

**ENVIRONMENT**

**Why the single-use plastic ban**

❖ **CONTEXT:** The Ministry of Environment, Forest & Climate Change had issued a gazette notification in the year 2021 announcing the ban from July 1, 2022, and on June 20 it defined a list of items that will be banned.

❖ **What is single-use plastic?**

- As the name suggests, it refers to plastic items that are used once and discarded. Single-use plastic has among the highest shares of plastic manufactured and used — from packaging of items, to bottles (shampoo, detergents, cosmetics), polythene bags, face masks, coffee cups, cling film, trash bags, food packaging etc.
- According to a report by one of the Australian philanthropic organisations the Minderoo Foundation single-use plastics account for a third of all plastic produced globally, with 98% manufactured from fossil fuels. Single-use plastic also accounts for the majority of plastic discarded – 130 million metric tonnes globally in 2019 — “all of which is burned, buried in landfills or discarded directly into the environment.
- On the current trajectory of production, it has been projected that single-use plastic could account for 5-10% of greenhouse gas emissions by 2050.
- The report found that India features in the top 100 countries of single-use plastic waste generation – at rank 94 (the top three being Singapore, Australia and Oman. With domestic production of 11.8 million metric tonnes annually, and import of 2.9 MMT, India’s net generation of single-use plastic waste is 5.6 MMT, and per capita generation is 4 kg).

❖ **What are the items being banned?**

- The items on which the Central Pollution Control Board (CPCB) have announced a ban are ear buds; balloon sticks; candy and ice-cream sticks; cutlery items including plates, cups, glasses, forks, spoons, knives, trays; sweet boxes; invitation cards; cigarette packs; PVC banners measuring under 100 microns; and polystyrene for decoration.
- The Ministry had already banned polythene bags under 75 microns in September 2021, expanding the limit from the earlier 50 microns. From December, the ban will be extended to polythene bags under 120 microns. Ministry officials have explained that the ban is being introduced in phases to give manufacturers time to shift to thicker polythene bags that are easier to recycle. While manufacturers can use the same machine for 50- and 75-micron bags, the machinery will need to be upgraded for 120 microns.
- According to the Plastic Waste Management Rules, 2016, there is also a complete ban on sachets using plastic material for storing, packing or selling gutkha, tobacco and pan masala.

❖ **Why is the ban being enforced?**

- Combating pollution caused by single-use plastics has become a significant environmental concern for all nations. The detrimental effects of littered single-use plastic products on terrestrial and aquatic ecosystems, particularly on the marine environment, are acknowledged globally.
  - Ingestion of single-use plastic can damage the reproductive organs, lungs, and the neurological system.
  - An estimated 150 million tonnes of plastic garbage are actually floating in our waters, harming species and altering the marine ecosystem. Therefore, by prohibiting these plastic items, the government can reduce plastic waste production.
- ❖ **How does single-use plastic enter the body and cause these health hazards?**
- It is challenging to recycle single-use plastic; hence, it has spreading the earth’s ecosystem and affected the human food chain. Exposure to micro plastics impacts the human food chain and may damage human health in various ways. We consume, inhale, and ingest micro plastics daily.
  - Once inside the body, these tiny plastic particles may harm organs and be linked to significant health issues, including hormone-related malignancies, infertility, and neuro -developmental disorders such as ADHD and autism.
  - Plastics degrade into micro plastics after entering various ecosystems. These micro plastics act as a platform for the growth of pathogenic micro-organisms. Exposure to such contaminated micro plastics could add to the associated disease burden and sometimes may even cause death.
  - Scientists have connected exposure to relatively low amounts of bis phenol A (BPA) [a chemical used in plastics] to various health issues, including cancer, decreased immunological function, early onset of puberty, obesity, diabetes and hyperactivity.

