District Environment Plan: Ajmer District

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

District Collector, Ajmer:

Sh. Prakash Rajpurohit

Knowledge Partner:

Maharshi Dayanand Saraswati University, Ajmer

Nodal Officer:

Prof. Praveen Mathur

Intern:

Dr. Vivek Sharma

Index		
S. No.	**Content**	**Page No.**
	Abbreviations	
	Foreword	
1.	Introduction	**1**
1.1.	SWOT Analysis	**3**
1.2.	NGT Directions	**6**
1.3.	Mechanism/Steps Involved in execution of District Environment Plan	**7**
1.4.	Objectives of District Environment Plan	**8**
2.	District Profile: Ajmer at a Glance	**9**
3.	Issues Requiring Actions	**12**
4.	Actions to be taken	**13**
4.1.	Immediate Actions	**16**
5.	Segments of District Environment Plan	**18**
5.1.	Waste Management	**18**
5.1.1.	Solid Waste Management	**18**
	Baseline Data For Solid Waste Management	**21**
	SWOT Analysis For Solid Waste Management	**24**
	Action Plan For Solid Waste Management	**25**
5.1.2.	Plastic Waste Management	**26**
	Baseline Data For Plastic Waste Management	**30**
	SWOT Analysis For Plastic Waste Management	**32**
	Action Plan For Plastic Waste Management	**33**
5.1.3.	Construction and Demolition Waste Management	**34**
	Baseline Data For Construction and Demolition Waste Management	**37**
	SWOT Analysis For Construction and Demolition Waste Management	**38**
	Action Plan For Construction and Demolition Waste Management	**39**
5.1.4.	Bio-Medical Waste Management	**40**
	Baseline Data For Bio-Medical Waste Management	**44**
	SWOT Analysis For Bio-Medical Waste Management	**45**
	Action Plan For Bio-Medical Waste Management	**46**

Abbreviations:

Abbreviations	Details
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 Litre Per Day
MoEF&CC	Ministry of Environment, Forest and Climate Change
MSME	Micros, Small and Medium Enterprises
MSW	Municipal Solid Waste
MT	Metric Tonne
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 compiling data 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 of Sustainable Development. Hence the purpose is to restore the ecological balance of all 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 various income 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 that Rajasthan 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.

Prof. Praveen Mathur

Nodal Officer – DEP
& Head-Department of Environmental Science,
M.D.S. University
Ajmer – 305 009

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 of the unwanted by-products of production and 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 cyclical transformation 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 wrong sort 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-ordinated 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 States and the European Union 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 needs Sustainability defines the models necessary to ensure the survival of the human race and 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 Analysis:

SWOT 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 create 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 AeromatiCo


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.

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.

1.3. 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-lines in 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.

1.4. 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 resource efficiency.
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: Ajmer at a Glance

The Ajmer district is located centrally in the Rajasthan state between $25^0$38' to $26^0$56' north latitudes and $73^0$54' to $75^0$22' east longitude with an area of 8481 sq.km and a population of 2,583,052 (2011 census). The average height from sea level of the district ranges from 280-370 mt. and the length and width of the district is 185 km and 110 km, respectively. It is bounded in north by Nagaur district, south by Bhilwara district, east by Tonk and Jaipur and West by Pali district. Ajmer falls in agro-climatic zone III 'A' semi-arid-eastern plain zone (which mainly encompasses Ajmer, Jaipur, Dausa and Tonk districts).

For administration and development, the district is divided in Sub-Divisions and tehsils (sub-districts). The district is divided into four subdivisions, Ajmer, Beawar, Kekri and Kishangarh, and further subdivided into nine tehsils, Ajmer, Beawar, Bhinai, Sarwar, Pisangan, Tantoti, Nasirabad, Masuda, Kekri and Kishangarh. Ajmer district has 9 Tehsils, 8 Panchayat Samitis and 1130 villages.

Geographically, Ajmer district could be divided into 4 parts.

- The sandy area of west and north
- Hilly area (Central parts of Aravalli Mountain Ranges)
- Central plain
- Eastern low lying area

The district is further divided into 3 agro ecosystems.

- Hilly undulated poor fertility soils or "Magra" area consisting of Jawaja & Masuda Panchayat Samitis
- Heavy to medium soil or plain "Mall" area consisting Bhinay, Arain and Kekri Panchayat Samitis
- Light soil eastern plains with low run-off consisting of Pisangan, Silora and Srinagar Panchayat Samitis

Climate and Soil

Ajmer has semi-arid climate and has extremes of climatic conditions. The district has a hot-dry summer and cold-bracing winter. The ambient temperature rises up to 46^0C in the peak summer and falls up to 4^0C in extreme winter. The average rainfall of Ajmer district is 525

mm with average 25-30 rainy days in a year. About 90% of the annual rainfall is received during the period of June to September.

Ajmer district has coarse to medium textured loamy soils. The soil has medium water holding capacity. It is low in Nitrogen, moderate in Phosphorus and moderate to rich in Potash.

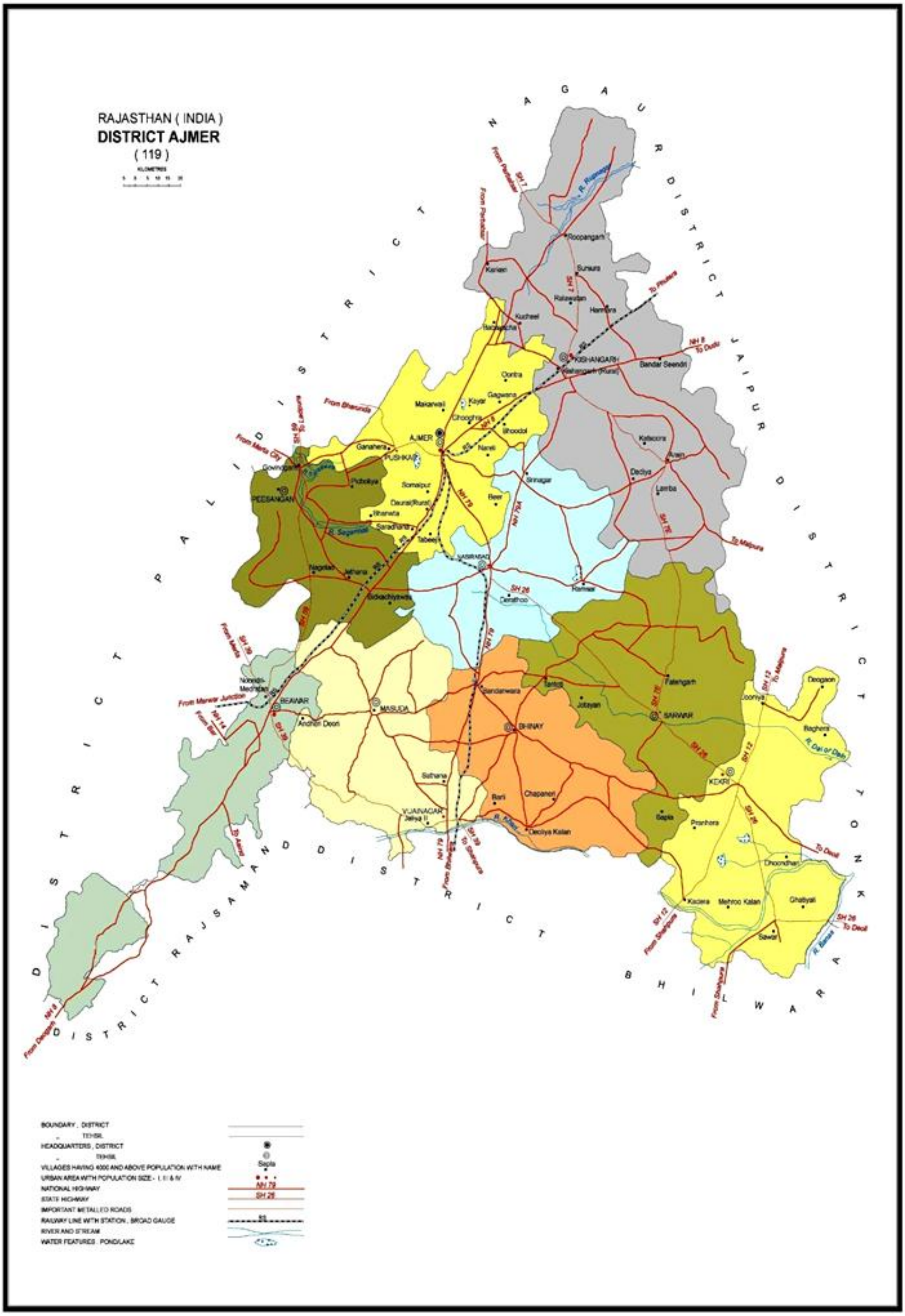
Land Utilization:

Total geographical area of Ajmer district is 8,42,345 ha. out of which, forest occupies 5.56%, land under non-agricultural use is 10.59%, barren land is 3.0%, other waste land is 9.66%, cultivable waste is 9.18%, fellow land 13.94% and land under net sown area is 44.77% (3,77,144 ha).

Surface Water (Wetlands / Water bodies):

In Ajmer district, total Wetland / Water Bodies areas are spread in an area of about 270.7 sq km which is 3.19 % of the entire 8481 sq km area of the district. Out of which total Inland Wetlands covers about 10.61 sq km area (0.12 % of the district), total River /Stream / Canals cover about 78.38 sq km area (0.92 % of the district), and total Water Bodies cover about 181.71 sq km area (2.14 % of the district). In terms of drainage Ajmer district falls in the Banas (64.88%), Luni (23.74%) & Shekhawati Basin (11.38%).

Khari, Dai, Sarsuti or Saraswati, Sagarmati, Bara, Mashi and Roopnagar rivers are ephemeral and flow only in response to precipitation. Banas River enters the district from the southeast near Khera & Jitpura villages and flows from south to north for about 3 km. It changes the direction and flows from southwest to northeast.


RAJASTHAN (INDIA)
DISTRICT AJMER
(119)
NAGAUR DISTRICT
JAIPUR DISTRICT
TONK DISTRICT
BHILWARA DISTRICT
RAJSAMAND DISTRICT
PALI DISTRICT
AJMER
PUSHKAR
KISHANGARH
PEESANGAN
NASIRABAD
BEAWAR
MASUDA
BHINAY
SARWAR
KEKRI
VIJAINAGAR
BOUNDARY , DISTRICT
TEHSIL
HEADQUARTERS , DISTRICT
TEHSIL
VILLAGES HAVING 4000 AND ABOVE POPULATION WITH NAME
URBAN AREA WITH POPULATION SIZE - I, II & IV
NATIONAL HIGHWAY
STATE HIGHWAY
IMPORTANT METALLED ROADS
RAILWAY LINE WITH STATION , BROAD GAUGE
RIVER AND STREAM
WATER FEATURES . POND/LAKE

3. Issues Requiring Actions:

As per the directions of the Hon'ble National Green Tribunal (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.**

4. **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 be taken 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 phased manner 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 prohibit burning 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 are intercepted and diverted to STP.

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

Regulation of Sand Mining

i. Special Task Forces/Police Forces may be deployed for patrolling sand mining areas, 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 and cleaned and not allowing sewage and solid waste disposal in such ponds.

i. State Ground Water Board to ensure ground water quality testing particularly shallow 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 levels so 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.

4.1. 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 the ULBs.

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

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

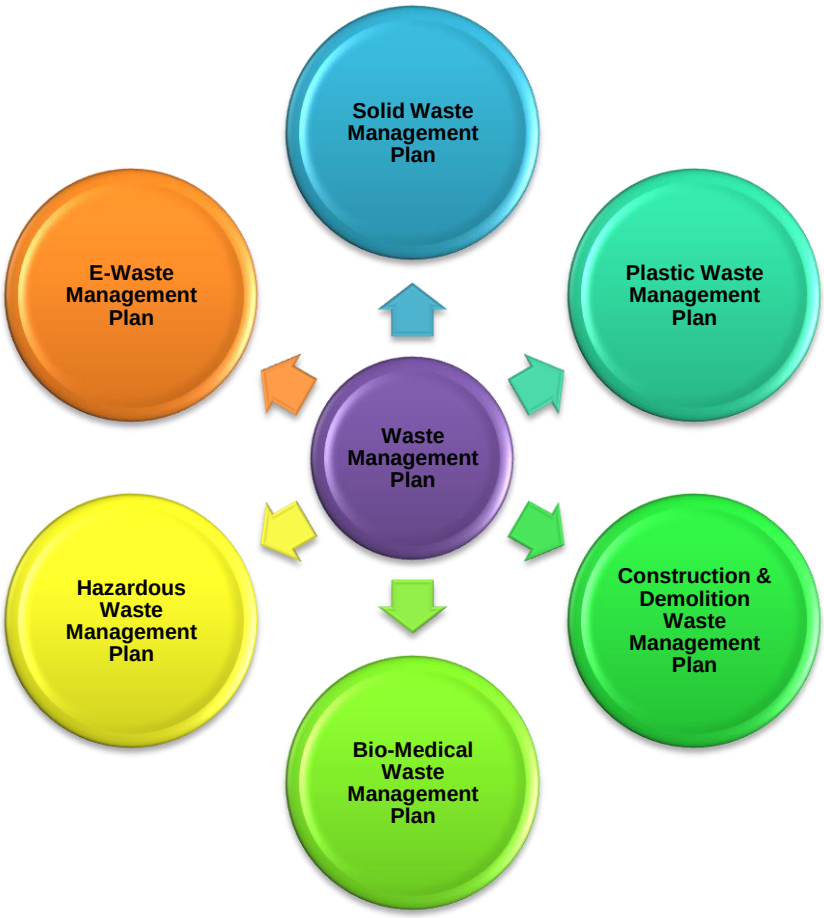
vii. Immediately sensitize locals, schools, colleges and other voluntary organizations for creating awareness.

viii. Capacity building of staff of ULBs / PRIs.

5. Segments of District Environment Plan (DEP)

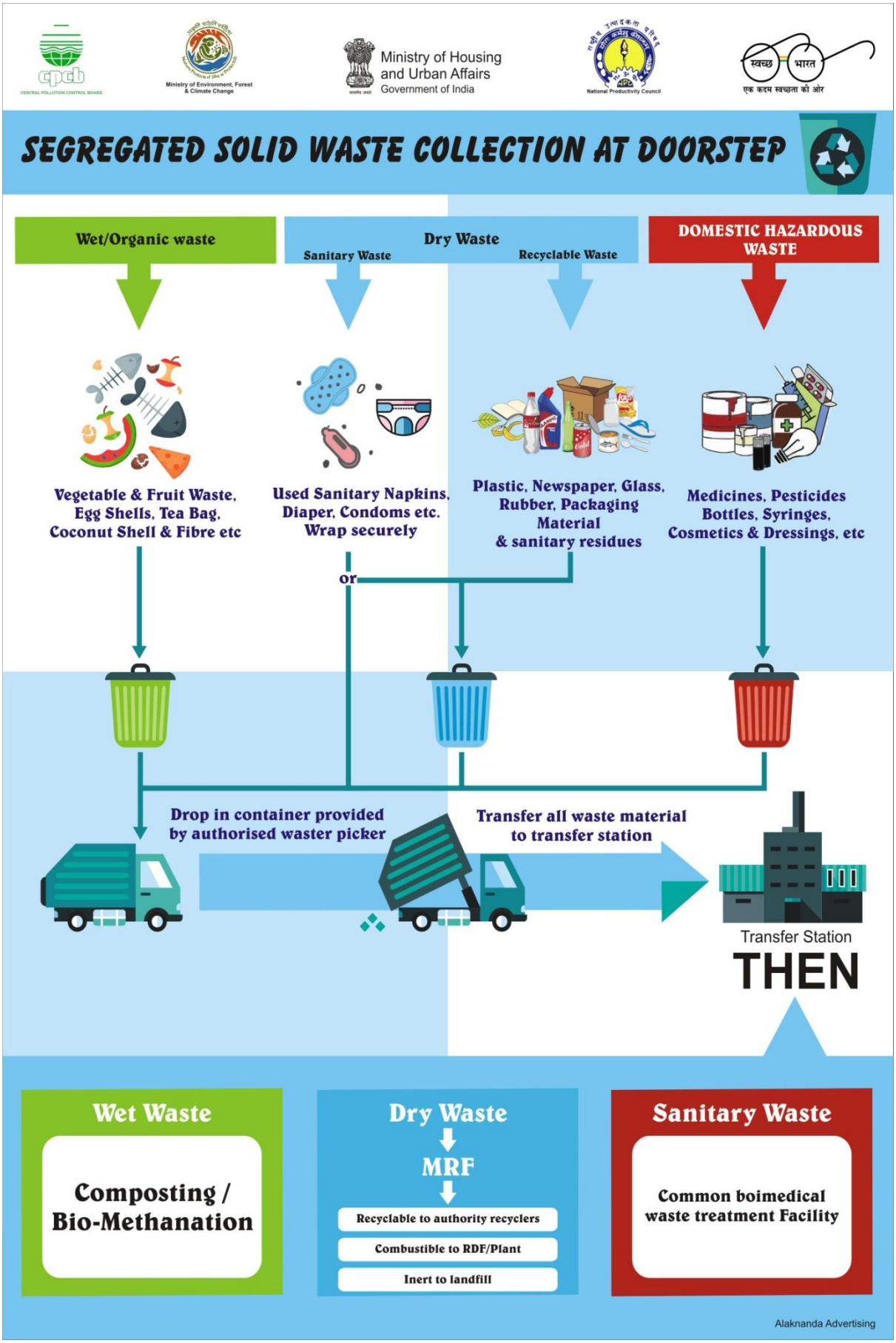
"The proposed Model Action Plan for 8 thematic areas"

5.1. Waste Management Plan



5.1.1. 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
Dry Waste
Sanitary Waste
Recyclable Waste
DOMESTIC HAZARDOUS WASTE
Vegetable & Fruit Waste, Egg Shells, Tea Bag, Coconut Shell & Fibre etc
Used Sanitary Napkins, Diaper, Condoms etc. Wrap securely
Plastic, Newspaper, Glass, Rubber, Packaging Material & sanitary residues
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
Alaknanda Advertising

Ministry of Housing and Urban Affairs
Government of India

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

Do's

Always wrap securely the sanitary Waste before disposal

Handover the segregated solid waste Only to authorized waste pickers.

Segregate waste source into wet, dry, Sanitary and domestic hazardous waste.

Avoid generation of solid waste as far as possible Reuse bottles, clothes, paper before disposing.

Store wet waste in covered containers

Encourage community based composting plant for Waste management of wet/organic waste

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

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**
	No of ULBs in the District		**[Nos]**	**8**
	Population		**[Nos as per 2011 census]**	**962592**
SW1	**Report on inventory of total solid waste Generation**			
SW1a		**Total solid waste Generation**	**[in MT/Day] or [Not estimated]**	**407.3**
SW1b		**Qty. of Dry Waste segregated**	**[in MT/Day] or [Collection Not initiated]**	**198.4**
SW1c		**Qty. of Wet Waste segregated**	**[in MT/Day] or [Collection Not initiated]**	**208.9**
SW1d		**Qty. of C&D Waste segregated**	**[in MT/Day] or [Collection Not initiated]**	**40.9**
SW1e		**Qty. of Street Sweeping**	**[in MT/Day] or [Not estimated]**	**26**
SW1f		**Qty. of Drain Silt**	**[in MT/Day] or [Not estimated]**	**24.93**
SW1g		**Qty. of Domestic Hazardous Waste(DHW) collected**	**[in MT/Day] or [No Facility]**	**2.23**
SW1h		**Qty. of Other Waste (Horticulture, sanitary waste, etc.)**	**[in MT/Day] or [Qty not estimated]**	**5.12**
SW1i		**No of Old dump sites**	**[Nos] or [None]**	**8**
SW1j		**Qty stored in dumpsites**	**[MT] or [Not estimated]**	**632609 Cum**
SW1k		**No of Sanitary landfills**	**[Nos] or [None]**	**0**
SW1l		**No of wards**	**[nos]**	**285**
SW2	**Compliance by Bulk Waste Generators**			
SW2a		**No of BW Generators**	**[numbers] or [inventory not done]**	**36**
SW2b		**No of on-site facilities for Wet Waste**	**[numbers] or [No data]**	**32**

SW3	**Compliance in segregated waste Collection SW Collection**			
SW3a		**Total generation**	**[Automatic] from SW1a**	**410.3**
SW3b		**Wet Waste**	**[in MT/Day] or [Collection Not initiated]**	**8.5**
SW3c		**Dry Waste**	**[in MT/Day] or [Collection Not initiated]**	**10**
SW3d		**C&D Waste**	**[in MT/Day] or [Collection Not initiated]**	**31.3**
SW4	**Waste Management Operations**			
SW4a		**Door to Door Collection**	**[100%] / [partial %] / [not initiated]**	**100%**
SW4b		**Mechanical Road Sweeping**	**[100%] / [partial%] / [not initiated]**	**Not Initiated**
SW4c		**Manual Sweeping**	**[100%] / [partial%]**	**100%**
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]**	**12.50%**
SW4g		**MRF Operation**	**[MRF used] / [not installed]**	**Installed**
SW4h		**Use of Saniatry Landfill**	**[% of SW collected] / [no SLF]**	**No SLF**
SW4i		**Reclamation of old dumpsites**	**[initiated] / [not initiated]**	**Not Initiated**
SW4j		**Linkage with Waste to Energy Boilers / Cement Plants**	**[initiated] / [not initiated]**	**Not Initiated**
SW4k		**Linkage with Recyclers**	**[initiated] / [not initiated]**	**Not Initiated**
SW4l		**Authorization of waste pickers**	**[initiated] / [not initiated]**	**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]**	**140**

SW5				
SW5a		**Waste Collection Trolleys**	**[Nos. Required] / [Nos. Available]**	**350/100**
SW5b		**Mini Collection Trucks**	**[Nos. Required] / [Nos. Available]**	**178/8**
SW5c		**Segregated Transport**	**[yes] / [no] / [% area covered]**	**18.75%**
SW5d		**Bulk Waste Trucks**	**[Nos. Required] / [Nos. Available]**	**Not Available**
SW5e		**Waste Transfer station**	**[Nos. Required] / [Nos. Available] /[Not available]**	**Not Available**
SW5f		**Bio-methanation units**	**[Nos. Required] / [Nos. Available]**	**Not Available**
SW5h		**Composting units**	**[Nos. Required] / [Nos. Available]**	**5/3**
SW5i		**Material Recovery Facilities**	**[used or installed] / [not available]**	**Installed**
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**
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]**	**43 crore**
SW7b		**OPEX**	**[INR per Year] / [% of requirement]**	**46.63%**
SW7c		**Adequacy of OPEX**	**[Yes] / [No]**	**No**

SWOT Analysis for Solid Waste Management

	Helpful to achieving the objectives	**Harmful** to achieving the objectives
Internal origin (attributes of the Organization)	**Strengths**	**Weakness**
	• Door to Door collection • Manual Sweeping • Initiated linkage with TSDF (Treatment, Storage and Disposal facilities) - Initiated • 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 • On Site Source Segregation • Waste to Energy • Linkage with Producers / Brand Owners	• No Classification & Segregation Domestic Hazardous waste • No proper implementation of Environmental Laws • Excessive Pressure of Tourists (nearly whole year)

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, Transport and 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 as per SWM Rules-2016	Regular activity	Department of Industries/ULBs
5.	Development of new SWM facility Establishment of Bio-compost RDF and waste to energy plant	Immediate	ULBs
6.	Construction of appropriate number of 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 bar mesh in Nallahs & Drains	Immediate	ULBs
8.	GPS enabled vehicles for waste transportation & user friendly mobile app	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 garbage bags, 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 Plastic Waste 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

Collection of Segregated waste (Household/Commercial sector)

Dry Solid Waste

Wet Solid Waste

Utilizable Plastic

Recyclable Plastic

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.

