



PRELIMS NEWSLETTER

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About Dhauli Ganga River:

- It originates from Vasudhara Tal, perhaps the largest glacial lake in Uttarakhand



Denmark's Artificial Energy Island Project

Why in News?

The Danish government approved a plan to build an artificial island in the **North Sea** as part of its effort to switch to green energy.

About the Project:

- An energy island is based on a platform that serves as a hub for electricity generation from surrounding offshore wind farms.
- Its primary purpose is to provide large-scale **offshore wind power**.



Environment

Uttarakhand Flash Flood

Why in News?

Recently, a glacial break in the Chamoli District of Uttarakhand led to massive Flash Flood in Dhauli Ganga and Alaknanda Rivers.

Cause of Flash Flood: Falling of a portion of Nanda Devi glacier in the Dhauli Ganga river which exponentially increased the volume of water.

About Flash Floods:

- These are sudden surges in water levels generally during or following an intense spell of rain.
- These are highly localised events of short duration with a very high peak and usually have less than six hours between the occurrence of the rainfall and peak flood.



Science and Technology

Rare Diseases

Why in News?

Recently, Delhi High Court asked Centre and AIIMS to facilitate free treatment of children with rare diseases.

Related Information:

- A rare disease, also referred to as an **orphan disease**, is any disease that affects a small percentage of the population.
- Most rare diseases are genetic, and are present throughout a person's entire life, even if symptoms do not immediately appear.
- Rare diseases are characterised by a wide diversity of symptoms that vary not only from disease to disease but also from patient-to-patient suffering from the same disease. Relatively common symptoms can hide underlying rare diseases, leading to misdiagnosis.
- The most common rare diseases recorded in India are **Haemophilia, Thalassemia, sickle-cell anaemia**, auto-immune diseases, Lysosomal storage disorders such as **Pompe disease**, Hirschsprung disease, Gaucher's disease, Cystic Fibrosis, Haemangiomas.

National Policy for Treatment of Rare Diseases, 2017:

- The policy highlights the measures and steps, both in the short as well as in the long term, that need to be taken to deal comprehensively with rare diseases.
- Creates a corpus fund at Central and State level for funding treatment of rare diseases.
- Aims to create a patient registry for diseases housed in **Indian Council of Medical Research (ICMR)**.
- However, recognizing the higher cost of treatment for rare diseases, the policy also seeks to strike a balance between access to treatment with health system sustainability.

- It also aims to create awareness among health professionals, families of patients and the public in general, about rare diseases.

Hydrogen Fuel

Why in News?

Researchers at IIT, Delhi have come up with a way to generate clean fuel hydrogen from water at a low-cost, by a process called **Sulphur Iodine (SI) thermochemical** hydrogen cycle.

Related Information:

- Hydrogen fuel is a **zero-emission fuel** burned with oxygen.
- Uses of Hydrogen fuel
 - Fuel cells: Generate electricity.
 - Internal combustion engines like in vehicles.
 - Spacecraft propulsion

Properties of Hydrogen:

- Hydrogen is the lightest and first element on the periodic table.
- Weight of hydrogen is less than air, hence it rises in the atmosphere and is therefore rarely found in its pure form, H₂.
- At standard temperature and pressure, hydrogen is a nontoxic, non-metallic, odourless, colourless, and highly combustible gas.
- It is the most abundant element in the universe.

Key Takeaways:

- Molecular hydrogen is not available on Earth in convenient natural reservoirs. Most hydrogen on Earth is bonded to oxygen in water and to carbon in live or dead and/or fossilized biomass.
- Water is the most abundant compound of hydrogen found on earth.
- Storage of hydrogen as a liquid requires **cryogenic temperatures** because the boiling point of hydrogen at one atmosphere pressure is -252.8°C .
- Storage of hydrogen as a gas typically requires high-pressure tanks.

- Hydrogen can also be stored on the surfaces of solids (by adsorption) or within solids (by absorption).

Benefits of hydrogen as a fuel:

- No harmful emissions.
- Non-toxic substance.
- Hydrogen is three times as powerful as gasoline and other fossil fuels. This means that it can accomplish more with less.
- It is fuel efficient. Compared to diesel or gas, it is much more fuel efficient as it can produce more energy per pound of fuel.
- It is renewable. It can be produced again and again, unlike other non-renewable sources of energy.
- Abundantly available.

Limitations in usage of Hydrogen Fuel:

- Hydrogen does not occur in deposits or reserves like fossil fuel.
- Hydrogen, using renewables, is far more expensive to produce.
- Hydrogen-fuelled vehicles are more expensive.
- It is highly flammable. It is difficult to store.

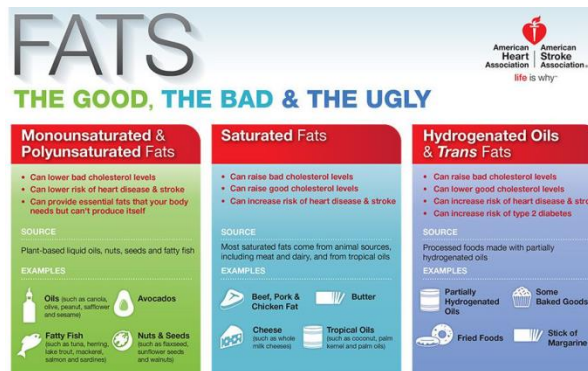
FSSAI Caps Trans Fatty Acids in Food

Why in News?

