can comprehend and understand its worth and see the environment as a series of assets that development depends upon.

India is a vast country and an emerging economy. It faces enormous challenges with its ever-rising population and widespread poverty, in meeting its various other significant commitments. India has been going through a phase of accelerated industrial activities for the past three decades. The associated growth in terms of industrialization and urbanization has led to manifold increase in pollution issues.

Over consumption of resources is going to be a very challenging problem of our times & is a major imminent threat. There is a huge disparity between variousincome groups in India and this problem needs to be addressed by policy makers and citizens alike.

India is committed to create a clean environment and pollution free air and water. It is mandated in our Constitution. India's commitment and obligations to environmental conservation and protection within the ambit of the targeted goals on environmental sustainability under the Sustainable Development Goals (SDGs) is manifested in the fact that several administrative and regulatory measures, in terms of enhancement of human well being are an integral part of India's development philosophy.

Our State Rajasthan is working hard; there is a long way to go. Pollution, degradation of land, depleting natural resources, and loss of biodiversity are the main issues of concern. Poor management of waste, growing water scarcity, falling groundwater tables, water pollution, lack of preservation forests, biodiversity loss, and land/soil degradation are some of the major environmental issues thatRajasthan faces today.

Hon'ble National Green Tribunal vide order dated 26/09/2019 in O.A. No. 360 of 2018 filed by Shree Nath Sharma Vs Union of India and Others directed that CPCB shall facilitate the District Magistrates in preparation of District Environmental Plan by placing Model plan on its website.

This model plan may be adopted as per the local requirements by all Districts under the supervision of District Magistrate.

The said Order also directs that Department of Environment in respective States / UTs should collect district plans to prepare State Environment Plan, which shall be monitored by the respective Chief Secretaries of State/UT by 15/12/2019.

In compliance of the above directions, the CPCB had prepared a model District Environment Plan (DEP) that covered the following thematic areas

1.0 Waste Management Plan

(i) Solid Waste Management Plan (for each ULB).

(ii) Plastic Waste Management (for each ULB)

(iii) C&D Waste Management.

(iv) Biomedical Waste Management (for each ULB)

(v) Hazardous Waste Management

(vi) E-Waste Waste Management

2.0 Water Quality Management Plan

3.0 Domestic Sewage Management Plan

4.0 Industrial Wastewater Management Plan

5.0 Air Quality Management Plan

6.0 Mining Activity Management plan

7.0 Noise Pollution Management Plan

It was felt that one of the most important components namely Ecology and Biodiversity was left out. So the forest Department was approached and we could gather information on the forest cover, information related to Flora and Fauna of the District. Hence Ecology and Biodiversity was also added in the DEP.

Most of the information gathered however was from Urban Local bodies (ULB's) and according to me lacked data from the Villages where almost 70% of the population lives. Protecting the pristine nature of the village ecosystem is very important. This is in line with Mahatma Gandhi's ideology on the environment and rural life. He extensively wrote several times that "India lives in her villages'. We must keep these beautiful words in mind before framing environmental policies. It is of utmost importance that the data of villages pertaining to their environment is important. While preparing the District Environmental Plan we felt the paucity of data available to us from the villages of the district. May be we'll see some similar work and incorporate data from villages as well in future.

This work got full support from the District administration and Regional Pollution Control Boards of Kishangarh and Bhilwara. The completion of this work would have been more difficult in the absence of the four interns who worked as a team and were assigned responsibilities of one district each. I express my gratitude & appreciation for them.

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1. Introduction:

Environment planning in India began in the early 1970s, after the Human Environment Conference at Stockholm was held by the United Nations. It was after attending this Conference that the Government of India took steps to safeguard its Environment. The outcome of this was the formation of the National Committee on Environmental Planning and Co-ordination (NCEPC) which was set up by the Government of India. As a result of uncontrolled urbanization and the increase in deforestation, the Government felt an urgent need for environmental planning. Environment planning in India includes surveys, conservation of fauna and flora, afforesting and control and prevention of pollution.

The environment is unfortunately considered as a sink for the waste products of economic activity - A place to dispose off the unwanted by-products of productionand consumption. Here we as planners have a role to play. We have to ensure that the waste (whether in solid, liquid or gaseous form) does not cause harm or inconvenience to human beings. The environment has the physical capacity to assimilate certain quantities of waste in ways that meet these requirements.

The ecological systems that constitute the environment operate through the perpetual recycling of outputs from natural processes to produce each new generation of living organisms and each consecutive stage in the cyclicaltransformation of inorganic matter, such as in the nitrogen cycle or the hydrological cycle. Waste products from the human economy can be absorbed by these processes, toxic wastes can be filtered or diluted to render them harmless to human health, wastes that are slow to decay or decompose can be buried in places where they will cause little harm.

How well the environment fulfils this waste sink function depends upon the quantity and quality of waste that is produced and the methods of disposal. The environment's assimilative capacity is not limitless. Too much waste of the wrongsort and in the wrong place can reduce the environment's assimilative capacity, damaging not only natural ecosystems but also the protection they afford to humans against the pollution caused by their own waste.

The environmental aspects are to be induced into each of the developmental activities at the planning stage itself and are to be well co-ordinate and balanced.

Presently, the environmental aspects are not usually considered while preparing master plans or regional plans and the process is skewed towards developmental needs. For all developmental activities, a crucial input is land and depending on the activity a specific land use is decided. The environmentally related land use such as trade and industry, housing construction, mining etc. is likely to have some impact on the environment. These land uses need proper planning and integration as some of the activities have interdependencies such as industry with transport, housing etc. Besides this Climate change is now affecting every country on every continent. It is disrupting national economies and affecting lives, costing people, communities and countries dearly today and even more tomorrow. Weather patterns are changing, sea levels are rising, weather events are becoming more extreme and greenhouse gas emissions are now at their highest levels in history. Without action, the world‟s average surface temperature is likely to surpass 3 degrees centigrade this century. The poorest and most vulnerable people are being affected the most.

Affordable, scalable solutions are now available to enable countries to leapfrog to cleaner, more resilient economies. The pace of change is quickening as more people are turning to renewable energy and a range of other measures that will reduce emissions and increase adaptation efforts. Climate change, however, is a global challenge that does not respect national borders. It is an issue that requires solutions that need to be coordinated at the international level to help developing countries move toward a low-carbon economy.

To strengthen the global response to the threat of climate change, countries adopted the Paris Agreement at the Paris Agreement at the COP21 in Paris, which went into force in November of 2016. In the agreement, all countries agreed to work to limit global temperature rise to well below 2 degrees centigrade. As of November 2020, 194 parties had ratified the Paris Agreement. In this light the decentralized Climate Change Mitigation and Adaptation planning is required. Conservation of Bio-diversity and wetlands are an integral part of environment planning. The rationale for the biological diversity planning is basically it underpins ecosystem functioning and the provision of ecosystem services essential for human well-being.

It provides for food security, human health, the provision of clean air and water; it contributes to local livelihoods, and economic development, and is essential for the achievement of the Millennium Development Goals, including poverty reduction.

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needsSustainability defines the models necessary to ensure the survival of the human raceand planet Earth. This includes ways to slow or reverse pollution, conserve natural resources and protect our environment. The principle of 7R is essential strategy for achieving the sustainability. It reduces the load and over exploitation on the natural resources and is a key for resource efficiency.

1.1 SWOT (Strength, Weakness, Opportunities and Threats)

SWOT Analysis is a strategic planning technique used to help a person or organization to identify strengths, weakness, opportunities and threats related to project planning.

This technique designed for use in the preliminary stage of decision making processes and can be used as a tool for evaluation of the strategic position of organization of many kinds including the governmental setups too.

Strengths and weaknesses are internal issues and things that can be controlled easily by working patter or strategies.

Opportunities and threats are external thing mainly influenced by external ever-changing environment or condition.

Strengths: are things that organization does particularly well, or in a way that distinguishes from challenges. These are an integral part of organization.

Weakness: It reflects the requirements which yet not mitigated. These are also inherent features of organization and mainly focus on manpower, resources, systems and procedures.

Opportunities: These are openings or chances for something positive to happen and usually arise from situations outside the organization, and also considered the future conditions.

Threats: These include all possible negative effects that creates hurdles to achieve the strategic goals of the projects. Evolving technologies are ever present threat, as well as an opportunity

01 RETHINK

- Stop and Think: Do we really need that box of individually wrapped snacks?
- Talk to companies that supply our favorite products about rethinking their packaging

02 REFUSE

- Refuse single-use plastics
- Refuse non-recyclable packaging

03 REDUCE

- Reduce consumption
- Become conscious of our choices and question whether or not we really need something

04 REPURPOSE

- Transform stuff we'd normally throw away into something cool and useful
- Repurpose packaging into arts and crafts

05 REUSE

- Be creative
- How can we reuse packaging such as glass, cardboard and some plastics for other uses?

06 RECYCLE

- Use city curbside pickup or find drop-off locations
- Ask about recycling options at work
- Place a recycling container in our car

07 ROT

- Transform organic waste (food scraps + yard clippings) into nutrient rich soil amendment
- Start composting simply + cleanly with the AeromatiC.o


SUSTAINABLE DEVELOPMENT GOALS
17 GOALS TO TRANSFORM OUR WORLD
1 NO POVERTY
2 ZERO HUNGER
3 GOOD HEALTH AND WELL-BEING
4 QUALITY EDUCATION
5 GENDER EQUALITY
6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY
8 DECENT WORK AND ECONOMIC GROWTH
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
10 REDUCED INEQUALITIES
11 SUSTAINABLE CITIES AND COMMUNITIES
12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION
14 LIFE BELOW WATER
15 LIFE ON LAND
16 PEACE, JUSTICE AND STRONG INSTITUTIONS
17 PARTNERSHIPS FOR THE GOALS
SUSTAINABLE DEVELOPMENT GOALS

1.2 NGT Directions:

a. Hon‟ble NGT in last one year has issued several directions in various matters which have been based on status brought out by the CPCB on their website and status reports filed before the Tribunal

b. The directions issued by the Tribunal which are to be executed on pan-India basis

c. Hon‟ble National Green Tribunal (NGT) has ordered Pan-India Directions on various issues relating to environment management and these are to be executed by the Central and State Governments and concerned institutions.

Further, the Directions are required to be executed at District Level covering all cities, towns and villages. The role and responsibilities of enforcement are with District Collectors/Magistrates, Pollution Control Boards, Municipal Bodies, Public Health Engineering Departments and others. The present state level execution and monitoring mechanism on various State and Central Government‟s Schemes are monitored by Chief Ministers/ Chief Secretaries with DMs/DCs.

Monitoring execution of District Environment Plan Protocol/Mechanism of monitoring

Hon‟ble Tribunal has directed District Magistrates (in Order dated 15.07.2019 in O.A No. 713/2017) to monitor the progress of execution of the mentioned issues on monthly basis and provide feed-back to the Chief Secretary on monthly basis. It was also directed to set up Special Task Forces represented by Legal Services Authority and other Departments to be involved in monitoring.

Mechanism/Steps Involved in execution of District Environment Plan

On each issue, concerned Departments are required to consolidate information on actions taken so far and actions required to be taken to meet them as per time-linesin accordance with the orders of the Tribunal.

I. Secretariat of DM/SPCB may get the consolidated and place on the web-site of District Magistrate as DMP and regularly uploading progress of actions taken on monthly basis.

II. Proceedings of monthly interaction of DM with CS may also be placed on the web-site.

III. Involve District Publicity / Media Department, Education, Health and Government / Non-Government Institutions to take up awareness programmers at appropriate level on day-to-day basis.

IV. Associate Technical / Scientific Institutions or individual Experts on need- basis for consultation.

V. Allocate EC funds accrued with SPCBs / PCCs for each District.

VI. Order of the Tribunal dated 26.9.2019 in O.A No. 360 of 2018 has further clarified in Para 7 of the said Order on the activities covered by the States / UTs and State to prepare State Plan accordingly.

1.3 Objectives of District Environment Plan

1. To ensure conservation of environment and natural resources at district level.
2. Restore ecological balance.
3. To achieve the Sustainable Development Goals and district level targets within the prescribed timeline.
4. To ensure sustainability at district level following the principles of resourceefficiency.
5. To ensure decentralized micro level planning, execution and monitoring regarding environment conservation.
6. To incorporate all facets of environmental conservation in micro level planning.
7. To harness active participation of all stakeholders in planned environment conservation actions.
8. Assess, Mitigate and monitor adverse impacts of various pollution sources at district level.
9. Capacity building of stakeholder, department, agencies, organizations and individuals at district level to understand and implement micro level environmental conservation actions.
10. To harness inter-departmental coordination for implementation of action plans.
11. To develop local knowledge centers and expertise for developing environmental conservation strategies at district level.
12. To develop and implement micro monitoring system at district level.

2. District Profile: Bhilwara at a Glance

The history of Bhilwara District which came out from ruins & old records proves thatit is very old. The antiquity of the region can be traced back to the hoary past. The excavations at Bagor have revealed the existence of a stone age culture spread overtwo phases- the earlier datable to 5000 BC-2800 BC ,and the latter belonging to iron age. It is one of the richest lithic sites of India. The district is also studded with mounds of the proto-historic affiliations located on the old river beds of Kothari, Khari etc. amongst than the notable once being cites of Agoocha (Hurda Tehsil), Ojayana (Asind Tehsil) and Hurda itself. The inscribed sacrificial post (Yupa Stambha) from Nandsa (Raipur Tehsil) refereeing to the performance of Sasthiratra sacrifice eloquently proves the revival of Vadik ritis during the 3rd century AD. Old inscriptions from the region tell the story of its glorious past. The rock of Bijoliya is inscribed with an important epigraph of the Gupt period (4th-5th century AD). The district is extremely rich in old temples ranging in time from the 9th to 12th Century AD. The mediaeval temples at Bijoliya, Tilaswan, Dhor, Menal & Mandalgarh etc are example to exquisite Art and architecture. The multi-storied pound of Bhinay near Kachola is one of its kind.

It is not on the record as how the name of Bhilwara was ascribed to the now forms the district Bhilwara. Tradition has it that it came to be known as Bhilwara because it was mostly inhabited by Bhils in old days. These Bhils were eventually driven away towards the hilly tracts and interior places of less importance by the ancestors of the peasant settlers. Ironically enough, now very few Bhils live in this area. Another version recounts that the present Bhilwara city had a mint where coins known as 'BHILADI' were minted and from this denomination was derived the name of the district. This mint was closed in the year 1870.

In ancient times Bhilwara district was a part of Guhil & Chauhan Rajput kingdom. After merger of Mewar State & Shahpura Thikana into Rajasthan Bhilwara district was constituted with Banera & Badnor chief ship of Mewar State and merger of Mandalgarh & Shahpura Thikana the district came into existence in 1949. Mandalgarh, Mandal, Pur & Sanganer places of the district were used as defence Chowkis during the time of Mughal attacks.

Over the years it has emerged out as the TEXTILE CITY of Rajasthan. Now days, Bhilwara is better known as the textile city in the country.

General Characteristics of the District

Bhilwara is one of the 33 districts of Rajasthan. It was formed as a separate district in 1949 on merge of the princely State of Mewar and the Shahpura Thikana in the erstwhile United Rajasthan. The district is full of remains of Stone Age civilization Bagor in the district is the most prominent place of Stone Age Art. The district is also full of old historic temples of the 12th century. Bhilwara is the industrial town. It is famous country wide for the textiles industry. It is well connected with roads, rail.

Location & Geographical Area

Bhilwara district lies on the southeastern part of Rajasthan. The district is recognized as the textile city of Rajasthan. It extends from 25˚1 to 25˚58 North latitude and from 74˚1 to 75˚28 East longitude. The district is bounded in the north by Ajmer district, in the North-West, West and South West by Udaipur and Rajasamand districts. In the South and South South-East by Chittorgarh District. In the East and North East by Bundi and Tonk districts. The total length of the district from West to East is 144 Km. While the breadth from North to South is 104 Km approximately. The total Geographical area of the district is 1047441 Hectares and covers approx. 3.05% area of the State.

Geology

Geologically Bhilwara Supergroup occupies major part of the district. The Vindhyan Supergroup represented by sandstone, shale and limestone is exposed in southeastern part of the district along the great boundary fault. The Gogunda Groupis exposed in extreme north-western part of the district and the Kumbhalgarh Group occupies small area in south-western part of the district, both belonging to Delhi Supergroup. The Aravalli Supergroup exposed in western part of the district is represented by. Dovda Group.

Topography

The district generally consists of an elevated plateau. The eastern position of the district as a cluster of hills. The district is intersected by the Aravali ranges at several places. There is a range of hills in the North-East corner of the district. Which extends right upto jahajpur town. These ranges are predominant in the South East in

Mandalgarh tehsil and in the North East in Jahajpur tehsil. The soil of the district varies from sandy loam to heavy loams.

The District Bhilwara has a hot dry summer and bracing cold winter. The cold seasonis from December to February and is followed by hot summers from March to the last week of June. The South West Mansoon season which follows, last till about mid September. The period from mid September to about the end of November constitutes the post monsoon season.

Forest Resources

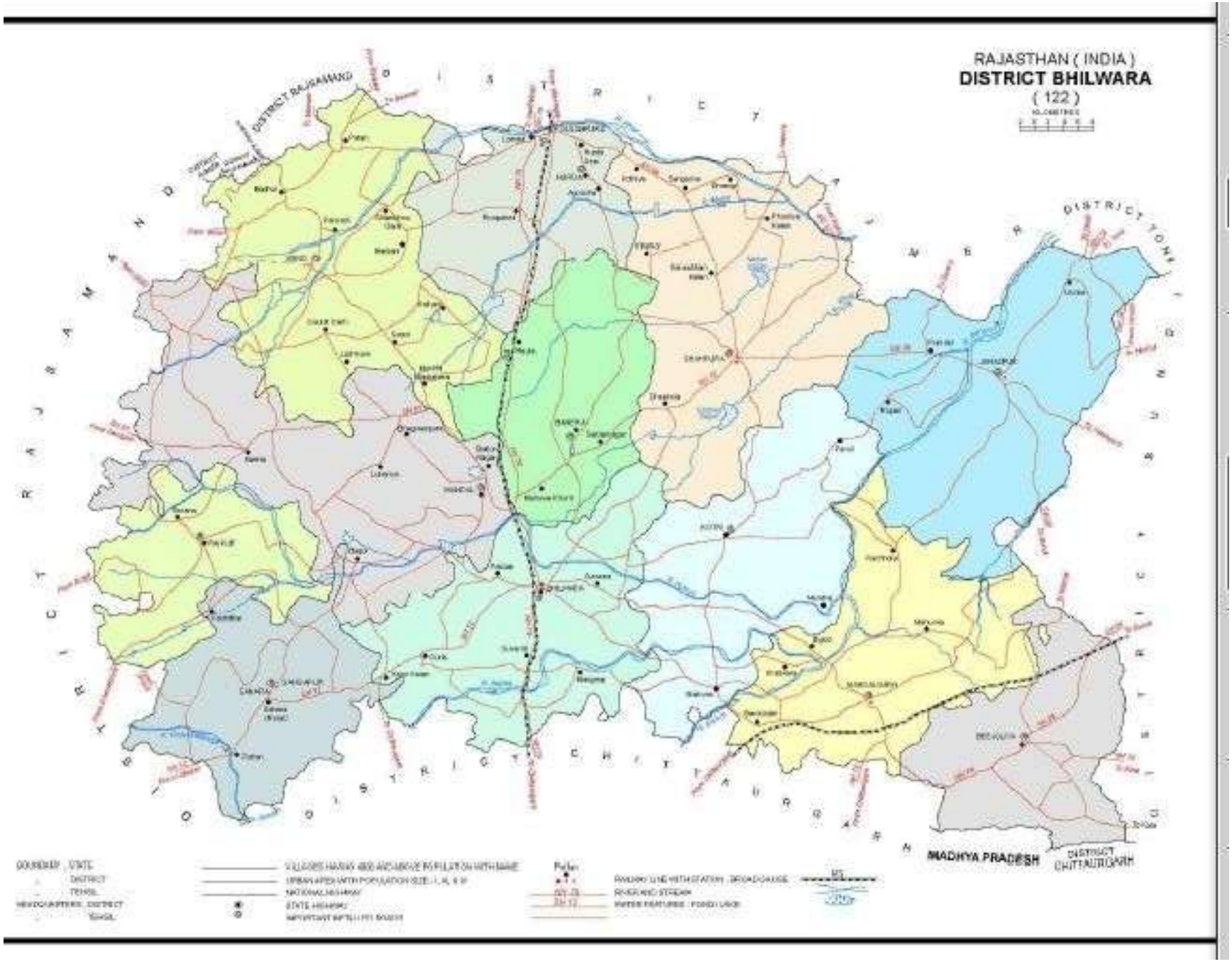
The District is lagging behind in forest resources out of total area of 1047441 hectares the forest area is mere 77362 hectares the forest fall under the subsidiary and dry tropical category, the principal species of wood found in the district Dhokra, other types of species are Babool, Khair etc.

Soils

The soil of Bhilwara comes under mostly two types of soil orders, entisol and alfisol. It ranges from light pale brown and grey to dark brown in colour and sandy loam to clay loam in texture. Water percolates through it, in medium to good range; it is calcareous in nature. In some patches, saline and alkaline soils are found. Bhilwara soils have a lower amount of organic carbon, ranging from 0.15- 0.90%. Organic carbon, considered essential for soil fertility, texture and nutrient retention for plants, is higher in the hills than in the pediments and plains. Nitrogen in the surface layer is characteristically low across the physiographic region in the district, whereas P2O5 and K2O are medium. In general, N and P status of intensively cultivated in plains and valleys is relatively low and K is high compared to hills and pediments. Available Cu and Mn are generally adequate, whereas available Zn and Fe are low to marginal. In the Vindhyas and Aravalis, the available micronutrient is generally highin valley/plain in comparison to hills and pediment. However, available micronutrient is generally low in intensively cultivated areas of the eastern plains.

ADMINISTRATIVE SETUP

Bhilwara district is one of the four districts, those comes under Ajmer division. District Collector is head of the district for revenue, Law and order matters. District Collector & District Magistrate is the head of District Administration. For administration and development, the district is divided in Sub- Divisions and tehsils (sub-districts). The District Bhilwara has 12 sub-divisions. Each of the sub-divisions is headed by a Sub- divisional Officer (SDOs) / Magistrates, the officers are responsible for implementation of law and order matters in their respective sub-divisions. There are 12 Tehsil headquarters in Bhilwara district and each one has a Tehsildar as an administrative officer who works in accordance with the Land Record System to serve for the rural farmers and land holders and is responsible for maintaining the revenue matters in their respective tehsils. For the purpose of the implementation of rural development projects/ Schemes under Panchayati Raj System, the district is divided in the 11 Panchayat Samitis (Blocks). Block Development Officer or Vikas Adhikari is the Controlling Officer of each of the Panchayat Samiti to serve asextension and developmental executive at block level.


RAJASTHAN (INDIA)
DISTRICT BHILWARA
(122)
DISTRICT RAJSAMAND
DISTRICT CHITTAURGARH
MADHYA PRADESH

2.1 Issues Requiring Actions:

As per the directions of the Hon‟ble NGT, DMs/DCs through District Level Committees are required to act on the following issues:

a) **Waste Management**

   a. Municipal Solid Waste (MSW) including remediation of legacy waste dumpsites.

   b. Plastic waste management

   c. Bio-medical waste management

   d. Construction and demolition waste

   e. Hazardous Waste Management

   f. E-waste Management

b) Restoration polluted water bodies including the river stretches and also those which are not presently included in the polluted stretches.

c) Maintaining ambient **air quality in 102** (now 122) **non-attainment cities** and in other non-identified areas where levels of PM10 and PM2.5 are exceeding.

d) **Industries to comply with Water** (Prevention and Control of Pollution) **Act**, **1974** ensuring proper functioning of common effluent treatment plants (CETPs). Environment Compensation (EC) on "Polluter Pays" Principle is required to be imposed to utilize for restoration of environment.

e) Ensure cities, towns and villages provide **proper sewage management facilities** in a time-bound manner or else will be liable to pay EC in case of default and further required to ensure **utilization of treated sewage for** non- potable purpose.

f) Regulation of **sand mining** to check illegal sand mining and recover compensation. Proper strategic restoration of exhausted mining sites as per District Environment Plan.

g) For conservation and protection of water sources, undertake **Rejuvenation of water bodies, conserving ground water** and promote **rain water harvesting.**

h) Setting up of monitoring mechanism by SPCB/PCC on;

   i. **Hazardous Waste Management** / un-authorized disposal, etc;

   ii. **E-waste Management** particularly prohibiting un-authorized dismantling / reprocessing of E-waste etc.

i) Performance audit of State Pollution Control Boards / Committees and issues relating to their functioning including filing up of vacant positions and recognition of laboratories.

j) Disposal of carcasses.

k) Environmental Management at **Railway siding locations.**

l) Environmental Management in **Dairies.**

2.2 Actions to be taken

The Tribunal has issued detailed directions on each issue for enforcement which are to be executed in accordance with the Acts/Rules. However, for ensuring visible impactful changes and taking immediate actions on certain issues, following actions are suggested below:

Solid Waste Management

i. Actions-on model city/town/villages to be taken on priority.

ii. Strengthen waste collection, storage and transportation system. Set up surveillance squads/ Task Forces at Ward/Circle level. Attend vulnerable sites/locations and clean them.

iii. Special attention on slums and settlements near Railway tracks to maintain hygienic conditions.

iv. Install bio-mining activities for clearing legacy waste dump-sites.

v. Prohibiting burning of garbage.

Plastic Waste

i. Prohibition on use plastic carry bags, plastic cutlery and other decorative items made of Styrofoam (Thermocol) etc

Bio-medical Waste

i. Hospitals, Clinics and individual practitioners may be served with notices to prohibit disposal of bio-medical waste in the community dustbins. In case of non-compliance, EC may be imposed on them.

ii. Cities, towns and villages may tie-up individually or collectively to transport bio- medical waste to the common treatment plants.

Construction and Demolition Waste

i. Public notices may be issued that construction and demolition waste should only be disposed at pre-identified/notified sites.

ii. Set up construction and demolition waste processing facilities.

Restoration of Polluted River Stretches

i. A river whether seasonal or perennial, should not be misused for disposal of sewage, garbage or any other waste into it.

ii. Identify the specifically drains discharging sewage/industrial effluents into the river and intercept them through poundage and divert to the sewage treatment plant.

iii. The identified drains till STP are setup, intermediate/interim low cost remediation steps such as ponding, bio-remediation may be taken up for reducing pollution load.

iv. Public awareness and awareness at the level of schools and colleges may betaken up.

v. Encroachment on the banks is regulated.

vi. Capacity building of the ULBs/PRIs residing near state bodies.

vii. Citizen‟s participation in checking quality should be done.

Maintaining air quality in Cities, Towns, and Villages

i. SPCB/PCCs may undertake snapshot monitoring of ambient air quality in a phasedmanner covering all cities and towns for wider coverage. GRAP action should be initiated in case of deviations.

ii. Surveillance squads/ task forces may be set up at Ward and Circle level to prohibitburning of garbage and other waste.

iii. Open parks, dilapidated roads and other sources of dust pollution should be identified and actions be taken to prevent the suspension of dust from such sources.

Industrial Pollution Control

i. State Pollution Control Board should post the information (district wise on its website) indicating industries projects granted with consents ameliorative steps and their compliance status.

ii. Industries discharging waste water and not having effluent treatment plant are closed down as per Water and Air Act till compliance is achieved.

iii. Public access for informing that if any industry is discharging unauthorized liquid effluent or gaseous emissions, may be provided on the website of SPCB and such complaints be acted expeditiously.

Sewage Treatment and Utilization

i. Every city, town and village should have time-bound plan to set up sewage/Septage management facility.

ii. Intermediate remedial methods may be employed till sewage drains areintercepted and diverted to STP.

iii. Treated sewage may be utilized for sprinkling on dust emitting sources forgardening and other non-potable purposes.

Regulation of Sand Mining

i. Special Task Forces/Police Forces may be deployed for patrolling sand miningareas, sand mining/stone quarrying to check illegal mining/quarrying.

ii. Closed mining‟s rehabilitation & restoration plans.

Rejuvenation of water bodies/rain water harvesting and ground water conservation

Ponds/water bodies may be identified at each city, town and village level andcleaned and not allowing sewage and solid waste disposal in such ponds.

i. State Ground Water Board to ensure ground water quality testing particularlyshallow hand pumps, and deep bore wells to check fitness for consumption.

ii. Public notices may be issued for installation of bore wells without permission.

iii. Government and non-government buildings should install rain water harvesting systems in a time-bound manner.

Hazardous and Other Waste Management

i. Illegal transportation of hazardous and E-waste may be monitored.

ii. Unauthorized processing of hazardous and e-waste must be checked.