2 HDPE

HIGH-DENSITY POLYETHYLENE

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.

4 LDPE

LOW-DENSITY POLYETHYLENE

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


5 PP



POLYPROPYLENE

Auto parts, industrial fibers, food containers, dishware etc

6 PS

POLYSTYRENE

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

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**
	Population		**[Nos as per 2011 census]**	**962592**
PW1	**Inventory of plastic waste generation**			
PW1a		**Estimated Quantity of plastic waste generated in District**	**[MT/day] / [Not Estimated]**	**6.652**
PW2	**Implementation of Collection**			
PW2a		**Door to Door collection**	**[100%] / [partial %] / [not initiated]**	**100%**
PW2b		**Segregated Waste collection**	**[100%] / [partial %]**	**8.12%**
PW2c		**Plastic waste collection at Material Recovery Facility**	**[MRF used] / [not installed]**	**MRF Installed**
PW2d		**Authorization of PW pickers**	**[Nos] / [not initiated]**	**92**
PW2e		**PW collection Centers**	**[Nos] / [not established]**	**MRF**
PW3	**Establishment of linkage with Stakeholders**			
PW3a		**Established linkage with PROs 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 sent per Month]**	**2522.5**
W5	**Implementation of PW Management Rules, 2016**			
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 notified by State Government**	**[Implemented] / [Partial] / [no action] / [No Ban]**	**Implemented**
PW6	**Implementation of Extended Producers Responsibility (EPR) through Producers/Brand-owners**			
PW6a		**No of Producers associated with ULBs**	**[Nos] / [None]**	**None**
PW6b		**Financial support by Producers / Brand owners to ULBs**	**[Nos] / [None]**	**None**
PW6c		**Amount of PRO Support**	**[Rs…]**	**None**
PW6d		**Infrastructure support by Producers / Brand owners to ULBs**	**[Nos of Producers] / [None]**	**None**
PW6e		**No of collection centers established by Producers / Brand owners to ULBs**	**[Nos] / [None]**	**None**

SWOT Analysis for Plastic Waste Management

	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 • No / partial Sealing of Units producing less than 50 micron plastic
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 than 50 micron Plastic carry bags are still in use • Used plastic bags is eaten away by 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
2.	Setting up of decentralized waste processing facilities by bulk waste generators	Immediate	ULBs/ Mandi Parishad/ Bus 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 single use 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 bar mesh in Nallahs & Drains	Immediate	ULBs
14.	Information, Education & Communication (IEC) for plastic waste management.	Regular Activity	ULBs / RPCB / Development Authority / NGOs / Education Department

5.1.2. 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..!!

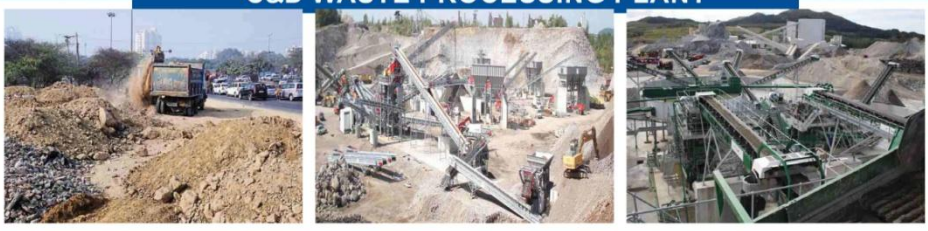
Ministry of Housing and Urban Affairs
Government of India

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

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**
	Population		**[Nos as per 2011 census]**	**962592**
CD1	**Inventory of C&D waste generation**			
CD1a		**Estimated Quantity**	**[Kg/Day] / [Not estimated]**	**39.45**
CD2	**Implement scheme for permitting bulk waste generators**			
CD2a		**Issuance of Permissions by 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]**	**Initiated**
CD5	**Establishment of C&D Waste recycling plant or linkage with such facility**			
CD5a		**Establishment CD Waste Recycling Plant**	**[Established] / [Sent to shared Facility] / [No facility exists]**	**No facility exists**
CD5b		**Capacity of CD Waste Recycling Plant**	**[MT/Day] / [Not available]**	**Not available**

SWOT Analysis for Construction and Demolition Waste Management

	Helpful to achieving the objectives	**Harmful** to achieving the objectives
Internal origin (attributes of the Organization)	**Strengths**	**Weakness**
	• Deposition points for C&D Waste identified & established	• Inventory of C&D Waste generation not properly estimated
External Origin (attributes of the Environment)	**Opportunities**	**Threats**
	• Proper implementation of C&D waste management rules 2016 • Establishment of C&D waste recycling plant • Proper segregation and recovery of C&D waste	• Improper C&D waste deposition blocks 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 Management Plan 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 Waste processing 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 made by 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 Planning Department / 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

5.1.3. 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 cotton dressings, Linen, plaster casts, bedding etc.)

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

h) Liquid waste: (waste generated from washing, cleaning, housekeeping and disinfection 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

स्वच्छ भारत
एक कदम स्वच्छता की ओर

BIOHAZARD

BIO MEDICAL WASTE CATEGORIES, THEIR SEGREGATION AND COLLECTION

Infected waste	Infected plastic	Sharp watse	Glassware
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, Scelpels, Blade and other contaiminated Sharp Object.	Broken or discarded & Contaminated glass, Medicine Vials, Ampules Except those contaminated with cytotoxic waste and Metallic Body implants.

Ministry of Housing and Urban Affairs
Government of India

Ministry of Environment, Forest & Climate Change

National Productivity Council

स्वच्छ भारत
एक कदम स्वच्छता की ओर

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.

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.

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

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;

Ministry of Housing and Urban Affairs
Government of India

स्वच्छ भारत
एक कदम स्वच्छता की ओर

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

(iv) Biomedical Waste Management (for each ULB)				
No.	**Action Areas**	**Details of Data Requirement**	**Measurable Outcome**	**Please enter Measurable Outcome for District**
	Population		**[Nos as per 2011 census]**	**962592**
BMW1	**Inventory of Biomedical Waste Generation**			
BMW1a		**Total no. of Bedded Hospitals**	**[Nos] / [No inventory]**	**211**
BMW1b		**Total no. of non-bedded HCF**	**[Nos] / [No inventory]**	**225**
BMW1c		**Total no. Clinics**	**[Nos] / [No inventory]**	**84**
BMW1d		**No of Veterinary Hospitals**	**[Nos] / [No inventory]**	**3**
BMW1e		**Pathlabs**	**[Nos] / [No inventory]**	**106**
BMW1f		**Dental Clinics**	**[Nos] / [No inventory]**	**26**
BMW1g		**Blood Banks**	**[Nos] / [No inventory]**	**0**
BMW1h		**Animal Houses**	**[Nos] / [No inventory]**	**0**
BMW1i		**Bio-research Labs**	**[Nos] / [No inventory]**	**0**
BMW1j		**Others**	**[Nos] / [No inventory]**	**NA**
BMW2	**Authorization of HCFs by SPCBs / PCCs**			**360**
BMW2a		**Bedded HCFs**	**[Nos Authorized]**	**180**
BMW2b		**Non-bedded HCFs**	**[Nos Authorized]**	**180**
BMW3a	**Biomedical Waste Treatment and Disposal Facilities (CBMWTFs)**			
BMW3a		**No of CBMWTFs**	**[Nos] / None**	**1**
BMW3b		**Linkage with CBMWTFs**	**[Yes] / [no linkage]**	**Yes**
BMW3c		**Capacity of CBMWTFs**	**[Adequate] / [Not adequate]**	**Adequate**
BMW3d		**Requirements of CBMWTFs**	**[Require] / [not required]**	**NA**
BMW3e		**Captive Disposal Facilities of HCFs**	**[Nos] / [None]**	**Yes**
BMW4	**Compliance by CBMWTFs**			**NA**

BMW4a		**Compliance to standards**	**[Meeting] / [Not meeting] / [NA]**	**Meeting**
BMW4b		**Barcode tracking by HCFs / CBMWTFs**	**[100%] / [Partly %] / [None]**	**14.28%**
BMW4c		**Daily BMW lifting by CBMWTFs**	**[Kg / day]**	**482**
BMW5	**Status of Compliance by Healthcare Facilities**			
BMW5a		**Pre-segregation**	**[100%] / [partly %] / [None]**	**100%**
BMW5b		**Linkage with CBMWTFs**	**[100%] / [partly %] / [None]**	**100%**

SWOT Analysis for Bio-Medical Waste Management

	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) • Pre-Segregation of Bio-medical Waste	• No Centralized system for Bio-medical waste generators (Private hospitals, Veterinary Hospitals and clinics) • Barcode tracking by HCF (Health Care Facilities) partially 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 Medicines from households not properly discarded • Biomedical waste if not handled properly, can have very serious consequences

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 for Biomedical 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 & Occupiers. • 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 campaigns and 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 system for 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 & Secured In house Storage of BMW. • No mixing of BMW with MSW. • Bar code system for Bio-medical waste-collection Bags.	Regular Activity	Occupiers/ HCFs
13	Information, Education & Communication (IEC) for Bio-medical waste management.	Regular Activity	ULBs / RPCB / Development Authority / NGOs / Education Department

5.1.4. 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, and physical properties. These properties generate materials that are toxic, reactive, ignitable, corrosive, infectious, or radioactive.

Ministry of Housing and Urban Affairs
Government of India

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

CENTRAL POLLUTION CONTROL BOARD

Ministry of Environment, Forest & Climate Change

Ministry of Housing and Urban Affairs
Government of India

National Productivity Council

स्वच्छ भारत
एक कदम स्वच्छता की ओर

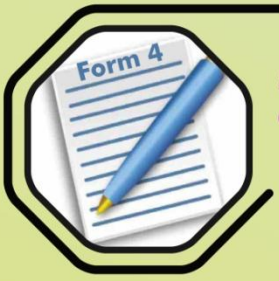
TREATMENT, STORAGE AND DISPOSAL FACILITY (FOR HAZARDOUS AND OTHER WASTE)

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

(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.]**	**53**
HW1b		**Quantity of HW**	**[MT/Annum]**	**918776.004 [MT/Annum] [Approx Data]**
HW1c		**Quantity of Incinierable HW**	**[MT/Annum]**	**1665458.47**
HW1d		**Quantity of land-fillable HW**	**[MT/Annum]**	**757.821**
HW1e		**Quantity of Recyclable / utilizable HW**	**[MT/Annum]**	**23885.399**
HW2	**Contaminated Sites and illegal industrial hazardous waste dumpsites**			
HW2a		**No of HW dumpsites**	**[Nos] / [None]**	**None**
HW2c		**Probable Contaminated Sites**	**[Nos] (provide list)**	**NA**
HW3	**Authorization by SPCBs/PCCs**			**53**
HW3a		**No of industries authorized**	**[Nos]**	**53**
HW3b		**Display Board of HW Generation in front of Gate**	**[Nos]**	**53**
HW3	**Availability of Common Hazardous Waste TSDF**			
HW3a		**Common TSDF**	**[Exists] / [No] / [Sent to Other District within State]**	**Sent to other district within state**
HW3b		**Industries linkage with TSDF**	**[Nos.]**	**15**
HW4	**Linkage of ULBs in District with Common TSDF**			
HW4a		**ULBs linked to Common TSDFs for Domestic Hazardous Waste**	**[Yes] / [No]**	**No**

SWOT Analysis for Hazardous Waste Management

	Helpful to achieving the objectives	**Harmful** to achieving the objectives
Internal origin (attributes of the Organization)	**Strengths**	**Weakness**
	• Proper segregation of Hazardous waste (generated from Industries)	• No Hazardous Waste Dump Site • No Identified Probable Contaminated Site • No Linkage of ULBs to Common TSDF for Domestic Hazardous Waste
External Origin (attributes of the Environment)	**Opportunities**	**Threats**
	• Common TSDF (Treatment Storage and Disposal Facilities) should be established within district	• Improper Hazardous waste (Industrial / Domestic) is prone to contaminate 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 where DPR 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 release of fund and acquisition of land	Department of Environment / RPCB / CPCB
8	Installation of TSDF facility if common TSDF is not available within 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 health of 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 pertaining to the State as per NGT Orders in OA No. 804/2017 on 12-04-2019	Regular Activity	State Government/ Department of Environment/ RPCB

5.1.5. 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 a high 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 consists of end of electrical and electronic equipments and products such as: Refrigerator, Washing machines, Computers and Printers, Televisions, Mobiles, I-pods etc.


E-WASTE
CATEGORIES
IT EQUIPMENT
REFRIGERATION / ACs
PHONES / TELEX
TELEVISION
PRINTER / SCANNERS
FLUORESCENT LAMPS
TYPE WRITERS
PERSONAL ELECTRONIC DEVICE
AUDIO VIDEO EQUIPMENT

Ministry of Housing and Urban Affairs
Government of India

Ministry of Environment, Forest & Climate Change

एक कदम स्वच्छता की ओर

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

(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]**	**Yes**
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]**	**None**
EW1f		**No authorized E-Waste recyclers / Dismantler**	**[Nos] / [None]**	**None**
EW2	**Status of Collection of E-Waste**			
EW2a		**Authorizing E-Waste collectors**	**[Authorized] / [None]**	**6**
EW2b		**Involvement of NGOs**	**[Yes] / [No] / [Nos]**	**None**
EW2c		**Does Producers have approached NGOs/ Informal Sector for setting up Collection Centers.**	**[Yes] / [No] /[Nos]**	**None**
EW2d		**Does ULBs have linkage with authorized Recyclers / Dismantlers**	**[Yes] / [No]**	**None**
EW4	**Control E-Waste related pollution**			
EW4a		**Does informal trading, dismantling, and recycling of e-waste exists in District**	**[Yes] / [No]**	**None**
EW4b		**Does the administration closed illegal E-Waste recycling in the District**	**[Yes] / [No] / [Nos]**	**None**
EW4c		**No of actions taken to close illegal trading or processing of E-Waste**	**[Nos]**	**None**
EW5	**Creation of Awareness on E-Waste handling and disposal**			

EW5a		**Does PROs / Producers conducted any District level Awareness Campaigns**	**[Yes] / [No] / [Nos]**	**None**
EW5c		**Does District Administration conducted any District level Awareness Campaigns**	**[Yes] / [No] / [Nos]**	**None**

SWOT Analysis for E-Waste Management

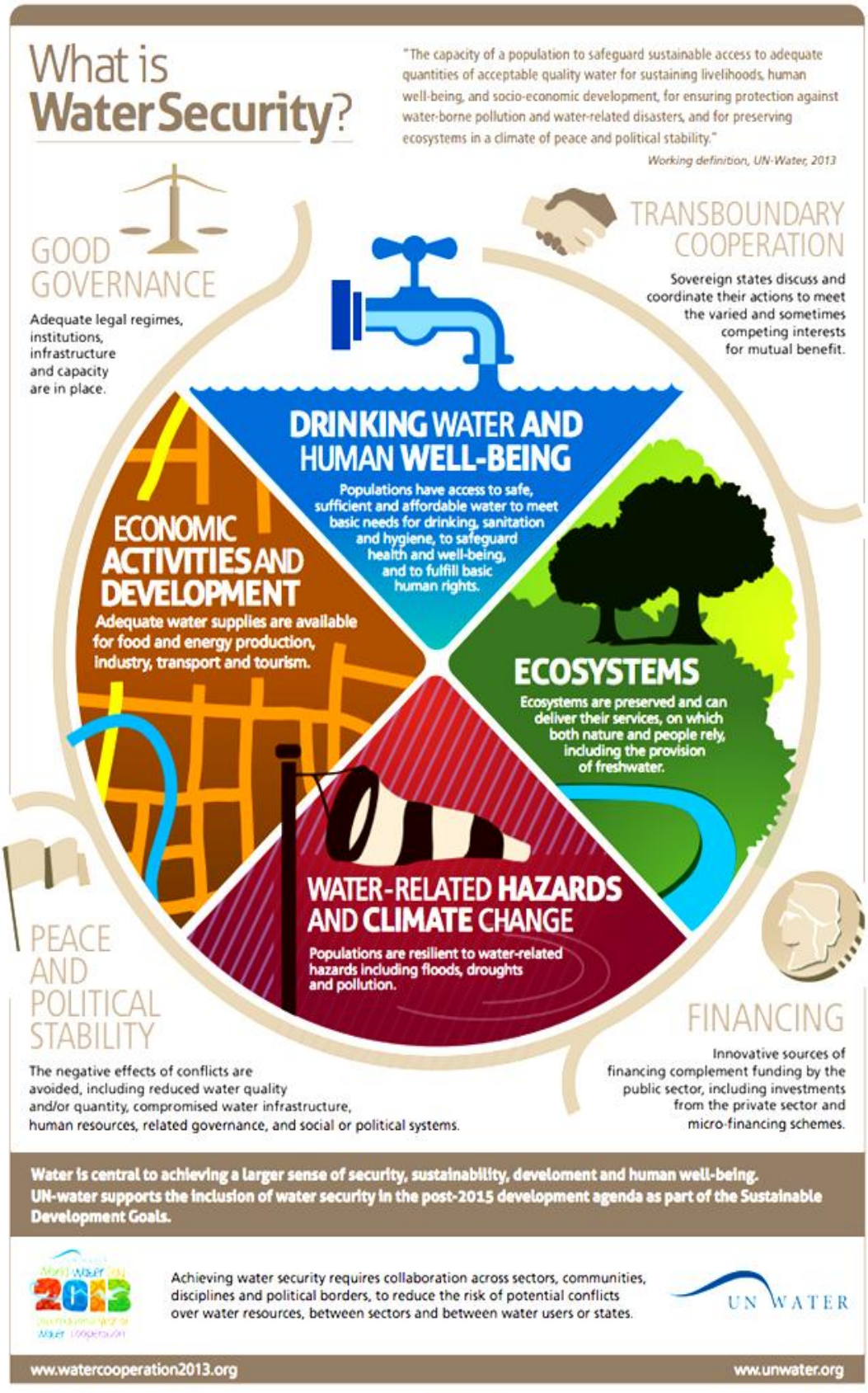
	Helpful to achieving the objectives	**Harmful** to achieving the objectives
Internal origin (attributes of the Organization)	**Strengths**	**Weakness**
	• NA	• No facility for E-waste deposition
External Origin (attributes of the Environment)	**Opportunities**	**Threats**
	• Linkage with Producers / Brand owner for collection of E-waste • Authorizing E-waste collectors • Involvement of NGOs • Linkage with authorized Recyclers / Dismantlers • Proper implementation of E-waste management Rules -2016 • Awareness Campaigns regarding E-waste management should be initiated at grassroots level	• E-waste generating toxic chemicals impacting environment and human health

Action Plan for E-Waste Management

S. No.	Action Points	Timelines	Department/ Agencies
1.	Collection, Segregation and Channelization of e-waste pertaining to 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-waste processing • 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

5.2. 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.


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, development 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.
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
www.watercooperation2013.org
www.unwater.org
version October 2013

Baseline Data for 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]	5,267 km
WQ1b		Length of Coastline	[in Km]	Nil
WQ1c		Nalas/Drains meeting Rivers	[Nos]	32
WQ1d		Lakes / Ponds	[Nos] and [Area in Hectares]	54, 883800 Hect
WQ1e		Total Quantity of sewage and industrial discharge in District	[Automatic] (SW1a+IW1b)	47.59 MLD
	Control of Groundwater Water Quality			
WQ2a		Estimated number of bore-wells	[Nos]	NA
WQ2b		No of permissions given for extraction of groundwater	[Nos]	NA
WQ2c		Number of groundwater polluted areas	[Nos]	NA
WQ2d		Groundwater Availability	[adequate] / [not adequate]	Adequate
WQ3	Availability of Water Quality Data			
WQ3a		Creation of monitoring cell	[Yes] / [No]	NA
WQ3b		Access to Surface water and groundwater quality data at DM office	[Available] or [Not available]	Not Available
WQ4	Control of River side Activities			

WQ4a	**Control of River side Activities**	**River Side open defecation**	**[Fully Controlled] / [Partly controlled] /[no Measures taken]**	**No Measure Taken**
WQ4b		**Dumping of SW on river banks**	**[Fully Controlled] / [Partly controlled] /[no Measures taken]**	**NA**
WQ4c		**Control measures for idol immersion**	**[Measures taken] / [Measures taken post immersion] / [No Measures taken]**	**NA**
WQ5	**Control of Water Pollution in Rivers**			
WQ5a		**Percentage of untreated sewage**	**[%] (automatic SM1g/SM1a)**	**24 MLD/46.5 MLD**
WQ5b		**Monitoring of Action Plans for Rejuvenation of Rivers**	**[Monitored] / [Not monitored] [not applicable]**	**NA**
WQ5c		**No of directions given to industries for Discharge of Untreated industrial wastewater in last 12 months**	**[Nos]**	**1**
WQ6	**Awareness Activities**			
WQ6a		**District level campaigns on protection of water quality**	**[Nos in previous year]**	**NA**
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 Created**

WQ7	**Protection of Flood plains**			
WQ7a		**Encroachment of flood plains is regulated.**	**[Yes] / [No]**	**No**
	Rainwater Harvesting			
WQ8a		**Action plan for Rain water harvesting**	**[Implemented] / [Not implemented]**	**Implemented**

5.2.1. 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.

Water Resource Recovery Facility of the Future

Energy Positive and Beyond: The Vision for Transforming Wastewater Treatment

Energy Efficiency and Resource Recovery

Facilities will use energy-efficient operations to recover water, energy, and nutrients as well as to produce clean water and other products.

Integrated Production

Facilities will produce clean water, energy, other water grades, and a slate of products for industry, agriculture, etc.

Clean Drinking Water | Other Water Grades | Healthy Aquatic Systems | Fuels | Electricity | Chemicals | Fertilizer

Smart Systems

Sensors, software, and advanced devices monitor volume and content of incoming streams, inform plant operations, track performance, and verify output safety and quality.

Outcomes

- Healthy environment
- Renewable energy supply
- Reduced carbon emissions
- Economic growth
- Vibrant and green communities

Residential | Commercial | Power Plants | Transportation | Industrial | Agricultural

Engaged & Informed Communities

Officials, industry, and the public will manage demand and waste better, support resource recovery goals, and contribute to integrated solutions for water, energy, and food supply.

