Plastic Waste Crisis in the Indian Himalayan Region

This editorial is based on **"Mountains of plastic are choking the Himalayan States"** which was published in The Hindu on 04/03/2024.The article explores the detrimental effects of unscientific plastic disposal in the Indian Himalayan Region (IHR), leading to soil and water pollution and adversely affecting biodiversity. It also proposes solutions to mitigate these issues.

For Prelims: Single Use Plastic, Microplastics, **Plastic Microfibers,** Plankton, **Oxo-biodegradable Plastics,** Circular Economy, **Plastic-Eating Bacteria,** Extended Producer Responsibility (EPR), Plastic Waste Management Rules, 2016, Plastic Waste Management (Amendment) Rules, 2022.

For Mains: Eliminating Plastic Pollution by 2040, Environmental pollution and degradation.

Plastic is ubiquitous everywhere, from the top of the highest mountain to the deepest of trenches in the ocean. It is found even inside the human lungs and placenta. **Microplastics** are formed by the degradation and the fragmentation of large plastic pieces that are improperly disposed of. Microplastic deposition and accumulation has been found in the Himalayan mountains, rivers, lakes and streams.

The **Indian Himalayan Region (IHR)** is a critical source of water in the subcontinent, feeding a number of major rivers of India that include the Indus, Ganges and Brahmaputra river systems. Unscientific plastic disposal is causing soil and water pollution in the IHR and impacting its biodiversity, which is having an adverse impact on the fresh water sources that communities downstream depend on.

Note

- **The Indian Himalayan Region (IHR):**
  - It refers to the mountainous area in India that encompasses the entire Himalayan range within the country. It stretches from the northwestern part of India in Jammu and Kashmir to the northeastern states along the border with countries like Bhutan, Nepal, and Tibet (China).
  - It covers 11 states (Himachal Pradesh, Uttarakhand, Sikkim, all northeast states, and West Bengal) and 2 UTs (Jammu & Kashmir and Ladakh).

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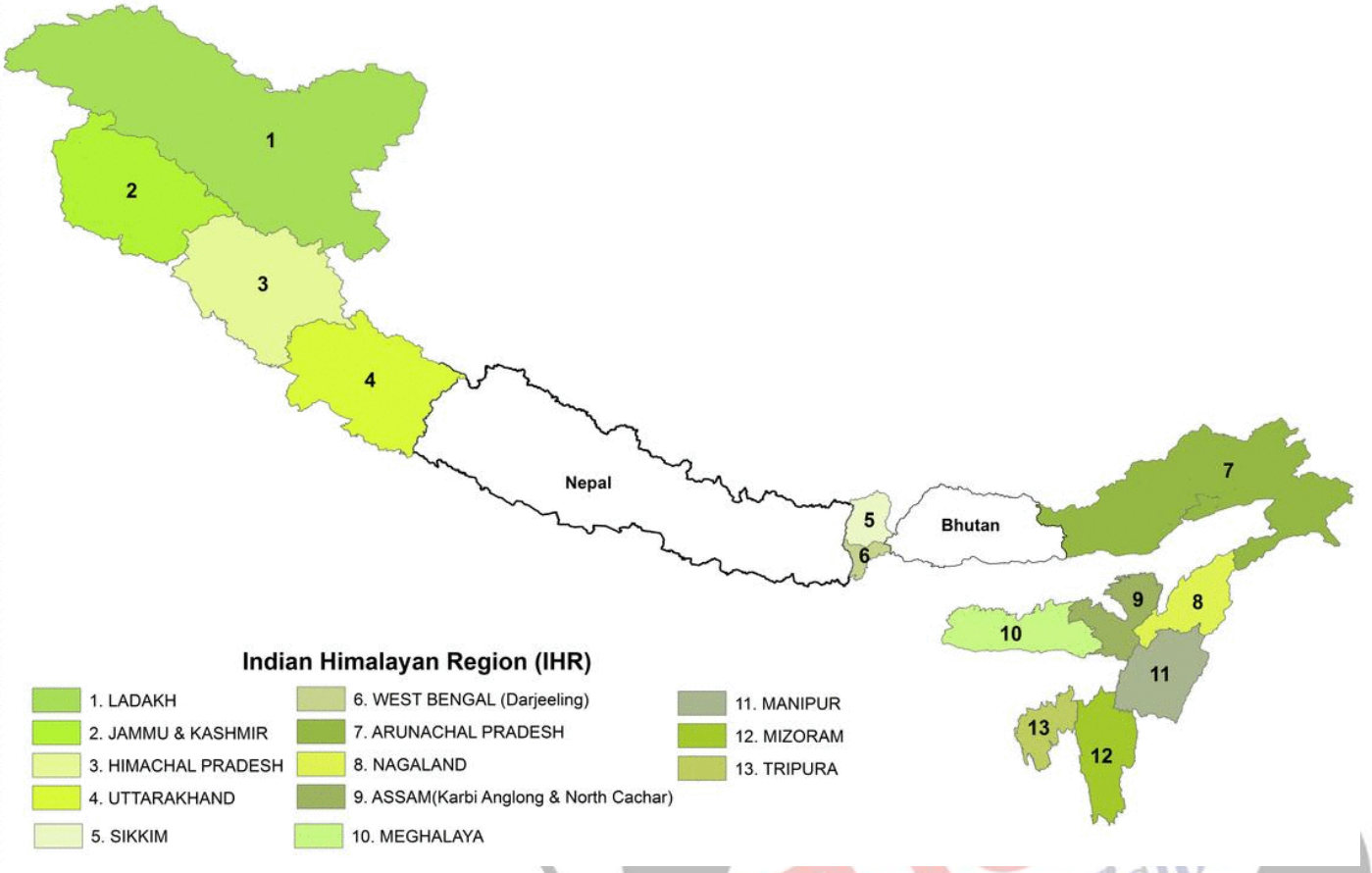