- Regular incineration of medical waste containing PVC and phthalates [a chemical added to plastics] raises public health issues due to the release of dioxins and mercury. Long-term exposure can lead to cancer, congenital impairments, hormonal abnormalities, decreased sperm counts, infertility, and immune damage.
- According to the World Health Organization (WHO), micro plastic particles bigger than 150 micrometres are unlikely to be absorbed by the human body, and absorption of smaller particles is anticipated to be restricted. However, the absorption and distribution of microscopic plastic particles in the nano size range may be more significant, despite the exceedingly little evidence available. Therefore, it is emphasised that additional research is necessary to establish a more precise estimate of exposure to micro plastics and their possible health effects on humans.
- These include the development of standard methods for measuring micro plastic particles in water, more research on the origins and occurrence of micro plastics in fresh water, and the evaluation of the effectiveness of various treatment processes.

❖ **How will the ban help the environment and public health?**

- It is estimated that almost 15 per cent of our plastic is burnt. The burning of plastics emits hazardous chemicals such as dioxins, furans, mercury and polychlorinated biphenyls(PCBs) into the atmosphere, endangering the health of humans, animals and even plants.
- Human beings are irresponsibly destroying the environment for profits. Burning plastic contributes significantly to air pollution and even residents close to and employees of dumpsites are at a greater risk of respiratory ailments and cancer. It makes no sense to produce items such as plastic whose value is assessed in minutes and endures eternally without depreciating

❖ **What are the alternatives to such plastics?**

- The ban on single-use plastic will harbour innovation, specifically for plant-based rapid bio degradable products.
- Similarly, bio-based plastics or bio plastics are becoming increasingly prevalent. Bio plastics are manufactured in whole or in part from biological resources

**What can be done:**

- Bamboo, paper, or metal straws to replace plastic straws can be used. Further, it will promote edible straws such as pasta straws or rice straws.
- Encourage reusable water bottles and tap water to replace bottled water.
- Promote bamboo or another reusable and edible cutlery.
- Replace plastic shopping bags with reusable cloth bags.
- Attach balloons with strings/holders.
- Promote a smoking ban. Until then, cigarette buds should have biodegradable cigarettes and filters. Natural fibres can be used for sponges and dish rags with scrubbers.
- Replace plastic cotton buds with bamboo or paper cotton buds that are disposable or go for reusable cotton buds.
- Use washable cloth diapers, diapers without plastic and biodegradable wet wipes.

❖ **From the perspective of a public health expert, how important is this step?**

- Despite being an emerging economy, India is playing a leadership role in demonstrating to the rest of the world how to protect the environment and promote sustainability. India will now be a leader in outlawing single-use plastic products.

❖ **Way ahead**

- Government must analyse data of other countries for successful implementation of the ban and must develop ways to make the transition smooth and economical. This will generate enormous benefits for people, preventing the exorbitant expenses on the downstream effects of pollution.
- Moreover, action will drive breakthroughs that will support the global economy of the future. It must be remembered that plastic is not the issue. It depends on how it is used. People must be considerably more conscientious in use of plastic materials to improve the earth's sustainability and health.

**PRELIMS**

1. **POEM**

**CONTEXT:** Besides placing three Singaporean satellites in precise orbit, the Indian Space Research Organisation (ISRO) also achieved the feat of successfully launching the PSLV Orbital Experimental Module or 'POEM'

❖ **What is POEM?**

- The PSLV Orbital Experimental Module is a platform that will help perform in-orbit experiments using the final, and otherwise discarded, stage of ISRO's workhorse rocket, the Polar Satellite Launch Vehicle (PSLV).
- The PSLV is a four-stage rocket where the first three spent stages fall back into the ocean, and the final stage (PS4) — after launching the satellite into orbit — ends up as space junk.
- However, in PSLV-C53 mission, the spent final stage will be utilised as a "stabilised platform" to perform experiments. It is the first time that the PS4 stage would orbit the earth as a stabilised platform.
- POEM is carrying six payloads, including two from Indian space start-ups Digantara and Dhruva Space.

