

PLASTIC WASTE & IT'S MANAGEMENT



DR. SONIA

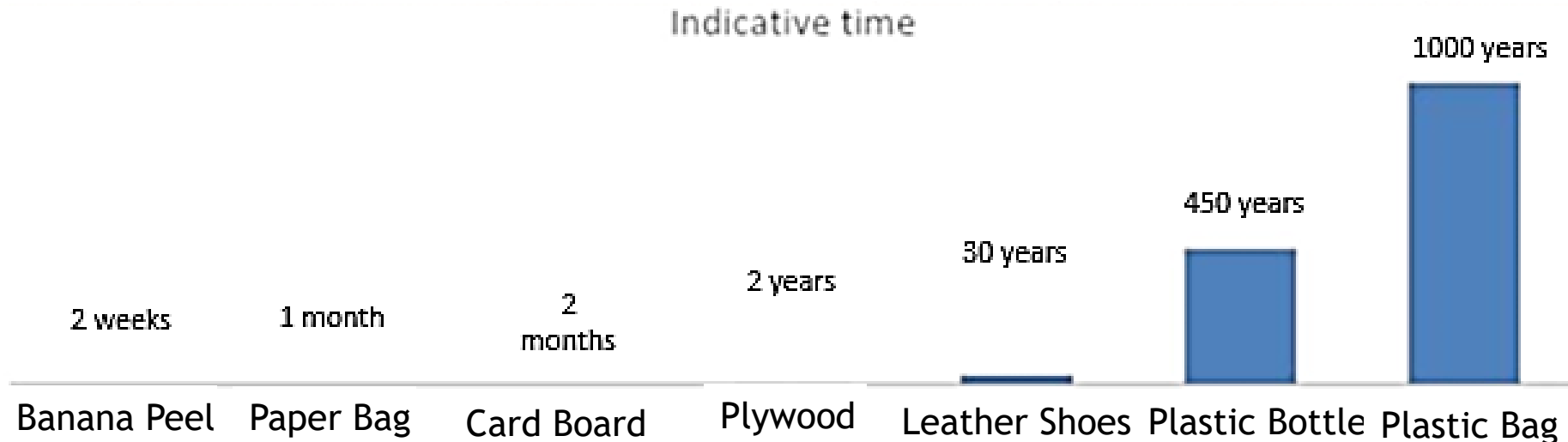
DEPARTMENT OF BOTANY

**GIANI KARTAR SINGH MEMORIAL GOVERNMENT COLLEGE
TANDA URMAR**

Introduction to Plastics

- Plastic is a general term for synthetic polymerization products
- Almost all plastics are made from petroleum and are not bio-degradable
- Generally, plastics are categorized into 2 types based on their physical properties:
 - **Thermoplastics:** which soften on heating and can be molded into desired shape
 - **Thermosetting plastics:** which cannot be softened or remolded by heating

Plastic takes centuries to decompose in the natural environment



SYMBOL	SHORT NAME	SCIENTIFIC NAME	USE IN
1	PET	Polyethylene terephthalate	Water bottles, PET bottles etc.
2	HDPE	High density polyethylene	Milk or detergent bags, Carry bags, Container etc.
3	PVC	Polyvinyl chloride	Cables, Pipes, Floorings etc.
4	LDPE	Low density polyethylene	Carry bags, Films
5	PP	Polypropylene	Medicine bottles, Cereal liners, Packaging films etc.
6	PS	Polystyrene	Foam packaging, Tea cups, Ice cream cups, etc.
7	O	Others	Thermoset plastics, Multilayer and Laminated Plastics, PUF, Bakelite, Polycarbonate, Melamine, Nylon etc.

Recyclable plastics (thermoplastics): PET, HDPE, LDPE, PP, PVC, PS, etc.

Non-recyclable plastics (thermoset and others): Multilayer and laminated plastics, polyurethane foam (PUF), bakelite, polycarbonate, melamine, nylon, etc.

Plastic Waste Generation and Issues in India

As per the 2015 study conducted by Central Pollution Control Board (CPCB) in 60 major cities of India: **4,059 tonnes per day** of plastic waste was generated by these cities.