What are the Recent Indicators of Rising Plastic Pollution in IHR?

- **Report by SDC:**
  - A recent report by the Social Development for Communities (SDC) Foundation Dehradun highlighting the plight of towns in Uttarakhand drowning in plastic waste is a stark reminder of the malaise.
- **Findings of the NGT:**
  - **National Green Tribunal (NGT)** issued notices to the Ministry of Environment, Forest and Climate Change, the **Central Pollution Control Board (CPCB),** the Himachal Pradesh State Pollution Control Board, on waste dumping in eco-sensitive areas by tourists and commercial establishments.
    - This brings to limelight the issues of waste dumping with impunity and without any significant deterrence by tourists and commercial establishments.
- **Observation at Deepor Beel, a Ramsar Site:**
  - In Assam, at the **Ramsar site** of Deepor Beel, Greater adjutant storks have been feasting on the plastic waste in the landfill instead of fish from the wetland. In Manipur, growing pollution in rivers, that include the Nambul, has been widely reported.
- **Audit Results of Himalayan Clean up (2018-21):**
  - The Himalayan Clean up (2018-21) that was conducted by the Integrated Mountain Initiative with Zero Waste Himalayas and the **National Productivity Council of India's** waste and brand audit show increasing plastic waste, especially non-recyclables, in the Indian Himalayan Region.
    - The Himalayan Clean up (2022) waste audit results showed that 92.7% of trash was plastic, with 72% of waste being non-recyclable plastic.

What are the Concerns Related to Plastic Waste Management in India?

