



सत्यमेव जयते

GOVERNMENT OF GUJARAT

# Environment Sector Profile



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**GUJARAT** 10-13 Jan  
**2017**

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Connecting India to the World | **8<sup>th</sup> Global Summit**

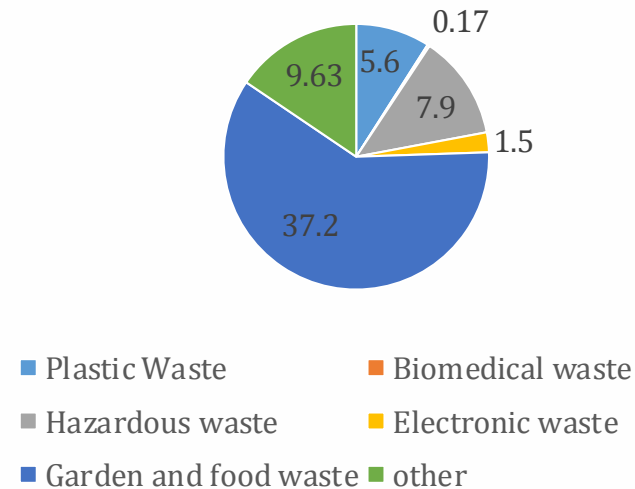
# India Scenario



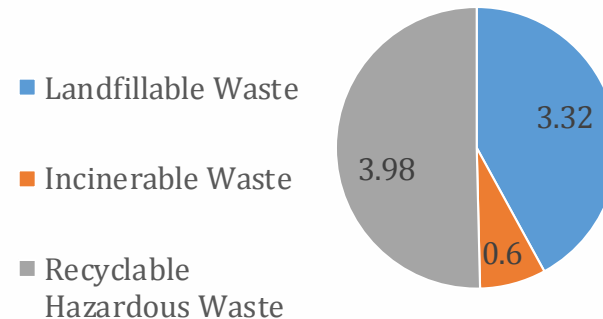
# Overview

- Total Municipal Solid Waste (MSW) generation in India is 62 million tonnes per year
- It is estimated to increase to about 165 million tonnes in 2030 and 230 million tonnes in 2041
- About 75-80% of the municipal waste gets collected and about 22-28% of this waste is processed and treated
- Hazardous waste generation in India is 7.9 million tons per year
- India generates 1.5 million tonnes of e-waste per year

MSW Generation (MT per year)



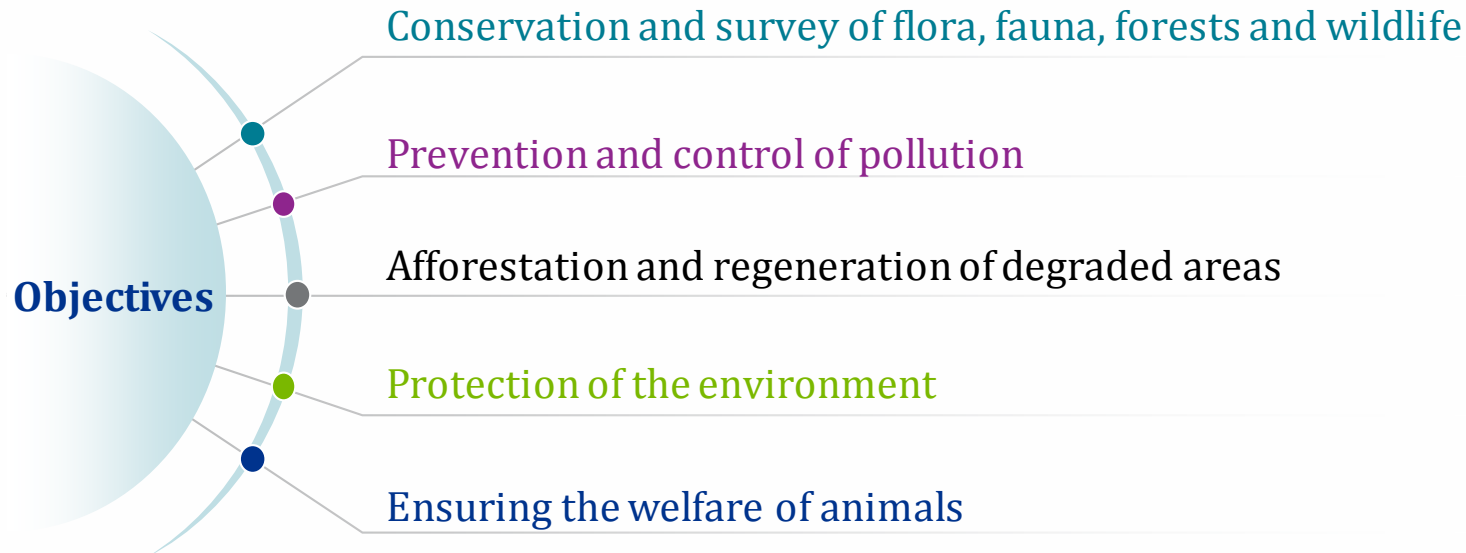
Hazardous Waste Categories (MT per year)