❖ **How will ISRO keep POEM 'alive and stable' in orbit?**

- According to ISRO, POEM has a dedicated Navigation Guidance and Control (NGC) system for attitude stabilisation, which stands for controlling the orientation of any aerospace vehicle within permitted limits. The NGC will act as the platform's brain to stabilize it with specified accuracy.
- POEM will derive its power from solar panels mounted around the PS4 tank, and a Li-Ion battery. It will navigate using "four sun sensors, a magnetometer, gyros & NavIC".
- It carries dedicated control thrusters using Helium gas storage. It is enabled with a telecommand feature.

❖ **Has ISRO repurposed and used PS4 rocket junk earlier?**

- The Indian space agency first demonstrated the capability of using PS4 as an orbital platform in 2019 with the PSLV-C44 mission that injected Microsat-R and Kalamsat-V2 satellites into their designated orbits. The fourth stage in that mission was kept alive as an orbital platform for space-based experiments.
- The fourth stage (PS4) of the vehicle was moved to a higher circular orbit of 453 km after two restarts of the stage, to establish an orbital platform for carrying out experiments.
- Kalamsat-V2, a student payload, first to use PS4 as an orbital platform, was taken to its designated orbit about 1 hour and 40 minutes after lift-off.
- While in that mission, the fourth stage had Li-Ion batteries, solar panels are an addition this time. The latest repurposing and upgrade of the fourth stage of the PSLV rocket involves stabilization of the orbital platform.

2. **leprosy**

❖ **CONTEXT: Clofazimine, a key drug for treatment of leprosy, which had been in short supply in the Indian market for several months, is now "not available", with the situation turning into a crisis over the past three months.**

- **Issue :** Clofazimine is one of the three essential drugs in the Multi Drug Treatment of Multibacillary Leprosy (MB-MDT) cases, along with Rifampicin and Dapsone. These two drugs are very easily available, non-availability of Clofazimine is a dangerous situation as all three drugs have to be given together to prevent drug-resistant leprosy. The present market crisis of Clofazimine is seriously affecting the Indian Leprosy Treatment scenario.

❖ **What is leprosy?**

- Leprosy is a chronic infectious disease caused by a bacillus, Mycobacterium leprae (M. leprae). The symptoms of the disease occur generally after a long period of getting infection on average 5 years, as M. leprae multiplies very slowly. The disease mainly affects the skin, the peripheral nerves, mucosa of the upper respiratory tract, and the eyes. Classified as :
- Paucibacillary (PB)- few (up to five) skin lesions (pale or reddish)
- Multibacillary (MB)- multiple (more than five) skin lesions, nodules, plaques, thickened dermis or skin infiltration

❖ **How does the disease spread?**

- Untreated leprosy-affected person is the only known source for transmission of the bacteria.
- From respiratory tract of infected person into environment (droplets from nose/mouth)
- Organism enters healthy body through respiratory system
- Organism migrates to nerves and skin (may cause permanent disability, if not treated)

❖ **What are the signs and symptoms of leprosy?**

Leprosy should be suspected if a person shows the following signs and symptoms:

- Dark-skinned people might have light patches on the skin, while pale-skinned people have darker or reddish patches, Loss or decrease of sensation in the skin patches, Numbness or tingling in hand or feet, Weakness of hands, feet or eyelids, Painful nerves, Swelling or lumps in the face or earlobes, Painless wounds or burns on hands or feet.

❖ **Treatment through MDT (multi drug therapy)?**

MDT is a combination of different drugs as leprosy should never be treated with any single anti leprosy drug.

- One should complete the full course of MDT as prescribed by a trained health worker according to the type of leprosy.
- Multi drug therapy taken regularly ensures complete cure of leprosy, prevents deformities and stops transmission to other individuals.
- Early diagnosis, appropriate treatment and completion of full course will prevent disability due to leprosy.
- Leprosy is not hereditary; it does not transmit from parents to children.
- Leprosy does not spread through causal touch like shaking hands or playing together, or working in same office. Close and frequent contacts with untreated cases favour the spread.
- Leprosy is not the result of past sins or immoral behavior. It is caused by a bacterium called *Mycobacterium leprae*.
- People affected by leprosy have right to livelihood and right to live with dignity.

