

## Prelim Bits 30-06-2022 | UPSC Daily Current Affairs

### Artificial Photosynthesis

*Scientists have devised a way to grow plants in complete darkness and create food plants in the dark using “artificial photosynthesis”.*

Photosynthesis is the process by which green plants use sunlight to synthesise foods from carbon dioxide and water.

- The researchers grew these plants in **complete darkness** in an “**acetate**” **medium**, which replaces the biological photosynthesis.
- They used a **two-step electro-catalytic process** to convert carbon dioxide, electricity and water into acetate.
- The food-producing plants then consumed this acetate to grow.
- To convert raw materials like carbon dioxide into acetate, **CO2 electrolyzers** were used.
- This technology can also be used to grow food-producing organisms in the dark including green algae, yeast and fungal mycelium that produce mushrooms.
- **Significance** - By removing the dependence on the sun, artificial photosynthesis opens possibilities for growing food under the difficult conditions that we could see in the future due to climate change.
- Potentially, droughts, floods and reduced land availability would be less of a threat to global food security if crops could be grown in such controlled and efficient environments.

#### Reference

1. <https://indianexpress.com/article/technology/science/scientists-grow-food-in-the-dark-with-artificial-photosynthesis-7998708/>
2. <https://www.sciencedaily.com/releases/2022/06/220623122624.htm>

### Ecofascism

*Ten people were killed when an armed man opened fire at a grocery store in the US. This man’s ideology behind the shooting was “ecofascism” and nationalist socialism.*

- Ecofascism is a term used to describe individuals and groups that combines environmentalism with fascist viewpoints and tactics.
- It is rooted in the Nationalist Socialist ideology of the “purity of races”.
- In the book ‘*Threat of Ecofascism*’ (1995), Michael E. Zimmerman defines ecofascism as a radical movement that calls for “ecologically vital private property to be protected from those who despoil it”.
- Also, ecofascism depicts ecological despoilation as a threat to the racial integrity of people.
- The ideology demands that the society be reorganised in terms of an authoritarian, collectivist leadership principle based on masculinist-martial values.

If ecofascism were to occur, it is likely that it will be in countries that already have a long-term sense of national identity that could be construed as “racial”.

- Ecofascism **blames environmental degradation on immigration and overpopulation**. It wants to preserve natural resources in developed countries for the historically native population only.
- Ecofascists believe that humans have strained the natural resources on the planet, but some groups, usually people of colour, marginalised communities and minorities, are less deserving to use these resources.
- As such, ecofascism becomes a vehicle to carry racism under the garb of protecting the environment.
- **Origin** - The idea of mixing eugenics and natural resources first appeared in ‘*The Principle of Population*’, an essay written by English economist Thomas Robert Malthus in 1798.
- The crux of the Malthusian Theory is that food and other natural resources will not be able to keep up with the demands of the ever-increasing human population.

## Reference

1. <https://www.thehindu.com/news/international/explained-history-of-ecofascismideology-of-the-buffalo-shooting-suspect/article6543891ece>
2. <https://science.thewire.in/politics/government/what-is-ecofascism/>

## Mattewara Forest

*A proposal to set up a Mega Integrated Textile Region and Apparel Park (under the PM-MITRA scheme) in Punjab’s industrial hub, Ludhiana, has been red-flagged by locals, environmentalists and some political leaders.*

- The proposed project site is located near the Mattewara forest and on floodplains of river Sutlej.
- Spread over 2,300 acres, the Mattewara forest is located on the **banks of the river Sutlej**, near Ludhiana.
- It is adjacent to Ludhiana city, reportedly one of the four most polluted cities for Respirable Suspended Particulate Matter (RSPM).
- The Mattewara Forest is often called the **lungs of Ludhiana district**.
- It is home to several animal and avian species including peacocks, sambhar, antelopes (nilgai), monkeys, wild boar, deer, sambar, etc.
- **Related Links** - [PM-MITRA Scheme](#)



# Punjab Map



## Reference

1. <https://indianexpress.com/article/explained/explained-a-proposed-mega-textile-park-in-ludhiana-pm-mitra-scheme-facing-opposition-7998940/>
2. <https://india.mongabay.com/2020/09/punjab-mattewara-forest-and-sutlej-river-under-threat-from-upcoming-industrial-park/#:~:text=Rich%20in%20biodiversity%2C%20low%20in,the%20Forest%20Division%20of%20Ludhiana.>
3. <https://www.theworldsikhnews.com/mattewara-forests-face-destruction-asking-are-we-in-tandem-with-nature/>

## Blue Deal

*The United Nations Conference on Trade and Development (UNCTAD) is promoting a “blue deal” to enable the sustainable use of ocean resources for economic growth at the 2022 United Nations Ocean Conference.*

Ocean economy includes fisheries and aquaculture, coastal tourism, maritime transport, offshore renewable energy, ecosystem services and marine genetic resource.