# Ministry of Environment & Forests Government of India



The Ministry of Environment & Forests (MoEF) – the nodal agency in the administrative structure of the Central Government for the planning, promotion, co-ordination and overseeing the implementation of India's environmental and forestry policies and programmes

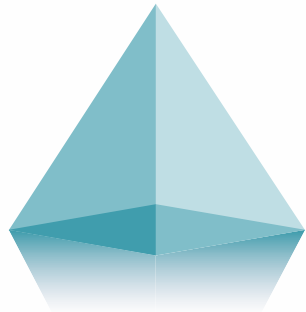


The objectives are well supported by a set of legislative and regulatory measures, aimed at the preservation, conservation and protection of the environment

# Central Pollution Control Board (CPCB)



- CPCB, a statutory organization, was constituted in September, 1974 under the Water (Prevention and Control of Pollution) Act, 1974
- CPCB was also entrusted with the powers and functions under the Air (Prevention and Control of Pollution) Act, 1981
- CPCB also serves as a field formation and also provides technical services to the Ministry of Environment and Forests of the provisions of the Environment (Protection) Act, 1986



## Principal Functions

To promote cleanliness of streams and wells in different areas of the States by prevention, control and abatement of water pollution

To improve the quality of air and to prevent, control or abate air pollution in the country

CPCB along with the State Pollution Control Boards (SPCBs) is responsible for implementation of legislations relating to prevention and control of environmental pollution

# Gujarat Scenario

A decorative graphic consisting of several overlapping, wavy bands of color. The colors include bright yellow, orange, and purple. The bands flow from the left side of the image towards the right, creating a sense of movement and depth. The purple band is the most prominent, curving upwards and then downwards as it moves across the frame.

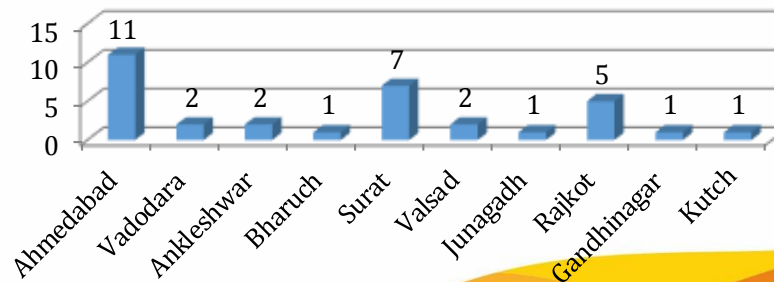
# Common Infrastructure Facilities



Infrastructure Facilities	Units
Common Effluent Treatment Plants (CETP)	41 (33 Operational, 8 proposed)
TSDFs	8 (6 Operational, 2 proposed)
Common Hazardous Waste Incinerator	8 (6 Operational, 2 proposed)
Common Biomedical Waste Incineration Facility (CBMWIF)	30 (19 Operational, 11 proposed)
Common Multiple Effect Evaporator (MEE)	8 (6 Operational, 2 proposed)
Conveyance system	5 (4 Operational, 1 proposed)
Common Spray Dryer	2 (Both operational)
Common Decontamination Facility	8 (6 Operational, 2 proposed)

- South & Central Gujarat have more number of CETPs due to higher concentration of industries in chemicals, textiles and petroleum sectors