Baseline Data for Domestic Sewage Management

3.0 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 generated in District from Class II cities and above**	**[MLD]**	**46.5**
SM1b		**No of Class-II towns and above**	**[Nos]**	**NA**
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]**	**5**
SM1f		**Quantity of treated sewage flowing into Rivers (directly or indirectly)**	**[MLD]**	**NA**
SM1g		**Quantity of untreated or partially treated sewage (directly or indirectly)**	**[Automatic]**	**24 MLD**
SM1h		**Quantity of sewage flowing into lakes**	**[MLD]**	**8 MLD after treatment**
SM1i		**No of industrial townships**	**[Nos]**	**42**
SW2	**Adequacy of Available Infrastructure for Sewage Treatment**			**NA**
SM2a		**% sewage treated in STPs**	**[Automatic]**	**17.50%**
SM2b		**Total available Treatment Capacity**	**[MLD]**	**43**
SM2c		**Additional treatment capacity required**	**[MLD]**	**NA**
SM3	**Adequacy of Sewerage Network**			
SM3a		**No of ULBs having partial underground sewerage network**	**[Nos]**	**4**
SM3b		**No of towns not having sewerage network**	**[Nos]**	**NA**
SM3c		**% population covered under sewerage network**	**[Automatic]**	**27.5**

SWOT Analysis for Domestic Sewage Management

	Helpful to achieving the objectives	**Harmful** to achieving the objectives
Internal origin (attributes of the Organization)	**Strengths**	**Weakness**
	• NA	• Insufficient Sewage Treatment Network and Sewage Treatment Plant with reference to Population • Cleaning of open drains not properly done
External Origin (attributes of the Environment)	**Opportunities**	**Threats**
	• Proper sewage treatment is needed • Size of sewerage pipeline should be 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 • Personal Protective Equipment's for Workers dealing with sewage waste	• Untreated sewage waste contaminates the water bodies which lead 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

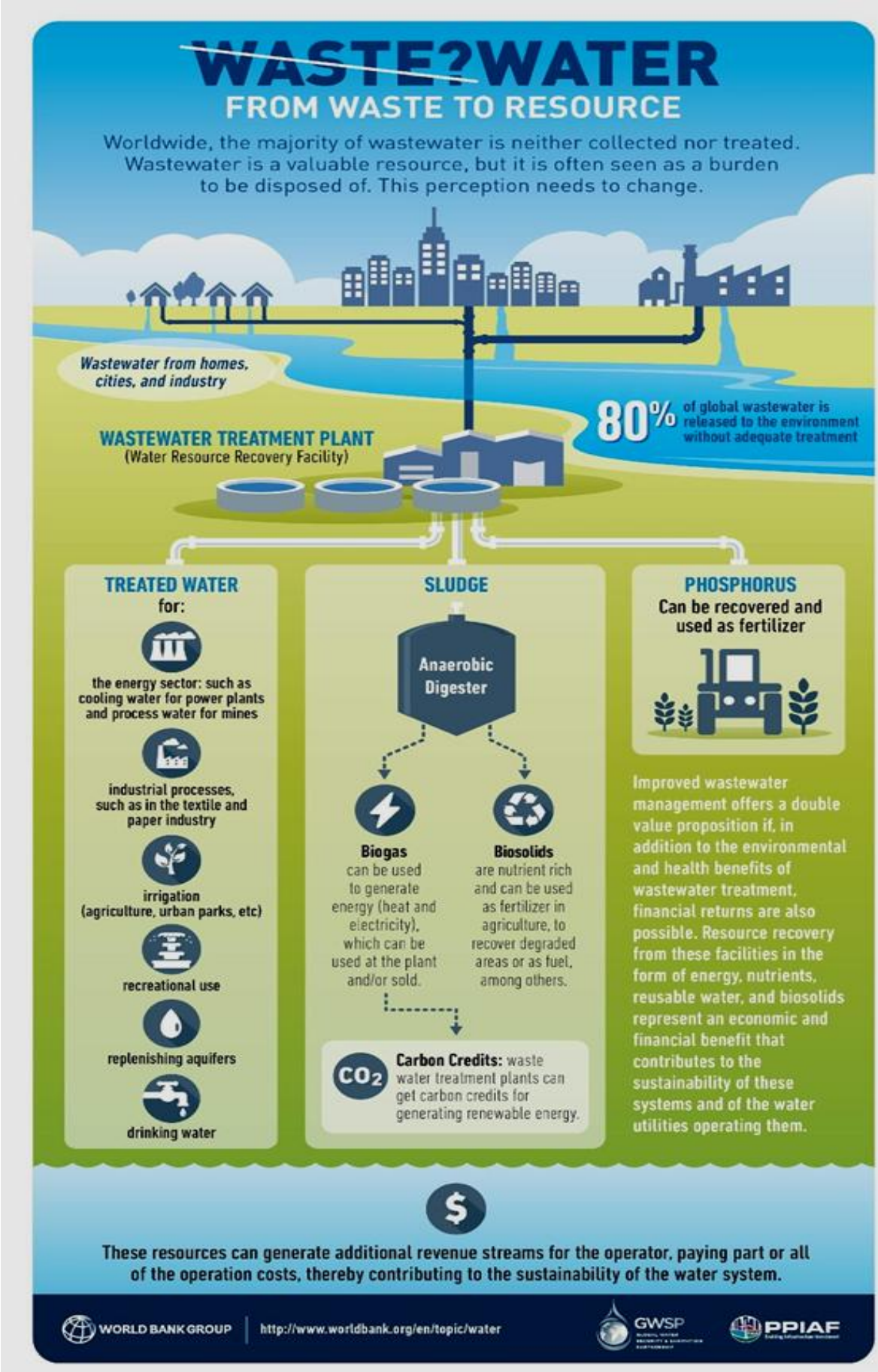
S. No.	Action Points	Timelines	Department/ Agencies
1	Estimation of total sewage generation from City/Towns where sewage treatment facility does not exist and preparation of DPR for treatment of sewage	Immediate	ULBs
2	Measurement of flow & load of all the drains contributing pollution load in Rivers	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	Immediate	ULBs / RPCB / CPCB
10	Preparation of DPR for channelization including diversion of sewage 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 areas where 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 in all 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 developed and implemented for purposes of carbon segmentation.	Regular Activity	RPCB

5.2.2. 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

Baseline Data for Industrial Waste Water Management

4.0 Industrial Wastewater Management Plan				
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]**	**44**
IWW1b		**Total Quantity of industrial wastewater generated**	**[MLD]**	**1.09**
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**	**[Metallurgical] / [Stone Cutting] / [Stone Grinding] / [Power Plants] / [Mining] / Multiple selection based on size of operation and number**
IWW1f		**Common Effluent Treatment Facilities**	**[Nos] / [No CETPs]**	**1**
IWW2	**Status of compliance by Industries in treating wastewater**			
IWW2a		**No of Industries meeting Standards**	**[Nos]**	**NA**
IWW2b		**No of Industries not meeting discharge Standards**	**[Automatic]**	**NA**
IWW2c		**No of complaints received or number of**	**[Nos]**	**16**

		recurring complaints against industrial pollution in last 3 months		
AWW4	**Status of Action taken for not meeting discharge standards**			
IWW4a		**No industries closed for exceeding standards in last 3 months**	**[Nos]**	**NA**
IWW4b		**No of industries where Environmental Compensation was imposed By SPCBs**	**[Nos]**	**NA**

SWOT Analysis for Industrial Waste Water Management

	Helpful to achieving the objectives	**Harmful** to achieving the objectives
Internal origin (attributes of the Organization)	**Strengths**	**Weakness**
	• NA	• Data on the generation of Industrial Waste Water by Small and Micro Scale Industries not available
External Origin (attributes of the Environment)	**Opportunities**	**Threats**
	• Common Effluent treatment plant (CETP) facilities needed • Zero Liquid Discharge (ZLD) strategy should be adopted to minimize the Industrial Effluents • Time to time monitoring with respect to Industrial Waste Water generation and management	• Untreated Industrial Waste Water may lead to severe Environmental Issues

Action Plan for Industrial Waste Water Management

Short Term Action Points for Industrial Waste Management

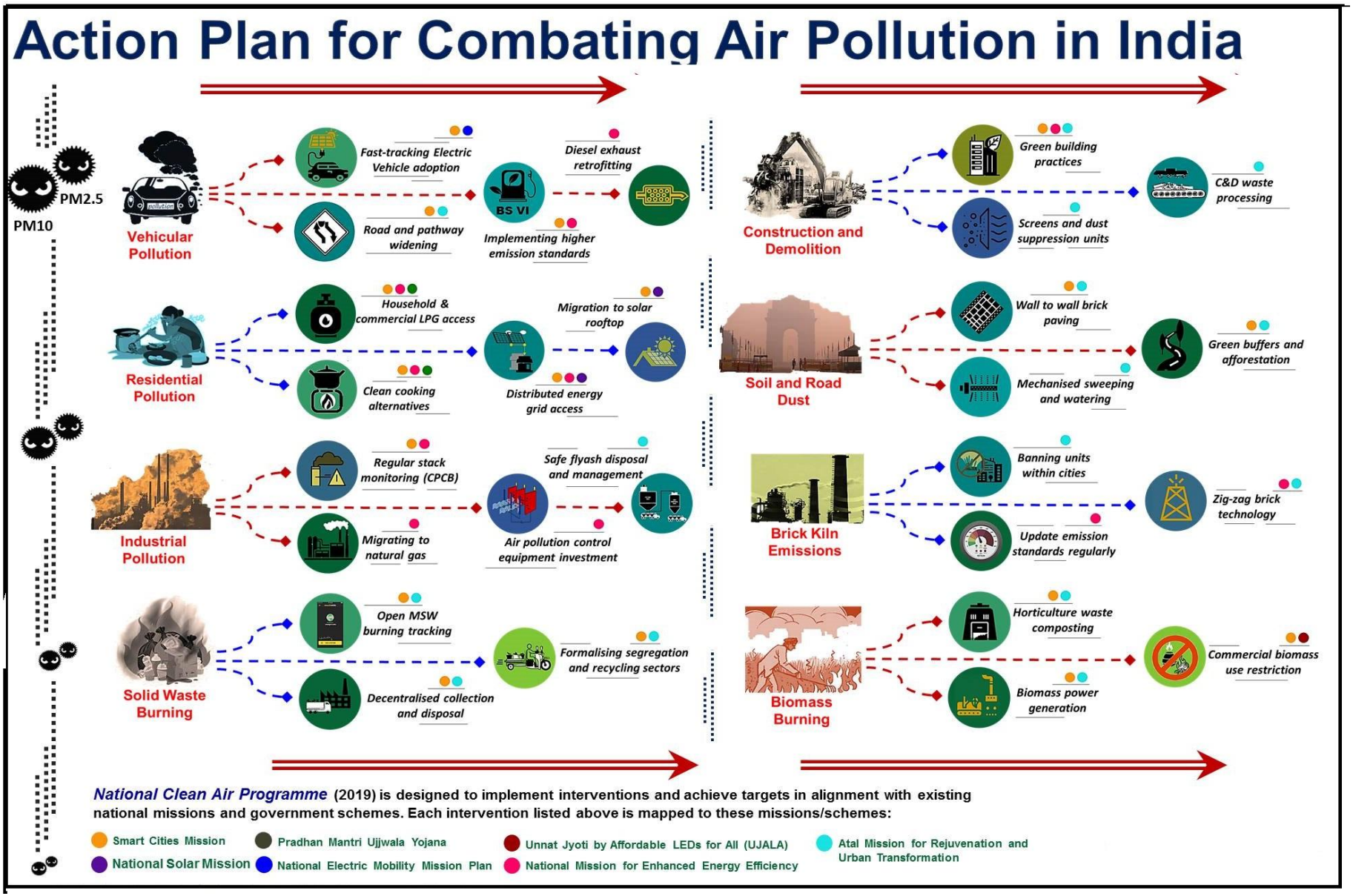
S. No.	Action Points	Timelines	Department/ Agencies
1	Re-inventorization of Water Polluting Industries in the catchment area of the drains and their status with respect to consent, installation of ETP, adequacy of ETP and final discharge point	Immediate	RPCB / ULBs & Department of Industries
2	Monitoring 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, Development Authority, Power Corporation, Department of Industries etc.

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 additional treatment facilities & process improvement	12 Months	CGWA, CPCB, Department of 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

5.3. 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
National Solar Mission
Pradhan Mantri Ujjwala Yojana
National Electric Mobility Mission Plan
Unnat Jyoti by Affordable LEDs for All (UJALA)
National Mission for Enhanced Energy Efficiency
Atal Mission for Rejuvenation and Urban Transformation

Baseline Data for Air Quality Management

5.0 Air Quality Management Plan				
No.	**Action Areas**	**Details of Data Requirement**	**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]**	**0**
AQ1c		**Automatic monitoring stations Operated by SPCBs / CPCB**	**[Nos] / [None]**	**1**
AQ2	**Inventory of Air Pollution Sources**			
AQ2a		**Identification of prominent air polluting sources**	**[Large Industry] / [Small Industry] / [Unpaved Roads] / [Burning of Waste Stubble] / [Brick Kiln] / [Industrial Estate] / [Others] (Multiple selection)**	**Stone Crisher = 134, Plastic Processing = 61, Mineral Grinding = 921, Textile = 34, Lead = 23, Woolen Printing = 30, Marble = 813, Bricks = 88, Iron Base =71**
AQ2b		**No of Non-Attainment Cities**	**[Nos / [None]**	**None**
AQ2c		**Action Plans for non-attainment cities**	**[Prepared] / [Not yet prepared]**	**Not Require**
AQ3	**Availability of Air Quality Monitoring Data at DMs Office**			
AQ3a		**Access to air quality data 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]**	**Regular Monitoring is Being Conducted**

AQ4b		**No of Industries not meeting discharge Standards**	**[Nos]**	**Nil**
AQ5	**Control of Non-industrial Air Pollution sources**			
AQ5a		**Control open burning of Stubble –during winter**	**[Nos of fire incidents]**	**0**
AQ5b		**Control Open burning of Waste – Nos of actions Taken**	**[Nos]**	**0**
AQ5c		**Control of forest fires**	**[SOP available] / [No SoP]**	**No SoP**
AQ5d		**Vehicle pollution check centers**	**[% ULBs covered]**	**NA**
AQ5e		**Dust Suppression Vehicles**	**[% ULBs covered]**	**NA**
AQ6	**Development of Air Pollution complaint redressal system**			
AQ6a		**Mobile App / Online based air pollution complaint redressing system of SPCBs.**	**[Available] / [Not available]**	**Available**

SWOT Analysis for Air Quality Management

	Helpful to achieving the objectives	**Harmful** to achieving the objectives
Internal origin (attributes of the Organization)	**Strengths**	**Weakness**
	• Mobile App / Online based air pollution complaint redressing system of SPCBs associated with Rajasthan Sampark Portal	• Insufficient Monitoring Stations of Air Quality of Districts • Prominent Air Polluting Sources not identified • Access to air quality data from SPCBs & CPCB through Dashboard not available • Insufficient Data regarding Number of Industries meeting the standards
External Origin (attributes of the Environment)	**Opportunities**	**Threats**
	• Use of instruments to combat industrial air pollution • Vehicle Pollution Check centres with respect to population pressure • Dust Suppression Vehicles with respect to population pressure • 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	• Open burning of waste even at small scale causes the air pollution • Dust prone areas should be identify and mitigating measures must be taken

Action Plan for Air Quality Management

Vehicle emission control

Long Term Action Plan: Reduce Congestion

S. No.	Action Points	Timelines	Department/ Agencies
i	Plying of electric buses, e-rickshaws for public transport including establishment of sufficient charging stations.	Immediate	Transport Department
ii	Prepare plan for construction of expressways / bypasses to avoid congestion 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 of Road 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 campaign for 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 to check 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 improvement of infrastructure for decongestion of road	Immediate	ULBs
vi	Steps for promoting battery operated 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 Pollution

Long Term Action Plan

S. No.	Action Points	Timelines	Department/ Agencies
i)	Dead Bodies of Animals should be disposed 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 calculated and disseminated to the people through website and other media (on maximum fortnightly basis for manually operated monitoring stations and real time basis for continuous monitoring stations	Immediate and then As 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 domestic and commercial cooking with target of 100% coverage *(Under Pradhan Mantri Ujjwala+ Yojana in urban areas)*	Immediate	District Supply Officer
iv)	Monitoring of DG sets and action against violations. Fine should be imposed on defaulters.	Immediate	RPCB
v)	If Air Quality Index found severe or above 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 should be imposed on defaulting units.	Immediate and thereafter, continue as 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 against open burning of bio-mass, crop residue, garbage, leaves, etc.	Immediate	ULBs / NGOs / Education Department
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 and then its disposal directly in plant without dumping it on land.	Immediate	ULBs
vi)	Establishment of composting pits in Parks/ residential societies etc. for management of biodegradable waste.	Immediate	ULBs

Action Points for Control of Industrial Emissions

Long Term Action Plan

S. No.	Action Points	Timelines	Department/ Agencies
i)	Installation of appropriate air pollution control devices in factory units / industries.	Immediate	RPCB / Department of Industries
ii)	Development of mobile facility/van for 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.

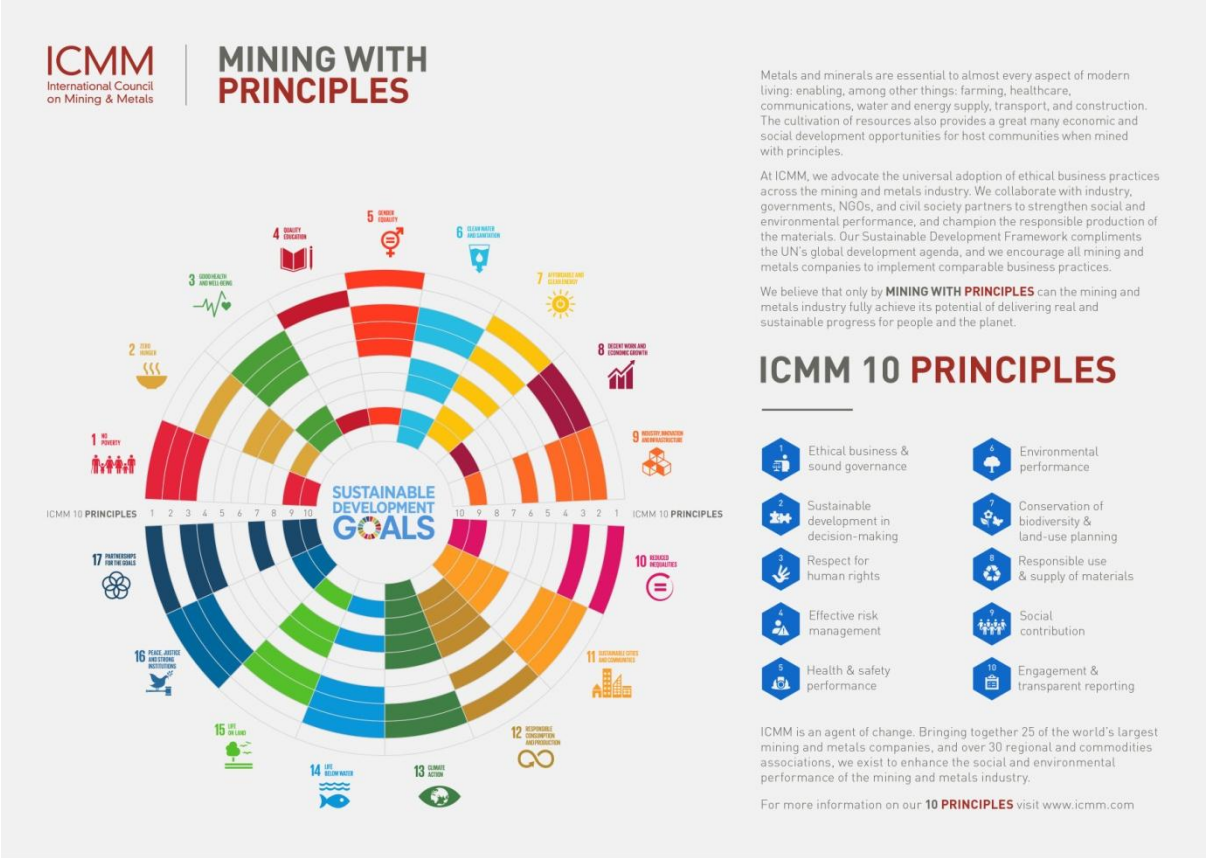
Short Term Action Plan

S. No.	Action Points	Timelines	Department/ Agencies
I.	Identification of brick kilns and their regular monitoring including use of designated fuel, and closure of unauthorized units	Immediate	ULBs / RPCB
II.	Monitoring of industrial emission including real time online monitoring through OCEMS (Online Continuous Emission Monitoring System) and live camera feed and to take action against non-complying industrial units	Immediate, and thereafter, regular activity	RPCB
III.	Bank guarantee should be taken for the 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, regular activity	RPCB
IV.	Installation of webcams and OCEMS 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 industries through installations of wet scrubbers	Immediate	RPCB

5.4. Mining Activity Management

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 under the 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

6.0 Mining Activity Management plan				
No.	**Action Areas**	**Details of Data Requirement**	**Measurable Outcome**	**Please enter Measurable Outcome for District**
MI1a	**Inventory of Mining in District**			
MI1a		**Type of Mining Activity**	**[Sand Mining] / [Iron Ore] / [Bauxite] / [Coal] / Other [specify]**	**Beryl, Calite, Emerald Crude, Felspar, Granite, Kyanite, Lead, Magnesite, Masonarystone, Marble, Mica, Open Cast Mining, Quart, Quartzite, Soapstone, Vermiculite, Zinc**
			Multiple selection in order of magnitude of operations	**NA**
MI1b		**No of Mining licenses given in the District**	**[Nos]**	**688**
MI1c		**Area covered under mining**	**[Sq Km]**	**2704.89**
MI1d		**Area of District**	**[Sq Km]**	**8481**
MI1e		**Sand Mining**	**[Yes] / [No]**	**River sand mining is prohibited from 17 Nov 2017 by Supreme Court Order, In Agriculture Land One Lease of Area 1 Hact. Is working**
MI1f		**Area of sand Mining**	**[River bed] / [Estuary] / [Non - river deposit]**	**1 hact**
MI2	**Compliance to Environmental Conditions**			
MI2a		**No of Mining areas meeting Environmental Clearance Conditions**	**[Nos]**	**183**

MI2b		**No of Mining areas meeting Consent Conditions of SPCBs / PCCs**	**[Nos]**	**197**
MI3a	**Mining related environmental Complaints**			
MI3b		**No of pollution related complaints against Mining Operations in last 1 year**	**[Nos]**	**1**
MI4	**Action against non-complying mining activity**			
MI4a		**No of Mining operations suspended for violations to environmental norms**	**[Nos]**	**NA**
MI4b		**No of directions issued by SPCBs**	**[Nos]**	**44**

