Used Heavy Duty Vehicles and the Environment

For Prelims: Used Heavy Duty Vehicles and the Environment, United Nations Environment Programme (UNEP), United Nations Environment Assembly.

For Mains: Used Heavy Duty Vehicles and the Environment, Environmental pollution and degradation.

Source: DTE

Why in News?

Recently, the **United Nations Environment Programme (UNEP)** and **Climate and Clean Air Coalition** have released a report titled- ***Used Heavy Duty Vehicles and the Environment-A Global Overview of Used Heavy-Duty Vehicles: Flow, Scale and Regulation*** ahead of the 6th session of the **United Nations Environment Assembly (UNEA-6).**

- **UNEA-6 will be held in Nairobi from 26th February to 1st March 2024** under the theme of **"effective, inclusive and sustainable multilateral actions** to tackle the triple planetary crisis: **climate change**, nature and biodiversity loss, and pollution and waste."

What is the United Nations Environment Assembly?

- It is the **governing body of the UN Environment Programme (UNEP).**
- It is the world's highest-level decision-making body on the environment.
- The Assembly is made up of the **193 UN Member States** and convenes every two years to advance global environmental governance.
- It was created in June 2012, during the **United Nations Conference on Sustainable Development**, also referred to as **RIO+20.**

What are the Key Highlights of the Report?

- **Pollution Escalation:**
  - There is a significant increase in pollution levels attributed to the rising **use of Heavy-Duty Vehicles (HDVs)**, particularly since 2000.
  - Carbon dioxide emissions associated with HDVs have surged by more than 30%.
  - **HDVs, weighing above 3.5 tonnes,** contribute substantially to global emissions, with trucks being the major contributors.
    - HDV are vehicles that are **designed for heavy-duty tasks** such as transporting goods, materials, or large numbers of people over long distances.
  - They account for over 40% of on-road **nitrogen oxides (NOx) emissions**, over **60% of on-road particulate matter (PM 2.5),** and over **20% of black carbon emissions.**
- **Growth Projection:**

- The report projects a significant increase in the number of HDVs on roads due to economic activities and the need for transportation. Past trends indicate a **doubling of worldwide truck and bus sales between 2000-2015.**

- **Global Trade:**
  - The analysis of **global used HDVs highlights** their flow and scale, particularly noting their import dependence in developing countries.
  - Japan, the **European Union,** and the Republic of Korea constitute nearly 60% of the global export market share of **both new and used HDVs.**
  - In 2015, a total of 6.3 million new and **used HDVs were sold worldwide.**
    - Among these, 3.4 million units were found to be newly manufactured. This figure makes the number of **used HDVs comprise about half of the sales in total.**
- **Regulation and Enforcement:**
  - Several developing countries depend on imports of **used HDVs in order to grow their fleet**, there is a lack of regulation and enforcement regarding the **quality of imported used HDVs**, exacerbating environmental and health impacts.
  - Many importing countries have **weak or non-existent regulations**, leading to inadequate enforcement.
    - **Netherlands removed catalytic converters in many vehicles before shipment to Africa.** Because of their old age, they were also found to lack diesel particulate filters.

What are the Key Recommendations of the Report?