Top 5 Plastic Waste Producing States Of India



Figures in tonnes per annum

Source: Central Pollution Control Board Annual Report 2015-16

NDTV.COM

Need for Plastic Waste Management

Aesthetics & Hygiene

- It is an aesthetic nuisance than a hazard since the material is biologically quite inert
- It is cheap and gets discarded easily, and its persistence in environment can do great harm

Threat to birds & animals

- Plastics pose a serious danger to birds, animals and marine animals that often mistake them for food
- Not only animals, infants and young children have also been reported to have lost their life, on account of suffocation by plastic bags



Need for Plastic Waste Management (contd.)

Environment

- Careless disposal of plastic bags chokes drains, blocks the porosity of the soil, inhibits groundwater recharge and can cause landslides.
- It reduces soil fertility and can lessen the growth of plants and trees by blocking the absorption of minerals, water and other nutrients

Health

- Toxic chemicals found in plastic cause cancer, birth defects, hormonal changes, diabetes, gastric ulcer thyroid problems and cardiovascular diseases
- Plastics when burnt release a host of poisonous chemicals into the air
- Plastic Industry releases a large amount of carbon monoxide, dioxin, hydrogen cyanide which cause respiratory diseases, nervous system disorders and immune suppression in human beings



Contamination of Indian Sea Salts with Microplastics

Microplastics
are small pieces
of plastic
less than 5 mm
in diameter
formed by
gradual
degradation of
plastic products

India is the third-largest
producer of edible and
industrial salt (26 million
metric tonnes in 2017) after
China and US

Indians are consuming about 117
micrograms (0.117 milligrams) of
microplastic annually if the average person
has a daily salt intake of 5 grams

Doctors removed
80kg of polythene
waste from a cow's
stomach after
3-hour operation

- The six-year-old cow was operated on at Patna's Bihar Veterinary College where doctors removed the plastic waste from the animal's stomach.



The Plastic Waste Management Rules, 2016 have been notified by the Ministry of Environment, Forest & Climate Change, Government of India

Penalties

The fines range from Rs 10,000 to Rs 1 lakh and up to five years imprisonment.



Violation	FINES IN ₹	
	Penalty (First offence)	Subsequent offences
Manufacture of banned plastic items	2 lakh	5 lakh
Storage, supply, transport of material	1 lakh	2 lakh
Trading, retailing, selling and distribution of banned products	50,000	1 lakh
Commercial users of banned items	25,000	50,000
Domestic users of such products	500	1,000

ALTERNATIVES TO PLASTIC:-

- Metal,
- wood,
- glass
- Bagasse
- Bio plastics
- Reusable shopping bags
- Plastic additives
- Jute
- Coconut
- bamboo
- Milk protein
- Chicken feather
- Liquid wood



plastic straws



plastic containers



water bottles



plastic ice cube trays



glass + silicone + metal straws























mason jars



stainless steel water bottles



silicone ice cube trays

Use THIS	Not THAT	Use THIS	Not THAT
<p>Reusable Cloth Totes</p> 	<p>Plastic Shopping Bags</p> 	<p>Beeswax Wrap</p> 	<p>Cellophane Wrap</p> 
<p>Reusable Drinking Container</p> 	<p>Plastic Water Bottles</p> 	<p>Glass Refillable Containers</p> 	<p>Plastic Drink Jugs/ Containers</p> 
<p>Metal Drinking Straws</p> 	<p>Plastic Drinking Straws</p> 	<p>Cardboard Case</p> 	<p>Plastic 6 pack Rings</p> 
<p>Metal Utensils</p> 	<p>Plastic Utensils</p> 	<p>Microfiber/ Microplastic Lint Filter</p> 	<p>Nylons As Lint Trap</p> 
<p>Natural Fabrics</p> 	<p>Synthetic Fabrics</p> 	<p>Metal Razor With Replaceable Blades</p> 	<p>Plastic Razors</p> 

THANK YOU

The background features abstract, overlapping geometric shapes in various shades of green, ranging from light lime to dark forest green. These shapes are primarily located on the right side of the frame, creating a modern, layered effect against the white background.