❖ **Some data about Leprosy in India**

- According to the World Health Organization (WHO), leprosy is endemic in several States and Union Territories of India, with the annual case detection rate of 4.56 per 10,000 population.
- The prevalence rate of leprosy is 0.4 per 10,000 population in the country. Of the new cases detected during 2020-21, 58.1% were multibacillary, 39% were women, 5.8% were children less than 14 years of age, and 2.41% had visible deformities. The rate of visible deformities was 1.1 per million population

❖ **National Leprosy Eradication Programme (NLEP)**

- The National Leprosy Control Programme was launched by the Government of India in 1955. After introduction of Multi Drug Therapy in 1982, the programme was converted into National Leprosy Eradication Programme (NLEP) in the year 1983 with the objective of achieving eradication of the disease from the country. ASHAs are helping in case detection and to assure complete treatment at community level.
- Under the NLEP (National Leprosy Eradication Programme), the government has been ensuring the steady supply of monthly blister packs for 12 months to all the multibacillary leprosy cases containing Rifampicin, Dapsone, Clofazimine.

3. **Western Ghats Ecology Expert Panel (WGEEP):**

- ❖ **CONTEXT:** As Kerala debates the Supreme Court order for maintaining at least a kilometre of Eco-Sensitive Zone for protected areas, the WGEEP report, popularly known as the Gadgil report, once again springs back to public discourses.

❖ **WGEEP**

- In the year 2010, Western Ghats Ecology Expert Panel (WGEEP) was constituted by the Central Government, under the chairmanship of Madhav Gadgil.
- WGEEP issued recommendations for the preservation of the fragile western peninsular region.

❖ **Highlights of Gadgil Report**

- Recommended that the entire stretch of the Western Ghats should be declared as Ecologically Sensitive Area (ESA).
- It recommended the division of region into three zones – ESZ1, ESZ2, ESZ3 and gave a broad outline of certain restrictions for each zone.
- The committee recommended the division of region into zones at the block/taluk level.
- It recommended that no new polluting industries (red and orange) were to be permitted in ESZ1 and ESZ2 and gradual phasing out of such existing industries by 2016. Complete ban on mining in ESZ1 and regulation of mining in ESZ-2.
- It was recommended that bottom to top approach be followed for conservation of Western Ghats.
- Western Ghats Ecological Authority was proposed to be set up as a statutory body and given powers under the Environment protection Act 1986.

**ANSWER WRITING**

**Q. What are the methods used by the farmers' organisation to influence the policy-makers in India and how effective are these methods?**

Farmers' organizations are seen as a useful organizational mechanism for mobilizing farmers' collective self-help action aimed at improving their own economic and social situation and that of their communities. Such organizations are perceived to have the ability to generate resources, mobilise support and exert pressure with the help of their members. They operate at different levels from the local to the national.

Methods used by organizations

- **Awareness generation:** They try to gain public support and sympathy for their goals and their activities by carrying out information campaigns, organising meetings, filing petitions, etc. Most of these groups try to influence the media into giving more attention to these issues.
- **Lobbying:** Powerful farmers groups like sugarcane farmers of Maharashtra and UP try to influence policy making in their favour like getting favourable MSP and payment of arrears.
- **Protest:** They often organise protest activities like strikes or disrupting general administration. These protests of late have centred around issues like loan waiver, higher MSP, free electricity, etc. The recent farmers' march to Delhi under the Bharatiya Kisan Sangh banner was such an example.
- **Activism:** This method includes publicizing important issues, petitioning courts, preparing draft legislation and gaining public attention in matters related to farmers like issues pertaining to GM crops.
- **Recent trends:** Farmers organisations recently have also employed innovative ways like spilling milk and vegetables on highways or appearing to consume dead rats, soil and urine at Delhi's Jantar Mantar etc.