E-Waste

i. Setting up of collection centers for e-waste.

ii. Setting up of dismantling and recycling plants either at State level or District level.

Noise Pollution Control:

i. Every city, town and village should have tools to identify the Noise Pollution levelsso as actions may be taken accordingly.

ii. Identification and demarcation with suitable Signage‟s for the No-Honking zones.

Ecology and Biodiversity:

i. To prepare extensive database for the biological resources (Flora and Fauna) and to identify & mitigate the threats facing by such components (with the help of Peoples Biodiversity Registers).

ii. Special Task Forces / Forest Department / Police Forces may be deployed for patrolling trust areas of illegal hunting, poaching and to check illegal trading.

iii. Dried water bodies and wetlands restoration plans along with removal of encroachments from the catchment areas.

iv. To develop and maintaining the desirable forest cover and area according to Biodiversity and Forest acts of Government of India and State Government.

Immediate Actions

On urgent basis, to bring visible impactful changes in public, following actions may be considered:

i. Work expeditiously to focus cleanliness with enforcement of waste management rules including thrust on Air and Water Quality Management.

ii. In cities and towns identify garbage littered areas/localities and clean them and publicize them.

iii. Focus on slums and settlement located along railway tracks and either rehabilitate them/ or provide proper living conditions.

iv. Set up at least one plastic waste, bio-medical waste and construction and demolition waste processing centre according to the population pressure of theULBs.

v. Clear encroachment from, river banks/lake /pond and beautify them.

vi. Vigilance and stop burning of waste and cover dusty areas/activities.

vii. Immediately sensitize locals, schools, colleges and other voluntary organizations for creating awareness.

viii. Capacity building of staff of ULBs/PRIs

Segments of District Environment Plan (DEP)

"The proposed Model Action Plan for 8 thematic areas"

Waste Management Plan

Solid Waste Management Plan (for each ULB)

Municipal Solid Wastes (Management & Handling) Rules, 2016 (MSW Rules) are applicable to every municipal authority responsible for collection, segregation, storage, transportation, processing and disposal of municipal solid waste.

Ministry of Housing and Urban Affairs
Government of India

SEGREGATED SOLID WASTE COLLECTION AT DOORSTEP

Wet/Organic waste

Vegetable & Fruit Waste, Egg Shells, Tea Bag, Coconut Shell & Fibre etc

Dry Waste

Sanitary Waste

Used Sanitary Napkins, Diaper, Condoms etc. Wrap securely

Recyclable Waste

Plastic, Newspaper, Glass, Rubber, Packaging Material & sanitary residues

DOMESTIC HAZARDOUS WASTE

Medicines, Pesticides Bottles, Syringes, Cosmetics & Dressings, etc

or

Drop in container provided by authorised waster picker

Transfer all waste material to transfer station

Transfer Station

THEN

Wet Waste

Composting / Bio-Methanation

Dry Waste

MRF

- Recyclable to authority recyclers
- Combustible to RDF/Plant
- Inert to landfill

Sanitary Waste

Common boimedical waste treatment Facility

Alakananda Advertising

Ministry of Housing and Urban Affairs
Government of India

Do's And Dont's Under Solid Waste Management Rules 2016

Do's

Don'ts

Don't litter or burn solid waste on road/ in surroundings.

Don't mix C&D waste with dry waste store separately and transfer it to designated location centers by the local body

Don't store wet waste to beyond 24 hours in home to avoid fermentation of waste.

Don't Discard commodities which can be reused multiple times/ways

Clean India, Green India

Baseline Data for Solid Waste Management

Waste Management Plan

No.	ActionAreas	Details of DataRequirement	Units of MeasurableOutcome	Please enter Measurable Outcome for District
	Population		[Nos as per 2011census]	127353
SW1	Report on inventory of total solid wasteGeneration			
SW1a		Total solid waste Generation	[in MT/Day] or [Not estimated]	150
SW1b		Qty. of Dry Wastesegregated	[in MT/Day] or[Collection Not initiated]	85.05
SW1c		Qty. of Wet Wastesegregated	[in MT/Day] or[Collection Not initiated]	70
SW1d		Qty. of C&D Wastesegregated	[in MT/Day] or [Collection Not initiated]	5.5
SW1e		Qty. of Street Sweeping	[in MT/Day] or [Not estimated]	15.92
SW1f		Qty. of Drain Silt	[in MT/Day] or [Not estimated]	11.98
SW1g		Qty. of Domestic Hazardous Waste(DHW) collected	[in MT/Day] or [NoFacility]	No Facility
SW1h		Qty. of Other Waste (Horticulture, sanitarywaste, etc.)	[in MT/Day] or [Qty notestimated]	Qty not estimated
SW1i		No of Old dump sites	[Nos] or [None]	7
SW1j		Qty stored in dumpsites	[MT] or [Not estimated]	229160
SW1k		No of Sanitary landfills	[Nos] or [None]	None
SW1l		No of wards	[nos]	205
SW2	Compliance by Bulk Waste Generators			
SW2a		No of BW Generators	[numbers] or [inventorynot done]	inventory not done
SW2b		No of on-site facilities forWet Waste	[numbers] or [No data]	No data
SW3	Compliance in segregated waste Collection SW Collection			
SW3a		Total generation	[Automatic] from SW1a	165
SW3b		Wet Waste	[in MT/Day] or[Collection Not initiated]	71.5
SW3c		Dry Waste	[in MT/Day] or[Collection Not initiated]	76.5
SW3d		C&D Waste	[in MT/Day] or [Collection Not initiated]	6
SW4	Waste Management Operations			
SW4a		Door to Door Collection	[100%] / [partial %] / [not initiated]	100%
SW4b	Not initiated	Mechanical Road Sweeping	[100%] / [partial%] / [not initiated]	0.71%

No.	ActionAreas	Details of DataRequirement	Units of MeasurableOutcome	Please enter Measurable Outcome for District
SW4c		Manual Sweeping	[100%] / [partial%]	97.14%
SW4d		Segregated Waste Transport	[100%] / [partial %] / [not initiated]	Not Initiated
SW4e		Digesters (Bio- methanation)	[% of WW] / [not initiated]	Not Initiated
SW4f		Composting operation	[% of WW] / [not initiated]	30.71%
SW4g		MRF Operation	[MRF used] / [not installed]	Installed but not used
SW4h		Use of Saniatry Landfill	[% of SW collected] /[no SLF]	No SLF
SW4i		Reclamation of old dumpsites	[initiated] / [not initiated]	Intiated
SW4j		Linkage with Waste to Energy Boilers / Cement Plants	[initiated] / [notinitiated]	Not Initiated
SW4k		Linkage with Recyclers	[initiated] / [not initiated]	Not Initiated
SW4l		Authorization of waste pickers	[initiated] / [not initiated]	Not Initiated
SW4m		Linkage with TSDF / CBMWTF	[initiated] / [not initiated]	Initiated
SW4n		Involvement of NGOs	[initiated] / [not initiated]	Not Initiated
SW4o		Linkage with Producers /Brand Owners	[initiated] / [not initiated]	Initiated
SW4p		Authorisation of Waste Pickers		
SW4q		Issuance of ID Cards	[initiated] / [not initiated]	Not Initiated
SW5				
SW5a		Waste Collection Trolleys	[Nos. Required] / [Nos. Available]	2244/1202
SW5b		Mini Collection Trucks	[Nos. Required] / [Nos. Available]	85/67
SW5c		Segregated Transport	[yes] / [no] / [% area covered]	No
SW5d		Bulk Waste Trucks	[Nos. Required] / [Nos. Available]	14/10
SW5e		Waste Transfer station	[Nos. Required] / [Nos. Available] /[Notavailable]	139
SW5f		Bio-methanation units	[Nos. Required] / [Nos. Available]	Not Available
SW5h		Composting units	[Nos. Required] / [Nos. Available]	003/004
SW5i		Material Recovery Facilities	[used or installed] / [not available]	Not Available
SW5k		Waste to Energy (if applicable)	[Required] / [Nos. Available]	Not Available
SW5l		Waste to RDF	[Required] / [Nos. Available]	Not Available
SW5m		Sanitary Land fills	[Nos] / [Nos. Available]	Not Available
SW5n		Capacity of sanitary landfills	[MT] / / [Nos. Available]	Not Available
SW5o		Waste Deposit Centers (DHW)	[Nos] / [Nos. Available]	Not Available

No.	ActionAreas	Details of DataRequirement	Units of MeasurableOutcome	Please enter Measurable Outcome for District
SW5p		Other facilities	[give or select from list]	Not Available
SW6	Notification and Implementation of By- Laws			
SW6a		Notification of By-laws	[done] / [in progress] /[not initiated]	Done
SW6b		Implementation of by-laws	[done] / [in progress] /[not initiated]	In Progress
SW7	Adequacy of Financial Status of ULB			
SW7a		CAPEX Required	[INR] / [Not required]	10,35,00,000
SW7b		OPEX	[INR per Year] / [% of requirement]	6,55,00,000
SW7c		Adequacy of OPEX	[Yes] / [No]	No

SWOT Analysis

	Helpful to achieving the objectives	Harmful to achieving the objectives
Internal origin (attributes of the Organization)	**Strengths**	**Weakness**
	• Door to Door collection (96%) • Manual Sweeping (79.50%) • Implementation of Solid Waste Management Bylaws • Initiated linkage with TSDF (Treatment, Storage and Disposal facilities) in some ULBs • Implementation of Solid Waste Management Bylaws	• Manual street sweeping (for limited period) • No sanitary landfill • Either MRF (Metal Recovery Function) Operation not installed or if installed in ULBs then not yet functional • No Proper Waste Segregation • Not Initiated linkage with Recyclers
External Origin (attributes of the Environment)	**Opportunities**	**Threats**
	• Mechanical Road Sweeping, Street sweeping can be upgraded to mechanical suckers • waste segregation (Dry waste-Wet waste-C&D Waste- Domestic hazard waste) • Identification of area for landfills (Open and Sanitary) • Development of compost sites • & Bio-methanation Unit • Reclaimanation of old dump sites • Implement TSDF (Treatment, Storage and Disposal facilities) • Identification and involvement of NGOs/SHGs	• No Classification & Segregation Domestic Hazardous waste • Not proper implementation of Environmental Laws • Pressure of Tourists

Action Plan for Solid Waste Management

S. No.	Action Points	Timelines	Department/ Agencies
1.	Door to Door collection of municipal solid waste as per SWM Rules-2016 Segregation at source of solid waste Regular pest control system	Regular activity	ULBs
2.	Collection, Segregation, Transportand Disposal of Solid Waste in city	Regular activity	ULBs
3.	Segregation at source of solid waste	Regular activity	ULBs / Individual (At source)
4.	Plantation of area specific types of plants to mitigate pollution, Regular cleaning of drains and disposal of sludge, In-house disposal of Solid waste. • In industrial areas as per SWM Rules-2016 • In areas of human settlement asper SWM Rules-2016	Regular activity	Department of Industries/ULBs
5.	Development of new SWM facility Establishment of Bio-compost RDFand waste to energy plant	Immediate	ULBs
6.	Construction of appropriate numberof Sentry Landfills in district with respect to population and development of leachate collection and treatment centre at same site.	Immediate	ULBs
7.	Preventing solid waste entering into water bodies – installation of barmesh in Nallahs & Drains	Immediate	ULBs
8.	GPS enabled vehicles for waste transportation & user friendly mobileapp	Immediate	ULBs
9.	Installation of Litter bins & waste storage bins at appropriate locations.	Immediate	ULBs
10.	Redressal of complaints	Regular activity	ULBs
11.	Actions against defaulters of Solid Waste Management Rules- 2016	Immediate	ULBs
12.	Information, Education and Communication (IEC) activities for source segregation	Regular activity	ULBs/ RPCB/ Education Department/ NGOs
13.	Authorization of solid waste processing facilities from RPCB	Immediate	ULBs/ RPCB

Plastic Waste Management

Plastic products become an integral part of our daily life. That's why Plastic became menace worldwide as plastic polymer is produced at a massive scale worldwide. On an average, production of plastic crosses 150 Million tones globally per year. It has wide application in packaging, films, wrapping materials, shopping and garbagebags, fluid containers, clothing, toys, household and industrial products and building materials.

According to a report of Central Pollution Control Board CPCB (2017-18) has estimated that India generates approximately 9.4 Million tons per annum plastic waste, (which amounts to 26,000 tons of waste per day), and out of this approximately 5.6 Million tons per annum plastic waste is recycled (i.e. 15,600 tons of waste per day) and 3.8 Million tons per annum plastic waste is left uncollected or littered (9,400 tons of waste per day). The Government of India notified PlasticWaste Management (PWM) Rules, 2016 and was further amended and named as

Plastic Waste Management (Amendment) Rules, 2018. These rules shall apply to every Waste Generator, Local Body, Gram Panchayat, Manufacturer, Importer, Producer and Brand Owner.

Ministry of Housing and Urban Affairs
Government of India

PLASTIC WASTE MANAGEMENT

Collection From Unorganized sector/authorized waste pickers

Utilizable Plastic

Recyclable Plastic

Collection of Segregated waste (Household/Commercial sector)

Dry Solid Waste

Wet Solid Waste

Material Recovery

Composting

Fuel Oil

Co-Processing

Road Construction

- Paper
- Glass
- Metal
- Packaging Material

Non-Recyclable / Disposable Plastic

Recyclable/Utilizable Plastic

Part of RDF (Refused Derived Fuel)

Plasma Pyrolysis/ Incrineration (Residue to Landfill)

Waste to Energy (Residue to Landfill)

Co-Processing

Fuel Oil

Road Construction

Recycled Plastic

RECYCLING STRENGTHENS CIRCULAR ECONOMY .... !!!

Ministry of Housing and Urban Affairs
Government of India

CATEGORIES OF PLASTICS, SYMBOL OF IDENTIFICATION AND USAGE

1 PET



POLYETHYLENE TEREPHTHALATE

Soft drink bottles, packaged water bottles, cooking oil container etc.

HIGH-DENSITY POLYETHYLENE HDPE 2

Shampoo bottles, recycling bins, agricultural pipe, base cups, playground equipment etc.



3 PVC



POLYVINYL CHLORIDE

Pipe, Window profile, fencing, flooring, shower curtains, lawn chairs, non-food bottles and children's toys etc.

LOW-DENSITY POLYETHYLENE LDPE 4

Plastic carry bags, most of the wrappings, plastic shopping bags etc.


5 PP



POLYPROPYLENE

Auto parts, industrial fibers, food containers, dishware etc

POLYSTYRENE PS 6

Cafeteria trays, plastic utensils, toys, video cassettes and cases, clamshell containers, insulation board etc.


7 O



OTHER

Thermoset Plastics, Multilayer and Laminates, Bakelite, Polycarbonate, Nylon SMC, FRP etc.

Ministry of Housing and Urban Affairs
Government of India

TECHNOLOGIES FOR PLASTIC WASTE DISPOSAL

Utilization of Plastic waste in road Construction:

Segregated plastic waste
(except chlorinated/brominated Plastic Waste)
from mixed municipal solid waste (MSW)

Co-processing of Plastic waste in Cement Kilns:

Plastic waste is used as Alternate Fuel and Raw-material (AFR), subjected to higher temperature around 1400°C-1500°C from mixed Municipal Solid Waste (MSW)

Conversion of Plastic Waste into Fuel-oil: Refused-derived Fuel (RDF)

HD, LD, PP and multilayer packaging except PVC

Disposal of plastic waste through Plasma Pyrolysis Technology (PPT)

Different types of Plastic waste Such as polyethyelene bags, Solid Plastic, Metalized plastic, Multi-layered Plastic and PVC Plastic can be disposed through PPT.

Baseline Data for Plastic Waste Management

Waste Management Plan

No.	ActionAreas	Details of Data Requirement	Measurable Outcome	Please enterMeasurable Outcome for District
	Population		[Nos as per 2011 census]	127353
PW1	Inventory of plastic waste generation			
PW1a		Estimated Quantity of plasticwaste generated in District	[MT/day] / [Not Estimated]	7.2
PW2	Implementation of Collection			
PW2a		Door to Door collection	[100%] / [partial %] /[not initiated]	100%
PW2b		Segregated Waste collection	[100%] / [partial %]	0%
PW2c		Plastic waste collection atMaterial Recovery Facility	[MRF used] / [not installed]	MRF install
PW2d		Authorization of PW pickers	[Nos] / [not initiated]	Not Intiated
PW2e		PW collection Centers	[Nos] / [not established]	not established
PW3	Establishment of linkage with Stakeholders			
PW3a		Established linkage withPROs of Producers	[Nos] / [not established]	not established
PW3b		Established linkage with NGOs	[Nos] / [not established]	not established
PW4	Availability of facilities for Recycling or utilization of PW			
PW4a		No. of PW recyclers	[Nos]	0
PW4b		No Manufacturers	[Nos]	0
PW4c		No of pyrolysis oil plants	[Nos]	0
PW4d		Plastic pyrolysis	[Quantity in MT sent per Month]	0
PW4e		Use in road making	[Quantity MT used per Month]	0
PW4f		Co-processing in Cement Kiln	[Quantity in MT sentper Month]	0.507
W5	Implementation of PW Management Rules, 2016			

No.	ActionAreas	Details of Data Requirement	Measurable Outcome	Please enterMeasurable Outcome for District
W5a		Sealing of units producing <50-micron plastic	[All sealed] / [Partial] / [no action]	All sealed
PW5b		Prohibiting sale of carry bags < 50 micron	[Prohibited] / [Partial] / [no action]	Prohibited
PW5c		Ban on Carry bags and other single use plastics as notifiedby State Government	[Implemented] / [Partial] / [no action] / [No Ban]	Implemented
PW6	Implementation of Extended Producers Responsibility (EPR) throughProducers/Brand-owners			
PW6a		No of Producers associated with ULBs	[Nos] / [None]	None
PW6b		Financial support by Producers / Brand owners toULBs	[Nos] / [None]	None
PW6c		Amount of PRO Support	[Rs…]	None
PW6d		Infrastructure support by Producers / Brand owners toULBs	[Nos of Producers] / [None]	None
PW6e		No of collection centers established by Producers / Brand owners to ULBs	[Nos] / [None]	None

SWOT Analysis

	Helpful to achieving the objectives	**Harmful** to achieving the objectives
Internal origin (attributes of the Organization)	**Strengths**	**Weakness**
	• Use of plastic waste in co-processing in Cement Kiln	• No proper estimation of total plastic waste generated per day • Less number of authorised plastic waste pickers with reference to overall population • Either MRF (Metal Recovery Function) Operation not installed or if installed in ULBs then not yet functional
External Origin (attributes of the Environment)	**Opportunities**	**Threats**
	• Segregation of Plastic waste should be in proper manner and onsite Segregation • Material recovery facility should be initiated in proper manner • NGOs/SHGs should be involved • Establishment of plastic waste recycle centre • Establishment of Pyrolysis oil plant • Use of plastic in road making	• No proper implementation of plastic waste management rules 2016 • No implementation of extended producers responsibility (EPR) through producers/Brand owner • Less then 50 micron Plastic carry bags are still in use • Used plastic bags is eaten awayby stray cattle • Entry of Microplastics in food chain

Action Plan for Plastic Waste Management

S. No.	Action Points	Timelines	Department/ Agencies
1.	Door to Door plastic waste collection	Regular activity	ULBs
	Setting up of decentralized waste	Immediate	ULBs/ Mandi Parishad/ Bus
2.	processing facilities by bulk waste generators		Stand/ Hotels/Institutions etc.
3.	Plastic waste segregation at Source	Regular activity	ULBs / Waste Generator
4.	Development and Setting up of Infrastructure for Segregation, Collection, Storage, Transportation , Processing and Disposal of Plastic Waste	Regular activity	ULBs/ Panchayat
5.	Management by Waste Generator (Use of Plastic Carry Bags, Plastic Sheets, extended product life cycle,Cover Made of Plastic Sheets and Multi Layered Packaging)	Immediate	ULBs/ Panchayat / Waste Generator
6.	Utilization of Non-recyclable plastic waste (Road Construction, Waste to Fuel, Waste to energy, alternative uses identification etc)	As per requirement	ULBs/ PWD
7.	Engaging Civil Societies/NGOs/Agencies working with Waste Picker	Immediate	ULBs
8.	Channelization of Plastic Waste to Recyclers	Immediate	ULBs
9.	Ban on Carry bags and other singleuse plastics as notified by State Government	Immediate	ULBs
10.	Prohibiting sale of plastic carry bags, thermocol and cutlery etc.	Immediate	ULBs
11.	Ensuring no open burning and littering of Plastic Waste	Immediate	ULBs/ Panchayat
12.	Submission of Annual Report to CPCB	Annually	RPCB
13.	Preventing plastic waste entering into water bodies – installation of barmesh in Nallahs & Drains	Immediate	ULBs
14.	Information, Education & Communication (IEC) for plastic waste management.	Regular Activity	ULBs/ RPCB/ Development Authority/ NGOs/Education Department

Construction and Demolition Waste Management

Safe and cost-effective management of construction & demolition wastes is a significant environmental challenge for modern society. Due to rapid urbanization is changing the nature of construction & demolition wastes management from a low priority, localized issue to a pervasive social and environmental problem with risks to public health and environment. Inadequately managed waste disposal has the potential to affect the health and environment. Construction and demolition waste" means waste comprising of building materials, debris and rubble resulting from construction, re-modeling, repair and demolition of any civil structure".

Ministry of Housing and Urban Affairs
Government of India

Duties of Waste Generator, Under "The Construction & Demolition Waste Management Rules, 2016"

Responsible for Collection, Segregation of Concrete, Soil & others and Storage as directed or as notified by the concerned local authority.

Waste generators generating more than 20 tons or more in one day or 300 tons per project in a month shall segregate the waste into streams such as concrete, soil, steel, wood and plastics, bricks & mortar.

All waste generators shall handover C&D waste to the authorised processing facilities of construction and demolition waste.

Every waste generator shall pay relevant charge for collection, transportation, processing and disposal as notified by the concerned authorities.

Waste generators who generate more than 20 tons or more in one day or 300 tons per project in a month shall have to pay for the processing and disposal of construction and demolition waste generated by them, apart from the payment for storage, collection and transportation. The rate shall be fixed by the concerned local authority or any other authority designated by the state government.

C & D waste should not be mixed with other wastes.

No littering or deposition of construction and demolition waste so as to prevent obstruction to the traffic or the public or drains.

Waste Is not Waste until it's Wasted..!!

Ministry of Housing and Urban Affairs
Government of India

C&D WASTE MANAGEMENT

MIXED C&D WASTE

Wood, Bricks,
Concrete and Other Masonry Products,
Metals (Ferrous and Non-Ferrous),
Roofing Shingles, Cardboard, Plastic, soil etc.

C&D WASTE PROCESSING PLANT

VARIOUS TYPES OF RECOVERED AGGREGATES

PRODUCTS MANUFACTURED

Kerb Stone | Pavement Block | Drain Covers | Hollow Blocks

Baseline Data for Construction and Demolition Waste Management

No.	ActionAreas	Details of DataRequirement	Measurable Outcome	Please enterMeasurable Outcome for District
	Population		[Nos as per 2011 census]	127353
CD1	Inventory of C&D waste generation			
CD1a		Estimated Quantity	[Kg/Day] / [Notestimated]	6000
CD2	Implement scheme for permitting bulk waste generators			
CD2a		Issuance of Permissionsby ULBs	[Initiated] / [Not initiated]	Not Initiated
CD3	Establishment of C&D Waste Deposition centers			
CD3a		Establishment of Deposition Points	[Yes] / [No]	Yes
CD3b		C&D Deposition point identified	[Yes] / [No]	Yes
CD4	Implementation of By-Laws for CD Waste Management			
CD4a		Implementation of By-laws	[notified] / [not notified]	Notified
CD4b		Collection of Deposition / disposal Charges	[Initiated] / [Not initiated]	Not initiated
CD5	Establishment of C&D Waste recycling plant or linkage with such facility			
CD5a		Establishment CD Waste Recycling Plant	[Established] / [Sent toshared Facility] / [No facility exists]	No facility exists
CD5b		Capacity of CD Waste Recycling Plant	[MT/Day] / [Not available]	Not available

SWOT Analysis

	Helpful to achieving the objectives	**Harmful** to achieving the objectives
Internal origin (attributes of theOrganization)	**Strengths**	**Weakness**
	Deposition points for C&D Waste identified & establishedpartially	Inventory of C&D Waste generation not properly estimated
External Origin (attributes of theEnvironment)	**Opportunities**	**Threats**
	Proper implementation of C& Dwaste management rules 2016 Establishment of C&D wasterecycling plant Proper segregation andrecovery of C&D waste	Improper C&D waste depositionblocks water ways of water bodies and also produce visual pollution

Action Plan for Construction and Demolition Waste Management

S. No.	Action Points	Timelines	Department/ Agencies
1	Approval of Waste ManagementPlan submitted by Waste Generators before Construction starts.	Immediate	ULBs
2	Proper collection, transportation, processing and disposal of C&D Waste	Immediate	ULBs/ Waste Generator with the help of concerned ULBs
3	Setting up of C& D Wasteprocessing facility.	Immediate	Urban Development & Housing and Town Planning Department / RPCB
4	Identification of sites for collection and processing facility	Immediate	ULBs
5	Provisions for using materials madeby C&D Waste in Construction Activity like paving blocks, lower layers of road pavements, colony and rural roads etc.	Immediate	Urban Development & Housing and Town PlanningDepartment / RPCB/ ULBs/ Panchyat
6	Information, Education & Communication (IEC) for C&D waste management.	Regular Activity	ULBs/ RPCB/ Development Authority/ NGOs/Education Department
7	Fix rates to be paid by Waste Generators for Collection, Storage & Transportation of Waste.	Immediate	ULBs
8	Authorization & Monitoring of C& D waste processing plant	Immediate	RPCB
9	Preparation & Submission of Annual Report to CPCB.	Annually	RPCB
10	Policy for management of C&D Waste	Immediate	ULBs

Bio-Medical Waste Management

Biomedical waste is defined as “any waste, which is generated during the diagnosis, treatment or immunization of human beings or animals or in research activities pertaining thereto or in the production or testing of biological”. The biomedical waste management and handling has been assuming increasing significance for the past few years. The responsibility of medical administrators as regards proper handling and disposal of this category of waste has now become a statutory requirement with the promulgation of Government of India. **Categories of Biomedical Waste** There are ten defined categories (category code Nos. 1 to 10) as follows:

a) Human anatomical waste: (tissues, organs, body parts)

b) Animal waste: (including animals used in research and waste originating from veterinary hospitals and animal houses).

c) Microbiological and biotechnology waste: (including waste from lab cultures, stocks or specimens of microorganisms, live or attenuated vaccines, wastes from production of biological etc.)

d) Waste sharps: (used/unused needles, syringes, lancets, scalpels, blades, glass etc.)

e) Discarded medicines and cytotoxic drugs.

f) Soiled wastes: (items contaminated with blood and body fluids, including cottondressings, Linen, plaster casts, bedding etc.)

g) Solid wastes: (wastes generated from disposable items other than waste sharpssuch as tubing, catheters, I.V. sets, etc.)

h) Liquid waste: (waste generated from washing, cleaning, housekeeping anddisinfection activities including these activities in labs).

i) Incineration ash: (from incineration of any biomedical waste)

j) Chemical waste: (chemicals used in production of biological and disinfection).


Ministry of Housing and Urban Affairs
Government of India
BIOHAZARD
BIO MEDICAL WASTE CATEGORIES,
THEIR SEGREGATION AND COLLECTION
Human Anatomical waste, Animal Anatomical waste, Soiled waste, Expired or discarded medicines, Chemical waste, Chemical Liquid waste and laboratory waste.
Tubing, Bottles, Intravenous tubes, Catheters, Urine Bags, Syringes without needles, Vaccutainers with their needles cut and used gloves.
Needles, Syringes with Fixed Needles, Needles from Needle tip Cutter/ Burner, Scalpels, Blade and other contaiminated Sharp Object.
Broken or discarded & Contaminated glass, Medicine Vials, Ampules Except those contaminated with cytotoxic waste and Metallic Body implants.
Glassware
Infected waste
Infected plastic
Sharp watse
Glassware

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Duties of Health Care Facility under
BIO MEDICAL WASTE MANAGEMENT RULES, 2016

Management

- Take necessary measures to handle Bio-medical waste
- Segregation of bio-medical waste in coded bags or containers as per BMW Management Rules, 2016
- Phase out use of chlorinated plastic bags, excluding blood bags and gloves by 27th March 2019
- Review and monitor the activities related to bio-medical waste management
- Report major accidents

Storage of Waste

Provision within the premises for a safe, ventilated and secured location for temporary storage of biomedical wastes;

Safety of Healthcare workers

- Immunize everyone, involved in handling of bio-medical waste, for protection against diseases including Hepatitis B and Tetanus
- Ensure occupational safety of all its health care workers and provide requisite personal protective equipment;
- Conduct health check up at the time of induction

Training

Provide training to all its health care workers and others, involved in handling of biomedical waste at the time of induction and there after at least once every year.

