Awareness Workshop

Implementing Sustainable Development Goals in India

Beating Plastic Pollution

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Climate Change Research Institute

- The Climate Change Research Institute has a mission to disseminate science & technology research in the field of Environment and Climate Change mitigation and adaptation.
- The Institute educates and create awareness among youth in schools and colleges about the ecosystem changes and short term - long term consequences of climate change.
- The Institute is member of United Nations Global Compact and is committed to taking actions towards environmental sustainability through application of science & technology.

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Plastics – Origin

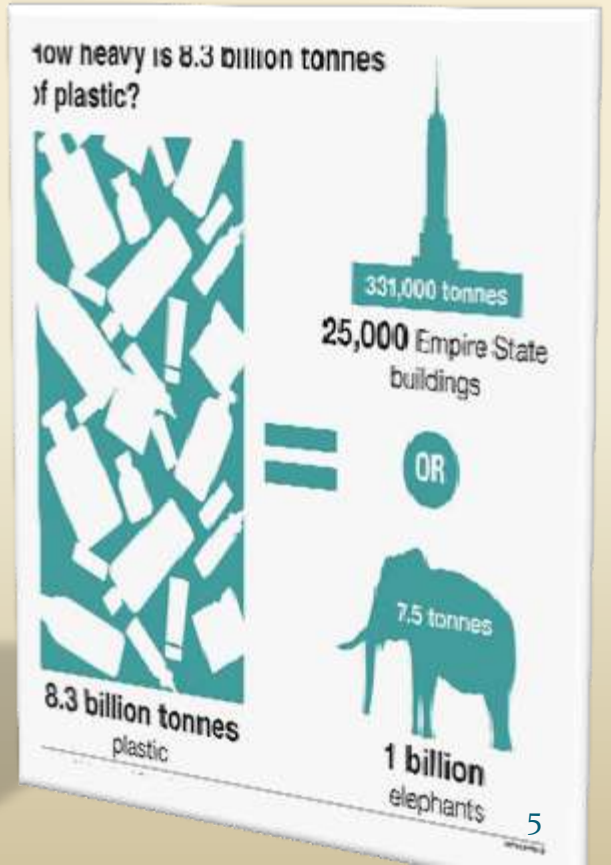
- Large scale production and use of plastics dates back to 1950s.
- From crude oil most of the polymers are derived.
- Plastic industry had put petroleum products to good use, it was low cost and scientific. It was new, moldable, lightweight, durable and Innovative.
- In 1960s success was achieved into making variety of products from drinking bottles to *barbie* dolls.
- 50 years back it became a disruptive technology

Plastics – Wonder Materials

- Plastics are polymeric materials based on chemically interlinked, repeating monomer subunits; with identical building blocks.
- In India, thrust was given to plastic technology and Central Institute of Plastics Engineering and Technology, first came up in Chennai.
- The plastic industry has been growing phenomenally. Plastics have use in all sectors of the economy – infrastructure, construction, agriculture, consumer goods, telecommunications, and packaging.
- Innovation in plastics engineering and technology helped in pursuit of excellence in sectors such as automobile manufacturing and medical instruments
- It is impossible to imagine life without plastics.

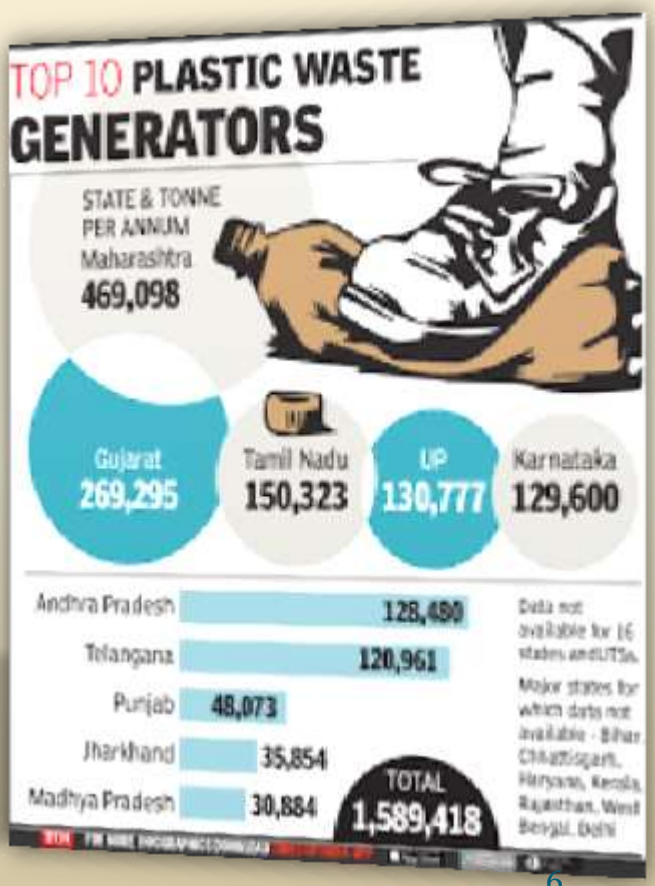
Plastics – Indian Situation

- World plastic production annually has grown exponentially from 2 million tonnes in 1950 to 350 million tonnes at present
- India is producing around 8.5 million tonnes of plastics every year.
- China has largest plastic production in the world.
- Plastics are wonder materials that have made life better. The problem for environment arises only because of misuse.