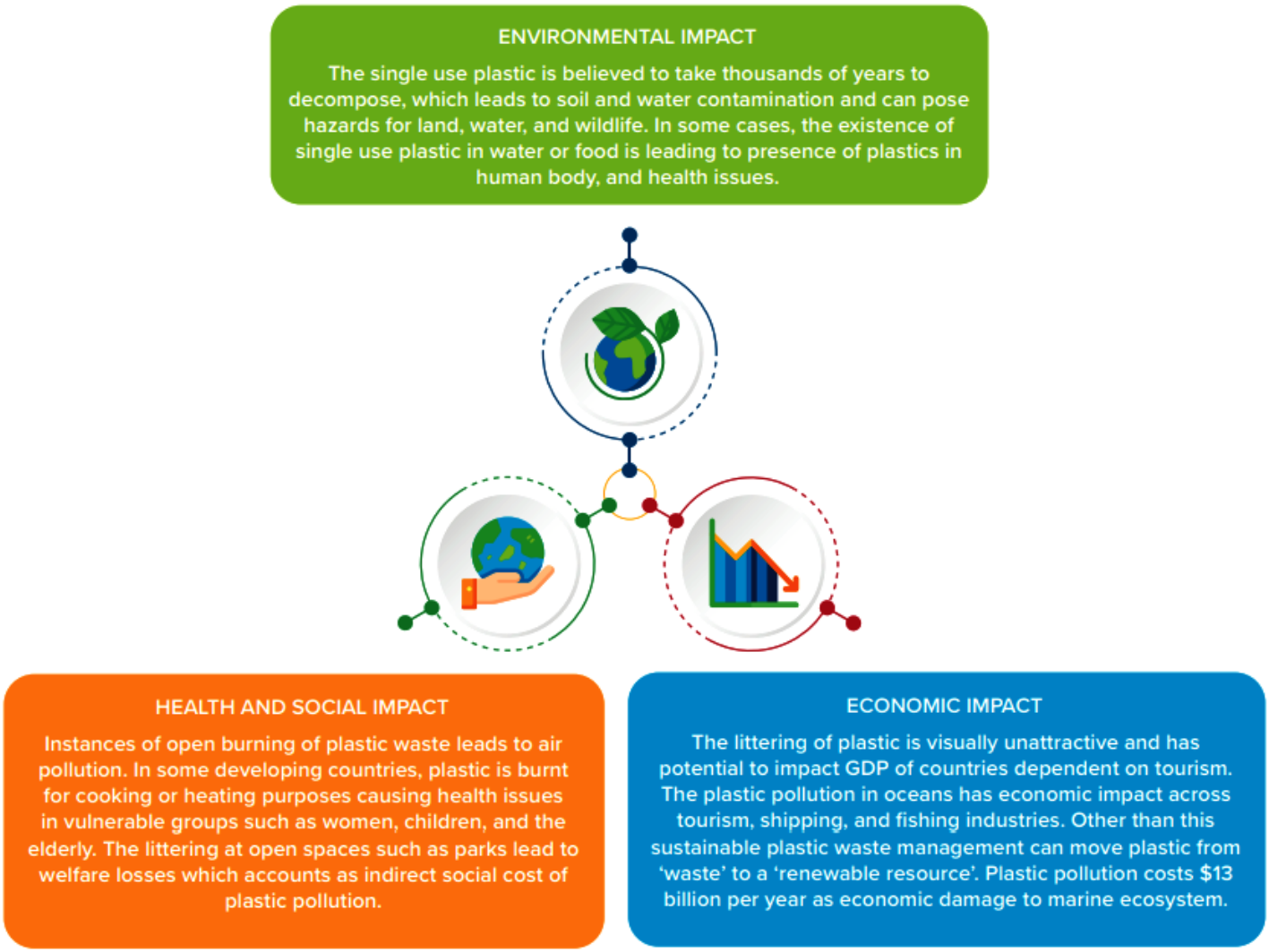
- **Very High Mismanaged Waste Index (MWI):**
  - In 2023, India reached its **plastic overshoot day** on 6th January, which is shocking especially as the **Extended Producer Responsibility (EPR)** portal of CPCB claims that there is a systemic ability to deal with plastic waste. India has one of the highest MWI, at 98.55%, in the world (after Kenya, Nigeria and Mozambique) which is the gap in waste management capacity and plastic consumption.
- **Abysmal Waste Recycling Rate:**
  - The Government of India claims that it recycles 60% of plastic waste. In statistical analysis done by the Centre for Science and Environment (CSE) using CPCB data, India is merely recycling (through mechanical recycling) 12% of its plastic waste.
    - Close to 20% of this waste is channelised for end-of-life solutions such as co-incineration, plastic-to-fuel and road making, which means we are burning 20% of our plastic waste and still calling it 'recycling' and when 68% of plastic waste is unaccounted for.
- **Lack of Recognition for the Needs of the Hills:**
  - Solid Waste Management Rules (SWM) 2016, Plastic Waste Management (PWM) Rules 2016 **and EPR 2022** constitute the regulatory framework for plastic waste management for India (at the country level).
  - Special needs of hill areas are recognised by the SWM but are not factored in while creating a mandate for both local bodies and Producers, Importers and Brand Owners (PIBOs), while PWM and EPR have not even recognised the special needs of the hills.
- **Leachate From the Landfills:**
  - Waste segregation exists on paper, but a closer look shows landfills overflowing with mixed waste. The leachate from the mixed waste causes soil and groundwater pollution while fumes from such mixed waste cause air pollution. A huge amount of plastic waste which can be recycled still remains in landfills.