Wastewater Management

- Ensure segregation of liquid chemical waste at source and ensure pre- treatment by neutralization or precipitation prior to mixing with other effluent generated from health care facilities; in case city sewage network doesn't have terminal STP
- Treatment of generated liquid effluent in accordance with the Water (Prevention and Control of Pollution) Act, 1974

Bar Coding

Establish a Bar-Code System for bags or containers containing bio-medical waste to be sent out of the premises for the further treatment & disposal in accordance with guidelines issued by CPCB by 27th march 2019.

Monitoring & Reporting

- All Bedded healthcare facilities make available the annual report on its website by March 2020
- Inform the authority immediately in case the operator of a facility does not collect the waste within the intended time
- Develop a system to review, monitor and maintain the record
- Handover of segregated and pre-treated yellow category waste to CBMWF located within 75 Kms distance for safe treatment and disposal.

Authorization

- Obtain authorization from SPCBs/PCCs; Non-bedded health care facilities (HCFs) like clinics
- laboratories research institutes, dispensaries, blood bank, etc, obtain one time authorization from SPCBs/PCCs;

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DO'S & DON'TS FOR BIO MEDICAL WASTE GENERATORS

DO'S

1. Segregate the biomedical waste as per color stipulated under BMWM Rules, 2016;
2. Carry /Transport the waste in closed trolleys provided with biohazard symbol;
3. Dispose body parts in yellow bin;
4. Dispose the human anatomical, animal anatomical, solid and biotechnological waste within 48 hrs;
5. Waste sharps to be kept in white translucent bin;
6. Ensure that plastic bag/container has bio-hazard symbol and barcode level;
7. Wear personal protective gear like gloves, gum-boots, face-mask, head cap, approns, etc., while handling wastes.
8. Waste should not be filled beyond 3/4th capacity of collections bags so that it can be handled properly.
9. Liquid Chemical wastes should be pre-treated before mixing with other waste water;
10. Broken/discarded contaminated glass should be kept in the leak proof boxes or containers with blue color marking to avoid the pilferage in vehicle as well as site.
11. Pre-treat the waste generated from microbiology, biotechnology and other clinical laboratories before handing over the same to CBWTF

DON'TS

1. Do not generate waste unnecessarily
2. Never mix general waste with biomedical waste.
3. Don't use chlorinated plastic bags and gloves;
4. Never store human anatomical, animal anatomical and biotechnological waste beyond 48 hours;
5. Avoid transport of waste through crowded areas.
6. Do not give contaminated plastic waste to authorized recyclers;
7. Never store / collect plastic waste in yellow colored bags/containers;
8. Do not use chlorinated plastic bags for storage of biomedical waste.
9. Don't dispose used linen / bed sheets without disinfection;
10. Do not keep the lid of containers opened.

Baseline Data for Bio-Medical Waste Management

No.	Action Areas	Details of DataRequirement	Measurable Outcome	Please enter Measurable Outcome for District
BMW1	Inventory of Biomedical Waste Generation			
BMW1a		Total no. of Bedded Hospitals	[Nos] / [No inventory]	139
BMW1b		Total no. of non-bedded HCF	[Nos] / [No inventory]	31
BMW1c		Total no. Clinics	[Nos] / [No inventory]	14
BMW1d		No of Veterinary Hospitals	[Nos] / [No inventory]	1
BMW1e		Pathlabs	[Nos] / [No inventory]	21
BMW1f		Dental Clinics	[Nos] / [No inventory]	1
BMW1g		Blood Banks	[Nos] / [No inventory]	1
BMW1h		Animal Houses	[Nos] / [No inventory]	0
BMW1i		Bio-research Labs	[Nos] / [No inventory]	0
BMW1j		Others	[Nos] / [No inventory]	0
BMW2	Authorization of HCFs by SPCBs / PCCs			
BMW2a		Bedded HCFs	[Nos Authorized]	127
BMW2b		Non-bedded HCFs	[Nos Authorized]	24
BMW3a	Biomedical Waste Treatment andDisposal Facilities (CBMWTFs)			
BMW3a		No of CBMWTFs	[Nos] / None	None
BMW3b		Linkage with CBMWTFs	[Yes] / [no linkage]	Yes
BMW3c		Capacity of CBMWTFs	[Adequate] / [Not adequate]	Not adequate
BMW3d		Requirements of CBMWTFs	[Require] / [not required]	required
BMW3e		Captive Disposal Facilitiesof HCFs	[Nos] / [None]	63 (Deep Burial Pits)
BMW4	Compliance by CBMWTFs			
BMW4a		Compliance to standards	[Meeting] / [Not meeting] / [NA]	
BMW4b		Barcode tracking by HCFs / CBMWTFs	[100%] / [Partly %] / [None]	Partly
BMW4c		Daily BMW lifting byCBMWTFs	[Kg / day]	4480 Kg
BMW5	Status of Compliance by Healthcare Facilities			
BMW5a		Pre-segregation	[100%] / [partly %] / [None]	100%]
BMW5b		Linkage with CBMWTFs	[100%] / [partly %] / [None]	Partly
BMW4	Compliance by CBMWTFs			
BMW5	Status of Compliance by Healthcare Facilities			

SWOT Analysis

	Helpful to achieving the objectives	**Harmful** to achieving the objectives
Internal origin (attributes of the Organization)	**Strengths**	**Weakness**
	• Linkage with Common Bio- medical Waste Treatment Facility (CBMWTFs) (M/s E-Tech) • Pre-Segregation of Bio-medicalWaste	• No Centralized system for Bio-medical waste generators (Privatehospitals, Veterinary Hospitals and clinics) • Barcode tracking by HCF (HealthCare Facilities) not Initiated
External Origin (attributes of the Environment)	**Opportunities**	**Threats**
	• Common Bio-medical Waste Treatment Facility (CBMWTFs)within 75km • Authorization of Private HCFs(Health Care Facilities) by SPCB	• Expired and Discarded Medicinesfrom households not properly discarded • Biomedical waste if not handled properly, can have very seriousconsequences

Action Plan for Bio-Medical Waste Management

S. No.	Action Points	Timelines	Department/ Agencies
1	Segregation of Bio Medical Waste (BMW) at source of generation in specified Color Coded bags as per Biomedical Waste Management Rule, 2016	Regular Activities	Health Department/ HCFs
2	GPS enabled vehicles forBiomedical wastes transportation	Immediate	Health Department/RPCB/ CBWTFs
3	Publication of List of Registered HCFs	Immediate	Health Department
4	Cancellation of Licenses of HCFs violating Authorization of RPCB.	Immediate	Health Department/RPCB
5	Actions against defaulters of Bio-Medical Waste Management Rules, 2016	Immediate	RPCB/Health Department
6	Implementation of Rules in HCFs & Occupisers. Grant of License to HCFs Constitute District Level Advisory Committee Fund Allocation to Government HCFs Publish List of Registered HCFs	Immediate	Health Department
7	Allocate Land for CBWTFs Collection of Solid Waste other than BMW from HCFs	Immediate	ULBs/ Village Panchayat
8	Grant of License to Veterinary Establishments	Immediate	Animal Husbandry/ Veterinary Dept.
9	Authorization to HCFs and Occupiers Action Against HCFs and CBWTFs Inventorisation of Occupiers, Data on BMW generation, treatment Submission of Annual report to CPCB.	Immediate	RPCB
10	Mass awareness campaignsand extensive training programs.	Regular Activity	Health Department/RPCB/NGOs/Education Department/ CBWTFs
11	BMW from HCFs Transported, Treated &disposed of in accordance with Rules. Establish Bar coding & Global Positioning systemfor handling of BMW. Training to all workers. Assist Occupier in Training. Supply Non Chlorinated coloured Plastic Bags to Occupiers.	Immediate	CBWTFs
12	Ensure BMW handling as per Rule. Safe, Ventilated & SecuredIn house Storage of BMW. No mixing of BMW withMSW. Bar code system for Bio-medical waste-collectionBags.	Regular Activity	Occupiers/ HCFs
13	Information, Education & Communication (IEC) for Bio-medical waste management.	Regular Activity	ULBs/ RPCB/ Development Authority/ NGOs/EducationDepartment

Hazardous Waste Management

Hazardous waste is those that may contain toxic substance generated from industrial, hospital, some type of household waste. The improper handling, collection, treatment and disposal of hazardous waste material may cause substantial harm to human health or environment. Hazardous wastes can take the form of solids, liquids, sludges or contained gases and they are generated primarily by chemical production, manufacturing, and other industrial activities.

They may cause damage during inadequate storage, transportation, treatment or disposal operations. Improper hazardous-waste storage or disposal frequently contaminates surface and groundwater supplies. People living in homes built near old and abandoned waste disposal sites may be in a particularly vulnerable position. Hazardous wastes are classified on the basis of their biological, chemical, andphysical properties. These properties generate materials that are toxic, reactive, ignitable, corrosive, infectious, or radioactive.

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CHARACTERISTICS OF HAZARDOUS WASTE

Flammability

- can create fire under certain condition
- flash point <60°C

eg- Waste solvent

Reactivity

- substances that are unstable under normal condition
- can cause explosion, produce toxic fumes, vapours

eg- cyanide/sulphide, batteries etc.

Corrosivity

- strong acids or bases
- pH<2 or pH>2.5
- Corrode steel at temerature of 55°C

e.g. spent acid bath

Toxicity

- harmful when inhaled/ ingested/ absorbed
- also if leached from waste pollutes ground water

e.g. - lead, mercury etc.

Explosivity

- capable of producing gas by chemical reaction
- along with tremendous amount of energy

e.g. - waste of explosive manufacturing industry

Oxidising

- themselves not necessarily combustible
- yields oxygen
- cause, or contribute to, the
- combustion of other materials

Infectious substance

- containing viable micro-organisms or their toxins
- that can cause disease in animals or human

Eco-toxic

- Immediate or delayed adverse impacts to environment through bio-accumulation
- toxic effects upon biotic systems

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TREATMENT, STORAGE AND DISPOSAL FACILITY (FOR HAZARDOUS AND OTHER WASTE)

1. Approval of design and layout by State Pollution Control Board (SPCB) followed by setting up the treatment, storage and disposal facility by operator of facility as per technical guidelines of Central Pollution Control Board (CPCB).

2. Monitoring the setting up and operation of the facility by SPCB.

3. Safe and environmentally sound operations of thefacility by the operator of the facility and addressing its closure and post closure phase.

4. Maintenance of records of hazardous and other wastes by the operator.

5. Submission of annual returns by the operator on or before the 30th day of June to SPCB.

Baseline Data for Hazardous Waste Management

No.	Action Areas	Details of Data Requirement	Measurable Outcome	Please enter Measurable Outcome for District
HW1	Inventory of Hazardous Waste			
HW1a		No of HW Generating Industry	[Nos.]	42
HW1b		Quantity of HW	[MT/Annum]	34254.62
HW1c		Quantity of Incinierable HW	[MT/Annum]	28447.28
HW1d		Quantity of land-fillable HW	[MT/Annum]	2718.35
HW1e		Quantity of Recyclable / utilizable HW	[MT/Annum]	3088.99
HW2	Contaminated Sites and illegal industrial hazardous waste dumpsites			
HW2a		No of HW dumpsites	[Nos] / [None]	Nil
HW2c		Probable Contaminated Sites	[Nos] (provide list)	1
HW3	Authorization by SPCBs/PCCs			
HW3a		No of industries authorized	[Nos]	42
HW3b		Display Board of HW Generation in front of Gate	[Nos]	42
HW3	Availability of Common Hazardous Waste TSDF			
HW3a		Common TSDF	[Exists] / [No] / [Sent to Other District within State]	Nil
HW3b		Industries linkage with TSDF	[Nos.]	8
HW4	Linkage of ULBs in District with CommonTSDF			
HW4a		ULBs linked to Common TSDFs for Domestic HazardousWaste	[Yes] / [No]	No

SWOT Analysis

	Helpful to achieving the objectives	Harmful to achieving the objectives
Internal origin (attributes of the Organization)	**Strengths**	**Weakness**
	• Proper segregation of Hazardous waste (generatedfrom Industries)	• No Hazardous Waste Dump Site • No Identified • Probable Contaminated Site • No Linkage of ULBs to CommonTSDF for Domestic Hazardous Waste
External Origin (attributes of the Environment)	**Opportunities**	**Threats**
	• Common TSDF (TreatmentStorage and Disposal Facilities) should be established within district	• Improper Hazardous waste (Industrial / Domestic) is prone tocontaminate water and toxic for human, animal and plant health

Action Plan for Hazardous Waste Management

Short Term Action Plan for Hazardous Waste Management:

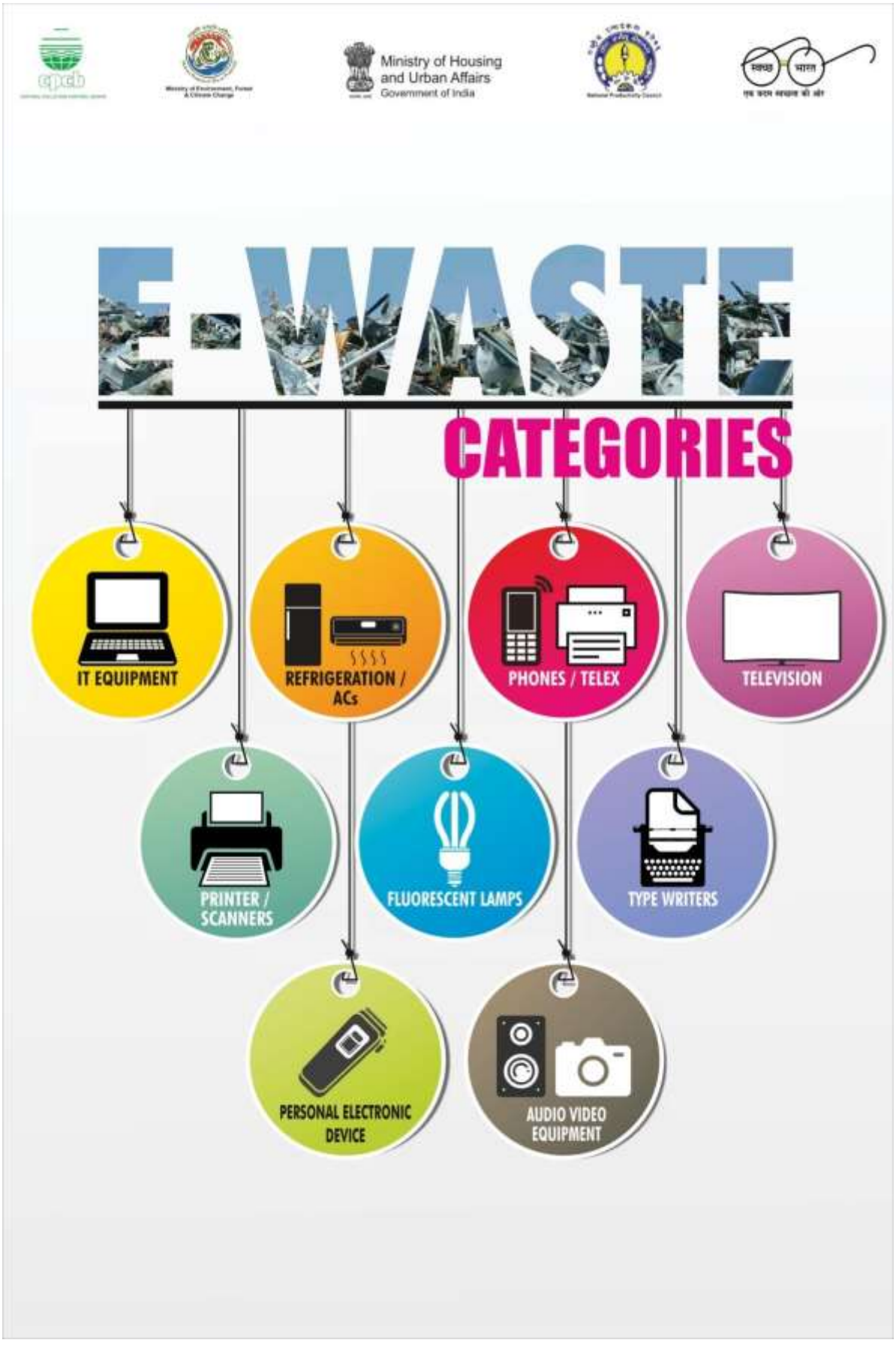
S. No.	Action Points	Timelines	Department/ Agencies
1	Capacity building of SPCB.	90 Days	State Government/ RPCB
2	• Enforcement Mechanism in SPCB: • Use of technology, Strengthening and effective Public Grievance redressal System. • Software development for tracking hazardous waste • Performance Audit for TSDFs	60 Days	Department of Environment/ RPCB
3	• Constitution of in-house "Hazardous Waste Incident Response Team" • Compulsory Emergency Response Plan for industries • Implement immediate response, assessment and remediation by the responsible party.	90 Days	District Administration/ Director of Factories/ Labor Department/ Fire Department/ RPCB
4	Imposition of Environmental Compensation on default	Regular activity	RPCB
5	Finalise Remediation Objectives as per report submitted by Responsible Party.	90 Days	Department of Environment/ RPCB
6	In-situ treatment or any other treatment of legacy waste whereDPR is already prepared.	Upto 1 year or case to case basis	Department of Environment/ RPCB/ CPCB
7	Identification of legacy waste and preparation of DPR for its treatment.	6 Month after releaseof fund and acquisition of land	Department of Environment/RPCB/ CPCB
8	Installation of TSDF facility if common TSDF is not availablewithin 75 km radius	180 days after allocation of land	District Administration/ Department of Environment/ RPCB
9	Expansion of existing TSDF if required	180 days after allocation of land	District Administration/ Department of Environment, /RPCB

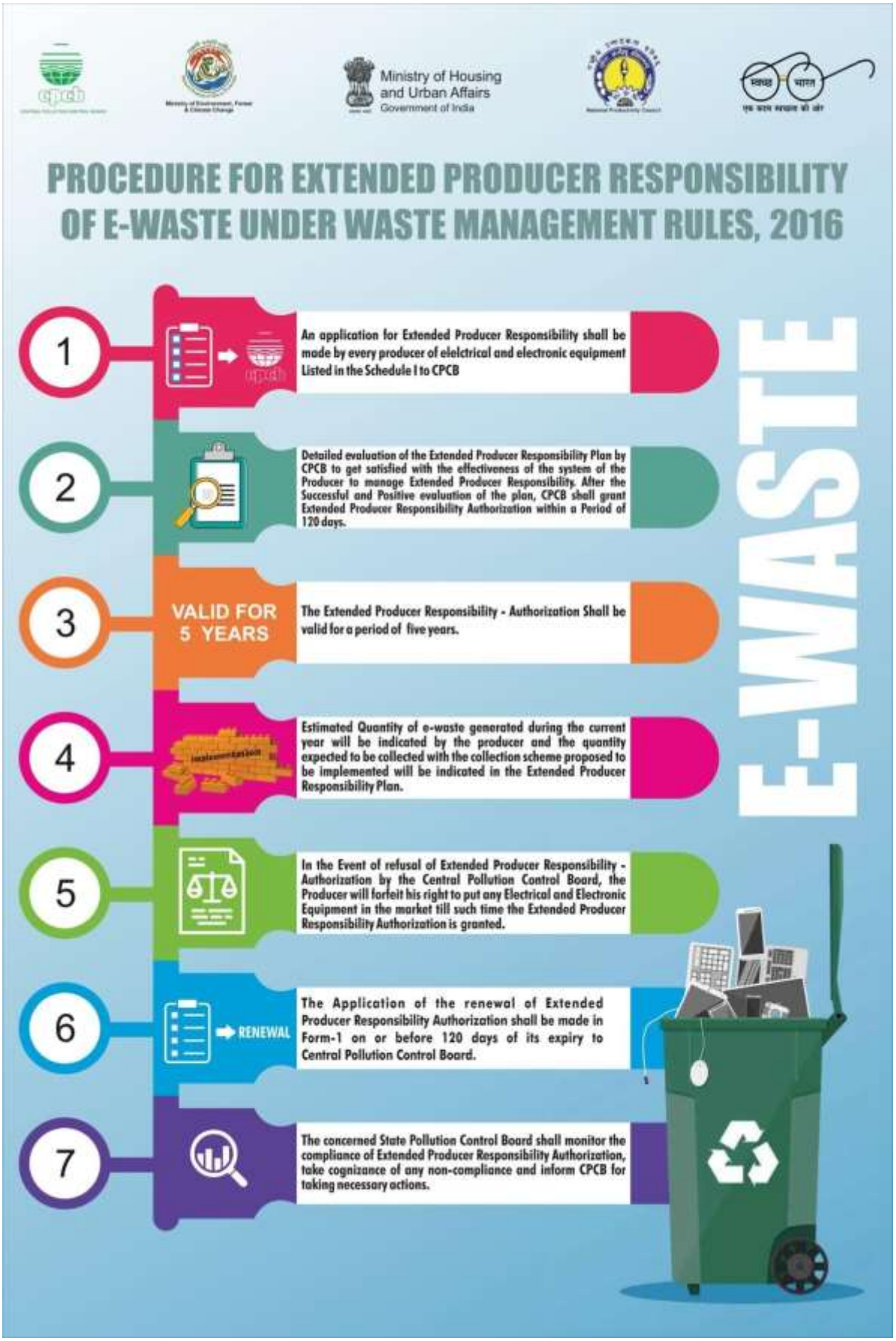
Long Term Action Plan for Hazardous Waste Management:

S. No.	Action Points	Timelines	Department/ Agencies
1	Hazardous waste recovery, recycling & disposal facility in upcoming industrial estate/Area Submit annual report/Plan for sound disposal of waste to MOEFCC	360 Days	State Government/ District Administration/ Development authorities/ Department of Environment/ RPCB
2	Labour Department to register, impart safe waste handling training and monitor healthof workers engaged in waste handling	360 Days	Labour Department/Director of Factories
3	Impetus for promotion of low cost innovative re-use, reduce techniques, methods.	360 Days	CPCB/RPCB
4	Notification for buffer zone around TSDF facilities	360 days	District Administration/ Development Authorities
5	Land Allocation for Establishment of new TSDFs Fund Allocation for TSDF. Or utilisation of closed/abandoned mills, factories in the districts.	360 days	District Administration/ Department of Environment/ Department of Industries/ RPCB
6	Remediation of contaminated sites	2-5 Years	Department of Environment/ District Administration/ RPCB/ CPCB
7	Compliance of recommendations pertainingto the State as per NGT Orders in OA No. 804/2017 on 12-04-2019	Regular Activity	State Government/Department of Environment/ RPCB

E-Waste Management

Waste electrical and electronic equipment (WEEE) is becoming major threat to the whole world. Rapid growth of technology, up-gradation of technical innovations and ahigh rate up-gradation by exchanging old electronic items have led to one of the fastest growing waste in the world. Its toxic emissions mixed with virgin soil and air and causing harmful effects to the entire biota either directly or indirectly. Direct impacts include release of acids, toxic compounds including heavy metals, carcinogenic chemicals and indirect effects such as bio magnification of heavy metals. Many private firms are involved in collecting, dismantling, separation and exporting e-wastes for recyclers. However, strict regulations are currently being followed as on approval of such firms such as e-steward certification by Basel action network in US, they also involved in public awareness programs. E-Waste consistsof end of electrical and electronic equipments and products such as: Refrigerator, Washing machines, Computers and Printers, Televisions, Mobiles, I-pods etc.


Ministry of Housing
and Urban Affairs
Government of India
E-WASTE
CATEGORIES
IT EQUIPMENT
REFRIGERATION / ACs
PHONES / TELEX
TELEVISION
PRINTER / SCANNERS
FLUORESCENT LAMPS
TYPE WRITERS
PERSONAL ELECTRONIC DEVICE
AUDIO VIDEO EQUIPMENT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PROCEDURE FOR EXTENDED PRODUCER RESPONSIBILITY OF E-WASTE UNDER WASTE MANAGEMENT RULES, 2016
E-WASTE
1
An application for Extended Producer Responsibility shall be made by every producer of elelctrical and electronic equipment Listed in the Schedule I to CPCB
2
Detailed evaluation of the Extended Producer Responsibility Plan by CPCB to get satisfied with the effectiveness of the system of the Producer to manage Extended Producer Responsibility. After the Successful and Positive evaluation of the plan, CPCB shall grant Extended Producer Responsibility Authorization within a Period of 120 days.
3
VALID FOR 5 YEARS
The Extended Producer Responsibility - Authorization Shall be valid for a period of five years.
4
Estimated Quantity of e-waste generated during the current year will be indicated by the producer and the quantity expected to be collected with the collection scheme proposed to be implemented will be indicated in the Extended Producer Responsibility Plan.
5
In the Event of refusal of Extended Producer Responsibility - Authorization by the Central Pollution Control Board, the Producer will forfeit his right to put any Electrical and Electronic Equipment in the market till such time the Extended Producer Responsibility Authorization is granted.
6
RENEWAL
The Application of the renewal of Extended Producer Responsibility Authorization shall be made in Form-1 on or before 120 days of its expiry to Central Pollution Control Board.
7
The concerned State Pollution Control Board shall monitor the compliance of Extended Producer Responsibility Authorization, take cognizance of any non-compliance and inform CPCB for taking necessary actions.