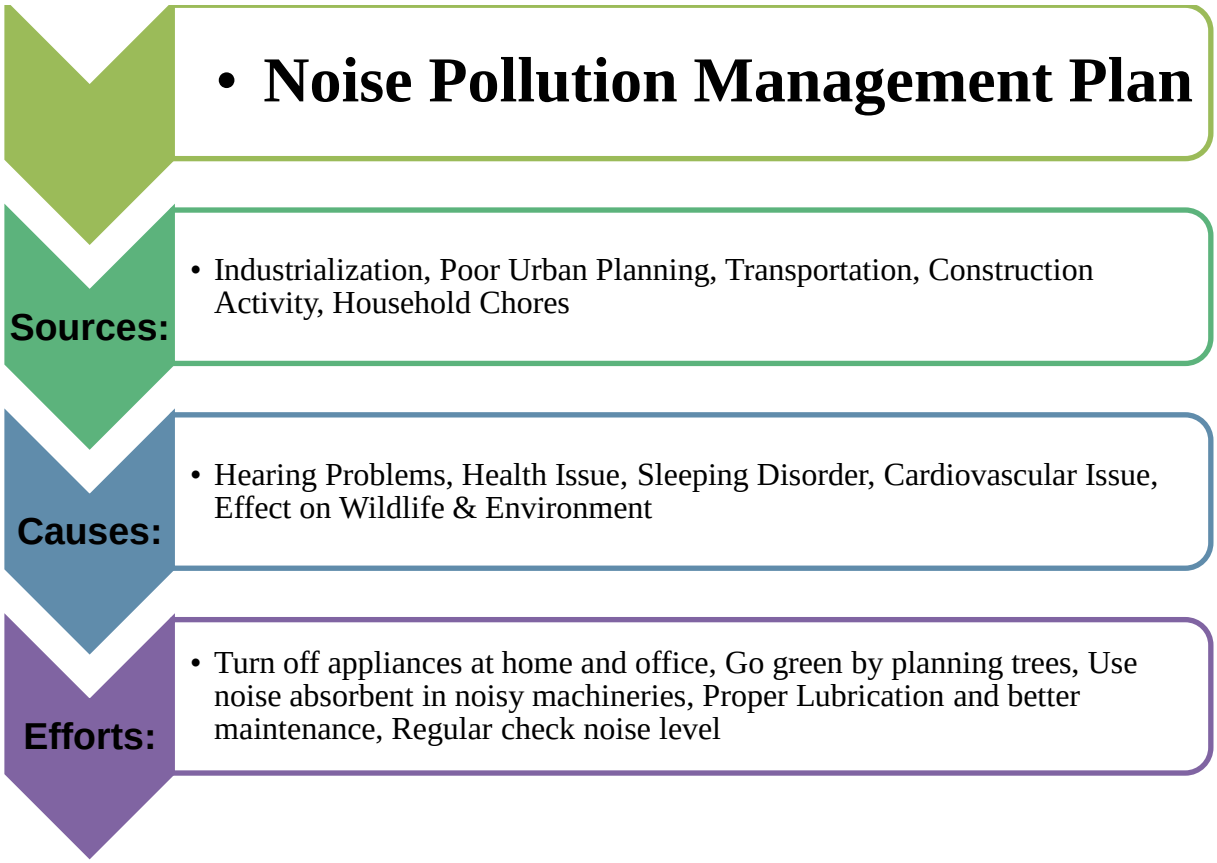
SWOT Analysis for Mining Activity Management

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

Action Plan for Mining Activity Management

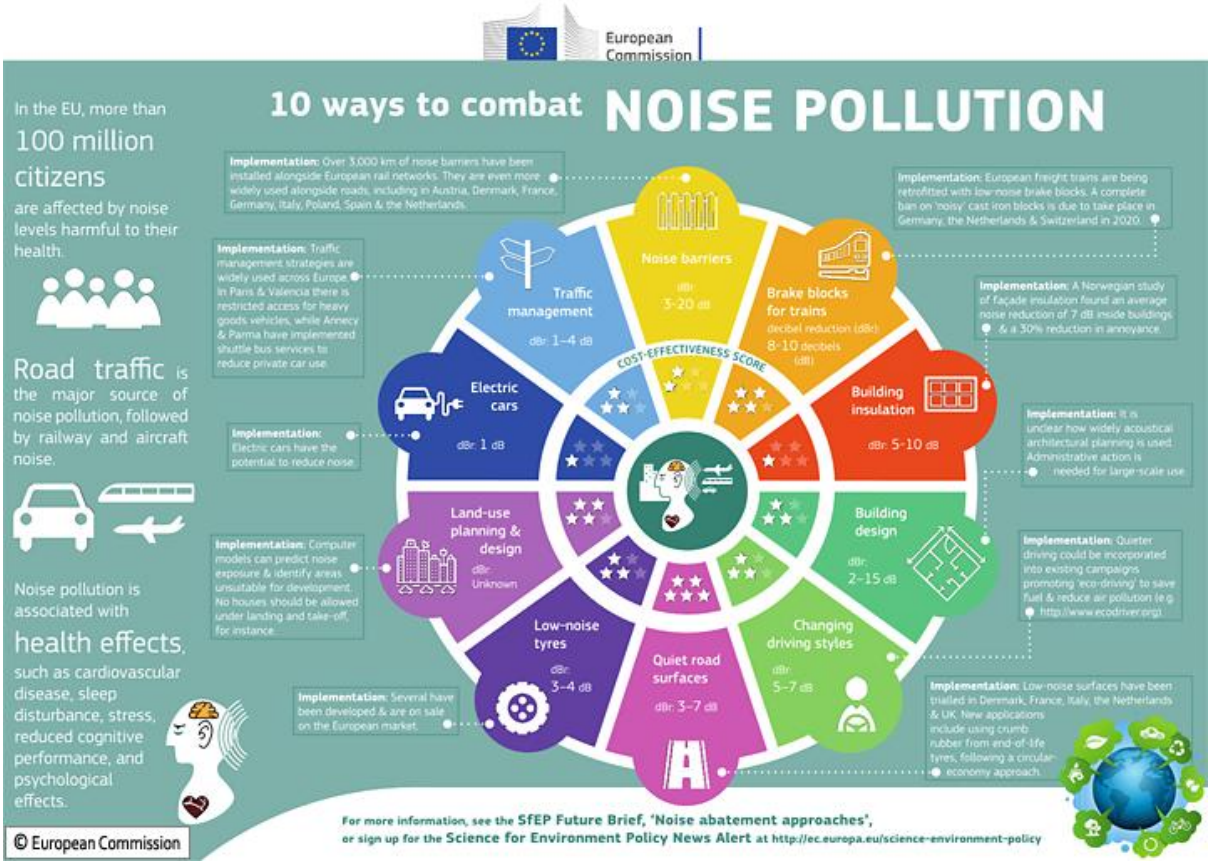
S. No.	Action Points	Timelines	Department/ Agencies
1.	Adoption of sustainable and systematic mining practices	Regular Activities	Mining Dept.
2.	Enforcing strict control measures against air pollution.	Immediate then after Regular Activity	RPCB
3.	Enforcing strict control measures against water pollution	Immediate then after Regular Activity	RPCB
4.	Enforcing strict control measures against noise 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.
9.	Alternative uses of fly ash for purposes so as to reduce red bricks demand	Regular Activities	ULBs / PWD / Development Authority

5.5. Noise Pollution Management



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

7.0 Noise Pollution Management Plan				
No.	**Action Areas**	**Details of Data Requirement**	**Measurable Outcome**	**Please enter Measurable Outcome for District**
NP1	**Availability Monitoring equipment**			
NP1a		**No. of noise measuring devices with district administration**	**[Nos] / [None]**	**None**
NP1b		**No. of noise measuring devices with SPCBs**	**[Nos] / [None]**	**1**
NP2	**Capability to conduct noise level monitoring by State agency / District authorities**			

NP2a		**capability to conduct noise level monitoring by State agency / District authorities**	**[Available] / [Not available]**	**Not Available**
NP2	**Management of Noise related complaints**			
NP2a		**No of complaints received on noise pollution in last 1 year**		**0**
			[Nos]	**0**
				0
NP2b		**No of complaints redressed**	**[Nos]**	**0**
NP3	**Compliance to ambient noise standards**			
NP3a		**Implementation of Ambient noise standards in residential and silent zones**	**[Regular Activity] / [Occasional] / [Never]**	**Regular Activity**
NP3b		**Noise monitoring study in district**	**[carried out] / [not carried out]**	**Noise Level Monitoring is being Conducted at District HQ on Monthly Basis**
NP3c		**Sign boards in towns and cities in silent zones**	**[Installed] / [Partial] / [Not Installed]**	**Not Installed**

SWOT Analysis for Noise Pollution Management

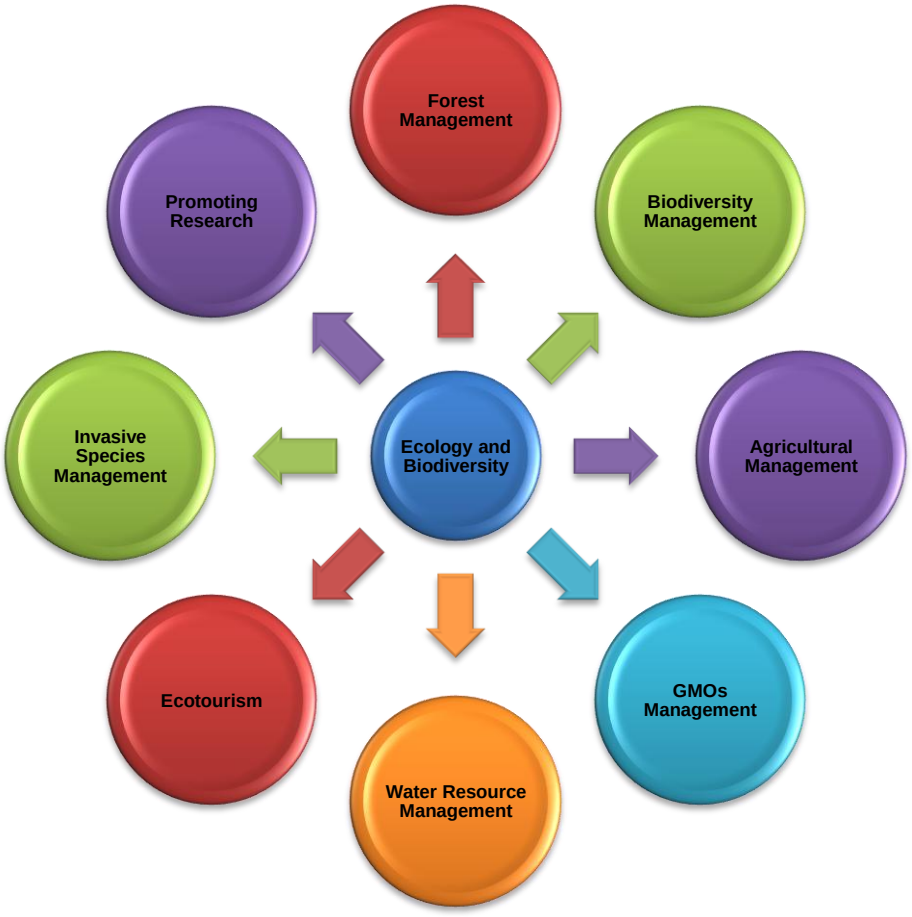
	Helpful to achieving the objectives	Harmful to achieving the objectives
Internal origin (attributes of the Organization)	**Strengths**	**Weakness**
	• NA	• Sound Level Measuring Devices Not Available
External Origin (attributes of the Environment)	**Opportunities**	**Threats**
	• Sign boards in towns and cities in silent zones • Public awareness to be created with participation of NGOs / SHGs / Academic institutions • Leaflets / Brochures explaining Noise 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 be a 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 areas such 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 loud speaker 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

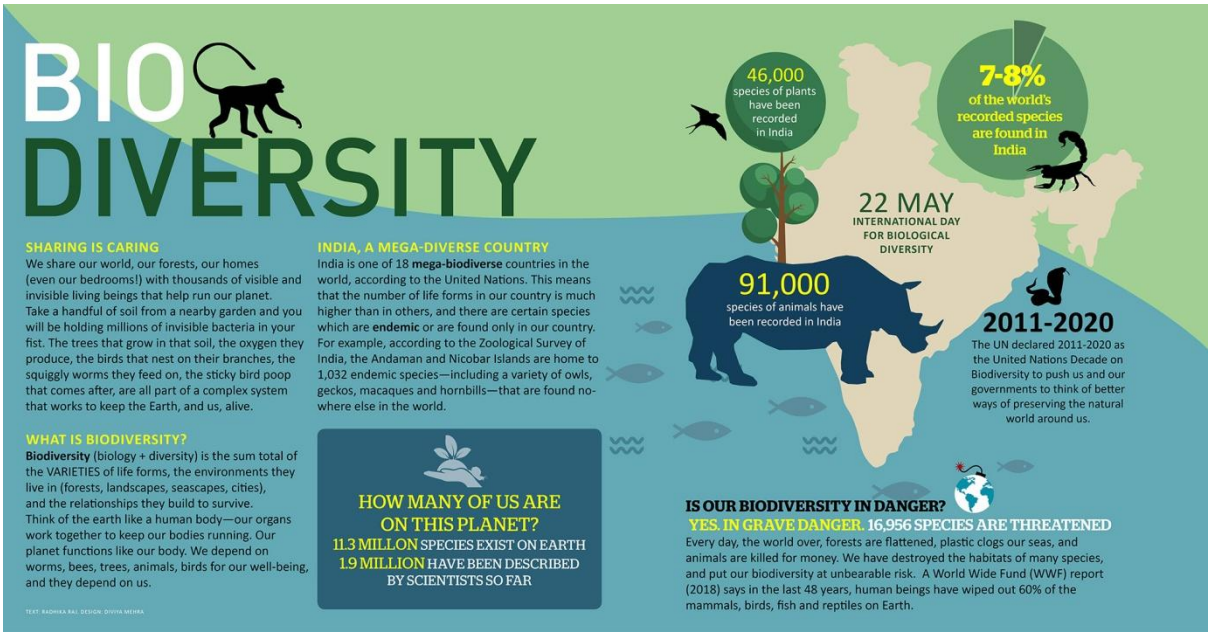
5.6. Ecology and Biodiversity Management



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.



Economic benefits of invasive species management

BRITISH ECOLOGICAL SOCIETY

Invasive species are plant, animal and other species that have been introduced to new environments and are having negative ecological, economic or social impacts, including:

Example

The bushtailed possum is much loved in its native Australia, where there are active efforts to create more habitat for it

Just next door in New Zealand, however, the possum has caused damage to native trees and rare birds since being introduced, and is considered a possible vector of bovine TB.

The rate of new species introductions has increased since the 1950s due to factors like climate change and expansion of global trade

Controlling invasive species can be expensive, but in many cases, not controlling them may be even more costly. So how can we estimate the benefits of control?

This paper explains how to measure the *economic costs* of the impacts of invasive species on ecosystems.

First, it's important to consider what kind of impact the invasive species might have. This depends on factors like:

Then consider the value of the ecosystem or resource that is threatened by the invasive species. This is where things get tricky.

If it's a market good, like wood from a commercial forest that is threatened by insects, then you can estimate its value based on market prices.

This makes it possible to estimate how much money would be lost if the forest were destroyed by insects.

But what about values that exist outside of the market, like biodiversity?

Through surveying people and observing their behaviour, it is possible to estimate how much they are willing to spend to maintain certain things like clean air or some biodiversity.

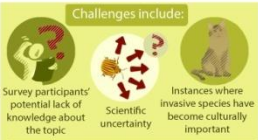
To measure the costs of invasive species on non-market resources like biodiversity, economists rely on a concept called "willingness to pay": how much people are willing to spend to prevent an invasive species or to protect other ecological resources.

They can add in complicating factors to determine what is most important to people when developing management strategies

Observing how much people pay to travel to outdoor recreation areas is also a good way of estimating value of those spaces.

By estimating people's willingness to pay, economists can estimate economic value of ecosystems and resources, which allows them to measure how much economic damages invasive species might incur; understanding people's preferences also helps ecologists to develop management strategies that are acceptable to as many people as possible.

Challenges include:



Despite the challenges, economic valuation is very important for assessing the impact of invasive species.

Knowing the numbers can help ecologists work together with policy makers and practitioners to enact management solutions.

Illustrated by Holly McKelvey

Wetland biodiversity in crisis

OFB OFFICE FRANÇAIS DE LA BIODIVERSITÉ

OFF YOUR MAP #LifeBeginsinWetlands

MedWet The Mediterranean Wetlands Initiative

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**

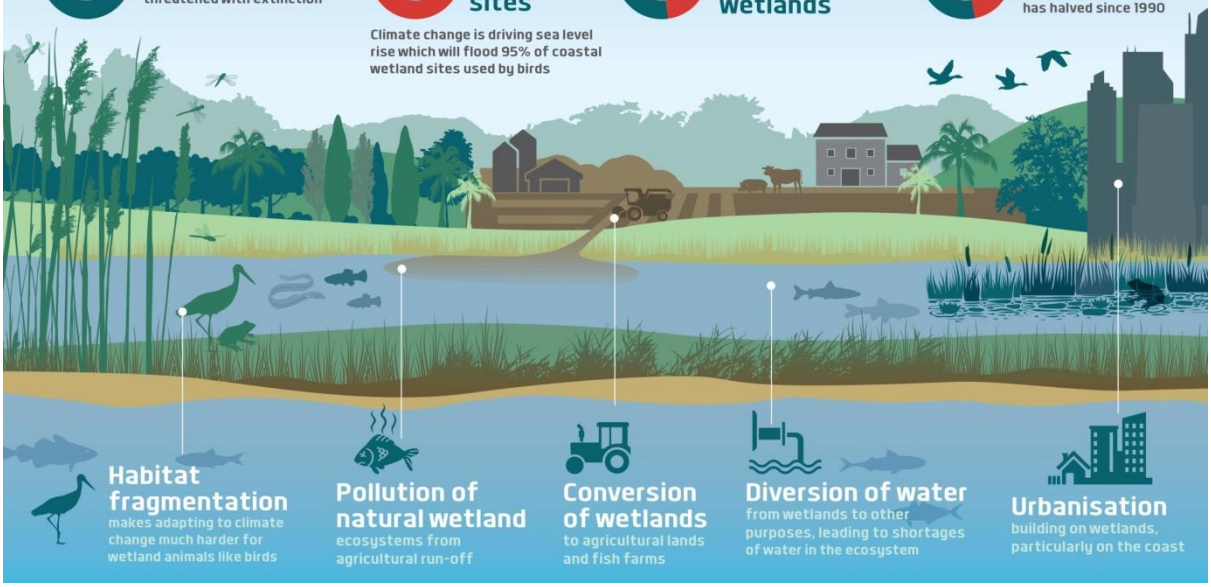
Mediterranean wetland species threatened with extinction

Coastal wetland sites

Climate change is driving sea level rise which will flood 95% of coastal wetland sites used by birds

Between 1970-2015, we lost 48% of **Mediterranean wetlands**

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

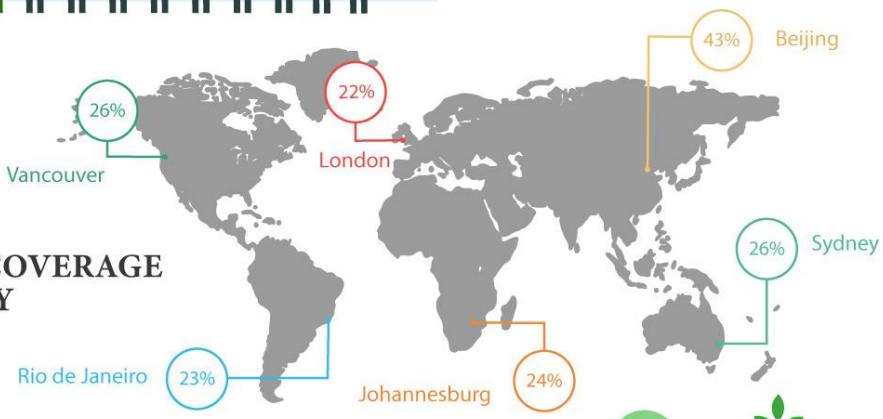
Urbanisation building on wetlands, particularly on the coast

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:
http://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-25e26386c348
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-corneil/jul-14-2015/international-influences-tijuca-forest-%E2%80%93-lungs-rio
http://www.urbantreecover.org/location/london/
https://www.efr.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

No.	Details of Data Requirement		Please enter Measurable Outcome for District
EB1	District Name		Ajmer
EB2	Population		2181670
EB3	Geographical Coordinates of the District		25°38' - 26°52' North 73°54' - 75°24' South
EB4	Geographical Area in Sq. Km		8481
EB5	Forest Area in Sq. Km. till 31.3.2007		613.1
EB5a	Percent Forest Area with reference to Geographical Area		7.32
EB5b	Per Capita Forest Area in Ha		0.03
EB5c	Land of District used for Human Habitation (in % with reference to geographical area of district)		Not Estimated
EB5d	Hill / Mountain area (in % with reference to 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	194.99
EB6b		Protected Forest	418.09
EB6c		Unclassified Forest	0.02
EB6d		Total Forest	613.1
EB7	Forest Types in district (Deciduous / Evergreen / Dry, etc.)		Dry Deciduous
EB8	Type of Soils in Districts		Sandy, Clay
EB9	Biogeographic Division of District		Archian and Pre-Cambrian
EB10	Number of Ranges in Forest Division of District		6
EB10a	Ranges of District		Ajmer, Kishangarh, Pushkar (Peesangan), Nasirabad, Beawar, Sarwar
EB11	Registered Nurseries in district (number/none) (List to be enclosed)		10

EB12	**Joint Forest Management Committees**		
EB12a		**Number**	**148**
EB12b		**Area Managed (Ha)**	**11012.1**
EB13	**Status of PBRs in district (No of PBRs in district -specified with name of area/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)**		**Panchkund Deer Park, Pitambar ki-Gal-Gorge with good forest, Sokhida-Good forest, Kishangarh Lake Copmlex**
EB16	**Identified Important Bird and Biodiversity Areas in District (Name: IBA Site Code) if yes, list to be enclosed.**		**(Gagwana Arain, Mangliyawas, Ramsar, Goyal, Ratakot and Bandar: IN-RJ-05); (Sonkhaliya Closed Area: IN-RJ-21) Nag Pahar Pushkar, Arwar Beed Sokhila, Jawaja, Masuda, Leedi**
EB17	**Identified Sites for Restoration (eg: Abounded Mines)**		**Not Identified**
EB18	**Listed NGOs / Institution / Agencies / Individual Experts of District working in field of Ecology / Environment / Biodiversity**		**Not Identified**
EB19	**Recorded Human-Wildlife Conflict in District (Place, Wild animal species involved, Year, Casualities if any)**		**Place: Village Sampla; Thana Kekri; Wild Species: Nilgai; Year 2019; Casuality: One person died due to attack of wild life; (Name of Person: Smt. Amina w/o Late Sh. Maharban Dadhi (Mirasi Musalman))**

EB19a	**Wildlife Rescue and Rehabilation Centers (none / number, location, contact details)**		**1. Pushkar Rescue Center (Latitude 26.490259 and Longitude 74.57286); 2. Bawari Rescue Center Kishangarh (Latitude 26.3513 and Longitude 74.5259)**
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, Prosopis juliflora (Vilyati Babool)***
EB20b		**Fauna**	**Not Estimated**
EB20c		**Control measures taken for Invasive Species**	**Eradication of Prosopis juliflora from forest land as prescribed in working plan**
EB21	**Geneticaly Modified Crops in the District**		**Not Estimated**
EB22	**Sustainable Agricultural Practices for Biodiversity Conservation and Environment Protection**		**Not Initiated**
EB23	**Seasonal River / Canals / Creeks in District and Conservation of Water from them**		**Rivers: Luni, Shekhati, Khari Nadi, Dai, Banas**
EB23a	**No. of Waterbodies in Districts**		**54 Dams**
EB23b	**Status of Waterbodies in Districts (Name / Location / Ownership / Area / Current use)- List to be enclosed**		**List Enclosed**
EB23c	**Ongoing Commercial Activities in Waterbodies**		**Flood Protection, Irrigation, Fishing, Boating, Agricultural Practices**
EB23d	**Products of Waterbodies (Fishes / Vegetables etc.)**		**As per availability of water**