What are the Different Reasons Behind Rising Plastic Pollution in IHR?

- **Poor Waste Collection Infrastructure:**
  - Reports from **NITI Aayog** and the **World Bank** estimate that the IHR now generates more than five to eight million metric tons of waste annually. Uttarakhand and Himachal Pradesh have witnessed more than 400 million tourists since 2010 and are among the worst-performing states when it comes to solid waste management.
    - Poor waste collection and infrastructure leads to more than 60% of waste being dumped, burned, or swept downstream into key rivers like the Ganga, Yamuna, and Sutlej.
    - Additionally, waste dumping has an adverse effect on the more than 30,000 species of local flora and fauna, some of which are rare and on the verge of extinction.
- **Changing Consumption Patterns in Rural Areas:**
  - In recent decades, both durables and consumables—especially Fast-Moving Consumer Goods (FMCGs) in multilayered plastic packaging—have reached most villages in the Himalayas. Household products made of cloth, wood, leaves, bamboo, and other local materials are being rapidly replaced with cheaper plastic products at a large scale.
    - For instance, the households inside the Govind Wildlife Sanctuary (a snow leopard conservation area) in Uttarkashi and the thousands of tourists who visit it every year generate more than 15 metric tons of dry waste per month - all of which is either dumped in the forest/river/hillside or burnt.
- **Heavy Influx of Tourists and Single-Use Products:**
  - With more travel options via road, train, and air, tourists are increasingly flocking to Himalayan states. Additionally, they visit more remote rural destinations and trekking routes. Their urban consumption patterns influence local residents to procure and sell packaged FMCGs, Polyethylene Terephthalate (PET) bottles, and **single-use plastics** to meet the large demand generated by the tourism, food, and hospitality sectors. This leads to widespread littering, dumping, and burning of waste in and around tourist areas.
- **Difficult Terrain for Logistics Etc:**
  - The difficult Himalayan terrain increases the costs of daily operations, complicates transportation logistics, and widens the distance from the nearest recycling factories. The IHR has a dearth of dry waste processing (material recovery facilities), and wet waste

processing (composting or biogas units). The designated informal dumping points are typically near riverbanks so that the waste can get washed away during the monsoon.

- **Lack of Reach of Extended Producer Responsibility (EPR):**
  - Even though the Ministry of Environment, Forest and Climate Change has mandated FMCG brands to set up and support reverse logistics for their plastic waste as a part of their EPR mandate under the Plastic Waste Management Rules 2016, **most brands do not invest in reverse logistics in hilly areas due to the high cost of collection.**
    - Moreover, many of the products available in these villages are produced by local brands, which do not have the capacity to invest in reverse logistics. Tourists carry products by the more popular brands with them, and the waste they leave behind does not get collected or recycled.
- **Lack of Policy Enforcement and Convergence:**
  - Waste collection in the IHR is sporadic, and waste is immediately dumped either at designated sites that lack environmental clearance or directly downhill and in rivers. Informal waste pickers and scrap dealers play a major role in material recovery, but only for high-value materials such as PET plastic, metals, cardboard, and glass.
    - Additionally, such waste picking remains limited to urban and tourist areas. It doesn't help that most **gram panchayats** and village or block development officers are ill-equipped to handle the exponentially increasing waste generation by local and floating populations.
- **Ineffective Collaboration Among Government Departments:**
  - One major challenge is the lack of effective collaboration among various government departments. For instance, the Ministry of Drinking Water and Sanitation oversees the **Swachh Bharat Mission-Gramin,** which provides Rs 16 lakh per block for building a plastic waste management unit. The responsibility of ensuring the optimal use of these funds lies with the panchayati raj department.
    - However, **SWAJAL's** role is limited to constructing the facility, and there is uncertainty about who will manage its operations. Gram pradhans are hesitant to use these grants for day-to-day operations because such activities require proof of completion through geotagging, which is not feasible for routine operations.
- **Social Stigma and Informal Livelihoods:**
  - There is social stigma attached to working with waste as a means of livelihood. In most urban areas, informal migrant workers are involved in waste collection and segregation. However, rural areas do not attract these migrant workers, further exacerbating the crisis which calls for urgent redressal on war footing.
- **Inadequate Funding Capacity:**
  - Another important factor to be noted is that the per capita amount provided by the central government to gram panchayats under the **Swachh Bharat Mission-Gramin** guidelines is insufficient to meet the expenses in hilly areas due to the widely spread-out population and difficult terrain as compared to villages in the plains, which have a much higher population density.