Baseline Data for E-Waste Management

No.	Action Areas	Details of DataRequirement	Measurable Outcome	Please enter Measurable Outcome for District
EW1	Status of facilitating authorized collection of E-Waste			
EW1a		Does the citizen are able todeposit or provide E-Wastethrough Toll-free Numbers in the District	[Yes] / [No]	No
EW1c		Collection centers established by ULB in District	[Nos] / [None]	None
EW1d		Collection centers established by Producers ortheir PROs in the District	[Nos] / [None]	None
EW1e		Does the district has linkagewith authorized E-Waste recyclers / Dismantler	[Yes] / [No]	No
EW1f		No authorized E-Wasterecyclers / Dismantler	[Nos] / [None]	None
EW2	Status of Collection of E-Waste			
EW2a		Authorizing E-Waste collectors	[Authorized] / [None]	None
EW2b		Involvement of NGOs	[Yes] / [No] / [Nos]	No
EW2c		Does Producers have approached NGOs/ InformalSector for setting up Collection Centers.	[Yes] / [No] /[Nos]	No
EW2d		Does ULBs have linkage with authorized Recyclers /Dismantlers	[Yes] / [No]	No
EW3	Control E-Waste related pollution			
EW3a		Does informal trading, dismantling, and recycling ofe-waste exists in District	[Yes] / [No]	No
EW3b		Does the administrationclosed illegal E-Waste recycling in the District	[Yes] / [No] / [Nos]	No
EW3c		No of actions taken to closeillegal trading or processingof E-Waste	[Nos]	0
EW4	Creation of Awareness on E-Waste handling and disposal			
EW4a		Does PROs / Producers conducted any District levelAwareness Campaigns	[Yes] / [No] / [Nos]	No
EW4c		Does District Administration conducted any District level Awareness Campaigns	[Yes] / [No] / [Nos]	No

SWOT Analysis

	Helpful to achieving the objectives	Harmful to achieving the objectives
Internal origin (attributes of the Organization)	**Strengths**	**Weakness**
		• No facility for E-waste deposition
External Origin (attributes of the Envronment)	**Opportunities**	**Threats**
	• Linkage with Producers / Brandowner for collection of E-waste • Authorizing E-waste collectors • Involvement of NGOs • Linkage with authorizedRecyclers / Dismantlers • Proper implementation of E-waste management Rules - 2016 • Awareness Campaignsregarding E-waste management should be initiated at grassroots level	• E-waste generating toxic chemicals impacting environmentand human health

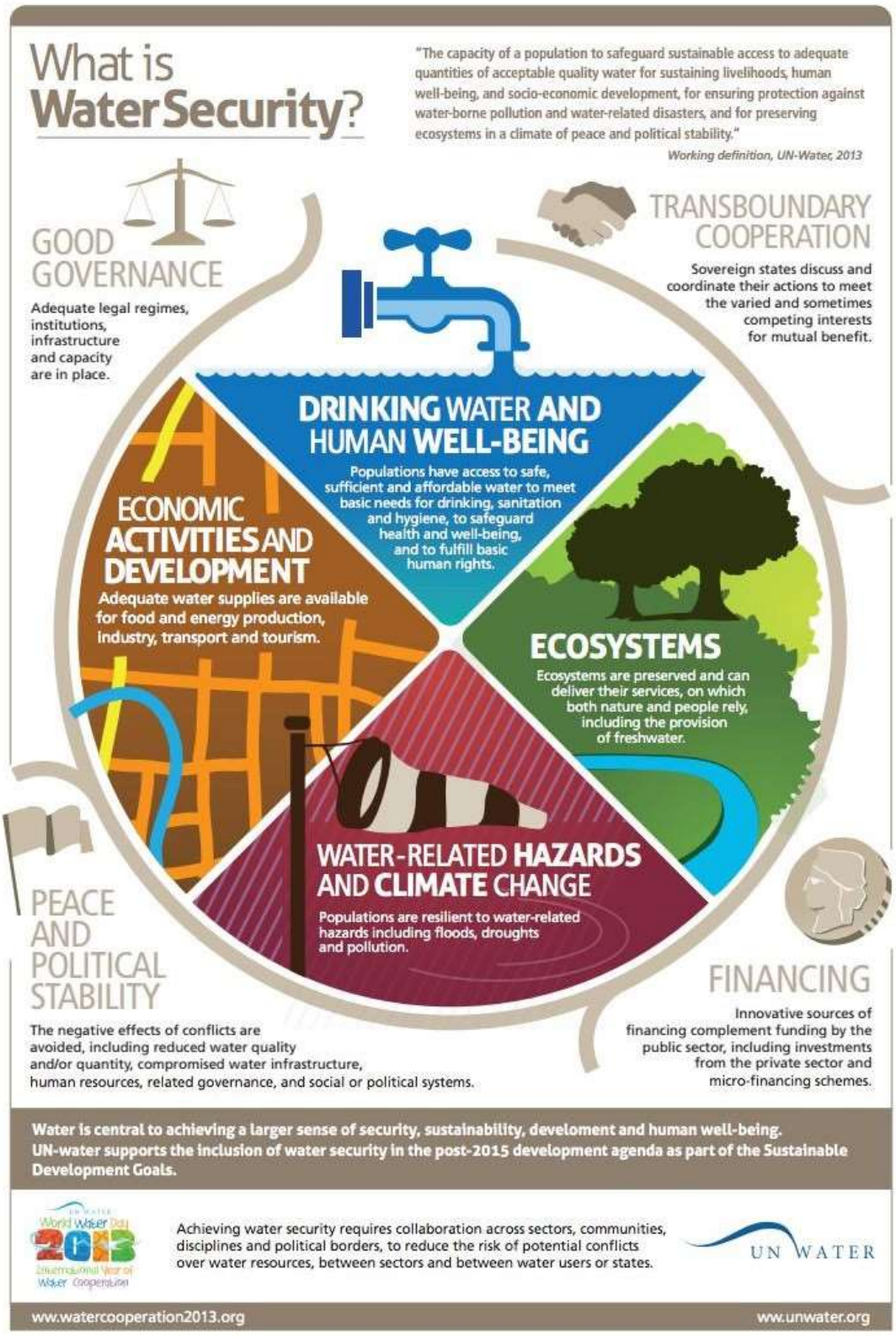
Action Plan for E-Waste Management

S. No.	Action Points	Timelines	Department/ Agencies
1.	Collection, Segregation and Channelization of e-waste pertainingto orphan products to recyclers/dismantlers	Immediate	ULBs
2.	Segregation of E-waste at source from MSW	Regular Activity	ULBs/ Waste Generator
3.	Ensure no illegal e-wasteprocessing No dumping of e-waste, HW &other wastes on banks of river No illegal transportation of e- waste.	Immediate	District Administration /ULBs/RPCB/RTO
4.	Monitoring & Compliance of Extended Producers Responsibility(EPR) - Authorization issue by CPCB.	Immediate	RPCB
5.	Information, Education & Communication (IEC) for E-waste Management.	Regular Activity	ULBs/ RPCB/ Development Authority/ NGOs/Education Department
6.	Authorization to Manufacturers, Dismantlers, Recyclers, Refurbishes and Action against defaulters.	Immediate	RPCB
7.	Integrated plan for implementation of EWM Rules, 2016.	Immediate	RPCB
8.	Earmarking or allocation of industrial space or shed, abandoned mills/factories for e-waste dismantling/recycling units in industrial clusters	Immediate	Department of Industries.
9.	Recognition and Registration of workers of dismantling and recycling units.	Immediate	Labor Department
10.	Implementation of EPR from Producers	Immediate	Department of Industries/RPCB

Water Quality Management

Systematic management of water resources is necessary to ensure the required balance between development pressures and the safeguarding of the natural and built environment for future generations. The purpose of Water Quality Management Plan (WQMP) is to reduce discharge of pollutants into urban runoff from development projects by reducing or eliminating sources of pollutants, and managing site runoff volumes and flow rates through best Management Practices.


Domestic Sewage Management Plan
Industrial Wastewater Management Plan
Water Quality Management Plan


What is Water Security?
"The capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability."
Working definition, UN-Water, 2013
GOOD GOVERNANCE
Adequate legal regimes, institutions, infrastructure and capacity are in place.
TRANSBOUNDARY COOPERATION
Sovereign states discuss and coordinate their actions to meet the varied and sometimes competing interests for mutual benefit.
DRINKING WATER AND HUMAN WELL-BEING
Populations have access to safe, sufficient and affordable water to meet basic needs for drinking, sanitation and hygiene, to safeguard health and well-being, and to fulfill basic human rights.
ECONOMIC ACTIVITIES AND DEVELOPMENT
Adequate water supplies are available for food and energy production, industry, transport and tourism.
ECOSYSTEMS
Ecosystems are preserved and can deliver their services, on which both nature and people rely, including the provision of freshwater.
WATER-RELATED HAZARDS AND CLIMATE CHANGE
Populations are resilient to water-related hazards including floods, droughts and pollution.
PEACE AND POLITICAL STABILITY
The negative effects of conflicts are avoided, including reduced water quality and/or quantity, compromised water infrastructure, human resources, related governance, and social or political systems.
FINANCING
Innovative sources of financing complement funding by the public sector, including investments from the private sector and micro-financing schemes.
Water is central to achieving a larger sense of security, sustainability, develoment and human well-being.
UN-water supports the inclusion of water security in the post-2015 development agenda as part of the Sustainable Development Goals.
World Water Day 2013
International Year of Water Cooperation
Achieving water security requires collaboration across sectors, communities, disciplines and political borders, to reduce the risk of potential conflicts over water resources, between sectors and between water users or states.
UN WATER
ww.watercooperation2013.org
ww.unwater.org
version October 2013

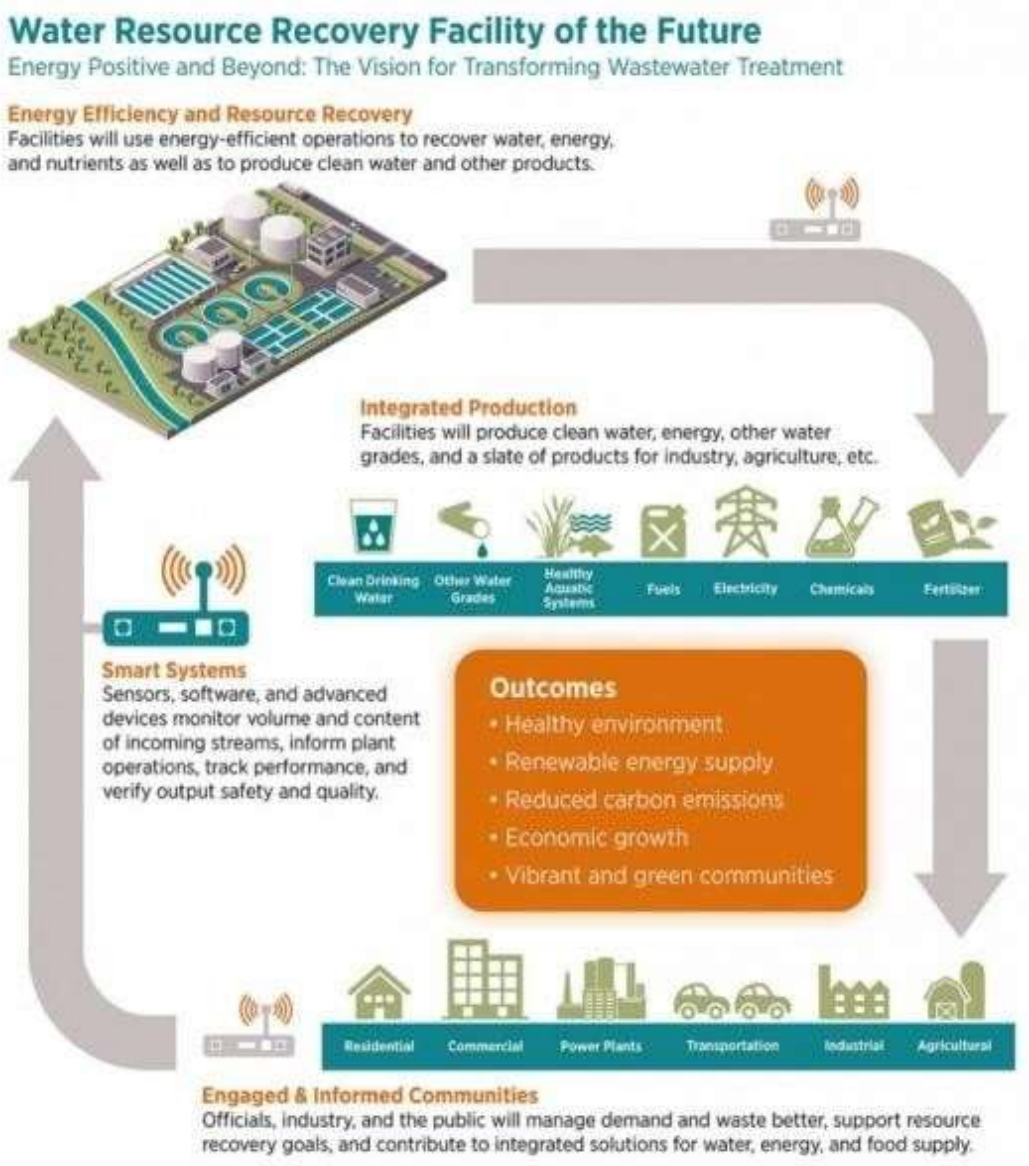
Baseline Data for Water Quality Management

No.	Action Areas	Details of Data Requirement	Measurable Outcome	Please enter Measurable Outcome for District
WQ1	Inventory of water resources in District			
WQ1a		Rivers	[Nos] and [Length in Km]	8 (532)
WQ1b		Length of Coastline	[in Km]	532
WQ1c		Nalas/Drains meeting Rivers	[Nos]	49 (WRD)
WQ1d		Lakes / Ponds	[Nos] and [Area in Hectares]	445 (60 WRD,385 P.S. Tank), C.C.A. 128323 Hectare (WRD C.C.A.-92542 Hectare, P.s. C.C.A.-35781 Hectare)
WQ1e		Total Quantity of sewage and industrial discharge in District	[Automatic] (SW1a+IW1b)	
	Control of Groundwater Water Quality			
WQ2a		Estimated number of bore-wells	[Nos]	4517 (Agriculture Use
WQ2b		No of permissions given for extraction of groundwater	[Nos]	3624 (as on April 2018)
WQ2c		Number of groundwater polluted areas	[Nos]	Not area of study
WQ2d		Groundwater Availability	[adequate] / [not adequate]	Adequate to inadequate depending upon site Specific hydrogeological formation encountered andratio of rainfall recharge intensity
WQ3	Availability of Water Quality Data			
WQ3a		Creation of monitoring cell	[Yes] / [No]	Yes
WQ3b		Access to Surface water and groundwaterquality data at DM office	[Available] or [Not available]	Only ground water quality data is available
WQ4	Control of River side Activities			

No.	Action Areas	Details of Data Requirement	Measurable Outcome	Please enter Measurable Outcome for District
WQ4a	Control of River side Activities	River Side open defecation	[Fully Controlled] / [Partly controlled] /[no Measures taken]	Partly controlled
WQ4b		Dumping of SW on river banks	[Fully Controlled] / [Partly controlled] /[no Measures taken]	Partly controlled
WQ4c		Control measures for idol immersion	[Measures taken] / [Measures taken post immersion] / [No Measures taken]	Measures taken
WQ5	Control of Water Pollution in Rivers			
WQ5a		Percentage of untreated sewage	[%] (automatic SM1g/SM1a)	
WQ5b		Monitoring of Action Plans for Rejuvenation of Rivers	[Monitored] / [Not monitored] [not applicable]	Monitored
WQ5c		No of directions given to industries for Discharge of Untreated industrial wastewater inlast 12 months	[Nos]	Nil
WQ6	Awareness Activities			
WQ6a		District level campaigns on protection of water quality	[Nos in previous year]	Nil
WQ6b	Oil Spill Disaster Contingency Plan			
WQ6a		Creation of District Oil Spill Crisis Management Group	[Created] / [Not Created]	Not Created
WQ6b		Preparation District Oil Spill Disaster Contingency Plan	[Prepared] / [Not Prepared]	Not Prepared
WQ7	Protection of Flood plains			
WQ7a		Encroachment of flood plains is regulated.	[Yes] / [No]	Yes
	Rainwater Harvesting			
WQ8a		Action plan for Rain water harvesting	[Implemented] / [Not implemented]	Implemented

Domestic Sewage Management

Domestic sewage is generated by domestic activities including toilet, bathroom, clothes washing and kitchen cleaning activities. This sewage water contains high levels of micro-organisms, chemicals (nutrients) and other contaminants capable of causing human illness and adversely impacting on the local environment.



Baseline Data for Domestic Sewage Management

Domestic Sewage Management Plan				
No.	Action Areas	Details of Data Requirement	Measurable Outcome	Please enter Measurable Outcome for District
SM1	Inventory of Sewage Management			
SM1a		Total Quantity of Sewage generatedin District from Class II cities and above	[MLD]	Approx. 40MLD
SM1b		No of Class-II towns and above	[Nos]	0
SM1c		No of Class-I towns and above	[Nos]	1
SM1d		No of Towns needing STPs	[Nos]	3
SM1e		No of Towns STPs installed	[Nos]	1+1 (Under construction)
SM1f		Quantity of treated sewage flowinginto Rivers (directly or indirectly)	[MLD]	NA
SM1g		Quantity of untreated or partiallytreated sewage (directly or indirectly)	[Automatic]	23.53 MLD
SM1h		Quantity of sewage flowing into lakes	[MLD]	NA
SM1i		No of industrial townships	[Nos]	NA
SW2	Adequacy of Available Infrastructure for Sewage Treatment			
SM2a		% sewage treated in STPs	[Automatic]	Approx 2.14%
SM2b		Total available Treatment Capacity	[MLD]	10
SM2c		Additional treatment capacity required	[MLD]	30
SM3	Adequacy of Sewerage Network			
SM3a		No of ULBs having partial underground sewerage network	[Nos]	NA
SM3b		No of towns not having sewerage network	[Nos]	
SM3c		% population covered undersewerage network	[Automatic]	NA

SWOT Analysis

	Helpful to achieving the objectives	Harmful to achieving the objectives
Internal origin (attributes of the Organization)	**Strengths**	**Weakness**
		• Insufficient Sewage Treatment Network and Sewage Treatment Plant with reference to Population • Cleaning of open drains not properly done
Ebutes othe Environment)	**Opportunities**	**Threats**
	• Proper sewage treatment is needed • Separate process for industrial setup (ETP- Effluent treatment plant) needed • Size of sewerage pipeline shouldbe revaluated with respect to population trend for next 30 years at least • Public awareness to be created with Participation of NGOs/SHGs/Academic Institutions • Leaflets / Brochures explaining environmental laws related to Water pollution • Time to time monitoring of performance of district with respect to sewage production and treatment • Mechanised Process for cleaning should be initiated • Training, Personal Protective Equipment's for Workers dealing with sewage waste	• Untreated sewage waste contaminates the water bodies whichlead to eutrophication and decline in dissolved oxygen content. • The wet sludge after cleaning the drains is left for certain periods and then lifted for disposal creating nuisance to passerby and create visual pollution.

Action Plan for Domestic Sewage Management

Short Term Action Points for Sewage Management

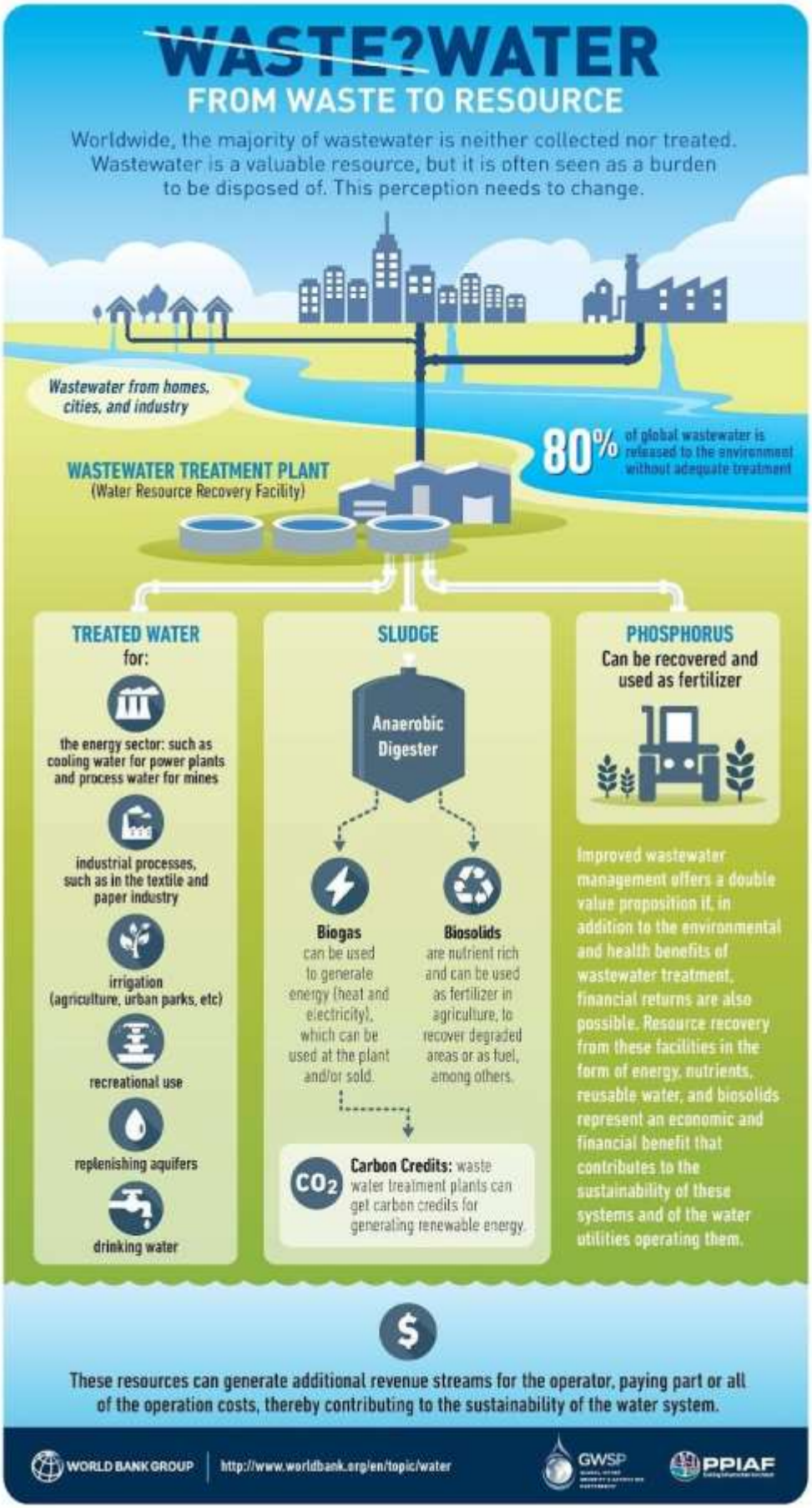
S. No.	Action Points	Timelines	Department/ Agencies
1	Estimation of total sewage generation from City/Towns wheresewage treatment facility does notexist and preparation of DPR for treatment of sewage	Immediate	ULBs
2	Measurement of flow & load of all the drains contributing pollution loadin Rivers	Immediate	ULBs
3	Installation of Bar-meshes in the drains & regular cleaning & disposal of Solid Waste from them	Immediate	ULBs
4	Untapped drains to be provided with modular treatment facilities/ In-Situ bio-remediation.	Immediate	ULBs
5	Completion and commissioning of under construction STPs	Immediate	ULBs
6	Formulation of Action Plan for long term use of treated water discharged from STPs / Utilization of treated water for industrial / other use may be initiated	Immediate	ULBs/RPCB/CPCB
10	Preparation of DPR for channelization including diversion ofsewage generated from household /township / villages to sewer lines and interception of all drains (excluding drains carrying industrial wastewater) for ensuring proper treatment through upcoming STPs.	Immediate	ULBs
11	Septage Management in the areaswhere sewerage network does not exist	Immediate	ULBs

Long Term Action Point for Sewage Management

S. No.	Action Points	Timelines	Department/ Agencies
1	Laying of Sewerage Network & Connection of households to the sewer line in order to utilize the installed capacity of existing STPs	Immediate	ULBs
2	Establishment of Sewage Treatment Plants of adequate capacity	Immediate	ULBs
3	Tapping & diversion of the drains having high sewage load to STPs to be constructed on I&D model	Immediate	ULBs
4	Infrastructure Development in Irrigation/Horticulture/ Sprinkling/Industrial use etc. and ensuring use of treated water	Immediate	ULBs
6	Installation of supplementary/tertiary treatment system in existing STPs which are not able to achieve discharge norms in the present system	Immediate	ULBs
7	Treatment of waste water in Rural areas flowing into the river or water bodies by Bio-remediation / Phyto-remediation / Oxidation Pond etc.	Immediate	Gram Panchayat, Panchayati Raj, Rural Development Departments,Rastriya Swachta Mission-Gramin
8	Ensuring Open Defecation Free inall the villages situated along the river / water bodies	Immediate	Gram Panchayat, Panchayati Raj, Rural Development Departments,Rastriya Swachta Mission-Gramin
9	Specific methods of >2.5 ha development plans to be developedand implemented for purposes of carbon segmentation.	Regular Activity	RPCB

Industrial Waste Water Management

Industrial waste water is one of the important and major pollution sources of Water.A huge amount of industrial waste water was discharged into rivers, lake & sand coastal areas. This resulted in serious pollution problems in the water environment and causes negative effects to the eco-system and human‟s life. There are many types of industrial waste water based on different industries and contaminants. Each sector produces its own particular combination of pollutants.


WASTE?WATER
FROM WASTE TO RESOURCE
Worldwide, the majority of wastewater is neither collected nor treated. Wastewater is a valuable resource, but it is often seen as a burden to be disposed of. This perception needs to change.
Wastewater from homes, cities, and industry
80% of global wastewater is released to the environment without adequate treatment
WASTEWATER TREATMENT PLANT
(Water Resource Recovery Facility)
TREATED WATER
for:
the energy sector: such as cooling water for power plants and process water for mines
industrial processes, such as in the textile and paper industry
irrigation (agriculture, urban parks, etc)
recreational use
replenishing aquifers
drinking water
SLUDGE
Anaerobic Digester
Biogas
can be used to generate energy (heat and electricity), which can be used at the plant and/or sold.
Biosolids
are nutrient rich and can be used as fertilizer in agriculture, to recover degraded areas or as fuel, among others.
CO2
Carbon Credits: waste water treatment plants can get carbon credits for generating renewable energy.
PHOSPHORUS
Can be recovered and used as fertilizer
Improved wastewater management offers a double value proposition if, in addition to the environmental and health benefits of wastewater treatment, financial returns are also possible. Resource recovery from these facilities in the form of energy, nutrients, reusable water, and biosolids represent an economic and financial benefit that contributes to the sustainability of these systems and of the water utilities operating them.
$
These resources can generate additional revenue streams for the operator, paying part or all of the operation costs, thereby contributing to the sustainability of the water system.
WORLD BANK GROUP
http://www.worldbank.org/en/topic/water
GWSP
PPIAF

BASE LINE Data for Industrial Waste Water Management

No.	Action Areas	Details of Data Requirement	Measurable Outcome	Please enter Measurable Outcome for District
IWW1	Inventory of industrial wastewater Generation in District			
IWW1a		No of Industries discharging wastewater	[Nos]	Nil (28 units with ZLD facility)
IWW1b		Total Quantity of industrial wastewater generated	[MLD]	35-40 MLD
IWW1c		Quantity of treated IWW discharged into Nalas / Rivers	[MLD]	Nil
IWW1d		Quantity of un-treated or partially treated IWW discharged into lakes	[MLD]	NIL
IWW1e		Prominent Type of Industries	[Agro based] / [Chemical – Dye etc.] / [Metallurgical] / [Pharma] / [Pesticide] / [Power Plants] / [Mining] / [Automobile] : Multiple selection based on size of operation and number	Textile Units
IWW1f		Common Effluent Treatment Facilities	[Nos] / [No CETPs]	0
IWW2	Status of compliance by Industries in treating wastewater			
IWW2a		No of Industries meeting Standards	[Nos]	28
IWW2b		No of Industries notmeeting discharge Standards	[Automatic]	0
IWW2c		No of complaints received or number ofrecurring complaints against industrial pollution in last 3 months	[Nos]	13
AWW4	Status of Action taken for not meeting discharge standards			
IWW4a		No industries closed for exceeding standards inlast 3 months	[Nos]	0
IWW4b		No of industries where Environmental Compensation was imposed By SPCBs	[Nos]	3 (1. Porwal Hospital Pvt. Ltd., 2. Municipal Council, Bhilwara., 3.Kalyan Aluminium Pvt. Ltd.)