EB23e	**Encroachment Level at Catchment Areas of Waterbodies**		**Nil**
EB23f	**Control measures taken for Encroachment**		**No need**
EB24	**Status of Flora and Fauna in District**		
EB24a		**Flora**	**Grasses (19 Species); Climbers (7 Species); Shrubs & Herbs (26 Species); Trees (53 Species)**
EB24b		**Fauna**	**Fishes (18 Species); Amphibians (9 Species); Reptiles (37 Species); Birds (211 Species); Mammals (18 Species)**
EB24c		**Publications related to Ecology and Diversity of District (Enclosed the List References)**	**Status of Lesser Florican in Ajmer**

SWOT Analysis for Ecology and Biodiversity Management

	Helpful to achieving the objectives	**Harmful** to achieving the objectives
Internal origin (attributes of the Organization)	**Strengths**	**Weakness**
	• Rescue and rehabilitation centre for wild animals • Urban Green Space (Nagar Udhhan)	• No proper data for Forest cover, protected areas(boundaries) • 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/ centers • Training programmes for local field staff • Promotion of ecotourism activities • Development of urban green spaces. • Biodiversity and Butterfly park • Mitigation of human wildlife conflict • Public awareness to be created with participation of NGOs / SHGs, Academic Institutions • GPS enabled task force to mitigate the Human Wildlife conflict issues and Poaching cases • Veterinary Support for Wildlife • Time to time monitoring of performance • Proper Implementation of Indian Forest Acts, Biodiversity Acts and Wetland Conservation and Management Rules	• Illegal mining and poaching • Encroachment in catchment areas of wetlands and waterbodies • 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 biological resources.	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 data on 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 the experts 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 and floodplain 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 Wetland Authority / District Environmental Committee
8	Field validation and ground truthing of wetland / Water bodies' information and developing a matrix of 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' for all the prioritized wetlands	Immediate, then after regular activity	Water Resource Department / Forest Department / Revenue Department / State Wetland Authority / District Environmental Committee / NGOs / Academic Institutions / Individual Expert
10	Training on wetland health assessments	Immediate, then after regular activity	Water Resource Department / Forest Department / Revenue Department / State Wetland Authority / 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 Wetland Authority / District Environmental Committee / NGOs / Academic Institutions / Individual Expert
12	Prepare detailed documents for species (flora and fauna) in 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
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 Biodiversity Register and associated traditional knowledge	Continuous	Dist. Administration / Forest Dept. / NGOs / Academic Institutions / Individual Experts (if any)
2	Maintain register containing information about details of access of 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 /Forest Dept.
4	Documenting PBRs will also help to stop illegal access of bio-resources within 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	Development of urban green spaces / dedicated green zone / oxy hub / Biodiversity and Butterfly park may be established.	Continuous	Dist. Administration /Forest Dept. / NGOs / Industrial Stake holders

6. Appendices:

Appendix 1: Baseline Data for Solid Waste Management

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**	**Ajmer Zila**								
					Ajmer	**Beawar**	**Kishangarh**	**Kekri**	**Pushkar**	**Bijanagar**	**Sarwad**	**Nasirabad**	**Information Provided BY**
	Name of Urban Local Body (ULB)		**[name of ULB]**		Ajmer Municipal Corporation	Nagar Palika Beawar	Muncipal Council Kishangarh	Nagar Palika Kekri	Nagar Palika Pushkar	Nagar Palika Bijainagar	Nagar Palika Sarwar	Nagar Palika Nasirabad	
	No of ULBs in the District		**[Nos]**	8	8	8	8	8	8	8	8	8	All ULBs (Nagar Parishad / Nagar Palika)
	Population		**[Nos as per 2011 census]**	962592	542321	151152	154486	41890	18247	32124	20372	2000	All ULBs (Nagar Parishad / Nagar Palika)
SW1	**Report on inventory of total solid waste Generation**												All ULBs (Nagar Parishad / Nagar Palika)
SW1a		**Total solid waste Generation**	**[in MT/Day] or [Not estimated]**	407.3	240	60	71	12	8	10	5.5	0.8	All ULBs (Nagar Parishad / Nagar Palika)
SW1b		**Qty. of Dry Waste segregated**	**[in MT/Day] or [Collection Not initiated]**	198.4	120	31.8	28.4	6	4.2	5	2.5	0.5	All ULBs (Nagar Parishad / Nagar Palika)
SW1c		**Qty. of Wet Waste segregated**	**[in MT/Day] or [Collection Not initiated]**	208.9	120	28.2	42.6	6	3.8	5	3	0.3	All ULBs (Nagar Parishad / Nagar Palika)
SW1d		**Qty. of C&D Waste segregated**	**[in MT/Day] or [Collection Not initiated]**	40.9	24	2	10	2	0.3	2	0.5	0.1	All ULBs (Nagar Parishad / Nagar Palika)

SW1e		**Qty. of Street Sweeping**	**[in MT/Day] or [Not estimated]**	26	5	5	10	2.1	0.5	2.2	1	0.2	All ULBs (Nagar Parishad / Nagar Palika)
SW1f		**Qty. of Drain Silt**	**[in MT/Day] or [Not estimated]**	24.93	5	3	8	3.8	0.5	2.8	1.8	0.03	All ULBs (Nagar Parishad / Nagar Palika)
SW1g		**Qty. of Domestic Hazardous Waste(DHW) collected**	**[in MT/Day] or [No Facility]**	2.23	1	0.07	1	No Facility	0.05	0.1	No Facility	0.01	All ULBs (Nagar Parishad / Nagar Palika)
SW1h		**Qty. of Other Waste (Horticulture, sanitary waste, etc.)**	**[in MT/Day] or [Qty not estimated]**	5.12	4	0.07	1	Qty not estimated	0.05	Qty not estimated	Qty not estimated	Qty not estimated	All ULBs (Nagar Parishad / Nagar Palika)
SW1i		**No of Old dump sites**	**[Nos] or [None]**	8	1	1	1	1	2	1	1	Nil	All ULBs (Nagar Parishad / Nagar Palika)
SW1j		**Qty stored in dumpsites**	**[MT] or [Not estimated]**	632609 Cum	360541.76 Cum	55414 CUM	178752 CUM	10467.64 CUM	19288 CUM	3001.58 CUM	4790.10 CUM	356.273 CUM	All ULBs (Nagar Parishad / Nagar Palika)
SW1k		**No of Sanitary landfills**	**[Nos] or [None]**	0	0	0	0	0	0	0	0	0	All ULBs (Nagar Parishad / Nagar Palika)
SW1l		**No of wards**	**[nos]**	285	60	60	45	30	25	25	20	20	All ULBs (Nagar Parishad / Nagar Palika)
SW2	**Compliance by Bulk Waste Generators**												All ULBs (Nagar Parishad / Nagar Palika)
SW2a		**No of BW Generators**	**[numbers] or [inventory not done]**	36	30	0	0	0	6	0	0	0	All ULBs (Nagar Parishad / Nagar Palika)
SW2b		**No of on-site facilities for Wet Waste**	**[numbers] or [No data]**	32	30	0	0	0	2	0	0	0	All ULBs (Nagar Parishad / Nagar Palika)

SW3	**Compliance in segregated waste Collection SW Collection**											.	All ULBs (Nagar Parishad / Nagar Palika)
SW3a		**Total generation**	**[Automatic] from SW1a**	407.3	240	60	71	12	8	10	5.5	0.8	All ULBs (Nagar Parishad / Nagar Palika)
SW3b		**Wet Waste**	**[in MT/Day] or [Collection Not initiated]**	198.4	120	31.8	28.4	6	4.2	5	2.5	0.5	All ULBs (Nagar Parishad / Nagar Palika)
SW3c		**Dry Waste**	**[in MT/Day] or [Collection Not initiated]**	208.9	120	28.2	42.6	6	3.8	5	3	0.3	All ULBs (Nagar Parishad / Nagar Palika)
SW3d		**C&D Waste**	**[in MT/Day] or [Collection Not initiated]**	31.3	24	1.5	1.5	0.2	0.5	2	1.5	0.1	All ULBs (Nagar Parishad / Nagar Palika)
SW4	**Waste Management Operations**												All ULBs (Nagar Parishad / Nagar Palika)
SW4a		**Door to Door Collection**	**[100%] / [partial %] / [not initiated]**	100%	100%	100%	100%	100%	100%	100%	100%	100 %	All ULBs (Nagar Parishad / Nagar Palika)
SW4b		**Mechanical Road Sweeping**	**[100%] / [partial%] / [not initiated]**	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	All ULBs (Nagar Parishad / Nagar Palika)
SW4c		**Manual Sweeping**	**[100%] / [partial%]**	100%	100%	100%	100%	100%	100%	100%	100%	100 %	All ULBs (Nagar Parishad / Nagar Palika)
SW4d		**Segregated Waste Transport**	**[100%] / [partial %] / [not initiated]**	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	All ULBs (Nagar Parishad / Nagar Palika)
SW4e		**Digesters (Bio-methanation)**	**[% of WW] / [not initiated]**	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	All ULBs (Nagar Parishad / Nagar Palika)

SW4f		**Composting operation**	**[% of WW] / [not initiated]**	12.50%	Not Initiated	10%	Not Initiated	30%	30%	Not Initiated	30%	Not Initiated	All ULBs (Nagar Parishad / Nagar Palika)
SW4g		**MRF Operation**	**[MRF used] / [not installed]**	Installed	Installed	Installed	Installed	Installed	Installed	Work in progress But Not Installed	Work Order Given	Work Order Given	All ULBs (Nagar Parishad / Nagar Palika)
SW4h		**Use of Saniatry Landfill**	**[% of SW collected] / [no SLF]**	No SLF	No SLF	No SLF	No SLF	No SLF	No SLF	No SLF	No SLF	No SLF	All ULBs (Nagar Parishad / Nagar Palika)
SW4i		**Reclamation of old dumpsites**	**[initiated] / [not initiated]**	Not Initiated	Not Initiated	Initiated but DMFT Fund has not received for reclamation	Initiated but DMFT Fund has not received for reclamation	Initiated but DMFT Fund has not received for reclamation	Initiated but DMFT Fund has not received for reclamation	Initiated but DMFT Fund has not received for reclamation	Initiated but DMFT Fund has not received for reclamation	Initiated but DMFT Fund has not received for reclamation	All ULBs (Nagar Parishad / Nagar Palika)
SW4j		**Linkage with Waste to Energy Boilers / Cement Plants**	**[initiated] / [not initiated]**	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	All ULBs (Nagar Parishad / Nagar Palika)
SW4k		**Linkage with Recyclers**	**[initiated] / [not initiated]**	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	All ULBs (Nagar Parishad / Nagar Palika)
SW4l		**Authorization of waste pickers**	**[initiated] / [not initiated]**	Initiated	Initiated	Initiated	Initiated	Initiated	Initiated	Initiated	Initiated	Not Initiated	All ULBs (Nagar Parishad / Nagar Palika)
SW4m		**Linkage with TSDF / CBMWTF**	**[initiated] / [not initiated]**	Initiated	Initiated	Initiated	Initiated	Initiated	Initiated	Initiated	Initiated	Initiated	All ULBs (Nagar Parishad / Nagar Palika)
SW4n		**Involvement of NGOs**	**[initiated] / [not initiated]**	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	Not Initiated	All ULBs (Nagar Parishad / Nagar Palika)

SW4o		**Linkage with Producers / Brand Owners**	**[initiated] / [not initiated]**	Initiated	Not Initiated	Initiated	Not Initiated	Initiated	Initiated	Initiated	Initiated	Initiated	All ULBs (Nagar Parishad / Nagar Palika)
SW4p		**Authorisation of Waste Pickers**			Not Initiated	Initiated	Initiated	Initiated	Initiated	Initiated	Initiated	Not Initiated	All ULBs (Nagar Parishad / Nagar Palika)
SW4q		**Issuance of ID Cards**	**[initiated] / [not initiated]**	140	Not Initiated	20	Not Initiated	50	20	Initiated	50	Not Initiated	All ULBs (Nagar Parishad / Nagar Palika)
SW5	**Adequacy of Infrastructure**												All ULBs (Nagar Parishad / Nagar Palika)
SW5a		**Waste Collection Trolleys**	**[Nos. Required] / [Nos. Available]**	350/100	0	75	80	75	75	100/100	45	Not Available	All ULBs (Nagar Parishad / Nagar Palika)
SW5b		**Mini Collection Trucks**	**[Nos. Required] / [Nos. Available]**	178/8	120	Not Available	45	Not Available	Not Available	13/8	Not Available	Not Available	All ULBs (Nagar Parishad / Nagar Palika)
SW5c		**Segregated Transport**	**[yes] / [no] / [% area covered]**	18.75%	0	YES 30%	YES 30%	YES 30%	YES 30%	No	YES 30%	No	All ULBs (Nagar Parishad / Nagar Palika)
SW5d		**Bulk Waste Trucks**	**[Nos. Required] / [Nos. Available]**	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	All ULBs (Nagar Parishad / Nagar Palika)
SW5e		**Waste Transfer station**	**[Nos. Required] / [Nos. Available] /[Not available]**	Not Available	0	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	All ULBs (Nagar Parishad / Nagar Palika)

SW5f		**Bio-methanation units**	**[Nos. Required] / [Nos. Available]**	Not Available	0	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	All ULBs (Nagar Parishad / Nagar Palika)
SW5h		**Composting units**	**[Nos. Required] / [Nos. Available]**		0	1/1	1	1/1	1/1	Not Available	1/1	Not Available	All ULBs (Nagar Parishad / Nagar Palika)
SW5i		**Material Recovery Facilities**	**[used or installed] / [not available]**	installed	installed	installed	installed	work in progress But Not Installed	installed	work in progress But Not Installed	work in progress But Not Installed	Work Order Given	All ULBs (Nagar Parishad / Nagar Palika)
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	Not Available	All ULBs (Nagar Parishad / Nagar Palika)
SW5l		**Waste to RDF**	**[Required] / [Nos. Available]**	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	All ULBs (Nagar Parishad / Nagar Palika)
SW5m		**Sanitary Land fills**	**[Nos] / [Nos. Available]**	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	All ULBs (Nagar Parishad / Nagar Palika)
SW5n		**Capacity of sanitary landfills**	**[MT] / / [Nos. Available]**	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	All ULBs (Nagar Parishad / Nagar Palika)
SW5o		**Waste Deposit Centers (DHW)**	**[Nos] / [Nos. Available]**	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	All ULBs (Nagar Parishad / Nagar Palika)
SW5p		**Other facilities**	**[give or select from list]**	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	All ULBs (Nagar Parishad / Nagar Palika)
SW6	**Notification and Implementation of By-Laws**												All ULBs (Nagar Parishad / Nagar Palika)

SW6a		**Notification of By-laws**	**[done] / [in progress] / [not initiated]**	Done	Done	Done	Done	Done	Done	Done	Done	Done	All ULBs (Nagar Parishad / Nagar Palika)
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	In progress	All ULBs (Nagar Parishad / Nagar Palika)
SW7	**Adequacy of Financial Status of ULB**												All ULBs (Nagar Parishad / Nagar Palika)
SW7a		**CAPEX Required**	**[INR] / [Not required]**	43 cr	15 Cr.	10 cr	12 Cr	1.5 Cr.	1.00 Cr	1.5 Cr	1.5 Cr.	50,00,000	All ULBs (Nagar Parishad / Nagar Palika)
SW7b		**OPEX**	**[INR per Year] / [% of requirement]**	46.63%	Not Estimated	05 Cr	04 Cr	50% Required	70% Required	50% Required	50% Required	70 % required	All ULBs (Nagar Parishad / Nagar Palika)
SW7c		**Adequacy of OPEX**	**[Yes] / [No]**	No	No	No	No	No	No	No	No	No	All ULBs (Nagar Parishad / Nagar Palika)

Appendix 2: Baseline Data for Plastic Waste Management

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**	**Ajmer Zila**								
					Ajmer	**Beawar**	**Kishangarh**	**Kekri**	**Pushkar**	**Bijainagar**	**Sarwad**	**Nasirabad**	**Action to be Taken by**
	Name of ULB		**[name of ULB]**		Ajmer Municipal Corporation	Municipal Council Beawar	Municipal Council Kishangarh	Municipa l Board Kekri	Municipa l Board Pushkar	Municipal Board Bijai Nagar	Municipa l Board Sarwar	Municipal Board Nasirabad	All ULBs (Nagar Parishad / Nagar Palika)
	Population		**[Nos as per 2011 census]**	**962592**	542321	151152	154486	41890	18247	32124	20372	2000	All ULBs (Nagar Parishad / Nagar Palika)
PW1	**Inventory of plastic waste generation**												All ULBs (Nagar Parishad / Nagar Palika)
PW1a		**Estimated Quantity of plastic waste generated in District**	**[MT/day] / [Not Estimated]**	**6.652**	Not Estimated	2.4	2.84	0.48	0.32	0.48	0.1	0.032	All ULBs (Nagar Parishad / Nagar Palika)
PW2	**Implementation of Collection**												All ULBs (Nagar Parishad / Nagar Palika)

PW2a		**Door to Door collection**	**[100%] / [partial %] / [not initiated]**	**100%**	100%	100%	100%	100%	100%	100%	100%	100 %	All ULBs (Nagar Parishad / Nagar Palika)
PW2b		**Segregated Waste collection**	**[100%] / [partial %]**	**8.12%**	0	0%	5%	25%	0%	20%	15%	0%	All ULBs (Nagar Parishad / Nagar Palika)
PW2c		**Plastic waste collection at Material Recovery Facility**	**[MRF used] / [not installed]**	**MRF Installed**	Bailing Machine installed at MRF	MRF USED	MRF USED	work in progress But Not Installed	MRF USED	work in progress But Not Installed	MRF Work Order Given	MRF Work Order Given	All ULBs (Nagar Parishad / Nagar Palika)
PW2d		**Authorization of PW pickers**	**[Nos] / [not initiated]**	**92**	Not Intiated	20	10	Not Intiated	20	42	Not Intiated	Not Intiated	All ULBs (Nagar Parishad / Nagar Palika)
PW2e		**PW collection Centers**	**[Nos] / [not established]**	MRF	MRF	MRF	MRF	MRF	MRF	MRF	MRF	MRF	All ULBs (Nagar Parishad / Nagar Palika)
PW3	**Establishment of linkage with Stakeholders**												All ULBs (Nagar Parishad / Nagar Palika)
PW3a		**Established linkage with PROs of Producers**	**[Nos] / [not established]**	Not established	Not established	Not Established	Not Established	Not Established	Not Established	Not Established	Not Established	Not Established	All ULBs (Nagar Parishad / Nagar Palika)
PW3b		**Established linkage with NGOs**	**[Nos] / [not established]**	Not established	Not established	Not Established	Not Established	Not Established	Not Established	Not Established	Not Established	Not Established	All ULBs (Nagar Parishad /

													Nagar Palika)
PW4	**Availability of facilities for Recycling or utilization of PW**												All ULBs (Nagar Parishad / Nagar Palika)
PW4a		**No. of PW recyclers**	**[Nos]**	**0**	0	0	0	0	0	0	0	0	All ULBs (Nagar Parishad / Nagar Palika)
PW4b		**No Manufacturers**	**[Nos]**	**0**	0	0	0	0	0	0	0	0	All ULBs (Nagar Parishad / Nagar Palika)
PW4c		**No of pyrolysis oil plants**	**[Nos]**	**0**	0	0	0	0	0	0	0	0	All ULBs (Nagar Parishad / Nagar Palika)
PW4d		**Plastic pyrolysis**	**[Quantity in MT sent per Month]**	**0**	0	0	0	0	0	0	0	0	All ULBs (Nagar Parishad / Nagar Palika)
PW4e		**Use in road making**	**[Quantity MT used per Month]**	**0**	0	0	0	0	0	0	0	0	All ULBs (Nagar Parishad / Nagar Palika)
PW4f		**Co-processing in Cement Kiln**	**[Quantity in MT sent per Month]**	**2522.5**	740 kg	50 KG Sent	125 KG Sent	Total 1030 KG	50 KG Sent	Total 800 KG Send	451 KG Sent	16.50 KG Sent	All ULBs (Nagar Parishad / Nagar Palika)

W5	**Implementation of PW Management Rules, 2016**												All ULBs (Nagar Parishad / Nagar Palika)
W5a		**Sealing of units producing < 50-micron plastic**	**[All sealed] / [Partial] / [no action]**	All sealed	All sealed	All sealed	All sealed	All sealed	All sealed	All sealed	All sealed	Partial	All ULBs (Nagar Parishad / Nagar Palika)
PW5b		**Prohibiting sale of carry bags < 50 micron**	**[Prohibited] / [Partial] / [no action]**	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	Prohibited	All ULBs (Nagar Parishad / Nagar Palika)
PW5c		**Ban on Carry bags and other single use plastics as notified by State Government**	**[Implemented] / [Partial] / [no action] / [No Ban]**	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	All ULBs (Nagar Parishad / Nagar Palika)
PW6	**Implementation of Extended Producers Responsibility (EPR) through Producers/Brand-owners**												All ULBs (Nagar Parishad / Nagar Palika)
PW6a		**No of Producers associated with ULBs**	**[Nos] / [None]**	None	None	None	None	None	None	None	None	None	All ULBs (Nagar Parishad / Nagar Palika)
PW6b		**Financial support by Producers / Brand owners to ULBs**	**[Nos] / [None]**	None	None	None	None	None	None	None	None	None	All ULBs (Nagar Parishad / Nagar Palika)

PW6c		**Amount of PRO Support**	**[Rs…]**	None	None	None	None	None	None	None	None	None	All ULBs (Nagar Parishad / Nagar Palika)
PW6d		**Infrastructure support by Producers / Brand owners to ULBs**	**[Nos of Producers] / [None]**	None	None	None	None	None	None	None	None	None	All ULBs (Nagar Parishad / Nagar Palika)
PW6e		**No of collection centers established by Producers / Brand owners to ULBs**	**[Nos] / [None]**	None	None	None	None	None	None	None	None	None	All ULBs (Nagar Parishad / Nagar Palika)

Appendix 3: Baseline Data for Construction and Demolition Waste Management

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**	**Ajmer Zila**								
					Ajmer	**Beawar**	**Kishangarh**	**Kekri**	**Pushkar**	**Bijanagar**	**Sarwad**	**Nasirabad**	**Action to be Taken by**
	Name of ULB		**[name of ULB]**		**Ajmer Municipal Corporation**	**Municipal Council Beawar**	**Municipal Council Kishangarh**	**Municipal Board Kekri**	**Municipal Board Pushkar**	**Municipal Board Bijai Nagar**	**Municipal Board Sarwar**	**Municipal Board Nasirabad**	All ULBs (Nagar Parishad / Nagar Palika)
	Population		**[Nos as per 2011 census]**	**962592**	542321	151152	154486	41890	18247	32124	20372	2000	All ULBs (Nagar Parishad / Nagar Palika)
CD1	**Inventory of C&D waste generation**												All ULBs (Nagar Parishad / Nagar Palika)
CD1a		**Estimated Quantity**	**[Kg/Day] / [Not estimated]**	**39.45**	24	1.5	9.4	2	0.25	2	0.2	0.1	All ULBs (Nagar Parishad / Nagar Palika)
CD2	**Implement scheme for permitting bulk waste generators**												All ULBs (Nagar Parishad / Nagar