- In 2021, the UNCTAD proposed a ‘Blue Deal’ for global trade, investment and innovation for the **post-COVID-19** economy.
- According to the UNCTAD, the ‘Blue Deal’ includes **global trade, investment and innovation** as a means to create a sustainable and resilient **ocean economy**.
- This will enable the world to sustainably harness the ocean’s economic, environmental and social value and help us recover better from the COVID-19 pandemic and cushion us against current and future crises.
- **Recommendations** - The ‘Blue Deal’ lists a set of action-oriented policy recommendations to build a post-COVID-19 Blue Recovery in trade, finance and innovation.
- Some of the recommendations include
  1. Expanding digitisation efforts to lower costs for business in developing countries,
  2. Setting up a blue bank for investments, and
  3. Improving regulations of blue finance.
- These policy recommendations need to be implemented quickly as work towards achieving Sustainable Development Goals (SDG) has been delayed.

All of these suggestions can be seen as a call for a Blue New Deal, as sister to the Green New Deal already gaining political support around the world.

- **Benefits** - The ocean is home to 80% of the world’s organisms. Currently, the sea facilitates over 80% of the volume of world trade.
- According to the UN organization, the ocean is the “next great economic frontier” as it holds potential for wealth and economic growth, employment and innovation.
- With the Blue deal, the coastal and island developing nations can benefit from the sustainable development of the ocean economy.
- It can create jobs and generate revenue for these nations.

### Reference

1. <https://www.downtoearth.org.in/news/environment/un-ocean-conference-blue-deal-to-enable-sustainable-use-of-ocean-resources-for-economic-development-83484>
2. <https://unctad.org/topic/trade-and-environment/oceans-economy/oceans-conference-2022>
3. <https://www.thedcn.com.au/news/environment/unctad-promotes-blue-deal-at-2022-un-ocean-conference/>

## Gemcovac-19

*GEMCOVAC-19 vaccine against Covid-19 developed at Pune’s Gennova Biopharmaceuticals has got a ‘restricted emergency use’ nod for the 18-and-above age group.*

In India, the Drugs Controller General of India (DCGI) gives the 'Emergency Use Authorization' for a vaccine.

- The GEMCOVAC-19 is India's first homegrown mRNA Covid-19 vaccine.
- This version of the vaccine has been developed specifically for the Omicron variant.
- Since this vaccine is given in lower doses, and induces the same efficacy, the instances of adverse side effects were few and self-resolving.

The addressable market for Gemcovac-19 will be **booster doses** as more than 95% of India has already been vaccinated.

- **Storage** - This vaccine does not require sub-zero temperatures like its peers to remain stable, but can be transported at 2-8 degrees Celsius.
- It can be stored at the temperature of a standard medical refrigerator.
- The conversion from liquid to powder form of the vaccine takes place via **Lyophilisation** - this is freeze-drying.
- Lyophilisation is a process where the water is removed from the product after it is frozen and placed under a vacuum allowing the ice to change directly from solid to vapor without passing through a liquid phase.
- **Related Links** - [mRNA Vaccine](#)

## Reference

1. [https://www.business-standard.com/article/current-affairs/india-s-first-mrna-covid-vaccine-will-be-priced-competitively-says-company-122062901001\\_html](https://www.business-standard.com/article/current-affairs/india-s-first-mrna-covid-vaccine-will-be-priced-competitively-says-company-122062901001_html)
2. <https://indianexpress.com/article/explained/india-mrna-covid-vaccine-genova-biopharmaceuticals-gemcovac-7998264/>
3. [https://www.cdc.gov/coronavirus/2019-ncov/vaccines/different-vaccines/mrna.html#:~:text=Messenger%20RNA%20\(mRNA\)%20vaccines%20teach,serious%20consequences%20of%20getting%20sick.](https://www.cdc.gov/coronavirus/2019-ncov/vaccines/different-vaccines/mrna.html#:~:text=Messenger%20RNA%20(mRNA)%20vaccines%20teach,serious%20consequences%20of%20getting%20sick.)

## Kaliningrad

*Lithuania, a member of the European Union (EU) and the North Atlantic Treaty Organisation (NATO), banned goods subject to EU sanctions from passing through its territory to the Russian exclave Kaliningrad.*

The sanctions were imposed on Russia after it launched an invasion of Ukraine. Sanctioned goods include coal, metals, construction materials and advanced technology.

- Kaliningrad is an **exclave of Russia**, completely separated from the country's mainland.
- It is situated between the EU and NATO members Lithuania and Poland.
- Kaliningrad lies on the **Pregolya River** just upstream from Frisches Lagoon.
- It is the administrative centre of Kaliningrad oblast (region), Russia.
- It is also the headquarters of Russia's Baltic Sea fleet, and the country's only ice-free European port.
- Since it does not share a border with Russia, it also relies on the EU for supply of goods.



## Stance of Russia and Lithuania

- Even though the goods can be rerouted through the Baltic Sea, Russia has threatened to take measures against Lithuania for implementing a “blockade” and cutting off Kaliningrad.
- Lithuania, however, has said that the decision was taken by the EU and does not reflect the views of the country alone.
- Since Lithuania is a member of NATO, it is protected by “**collective defence**” which means that an attack on any member of the organisation is an attack on the entire organisation.
- The principle is enshrined in Article 5 of NATO’s treaty.

## Reference

1. <https://www.thehindu.com/news/international/explained-kaliningrad-is-the-new-epicentre-of-the-russia-nato-standoff/article65576290.ece?homepage=true>
2. <https://www.britannica.com/place/Kaliningrad>