The Food Safety and Standards Authority of India (FSSAI) has restricted the permissible amount of industrial Trans Fatty Acid (TFA) in food products to 2 per cent from 2022.

What are Industrial trans fatty acids?

- TFAs are created in an industrial process that adds hydrogen to liquid vegetable oils to make them more solid, increase shelf life of food items and for use as an adulterant as they are cheap.
- They are present in baked, fried and processed foods, etc.
- They are the most harmful form of fats as they clog arteries and cause hypertension, heart attacks and other cardiovascular diseases



About FSSAI:

- Food Safety and Standards Authority of India (FSSAI) is an **autonomous statutory body** established under the Food Safety and Standards Act, 2006 (FSS Act).
- Ministry of Health & Family Welfare, Government of India is the administrative Ministry of FSSAI.

Economy

Open Market Operations

Why in News?

RBI has announced for ₹20,000 crore open market operations on February 10, 2021.

About OMO:

- Open market operations are the sale and purchase of government securities and treasury bills by RBI or the central bank of the country.
- The objective of OMO is to **regulate the money supply** in the economy.
- It is one of the quantitative monetary policy tools.
- RBI carries out the OMO through commercial banks and does not directly deal with the public.

OMOs vs liquidity:

- When the central bank wants to infuse liquidity into the monetary system, it will buy government securities in the open market. This way it provides commercial banks with liquidity.
- When it sells securities, it curbs liquidity. Thus, the central bank indirectly controls the money supply and influences short-term interest rates.

Assam's Jerenga Pothar and Dhekiajuli Town

Why in News?

The Prime Minister visited two significant historical places in Assam.

About Jerenga Pothar:

- Jerenga Pothar, is popularly connected to the valour of 17th century **Ahom princess Joymoti**.
- Formerly known as **Rangpur**, Sivasagar was the seat of the powerful **Ahom dynasty**, who ruled Assam for six centuries (1228-1826).
- **Chaolung Sukapha** founded the Ahom kingdom.

About Dhekiajuli Town:

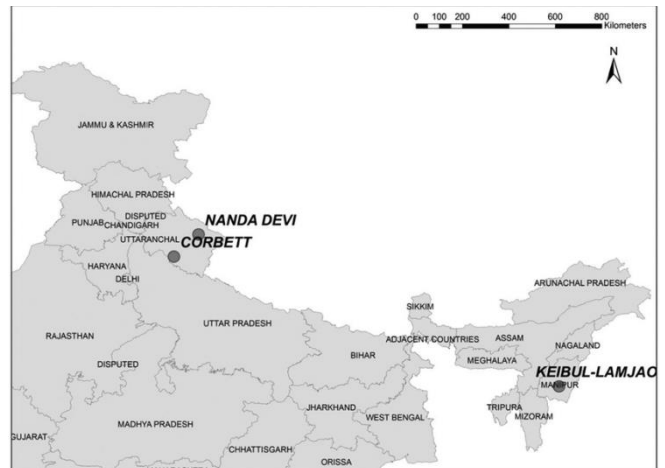
- Dhekiajuli was home to possibly the youngest martyr of the Indian freedom struggle, **Tileswari Barua**.
- As part of the Quit India Movement, processions of freedom fighters marched to various police stations across several towns in Assam.
- These squads, which were known as 'Mrityu Bahini', or death squads, had wide participation - including women and children.
- The British administration came down heavily on them. In Dhekiajuli, at least 15 people were shot dead, three of them women, including the 12-year-old Tileswari Barua.

Places in News

Nanda Devi National Park

- **Location:** It is situated around the peak of Nanda Devi (7816 m) in the state of Uttarakhand in northern India.
- **Rivers passing:** Rishi-Ganga
- It was inscribed a **World Heritage Site** by the United Nations Educational, Scientific and Cultural Organization (UNESCO) in 1988.
- **Flora:** Fir, birch, rhododendron, and juniper are the main flora.

- **Fauna:** Himalayan black bear, Snow leopard, Himalayan Musk Deer etc



Governmental Schemes

Kiran: Mental Health Helpline

Why in News?

According to a report by MoSJ&E, Seventy per cent of callers to Kiran, mental health rehabilitation helpline were men and 32% callers were students.

About KIRAN:

- It is a 24/7 toll-free helpline to provide support to people facing anxiety, stress, depression, suicidal thoughts and other mental health concerns.
- Launched by: Ministry of Social Justice and Empowerment.

Related Information:

- Ministry of Education had launched the 'Manodarpan' initiative to provide psycho-social support and counselling to students for their mental health and well-being.

News in Short

'Al-Amal' Mars Orbiter

- Al-Amal or Hope Mars Orbiter mission is first inter-planetary mission from Arab world.
- It was developed by UAE and launched by Japan.
- The Hope probe has a mission life of one Martian year, which is almost two Earth years.