

## Say No to Plastic: RSTV – Big Picture

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### Context:

- Recently, Prime Minister Narendra Modi urged people to **shun single-use plastic** and **use jute and cloth bags** to protect the environment.

### Background:

- Plastic was popularised in the **1960s** as a convenient material for everyday use.
- The problems caused by **single use plastics** (SUPs) were recognised in **2007**
- **United Nations Environment Program (UNEP)** had declared the theme for **World Environment Day 2018** as '**Beat Plastic Pollution**'. It was hosted by India.
- As a part of the event, the government had announced its intention to **phase out single-use plastic** by **2022**.
- Plastic waste has been observed everywhere, from the **depths of the oceans** to the **peaks of Himalayas**.
- Plastic can't be removed entirely from the planet because it has **many advantages** as a material for daily use and in specialty applications.
- **Saudi Arabia** plans to **invest in India** to produce more petrochemicals and plastic, slowly transforming India into one of the biggest producers and consumers of plastic.

### Issues Caused by Plastic:

- Regulation of Single Use Plastics (SUPs) is a major problem the world is battling at this point of time.
- SUPs are **used only once** and thrown into the environment.
- Consumers find SUPs such as **food packaging** (especially in home delivery of food), **disposable glasses, straws** much more convenient to use.
- The main problem lies in the **inadequate collection and recycling systems**.
  - According to the **Environment Ministry**, about **20,000 tonnes of plastic waste** is **generated every day** in the country, out of which **only 13,000-14000 tonnes** are collected.
  - **Worldwide**, the amount of plastic waste collected is only around **16-18%** of the total generation.
- **Micro Plastics:**
  - Plastics **do not decay** in the soil but undergoes **wear and tear and disintegrates** into micron sized particles (**micro plastics**).
  - Plastics may disappear from the eyes but the **invisible** micro plastics remain to cause problems.
  - There are **no credible estimates** about the quantity of micro plastics present in the soil and oceans.
  - In a recent research micro plastics were found in the **snow samples** collected from the **Svalbard islands of the Arctic sea**.
- **Water crisis:**
  - Uncollected SUPs **accumulate** in the water bodies and **clogs the drains** before ultimately reaching the oceans.
  - The **North Pacific Garbage Dump/Gyre** is an example of accumulation of plastic in the

ocean.

- o The garbage gyre **churns** the plastic waste and produces much more micro plastics.
- o Animals, especially **marine organisms** often consume micro plastics and eventually die.
- o Further, clogging of drains is a factor responsible for **floods**
- **Health issues:**
  - o **Micro plastics** may accumulate in the **lungs and blood streams** and cause severe consequences.
  - o **Carcinogenic chemicals** such as **furans and dioxins** are released by the **burning or pyrolysis** of plastic.
  - o People often drink **hot water in PET bottles** and consume harmful components.
- **Collection** of used plastics, mostly done in the **informal sector**, stay away from collecting certain types of waste because of **lack of profit**. Ex.: Pet bottles fetch a higher price, but straws carry bags, etc. do not.
- **Businesses to business (B2B) transmission of goods** involve huge quantities of around 130 types of plastic packaging.
- **Issues Related to the Mindset:**
  - o Throwing away plastic is everyone's problem and **nobody is willing to take responsibility**.
  - o It is difficult to reduce the use of plastic since it is **cheaper**.
  - o There is a notion that some plastic is good and others wrong. But, even **cloth fabric, earbuds and cigarette butts** are harmful, as they may disperse micro plastic **fibrils** in the air.
  - o Industries make us **subservient to plastic**. If we reduce using it, industry lobby will fund illegitimate studies to prove that plastic is not harmful.

### The Real Cost of Plastic:

- Plastic materials may be **cheap** but the **distributed cost or decentralised cost** is very high.
- The distributed cost or decentralised cost is calculated by considering the **environmental, economic and health damages** and threats.
- **Fisheries sector** may suffer due to the deadly impact of micro plastics in the marine environment and India being a major exporter of marine products should keep its oceans free of plastic, as plastic digested fishes are rejected, as due standards are expected.
- Since plastics are synthesised from **petroleum** the cost involves the **environmental damage** done during the mining, transportation and refining of petroleum.

### Way Forward:

- **Shopkeepers** need to charge a price for plastic carry bags and encourage customers to bring cloth bags and glass/metal containers from home. Ex.: **Mother Dairy** outlets provide milk in containers brought from home.
  - o Customers can **ensure the quality** of the products since they could see and taste it directly.
- **Segregation, collection and disposal** of plastic waste needs to be done in a proper **scientific**
- **Alternate materials** should be **mass produced** so that they become affordable with the help of **economy of scale and large demand**.
- Appropriate **funding** should be provided for a comprehensive research to **identify and quantify** the plastic waste and **detect the sources**.
- A comprehensive **cost-benefit analysis** of each type of plastic need to be carried out, considering the **environmental and health costs**.
- Start-ups, universities and research centres need to find new ways to **recycle plastic** such as using it in **highways construction**, etc.
- Companies which made huge profit from selling plastics have the **liability and moral responsibility** to fund research for alternatives.
- Industries need to build an **incentive system** for recovering the plastics; especially the **Multi Layered Plastic Packaging (MLP)**, from the consumers.

- The supply chain of plastic need to be **tracked** for determining whether they are collected back or not.
- There should be a **consensus** based on the fact that **plastic is not essential for our survival**.
- **Awareness programs** need to be expanded and **innovative** ideas need to be invited from the civil society.

### Technological Solutions:

- **University of New South Wales, Australia** has devised a technology to destroy non-segregated plastics at **higher temperatures** and this technology requires temperature increase at a faster pace and quickly. This will result in decrease of plastic without causing pollution.
  - The cost for adopting is not too high as well and this is currently practiced on commercial basis in Australia
  - What we need at this moment is opening of opportunities to new start-up companies and using the knowledge of ISRO to make it an adaptable mission
- Plastic waste can be used as an alternate fuel for **co-processing in cement kilns**.
- **Reverse vending machine** in **Bangalore and Karol bagh** scraps plastic bottles.

### Alternatives:

- If plastic needs to be banned, affordable alternates need to be promoted.
- Alternative materials to plastic should be **environment friendly** and **affordable**.
- **Glass bottles, aluminium containers** (for milk), **cloth and jute bags** can be used while shopping.
- Alternatives made of natural material provide **employment** opportunities in the **cottage industry**

### Conclusion:

- Plastic is a **miraculous product** but it is harmful to the ecosystem as a whole. It is already too late to **destroy the existing plastic waste** without causing pollution. In addition to that, each type of plastic need to be **replaced with an eco-friendly material** at the manufacturing level itself.
- In the past civilizations have survived without plastic so going forward this society can also survive without it but with suitable alternatives infused by upgrading the technology.
- It is now the right time to say no to plastic.