													Palika)
CD2a		**Issuance of Permissions by ULBs**	**[Initiated] / [Not initiated]**	Not initiated	Not initiated	Not Initiated	Not Initiated	No Bulk Waste Genrator	Not Initiated	No Bulk Waste Genrator	No Bulk Waste Genrator	No Bulk Waste Genrator	All ULBs (Nagar Parishad / Nagar Palika)
CD3	**Establishment of C&D Waste Deposition centers**												All ULBs (Nagar Parishad / Nagar Palika)
CD3a		**Establishment of Deposition Points**	**[Yes] / [No]**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	All ULBs (Nagar Parishad / Nagar Palika)
CD3b		**C&D Deposition point identified**	**[Yes] / [No]**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	All ULBs (Nagar Parishad / Nagar Palika)
CD4	**Implementation of By-Laws for CD Waste Management**												All ULBs (Nagar Parishad / Nagar Palika)
CD4a		**Implementation of By-laws**	**[notified] / [not notified]**	Notified	Notified	Notified	Notified	Notified	Notified	Notified	Notified	not notified	All ULBs (Nagar Parishad / Nagar Palika)

CD4b		**Collection of Deposition / disposal Charges**	**[Initiated] / [Not initiated]**	Initiated	Initiated	Initiated	Initiated	Not initiated	Initiated	Not initiated	Not initiated	Not Initriated	All ULBs (Nagar Parishad / Nagar Palika)
CD5	**Establishment of C&D Waste recycling plant or linkage with such facility**												All ULBs (Nagar Parishad / Nagar Palika)
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	No facility exists	All ULBs (Nagar Parishad / Nagar Palika)
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	Not available	All ULBs (Nagar Parishad / Nagar Palika)

Appendix 4: Baseline Data for Bio-Medical Waste Management

(iv) Biomedical Waste Management (for each ULB)													
No.	**Action Areas**	**Details of Data Requirement**	**Measurable Outcome**	**Please enter Measurable Outcome for District**	**Ajmer**	**Beawar**	**Kishangarh**	**Kekri**	**Pushkar**	**Bijanagar**	**Sarwad**	**Nasirabad**	**Action to be taken by**
	Name of ULB		[name of ULB]		**Ajmer Municipal Corporation**	**Municipal Council Beawar**	**Municipal Council Kishangarh**	**Municipal Board Kekri**	**Municipal Board Pushkar**	**Municipal Board Bijai Nagar**	**Municipal Board Sarwar**	**Municipal Board Nasirabad**	All ULBs (Nagar Parishad / Nagar Palika)
	Population		[Nos as per 2011 census]	**962592**	542321	151152	154486	41890	18247	32124	20372	2000	All ULBs (Nagar Parishad / Nagar Palika)
BMW1	Inventory of Biomedical Waste Generation												
BMW1 a		Total no. of Bedded Hospitals	[Nos] / [No inventory]	**211**	**211 (Data as per the records of RSPCB, Kishangarh)**								CMHO
BMW1 b		Total no. of non-bedded HCF	[Nos] / [No inventory]	**225**	**225 (Data as per the records of RSPCB, Kishangarh)**								CMHO
BMW1 c		Total no. Clinics	[Nos] / [No inventory]	**84**	**63**	**10**	**5**	**2**	**0**	**0**	**0**	**4**	CMHO
BMW1 d		No of Veterinary Hospitals	[Nos] / [No inventory]	**3**	**1**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	CMHO
BMW1 e		Pathlabs	[Nos] / [No inventory]	**106**	**63**	**20**	**8**	**8**	**3**	**0**	**0**	**4**	CMHO
BMW1 f		Dental Clinics	[Nos] / [No inventory]	**26**	**22**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	CMHO
BMW1 g		Blood Banks	[Nos] / [No inventory]	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	CMHO

BMW1 h		Animal Houses	[Nos] / [No inventory]	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	All ULBs (Nagar Parishad / Nagar Palika)
BMW1 i		Bio-research Labs	[Nos] / [No inventory]	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0	CMHO
BMW1 j		Others	[Nos] / [No inventory]										All ULBs (Nagar Parishad / Nagar Palika) / CMHO
BMW2	Authorization of HCFs by SPCBs / PCCs			**360**	**360**								RPCB
BMW2 a		Bedded HCFs	[Nos Authorized]	**180**	**180**								RPCB
BMW2 b		Non-bedded HCFs	[Nos Authorized]	**180**	**180**								RPCB
BMW3 a	Biomedical Waste Treatment and Disposal Facilities (CBMWTFs)				**M/S Sales Promoter Located at Village - Sendriya, Ajmer**								RPCB
BMW3 a		No of CBMWTFs	[Nos] / None	**1**	**1**								RPCB
BMW3 b		Linkage with CBMWTFs	[Yes] / [no linkage]	**yes**	**Yes M/S Sales Promoter Located at Village - Sendriya, Ajmer**								RPCB
BMW3 c		Capacity of CBMWTFs	[Adequate] / [Not adequate]	**Adequate**	**800 kg / Day (As per consent letter)**								RPCB
BMW3 d		Requirements of CBMWTFs	[Require] / [not required]	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	RPCB
BMW3 e		Captive Disposal Facilities of HCFs	[Nos] / [None]	**Yes**	**Yes (Incinerator and Autoclave have been Installed)**								RPCB
BMW4	Compliance by CBMWTFs			**Na**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	RPCB

BMW4 a		Compliance to standards	[Meeting] / [Not meeting] / [NA]	**Meeting**	**Complying**								RPCB
BMW4 b		Barcode tracking by HCFs / CBMWTFs	[100%] / [Partly %] / [None]	**14.28%**	**Connectivity with CBMWTF By HCF = 14.28%**								RPCB
BMW4 c		Daily BMW lifting by CBMWTFs	[Kg / day]	**482**	**482 kg / Day**								RPCB
BMW5	Status of Compliance by Healthcare Facilities												RPCB
BMW5 a		Pre-segregation	[100%] / [partly %] / [None]	**100%**	**100%**								RPCB
BMW5 b		Linkage with CBMWTFs	[100%] / [partly %] / [None]	**100%**	**100%**								RPCB

Appendix 5: Baseline Data for Hazardous Waste Management

(v) Hazardous Waste Management													
No.	**Action Areas**	**Details of Data Requirement**	**Measurable Outcome**	**Please enter Measurable Outcome for District**	**Ajmer**	**Beawar**	**Kishangarh**	**Kekri**	**Pushkar**	**Bijanagar**	**Sarwad**	**Nasirabad**	**Action to be taken by**
HW1	Inventory of Hazardous Waste				**Ajmer Municipal Corporation**	**Municipal Council Beawar**	**Municipal Council Kishangarh**	**Municipal Board Kekri**	**Municipal Board Pushkar**	**Municipal Board Bijai Nagar**	**Municipal Board Sarwar**	**Municipal Board Nasirabad**	RPCB
HW1a		No of HW Generating Industry	[Nos.]	53	22	21	6	0	0	0	0	4	RPCB
HW1b		Quantity of HW	[MT/Annum]	918776.004 [MT/Annum] [Approx Data]	918776.004 [MT/Annum] [Approx Data]								RPCB
HW1c		Quantity of Incinierable HW	[MT/Annum]	1665458.47	1665458.47 [MT/Annum] [Approx Data]								RPCB
HW1d		Quantity of land-fillable HW	[MT/Annum]	757.821	757.821 [MT/Annum] [Approx Data]								RPCB
HW1e		Quantity of Recyclable / utilizable HW	[MT/Annum]	23885.399	23885.399 [MT/Annum] [Approx Data]								RPCB
HW2	Contaminated Sites and illegal industrial hazardous waste dumpsites												RPCB
HW2a		No of HW dumpsites	[Nos] / [None]	None									RPCB

HW2c		Probable Contaminated Sites	[Nos] (provide list)										RPCB
HW3	Authorization by SPCBs/PCCs			53	53								RPCB
HW3a		No of industries authorized	[Nos]	53	53								RPCB
HW3b		Display Board of HW Generation in front of Gate	[Nos]	53	53								RPCB
HW3	Availability of Common Hazardous Waste TSDF				Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	RPCB
HW3a		Common TSDF	[Exists] / [No] / [Sent to Other District within State]	Sent to other district within state	Sent to Other District (Within State)								RPCB
HW3b		Industries linkage with TSDF	[Nos.]	15	15								RPCB
HW4	Linkage of ULBs in District with Common TSDF												All ULBs (Nagar Parishad / Nagar Palika)
HW4a		ULBs linked to Common TSDFs for Domestic Hazardous Waste	[Yes] / [No]	No									All ULBs (Nagar Parishad / Nagar Palika)

Appendix 6: Baseline Data for E-Waste Management

(vi) E-Waste Waste Management													
No.	**Action Areas**	**Details of Data Requirement**	**Measurable Outcome**	**Please enter Measurable Outcome for District**	**Ajmer**	**Beawar**	**Kishangarh**	**Kekri**	**Pushkar**	**Bijanagar**	**Sarwad**	**Nasirabad**	**Action to be taken by**
EW1	Status of facilitating authorized collection of E-Waste				**Ajmer Municipal Corporation**	**Municipal Council Beawar**	**Municipal Council Kishangarh**	**Municipal Board Kekri**	**Municipal Board Pushkar**	**Municipal Board Bijai Nagar**	**Municipal Board Sarwar**	**Municipal Board Nasirabad**	All ULBs (Nagar Parishad / Nagar Palika)
EW1a		Does the citizen are able to deposit or provide E-Waste through Toll-free Numbers in the District	[Yes] / [No]	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	NA	All ULBs (Nagar Parishad / Nagar Palika)
EW1c		Collection centers established by ULB in District	[Nos] / [None]	None	None	None	None	None	None	None	None	None	All ULBs (Nagar Parishad / Nagar Palika)
EW1d		Collection centers established by Producers or their PROs in the District	[Nos] / [None]	None	None	None	None	None	None	None	None	None	All ULBs (Nagar Parishad / Nagar Palika)
EW1e		Does the district has linkage with authorized E-	[Yes] / [No]	None	None	None	None	None	None	None	None	None	All ULBs (Nagar Parishad /

		Waste recyclers / Dismantler											Nagar Palika)
EW1f		No authorized E-Waste recyclers / Dismantler	[Nos] / [None]	None	None	None	None	None	None	None	None	None	All ULBs (Nagar Parishad / Nagar Palika)
EW2	Status of Collection of E-Waste												
EW2a		Authorizing E-Waste collectors	[Authorized] / [None]	6	6								RPCB
EW2b		Involvement of NGOs	[Yes] / [No] / [Nos]	None	None	None	None	None	None	None	None	None	All ULBs (Nagar Parishad / Nagar Palika)
EW2c		Does Producers have approached NGOs/ Informal Sector for setting up Collection Centers.	[Yes] / [No] /[Nos]	None	None	None	None	None	None	None	None	None	All ULBs (Nagar Parishad / Nagar Palika)
EW2d		Does ULBs have linkage with authorized Recyclers / Dismantlers	[Yes] / [No]	None	None	None	None	None	None	None	None	None	All ULBs (Nagar Parishad / Nagar Palika)
EW4	Control E-Waste related pollution												All ULBs (Nagar Parishad / Nagar Palika)

EW4a		Does informal trading, dismantling, and recycling of e-waste exists in District	[Yes] / [No]	None	None	None	None	None	None	None	None	None	All ULBs (Nagar Parishad / Nagar Palika)
EW4b		Does the administration closed illegal E-Waste recycling in the District	[Yes] / [No] / [Nos]	None	None	None	None	None	None	None	None	None	All ULBs (Nagar Parishad / Nagar Palika)
EW4c		No of actions taken to close illegal trading or processing of E-Waste	[Nos]	None	None	None	None	None	None	None	None	None	All ULBs (Nagar Parishad / Nagar Palika)
EW5	Creation of Awareness on E-Waste handling and disposal												All ULBs (Nagar Parishad / Nagar Palika)
EW5a		Does PROs / Producers conducted any District level Awareness Campaigns	[Yes] / [No] / [Nos]	None	None	None	None	None	None	None	None	None	All ULBs (Nagar Parishad / Nagar Palika)
EW5c		Does District Administration conducted any District level Awareness Campaigns	[Yes] / [No] / [Nos]	None	None	None	None	None	None	None	None	None	All ULBs (Nagar Parishad / Nagar Palika)

Appendix 7: Baseline Data for Water Quality Management Plan

No.	Action Areas	Details of Data Requirement	Measurable Outcome	Please enter Measurable Outcome for District	Ajmer	Beawar	Kishangarh	Kekri	Pushkar	Bijanagar	Sarwad	Nasirabad	Action Tato be taken by
WQ1	Inventory of water resources in District				**Ajmer Municipal Corporation**	**Municipal Council Beawar**	**Municipal Council Kishangarh**	**Municipal Board Kekri**	**Municipal Board Pushkar**	**Municipal Board Bijai Nagar**	**Municipal Board Sarwar**	**Municipal Board Nasirabad**	
WQ1a		Rivers	[Nos] and [Length in Km]	5,267 km	NA	NA	NA	NA	NA	NA	NA	NA	Water Resource Department
WQ1b		Length of Coastline	[in Km]	Nil	NA	NA	NA	NA	NA	NA	NA	NA	Water Resource Department
WQ1c		Nalas/Drains meeting Rivers	[Nos]	32	NA	NA	NA	NA	NA	NA	NA	NA	Water Resource Department
WQ1d		Lakes / Ponds	[Nos] and [Area in Hectares]	54, 883800 Hect	NA	NA	NA	NA	NA	NA	NA	NA	Water Resource Department
WQ1e		Total Quantity of sewage and industrial discharge in District	[Automatic] (SW1a+IW1b)	**47.59 MLD**	23.45 Mld	11.79 (4 STP's for 1 MLD, 1.5 MLD, 5 MLD, 4 MLD)	10.04 MLD	230 KLD	2 MLD	20 KLD	10 KLD	75 KLD	Water Resource Department / ULBs
	Control of Groundwater Water Quality												
WQ2a		Estimated number of bore-wells	[Nos]	NA	NA	NA	NA	NA	NA	NA	NA	NA	PHED

WQ2b		No of permissions given for extraction of groundwater	[Nos]	NA	NA	NA	NA	NA	NA	NA	NA	NA	PHED
WQ2c		Number of groundwater polluted areas	[Nos]	NA	NA	NA	NA	NA	NA	NA	NA	NA	PHED
WQ2d		Groundwater Availability	[adequate] / [not adequate]	Adequate	Adequate	Adequate	Adequate	Adequate	Adequate	Adequate	Adequate	Adequate	PHED
WQ3	Availability of Water Quality Data												PHED
WQ3a		Creation of monitoring cell	[Yes] / [No]	NA	NA	NA	NA	NA	NA	NA	NA	NA	PHED
WQ3b		Access to Surface water and groundwater quality data at DM office	[Available] or [Not available]	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	PHED
WQ4	Control of River side Activities												
WQ4a	Control of River side Activities	River Side open defecation	[Fully Controlled] / [Partly controlled] /[no Measures taken]	No Measure Taken	No Measure Taken	No Measure Taken	No Measure Taken	No Measure Taken	No Measure Taken	No Measure Taken	No Measure Taken	No Measure Taken	All ULBs (Nagar Parishad / Nagar Palika)

WQ4b		Dumping of SW on river banks	[Fully Controlled] / [Partly controlled] /[no Measures taken]	NA	NA	NA	NA	NA	NA	NA	NA	NA	All ULBs (Nagar Parishad / Nagar Palika)
WQ4c		Control measures for idol immersion	[Measures taken] / [Measures taken post immersion] / [No Measures taken]	NA	NA	NA	NA	NA	NA	NA	NA	NA	All ULBs (Nagar Parishad / Nagar Palika)
WQ5	Control of Water Pollution in Rivers												
WQ5a		Percentage of untreated sewage	[%] (automatic SM1g/SM1a)	**24 MLD/46.5 MLD**	0/23MLD	22 MLD / 11.5MLD	NA/10 MLD	NA/NA	2 MLD/2 MLD	NA/NA	NA/NA	NA/NA	All ULBs (Nagar Parishad / Nagar Palika)
WQ5b		Monitoring of Action Plans for Rejuvenation of Rivers	[Monitored] / [Not monitored] [not applicable]	**NA**	NA	NA	NA	NA	NA	NA	NA	NA	All ULBs (Nagar Parishad / Nagar Palika)
WQ5c		No of directions given to industries for Discharge of Untreated industrial	[Nos]	**1**	NA	1	NA	NA	NA	NA	NA	NA	RPCB

		wastewater in last 12 months											
WQ6	Awareness Activities												All ULBs (Nagar Parishad / Nagar Palika)
WQ6a		District level campaigns on protection of water quality	[Nos in previous year]	**NA**	NA	NA	NA	NA	NA	NA	NA	NA	All ULBs (Nagar Parishad / Nagar Palika)
WQ6b	Oil Spill Disaster Contingency Plan												All ULBs (Nagar Parishad / Nagar Palika)
WQ6a		Creation of District Oil Spill Crisis Management Group	[Created] / [Not Created]	Not Created	Not Created	Not Created	Not Created	Not Created	Not Created	Not Created	Not Created	Not Created	All ULBs (Nagar Parishad / Nagar Palika)
WQ6b		Preparation District Oil Spill Disaster Contingency Plan	[Prepared] / [Not Prepared]	Not Created	Not Created	Not Created	Not Created	Not Created	Not Created	Not Created	Not Created	Not Created	All ULBs (Nagar Parishad / Nagar Palika)
WQ7	Protection of Flood plains												All ULBs

													(Nagar Parishad / Nagar Palika)
WQ7a		Encroachment of flood plains is regulated.	[Yes] / [No]	No	No	No	No	No	No	No	No	No	All ULBs (Nagar Parishad / Nagar Palika)
	Rainwater Harvesting												All ULBs (Nagar Parishad / Nagar Palika)
WQ8a		Action plan for Rain water harvesting	[Implemented] / [Not implemented]	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	Implemented	All ULBs (Nagar Parishad / Nagar Palika)

Appendix 8: Baseline Data for Domestic Sewage Management

3.0 Domestic Sewage Management Plan													
No.	Action Areas	Details of Data Requirement	Measurable Outcome	Please enter Measurable Outcome for District	Ajmer Zila								
					Ajmer	Beawar	Kishangarh	Kekri	Pushkar	Bijanagar	Sarwad	Nasirabad	Action to Be Taken By
SM1	**Inventory of Sewage Management**											NA	All ULBs (Nagar Parishad / Nagar Palika)
SM1a		**Total Quantity of Sewage generated in District from Class II cities and above**	**[MLD]**	**46.5**	23 Mld	11.5 (4 STP's for 1 MLD, 1.5 MLD, 5 MLD, 4 MLD)	10 MLD	NA	2 MLD	NA	NA	NA	All ULBs (Nagar Parishad / Nagar Palika)
SM1b		**No of Class-II towns and above**	**[Nos]**	**NA**	NA	NA	NA	NA	NA	NA	NA	NA	All ULBs (Nagar Parishad / Nagar Palika)
SM1c		**No of Class-I towns and above**	**[Nos]**	**1**	1	NA	NA	NA	NA	NA	NA	NA	All ULBs (Nagar Parishad / Nagar Palika)
SM1d		**No of Towns needing STPs**	**[Nos]**	**3**	0	1	1	NA	1	NA	NA	NA	All ULBs (Nagar Parishad / Nagar Palika)

SM1e		**No of Towns STPs installed**	**[Nos]**	**5**	3 STPs in Ajmer	1 Town, (4 STP's for 1 MLD, 1.5 MLD, 5 MLD, 4 MLD)	1	NA	1 Nos. Work In Progress	NA	NA	NA	All ULBs (Nagar Parishad / Nagar Palika)
SM1f		**Quantity of treated sewage flowing into Rivers (directly or indirectly)**	**[MLD]**	**NA**	0	NA	NA	NA	NA	NA	NA	NA	All ULBs (Nagar Parishad / Nagar Palika)
SM1g		**Quantity of untreated or partially treated sewage (directly or indirectly)**	**[Automatic]**	**24 MLD**	0	22 MLD	NA	NA	2 MLD	NA	NA	NA	All ULBs (Nagar Parishad / Nagar Palika)
SM1h		**Quantity of sewage flowing into lakes**	**[MLD]**	**8 MLD after treatment**	8 MLD after treated	NA	NA	NA	NA	NA	NA	NA	All ULBs (Nagar Parishad / Nagar Palika)
SM1i		**No of industrial townships**	**[Nos]**	**42**	RIICO Industial Areas = 30			Other Industrial Areas = 12					RPCB
SW2	**Adequacy of Available Infrastructure for Sewage Treatment**			**NA**		NA	NA		NA				All ULBs (Nagar Parishad / Nagar Palika)
SM2a		**% sewage treated in STPs**	**[Automatic]**	**17.50%**	100%	0	40%	NA	NA	NA	NA	NA	All ULBs (Nagar Parishad / Nagar Palika)
SM2b		**Total available Treatment**	**[MLD]**	**43**	33	0	10	NA	NA	NA	NA	NA	All ULBs (Nagar

		Capacity											Parishad / Nagar Palika)
SM2c		**Additional treatment capacity required**	**[MLD]**	**NA**	0	NA	NA	NA	NA	NA	NA	NA	All ULBs (Nagar Parishad / Nagar Palika)
SM3	**Adequacy of Sewerage Network**												All ULBs (Nagar Parishad / Nagar Palika)
SM3a		**No of ULBs having partial underground sewerage network**	**[Nos]**	**4**	1	1	1	NA	1	NA	NA	NA	All ULBs (Nagar Parishad / Nagar Palika)
SM3b		**No of towns not having sewerage network**	**[Nos]**	**NA**	NA	NA	NA	NA	NA	NA	NA	NA	All ULBs (Nagar Parishad / Nagar Palika)
SM3c		**% population covered under sewerage network**	**[Automatic]**	**27.5**	40%	60%	40%	NA	80%	NA	NA	NA	All ULBs (Nagar Parishad / Nagar Palika)

Appendix 9: Baseline Data for Industrial Waste Water Management

4.0 Industrial Wastewater Management Plan													
No.	**Action Areas**	**Details of Data Requirement**	**Measurable Outcome**	**Please enter Measurable Outcome for District**	**Ajmer**	**Beawar**	**Kishangarh**	**Kekri**	**Pushkar**	**Bijanagar**	**Sarwad**	**Nasirabad**	**Action to be taken by**
IWW1	Inventory of industrial wastewater Generation in District				**Ajmer Municipal Corporation**	**Municipal Council Beawar**	**Municipal Council Kishangarh**	**Municipal Board Kekri**	**Municipal Board Pushkar**	**Municipal Board Bijai Nagar**	**Municipal Board Sarwar**	**Municipal Board Nasirabad**	RPCB
IWW1a		No of Industries discharging wastewater	[Nos]	44	13	21	4	2	0	1	1	2	RPCB
IWW1b		Total Quantity of industrial wastewater generated	[MLD]	1.09	450 KLD	290 KLD	0.04 MLD	230 KLD	0	20 KLD	10 KLD	7.5 KLD	RPCB
IWW1c		Quantity of treated IWW discharged into Nalas / Rivers	[MLD]	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	RPCB
IWW1d		Quantity of un-treated or partially treated IWW discharged into lakes	[MLD]	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	RPCB
IWW1e		Prominent Type of Industries	[Agro based] / [Chemical – Dye etc.] /	[Metallurgical] / [Stone Cutting] /	[Metallurgical] / [Stone Cutting] / [Stone Grinding] / [Power Plants] / [Mining] / Multiple selection based on size of operation and number								RPCB