SWOT Analysis

	Helpful to achieving the objectives	**Harmful** to achieving the objectives
Internal origin (attributes of the Organization)	**Strengths**	**Weakness**
	• Zero Liquid Discharge (ZLD)by industries • Effective Management of Environmental Compensationby SPCBs	• Data on the generation of IndustrialWaste Water by Small and Micro Scale Industries not available
External Origin (attributes of theEnvironment)	**Opportunities**	**Threats**
	• Common Effluent treatment plant (CETP) facilities needed • Time to time monitoring withrespect to Industrial Waste Water generation and management	• Untreated Industrial Waste Water may lead to severe EnvironmentalIssues

Action Plan for Industrial Waste Water Management

Short Term Action Points for Industrial Waste Management

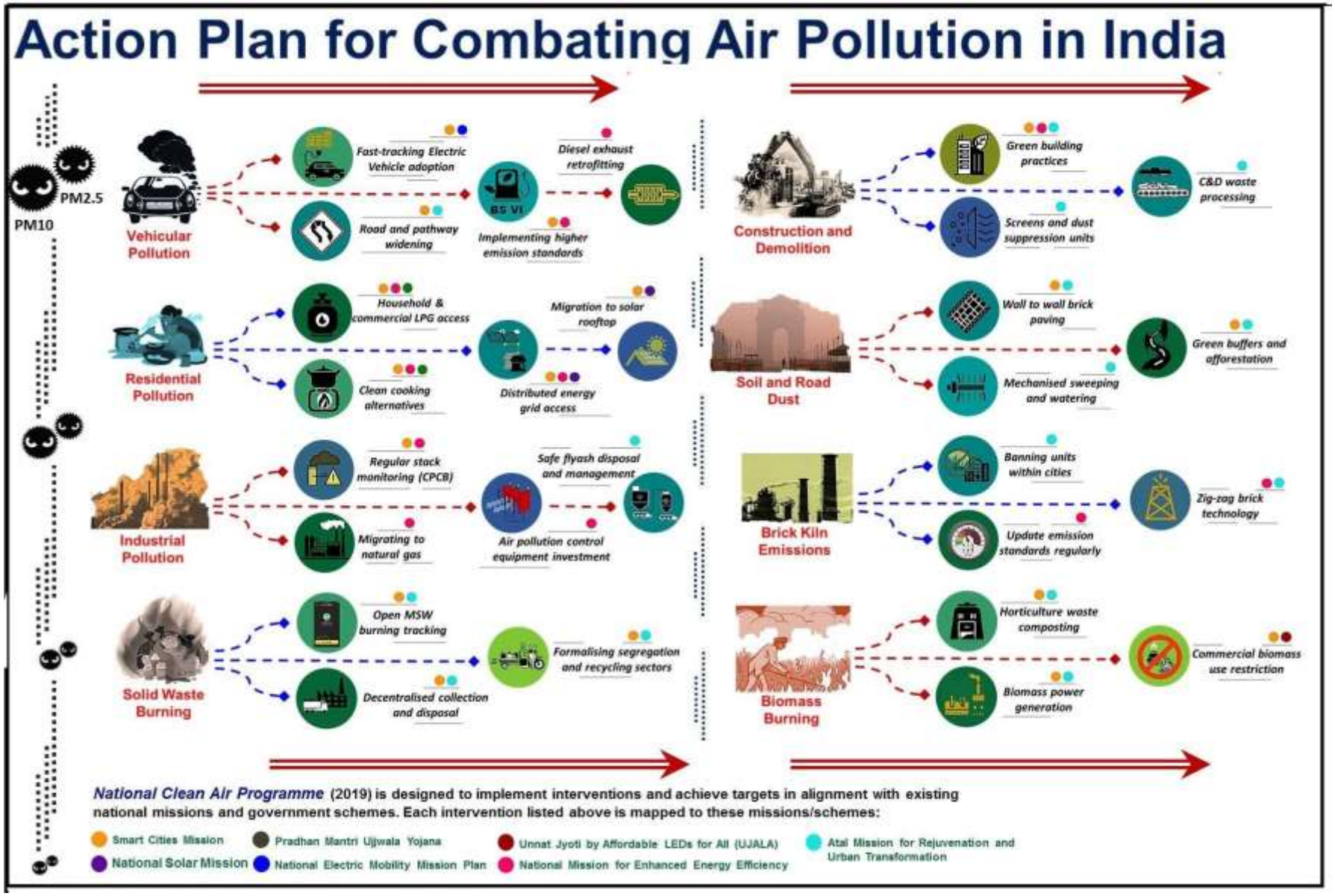
S. No.	Action Points	Timelines	Department/ Agencies
1	Re-inventorization of Water Polluting Industries in the catchmentarea of the drains and their status with respect to consent, installation of ETP, adequacy of ETP and final discharge point	Immediate	RPCB / ULBs & Department of Industries
2	Monitoring of water polluting industries and ensuring closure of industries which are operating without consent or non-compliant	Quarterly	RPCB & CPCB
3	Installation of OCEEMS, Flow Meter& Web Cams in large and medium category of GPIs with connectivity to the server of CPCB and RPCB	Immediate	RPCB
4	Closure and legal action against the illegal water polluting industries operating in non-confirming /residential areas	Regular activity	District Level Inter- Departmental Enforcement Committee having representatives of Administration, Police, RPCB, ULBs, DevelopmentAuthority, Power Corporation, Department of Industries etc.
5	Establishment of center of excellence for exploring bettermentof textile industries/ other industrieswith less pollution generating practices.	Immediate	RPCB / ULBs & Department of Industries

Long Term Action Points for Industrial Waste Management

S. No.	Action Points	Timelines	Department/ Agencies
1	Reducing abstraction of ground water by reuse/recycle of treated effluent by installation of additionaltreatment facilities & process improvement	12 Months	CGWA, CPCB, Departmentof Industries & RPCB
2	Use of treated effluent from CETPs for industrial and irrigation purposes	12 Months	Department of Industries, SPVs, Operating Agencies, RPCB & CPCB
3	Up gradation of existing ETPs by installation of Auto-Chemical Dozing System for Physico-Chemical Treatment in Textile, Electroplating, Chrome Recovery System etc. & Mechanical Sludge watering System	12 Months	Department of Industries,RPCB & CPCB

Air Quality Management

Air quality affects our health, the livability of our cities and towns, and our environment. Air pollution, particularly from human activity, can cause health problems that affect the heart and lungs, and can cause cancer. Even short-term exposure to air pollution can cause health problems. Children, the elderly and people with existing heart and lung conditions are especially affected by air pollution. Air quality management refers to all the activities a regulatory authority undertakes to help protect human health and the environment from the harmful effects of air pollution. There is a continuous review and assessment of goals and strategies based on their effectiveness. All parts of this process are informed by **scientific research** that provides air quality managers with essential understanding of how pollutants are emitted, transported and transformed in the air and their effects on human health and the environment.


Action Plan for Combating Air Pollution in India
PM2.5
PM10
Vehicular Pollution
Fast-tracking Electric Vehicle adoption
Road and pathway widening
BS VI
Diesel exhaust retrofitting
Implementing higher emission standards
Residential Pollution
Household & commercial LPG access
Clean cooking alternatives
Migration to solar rooftop
Distributed energy grid access
Industrial Pollution
Regular stack monitoring (CPCB)
Migrating to natural gas
Safe flyash disposal and management
Air pollution control equipment investment
Solid Waste Burning
Open MSW burning tracking
Decentralised collection and disposal
Formalising segregation and recycling sectors
Construction and Demolition
Green building practices
Screens and dust suppression units
C&D waste processing
Soil and Road Dust
Wall to wall brick paving
Mechanised sweeping and watering
Green buffers and afforestation
Brick Kiln Emissions
Banning units within cities
Update emission standards regularly
Zig-zag brick technology
Biomass Burning
Horticulture waste composting
Biomass power generation
Commercial biomass use restriction
National Clean Air Programme (2019) is designed to implement interventions and achieve targets in alignment with existing national missions and government schemes. Each intervention listed above is mapped to these missions/schemes:
Smart Cities Mission
Pradhan Mantri Ujjwala Yojana
Unnat Jyoti by Affordable LEDs for All (UJALA)
Atal Mission for Rejuvenation and Urban Transformation
National Solar Mission
National Electric Mobility Mission Plan
National Mission for Enhanced Energy Efficiency

Baseline Data for Air Quality Management

S No.	Action Areas	Details of DataRequirement	Measurable Outcome	Please enter Measurable Outcome for District
AQ1	Availability of Air Quality Monitoring Network in District			
AQ1a		Manual Air Quality monitoring stations of SPCBs /CPCB	[Nos] / [None]	02 Proposed
AQ1c		Automatic monitoring stations Operated bySPCBs / CPCB	[Nos] / [None]	01 Proposed
AQ2	Inventory of Air Pollution Sources			
AQ2a		Identification of prominent air pollutingsources	[Large Industry] / [Small Industry] / [Unpaved Roads] / [Burning of Waste Stubble] / [Brick Kiln] / [Industrial Estate] /[Others] (Multiple selection)	Large Industries at Chittorgarh Road, Stone Crushers, Brick Kilns etc.
AQ2b		No of Non-Attainment Cities	[Nos / [None]	None
AQ2c		Action Plans for non- attainment cities	[Prepared] / [Not yet prepared]	Not yet Prepared
AQ3	Availability of Air Quality Monitoring Data at DMs Office			
AQ3a		Access to air qualitydata from SPCBs & CPCB through Dashboard	[Available] / [Not yet Available]	Not yet Available
AQ4	Control of Industrial Air Pollution			
AQ4a		No of Industries meeting Standards	[Nos]	All
AQ4b		No of Industries notmeeting discharge Standards	[Nos]	Nil
AQ5	Control of Non-industrial AirPollution sources			
AQ5a		Control open burning ofStubble – during winter	[Nos of fire incidents]	Nil in last year
AQ5b		Control Open burningof Waste – Nos of actions Taken	[Nos]	7
AQ5c		Control of forest fires	[SOP available] / [No SoP]	SOP available
AQ5d		Vehicle pollution check centers	[% ULBs covered]	32 (16 Bhilwara- 08 Shahpura)
AQ5e		Dust Suppression Vehicles	[% ULBs covered]	1
AQ6	Development of Air Pollutioncomplaint redressal system			
AQ6a		Mobile App / Online based air pollution complaint redressing.	[Available] / [Not available]	Rajasthan Sampark portal is available

SWOT Analysis

	Helpful to achieving the objectives	**Harmful** to achieving the objectives
Internal origin (attributes of the Organization)	**Strengths**	**Weakness**
	• Prominent air polluting sources Identified by SPCBs • Standard Operating Procedure Available to control forest fire • All Industries meeting the standards • Mobile App / Online based air pollution complaint redressing system of SPCBs associated with Rajasthan Sampark Portal	• Insufficient Monitoring Stations of Air Quality of Districts • Access to air quality data from SPCBs & CPCB through Dashboard not available
Exterrigin (attributes of the Environment)	**Opportunities**	**Threats**
	• Public Awareness to be created with participation of NGOs /SHGs /Academic institutions regarding Air pollution • Leaflets / Broachers explaining Air Pollution and Health Problems related to Air Pollution should be exhibited • Time to time monitoring of Performance of district regarding the Air quality and its management • Use of instruments to combat industrial air pollution • Vehicle Pollution Check centres with respect to population pressure • Dust Suppression Vehicles with respect to population	• Open burning of waste even at small scale causes the air pollution • Dust prone areas should be identify and mitigating measuresmust be taken

Action Plan for Air Quality Management

Long Term Action Plan: Reduce Congestion

S. No.	Action Points	Timelines	Department/ Agencies
i	Plying of electric buses, e-rickshawsfor public transport including establishment of sufficient charging stations.	Immediate	Transport Department
ii	Prepare plan for construction of expressways/bypasses to avoidcongestion due to non-destined vehicles.	Immediate	N.H.A.I. /PWD
iii	Arrangement of Multi-level Parking Facilities	Immediate	ULBs / Development Authorities
iv	Development/Strengthening of Bike zone/Cycle zone at metro / railways /bus stations from where travelers hire bi-cycle to reach the destination.	Immediate	ULBs / Development Authorities
vi	Initiate steps for retrofitting of particulate filters in diesel vehicles,when BS-VI fuels are available	Immediate	Vehicle Manufacturing Companies/Ministry ofRoad Transport & Highways
vii	Use of Bio-Ethanol in the urban transport system/waste to energy.	Immediate	Transport Department

Short Term Action Plan

S. No.	Action Points	Timelines	Department/ Agencies
i	Launch extensive drive against polluting vehicles for ensuring strict compliance	As regular activity	R.T.O/Traffic Police
ii	Launch public awareness campaignfor air pollution control, vehicle maintenance, minimizing use of personal vehicles, lane discipline, etc.	As regular activity	R.T.O/ Traffic Police /NGOs/ Education Department
iii	Prevent parking of vehicles in the non-designated areas	As regular activity	Traffic Police/ ULBs
iv	Prepare & implement action plan tocheck fuel adulteration and random monitoring of fuel quality data	As regular activity	District Supply Officer/Oil companies
v	Prepare & implement plan for widening of roads and improvementof infrastructure for decongestion of road	Immediate	ULBs
vi	Steps for promoting batteryoperated vehicles including establishment of charging stations.	Immediate	Transport Department/ULBs / Development Authorities
vii	Synchronize traffic movements/Introduce intelligent traffic systems for lane-driving	Immediate	Traffic Police
viii	Installation of remote sensor based PUC system	Immediate	Traffic Police

Other Steps to Control

Air PollutionLong Term

Action Plan

S. No.	Action Points	Timelines	Department/ Agencies
i)	Dead Bodies of Animals should bedisposed through proper treatment facility like rendering plant etc.	Immediate	ULBs
ii)	Installation of CAAQMS by polluting units/institutions etc. under 3Ps ("Polluters Pay Principles" and "Pollution Prevention Pays")	Immediate	RPCB
iii)	Tree Plantation for mitigation of air pollution based open location of pollution sources and Wind rose data	Immediate	Forest department / Development Authority /RPCB / NGOs etc.

Short Term Action Plan

S. No.	Action Points	Timelines	Department/ Agencies
i)	Air Quality Index to be calculatedand disseminated to the people through website and other media(on maximum fortnightly basis formanually operated monitoring stations and real time basis for continuous monitoring stations	Immediate and thenAs regular activity	RPCB
ii)	Set-up and publicize helpline in the city/town as well as SPCB/PCC HQ for complaints against reported non-compliance	Immediate	RPCB
iii)	Engage with concerned authorities on continual basis for maximizing coverage of LPG/PNG for domesticand commercial cooking with targetof 100% coverage *(Under PradhanMantri Ujjwala+ Yojana in urban areas)*	Immediate	District Supply Officer
iv)	Monitoring of DG sets and action against violations. Fine should beimposed on defaulters.	Immediate	RPCB
v)	If Air Quality Index found severe orabove grade, ensure availability of masks to public for protection.	Immediate	RPCB / ULBs

Control of air pollution from constructions and demolition activities

S. No.	Action Points	Timelines	Department/ Agencies
i)	Enforcement of Construction & Demolition Rules 2016. Fine shouldbe imposed on defaulting units.	Immediate and thereafter, continueas regular activity	ULBs / Urban Development / Development Authorities
ii)	Ensure carriage of construction material in closed/covered vessels		ULBs / Development authorities / Regional Transport Department
iii)	Environmental aspects should be included during preparation of master plan for development of city.	Immediate	ULBs / Urban Development / Development Authorities
iv)	Builders should leave 33% area for green belt in residential colonies and Plantation should be done accordingly.	Within a reasonable timeframe	ULBs / Urban Development / Development Authorities / housing companies
v)	All construction areas must be covered to avoid dispersion of particulate matter	30 days	ULBs / Development Authorities

Control of emissions from biomass/crop residue/garbage/municipal solid waste burning/ forest fires

S. No.	Action Points	Timelines	Department/ Agencies
i)	Launch extensive drive againstopen burning of bio-mass, crop residue, garbage, leaves, etc.	Immediate	ULBs / NGOs / EducationDepartment
ii)	Regular check and control of burning of municipal solid wastes and use of fire extinguisher for control of fire in municipal solid waste and bio mass.		ULBs
iii)	Proper collection of horticulture waste (bio-mass) and its disposal following composting-cum- gardening approach as material for plantations.		ULBs
iv)	Ensure ban on burning of agriculture waste and crop residues and its implementation	Immediate	Agriculture Department /RPCB
v)	Door to Door collection of segregated waste by agency andthen its disposal directly in plant without dumping it on land.	Immediate	ULBs
vi)	Establishment of composting pits inParks/ residential societies etc. for management of biodegradable waste.	Immediate	ULBs

Action Points for Control of

Industrial EmissionsLong Term

Action Plan

S. No.	Action Points	Timelines	Department/ Agencies
i)	Installation of appropriate air pollution control devices in factoryunits / industries.	Immediate	RPCB / Department ofIndustries
ii)	Development of mobile facility/vanfor continuous ambient air quality monitoring for different localities.	Immediate	ULBs / RPCB
iii)	Fly ash bricks use for protective tree guards	Immediate	ULBs / PWD / Forest Dept. / Irrigation Dept.

Short Term Action Plan

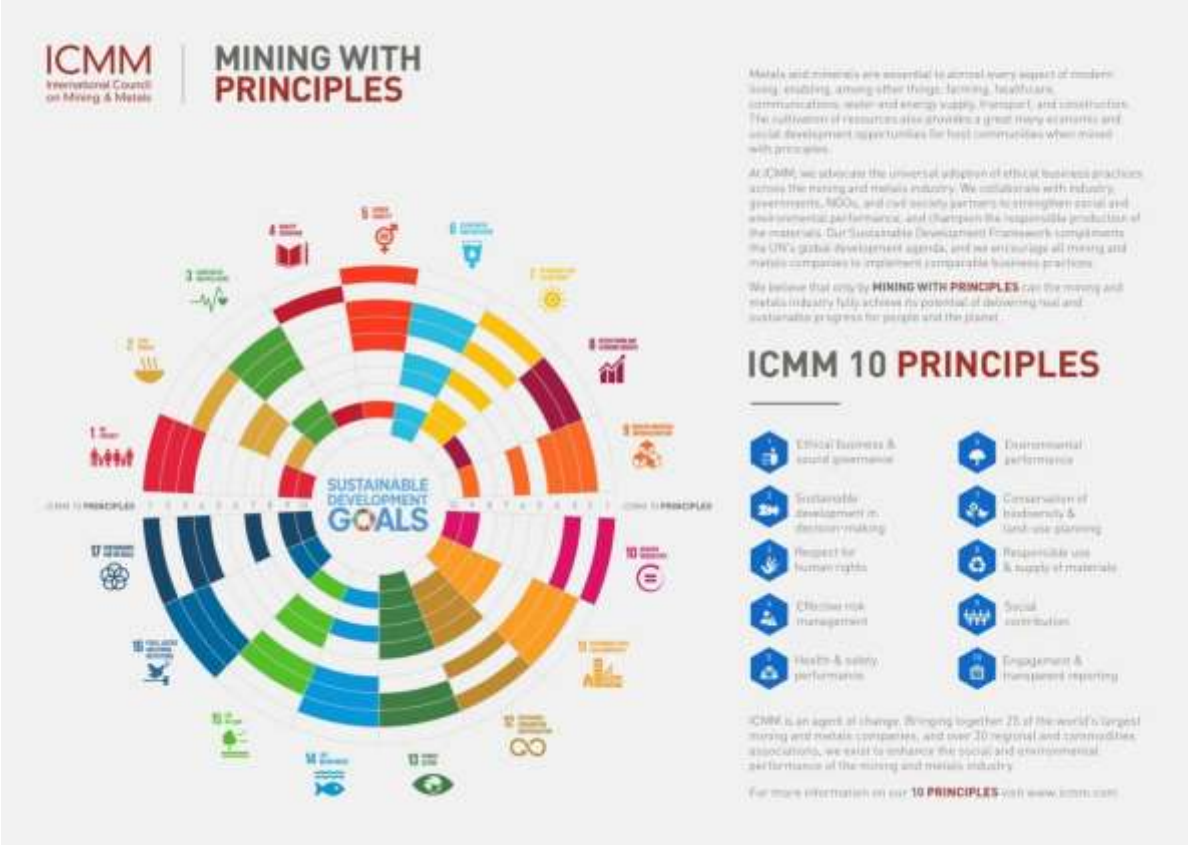
S. No.	Action Points	Timelines	Department/ Agencies
I.	Identification of brick kilns and theirregular monitoring including use of designated fuel, and closure of unauthorized units	Immediate	ULBs / RPCB
II.	Monitoring of industrial emission including real time online monitoringthrough OCEMS (Online Continuous Emission Monitoring System) and live camera feed and to take action against non- complying industrial units	Immediate, and thereafter, regularactivity	RPCB
III.	Bank guarantee should be taken forthe compliance of conditions imposed in CTO/CTE for control of Environmental Pollution from industries. The bank guarantee shall be forfeited in case of any violation. Verification of these conditions to be carried out by RPCB / selected Third Party Institutions / Quality Control Agencies etc.	Immediate, and thereafter, regularactivity	RPCB
IV.	Installation of webcams andOCEMS in Grossly Polluting Industries.	Immediate	RPCB
V.	Power plant controls -implement stricter NO_x and SO_2 standards with continuous monitoring	Immediate	RPCB
VI.	Stricter dust control on stone crushers	Immediate	RPCB
VII.	Introduce and implement stringent PM_{10} and $PM_{2.5}$ norms in industriesthrough installations of wet scrubbers	Immediate	RPCB

Mining Activity Management

Background

Mining is a major economic activity in India and accounted for 2.3% of the country's gross value added (GVA) for the first quarter of 2017-2018. The sector provides the basic raw materials required by several manufacturing and infrastructure industries in the country. government has framed the Mines & Minerals (Development and Regulation) Act 1957 (MMDR Act), which is the principal legislation governing the mineral sector (other than petroleum and natural gas) in India. The MMDR Act sets

out the legal framework for the development of all minerals and for the regulation of mines. Under the MMDR Act, minerals are classified into minor minerals and major minerals. Minor minerals include building stones, gravel, ordinary clay, ordinary sand and other minerals that the central government declares to be a minor mineral. Minerals that cannot be categorized as minor minerals are considered to be major minerals and include coal, manganese ore and iron ore, as well as other minerals used for industrial purposes. The MMDR Act underwent significant changes underthe Mines and Minerals (Development and Regulation) Amendment Act 2015. These changes were brought about primarily to establish a transparent and non- discretionary regime for the grant of mineral concessions. The MMDR Act was further amended in 2016 to allow the transfer of mining leases that are granted other than through auction and used for captive consumption purposes.



Baseline Data for Mining Activity Management

S No.	Action Areas	Details of Data Requirement	Measurable Outcome	Please enter Measurable Outcome for District
MI1a	Inventory of Mining in District			
MI1a		Type of MiningActivity	[Sand Mining] / [Iron Ore] / [Bauxite] / [Coal] /Other [specify]	Lead and Zinc, Iron Ore, Copper, Gold, Silver, Coblat, Camet, Calcite, Vermiqulite, Kynite, Pyroflite, Limestone, Soapstone, China clay, Red & Yellow Ochre, Feldpar, Quartz,Mica, Granite, Marble, Masonty Stone, Sand Stone.
			Multiple selectionin order of magnitude of operations	
MI1b		No of Mining licenses given in the District	[Nos]	2367 (1162 Ml + 1205Ql)
MI1c		Area covered under mining	[Sq Km]	125.5633
MI1d		Area of District	[Sq Km]	10508.85
MI1e		Sand Mining	[Yes] / [No]	Yes
MI1f		Area of sand Mining	[River bed] / [Estuary] / [Non -river deposit]	Rever bed
MI2	Compliance to EnvironmentalConditions			
MI2a		No of Mining areas meeting Environmental Clearance Conditions	[Nos]	1531
MI2b		No of Mining areas meeting Consent Conditions of SPCBs	[Nos]	1531
		/ PCCs		
MI3a	Mining related environmentalComplaints			
MI3b		No of pollution related complaints against Mining Operations in last 1 year	[Nos]	2
MI4	Action against non-complyingmining activity			
MI4a		No of Mining operations suspended forviolations to environmental norms	[Nos]	
MI4b		No od directions issued by SPCBs	[Nos]	2

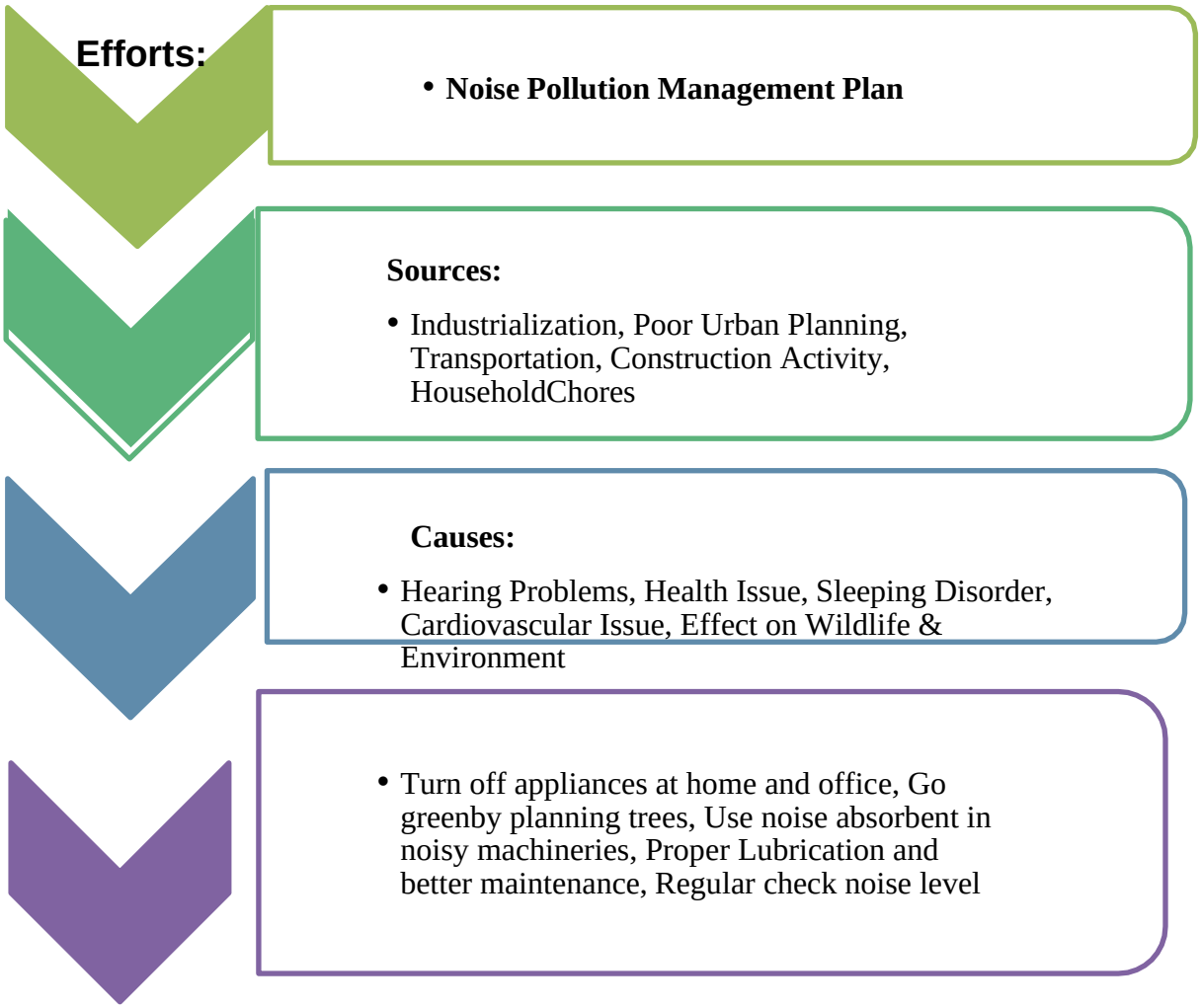
SWOT Analysis

	Helpful to achieving the objectives	**Harmful** to achieving the objectives
Internal origin (attributes of the Organization)	**Strengths**	**Weakness**
		• No complaint redressal systemfor illegal mining
External Origin (attributes of the Environment)	**Opportunities**	**Threats**
	• Reclamation of abundant mineswith proper strategies • Time to time monitoring ofillegal mining and its management • GPS enabled task force forSand mining or other illegal mining	• Illegal mining in district

Action Plan for Mining Activity Management

S. No.	Action Points	Timelines	Department/ Agencies
1.	Adoption of sustainable and systematic mining practices	Regular Activities	Mining Dept.
2.	Enforcing strict control measures against air pollution.	Immediate then after Regular Activity	RPCB
3.	Enforcing strict control measures againstwater pollution	Immediate then after Regular Activity	RPCB
4.	Enforcing strict control measures againstnoise pollution	Immediate then after Regular Activity	RPCB
5.	Establishment of green belt in and around mining lease areas and planting of rows of trees along roadsides to hold the spread of dust over larger areas	Regular Activities	Mine Department / Forest Dept. / NGOs /Lease Owner or Concerned Mines
6.	Adoption of appropriate soil and moisture conservation measures in the mining lease area to hold run-off and increase infiltration.	Regular Activities	Concerned Mines /Mining Dept.
7.	Stabilization and consolidation of inactive dumps through engineering and vegetative measures	1 Year	Concerned Mines /Mining Dept.
8.	Strict implementation of reclamation and rehabilitation measures both within and outside the mining lease areas	Regular Activities	Concerned Mines /Mining Dept.

Noise Pollution Management



Background

Noise causes health effects, as also socio-cultural and economic effects. Most of the time, its effects cannot be evaluated objectively.

Noise is generated from a variety of sources such as industries, transport vehicles, construction activities, generator sets, fire-crackers and a variety of indoor and outdoor sources. A number of acts and rules have been framed in our country for control of noise pollution.

