

11-06-2022

Carbon Bomb

Why in Newspapers?

After an 'investigative project' started by 'The Guardian' this year, the term 'carbon bomb' has started becoming popular.

Quick Issue?

- In this project, information has been given about the plans of countries and private companies around the world to participate in 195 'carbon bomb' projects.

Historical Background?

- Definition given by the Guardian: A carbon bomb is "an oil or gas project that would result in at least one billion tonnes of CO₂ emissions over the lifetime of the project."
- In all, around 195 such projects have been identified across the world including the US, Russia, West Asia, Australia and India.
- According to the report, these projects will, collectively, exceed the emission limits agreed in the 2015 Paris Agreement.
- The Guardian said it is "oil or gas projects that will result in at least one billion tonnes of CO₂ emissions over their lifetime."
- According to the investigation, more than 60% of these carbon bomb projects are already underway. In addition to coal, oil and gas operations, the report highlights the danger of methane, which "regularly leaks from gas operations and is a potent greenhouse gas, producing 86 times more CO₂ than CO₂ over 20 years." Will trap the heat.
- This network, working towards the goal of 'defuse' carbon bombs, is called 'Leave it in the Ground Initiative (LINGO)'.
- LINGO's mission is "learn fossil fuels into the ground and learn to live without them". It believes that the burning of fossil fuels is at the root of climate change, and 100% use of renewable energy sources is the solution.
- The mission of this initiative is to "learn fossil fuels to live on the ground and learn to live without it".
- This network believes that the root of climate change is the combustion of 'fossil fuels', and 100% use of 'renewable energy sources' is the solution.

Other Key Facts?

Organic Compounds

- Carbon atoms are held together in large numbers by covalent bonds. This is the reason why there are many compounds of carbon. Methane (CH₄), ethane (C₂H₆), propane (C₃H₈), butane (C₄H₁₀), pentane (C₅H₁₂), ethylene (C₂H₄), acetic acid (CH₃COOH), ethyl alcohol (C₂H₅OH) etc. are compounds of carbon and they are many Used in chemical industries. Apart from this, medicines, fibre, synthetic cotton, plastic, rubber, leather etc. are also made from organic compounds.

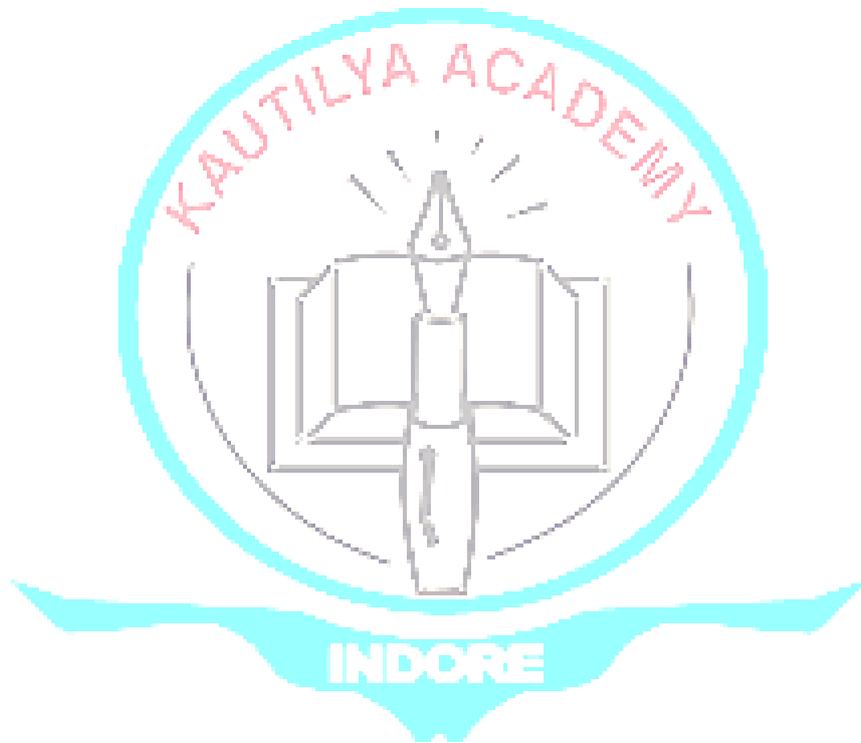


- LINGO aims to mobilize grassroots support to oppose such projects, challenge them through litigation and conduct analysis and studies for the same.

Likely Question Asked In Preliminary Exam

Que. Which of the following best describes the term 'Greenwashing'?

- (a) giving a false impression that the company's products are eco-friendly and eco-friendly
- (b) Non-inclusion of ecological/environmental costs in the annual financial statements of a country
- (c) Ignoring the disastrous ecological consequences during infrastructure development
- (d) Making mandatory provision for environmental costs in a government project/program





Fast Radio Burst

Why in Newspapers?

Recently, a 'Fast Radio Burst (FRB)' has been reported by astronomers, the characteristics of this burst differ from almost all other FRBs previously known, except for one.

Quick Issue?

- The latest 'rapid radio burst' (FRB), named FRB 20190520B, features repeated bursts of radio waves, unlike many other FRBs. So far only one FRB that behaves like this has been observed.

Historical Background?

- FRBs are strangely bright flashes of light that appear in the radio bands of the electromagnetic spectrum, illuminate for only a few milliseconds, then disappear without leaving a trace.
- These brief and mysterious flashes of light are seen in various and distant parts of the universe as well as in our own galaxy.
- The first FRB was discovered in the year 2007. Since then another 140 FRBs have been discovered till June 2021.
- No information is yet available about their origin and their appearance is highly unpredictable.
- According to astronomers, the sources of 'rapid radio bursts' (FRBs) could possibly be supermassive neutron stars left behind after a supernova or neutron stars with extremely strong magnetic fields, ie 'magnetars'.
- **What is a magnetar** - A magnetar is a type of neutron star, which has an extremely strong magnetic field. Magnetic-field decay powers the emission of high-energy electromagnetic radiation, especially gamma rays and X-rays. The theory on these objects was proposed in 1992 by Christopher Thompson and Robert Duncan. This theory was later developed by Bohdan Paczynski. This theory explained the bursting of gamma rays from the Large Magellanic Cloud. A Fast Radio Burst (FRB) was detected from a magnetar in 2020.
- **What is a Neutron Star** - A neutron star is the collapsed core of a massive supergiant star with a total mass of 10 to 25 solar masses. These stars are the smallest and densest known class of stellar bodies.
- Radio waves are those electromagnetic waves whose wavelength is between 10 cm to 100 km. They are man-made as well as natural. These are not recognized by any human sense, but they are captured and experienced by some other technical device (eg, radio receiver).

Other Key Facts?

About 'Magnetar':

- Magnetar is a type of neutron star.
- These are the most powerful magnetic stars in the universe.
- Their magnetic field is 5,000 trillion times more powerful than Earth's.



Likely Question Asked In Preliminary Exam

Que. What is the Earth's magnetic field due to?

- | | |
|-------------------|--------------------|
| (a) Dynamo effect | (b) Doppler effect |
| (c) Solar effect | (d) Magnus effect |

Ans : (a) Dynamo effect