**No. of CETPs (Operational)**



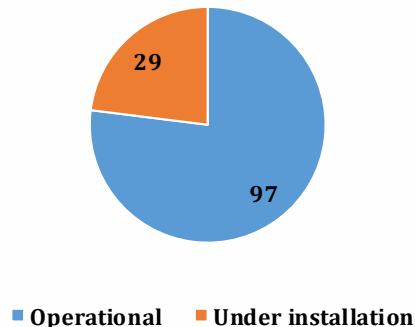
# Water Pollution Management

- Priority for reduction in water pollution at Kim – Borasara, Narol, Jetpur, Vatva, Ankleshwar and Panoli
- Several Waste Water Recycling projects are in various stages of implementation
- State looking to invest more in Zero Liquid Discharge (ZLD) technologies

## Water quality monitoring programmes by state government

- **GEMS Project** – Assessment of the quality of water of major rivers of the State from 9 sampling stations, viz. Narmada, Tapi, Mahi and Sabarmati
- **MINARS Project** – Monitoring the water quality from 156 sampling stations located on rivers like Sabarmati, Narmada, Tapi, Ambica, etc.

## Sewage Treatment Plants (STPs)



<b>No. of STPs</b>	<b>126</b>
Operational	97
Under Installation	29
No. of Oxidation Ponds	39 (Operational) + 4 (Proposed)



# Air Pollution Management



## Ambient Air Quality Monitoring Programme (AAQM)

- Monitor ambient air quality at Ahmedabad, Vadodara, Surat, Vapi, Bharuch and Rajkot with samples collected as per the standard norms for ambient air quality monitoring
- The parameters determined in analysis include SPM, RSPM, SO<sub>2</sub>, NO<sub>x</sub>, NH<sub>3</sub>, O<sub>3</sub>, Lead, Arsenic, Nickel, Benzene, Benzo-A-Pyrene

## National Ambient Air Quality Monitoring Programme

- At present, 38 monitoring stations are operational under this project

## State Ambient Air Quality Monitoring Programme

- At present, 24 monitoring stations are operational under this project

- Total number of industrial units having air pollution control equipment as on March 31, 2015 – 8927
- In 2014-15, 727 industrial units (new) have installed air pollution control equipment

# Solid Waste Management

- All the municipal authorities are required to arrange for collection, segregation, transportation and suitable disposal of municipal wastes from the municipal towns/cities according to the MSW (M & H) Rules 2000
- Currently, 94 Urban Local Bodies (ULBs) have a valid authorization under the MSW Rules, 2000
- Around 10,200 MT per day municipal solid waste is generated in the state of Gujarat

The Govt. of Gujarat has constituted a Nodal Agency, Gujarat Urban Development Company Ltd (GUDC) for infrastructure development for treatment, transportation and disposal