Baseline Data for Noise Pollution Management

No.	Action Areas	Details of Data Requirement	Measurable Outcome	Please enter Measurable Outcome for District
NP1	Availability Monitoring equipment			
NP1a		No. of noise measuring deviceswith district administration	[Nos] / [None]	19
NP1b		No. of noise measuring deviceswith SPCBs	[Nos] / [None]	2
NP2	Capability to conduct noise level monitoringby State agency / District authorities			
NP2a		Capability to conduct noise level monitoring by State agency / District authorities	[Available] / [Not available]	Available
NP2	Management of Noise related complaints			
NP2a		No of complaints received onnoise pollution in last 1 year	[Nos]	NA
				NA
				NA
NP2b		No of complaints redressed	[Nos]	

No.	Action Areas	Details of Data Requirement	Measurable Outcome	Please enter Measurable Outcome for District
NP3	Compliance to ambient noise standards			
NP3a		Implementation of Ambient noise standards in residential and silent zones	[Regular Activity] / [Occasional] / [Never]	Occasional
NP3b		Noise monitoring study in district	[carried out] / [not carried out]	carried out
NP3c		Sign boards in towns and cities in silent zones	[Installed] / [Partial] / [Not Installed]	Partial

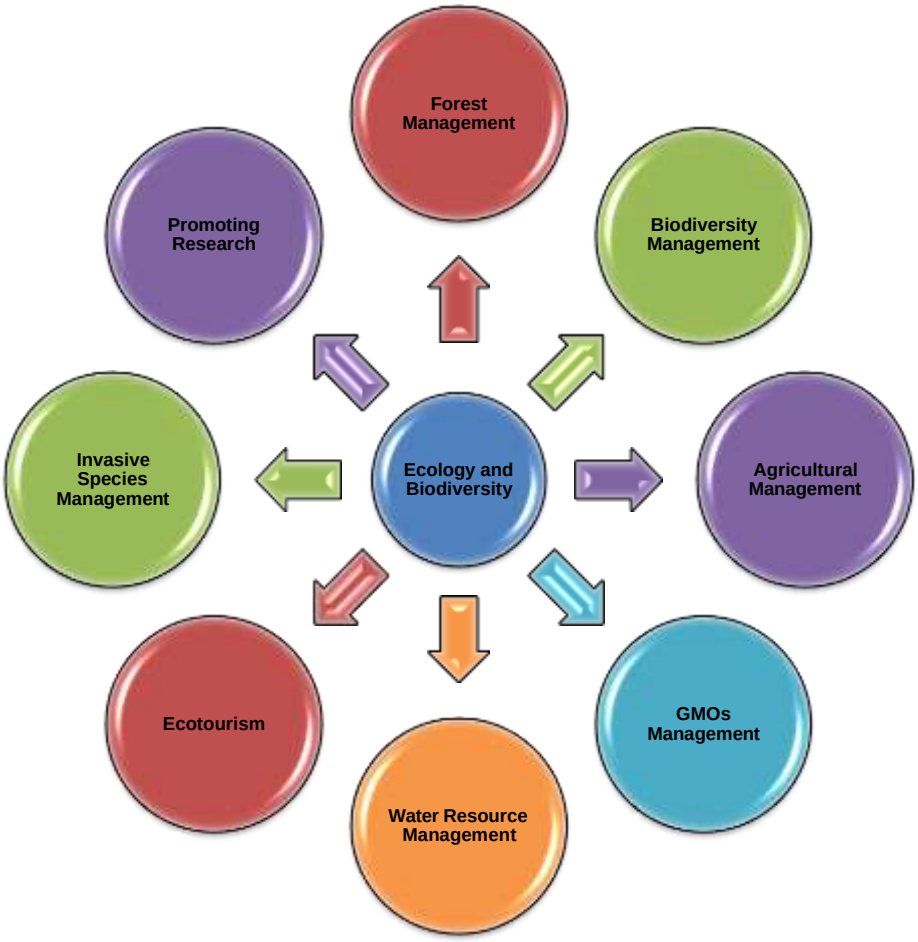
SWOT Analysis

	Helpful to achieving the objectives	**Harmful** to achieving the objectives
Inter origin (atttes of the	**Strengths**	**Weakness**
	• Availability of Sound LevelMeasuring Devices	
External Origin (attributes of the Environment)	**Opportunities**	**Threats**
	• Sign boards in towns and citiesin silent zones • Public awareness to be createdwith participation of NGOs / SHGs / Academic institutions • Leaflets / Brochures explainingNoise pollution and related issues should be exhibited • Time to time monitoring of performance of district with respect to Noise pollution	• In absence of proper noise measuring devices. Noise can bea serious hazard for aged and sick.

Action Plan for Noise Pollution Management

S. No.	Action Points	Timelines	Department/ Agencies
1.	Impose restrictions in traffic hours	Regular Activities	RTO /Traffic Police
2.	To restrict the vehicular honking	Regular Activities	RTO /Traffic Police
3.	Impose restrictions of operating hours for various urban functional zones	Regular Activities	RTO /Traffic Police
4.	Establish suitable buffer zones around residential areas in order to insulate from noise emanating areassuch as commercial, industrial, road, railway traffic, etc.	Immediate	Development Authority / RTO /Traffic Police
5.	Impose restriction on any sound creating activities in the silent zone	Regular Activities	Dist. Admin. / ULBs
6.	Enforce the Noise Pollution (Regulation and Control) Rules. 2000	Immediate	Department of Home / Dist. Admin. / ULBs / Police Department
7.	A loud speaker or a public address system shall not be used except after obtaining written permission from the authority	Regular Activities	Department of Home / Dist. Admin. / ULBs / Police Department
8.	A loudspeaker/ any other musical instrument or a public address system shall not be used at night (between 10.00 p.m. to 6.00 a.m.)	Regular Activities	Department of Home / Dist. Admin. / ULBs / Police Department
9.	No person shall use, operate or permit the use or operation of a loudspeaker in any public places or within distance of 200 meters from any public places or in any place of public entertainment.	Regular Activities	Department of Home / Dist. Admin. / ULBs / Police Department

Ecology and Biodiversity Management



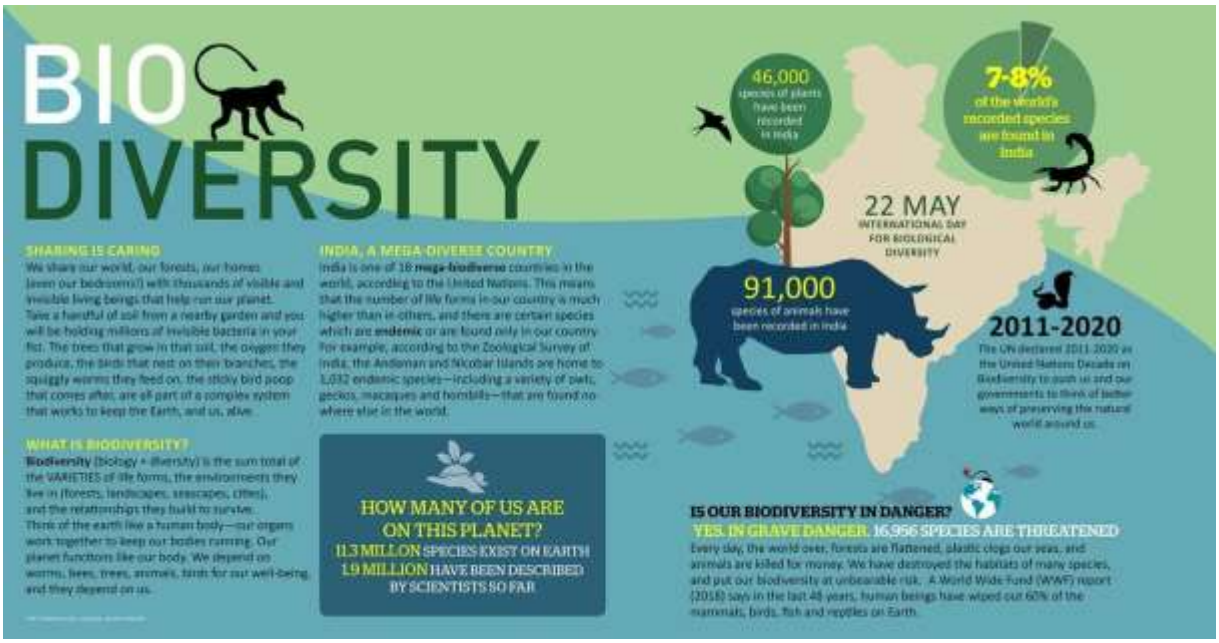
Biodiversity encompasses the variety of all life on earth including terrestrial, marine and aquatic ecosystems. It includes diversity at three levels: Genetic Diversity (within species), Species Diversity (between species) and Ecosystem Diversity (between ecosystems). Biodiversity is essential for human survival and well being. It forms the core of all development actions since it provides food, fodder, medicines, water,clean air and other goods and services.

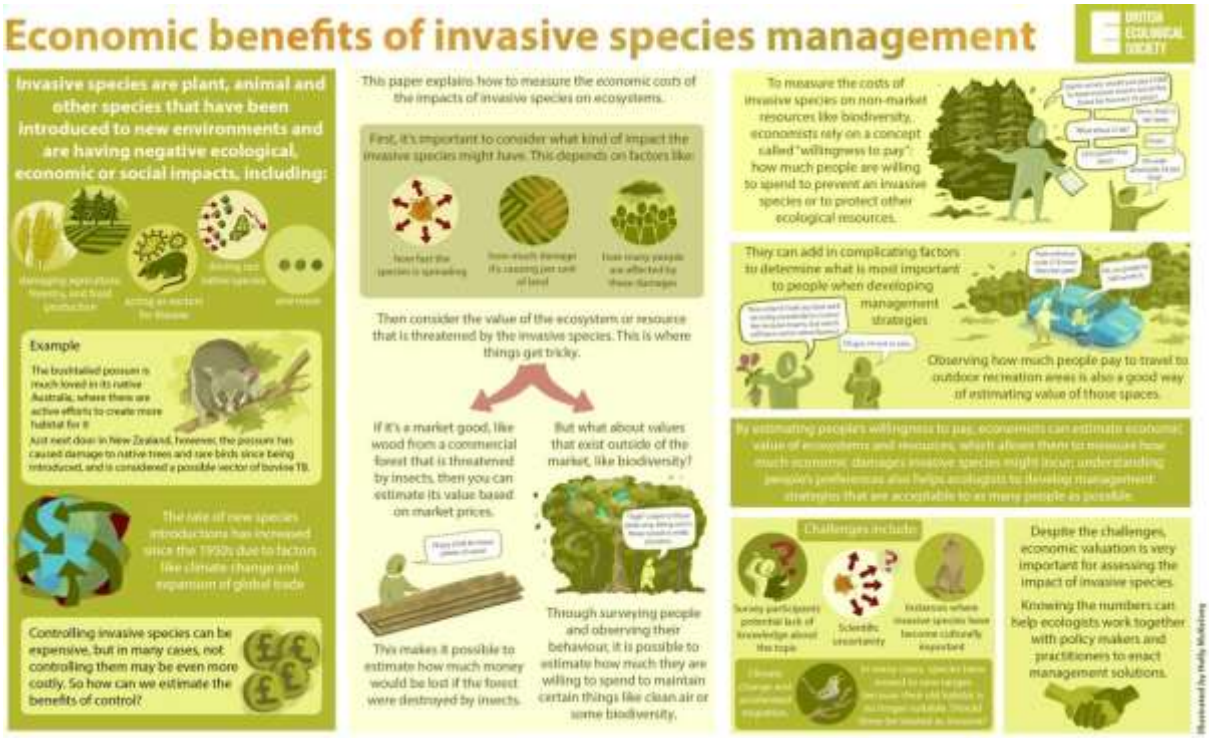
The Biological Diversity Act 2002 No. 18 of 2003 was passed on 5th February, 2003. The Act provides for conservation of biological diversity, sustainable use of its components and fair and equitable sharing of the benefits arising out of the use of biological resources, knowledge and for matters connected therewith or incidental thereto.

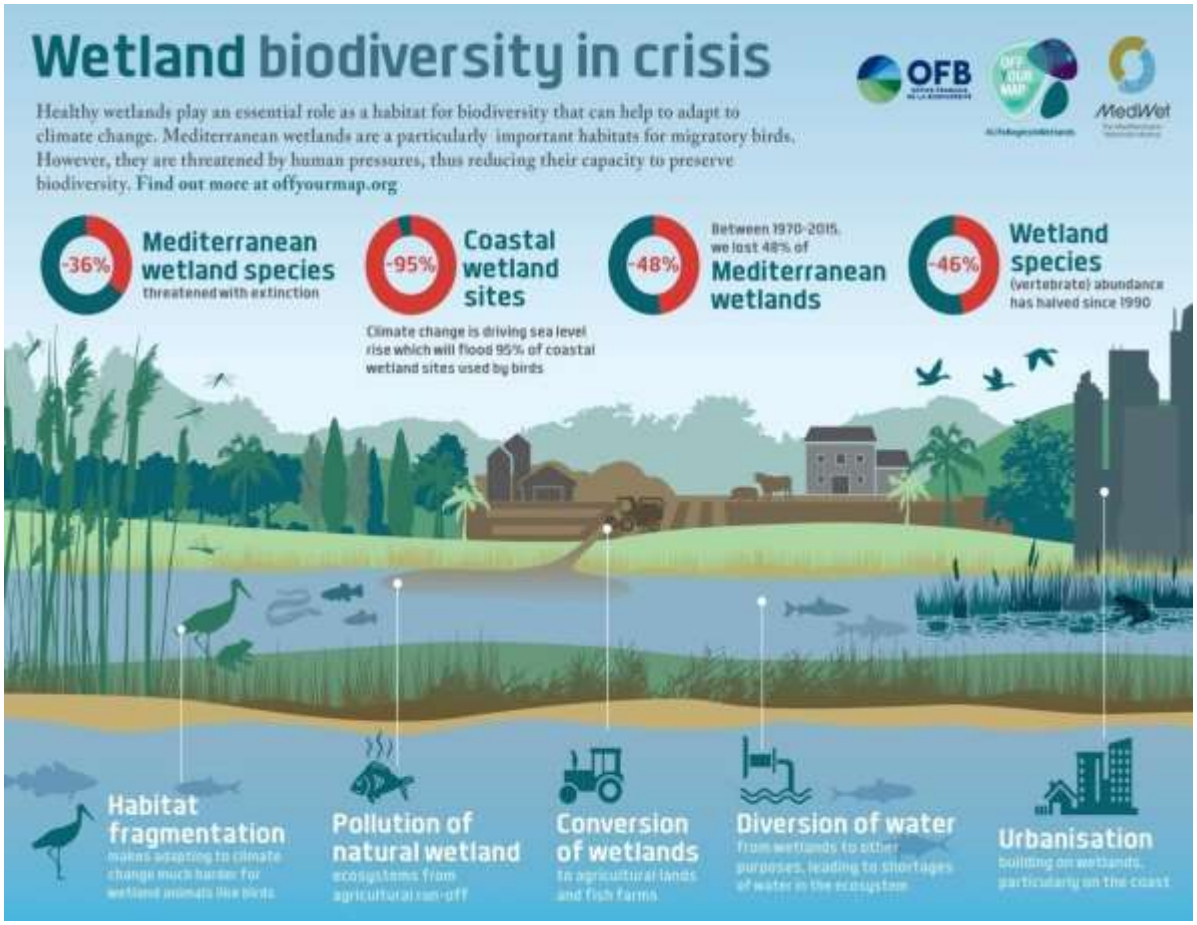
As per the sub-section (1) of Section 41 of Biological Diversity Act, 2002, every local body (Panchyati Raj Vibhag and Nagar Vikas Vibhag) shall constitute a Biodiversity Management

Committee (BMC) within its area. As per the provisions of Biological

Diversity Rules- 22(6) the People's Biodiversity Register" means a Register shall contain comprehensive information on availability and knowledge of local biological resources, their medicinal or any other use or any other traditional knowledge associated with them.

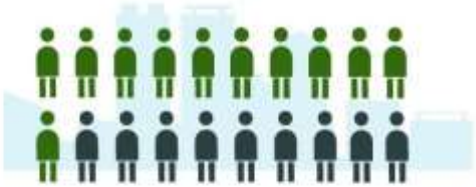





Wetland biodiversity in crisis
OFB
MedWet
Healthy wetlands play an essential role as a habitat for biodiversity that can help to adapt to climate change. Mediterranean wetlands are a particularly important habitats for migratory birds. However, they are threatened by human pressures, thus reducing their capacity to preserve biodiversity. Find out more at offyourmap.org
-36%
Mediterranean wetland species
threatened with extinction
-95%
Coastal wetland sites
Climate change is driving sea level rise which will flood 95% of coastal wetland sites used by birds
-48%
Between 1970-2015, we lost 48% of
Mediterranean wetlands
-46%
Wetland species
(vertebrate) abundance has halved since 1990
Habitat fragmentation
makes adapting to climate change much harder for wetland animals like birds
Pollution of natural wetland
ecosystems from agricultural run-off
Conversion of wetlands
to agricultural lands and fish farms
Diversion of water
from wetlands to other purposes, leading to shortages of water in the ecosystem
Urbanisation
building on wetlands, particularly on the coast

INTERNATIONAL URBAN FORESTRY CONGRESS 2018
Diverse In Nature

URBAN FORESTRY INFOGRAPHIC



54%
of the world's population lives in urban areas. It is expected to increase to 66 per cent by 2050.

TREE COVERAGE BY CITY

25%
less time people spend in nature compared to just 20 years ago.

10%
increase in tree canopy was associated with 12% decrease in crime. The magnitude was 40% greater for public than for private lands.

5′
GREEN EXERCISE
Just 5 minutes of walking close to green spaces during lunchbreaks is enough to improve worker's mental health and mood.

23%
LESS SICK DAYS
Desk workers who can see nature from their desks experience 23% less sick time off than those who can not see any nature.

SOURCES:
https://www.un.org/en/development/desa/news/population/world-urbanization-prospects-2014.html
https://medium.com/thrive-global/get-outside-how-nature-enhances-work-productivity-25e26388c348
https://www.nrs.fs.fed.us/pubs/jrnl/2012/nrs_2012_troy_001.pdf
https://www.businessinsider.com/cities-with-most-trees-2017-2#4-vancouver-canada-259-16
https://www.yourleaf.org/blog/jaclyn-cornell/jul-14-2015/international-influences-tijuca-forest-%E2%80%93-lungs-rio
http://www.urbantreecover.org/location/london/
https://www.eft.org/benefits-taking-work-breaks-outside/

International Urban Forestry Congress 2018
September 30 - October 3, 2018
iufcvancouver2018.com | #IUFC 2018
secretariat@iufcvancouver2018.com

Baseline Data for Ecology and Biodiversity Management

S. No.	Details of Data Required		Please enter measurable outcome for district
EB1	District Name		Bhilwara
EB2	Population		2013789
EB3	Geographical Coordinates of the District		25.3407° N, 74.6313° E
EB4	Geographical Area in Sq.Km		10455
EB5	Forest Area in Hectare till 31.3.2007		79520.75
EB5a	Percent Forest Area w.r.t. Geographical Area		7.6
EB5b	Per Capita Forest Area in Ha		0.04
EB5c	Land of District used for Human Habitation (in % w.r.t. geographical area of district)		Not Estimated
EB5d	Hill / Mountain area (in % w.r.t. geographical area of district)		Not Estimated
EB6	District Wise Forest Area According to Legal Status in Rajasthan as on 31.03.2007		
EB6a		Reserved Forest	43589.47
EB6b		Protected Forest	29205.68
EB6c		Unclassified Forest	6725.6
EB6d		Total Forest	79520.75
EB7	Forest Types in district (Deciduous / Evergreen / Dry, etc.)		Tropical dry deciduous forest
EB8	Type of Soils in Districts		Sandy Loam to Clay Loam
EB9	Biogeographic Division of District		Semi-Arid
EB10	Number of Ranges in Forest Division of District		6
EB10a	Ranges of District		Bhilwara, Mandalgarh, Jahajpur, Shahpura, Gangapur, Asind
EB11	Registered Nursuries in district (number/none) (List to be enclosed)		21

S. No.	Details of Data Required		Please enter measurable outcome for district
EB12	Joint Forest Management Committees		
EB12a		Number	185
EB12b		Area Managed (Ha)	12358
EB13	Status of PBRs in district (No of PBRs in district -specified with name ofarea/none)		Not Estimated
EB14	Sacred Groves in district important for biodiversity (Location/Area/History/Salient features)		Not Identified
EB15	Identified Eco-tourism spots in District (Identified/None)		Not Identified
EB16	Identified Important Bird and Biodiversity Areas in District (Name:IBA Site Code) if yes, list to be enclosed.		(Sareri (Bandh) Dam: IN-RJ-17)
EB17	Identified Sites for Restoration (eg: Abounded Mines)		Not Identified
EB18	Listed NGOs / Institution / Agencies / Individual Experts of District workingin field of Ecology / Environment / Biodiversity		Not Identified
EB19	Recorded Human-Wildlife Conflict in District (Place, Wild animal species involved, Year, Causalities if any)		Not Estimated
EB19a	Wildlife Rescue and Rehabilitation Centers (none / number, location,contact details)		Not Estimated
EB19b	Organization Responsible for Wildlife Rescue in District		Forest Department
EB19c	Toll-free Number for Wildlife Rescue (Provide - If Initiated)		Office Number of Forest Department
EB20	List of Identified Invasive species in District (If yes, list to be enclosed)		
EB20a		Flora	*Lantana, Parthenium, Juliflora*
EB20b		Fauna	Not Estimated
EB20c	Control measures taken for Invasive **Species**		Initiated

S. No.	Details of Data Required		Please enter measurable outcome for district
EB21	Genetically Modified Crops in the District		Not Estimated
EB22	Sustainable Agricultural Practices for Biodiversity Conservation andEnvironment Protection		Not Initiated
EB23	Seasonal River / Canals / Creeks inDistrict and Conservation of Water from them		
EB23a	No. of Water bodies in Districts		
EB23b	Status of Water bodies in Districts (Name / Location / Ownership / Area / Current use)- List to be enclosed		
EB23c	Ongoing Commercial Activities in Water bodies		Fishing, Boating, Agricultural Practices
EB23d	Products of Water bodies (Fishes / Vegetables etc.)		Not Estimated
EB23e	Encroachment Level at Catchment Areas of Water bodies		Not Estimated
EB23f	Control measures taken for Encroachment		Initiated
EB24	Status of Flora and Fauna in District		
EB24a		Flora	Grasses (8); Shrubs (28); Herbs (24); Trees (40)
EB24b		Fauna	Fishes (6); Amphibians (4); Reptiles (27); Birds (191); Mammals (19)
EB24c	Publications related to Ecology and Diversity of District		

SWOT Analysis

	Helpful to achieving the objectives	Harmful to achieving the objectives
Internal origin (attributes of the Organization)	**Strengths**	**Weakness**
		• Untrained field staff • Not proper management of protected areas or urban green spaces • No proper implementation of Wildlife and biodiversity acts • Insufficient ground staff and lacking of modern tools • Information regarding GMOs not available
External Origin (attributes of the Environment)	**Opportunities**	**Threats**
	• Proper assessment of forest cover and land use pattern (Latest/recent) • Rescue & rehabilitation facilities/centres • Training programmes for local field staff • Promotion of ecotourism activities • Development of urban green spaces. • Biodiversity and Butterfly park • Identification of IBAs (Important bird areas) • Mitigation of human wildlife conflict • Proper Implementation of Indian Forest Acts, Biodiversity Acts and Wetland Conservation and Management Rules • Public awareness to be created with participation of NGOs / SHGs, Academic Institutions	• Illegal mining and poaching • Encroachment in catchment areas of wetlands and water bodies • Pet practice (wild animals) • Identification and control of Invasive species (Floral and Faunal)

Action Plan for Ecology and Biodiversity Management

Short Term Action Point:

S. No.	Action Points	Timelines	Department/ Agencies
1	Every local body shall constitute a Biodiversity Management Committee within its area.	Immediate	Dist. Administration / ULBs
2	The Biodiversity Management Committee will also be involved in documentation of biodiversity (PBR, People's Biodiversity Register) and associated traditional knowledge (TK).	Immediate	Dist. Administration / ULBs /Forest Dept. / NGOs / Academic Institutions / Individual Experts (if any)
3	Maintain data about local Vaids and practitioners using biologicalresources.	Immediate	AYUSH
4	Gram Panchayat Adhikari/Nagar Vikas Adhikari will organize regular meetings within a village setting.	Immediate	Panchayeti Raj
5	Organize training of members in identification and collection of dataon biological resources and traditional knowledge programmes for capacity building.	Immediate	Forest Dept. / NGOs / Academic Institutions / Individual Experts (if any)
6	It is also important to involve theexperts and students of school/colleges in the process of preparing PBRs.	Immediate	Forest Dept. / NGOs / Academic Institutions / Individual Experts (if any) / Dept. of Education
7	Mapping of key wetlands / Water bodies (including urban, rural andfloodplain wetlands) based on a valuation of their roles in hydrological, morphological, ecological significance.	Immediate, then after regular activity	Water Resource Department / Forest Department / Revenue Department / State WetlandAuthority / District Environmental Committee
8	Field validation and ground truthingof wetland / Water bodies information and developing a matrixof priority wetlands / Water bodies.	Immediate, then after regular activity	Water Resource Department / Forest Department / Revenue Department / State Wetland Authority / District Environmental Committee /NGOs / Academic Institutions / Individual Expert
9	Preparation of „Brief documents" forall the prioritized wetlands	Immediate, then after regular activity	Water Resource Department / Forest Department / Revenue Department / State WetlandAuthority /

S. No.	Action Points	Timelines	Department/ Agencies
			District Environmental Committee / NGOs / Academic Institutions / Individual Expert
10	Training on wetland healthassessments	Immediate, then after regular activity	Water Resource Department / Forest Department / Revenue Department / State WetlandAuthority / District Environmental Committee / NGOs / Academic Institutions / Individual Expert
11	Develop policy on protection of Catchment Areas of wetlands /water bodies.	Immediate, then after regular activity	Water Resource Department / Forest Department / Revenue Department / State WetlandAuthority / District Environmental Committee / NGOs / Academic Institutions / Individual Expert
12	Prepare detailed documents forspecies (flora and fauna) in wetlands / water bodies.	Immediate, then after regular activity	Water Resource Department / Forest Department / Revenue Department / State WetlandAuthority / District Environmental Committee / NGOs / Academic Institutions / Individual Expert
13	Regular monitoring of the pollution status and water quality of wetlands	Immediate, then after regular activity	RPCB

Long Term Action Points:

S. No.	Action Points	Timelines	Department/ Agencies
1	The Biodiversity Management Committee will also be involved in revalidating of People's BiodiversityRegister and associated traditional knowledge	Continuous	Dist. Administration / ForestDept. / NGOs / Academic Institutions / Individual Experts (if any)
2	Maintain register containing information about details of accessof biological resources and traditional knowledge granted.	Continuous	Forest Dept.
3	Levying charges by way of collection fees for accessing/ collecting bio-resources for commercial purpose within its area of jurisdiction, as per the Act.	Continuous	Dist. Administration /ForestDept.
4	Documenting PBRs will also help tostop illegal access of bio-resourceswithin its area of jurisdiction and empower the local communities, making them aware of their rights, as well as conserving biodiversity for their future as well.	Continuous	Forest Dept./ Horticulture /NGOs
5	To plan a dedicated Green Zone/ oxyhub / Bio diversity park/ development of urban green spaces in the city area may be established.	Immediate	Dist. Administration /ForestDept/industries stakeholders".