Environmental, health and economic impact of plastic waste

What are the Various Steps Required to Mitigate the Crisis in IHR?

- **Ensuring Sufficient Investments:**
  - The systemic nature of the problem implies that no singular institution or stakeholder can be held responsible for it. There is certainly an urgent need to solve the waste management problem in the IHR, but the current efforts in this direction are not commensurate with the scale of the issue.
    - Given the significant global investment in tackling ocean plastic pollution, it's time we also invested the required resources to protect the mighty Himalayas.
- **Coordination With Rural Residents:**
  - In addition to tackling the environmental challenges caused by waste pollution, gram panchayats, village development officers, and national entities such as the **National Rural Livelihoods Mission** must coordinate and work with rural residents to overcome this stigma and support efforts to generate livelihood opportunities for them in waste collection operations, material recovery, and market linkages for alternative products.
- **World Bank Study With KGGTF:**
  - The World Bank, in collaboration with Korean Green Growth Trust Fund (KGGTF), embarked on a regional study to close the data gap and analyze the current Plastic Waste Management (PWM) situation in the mountainous regions of India, Nepal, and Pakistan.
    - A key recommendation from the study is a systematic and phased approach **aimed to improve PWM services in the mountainous regions of India, Nepal, and Pakistan.**
      - The approach in which the work is done in phases would be most suited as

there are several activities related to SWM that are carried out simultaneously.
- A multi-tiered process ensures that the government and other partners are able to manage all of the moving pieces in waste management cycle, which includes institutional capacity, policy making, and enforcement, influencing behaviors of the waste producers, and improving technologies.