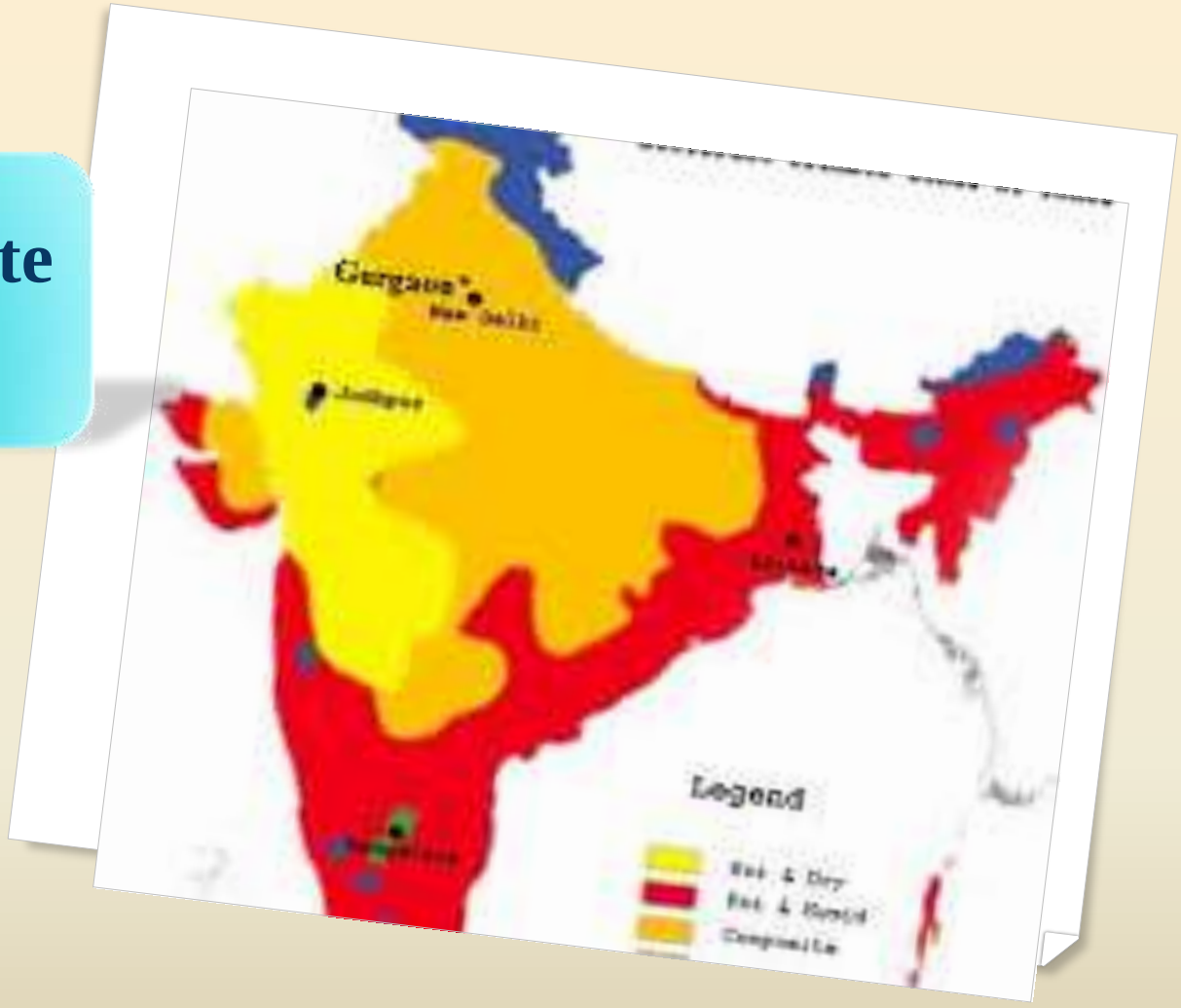


Plastic – Pollution

- Only 10% of the total production is recycled, about 10% incinerated and rest is pollution
- About 80 billion tonnes of plastics have been produced since 1950 out of which 6.8 billion tonnes of plastic waste has been generated.
- USA alone produced 38 billion water bottles as waste in a year.
- According to CPCB study 60 Indian cities are generating more than 15000 tonnes of plastic waste every day. Recent FICCI report has updated the figure to 25,000 tonnes.