1.0 Waste Management Plan

(i) Solid Waste Management Plan (for each ULB)

No.	Action Areas	Details of Data Requirement	Units of Measurable Outcome	Please enter Measurable Outcome for District	Bhilwara Zila						
					Bhilwaracity	**Gulabpura**	**Gangapur**	**Jahajpur**	**Asind**	**Mandalgard**	**Shahpura**
	Name of Urban Local Body (ULB)		[name ofULB]		Nagar Parishad Bhilwara	NagarPalika Gulabpura	Nagar Palika Gangapur	Nagar Palika Jahazpur	nagarpalika asind	NagarPalika Mandalgarh	Municipal Board Shahpura
	No of ULBs in the District		[Nos]			-	-	-	-		Bhilwara
	Population		[Nos as per2011 census]	127353	3,59,483	27215	18777	20586	16611	13844	30320
SW1	Report on inventory of total solid waste Generation										
SW1a		Total solidwaste Generation	[in MT/Day]or [Not estimated]	150	120	7	6		5	6	6
SW1b		Qty. of DryWaste segregated	[in MT/Day]or [Collection Not initiated]	85.05	60	8.05	2	8	3.5	2	1.5
SW1 c		Qty. of Wet Waste segregated	[in MT/Day]or [Collection Not initiated]	70	50	1.5	1.5	7	1.5	4	4.5
SW1 d		Qty. of C&D Waste segregated	[in MT/Day]or [Collection Not initiated]	5.5	3	nil	nil	1	1	0	0.5
SW1 e		Qty. of Street Sweeping	[in MT/Day]or [Not estimated]	15.92	13	0.64	0.6		0.5	0.58	0.6
SW1f		Qty. of DrainSilt	[in MT/Day] or [Not estimated]	11.98	10	0.5	0.4		0.3	0.4	0.38

No.	Action Areas	Details of Data Requirement	Units of Measurable Outcome	Please enter Measurable Outcome for District	Bhilwara Zila						
					Bhilwaracity	Gulabpura	Gangapur	Jahajpur	Asind	Mandalgard	Shahpura
SW1g		Qty. of Domestic Hazardous Waste (DHW) collected	[in MT/Day]or [No Facility]	No Facility	No Facility	No Facility	0.1		No Facility	No Facility	No Facility
SW1h		Qty. of Other Waste Horticulture, sanitary	[in MT/Day]or [Qty notestimated]	Qty not estimated	2	Qty not estimated	Qty not estimated	Qty not estimate d	Qty not estimate d	Qty not estimated	Qty not estimated
		waste, etc.)									
SW1i		No of Old dump sites	[Nos] or [None]	7	1	1	1	1	1	1	1
SW1j		Qty stored in dumpsites	[MT] or [Not estimated]	229160	138,972	21600	22936	10950	17,875	6972.931	9854
SW1k		No of Sanitary landfills	[Nos] or[None]	None	1	0	0	0	0	0	0
SW1l		No of wards	[nos]	205	70	25	20	25	25	15	25
SW2	Compliance by Bulk Waste Generators										
SW2a		No of BW Generators	[numbers]or [inventory not done]	inventorynot done	4	0	0	0	0	0	0
SW2b		No of on-site facilities for Wet Waste	[numbers] or [No data]	No data	1	0	0	0	0	0	0
SW3	Compliance in segregated waste Collection SW Collection									0	0
SW3a		Total generation	[Automatic] from SW1a	165	120	7	6	15	5	6	6

No.	Action Areas	Details of Data Requirement	Units of Measurable Outcome	Please enter Measurable Outcome for District	Bhilwara Zila						
					Bhilwaracity	Gulabpura	Gangapur	Jahajpur	Asind	Mandalgard	Shahpura
SW3 b		Wet Waste	[in MT/Day]or	71.5	50	1.5	2	8	1.5	4	4.5
			[Collection Not initiated]								
SW3 c		Dry Waste	[in MT/Day]or [Collection Not initiated]	76.5	60	1	1.5	7	3.5	2	1.5
SW3 d		C&D Waste	[in MT/Day]or [Collection Not initiated]	6	3	0.5	0	1	1	0	0.5
SW4	Waste Management Operations										
SW4 a		Door to Door Collection	[100%] / [partial %] /[not initiated]	100%	100%	100%	100%	100%	100%	100%	100%
SW4 b		Mechanical Road Sweeping	[100%] / [partial%] / [not initiated]	0.71%	5%	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated
SW4 c		Manual Sweeping	[100%] / [partial%]	97.14%	95%	100%	100%	95%	100%	90%	100%
SW4 d		Segregated Waste Transport	[100%] / [partial %] /[not initiated]	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated
SW4 e		Digesters(Bio-methanation)	[% of WW] /[not initiated]	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated
SW4f		Composting operation	[% of WW] /[not initiated]	30.71%	100%	40%	35%	Not Initiated	Not Initiated	Not Initiated	40%
SW4 g		MRF Operation	[MRF used] / [not installed]	Installed but not used	Processing Plant Exist and plastic send to	Installed	Installed Used 45%		Installed	Installed	Installed

No.	Action Areas	Details of Data Requirement	Units of Measurable Outcome	Please enter Measurable Outcome for District	Bhilwara Zila						
					Bhilwaracity	Gulabpura	Gangapur	Jahajpur	Asind	Mandalgard	Shahpura
					Cement Plants						
SW4h		Use of Saniatry Landfill	[% of SW collected] / [no SLF]	No SLF	Under Construction	No SLF	No SLF	No SLF	No SLF	No SLF	No SLF
SW4i		Reclamation of old dumpsites	[initiated] /[not initiated]	initiated	Initiatedbut DMFT Fund has not	Initiated but DMFTFund has not received	Initiated but DMFT Fund has not received	Initiatedbut DMFT Fund has not	Initiatedbut DMFT Fund has not	Initiated but DMFT Fund has not received for reclamation	Initiated but DMFTFund has not received
					received for reclamation	for reclamation	for reclamation	received for reclamation	received for reclamation		for reclamation
SW4j		Linkage with Waste to Energy Boilers / Cement Plants	[initiated] /[not initiated]	Not Initiated	initiated	Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated
SW4k		Linkage with Recyclers	[initiated] /[not initiated]	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated
SW4l		Authorization of wastepickers	[initiated] / [not initiated]	Not Initiated	Initiated	Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated
SW4m		Linkage with TSDF / CBMWTF	[initiated] /[not initiated]	Initiated	Initiated	Initiated	Initiated	Not Initiated	Initiated	Initiated	Initiated
SW4n		Involvement of NGOs	[initiated] / [not initiated]	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated
SW4o		Linkage with Producers / Brand	[initiated] / [not initiated]	Initiated	Initiated	Initiated	Initiated	Not Initiated	Initiated	Initiated	Initiated

No.	Action Areas	Details of Data Requirement	Units of Measurable Outcome	Please enter Measurable Outcome for District	Bhilwara Zila						
					Bhilwaracity	**Gulabpura**	**Gangapur**	**Jahajpur**	**Asind**	**Mandalgard**	**Shahpura**
		Owners									
SW4p		Authorisation of Waste Pickers			Initiated	Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Initiated
SW4q		Issuance ofID Cards	[initiated] /[not initiated]	Not Initiated	Initiated	Not Initiated	Not Initiated	Not Initiated	Not initiated	Not Initiated	Not initiated
SW5											
SW5a		Waste Collection Trolleys	[Nos. Required] /[Nos. Available]	2244/1202	2000/1000	5	3 Available	79/79	**40/40**	20	100/80
SW5b		Mini Collection Trucks	[Nos. Required] /[Nos. Available]	85/67	75/55	Not Available	0/3	006/003	**003/006**	001/0	Not Available
SW5c		Segregated Transport	[yes] / [no] / [% area covered]	No	No	No	No	No	No	No	No
SW5d		Bulk Waste Trucks	[Nos. Required] /[Nos. Available]	14/10	10/08	Not Available	1 Required	001/001	**001/001**	1 Required	Not Available
SW5e		Waste Transfer station	[Nos. Required] /[Nos. Available] /[Not available]	139	110	Not Available	Not available	4	**25**	Not available	Not Available
SW5f		Bio-methanation units	[Nos. Required] /[Nos. Available]	Not Available	Not Available	Not Available	Not available	Not available	Not Available	Not available	Not Available
SW5h		Composting units	[Nos. Required] /[Nos. Available]	003/004	1/1	1 under construction	1/1	Not available	Not Available	1 under construction	1 Composting machine required

No.	Action Areas	Details of Data Requirement	Units of Measurable Outcome	Please enter Measurable Outcome for District	Bhilwara Zila						
					Bhilwaracity	Gulabpura	Gangapur	Jahajpur	Asind	Mandalgard	Shahpura
SW5i		Material Recovery Facilities	[used or installed] / [not available]	Not Available	Not available	Not available	Not available	Not available	Not available	Not available	Not available
SW5k		Waste to Energy (if applicable)	[Required] /[Nos. Available]	Not Available	Not Available	Not Available	Not available	Not available	Not Available	Not Available	Not Available
SW5l		Waste toRDF	[Required] /[Nos. Available]	Not Available	1/1	Not Available	Not available	Not available	Not Available	Not Available	Not Available
SW5m		Sanitary Land fills	[Nos] / [Nos. Available]	Not Available	1	Not Available	1	Not available	Not Available	Not Available	Not Available
SW5n		Capacity of sanitary landfills	[MT] / / [Nos. Available]	Not Available	25000/1	Not Available	Not Available	Not available	Not Available	Not Available	Not Available
SW5o		Waste Deposit Centers (DHW)	[Nos] / [Nos. Available]	Not Available	1/1	Not Available	Not available	Not available	Not Available	Not Available	Not Available
SW5p		Other facilities	[give or select fromlist]	Not Available	Not Available	Not available	Not Available	Not available	Not Available	Not Available	1 DumpSite
SW6	Notification and Implementation of By-Laws										
SW6a		Notification of By-laws	[done] / [in progress] /[not initiated]	Done	Done	Done	Done	Done	Done	Done	Done
SW6b		Implementation of by-laws	[done] / [in progress] /[not initiated]	In Progress	In Progress	In progress	In progress	In progress	In progress	In progress	In progress
SW7	Adequacy of Financial Statusof ULB										
SW7a		CAPEX Required	[INR] / [Not required]	10,35,00,000	6,00,00,000	2,50,00,000	2,50,00,000	2.5 crore	**1,00,00,000**	**2,00,00,000**	2,50,00,000

No.	Action Areas	Details of Data Requirement	Units of Measurable Outcome	Please enter Measurable Outcome for District	Bhilwara Zila						
					Bhilwaracity	**Gulabpura**	**Gangapur**	**Jahajpur**	**Asind**	**Mandalgard**	**Shahpura**
SW7 b		OPEX	[INR per Year] / [% of requirement]	6,55,00,000	4,50,00,000	50,00,000	50% Required	50% Required	**50,00,000**	95,00,000	50,00,000
SW7 c		Adequacy of OPEX	[Yes] / [No]	No	No	No	No	No	**No**	No	No

1.0 Waste Management Plan											
(ii) Plastic Waste Management (for each ULB)											
No.	Action Areas	Details of Data Requirement	Measurable Outcome	Please enter Measurable Outcome for District	Bhilwara Zila						
					Bhilwaracity	Gulabpura	Gangapur	Jahajpur	Asind	Mandalgard	Shahpura
	Name of ULB		[name ofULB]		Municipal Council Bhilwara	Municipal Board Gulabpura	Municipal Board Gangapur		Municipal Board Asind	Municipal Board Mandalgarh	Municipal Board Shahpura
	Population		[Nos as per 2011 census]	127353	3,59,483	27215	18777	20586	16611	13844	30320
PW1	Inventory of plastic waste generation										
PW1 a		Estimated Quantity of plastic waste generated in District	[MT/day] / [Not Estimated]	7.2	5	0.28	0.24	1	0.2	0.24	0.24

PW2	Implementation of Collection										
PW2 a		Door to Door collection	[100%] / [partial %] / [not initiated]	100%	100%	100%	100%	100%	100%	100%	100%
PW2 b		Segregated Waste collection	[100%] / [partial %]	0%	15 %	0%	0%	0%	0%	0%	0%
PW2 c		Plastic waste collection at Material Recovery Facility	[MRF used] / [not installed]	MRF install	Not Installed, Because Processing Plant Exists	MRF installed and Work is under process	Installed		55 % Work Completed	Installed	MRF installed and Work is under process
PW2 d		Authorization of PW	[Nos] / [not initiated]	Not Initiated	102	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated
		pickers									
PW2 e		PW collection Centers	[Nos] / [not established]	not established	not established	not established	MRF	not establised	not established	MRF	not established
PW3	Establishment of linkage with Stakeholders										
PW3 a		Established linkage with PROs of Producers	[Nos] / [not established]	not established	Not Establis hed	Not Established	Not Established	Not establised	Not Established	Not Established	Not Established
PW3 b		Established linkage with NGOs	[Nos] / [not established]	not established	Not Established	Not Established	Not Established	Not establised	Not Established	Not Established	Not Established
PW4	Availability of facilities for Recycling or utilization of PW -										
PW4 a		No. of PW recyclers	[Nos]	0	0	0	0		0	0	0
PW4 b		No Manufacturers	[Nos]	0	0	0	0		0	0	0
PW4 c		No of pyrolysis oilplants	[Nos]	0	0	0	0		0	0	0
PW4 d		Plastic pyrolysis	[Quantity in MT sent per	0	0	0	0		0	0	0

			Month]								
PW4e		Use in road making	[Quantity MT used per Month]	0	0	0	0		0	0	0
PW4f		Co- processing inCement Kiln	[Quantity in MT sent per Month]	0.507	Till now 830Kg	52 kg	Total 195 KG Send till 26.10.2020	50 KG Sent	107.5 KG	27.5 Kg	35 kg
W5	Implementation of PW Management Rules, 2016										-
W5a		Sealing of units producing <50-micron plastic	[All sealed] / [Partial] / [no action]	All sealed	Partial	All sealed	All sealed	All sealed	Partial	All sealed	All Sealed
PW5b		Prohibiting sale of carrybags < 50 micron	[Prohibited] / [Partial] / [no action]	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited
PW5c		Ban on Carry bags and other single use plastics as notified by	[Implemented] / [Partial] /[no action] / [No Ban]	Implemented	Implemented	Implemented	Implemented	Implemeted	Implemented	Implemented	Implemented
		State Government									
PW6	Implementation of ExtendedProducers Responsibility (EPR) through Producers / Brand-owners-										
PW6a		No of Producers associated with ULBs	[Nos] / [None]	None	None	None	None	None	None	None	None
PW6b		Financial support by Producers / Brand owners to ULBs	[Nos] / [None]	None	None	None	None	None	None	None	None
PW6c		Amount of PRO Support	[Rs…]	None	None	None	None	None	None	None	None
PW6		Infrastructure	[Nos of	None	None	None	None	None	None	None	None

d		support by Producers / Brand owners to ULBs	Producers] / [None]								
PW6e		No of collection centers established by Producers / Brand owners toULBs	[Nos] / [None]	None	None	None	None	None	None	None	None

1.0 Waste Management Plan

(iii) C&D Waste Management

No.	Action Areas	Details of Data Requirement	Measurable Outcome	Please enter Measurable Outcome for District	Bhilwara Zila						
					Bhilwara City	**Gulabpura**	**Gangapur**	**Jahajpur**	**Asind**	**Mandalgard**	**Shahpura**
	Name of ULB		[name ofULB]		Municipal Council Bhilwara	Municipal Board Gulabpura	Municipal Board Gangapur		Municipal Board Asind	Municipal Board Mandalgarh	Municipal Board Shahpura
	Population		[Nos as per 2011 census]	127353	3,59,483	27215	18777	20586	16611	13844	30320
CD1	Inventory of C&D waste generation										
CD1a		Estimated	[Kg/Day] /		3000	500	[Not	500	1000	500	500
		Quantity	[Not estimated]	6000			estimated]				
CD2	Implement scheme for permitting bulk wastegenerators										
CD2a		Issuance of Permissions by ULBs	[Initiated] / [Not initiated]	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated
CD3	Establishment of C&D Waste Deposition centers										
CD3a		Establishment of Deposition Points	[Yes] / [No]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CD3b		C&D Deposition point identified	[Yes] / [No]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CD4	Implementation of By-Laws for CD Waste Management										
CD4a		Implementation of By-laws	[notified] / [not notified]	Notified	Notified	Notified	not notified	Notified	Notified	not notified	Notified
CD4b		Collection of Deposition / disposal Charges	[Initiated] / [Not initiated]	Not initiated	Initiated	Not initiated	Not initiated	Not initiated	Initiated	Not initiated	Not initiated
CD5	Establishment of C&D Waste recycling plant or linkage with										-

No.	Action Areas	Details of Data Requirement	Measurable Outcome	Please enter Measurable Outcome for District	Bhilwara Zila						
					Bhilwara City	Gulabpura	Gangapur	Jahajpur	Asind	Mandalgard	Shahpura
	such facility										
CD5a		Establishment CD Waste Recycling Plant	[Established] / [Sent to shared Facility] / [No facility exists]	No facility exists	No facility exists	No facility exists	No facility exists	No facility exists	No facility exists	No facility exists	No facility exists
CD5b		Capacity of CD Waste Recycling Plant	[MT/Day] /[Not available]	Not available	Not available	Not available	Not available	Not available	Not available	Not available	Not available

(iv) Biomedical Waste Management

No.	Action Areas	Details of Data Requirement	Measurable Outcome	Please enter Measurable Outcome for District	Bhilwara City	Gulabpura	Gangapur	Jahajpur	Asind	Mandalgard	Shahpura
	Name of ULB		[name ofULB]		Municipal Council Bhilwara	Municipal Board Gulabpura	Municipal Board Gangapur		Municipal BoardAsind	Municipal Board Mandalgarh	Municipal Board Shahpura
	Population		[Nos as per 2011								
			census]								
BMW1	Inventory of Biomedical Waste Generation										
BMW1a		Total no. of Bedded Hospitals	[Nos] / [No inventory]	139	**87**	**5**	**2**	**12**	**12**	**12**	**9**

No.	Action Areas	Details of Data Requirement	Measurable Outcome	Please enter Measurable Outcome for District	Bhilwara City	Gulabpura	Gangapur	Jahajpur	Asind	Mandalgard	Shahpura
BMW1b		Total no. of non-bedded HCF	[Nos] / [No inventory]	31	**29**	**1**	**1**	**0**	**0**	**0**	**0**
BMW1c		Total no. Clinics	[Nos] / [No inventory]	14	**11**	**1**	**1**	**0**	**0**	**1**	**0**
BMW1d		No of Veterinary Hospitals	[Nos] / [No inventory]	1	**1**	**0**	**0**	**0**	**0**	**0**	**0**
BMW1e		Pathlabs	[Nos] / [No inventory]	21	**13**	**2**	**2**	**1**	**1**	**0**	**2**
BMW1f		Dental Clinics	[Nos] / [No inventory]	1	**1**	**0**	**0**	**0**	**0**	**0**	**0**
BMW1g		Blood Banks	[Nos] / [No inventory]	1	**1**	**0**	**0**	**0**	**0**	**0**	**0**
BMW1h		Animal Houses	[Nos] / [No inventory]	0	**0**	**0**	**0**	**0**	**0**	**0**	**0**
BMW1i		Bio-research Labs	[Nos] / [No inventory]	0	**0**	**0**	**0**	**0**	**0**	**0**	**0**
BMW1j		Others	[Nos] / [No inventory]	0	**0**	**0**	**0**	**0**	**0**	**0**	**0**
BMW2	Authorization of HCFs by SPCBs / PCCs										
BMW2a		Bedded HCFs	[Nos Authorized]	127	**79**	**4**	**2**	**11**	**10**	**12**	**9**
BMW2b		Non-bedded HCFs	[Nos Authorized]	24	**22**	**1**	**1**	**0**	**0**	**0**	**0**
BMW3a	Biomedical Waste Treatment and Disposal Facilities (CBMWTFs)										

No.	Action Areas	Details of Data Requirement	Measurable Outcome	Please enter Measurable Outcome for District	Bhilwara City	Gulabpura	Gangapur	Jahajpur	Asind	Mandalgard	Shahpura
BMW3a		No of CBMWTFs	[Nos] / None	None	None	None	None	None	None	None	None
BMW3b		Linkage with CBMWTFs	[Yes] / [no linkage]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BMW3c		Capacity of CBMWTFs	[Adequate] / [Not adequate]	Not adequate	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
BMW3d		Requirements of CBMWTFs	[Require] / [not required]	required	Require	not required	not required	not required	not required	not required	not required
BMW3e		Captive Disposal Facilities of HCFs	[Nos] / [None]	63 (Deep Burial Pits)	33 (Deep Burial Pits)	1(DeepBurial Pits)	1(DeepBurial Pits)	10(Deep Burial Pits)	6(DeepBurial Pits)	6(Deep Burial Pits)	6(Deep Burial Pits)
BMW4	Compliance by CBMWTFs										
BMW4a		Compliance to standards	[Meeting] / [Not meeting] / [NA]								
BMW4b		Barcode tracking byHCFs / CBMWTFs	[100%] / [Partly %] / [None]	Partly	Partly	Partly	Partly	Partly	Partly	Partly	Partly
BMW4c		Daily BMW lifting by CBMWTFs	[Kg / day]	4480 Kg	Approx. 640.0 KG	Approx. 640.0 KG	Approx. 640.0 KG	Approx. 640.0 KG	Approx. 640.0 KG	Approx. 640.0 KG	Approx. 640.0 KG
BMW5	Status of Compliance by Healthcare Facilities										
BMW5a		Pre- segregation	[100%] / [partly %] / [None]	100%	100%	100%	100%	100%	100%	100%	100%
BMW5b		Linkage with CBMWTFs	[100%] / [partly %] / [None]	Partly	Partly	Partly	Partly	Partly	Partly	Partly	Partly

(v) Hazardous Waste Management

No.	Action Areas	Details of Data Requirement	Measurable Outcome	Please enter Measurable Outcome for District
HW1	Inventory of Hazardous Waste			
HW1a		No of HW Generating Industry	[Nos.]	42
HW1b		Quantity of HW	[MT/Annum]	34254.62
HW1c		Quantity of Incinierable HW	[MT/Annum]	28447.28
HW1d		Quantity of land-fillable HW	[MT/Annum]	2718.35
HW1e		Quantity of Recyclable / utilizableHW	[MT/Annum]	3088.99
HW2	Contaminated Sites and illegal industrial hazardous waste dumpsites			
HW2a		No of HW dumpsites	[Nos] / [None]	Nil
HW2c		Probable Contaminated Sites	[Nos] (provide list)	1
HW3	Authorization by SPCBs/PCCs			
HW3a		No of industries authorized	[Nos]	42
HW3b		Display Board of HW Generation in front of Gate	[Nos]	42
HW3	Availability of Common Hazardous Waste TSDF			
HW3a		Common TSDF	[Exists] / [No] / [Sent to Other District within State]	Nil
HW3b		Industries linkage with TSDF	[Nos.]	8
HW4	Linkage of ULBs in District with Common TSDF			
HW4a		ULBs linked to Common TSDFs for Domestic Hazardous Waste	[Yes] / [No]	No

(vi) E-Waste Waste Management

No.	Action Areas	Details of Data Requirement	Measurable Outcome	Please enter Measurable Outcome for District
EW1	Status of facilitating authorized collection of E-Waste			
EW1a		Does the citizen are able to deposit or provide E-Waste through Toll-free Numbers in the District	[Yes] / [No]	No
EW1c		Collection centers established by ULB in District	[Nos] / [None]	None
EW1d		Collection centers established by Producers or their PROs in the District	[Nos] / [None]	None
EW1e		Does the district has linkage with authorized E-Waste recyclers / Dismantler	[Yes] / [No]	No
EW1f		No authorized E-Waste recyclers / Dismantler	[Nos] / [None]	None
EW2	Status of Collection of E-Waste			
EW2a		Authorizing E-Waste collectors	[Authorized] / [None]	None
EW2b		Involvement of NGOs	[Yes] / [No] / [Nos]	No
EW2c		Does Producers have approached NGOs/ InformalSector for setting up Collection Centers.	[Yes] / [No] /[Nos]	No
EW2d		Does ULBs have linkage with authorized Recyclers / Dismantlers	[Yes] / [No]	No
EW4	Control E-Waste related pollution			
EW4a		Does informal trading, dismantling, and recycling of e-waste exists in District	[Yes] / [No]	No
EW4b		Does the administration closed illegal E-Waste recyclingin the District	[Yes] / [No] /[Nos]	No
EW4c		No of actions taken to close illegal trading or processingof E-Waste	[Nos]	0
EW5	Creation of Awareness on E-Waste handling and disposal			
EW5a		Does PROs / Producers conducted any District level Awareness Campaigns	[Yes] / [No] / [Nos]	No
EW5c		Does District Administration conducted any District level Awareness Campaigns	[Yes] / [No] /[Nos]	No

2.0 Water Quality Management Plan

No.	Action Areas	Details of Data Requirement	Measurable Outcome	Please enter Measurable Outcome for District
WQ1	Inventory of water resources in District			
WQ1a		Rivers	[Nos] and [Length in Km]	8 (532)
WQ1b		Length of Coastline	[in Km]	532
WQ1c		Nalas/Drains meeting Rivers	[Nos]	49 (WRD)
WQ1d		Lakes / Ponds	[Nos] and [Area inHectares]	445 (60 WRD,385 P.S. Tank), C.C.A. 128323 Hectare (WRD C.C.A.-92542 Hectare, P.s. C.C.A.- 35781 Hectare)
WQ1e		Total Quantity of sewage and industrial discharge in District	[Automatic] (SW1a+IW1b)	
	Control of Groundwater Water Quality			
WQ2a		Estimated number of bore-wells	[Nos]	4517 (Agriculture Use
WQ2b		No of permissions given for extraction of groundwater	[Nos]	3624 (as on April 2018)
WQ2c		Number of groundwater polluted areas	[Nos]	Not area of study
WQ2d		Groundwater Availability	[adequate] / [notadequate]	Adequate to inadequatedepending upon site apecific hydrogeologicalformation encountered and ratio of rainfall recharge intensity
WQ3	Availability of Water Quality Data			
WQ3a		Creation of monitoring cell	[Yes] / [No]	Yes
WQ3b		Access to Surface water and groundwater quality data at DM office	[Available] or [Notavailable]	Only ground water quality data is available
WQ4	Control of River side Activities			

No.	Action Areas	Details of Data Requirement	Measurable Outcome	Please enter Measurable Outcome for District
WQ4a	Control of Riverside Activities	River Side open defecation	[Fully Controlled] /[Partly controlled] /[no Measures taken]	Partly controlled
WQ4b		Dumping of SW on river banks	[Fully Controlled] /[Partly controlled] /[no Measures taken]	Partly controlled
WQ4c		Control measures for idol immersion	[Measures taken] /[Measures taken post immersion] / [No Measures taken]	Measures taken
WQ5	Control of Water Pollution in Rivers			
WQ5a		Percentage of untreated sewage	[%] (automatic SM1g/SM1a)	
WQ5b		Monitoring of Action Plans for Rejuvenation of Rivers	[Monitored] / [Notmonitored] [not applicable]	Monitored
WQ5c		No of directions given to industries for Discharge of Untreated industrialwastewater in last 12 months	[Nos]	Nil
WQ6	Awareness Activities			
WQ6a		District level campaigns on protection of water quality	[Nos in previous year]	Nil
WQ6b	Oil Spill Disaster Contingency Plan			
WQ6a		Creation of District Oil Spill Crisis Management Group	[Created] / [Not Created]	Not Created
WQ6b		Preparation District Oil Spill Disaster Contingency Plan	[Prepared] / [Not Prepared]	Not Prepared
WQ7	Protection of Flood plains			
WQ7a		Encroachment of flood plains is regulated.	[Yes] / [No]	Yes
	Rainwater Harvesting			
WQ8a		Action plan for Rain water harvesting	[Implemented] / [Not implemented]	Implemented

3.0 Domestic Sewage Management Plan

No.	Action Areas	Details of DataRequirement	Measurable Outcome	Please enter Measurable Outcome for District	Bhilwara Zila						
					BhilwaraCity	Gulabpura	Gangapur	Jahajpur	Asind	Mandalgard	Shahpura
SM1	Inventory of Sewage Management					NA	Nil		Nil	Nil	NA
SM1a		Total Quantity of Sewage generated in District from Class II cities and above	[MLD]	Approx. 40MLD	35MLD	NA	Nil		Nil	Nil	NA
SM1b		No of Class-II towns and above	[Nos]	0	NA	NA	Nil		Nil	Nil	NA
SM1c		No of Class-I towns and above	[Nos]	1	1	NA	Nil		Nil	Nil	NA
SM1d		No of Towns needing STPs	[Nos]	3	1	Na	Nil		Nil	Nil	2 STP Proposed
SM1e		No of Towns STPs installed	[Nos]	1+1 (Under construction)	1, (10 MLDby RUIDP with the helpof Zindal Steel ; Working)	NA	Nil		Nil	Nil	2 STP Proposed
SM1f		Quantity of treated sewage flowing into Rivers (directly or indirectly)	[MLD]	NA	Nil	NA	Nil		Nil	Nil	NA
SM1g		Quantity of untreated or partially treated sewage (directly or indirectly)	[Automatic]	23.53 MLD	716 ML per month	NA	Nil		Nil	Nil	NA
SM1h		Quantity of sewage flowinginto lakes	[MLD]	NA	NA	NA	Nil		Nil	Nil	NA

SM1i		No of industrial townships	[Nos]	NA	NA	NA	Nil		Nil	Nil	NA
SW2	Adequacy of Available Infrastructure for SewageTreatment					-	Nil		Nil	Nil	-
SM2a		% sewage treated in STPs	[Automatic]	Approx 2.14	15	NA	Nil		Nil	Nil	NA
SM2b		Total available Treatment Capacity	[MLD]	10	10 MLD	NA	Nil		Nil	Nil	NA
SM2c		Additional treatment capacity required	[MLD]	30	30	NA	Nil		Nil	Nil	NA
SM3	Adequacy of Sewerage Network					-	Nil		Nil	Nil	-
SM3a		No of ULBs having partial underground sewerage Network	[Nos]	NA	NA	NA	Nil		Nil	Nil	NA
SM3b		No of towns not having sewerage network	[Nos]		NA	NA	Nil		Nil	Nil	NA
SM3c		% population covered under sewerage network	[Automatic]	NA	NA	NA	Nil		Nil	Nil	NA

LIST OF TREES IN BHILWARA DISTRICT			
S.No	**Scientific name**	**Hindi name**	**Family**
1	*Acacia leucophloea*	र झ, अरूँ झया	Mimosaceae
2	*Acacia nilotica*	बबूल	Mimosaceae
3	*Acacia senegal*	कु मठा, खैरी	Mimosaceae
4	*Acacia tortilis*	इजराइली बबूल	Mimosaceae
5	*Aegle marmelos*	बेल	Rutaceae
6	*Ailanthus excelsa*	अरडू ,	Simarubaceae
7	*Albizia lebbeck*	ि र ि	Mimosaceae
8	*Anogeissus latifolia*	धावडा	Combretaceae
9	*Anogeissus pendula*	ध क	Combretaceae
10	*Azadirachta indica*	नीम	Meliaceae
11	*Bauhinia racemosa*	झीझ ा	Caesalpiniaceae
12	*Bauhinia variegata*	कचनार	Caesalpiniaceae
13	*Bombax ceiba*	ि ेमल	Bombacaceae
14	*Boswellia serrata*	ि ालर	Burseraceae
15	*Butea monosperma*	खाखरा ,पला ि, छीला, ढाक	Fabaceae
16	*Cassia fistula*	अमलत ा ि	Caesalpiniaceae
17	*Cordia dichotoma*	लि डा	Ehretiaceae
18	*Dalbergia sissoo*	शीशम	Fabaceae
19	*Delonix regia*	गुलम हर	Caesalpiniaceae
20	*Eucalyptus* species	न ीलग रर , ि फे दा	Myrtaceae
21	*Ficus benghalensis*	वडला बड ,बरगद	Moraceae