**Commissioned landfill sites**

Ahmedabad

Vadodara

Surat

Rajkot

**Proposed landfill sites**

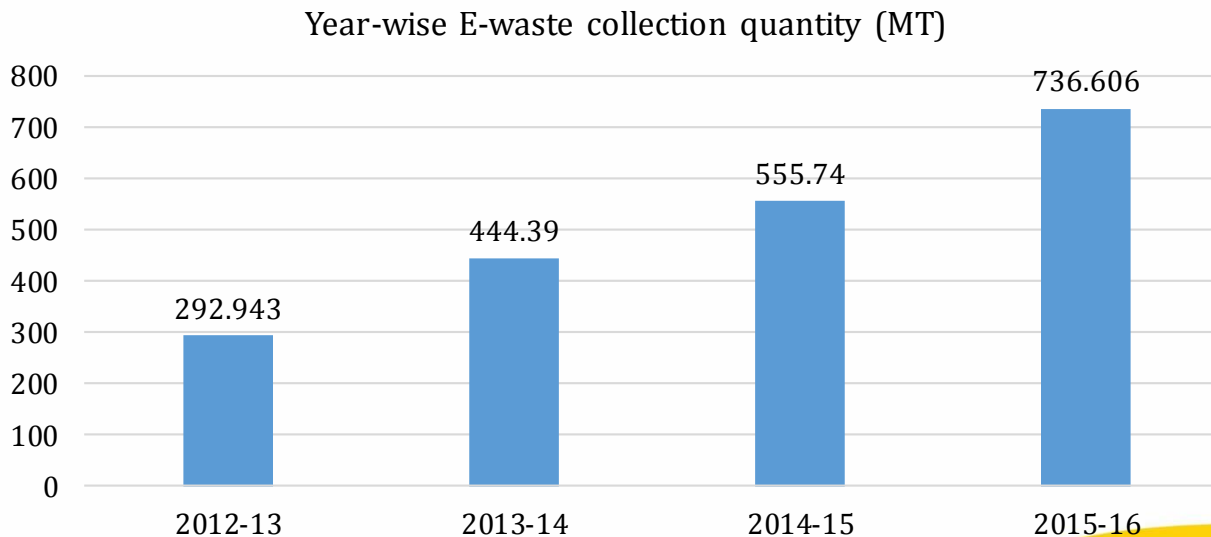
Junagadh

Bhavnagar

Jamnagar

# e-Waste Management

- Ministry of Environment and Forests published e-waste (Management & Handling) Rules-2010
- As per the rules, e-waste can be defined as “Any electronic goods or a part of an electronic good which have been used till the end of their life span and have been discarded by their users”
- Capacity of registered E-waste dismantlers / recyclers in Gujarat is more than 42000 million tonnes per annum



# Biomedical Waste Management



- Biomedical Waste – Any waste generated during the diagnosis, treatment or immunization of human beings or animals or in research activities pertaining there to or in the production or testing of bio medicals
- Common Bio-Medical Waste Facilities (CBMWF)
  - Health Care Facility Covered – 25198
  - Beds Covered – 116510

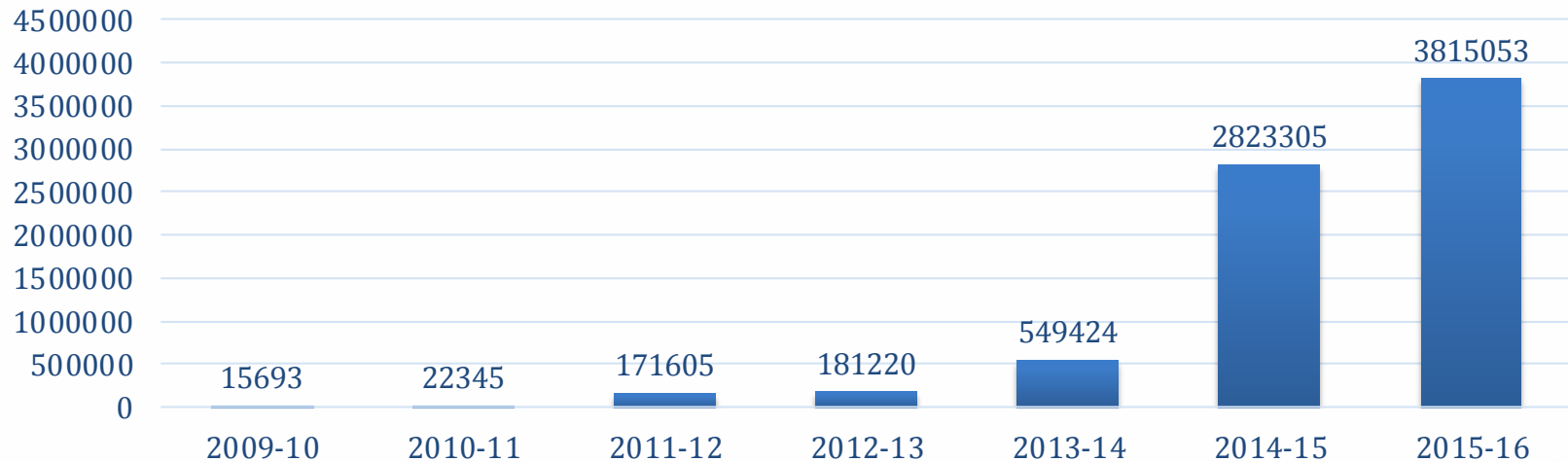
Category	Type of waste	Treatment and Disposal Options	
Yellow	(a) Human Anatomical Waste	Incineration or Plasma Pyrolysis or deep burial	
	(b) Animal Anatomical Waste		
	(c) Soiled Waste		
	(d) Expired or Discarded Medicines		
	(e) Chemical Waste		
	(f) Chemical Liquid Waste		Pre-treated before mixing with other wastewater
	(g) Discarded linen, mattresses, beddings contaminated with blood or body fluid		Incineration or Plasma Pyrolysis or deep burial
	(h) Microbiology, Biotechnology and other clinical laboratory waste		
Red	Contaminated Waste (Recyclable)	Autoclaving/ Micro Waving/ Hydroclaving	
White (Translucent)	Waste sharps including Metals	Autoclaving/ Dry heat sterilization	
Blue	(a) Glassware	Disinfection, autoclaving or microwaving or hydroclaving and then sent for recycling	
	(b) Metallic Body Implants		