			[Metallurgical] / [Pharma] / [Pesticide] / [Power Plants] / [Mining] / [Automobile] : Multiple selection based on size of operation and number	[Stone Grinding] / [Power Plants] / [Mining] / Multiple selection based on size of operation and number									
IWW1f		Common Effluent Treatment Facilities	[Nos] / [No CETPs]	1	No CETPs	No CETPs	1	No CETPs	No CETPs	No CETPs	No CETPs	No CETPs	RPCB
IWW2	Status of compliance by Industries in treating wastewater												RPCB
IWW2a		No of Industries meeting Standards	[Nos]										RPCB
IWW2b		No of Industries not meeting discharge Standards	[Automatic]										RPCB
IWW2c		No of complaints received or number of recurring complaints against	[Nos]	16	9	0	6	1	0	0	0	0	RPCB

		industrial pollution in last 3 months											
AWW4	Status of Action taken for not meeting discharge standards												RPCB
IWW4a		No industries closed for exceeding standards in last 3 months	[Nos]										RPCB
IWW4b		No of industries where Environmental Compensation was imposed By SPCBs	[Nos]										RPCB

Appendix 10: Baseline Data for Air Quality Management

5.0 Air Quality Management Plan													
No.	**Action Areas**	**Details of Data Requirement**	**Measurable Outcome**	**Please enter Measurable Outcome for District**	**Ajmer**	**Beawar**	**Kishangarh**	**Kekri**	**Pushkar**	**Bijanagar**	**Sarwad**	**Nasirabad**	**Action to be taken by**
AQ1	Availability of Air Quality Monitoring Network in District				**Ajmer Municipal Corporation**	**Municipal Council Beawar**	**Municipal Council Kishangarh**	**Municipal Board Kekri**	**Municipal Board Pushkar**	**Municipal Board Bijai Nagar**	**Municipal Board Sarwar**	**Municipal Board Nasirabad**	RPCB
AQ1a		Manual Air Quality monitoring stations of SPCBs /CPCB	[Nos] / [None]	0	0	0	0	0	0	0	0	0	RPCB
AQ1c		Automatic monitoring stations Operated by SPCBs / CPCB	[Nos] / [None]	1	1 (Sainik Welfare Board, Todarmal Marg, Ajmer)								RPCB
AQ2	Inventory of Air Pollution Sources												

AQ2a		Identification of prominent air polluting sources	[Large Industry] / [Small Industry] / [Unpaved Roads] / [Burning of Waste Stubble] / [Brick Kiln] / [Industrial Estate] / [Others] (Multiple selection)	Stone Crisher = 134, Plastic Processing = 61, Mineral Grinding = 921, Textile = 34, Lead = 23, Woolen Printing = 30, Marble = 813, Bricks = 88, Iron Base =71	Stone Crisher = 134, Plastic Processing = 61, Mineral Grinding = 921, Textile = 34, Lead = 23, Woolen Printing = 30, Marble = 813, Bricks = 88, Iron Base =71								RPCB / [Unpaved Roads] - PWD / [Burning of Waste Stubble] - Agriculture Dept / [Brick Kiln] - RPCB & Tehsildaar / [Industrial Estate]- None RPCB / Other - Vehicular Pollution - Without PUCs - 102 Challan and Visually Polluting 23 Challan made by RTO Ajmer Office Transport Department / Burning of Solid Waste - Nagar Parishad / Nagar Palika
AQ2b		No of Non-Attainment Cities	[Nos / [None]	None	None	None	None	None	None	None	None	None	RPCB
AQ2c		Action Plans for non-attainment cities	[Prepared] / [Not yet prepared]	Not Require	Not Require	Not Require	Not Require	Not Require	Not Require	Not Require	Not Require	Not Require	RPCB
AQ3	Availability of Air Quality Monitoring Data at DMs Office												
AQ3a		Access to air quality data from SPCBs & CPCB through Dashboard	[Available] / [Not yet Available]	Not Yet Available	Not Yet Available	Not Yet Available	Not Yet Available	Not Yet Available	Not Yet Available	Not Yet Available	Not Yet Available	Not Yet Available	District Administration
AQ4	Control of Industrial Air Pollution				-	-	-	-	-	-	-	-	RPCB

AQ4a		No of Industries meeting Standards	[Nos]	Regular Monitoring is Being Conducted									RPCB
AQ4b		No of Industries not meeting discharge Standards	[Nos]	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	RPCB
AQ5	Control of Non-industrial Air Pollution sources												Agriculture Department
AQ5a		Control open burning of Stubble –during winter	[Nos of fire incidents]	0	0	0	0	0	0	0	0	0	Agriculture Department
AQ5b		Control Open burning of Waste – Nos of actions Taken	[Nos]	0	0	0	0	0	0	0	0	0	Agriculture Department
AQ5c		Control of forest fires	[SOP available] / [No SoP]	No SoP	No SoP	No SoP	No SoP	No SoP	No SoP	No SoP	No SoP	No SoP	Forest Department
AQ5d		Vehicle pollution check centers	[% ULBs covered]										All ULBs (Nagar Parishad / Nagar Palika)
AQ5e		Dust Suppression Vehicles	[% ULBs covered]										All ULBs (Nagar Parishad / Nagar Palika)
AQ6	Development of Air Pollution complaint redressal system												
AQ6a		Mobile App / Online based air pollution complaint redressing system of SPCBs.	[Available] / [Not available]	Available	Available	Available	Available	Available	Available	Available	Available	Available	RPCB

Appendix 11: Baseline Data for Mining Activity Management

6.0 Mining Activity Management plan													
No.	**Action Areas**	**Details of Data Requirement**	**Measurable Outcome**	**Please enter Measurable Outcome for District**	**Ajmer**	**Beawar**	**Kishangarh**	**Kekri**	**Pushkar**	**Bijanagar**	**Sarwad**	**Nasirabad**	**Action to be taken by**
MI1a	Inventory of Mining in District				**Ajmer Municipal Corporation**	**Municipal Council Beawar**	**Municipal Council Kishangarh**	**Municipal Board Kekri**	**Municipal Board Pushkar**	**Municipal Board Bijai Nagar**	**Municipal Board Sarwar**	**Municipal Board Nasirabad**	
MI1a		Type of Mining Activity	[Sand Mining] / [Iron Ore] / [Bauxite] / [Coal] / Other [specify]		Lead, Zinc, Masonaryston e, Marble, Felspar, Mica, Quart, Soapstone	Open Cast Mining	Granite, Beryl, Felspar, Mica, Quartz, Quartzite		Masonar ystone	Open Cast Mining		Beryl, Emerald crude, Calite, Felspar, Kyanite, Magnesite, Mica, Quartz, Soapstone, Vermiculite , Granite, Masonaryst one	Mining Department
			Multiple selection in order of magnitude of operations										Mining Department

MI1b		No of Mining licenses given in the District	[Nos]	688	108	128	88	85	1	24	82	172	Mining Department
MI1c		Area covered under mining	[Sq Km]	2704.89	6.2158	1852.75	3.1347	465.08	0.01	92.04	277.66	7.9959	Mining Department
MI1d		Area of District	[Sq Km]	8481									Mining Department
MI1e		Sand Mining	[Yes] / [No]	River sand mining is prohibited from 17 Nov 2017 by Supreme Court Order, In Agriculture Land One Lease of Area 1 Hact. Is working	0								Mining Department
MI1f		Area of sand Mining	[River bed] / [Estuary] / [Non -river deposit]	1 hact	Non-River Deposit	Non-River Deposit	Non-River Deposit	Non-River Deposit	Non-River Deposit	Non-River Deposit	Non-River Deposit	Non-River Deposit	Mining Department
MI2	Compliance to Environmental Conditions												Mining Department
MI2a		No of Mining areas meeting Environmental Clearance Conditions	[Nos]	183	100		82		1			135	Mining Department

MI2b		No of Mining areas meeting Consent Conditions of SPCBs / PCCs	[Nos]	197	108		88		1			172	Mining Department
MI3a	Mining related environmental Complaints												
MI3b		No of pollution related complaints against Mining Operations in last 1 year	[Nos]	1	1								RPCB
MI4	Action against non-complying mining activity												
MI4a		No of Mining operations suspended for violations to environmental norms	[Nos]										Mining Department
MI4b		No of directions issued by SPCBs	[Nos]	44	44								RPCB

Appendix 12: Baseline Data for Noise Pollution Management

7.0 Noise Pollution Management Plan													
No.	**Action Areas**	**Details of Data Requirement**	**Measurable Outcome**	**Please enter Measurable Outcome for District**	**Ajmer**	**Beawar**	**Kishangarh**	**Kekri**	**Pushkar**	**Bijanagar**	**Sarwad**	**Nasirabad**	**Action to be taken by**
NP1	Availability Monitoring equipment				**Ajmer Municipal Corporation**	**Municipal Council Beawar**	**Municipal Council Kishangarh**	**Municipal Board Kekri**	**Municipal Board Pushkar**	**Municipal Board Bijai Nagar**	**Municipal Board Sarwar**	**Municipal Board Nasirabad**	
NP1a		No. of noise measuring devices with district administration	[Nos] / [None]	None	None	None	None	None	None	None	None	None	Police Department
NP1b		No. of noise measuring devices with SPCBs	[Nos] / [None]	1	1	None	None	None	None	None	None	None	RPCB
NP2	Capability to conduct noise level monitoring by State agency / District authorities												
NP2a		capability to conduct noise level monitoring by State agency / District authorities	[Available] / [Not available]	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	RPCB
NP2	Management of Noise related complaints												

NP2a		No of complaints received on noise pollution in last 1 year		0	0	0	0	0	0	0	0	0	Police Department
			[Nos]	0	0	0	0	0	0	0	0	0	
				0	0	0	0	0	0	0	0	0	
NP2b		No of complaints redressed	[Nos]	0	0	0	0	0	0	0	0	0	Police Department
NP3	Compliance to ambient noise standards												
NP3a		Implementation of Ambient noise standards in residential and silent zones	[Regular Activity] / [Occasional] / [Never]	Regular Activity	Regular Activity	Regular Activity	Regular Activity	Regular Activity	Regular Activity	Regular Activity	Regular Activity	Regular Activity	Police Department
NP3b		Noise monitoring study in district	[carried out] / [not carried out]	Noise Level Monitoring is being Conducted at District HQ on Monthly Basis	Carried Out	Carried Out	Carried Out	Carried Out	Carried Out	Carried Out	Carried Out	Carried Out	RPCB
NP3c		Sign boards in towns and cities in silent zones	[Installed] / [Partial] / [Not Installed]	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	Not Installed	All ULBs (Nagar Parishad / Nagar Palika)

Appendix 13: Baseline Data for Ecology and Biodiversity Management

Appendix 13a: Baseline Data for Bamboo and Grasses of Ajmer District

Bamboo and Grasses of Ajmer District			
S. No.	**Vernacular Name**	**English Name**	**Scientific Name**
1	Baans	Bamboo	*Dendrocalmus strictus Nees*
2	Dhaaman	Buffel Grass	*Cenchrus ciliaris linn*
3	Baru	Johnson Grass / Aleppo Grass	*Sorgham halepense Linn*
4	Bhogati	Mauritian Grass	*Alpuda mutica Linn*
5	Bharunth	Birdwood grass	*Cenchrus setigerus Vahl*
6	Bharunth	Indian Sandbur	*Cenchrus barbatus Sehum*
7	Chadi Baajra		*Ekragros tisminor Hochst*
8	Doob	Bermuda Grass	*Cynodon dactylon Pers*
9		Bluestem	*Eremopogon fovelateeds Del / Stap*
10	Kaans	Kans Grass	*Saccharum spontaneum Linn*
11	Karad	Marvel Grass	*Dichanthium annulatum (forsk) Stapf*
12	Laapla	Three-Awns Wiregrasses / Speargrasses / Needlegrasses	*Aristida hystrix Linnf*
13	Raatrada	Grader Grass / Habana Grass / Kangaroo Grass	*Themeda quadrivalvis (Linn) Oktze*
14	Ruya	Oilgrass	*Cymbopogon jwarancusa*
15	Seavan	Sewan Grass	*Lasiurus indicus Heur*
16	Seeran	Rat-Tail Grass / White Grass	*Sehima nervosum Staph*
17	Survaala	Black Speargrass / Tanglehead	*Heteropogon conterotus (Linn) P. Beauv*
18	Barna	Feather Finger Grass	*Chloris tegnell (roxb)*
19	Barna	Feather Finger Grass	*Chloris virgata(S.W.)*

Appendix 13b: Baseline Data for Climbers of Ajmer District

Climbers of Ajmer District			
S. No.	**Vernacular Name**	**English Name**	**Scientific Name**
1	Amarbel	Giant Dodder	*Cuscuta reflexa Roxb*
2	Chameli	Common Jasmine	*Jasminum officinalis Linn*
3	NaharKantha	Satavar / Shatavari / Shatamull	*Asparagus racemosus*
4	Aloye	Chilati	*Mimosa hemata Willd*
5	Neem Giloya	Guduchi / Moonseed / Giloy	*Tinospora cordifolia Misrs*
6	Boogenveliya	Great Bougainvillea	*Bougainvillaea apectabilis*
7	Chirmi	Jequirity / Crab's eye / Indian Licorice	*Abrus pracatorious*

Appendix 13c: Baseline Data for Shrubs and Herbs of Ajmer District

Shrubs and Herbs of Ajmer District			
S. No.	**Vernacular Name**	**English Name**	**Scientific Name**
1	Aankda	Apple of Sodom / Sodom Apple	*Calotropis procera Br*
2	Aanval	Tanner's Cassia	*Cassia auriculata Linn*
3	Aarni	Glory Tree	*Clerodendron viscosum Vent*
4	Banvli	Bhu-Banwali	*Acacia Jacquemonti Benth*
5	Jhadber	Jujube Bush	*Zizyphus nummularia*
6	Ber	Indian Jujube	*Zizyphus mauritiana*
7	Brahmi	Gotu Kola / Indian Pennywort	*Centella asiatica Idnn Urb*
8	Bui	Desert Cotton / Kapok Bush	*Aerva javanica Burm. F.*
9	Dhanvdi	Fire Flame Bush / Red Bell Bush	*Woodfordia fruticosa Kurz*
10	Dhatura	Thorn Apple / Stinkweed / Jamestown Weed	*Datura stramonium*
11	Daasan	Mysore Sumac	*Rhus mysoradensis Heyna*
12	Doodhi	Bitter Oleander / Connessi Bark	*Holarrhena antidysenterica Wall*
13	Kaali Syali	Donkey Berry	*Grewia flavescens Juss*
14	Gangan	White Crossberry	*Grewia tenax (forsk) Flori*
15	Gundi	Grey-Leaved Saucer Berry	*Cordia rothii Roem &sch*
16	Untkaanta	Chaff-Flower / Prickly Chaff Flower	*Achyran thusfaspera Idnn*
17	Jhau	Tamarisk	*Tamarix dioica Roxb*
18	Karaunda	Bengal Currant / Christ's Thorn	*Carissa congesta Wt*
19	Kheenp	Kheenp	*Laptedenia pyrotechnica (Frosk) Dacne*
20	Lantana	Common Lantana	*Lantena camera Linn*
21	Naagfandi	Australian Pest Pear / Common Prickly Pear	*Opuntia dillenli Heir*
22	Negand	Chaste Tree / Five-Leaf Chaste Tree	*Vitex negundo Linn*
23	Sadiya	Rattlepod	*Crotalaria burhia Hamilt*
24	Thor	Leafless Milk Hedge	*Euphorbia caduaifalia Linn*
25	Tulsi	American Basil / Hoary Basil	*Ocimum americanum*
26	Untkaanta	Haran Charo / Paneru	*Lepidagathis trinervis Nees*

Appendix 13d: Baseline Data for Trees of Ajmer District

Trees of Ajmer District			
S. No.	**Vernacular Name**	**Common Name**	**Scientific Name**
1	Aam	Mango	*Mangifera indica Linn.*
2	Amaltas	Amaltas	*Cassia fistula Linn.*
3	Aanvla	Indian gooseberry / Amla	*Emblica officinalis Ceart*
4	Ardu	Indian Tree of Heaven	*Ailanthus execlsa Roxb.*
5	Roonjh	White-Bark Acacia / Safed Kikkar	*Acacia leucophloea Willd.*
6	Ashok	False Ashoka	*Polyalthia longifolia Benth & Hook.*
7	Desi Babool	Gum Arabic Tree / Babool	*Acacia nilotica Willd.*
8	Bargad	Indian Banyan	*Ficus bengalensis Idnn.*
9	Bakayan	Chinaberry Tree / Pride of India	*Melia Azedarch Idnn.*
10	Barna	Garlic Pear Tree / Three-leaf Caper	*Crataeva religiosa Forst*
11	Bel	Bhel / Golden Apple	*Aegle marmelose Corr.*
12	Ber	Indian Jujube / Indian Plum	*Zizyphus mauritiana*
13	Churel	Indian Elm / Jungle Cork tree	*Holoptelia Integrifolia Planch*
14	Dhaank	Flame-of-the-Forest / Bastard Teak	*Butea monosperma Lamk*
15	Dhounk	Buttontree / Dhok	*Anogeissus pendula Edgew*
16	Khirni / Doodhi	Woolly Dyeing Rosebay	*Wrightia tomentosa Poem*
17	Safeda	Eucalyptus	*Euclayptus hybrid*
18	Gurjan	Indian Ash Tree	*Lannea coromandelica*
19	Gunda	Fragrant Manjack / Cummingcordia / Glue Berry	*Cordia dichotoma Forst*
20	Guggal	Indian Bdellium-Tree / Gugal	*Commiphora mukul*
21	Gular	Cluster Fig / Red River Fig / Gular	*Ficus glomerata Roxb*
22	Hingotiya	Desert Date	*Balanites aegyptica Lelile*
23	Imli	Tamarind	*Tamrindus indica Linn*
24	Jaal (Peelu)	Salvadora / Bada Peelu	*Salvadora cleoides Dene*
25	Jaal (Khara)	Toothbrush Tree / Mustard Tree	*Salvadora persica Linn*
26	Jaamun	Malabar Plum / Black Plum / Jamun	*Syzygium cummini (Linn) Skeel.*
27	Jungal Jalebe	Manila Tamarind / Madras Thorn / Camachile	*Pitheocolobium dulce*
28	Jinjha	Burmese Silk Orchid / Bidi Leaf Tree	*Bauhinia racemosa Lamk*
29	Kachnaar	Kachnar / Orchid Tree	*Bauhinia variegata Linn*
30	Kadam	Burflower-Tree / Kadam	*Anthocephalus indicus Rich.*
31	Kankun	Ramontchi / Governor's Plum / Indian Plum	*Flacourtia romantchi L. Herit*
32	Kaanti	Ramontchi / Governor's Plum / Indian Plum	*Flacourtia indica (Burm F.) Merr.*
33	Kadaya	Indian-Tragacanth / Kateera-Gum / Kulu	*Sterculia urens Roxb.*
34	Khajoor	Silver Date Palm / Indian Date	*Phoenix sylvestris Roxb.*
35	Khair	Kher / Catechu	*Acacia catechu Willd*
36	Khejdi	Ghaf / Khejri Tree / Semi	*Prosopis cineraria Linn.*
37	Khirni	Sweet Indrajao / Pala Indigo Plant	*Wrightia tinctoria R.Br.*
38	Goya Khair	Sicklebush / Bell Mimosa / Chinese Lantern Tree	*Dichrostachys cineria W&A.*
39	Kumtha	Gum Acacia / Gum Senegal Tree	*Acacia senegal Willd.*
40	Neem	Neem Tree / Margosa Tree	*Azadirachta indica A. Juss*

41	Neem Chameli	Tree Jasmine / Indian Cork Tree	*Millingtonia hortensis Linn.*
42	Fraans	Red Tamarisk	*Tamarix articulata*
43	Peepal	Pepal / Sacred Fig Tree	*Ficus religiosa Linn*
44	Rain	Ceylon Iron Wood / Milk Tree	*Miusops hexzandra Roxb Dubara*
45	Ratanjot	Physic Nut / Jatropha / Barbados Nut	*Jatropha curcus Linn*
46	Rohan	Indian Redwood	*Soymida febrifuga Juss*
47	Roheda	Roheda / Honey Tree / Desert Teak	*Tecomella unduletta Seem*
48	Saalar	Indian Frankincense Tree	*Boswellia serrata Roxb*
49	Sahjana	Moringa / Drumstick Tree	*Meringa oleifera Lamk*
50	Shesham	North Indian Rosewood	*Dalbergia sissoo*
51	Kala Siras	Lebbek Tree / Flea Tree	*Albizzia lebbek Benth*
52	Tamboliya	Dant-Rang / Vadhvarni / Chamror	*Ehretia laevis Roxb*
53	Vilayti Babool	Algaroba / Mesquite / Junglee Kikar	*Prosopis juliflora HK*

Appendix 13e: Baseline Data for Fishes of Ajmer District

Fishes of Ajmer District		
S. No.	**Common Name**	**Scientific Name**
1	Indian and Bangladeshi Carp / Katla	*Catla catla*
2	Rohu	*Labeo rohita*
3	Mrigal	*Cirrhinus mrigala*
4	Common Carp	*Cyprinus carpio*
5	Grass carp	*Ctenopharyngodon idella*
6	Silver carp	*Hypophthalmichthys molitrix*
7	Spotted Snakehead / Girai	*Channa punctata*
8	Stinging Catfish / Singhi	*Heteropneustes fossilis*
9	Walking Catfish / Mangur	*Clarias batrachus*
10	Gangetic Mystus / Singhada	*Mystus cavasius*
11	Zig-Zag Eel / Baam	*Mastacembelus armatus*
12	Freshwater Catfish / Laanchi	*Wallago attu*
13	Bullseye Snakehead / Saanval	*Channa marulius*
14	Asiatic Knifefish / Patoola	*Notopterus notopterus*
15	Butter Catfish / Pabda	*Ompok bimaculatus*
16	Pool Barb / Putthi	*Puntius sophore*
17	Bata	*Labeo bata*
18	Large Razorbelly / Chela	*Oxygaster bacaila*

Appendix 13f: Baseline Data for Amphibians of Ajmer District

Amphibians of Ajmer District			
S.No.	**Family**	**Common Name**	**Scientific Name**
1	**Bufonidae**	Marbled Toad	*Duttaphrynus stomaticus*
2		Common Asian Toad	*Duttaphrynus melanostictus*
3	**Microhylidae**	Ornate Narrow mouthed Frog	*Microhyla ornata*
4		Marbled Balloon Frog	*Uperodon systoma*
5	**Dicroglossidae**	Indian Skipper Frog	*Euphlyctis cyanophlyctis*
6		Indian Cricket Frog	*Fejervarya limnocharis*
7		Indian Bull Frog	*Hoplobatrachus tigerinus*
8		Short-headed burrowing Frog	*Sphaerotheca breviceps*
9		Indian Burrowing Frog	*Sphaerotheca rolandae*