- **Ensure Cleaner and Safer Used Vehicles:**
  - The report stressed the importance of **sharing the responsibility of importing and exporting countries** to ensure cleaner and safer used vehicles on the roads in developing countries.
  - It raised the growing need for regional cooperation in introducing and enforcing minimum standards.
- **Emission Standards and Age Limits:**
  - The report suggested **emission standards and age limits,** raising public awareness and further research needs for the environment and road safety benefits.
  - It exemplified that with steps like **adopting Euro VI equivalent vehicle emission** standards and cleaner fuels, as many as 700 thousand premature deaths can be avoided by 2030.
    - At present, 97% of all newly registered trucks and 73% of buses in the EU run on diesel.
- **Better Regulations on Used HDVs:**
  - The report recommended **better regulations on used HDVs to promote greater uptake of advanced technologies**, such as electric buses and trucks, in developing countries.
- **International Collaborations for Super Pollutants:**
  - There is a need for **international collaboration to phase out short-lived climate pollutants, or "super pollutants",** such as Methane**,** Black Carbon and hydrofluorocarbons.
    - Super pollutants are termed "super" because they have a much higher **global warming potential (GWP)** per unit mass than carbon dioxide (CO_2), the most well-known **greenhouse gas.**
    - Long-term pollutants are those that **persist in the atmosphere for extended periods,** contributing to ongoing environmental issues over time.
  - By addressing short-lived climate pollutants, the world can deliver climate action, and improve air quality and human health.

//

Air Pollutants

Sulphur Dioxide (SO_2)

It comes from the consumption of fossil fuels (oil, coal and natural gas). Reacts with water to form acid rain.

Impact: Causes respiratory problems.

Ozone (O_3)

Secondary pollutant formed from other pollutants (NOx and VOC) under the action of the sun.

Impact: Irritation of the eye and respiratory mucous membranes, asthma attacks.

Nitrogen Dioxide (NO_2)

Emissions from road transport, industry and energy production sectors. Contributes to Ozone and PM formation.

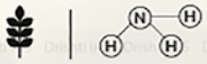
Impact: Chronic lung disease.

Carbon Monoxide (CO)

It is a product of the incomplete combustion of carbon-containing compounds.

Impact: Fatigue, confusion, and dizziness due to inadequate oxygen delivery to the brain.

Ammonia (NH_3)



Produced by the metabolism of amino acids and other compounds which contain nitrogen.

Impact: Immediate burning of the eyes, nose, throat and respiratory tract and can result in blindness, lung damage.

Lead (Pb)

Released as a waste product from extraction of metals such as silver, platinum, and iron from their respective ores.

Impact: Anemia, weakness, and kidney and brain damage.

Particulate Matter (PM)

PM10: Inhalable particles, with diameters that are generally 10 micrometers and smaller.

PM2.5: Fine inhalable particles, with diameters that are generally 2.5 micrometers and smaller.

Source: Emitted from construction sites, unpaved roads, fields, fires.

Impact: Irregular heartbeat, aggravated asthma, decreased lung function.

Note: *These major air pollutants are included in the Air quality index for which short-term National Ambient Air Quality Standards are prescribed.*

What is the Climate and Clean Air Coalition (CCAC)?

- The **UNEP-CCAC is a partnership** of over 160 governments, intergovernmental organizations, and non-governmental organizations.
- It works to **reduce powerful but short-lived climate pollutants** (SLCPs) – methane, black carbon, hydrofluorocarbons (HFCs), and tropospheric ozone – that drive both climate change and air pollution.
- It aims to **connect ambitious agenda-setting with targeted mitigation action** within countries and sectors.
- Robust science and analysis underpin its efforts and bolstered by its Trust Fund, it has given rise to a high level of political commitment, in-country support, and a range of tools that help make the case for action and support implementation.

UPSC Civil Services Examination Previous Year Question (PYQ)

Prelims

Q. In the cities of our country, which among the following atmospheric gases are normally considered in calculating the value of Air Quality Index? (2016)

1. Carbon dioxide
2. Carbon monoxide
3. Nitrogen dioxide
4. Sulfur dioxide
5. Methane

Select the correct answer using the code given below:

(a) 1, 2 and 3 only
(b) 2, 3 and 4 only
(c) 1, 4 and 5 only
(d) 1, 2, 3, 4 and 5

Ans: (b)

Mains

Q. Describe the key points of the revised Global Air Quality Guidelines (AQGs) recently released by the World Health Organisation (WHO). How are these different from its last update in 2005? What changes in India's National Clean Air Programme are required to achieve revised standards? **(2021)**