22	*Ficus racemosa*	गुलर , उमर	Moraceae
23	*Ficus religiosa*	पीपल	Moraceae
24	*Holoptelea integrifolia*	चुरै ल पापडी	Ulmaceae
25	*Jacaranda mimosaefolia*	जकरन्डा	Bignoniaceae
26	*Mangifera indica*	आम	Anacardiaceae
27	*Melia azedarach*	बकायन	Meliaceae
28	*Moreus alba*	शहतूत	Moraceae
29	*Moringa concanensis*	ङहगवा, ि ैंजना	Moringaceae
30	*Phoenix sylvestris*	खजूर	Arecaceae
31	*Phyllanthus emblica*	ऑवला	Euphorbiaceae
32	*Pongamia pinnata*	करज	Fabaceae
33	*Prosopis cineraria*	खेजडी	Mimosaceae
34	*Salvadora oleoides*	पीलु ,खाराजाल	Salvadoraceae
35	*Salvadora persica*	पीलु ,मीठाजाल	Salvadoraceae
36	*Syzygium cumini*	जामुन	Myrtaceae
37	*Tamarindus indica*	इमली	Caesalpiniaceae
38	*Tecomella undulata*	र ङहडा	Bignoniaceae
39	*Wrightia tinctoria*	ङखरनी, दू धी ,	Apocynanceae
40	*Ziziphus xylopyrus*	घटब र	Rhamnaceae

LIST OF SHRUBS IN BHILWARA DISTRICT			
S.No	**Scientific name**	**Hindi name**	**Family**
1	*Adhatoda vasica*	अडू ि ा	Acanthaceae
2	*Annona squamosa*	ि ीताफल	Annonaceae
3	*Balanites aegyptiaca*	ङहग ट	Simaroubaceae
4	*Calligonum polygonides*	फ ग	Polygonaceae
5	*Calotropis gigantea*	औकड ा ङशवआक	Asclepiadaceae
6	*Calotropis procera*	औकडा	Asclepiadaceae
7	*Copparis decidua*	कै र	Capparaceae
8	*Carissa spinarum*	कर न्दा	Apocynaceae
9	*Commiphora wighti*	गुगल	Burseraceae
10	*Emblica officinalis*	आँवला	Euphorbiaceae
11	*Euphorbia nivulia*	घ टाथौर थ र	Euphorbiaceae
12	*Grewia tenax*	ग ंगि ी, गग ड न, गग रन	Tiliaceae
13	*Helicteres isora*	मर डफली	Sterculiaceae
14	*Ipomoea fistulosa*	ब शम ,ग ाड ा ,रखड ा	Convolvulaceae
15	*Jatropha curcas*	रतनज त	Euphorbiaceae
16	*Jatropha jatrophagossypifolia*	रतनज ती	Euphorbiaceae
17	*Leptadenia Pyrotechnica*	खीप खीम्परा	Asclepiadaceae
18	*Nyctanthes arbor-eristis*	टामट ह ारङि ग ार	Oleaceae
19	*Ocimum gratissimum*	वन तुलि	Lamiaceae
20	*Opuntia dillenii*	नागफनी थापाथ र	Cactaceae
21	*Parkinsonia aculeate*	प ाङकन ि ङनया	Caespiniaceae
22	*Prosopis juliflora*	ङवलायती बब ूल	Mimosaceae
23	*Rhus mysurensis*		Anacardiaceae
24	*Tamarix ericoides*	झाउ	Tamaricaceae
25	*Tephrosia purpurea*	धम्मा ि ा	Combretaceae
26	*Xanthium strumarium*	ऑधीड ा आधाश ीश ी ङचरङचटा	Asteraceae
27	*Ziziphus mauritiana*	बडाब र ब र	Rhamnaceae
28	*Ziziphus nummularia*	चणबौर ,झाडी बैर	Rhamnaceae

LIST OF HERBS IN BHILWARA DISTRICT			
S.No	**Scientific name**	**Hindi name**	**Family**
1	*Acanthospermum hispidum*	काूँटी	Asteraceae
2	*Achyranthes aspera*	ऑधी जाडा, ऊँगा	Amaranthaceae
3	*Aerva javanica*	बुइ	Amaranthaceae
4	*Alhagi maurorum*	जवाि ा	Fabaceae
5	*Aloe vera*	ग्वारपाठा	Liliaceae
6	*Argemone mexicana*	ित्यानाि ी पीला, धतुरा	Papaveraceae
7	*Bouganvila*	ब गनझवला	Nyctaginaceae
8	*Calotropis procera*	आक	Apocynaceae
9	*Datura fastuosa*	का धतुरा	Solanaceae
10	*Darura innoxia*	धतूरा	Solanaceae
11	*Digera muricota*	खजर	Amaranthaceae
12	*Dodonea viscose*	रे ीलया	Sapindaceae
13	*Echinops echinatus*	उटॅकटेली	Asteraceae
14	*Euphorbia chamaesyce*	दुधी	Euphorbiaceae
15	*Euphorbia granulata*	दू धेली	Euphorbiaceae
16	*Fagonia indica*	धमाि ा	Zygophyllaceae
17	*Hacoustia indica*	काकू ण	
18	*Parthenium hysterophorus*	गाजर घा	Asteraceae
19	*Solanum nigrum*	मक य ,ीचरप टी	Solanaceae
20	*Tribulus terrestris*	ग खर	Zygophyllaceae
21	*Tridax procumvbens*	कु मर ,रक्तास्तम्भी	Asteraceae
22	*Typha angustata*	एरा-पटेरा	Typhacece
23	*Typha elephantina*	एरा	Typhaceae
24	*Withania somnifera*	अिगन्ध	Solanaceae

LIST OF CLIMBERS IN BHILWARA DISTRICT			
S.No	**Scientific name**	**Hindi name**	**Family**
1	*Asparagus racemosus*	नाहरकाटा,	Liliaceae
2	*Cryptostegia grandiflora*	दूधी , रबड बेल	Periplocaceae
3	*Cuscuta hylina*	अमर बेल	Cuscutaceae
4	*Cuscuta reflexa*	अमर बेल	Cuscutaceae
5	*Mucuna pruriens*	केे मच , कौच	Fabaceae
6	*Tinospora cordifolia*	नीम ग़िल य	Menispermaceae
7	*Vallaris solanaceae*	दूधी बेल	Apocynaceae

LIST OF GRASSES IN BHILWARA DISTRICT			
S.No	**Scientific name**	**Hindi name**	**Family**
1	*Cenchrus setigerus*	धामण	Poaceae
2	*Cynodon dactylon*	दूब	Poaceae
3	*Dichanthium annulatum*	करड	Poaceae
4	*Dichanthium foveolatum*	बुहारी	Poaceae
5	*Heteropogon contortus*		Poaceae
6	*Imperata cylindrica*	दाब	Poaceae
7	*Saccharum munja*	मज	Poaceae
8	*Saccharum spontaneum*	कॉि	Poaceae

LIST OF MAMMALS IN BHILWARA DISTRICT			
S.No	**Scientific name**	**Common Hindi Name**	**Common English Name**
1	*Boselaphus tragocamelus*	नील गाय (राजेडा)	Blue Bull or Nilgai
2	*Mecaca Multta*	बन्दर	Rhesus macaque Monkey
3	*Presbytis entellus*	लगूर	Langur, Hanuman Monkey
4	*Felis chaus*	जगली इबल्ली	Jungle Cat
5	*Herpestes edwerdsi*	नेवला	Indian Grey Mongoose
6	*Paradoxarus hermaphroditus*	इबज्जू	Common Palm Civet
7	*Hystrix indica (kerr)*	िेही	Indian porcupine
8	*Hemiecanus auritus*	झाऊ चूहा	Long Eared Hedge hog
9	*Lepus nigricollis*	खरग श	Indian Hare
10	*Canis aureus (Linn)*	इियार/ गीदड	Golden Jackal
11	*Vulpes bengalensis*	ल मडी	Indian Fox
12	*Hyaena hyaena (Linn*	जरख	Striped Hyaena
13	*Canis lupus*	भेइडया	Indian Wolf
14	*Funambulus pennanti*	इगलहरी	Five striped palm Squirrel
15	*Rattus rattus*	चूहा	Common House Rat
16	*Megaderma lyra*	चमगादड	Indian Falsa Vampire Bat
17	*Pteropus giganteus*		Indian Flying Fox Bat
18	*Panthera pardus fusca*	तेंदुआ	Panther
19	*Sus scrofa*	जगली िूअर	Wild bore

LIST OF BIRDS IN BHILWARA DISTRICT

S. No.	Order	Family	Common name	Scientific name
1	Accipitriformes	Accipitridae	Black winged kite	*Elanus axillaris*
2	Accipitriformes	Accipitridae	Black kite	*Milvus migrans*
3	Accipitriformes	Accipitridae	Shikra	*Accipiter badius*
4	Accipitriformes	Accipitridae	Oriental honey buzzard	*Pernis ptilorhynchus*
5	Accipitriformes	Accipitridae	White eyed buzzard	*Butastur teesa*
6	Accipitriformes	Accipitridae	Eurassian Marsh herrier	*Ciircus aeruginosus*
7	Accipitriformes	Accipitridae	Egyptian vulture	*Neophron percnopterus*
8	Accipitriformes	Accipitridae	Montagu's harrier	*Circus pygargus*
9	Accipitriformes	Accipitridae	Long leg buzzard	*Buteo rufinus*
10	Accipitriformes	Accipitridae	Steppe eagle	*Aquila nipalensis*
11	Accipitriformes	Accipitridae	Common buzzard	*Buteo buteo*
12	Accipitriformes	Pandionidae	Osprey	*Pandion haliaetus*
13	Anseriformes	Anatidae	Bar headed goose	*Anser indicus*
14	Anseriformes	Anatidae	Ruddy Shelduck	*Tadorana ferruginea*
15	Anseriformes	Anatidae	Common pochard	*Aythya ferina*
16	Anseriformes	Anatidae	Ferrogenous pochard	*Aythya nyroca*
17	Anseriformes	Anatidae	Greylag goose	*Anser anser*
18	Anseriformes	Anatidae	Knob billed duck	*Sarkidiornis melanotos*
19	Anseriformes	Anatidae	Lesser wisteling duck	*Dendrocygna javanica*
20	Anseriformes	Anatidae	Northern Pintail	*Anas acuta*
21	Anseriformes	Anatidae	Common teal	*Anas crecca*
22	Anseriformes	Anatidae	Spot billed duck	*Anas poecilorhyncha*
23	Anseriformes	Anatidae	Mallard	*Anas platyrhynchos*
24	Anseriformes	Anatidae	Gadwall	*Anas strepera*
25	Anseriformes	Anatidae	Garganey	*Anas querquedula*
26	Anseriformes	Anatidae	Northern shoveler	*Anas clypeata*
27	Apodiformes	Apodidae	House swift	*Apus affinis*
28	Bucerotiformes	Upupidae	Common hoopoe	*Upupa epops*
29	Bucerotiformes	Bucerotidae	Indian grey hornbill	*Ocyceros birostris*

S. No.	Order	Family	Common name	Scientific name
30	Charadriiformes	Burhinidae	Great thick knee	*Esacus recurvirostris*
31	Charadriiformes	Burhinidae	Indian thick knee	*Burhinus oedicnemus*
32	Charadriiformes	Charadriidae	Kentish Plover	*Charadrius alexandrinus*
33	Charadriiformes	Charadriidae	Little Ringed Plover	*Charadrius dubius*
34	Charadriiformes	Charadriidae	Red wattled lapwing	*Vanellus indicus*
35	Charadriiformes	Charadriidae	Yellow wattled lapwing	*Vanellus malabaricus*
36	Charadriiformes	Glareolidae	Small pratincole	*Glareola lacteal*
37	Charadriiformes	Laridae	Black headed gull	*Chroicocephalusridibundus*
38	Charadriiformes	Laridae	Brown Headed Gull	*Chroicocephalus brunnicephalus*
39	Charadriiformes	Laridae	Gull billed tern	*Gelochelidon nilotica*
40	Charadriiformes	Laridae	Pallas gull	*Ichthyaetus ichthyaetus*
41	Charadriiformes	Laridae	River tern	*Sterna aurantia*
42	Charadriiformes	Laridae	Whiskered tern	*Chlidonias hybrid*
43	Charadriiformes	Recurvirostridae	Black winged stilt	*Himantopus himantopus*
44	Charadriiformes	Recurvirostridae	Pied avocet	*Recurvirostra avosetta*
45	Charadriiformes	Rostratulidae	Greater painted snipe	*Rostratula benghalensis*
46	Charadriiformes	Scolopacidae	Black tailed godwit	*Limosa limosa*
47	Charadriiformes	Scolopacidae	Common Sandpiper	*Actitis hypoleucosa*
48	Charadriiformes	Scolopacidae	Little stint	*Calidris minuta*
49	Charadriiformes	Scolopacidae	Ruff	*Calidris pugnax*
50	Charadriiformes	Scolopacidae	Common snipe	*Gallinago gallinaggo*
51	Charadriiformes	Scolopacidae	Spotted redshank	*Tringa erythropus*
52	Charadriiformes	Scolopacidae	Common redshank	*Tringa tetanus*
53	Charadriiformes	Scolopacidae	Green sandpiper	*Tringa ochropus*
54	Charadriiformes	Scolopacidae	Wood sandpiper	*Tringa glareola*
55	Charadriiformes	Scolopacidae	Temminck's stint	*Calidris temminckii*
56	Charadriiformes	Scolopacidae	Curlew sandpiper	*Calidris ferruginea*
57	Charadriiformes	Turnicidae	Barred button quail	*Turnix suscitator*
58	Ciconiiformes	Ciconiidae	Asian openbill	*Anastomus oscitans*
59	Ciconiiformes	Ciconiidae	Painted stork	*Mycteria leucocephala*

S. No.	Order	Family	Common name	Scientific name
60	Ciconiiformes	Ciconiidae	Wolly necked stork	*Ciconia episcopus*
61	Columbiformes	Columbidae	Blue rock dove	*Columba livia*
62	Columbiformes	Columbidae	Laughing Dove	*Spilopelia senegalensis*
63	Columbiformes	Columbidae	Spotted dove	*Spilopelia chinensis*
64	Columbiformes	Columbidae	Red-collared dove	*Streptopelia tranquebarica*
65	Columbiformes	Columbidae	Eurasian collerd dove	*Streptopelia decaocto*
66	Columbiformes	Columbidae	Yellow footed green pegion	*Treron phoenicoptera*
67	Coraciiformes	Alcedinidae	Common kingfisher	*Alcedo atthis*
68	Coraciiformes	Alcedinidae	Pied kingfisher	*Ceryle rudis*
69	Coraciiformes	Alcedinidae	White throated kingfisher	*Halcyon smyrnensis*
70	Coraciiformes	Coraciidae	European roller	*Coracias garrulous*
71	Coraciiformes	Coraciidae	Indian roller	*Coracias benghalensis*
72	Coraciiformes	Meropidae	Green bee eater	*Merops orientalis*
73	Coraciiformes	Meropidae	Blue tailed bee eater	*Merops philippinus*
74	Coraciiformes	Meropidae	Blue cheekd bee eater	*Merops persicus*
75	Cuculiformes	Cuculidae	Jacobin cuckoo	*Clamator jacobinus*
76	Cuculiformes	Cuculidae	Common hwak cockoo	*Hierococcyx varius*
77	Cuculiformes	Cuculidae	Asian koel	*Eudynamys scolopaceus*
78	Cuculiformes	Cuculidae	Greater coucal	*Centropus sinensis*
79	Falconiformes	Falconidae	Commn kestrel	*Falco tinnunculus*
80	Galliformes	Phasianidae	Grey Francoline	*Francolinus pondicerianus*
81	Galliformes	Phasianidae	Common quail	*Coturnix coturnix*
82	Galliformes	Phasianidae	Rain quail	*Coturnix coromandelica*
83	Galliformes	Phasianidae	Indian peafowl	*Pavo cristatus*
84	Galliformes	Phasianidae	Rock bush quail	*Perdicula argoondha*
85	Gruiformes	Gruidae	Common crane	*Grus grus*
86	Gruiformes	Gruidae	Demoiselle crane	*Grus virgo*
87	Gruiformes	Rallidae	White breststed waterhen	*Amaurornis phoenicurus*
88	Gruiformes	Rallidae	Grey headed swamphen	*Porphyrio poliocephalus*
89	Gruiformes	Rallidae	Common moorhen	*Gallinula chloropus*

S. No.	Order	Family	Common name	Scientific name
90	Gruiformes	Rallidae	Common coot	*Fulica atra*
91	Passeriformes	Alaudidae	Indian bushlark	*Mirafra erythroptera*
92	Passeriformes	Alaudidae	Crested lark	*Galerida cristata*
93	Passeriformes	Alaudidae	Rufous tailed lark	*Ammomanes phoenicura*
94	Passeriformes	Alaudidae	Singing bushlark	*Mirafra cantillans*
95	Passeriformes	Alaudidae	Greater short toed lark	*Calandrella brachydactyla*
96	Passeriformes	Alaudidae	Ashy crowned sparrow lark	*Eremopterix griseus*
97	Passeriformes	Campephagidae	Small minivete	*Pericrocotus cinnamomeus*
98	Passeriformes	Campephagidae	Large cooku shrike	*Coracina macei*
99	Passeriformes	Certhiidae	Indian spotted creeper	*Salpornis spilonotus*
100	Passeriformes	Cisticolidae	Rufous fronted prinia	*Prinia buchanani*
101	Passeriformes	Cisticolidae	Plain prinia	*Prinia inornata*
102	Passeriformes	Cisticolidae	Ashy prinia	*Prinia socialis*
103	Passeriformes	Cisticolidae	Grey brested prinia	*Prinia hodgsonii*
104	Passeriformes	Cisticolidae	Jungle prina	*Prinia sylvatica*
105	Passeriformes	Cisticolidae	Common tailorbird	*Orthotomus sutorius*
106	Passeriformes	Corvidae	Rufous treepie	*Dendrocitta vagabunda*
107	Passeriformes	Corvidae	House crow	*Corvus splendens*
108	Passeriformes	Dicruridae	Black drongo	*Dicrurus macrocercus*
109	Passeriformes	Dicruridae	White bellied drongo	*Dicrurus caerulescens*
110	Passeriformes	Emberizidae	Crestetd bunting	*Emberiza lathami*
111	Passeriformes	Emberizidae	Red headed bunting	*Emberiza bruniceps*
112	Passeriformes	Estrildidae	Indian silverbill	*Euodice malabarica*
113	Passeriformes	Hirundinidae	Dusky crag martin	*Hirundo concolor*
114	Passeriformes	Hirundinidae	Streak throated swallow	*Hirundo fluvicola*
115	Passeriformes	Hirundinidae	Wire tailed swallow	*Hirundo smithii*
116	Passeriformes	Hirundinidae	Red Rumped Swallow	*Hirundo daurica*
117	Passeriformes	Laniidae	Bay backed shrike	*Lanius vittatus*
118	Passeriformes	Laniidae	Long tailed shrike	*Lanius schach*
119	Passeriformes	Laniidae	Southern grey shrike	*Lanius excubitor*

S. No.	Order	Family	Common name	Scientific name
120	Passeriformes	Leiothrichidae	Common babbler	*Argya caudate*
121	Passeriformes	Leiothrichidae	Large grey babbler	*Turdoides malcolmi*
122	Passeriformes	Leiothrichidae	Jungle babbler	*Argya striata*
123	Passeriformes	Motacillidae	White wagtail	*Motacilla alba*
124	Passeriformes	Motacillidae	White browed wagtail	*Motacilla maderaspatensis*
125	Passeriformes	Motacillidae	Citrine wagtail	*Motacilla citreola*
126	Passeriformes	Motacillidae	Yellow wagtail	*Motacilla flava*
127	Passeriformes	Motacillidae	Paddyfield pipet	*Anthus rufulus*
128	Passeriformes	Muscicapidae	Red-breasted flycatcher	*Ficedula parva*
129	Passeriformes	Muscicapidae	Bluethroat	*Luscinia svecica*
130	Passeriformes	Muscicapidae	Oriental magpie robin	*Copsychus saularis*
131	Passeriformes	Muscicapidae	Indian robin	*Copsychus fulicatus*
132	Passeriformes	Muscicapidae	Black redstart	*Phoenicurus ochruros*
133	Passeriformes	Muscicapidae	Common Stonechat	*Saxicola maurus*
134	Passeriformes	Muscicapidae	Desert wheatear	*Oenanthe deserti*
135	Passeriformes	Muscicapidae	Isabelline wheatear	*Oenanthe isabellina*
136	Passeriformes	Muscicapidae	Variable wheatear	*Oenanthe picata*
137	Passeriformes	Muscicapidae	Pied bushchat	*Saxicola caprata*
138	Passeriformes	Muscicapidae	Brown rockchat	*Oenanthe fusca*
139	Passeriformes	Muscicapidae	Blue rockthrush	*Monticola solitaries*
140	Passeriformes	Nectariniidae	Purple sunbird	*Cinnyris asiaticus*
141	Passeriformes	Oriolidae	Indian oreol	*Oriolus oriolus*
142	Passeriformes	Paridae	Great tit	*Parus major*
143	Passeriformes	Passeridae	Chestnut Souldered petronia	*Gymnoris xanthocollis*
144	Passeriformes	Passeridae	House sparrow	*Passer domesticus*
145	Passeriformes	Phylloscopidae	Common chiffchaff	*Phylloscopus collybita*
146	Passeriformes	Phylloscopidae	Sulphur- bellied warbler	*Phylloscopus griseolus*
147	Passeriformes	Ploceidae	Baya weaver	*Ploceus philippinus*
148	Passeriformes	Pycnonotidae	White eared bulbul	*Pycnonotus leucotis*
149	Passeriformes	Pycnonotidae	Red vented bulbul	*Pycnonotus cafer*

S. No.	Order	Family	Common name	Scientific name
150	Passeriformes	Rhipiduridae	White browed fantail	*Rhipidura aureola*
151	Passeriformes	Stenostiridae	Grey headed canery flycatcher	*Culicicapa ceylonensis*
152	Passeriformes	Sturnidae	Brahminy starling	*Sturnia pagodarum*
153	Passeriformes	Sturnidae	Asian pied starling	*Gracupica contra*
154	Passeriformes	Sturnidae	Common starling	*Sturnus vulgaris*
155	Passeriformes	Sturnidae	Rosey starling	*Pastor roseus*
156	Passeriformes	Sturnidae	Common myna	*Acridotheres tristis*
157	Passeriformes	Sturnidae	Bank myna	*Acridotheres ginginianus*
158	Passeriformes	Sylviidae	Lesser white throat	*Sylvia curruca*
159	Passeriformes	Sylviidae	Yellow Eyed Babbler	*Chrysomma sinense*
160	Passeriformes	Vangidae	Common woodshrike	*Tephrodornis pondicerianus*
161	Passeriformes	Zosteropidae	Oriental white eye	*Zosterops palpebrosus*
162	Pelecaniformes	Ardeidae	Cattle egret	*Bubulcus ibis*
163	Pelecaniformes	Ardeidae	Little egret	*Egretta garzetta*
164	Pelecaniformes	Ardeidae	Intermediate egret	*Ardea intermedia*
165	Pelecaniformes	Ardeidae	Great egret	*Ardea alba*
166	Pelecaniformes	Ardeidae	Indian pond heron	*Ardeola grayii*
167	Pelecaniformes	Ardeidae	Purple Heron	*Ardea purpurea*
168	Pelecaniformes	Ardeidae	Grey Heron	*Ardea cinerea*
169	Pelecaniformes	Ardeidae	Little Green Heron	*Butorides striatus*
170	Pelecaniformes	Ardeidae	Black Crowned night heron	*Nycticorax nycticorax*
171	Pelecaniformes	Threskiornithidae	Black ibis	*Pseudibis papillosa*
172	Pelecaniformes	Threskiornithidae	Glossy ibis	*Plegadis falcinellus*
173	Pelecaniformes	Threskiornithidae	Oriental white ibis	*Threskiornis melanocephalus*
174	Pelecaniformes	Threskiornithidae	Eurassian Spoonbill	*Platalea leucorodia*
175	Phoenicopteriformes	Phoenicopteridae	Lesser flamingo	*Phoenicopterus minor*
176	Phoenicopteriformes	Phoenicopteridae	Greater flamingo	*Phoenicopterus ruber*
177	Piciformes	Megalaimidae	Coppersmith barbet	*Psilopogon haemacephalus*
178	Piciformes	Picidae	Eurasian wryneck	*Jynx torquilla*
179	Piciformes	Picidae	Yellow crownedwoodpecker	*Leiopicus mahrattensis*

S. No.	Order	Family	Common name	Scientific name
180	Piciformes	Picidae	Black rumped flamback	*Dinopium benghalense*
181	Podicipediformes	Podicipedidae	Little grebe	*Tachybaptus ruficollis*
182	Psittaciformes	Psittaculidae	Rose ringed parakeet	*Psittacula krameri*
183	Psittaciformes	Psittaculidae	Plum headed parakeet	*Psittacula cyanocephala*
184	Psittaciformes	Psittaculidae	Alexandrine parakeet	*Psittacula eupatria*
185	Pterocliformes	Pteroclidae	Chestnut bellied sandgrouse	*Pterocles exustus*
186	Strigiformes	Strigidae	Indian Eagel Owl	*Bubo bengalensis*
187	Strigiformes	Strigidae	Spotted owlet	*Athene brama*
188	Strigiformes	Tytonidae	Barn owl	*Tyto alba*
189	Suliformes	Phalacrocoracidae	Great cormorant	*Phalacrocorax carbo*
190	Suliformes	Phalacrocoracidae	Indian shag	*Phalacrocorax fuscicollis*
191	Suliformes	Phalacrocoracidae	Little cormorant	*Phalacrocorax niger*

List of Amphibians & Reptiles in BHILWARA District

S. No	Common Name	Scientific Name
	Amphibians	
1	Marbled Toad	*Duttaphrynus stomaticus*
2	Indian Bull Frog	*Hoplobatrachus tigirinus*
3	Indian Skipping Frog	*Euphlyctis cyanophlyctis*
4	Indian Paddy Field Frog	*Fejervarya limnocharis*
	Reptiles	
5	Oriental Garden Lizard	*Calotes versicolor*
6	Indian Chameleon	*Chamaeleo zeylanicus*
7	Brook‟s House Gecko	*Hemidactylus brooki*
8	House Gecko	*Hemidactylus flaviviridis*
9	Bark Gecko	*Hemidactylus leschenaultia*
10	Keeled Rock Gecko	*Cyrtodactylus scabrum*
11	Snake Eyed Lacerated	*Ophisops jerdonii*
12	Large Snake Eyed Lacerated	*Ophisops microlepis*
13	Fringe Toed Lizard	*Acanthodactylus c. cantoris*
14	Bronze Skink	*Eutrophis macularia*
15	Common Indian Skink	*Eutrophis carinata*
16	Three Striped Skink	*Eutrophis dissimilis*
17	Indian Monitor Lizard	*Varanus bengalensis*
18	Brahminy Worm Snake	*Ramphotyphlops braminus*
19	Common Sand Boa	*Gongylophis conicus*
20	Red Sand Boa	*Eryx johnii*
21	Indian Rat Snake	*Ptyas mucosa*
22	Glossy Bellied Racer	*Platyceps ventromaculatus*
23	Black Headed Royal Snake	*Spalerosophis atriceps*
24	Common Wolf Snake	*Lycodon aulicus*
25	Barred Wolf Snake	*Lycodon striatus*
26	Checkered Keelback	*Xenochrophis piscator*
27	Common Cat Snake	*Boiga trigonata*

28	Common Krait	*Bungarus caeruleus*
29	Spectacled Cobra	*Naja naja*
30	Saw Scaled Viper	*Echis carinatus*
31	Indian Star Tortoise	*Geochelon elegans*

Fish

S. No	Common Name	Scientific Name
1.	Catla	*Catla catla*
2.	Rohu	*Labeo rohita*
3.	Bata	*L.bata*
4.	Lanchi	*Wallaga attu*
5.	Singhara	*M. seenghala*
6.	Singhi	*Hetropneustes fossilis*