Appendix 13g: Baseline Data for Reptiles of Ajmer District

Reptiles of Ajmer District			
S.No.	**Family**	**Common Name**	**Scientific Name**
1	Agamidae	Garden Lizard	*Calotes versicolor*
2		Fan Throated Lizard	*Sitana ponticeriana*
3	Gekkonidae	Keeled Rock Gecko	*Cyrtodactylus scaber*
4		Brook's House Gecko	*Hemidactylus brooki*
5		House Gecko	*Hemidactylus flaviviridis*
6		Bark Gecko	*Hemidactylus leschenaultia*
7		Termite Hill Gecko	*Hemidactylus triedrus*
8	Eublepharidae	Common Leopard Gecko	*Eublepharis macularius*
9	Lacertidae	Snake eyed Lacerated	*Ophisops jerdoni*
10		Pushkar small-scaled snake-eye	*Ophisops pushkarensis*
11		Fringe Toed Lizard	*Acanthodactylus c. cantoris*
12	Scincidae	Bronze Skink	*Eutrophis macularia*
13		Common Indian Skink	*Eutropis carinata*
14		Three Stripetad Skink	*Eutropis dissimilis*
15		Common Spotted Skink	*Riopa punctata*
16	Varanidae	Indian Monitor Lizard	*Varanus bengalensis*
17	Testudinidae	Indian Star Tortoise	*Geochelone elegans*
18	Trionychidae	Indian Flap Shell Turtles	*Lissemys punctata punctata*
19	Typhlopidae	Brahminy Worm Snake	*Indotyphlops braminus*
20	Pythonidae	Indian Rock Python	*Python molurus molurus*
21	Erycidae	Common Sand Boa	*Eryx conicus*
22		Red Sand Boa	*Eryx johnii*
23	Colubridae	Common Trinket Snake	*Coelognathus helena*

24		Oriental Rat Snake	*Ptyas mucosa*
25		Glossy-bellied Racer	*Platyceps ventromaculatus*
26		Black-headed Royal Snake	*Spalerosophis atriceps*
27		Variegated Kukri Snake	*Oligodon taeniolatus*
28		Common Wolf Snake	*Lycodon aulicus*
29		Checkered Keelback	*Xenochrophis piscator*
30		Common Cat Snake	*Boiga trigonata*
31	Elapidae	Common Krait	*Bungarus caeruleus*
32		Spectacled Cobra	*Naja naja*
33	Viperidae	Russell's Viper	*Daboia russelli*
34		Saw-scaled Viper	*Echis carinatus*

Appendix 13h: Baseline Data for Birds of Ajmer District

Birds of Ajmer District				
Sl No	**Order**	**Family**	**English Name**	**Scientific Name**
1	Anseriformes	Anatidae	Lesser Whistling Duck	*Dendrocygna javanica*
2	Anseriformes	Anatidae	Bar-headed Goose	*Anser indicus*
3	Anseriformes	Anatidae	Greylag Goose	*Anser anser*
4	Anseriformes	Anatidae	Knob-billed Duck	*Sarkidiornis melanotos*
5	Anseriformes	Anatidae	Ruddy Shelduck	*Tadorna ferruginea*
6	Anseriformes	Anatidae	Cotton Teal	*Nettapus coromandelianus*
7	Anseriformes	Anatidae	Garganey	*Spatula querquedula*
8	Anseriformes	Anatidae	Northern Shoveler	*Spatula clypeata*
9	Anseriformes	Anatidae	Gadwall	*Mareca strepera*
10	Anseriformes	Anatidae	Eurasian Wigeon	*Mareca penelope*
11	Anseriformes	Anatidae	Indian Spot-billed Duck	*Anas poecilorhyncha*
12	Anseriformes	Anatidae	Mallard	*Anas platyrhynchos*
13	Anseriformes	Anatidae	Northern Pintail	*Anas acuta*
14	Anseriformes	Anatidae	Common Teal	*Anas crecca*
15	Anseriformes	Anatidae	Red-crested Pochard	*Netta rufina*
16	Anseriformes	Anatidae	Common Pochard	*Aythya ferina*
17	Anseriformes	Anatidae	Ferruginous Duck	*Aythya nyroca*
18	Anseriformes	Anatidae	Tufted Duck	*Aythya fuligula*
19	Galliformes	Phasianidae	Indian Peafowl	*Pavo cristatus*
20	Galliformes	Phasianidae	Common Quail	*Coturnix coturnix*
21	Galliformes	Phasianidae	Rain Quail	*Coturnix coromandelica*
22	Galliformes	Phasianidae	Jungle Bush Quail	*Perdicula asiatica*
23	Galliformes	Phasianidae	Rock Bush Quail	*Perdicula argoondah*
24	Galliformes	Phasianidae	Grey Francolin	*Francolinus pondicerianus*
25	Phoenicopteriformes	Phoenicopteridae	Greater Flamingo	*Phoenicopterus roseus*
26	Phoenicopteriformes	Phoenicopteridae	Lesser Flamingo	*Phoeniconaias minor*
27	Podicipediformes	Podicipedidae	Little Grebe	*Tachybaptus ruficollis*

28	Podicipediformes	Podicipedidae	Great Crested Grebe	*Podiceps cristatus*
29	Columbiformes	Columbidae	Rock Pigeon	*Columba livia*
30	Columbiformes	Columbidae	Eurasian Collared Dove	*Streptopelia decaocto*
31	Columbiformes	Columbidae	Red Collared Dove	*Streptopelia tranquebarica*
32	Columbiformes	Columbidae	Spotted Dove	*Streptopelia chinensis*
33	Columbiformes	Columbidae	Laughing Dove	*Streptopelia senegalensis*
34	Columbiformes	Columbidae	Yellow-footed Green Pigeon	*Treron phoenicopterus*
35	Pterocliformes	Pteroclidae	Chestnut-bellied Sandgrouse	*Pterocles exustus*
36	Pterocliformes	Pteroclidae	Painted Sandgrouse	*Pterocles indicus*
37	Otidiformes	Otididae	Lesser Florican	*Sypheotides indicus*
38	Cuculiformes	Cuculidae	Greater Coucal	*Centropus sinensis*
39	Cuculiformes	Cuculidae	Sirkeer Malkoha	*Taccocua leschenaultii*
40	Cuculiformes	Cuculidae	Pied Cuckoo	*Clamator jacobinus*
41	Cuculiformes	Cuculidae	Asian Koel	*Eudynamys scolopaceus*
42	Cuculiformes	Cuculidae	Common Hawk Cuckoo	*Hierococcyx varius*
43	Caprimulgiformes	Caprimulgidae	Jungle Nightjar	*Caprimulgus indicus*
44	Caprimulgiformes	Caprimulgidae	Indian Nightjar	*Caprimulgus asiaticus*
45	Caprimulgiformes	Caprimulgidae	Savanna Nightjar	*Caprimulgus affinis*
46	Caprimulgiformes	Apodidae	Indian House Swift	*Apus affinis*
47	Gruiformes	Rallidae	Common Moorhen	*Gallinula chloropus*
48	Gruiformes	Rallidae	Common Coot	*Fulica atra*
49	Gruiformes	Rallidae	Grey-headed Swamphen	*Porphyrio poliocephalus*
50	Gruiformes	Rallidae	White-breasted Waterhen	*Amaurornis phoenicurus*
51	Gruiformes	Rallidae	Brown Crake	*Zapornia akool*
52	Gruiformes	Gruidae	Demoiselle Crane	*Grus virgo*
53	Gruiformes	Gruidae	Common Crane	*Grus grus*
54	Charadriiformes	Burhinidae	Indian Thick-knee	*Burhinus indicus*
55	Charadriiformes	Recurvirostridae	Black-winged Stilt	*Himantopus himantopus*
56	Charadriiformes	Recurvirostridae	Pied Avocet	*Recurvirostra avosetta*
57	Charadriiformes	Charadriidae	Yellow-wattled Lapwing	*Vanellus malabaricus*
58	Charadriiformes	Charadriidae	Red-wattled Lapwing	*Vanellus indicus*
59	Charadriiformes	Charadriidae	White-tailed Lapwing	*Vanellus leucurus*
60	Charadriiformes	Charadriidae	Kentish Plover	*Charadrius alexandrinus*
61	Charadriiformes	Charadriidae	Little Ringed Plover	*Charadrius dubius*
62	Charadriiformes	Rostratulidae	Greater Painted-snipe	*Rostratula benghalensis*
63	Charadriiformes	Jacanidae	Pheasant-tailed Jacana	*Hydrophasianus chirurgus*
64	Charadriiformes	Jacanidae	Bronze-winged Jacana	*Metopidius indicus*
65	Charadriiformes	Scolopacidae	Black-tailed Godwit	*Limosa limosa*
66	Charadriiformes	Scolopacidae	Ruff	*Calidris pugnax*
67	Charadriiformes	Scolopacidae	Temminck's Stint	*Calidris temminckii*
68	Charadriiformes	Scolopacidae	Little Stint	*Calidris minuta*
69	Charadriiformes	Scolopacidae	Common Snipe	*Gallinago gallinago*

70	Charadriiformes	Scolopacidae	Common Sandpiper	*Actitis hypoleucos*
71	Charadriiformes	Scolopacidae	Spotted Redshank	*Tringa erythropus*
72	Charadriiformes	Scolopacidae	Common Greenshank	*Tringa nebularia*
73	Charadriiformes	Scolopacidae	Marsh Sandpiper	*Tringa stagnatilis*
74	Charadriiformes	Scolopacidae	Wood Sandpiper	*Tringa glareola*
75	Charadriiformes	Scolopacidae	Common Redshank	*Tringa totanus*
76	Charadriiformes	Turnicidae	Barred Buttonquail	*Turnix suscitator*
77	Charadriiformes	Glareolidae	Indian Courser	*Cursorius coromandelicus*
78	Charadriiformes	Glareolidae	Small Pratincole	*Glareola lactea*
79	Charadriiformes	Laridae	Black-headed Gull	*Chroicocephalus ridibundus*
80	Charadriiformes	Laridae	Brown-headed Gull	*Chroicocephalus brunnicephalus*
81	Charadriiformes	Laridae	Pallas's Gull	*Ichthyaetus ichthyaetus*
82	Charadriiformes	Laridae	Gull-billed Tern	*Gelochelidon nilotica*
83	Charadriiformes	Laridae	Whiskered Tern	*Chlidonias hybrida*
84	Charadriiformes	Laridae	River Tern	*Sterna aurantia*
85	Ciconiiformes	Ciconiidae	Asian Openbill	*Anastomus oscitans*
86	Ciconiiformes	Ciconiidae	Woolly-necked Stork	*Ciconia episcopus*
87	Ciconiiformes	Ciconiidae	Painted Stork	*Mycteria leucocephala*
88	Suliformes	Anhingidae	Oriental Darter	*Anhinga melanogaster*
89	Suliformes	Phalacrocoracidae	Little Cormorant	*Microcarbo niger*
90	Suliformes	Phalacrocoracidae	Great Cormorant	*Phalacrocorax carbo*
91	Suliformes	Phalacrocoracidae	Indian Cormorant	*Phalacrocorax fuscicollis*
92	Pelecaniformes	Pelecanidae	Great White Pelican	*Pelecanus onocrotalus*
93	Pelecaniformes	Pelecanidae	Dalmatian Pelican	*Pelecanus crispus*
94	Pelecaniformes	Ardeidae	Grey Heron	*Ardea cinerea*
95	Pelecaniformes	Ardeidae	Purple Heron	*Ardea purpurea*
96	Pelecaniformes	Ardeidae	Great Egret	*Ardea alba*
97	Pelecaniformes	Ardeidae	Intermediate Egret	*Ardea intermedia*
98	Pelecaniformes	Ardeidae	Little Egret	*Egretta garzetta*
99	Pelecaniformes	Ardeidae	Cattle Egret	*Bubulcus ibis*
100	Pelecaniformes	Ardeidae	Indian Pond Heron	*Ardeola grayii*
101	Pelecaniformes	Ardeidae	Striated Heron	*Butorides striata*
102	Pelecaniformes	Ardeidae	Black-crowned Night Heron	*Nycticorax nycticorax*
103	Pelecaniformes	Threskiornithidae	Glossy Ibis	*Plegadis falcinellus*
104	Pelecaniformes	Threskiornithidae	Black-headed Ibis	*Threskiornis melanocephalus*
105	Pelecaniformes	Threskiornithidae	Red-naped Ibis	*Pseudibis papillosa*
106	Pelecaniformes	Threskiornithidae	Eurasian Spoonbill	*Platalea leucorodia*
107	Accipitriformes	Pandionidae	Osprey	*Pandion haliaetus*
108	Accipitriformes	Accipitridae	Black-winged Kite	*Elanus caeruleus*
109	Accipitriformes	Accipitridae	Egyptian Vulture	*Neophron percnopterus*
110	Accipitriformes	Accipitridae	Oriental Honey Buzzard	*Pernis ptilorhynchus*
111	Accipitriformes	Accipitridae	Short-toed Snake Eagle	*Circaetus gallicus*

112	Accipitriformes	Accipitridae	Steppe Eagle	*Aquila nipalensis*
113	Accipitriformes	Accipitridae	Western Marsh Harrier	*Circus aeruginosus*
114	Accipitriformes	Accipitridae	Montagu's Harrier	*Circus pygargus*
115	Accipitriformes	Accipitridae	Shikra	*Accipiter badius*
116	Accipitriformes	Accipitridae	Black Kite	*Milvus migrans*
117	Accipitriformes	Accipitridae	Brahminy Kite	*Haliastur indus*
118	Accipitriformes	Accipitridae	Common Buzzard	*Buteo buteo*
119	Accipitriformes	Accipitridae	Long-legged Buzzard	*Buteo rufinus*
120	Strigiformes	Tytonidae	Common Barn Owl	*Tyto alba*
121	Strigiformes	Strigidae	Indian Eagle Owl	*Bubo bengalensis*
122	Strigiformes	Strigidae	Spotted Owlet	*Athene brama*
123	Bucerotiformes	Upupidae	Common Hoopoe	*Upupa epops*
124	Bucerotiformes	Bucerotidae	Indian Grey Hornbill	*Ocyceros birostris*
125	Coraciiformes	Alcedinidae	Common Kingfisher	*Alcedo atthis*
126	Coraciiformes	Alcedinidae	White-throated Kingfisher	*Halcyon smyrnensis*
127	Coraciiformes	Alcedinidae	Pied Kingfisher	*Ceryle rudis*
128	Coraciiformes	Meropidae	Green Bee-eater	*Merops orientalis*
129	Coraciiformes	Meropidae	Blue-cheeked Bee-eater	*Merops persicus*
130	Coraciiformes	Meropidae	Blue-tailed Bee-eater	*Merops philippinus*
131	Coraciiformes	Coraciidae	European Roller	*Coracias garrulus*
132	Coraciiformes	Coraciidae	Indian Roller	*Coracias benghalensis*
133	Piciformes	Megalaimidae	Coppersmith Barbet	*Psilopogon haemacephalus*
134	Piciformes	Picidae	Eurasian Wryneck	*Jynx torquilla*
135	Piciformes	Picidae	Brown-capped Pygmy Woodpecker	*Yungipicus nanus*
136	Piciformes	Picidae	White-naped Woodpecker	*Chrysocolaptes festivus*
137	Piciformes	Picidae	Black-rumped Flameback	*Dinopium benghalense*
138	Falconiformes	Falconidae	Lesser Kestrel	*Falco naumanni*
139	Psittaciformes	Psittaculidae	Alexandrine Parakeet	*Psittacula eupatria*
140	Psittaciformes	Psittaculidae	Rose-ringed Parakeet	*Psittacula krameri*
141	Psittaciformes	Psittaculidae	Plum-headed Parakeet	*Psittacula cyanocephala*
142	Passeriformes	Pittidae	Indian Pitta	*Pitta brachyura*
143	Passeriformes	Campephagidae	Small Minivet	*Pericrocotus cinnamomeus*
144	Passeriformes	Oriolidae	Indian Golden Oriole	*Oriolus kundoo*
145	Passeriformes	Vangidae	Common Woodshrike	*Tephrodornis pondicerianus*
146	Passeriformes	Aegithinidae	Common Iora	*Aegithina tiphia*
147	Passeriformes	Rhipiduridae	White-browed Fantail	*Rhipidura aureola*
148	Passeriformes	Dicruridae	Black Drongo	*Dicrurus macrocercus*
149	Passeriformes	Dicruridae	White-bellied Drongo	*Dicrurus caerulescens*
150	Passeriformes	Monarchidae	Indian Paradise-flycatcher	*Terpsiphone paradisi*
151	Passeriformes	Laniidae	Isabelline Shrike	*Lanius isabellinus*
152	Passeriformes	Laniidae	Bay-backed Shrike	*Lanius vittatus*
153	Passeriformes	Laniidae	Long-tailed Shrike	*Lanius schach*

154	Passeriformes	Laniidae	Lesser Grey Shrike	*Lanius minor*
155	Passeriformes	Corvidae	Rufous Treepie	*Dendrocitta vagabunda*
156	Passeriformes	Corvidae	House Crow	*Corvus splendens*
157	Passeriformes	Paridae	Cinereous Tit	*Parus cinereus*
158	Passeriformes	Alaudidae	Rufous-tailed Lark	*Ammomanes phoenicura*
159	Passeriformes	Alaudidae	Ashy-crowned Sparrow Lark	*Eremopterix griseus*
160	Passeriformes	Alaudidae	Singing Bushlark	*Mirafra cantillans*
161	Passeriformes	Alaudidae	Indian Bushlark	*Mirafra erythroptera*
162	Passeriformes	Cisticolidae	Jungle Prinia	*Prinia sylvatica*
163	Passeriformes	Cisticolidae	Ashy Prinia	*Prinia socialis*
164	Passeriformes	Cisticolidae	Plain Prinia	*Prinia inornata*
165	Passeriformes	Hirundinidae	Dusky Crag Martin	*Ptyonoprogne concolor*
166	Passeriformes	Hirundinidae	Barn Swallow	*Hirundo rustica*
167	Passeriformes	Hirundinidae	Wire-tailed Swallow	*Hirundo smithii*
168	Passeriformes	Hirundinidae	Red-rumped Swallow	*Cecropis daurica*
169	Passeriformes	Hirundinidae	Striated Swallow	*Cecropis striolata*
170	Passeriformes	Hirundinidae	Streak-throated Swallow	*Petrochelidon fluvicola*
171	Passeriformes	Pycnonotidae	Red-vented Bulbul	*Pycnonotus cafer*
172	Passeriformes	Pycnonotidae	White-eared Bulbul	*Pycnonotus leucotis*
173	Passeriformes	Phylloscopidae	Common Chiffchaff	*Phylloscopus collybita*
174	Passeriformes	Sylviidae	Lesser Whitethroat	*Sylvia curruca*
175	Passeriformes	Paradoxornithidae	Yellow-eyed Babbler	*Chrysomma sinense*
176	Passeriformes	Zosteropidae	Indian White-eye	*Zosterops palpebrosus*
177	Passeriformes	Leiothrichidae	Jungle Babbler	*Argya striata*
178	Passeriformes	Leiothrichidae	Common Babbler	*Argya caudata*
179	Passeriformes	Leiothrichidae	Large Grey Babbler	*Argya malcolmi*
180	Passeriformes	Sturnidae	Common Starling	*Sturnus vulgaris*
181	Passeriformes	Sturnidae	Rosy Starling	*Pastor roseus*
182	Passeriformes	Sturnidae	Asian Pied Starling	*Gracupica contra*
183	Passeriformes	Sturnidae	Brahminy Starling	*Sturnia pagodarum*
184	Passeriformes	Sturnidae	Common Myna	*Acridotheres tristis*
185	Passeriformes	Sturnidae	Bank Myna	*Acridotheres ginginianus*
186	Passeriformes	Muscicapidae	Indian Robin	*Copsychus fulicatus*
187	Passeriformes	Muscicapidae	Oriental Magpie Robin	*Copsychus saularis*
188	Passeriformes	Muscicapidae	Bluethroat	*Luscinia svecica*
189	Passeriformes	Muscicapidae	Red-breasted Flycatcher	*Ficedula parva*
190	Passeriformes	Muscicapidae	Black Redstart	*Phoenicurus ochruros*
191	Passeriformes	Muscicapidae	Siberian Stonechat	*Saxicola maurus*
192	Passeriformes	Muscicapidae	Pied Bushchat	*Saxicola caprata*
193	Passeriformes	Muscicapidae	Isabelline Wheatear	*Oenanthe isabellina*
194	Passeriformes	Muscicapidae	Desert Wheatear	*Oenanthe deserti*
195	Passeriformes	Muscicapidae	Brown Rock Chat	*Oenanthe fusca*

196	Passeriformes	Muscicapidae	Variable Wheatear	*Oenanthe picata*
197	Passeriformes	Nectariniidae	Purple Sunbird	*Cinnyris asiaticus*
198	Passeriformes	Ploceidae	Baya Weaver	*Ploceus philippinus*
199	Passeriformes	Estrildidae	Indian Silverbill	*Euodice malabarica*
200	Passeriformes	Estrildidae	Scaly-breasted Munia	*Lonchura punctulata*
201	Passeriformes	Passeridae	House Sparrow	*Passer domesticus*
202	Passeriformes	Passeridae	Yellow-throated Sparrow	*Gymnoris xanthocollis*
203	Passeriformes	Motacillidae	Grey Wagtail	*Motacilla cinerea*
204	Passeriformes	Motacillidae	Western Yellow Wagtail	*Motacilla flava*
205	Passeriformes	Motacillidae	Citrine Wagtail	*Motacilla citreola*
206	Passeriformes	Motacillidae	White-browed Wagtail	*Motacilla maderaspatensis*
207	Passeriformes	Motacillidae	White Wagtail	*Motacilla alba*
208	Passeriformes	Motacillidae	Paddyfield Pipit	*Anthus rufulus*
209	Passeriformes	Motacillidae	Tree Pipit	*Anthus trivialis*
210	Passeriformes	Emberizidae	Crested Bunting	*Emberiza lathami*
211	Passeriformes	Emberizidae	Red-headed Bunting	*Emberiza bruniceps*

Appendix 13i: Baseline Data for Mammals of Ajmer District

Mammals of Ajmer District		
S. No.	**Common Name**	**Scientific Name**
1	Panther	*Panthera pardus*
2	Golden Jackal	*Canis aureus*
3	Jungle Cat	*Felis chaus*
4	Indian Fox	*Vulpes bengalensis*
5	Striped Hyena	*Hyaena hyaena*
6	Indian Boar	*Sus scrofa cristatus*
7	Long-eared Hedgehog	*Hemiechinus auritus*
8	Indian Grey Mongoose	*Herpestes edwardsii*
9	Indian Hare	*Lepus nigricollis*
10	Northern Palm Squirrel	*Funambulus pennantii*
11	Indian Crested Porcupine	*Hystrix indica*
12	Nilgai / Blue Bull	*Boselaphus tragocamelus*
13	Hanuman Langur	*Semnopithecus entellus*
14	Rhesus Macaque	*Macaca mulatta*
15	Honey Badger	*Mellivora capensis*
16	Sambar Deer	*Rusa unicolor*
17	Indian Pangolin	*Manis crassicaudata*
18	Indian Flying Fox	*Pteropus giganteus*

References:

- District Census Handbook, Census of India 2011, Rajasthan, Series-09 Part, XII-B, Ajmer, Directorate of Census Operations, Rajasthan.
- District Survey Report (Sand Mining), Ajmer, Office of Suprindentend Geologist, Department of Mines and Geology, Ajmer
- Central Pollution Control Board, Ministry of Environment, Forest and Climate Change, Government of India (https://cpcb.nic.in/)
- Rajasthan State Pollution Control Board (http://environment.rajasthan.gov.in/content/environment/en/rajasthan-state-pollution-control-board.html#)
- Work Plan, Forest Department, Ajmer (2012-2022), Government of Rajasthan