- **Need For Adopting State Specific Initiatives:**
  - States across the IHR have also been taking various initiatives including enacting laws to curb this menace which need to be adopted by other States also:
    - **Himachal Pradesh and Sikkim have special State laws banning the use of plastics:**
      - Himachal Pradesh has a buy back policy for non-recyclable and single-use plastic waste since 2019.
      - Sikkim banned packaged mineral water use from January 2022 and has a fairly robust regulatory system.
      - Mizoram has been proactive on the regulatory front — the Aizawal Municipal Corporation made by-laws under the PWM in 2019.
      - Tripura has made policy changes, enacted municipal by-laws and has a State-level task force to eliminate Single Use Plastic.
- **Segregating Different Types of Plastics:**
  - The collective mandate of SWM/PWM/EPR requires waste segregation at source. Segregation of not only plastic from other waste but also different types of plastics is a prerequisite for any strategy to dispose of plastic waste in a scientific and sustainable manner.
    - Segregation of waste and the participation of the people in this endeavour with the help of sustained public education campaigns are a sine qua non.
- **Devolving Powers to Local Bodies:**
  - Under the SWM, PWM and EPR, the task of waste management from collection to its scientific disposal is the duty of local bodies. They can take help from PIBOs for the setting up and operationalisation of the plastic waste management system, as mandated under the EPR. Though local bodies are the pivot of the waste management system in the country, a commensurate devolution of power to them is still work in progress.
    - The value of the EPR certificate which is earned by a PIBO in the IHR could be higher than one earned in the rest of the country for every ton of plastic waste processed.
- **Including Traditional Institutions:**
  - Very few States have enacted model by-laws and very few local bodies themselves have made by-laws to operationalise the mandate. There is no clarity regarding the mandate to ensure collaboration between local bodies and PIBOs.
  - There is a need to include traditional institutions within the definition of local bodies when it comes to the IHR (prevalent in many States in the northeast). It is important to note that under Swachh Bharat Mission (SBM) and the **Fifteenth Finance Commission**, money was allocated to these traditional institutions.
- **Integrating Rich Biodiversity With Waste Management:**
  - There is a need for appropriate resource allocation and support that is considerate of and reflective of the rich biodiversity, ecological sensitivity and fragility of the IHR, besides taking into account the specific geographical challenges of mountain waste management.
- **Plugging Data Gaps:**
  - Data gaps in terms of the quantum and quality of waste being generated in the Indian Himalayan Region States should be plugged. Convergence in existing schemes such as SBM, the **Mahatma Gandhi National Rural Employment Guarantee Act, 2005** and the Finance Commission's grants could be used to create the infrastructure, maintain and run operations.
- **Augmenting Resources on Expedited Basis:**
  - The Swachh Bharat Kosh Trust set up to facilitate the channelisation of philanthropic contributions and corporate social responsibility funds towards this cause could also be used to augment resources.
  - The Atal Mission for Rejuvenation and Urban Transformation (AMRUT) **and** Smart Cities Scheme under which many cities in the Indian Himalayan Region are selected, could also

work in convergence on the issue of scientific waste management and making cities in the Indian Himalayan Region free of plastic.

What are the Initiatives Related to Plastic Waste Management?

- **Indian:**
  - **Plastic Waste Management (Amendment) Rules, 2022**
  - **Extended Producer Responsibility (EPR)**
  - **National Dashboard on Elimination of Single Use Plastic and Plastic Waste Management**
  - **India Plastics Pact**
  - **Project REPLAN**
- **Global:**
  - **European Union' Directive on Single-Use Plastics**
  - **Closing the loop.**
  - **The Global Tourism Plastics initiative**

Conclusion

The pervasive presence of plastic, from the highest mountain peaks to the deepest ocean trenches and even within the human body, underscores the urgent need for action. Improper disposal leads to the formation of microplastics, which are now found in the Himalayas, rivers, lakes, and streams of the Indian subcontinent. There is a pressing need for better data collection and resource allocation, particularly in the ecologically sensitive Himalayan region. Public education and community participation are crucial for successful waste segregation and management. Collaboration between local bodies and producers is essential, with the potential for higher value EPR certificates in mountainous regions.

Drishti Mains Question:

How can the Indian Himalayan Region effectively manage plastic waste considering its impact on freshwater sources and biodiversity? Discuss with reference to existing policies and challenges.

UPSC Civil Services Examination, Previous Year Questions (PYQ)

Q. Why is there a great concern about the 'microbeads' that are released into environment? (2019)

(a) They are considered harmful to marine ecosystems.
(b) They are considered to cause skin cancer in children.
(c) They are small enough to be absorbed by crop plants in irrigated fields.
(d) They are often found to be used as food adulterants.

Ans: (a)

Q2. In India, 'extend producer responsibility' was introduced as an important feature in which of the following? (2019)

(a) The Bio-medical Waste (Management and Handling) Rules, 1998
(b) The Recycled Plastic (Manufacturing and Usage) Rules, 1999
(c) The E-Waste (Management and Handling) Rules, 2011
(d) The Food Safety and Standard Regulations, 2011

Ans: (c)

Q3. How is the National Green Tribunal (NGT) different from the Central Pollution Control Board (CPCB)? (2018)

1. The NGT has been established by an Act whereas the CPCB has been created by an executive order of the Government.
2. The NGT provides environmental justice and helps reduce the burden of litigation in the higher courts whereas the CPCB promotes cleanliness of streams and wells, and aims to improve the quality of air in the country.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

Ans: (b)