Source: Gujarat Pollution Control Board (GPCB)

# Co-processing

- Co-processing – Use of waste as raw material, or as a source of energy, or both to replace natural mineral resources (material recycling) and fossil fuels in industrial processes
- Provides an environmentally sound resource recovery option without hampering waste reduction efforts
- Co-process waste as alternate fuel/raw material to reinforce its competitiveness and contribute to solutions to society's waste problem and to benefit the Environment
- Between 2009 and 2016, more than 75 lakh MT of hazardous waste & non-hazardous waste have been co-processed in the cement industries

**Co-processed waste (MT)**



# Gujarat Pollution Control Board (GPCB)



The Government of Gujarat constituted the GPCB in 1974 as per provisions under the Water (Prevention and Control of Pollution) Act, 1974, with a view to protect the environment, prevent and control the pollution of water in the State of Gujarat, that occupies a prominent niche in progressive and industrial development of the country

## Objectives

- ✓ Bring about all round improvement in the quality of the environment in the State by effective implementation of the laws
- ✓ Control of pollution at source to the maximum extent possible with due regard to technological achievement & economic viability as well as sensitivity of the receiving environment
- ✓ Site identification & development of procedures & methods for hazardous wastes disposal
- ✓ Maximization of re-use and re-cycle of sewage and trade effluent on land for irrigation and for industrial purpose after giving appropriate treatment and thereby economizing and saving on the use of water
- ✓ Minimization of adverse effect of pollution by selecting suitable locations for the establishment of new industrial projects
- ✓ Co-ordination with other agencies of State Government & local authorities to encourage the Common Effluent Treatment Plants & Treatment Stabilization Disposal Facilities
- ✓ Close co-ordination and rapport with educational institutions, non government organizations, Industries Associations, Government organizations, etc. to create environmental awareness

# Gujarat Pollution Control Board (GPCB)



<b>Research and Development Center</b>	<ul style="list-style-type: none"><li>• GPCB is a Recognized Research Center of Gujarat Forensic Science University to enhance the research &amp; development work</li><li>• Short term &amp; long term courses in the field of environment forensic to develop new era of employment</li></ul>
<b>Sophisticated Environmental Analytical Laboratory (SEAL)</b>	<ul style="list-style-type: none"><li>• GPCB has developed SEAL at Central Laboratory under Integrated Coastal Zone Management Project (ICZMP)</li><li>• Aim – protection of marine life; capacity building in terms of infrastructure, physio-chemical analysis of coastal water; environmental monitoring, human resource skill development as well as R&amp;D activities</li></ul>
<b>Capacity Building</b>	<ul style="list-style-type: none"><li>• Various outstate, in house and foreign training programmes organized with the help of various institutes</li><li>• Aim – to upgrade the skill of all the stakeholders for the effective implementation of various environmental laws &amp; handle related issues</li></ul>
<b>Environmental Clinics</b>	<ul style="list-style-type: none"><li>• Adoption of “Doctor-Patient” concept to understand and analyze the pollution related problems of the industries</li><li>• To resolve the problems through technological interventions, common environment infrastructures and using modern concepts of management for sustainable development of the state</li></ul>
<b>Tie-ups</b>	<ul style="list-style-type: none"><li>• Environment Protection Authority (EPA), Australia has a MoU with GPCB for capacity building and technology transfer</li><li>• GPCB has signed MoU’s with GIZ, UBA – Germany</li><li>• GPCB also had MoU’s with Solvay, Sweden &amp; JPAL – South Asia, USA</li></ul>

# Opportunities



**Green Buildings using Clean Technologies**

**Common Infrastructure for Waste Disposal**

**Setting up PPP facilities to ensure implementation of waste management initiatives**

**Waste to Energy technologies**

**Continuous Emission Monitoring Systems (CEMS)**

**Remediation technologies for ground water restoration**

**Municipal Solid Waste Management**

**Use of Nanotechnology and Advanced Biotechnology tools in pollutant treatment**

**Waste plastic management and disposal technologies**

**Advanced waste water treatment technologies**

**Green Chemistry**





**FOR ADDITIONAL INFORMATION CONNECT US @**

Forests & Environment Department, Govt. of Gujarat

<http://www.envforguj.in>

Gujarat Pollution Control Board (GPCB)

<http://gpcb.gov.in>



# THANK YOU

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