Prelim Bits 13-08-2022 | UPSC Daily Current Affairs

Nationally Determined Contributions (NDC)

India Meteorological Department (IMD), the government of Japan, and the United Nations Development Programme (UNDP) have announced a new initiative to accelerate climate action in 10 States and Union Territories across the country.

- NDC is a climate action plan to cut emissions and adapt to climate impacts.
- Each Party to the Paris Agreement is required to establish an NDC and update it every five years.

India's NDC

- India at the 26th session of the Conference of the Parties (COP26) expressed to intensify its climate action by presenting five nectar elements (Panchamrit) of India's climate action to the world.
- This update to India's existing NDC translates the 'Panchamrit' announced at COP 26 into enhanced climate targets.
- India's new targets comprise five elements.

1. Reducing Emissions Intensity or emissions per unit of GDP by 45% in 2030 relative to 2005 levels
2. Cutting absolute emissions by one billion tonnes, presumably from projected business-as-usual (BAU) 2030 levels
3. 500 GW of non-fossil fuel installed power generation capacity by 2030
4. 50% electricity generation from renewable sources by 2030
5. Net-zero emissions by 2070

- The updated NDC also represents the framework for India's transition to cleaner energy for the period 2021-2030.
- It also states to put forward and further propagate a healthy and sustainable way of living based on traditions and values of conservation and moderation, including through a mass movement for 'LIFE'– 'Lifestyle for Environment' as a key to combating climate change.

Joint IMD-UNDP initiative

- The joint initiative will support NDCs to achieve net-zero emissions and ensure climate-resilient development.
- It will be rolled out in partnership with the IMD at the Ministry of Earth Sciences and the Ministry of New and Renewable Energy (MNRE).
- The initiative envisages the creation of green jobs and green entrepreneurship in sectors like renewable energy by providing skilling and training.
- The project will be rolled out in Bihar, Delhi-NCR, Gujarat, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Sikkim, Uttarakhand, and Uttar Pradesh during 2022-23.
- IMD supports the project activities in the districts of Uttarkashi in Uttarakhand and Gyalshing and Soreng in Sikkim with climate forecasts and weather advisories.
- Japan has extended $5.16 million in climate grant to UNDP India for the project.
- This is part of Japan's global support to 23 countries through *UNDP's 'Climate Promise - From Pledge to Impact'* program.

Reference

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Synthetic embryo

Biologists have grown mouse embryo models in the lab without the need for fertilized eggs, embryos, or even a mouse, using only stem cells and a unique incubator.

- This achievement was published in the journal Cell by a team led by researchers from the Weizmann Institute of Science in Israel.
- It is a very sophisticated model of what happens during early mouse embryo development, in the stage just after implantation.
- This is a crucial stage in humans, many pregnancies are lost around this stage.
- The tiniest clusters mimic the cell specification and layout of an early-stage body plan, including the precursors of the heart, blood, brain, and other organs.
- These tiny clusters also mimic the support cells like those found in the

placenta and other tissues required to establish and maintain a pregnancy.
- The earliest stages of pregnancy are difficult to study in most animals.
- The embryos are microscopic, tiny clusters of cells, difficult to locate and observe within the uterus.
- Environmental factors can influence and interfere with development, or cells fail to receive the right signals to fully form the spinal cord, such as in spina bifida.

"Spina bifida is a condition that affects the spine and is usually apparent at birth".

Synthetic embryos of humans

- In 2021, several teams managed to get human pluripotent stem cells (cells that can turn into any other type of cell) to self-aggregate in a Petri dish, mimicking the "blastocyst".

"A Petri dish is a shallow transparent lidded dish that biologists use to hold growth medium in which cells can be cultured".

"A blastocyst is a cluster of dividing cells made by a fertilized egg and it's the early stage of an embryo."

- This is the earliest stage of embryonic development just before the complex process of implantation when a mass of cells attaches to the wall of the uterus.
- Researchers using these human embryo models, often called blastoids, have even been able to start to explore implantation in a dish, but this process is much more challenging in humans than it is in mice.
- Growing human embryo models of the same complexity that has now been achieved with a mouse model remains a distant proposition.

Reference

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The Zaporizhzhia Nuclear Plant

Russia and Ukraine have accused each other of shelling Europe's largest nuclear power plant.

- The Zaporizhzhia plant is in southern Ukraine, near the town of Enerhodar on the banks of the Dnieper River.
- It is one of the 10 biggest nuclear plants in the world.
- Built during the Soviet era, it has six reactors with a total capacity of 5,700 megawatts and three of the reactors are still in operation.
- Before the war, the plant accounted for about half of the electricity generated by nuclear power in Ukraine.
- The country has 15 reactors at four active plants, and also is home to the decommissioned Chernobyl plant, the site of the 1986 nuclear disaster.
- Russian forces occupied the heavily contaminated Chernobyl site soon after the invasion but handed control back to the Ukrainians after withdrawing from the area.



Reference

1. https://indianexpress.com/article/explained/explained-fighting-in-ukraine-endangers-big-nuclear-plant-8083211/

Carnelian beads

A cluster of 74 carnelian beads was unearthed at Konthagai in the Sivaganga district, which is part of the Keeladi cluster.

- In February, the Tamil Nadu State Department of Archaeology commenced the eighth phase of the archaeological excavations in Keeladi and its cluster sites.
- The third phase of the excavations was underway at the Konthagai burial site.
- Carnelian beads had earlier been unearthed in the Kodumanal and Thandikudi sites.
- This is the first time that carnelian beads have been found at this burial site.
- The beads were found inside an urn.
- The carnelian beads signified a trade relationship with western India, particularly present-day Maharashtra and Gujarat.
- The beads were available only in the western part of the country.

Reference

1. https://www.thehindu.com/news/cities/Madurai/carnelian-beads-unearthed-in-konthagai/article65746873.ece

East Europe Forum

Latvia and Estonia say they have left a Chinese-backed forum aimed at boosting relations with Eastern European countries, in what appears to be a new setback for China's increasingly assertive diplomacy.

- Central and Eastern European Countries (CEECs) are member states that were part of the former Eastern bloc.
- The member countries include Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Greece, Hungary, Latvia, Lithuania, North Macedonia, Montenegro, Poland, Romania, Serbia, Slovakia, and Slovenia.
- China set up the forum to strengthen relations with members of the EU as well as Serbia and others.
- The forum is considered to further Xi's signature Belt and Road campaign to build bridges, railways, power plants, and other infrastructure across the Eurasian continent.
- China originally styled the forum as a "17 plus one" arrangement, but the number of European partners has now fallen to 14.

Reference

1. **https://apnews.com/article/russia-ukraine-putin-taiwan-china-beijing-24a51164e0b0a849c33b83dcc92fb1e1**

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