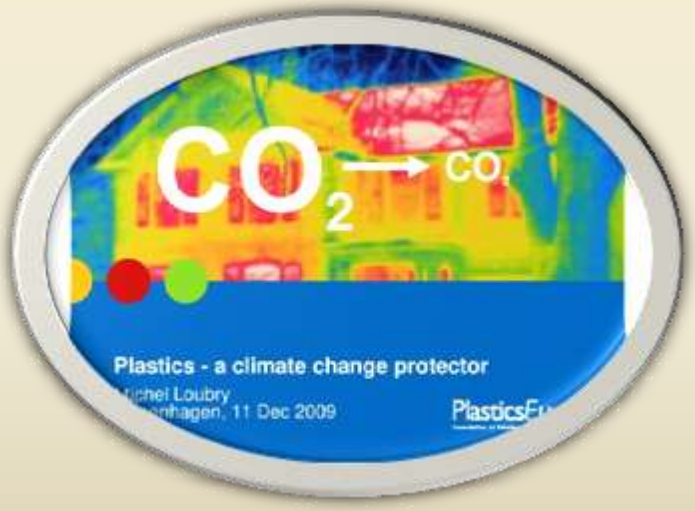


Plastic and Climate Change



Plastics –Solution to Climate Change?

- Source of both Plastics and Climate Change are fossil fuels.
- Plastics and composites could be used in any application replacing metal or nonmetals.
- Plastic could replace wood as well as steel or glass.
- Savings in Energy and Natural Resources from plastic use was big achievement
- Plastics being light weight, their use helps in reducing greenhouse emissions during operation of a device as a result of less energy consumed

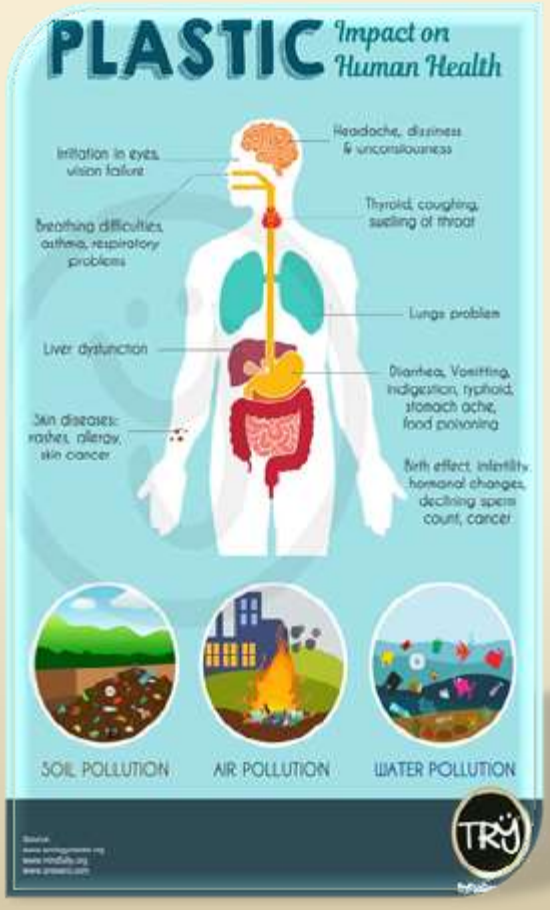


Plastics - CO2 Pollution

- Making a kilogram of virgin plastic releases 2-3 kg of CO_2, which is same as that of steel production from iron ore
- A cloth bag or paper bag generates more carbon footprints in making than a plastic bag.
- Plastic accumulates in the environment like CO_2
- Lifecycle of a plastic product is long. From land it travels to oceans beyond EEZ of the countries and becomes a trans boundary problem

Plastic Pollution – Human Health

- There may be no direct impact on health from plastic materials but once ingested can harm severely.
- Inside Sea, plastic can fragment into micro-plastic in the presence of Sea salt water & Sunlight.
- Computer modeling suggested that Seas hold 51 million micro-plastic particles.
- Through Aquatic food chain, these micro particles are consumed by fishes, and then to our food.
- By 2050 there could be more plastic in global oceans than fish measured by weight.



Plastics - Sustainable Development Goals

SDG 14

SDG 14.1 – Deals with the issue of marine pollution of all kinds including marine debris, which damages ecosystem – Prevention and reduction by 2025 (Out of 300 million tonnes of plastic being produced globally annually 83 million tonnes ends up in oceans)

SDG 14.2 – Sustainably manage and protect marine ecosystem by 2020, as marine debris damages marine life, which in turn affects human health (Marine debris is transboundary problem)

SDG 12

SDG 12.4 – By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment

By 2030 overall waste generation must be significantly reduced through prevention, reduction, recycling and reuse.

SDG 12.5 – Requires the release of chemicals to air, water and soil must be significantly reduced.

Beating Plastic Pollution - Myanmar Way

Thank You

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Sikkim

- Sikkim is a small biodiversity rich area and has limited space for dumping waste.
- Sikkim became the first Indian State to ban disposable plastic bags in 1995.
- Thinking of banning plastic bottles, huge fines levied for use of plastic bags.
- Use of non woven polypropylene bags is eco-friendly.
- Success is achieved through penalties and mass-awareness programmes.

Disruptive Technologies

- 50 years back plastics were a disruptive technology.
- Bio-based plastics as Green Plastics may become a disruptive technology again
- Adopt circular economy approach with recyclability, and a particular focus on increasing recyclable packaging and infrastructure.
- PETase Enzyme and Bacteria that eats plastic bottles has been discovered need to scale up