**However, these moves have hardly bore the desired results:**

- In a situation of impending unrest the government often takes to populist measures instead of employing a solution which is good for the nation and the farmers in the longer run.
- The government often takes short term respite such as farm loan waiver, higher MSP, cash transfers in farmers' accounts, etc.
- Even if the government resorts to such populist measures its effective implementation is often absent. For example, rise in MSP is of no use if there lack of infrastructure to procure grains from the hinterland or if the masses are unaware of such a scheme.
- Moreover, several policy recommendations have not been implemented as the government is not fully aligned with the suggestions. For example, the Swaminathan Committee recommendations is yet to be fully implemented.

Thus, although organising the protest and mobilising support help in gaining the attention of the public and the government, it can be argued that they have resulted in little on the ground.

**MCQs**

1. Which of the following is /are the recommendation of Gadgil Report
  1. Entire stretch of the Western Ghats should be declared as Ecologically Sensitive Area (ESA)
  2. Complete ban on mining in ESZ1 and regulation of mining in ESZ-2
  3. Divide the Western Ghats into Natural Landscape and Cultural Landscape
  4. Western Ghats Ecological Authority was proposed to be set up as a statutory body and given powers under the Environment protection Act 1986

Choose the correct answer using the codes given below

- a) 1 and 2 only      b) 2 and 3 only      c) 1, 3 and 4 only      **d) 1, 2 and 4 only**

2. With reference to Leprosy in India consider the following statements
  1. India's National Leprosy Eradication Programme (NLEP) launched in the year 1955.
  2. Leprosy is not hereditary
  3. Like TB leprosy can be treated through multi drug therapy (MDT) containing Rifampicin, Dapsone, Clofazimine

Choose the correct statement using the code given below

- a) 1 and 2 only      **b) 2 and 3 only**      c) 1 and 3 only      d) All of the above

3. Consider the following statements with regards to PSLV Orbital Experimental Module or 'POEM' recently launched by ISRO
  1. The special feature of POEM is that it will derive its all the powers only from solar panels mounted around the PS4 tank in all stages.

2. POEM has a dedicated Navigation Guidance and Control (NGC) system which will act as the platform's brain to stabilize it in attitude with specified accuracy

Which of the above statement or statements is or are correct?

- 1 only
  - 2 only**
  - Both 1 and 2
  - Neither 1 nor 2
4. Which of the following is the world's lightest satellite?
- Kalamsat-V2**
  - Microsat-R
  - DhruvaSat
  - NavIC
5. World Leprosy Day is celebrated every year on which of the following day
- Last Friday of every January
  - January 30
  - Last Sunday of every January**
  - January 27
6. With reference to micro plastics consider the following statements
- Micro plastics can be present in soil, water and air.
  - Micro plastics can be act as a platform for the growth of pathogenic micro-organisms.
  - Micro plastics can be accumulated biologically.

Which of the above statement/s is or are correct?

- 1 and 2 only
  - 2 and 3 only
  - 1 and 3 only
  - All of the above**
7. Which of the following country is the first country in the world to ban manufacturing and use of single-use plastics?
- Sweden
  - Finland
  - France**
  - Portugal
8. Consider the following factors:
- Undernourishment
  - Child learning
  - Child stunting
  - Child mortality

Which of the above are the indicators in determining Global Hunger Index?

- 1,2 and 3 only
  - 2,3 and 4 only
  - 1,3 and 4 only**
  - 1, 2,3 and 4
9. In recent context the Indian rupee hit an all-time low against the U.S. dollar what is causing the rupee to lose value against the dollar?
- U.S. Federal Reserve has been raising its benchmark interest rate
  - Rapid outflow of capital from India
- Choose the answer using the code given below
- 1 only
  - 2 only
  - Both 1 and 2**
  - Neither 1 nor 2
10. Snake island frequently in news recently is associated with which of the following sea?
- Sargasso sea
  - Black sea**
  - Baltic sea
  - Celtic sea