

INDIAN GEOGRAPHY**Powerful Earthquake Jolted Assam**

Recently, a powerful earthquake jolted Assam and other parts of Northeast. The area is highly sensitive zone for Earthquake.

Key Points

Himalayan Frontal Thrust (HFT): HFT, also known as the Main Frontal Thrust (MFT), is a geological fault along the boundary of the Indian and Eurasian tectonic plates.

Kopili Fault Zone:

- The Kopili fault zone is a 300 km long and 50 km wide lineament (linear feature) extending from the western part of Manipur up to the tri-junction of Bhutan, Arunachal Pradesh and Assam.
- The area is seismically very active falling in the highest Seismic Hazard zone V associated with collisional tectonics where Indian plate subducts beneath the Eurasian Plate.
- Subduction is a geological process in which one crustal plate is forced below the edge of another.
- Squeezed between the subduction and collision zones of the Himalayan belt and Sumatran belt, the North East is highly prone to earthquake occurrences.

Fault:

- A fault is a fracture along which the blocks of crust on either side have moved relative to one another parallel to the fracture.
- When an earthquake occurs, the rock on one side of the fault slips with respect to the other.
- The fault surface can be vertical, horizontal, or at some angle to the surface of the earth.

Tectonic Plates:

- A tectonic plate (also called lithospheric plate) is a massive, irregularly-shaped slab of solid rock, generally composed of both continental and oceanic lithosphere.
- A tectonic plate may be a continental plate or an oceanic plate, depending on which of the two occupies the larger portion of the plate.
- The Pacific plate is largely an oceanic plate whereas the Eurasian plate is a continental plate.

Earthquake:

- An earthquake in simple words is the shaking of the earth. It is a natural event. It is caused due to release of energy, which generates waves that travel in all directions.
- The vibrations called seismic waves are generated from earthquakes that travel through the Earth and are recorded on instruments called seismographs.

INTERNATIONAL RELATION**1. Supply Chain Resilience Initiative**

The Supply Chain Resilience Initiative (SCRI) is launched by three Trade Ministers of India, Japan and Australia. The trio (India, Japan and Australia) along with the US makes Quad grouping.

Key Points**Supply Chain Resilience (Concept):**

- Meaning: In the context of international trade, supply chain resilience is an approach that helps a country to ensure that it has diversified its supply risk across a clutch of supplying nations instead of being dependent on just one or a few.
- Importance: In unanticipated events -whether natural, such as volcanic eruptions, tsunamis, earthquakes or even a pandemic; or manmade, such as an armed conflict in a region — that disrupt supplies from a particular country or even intentional halts to trade, could adversely impact economic activity in the destination country.

Supply Chain Resilience Initiative:

Background: The Covid-19 pandemic was having an unprecedented impact in terms of lives lost, livelihoods and economies affected, and that the pandemic had revealed supply chain vulnerabilities globally and in the region.

About:**Objectives:**

- To attract foreign direct investment to turn the Indo-Pacific into an “economic powerhouse”.
- To build a mutually complementary relationship among partner countries.
- To work out a plan to build on the existential supply chain network. Japan and India, for example, have an India-Japan competitiveness partnership dealing with locating the Japanese companies in India.

Features:

- The SCRI, first proposed by Japan, aims to reduce dependence on China amid a likelihood of recharging of supply chains in the Indo-Pacific region amid the Covid-19 pandemic.
- Initially, SCRI will focus on sharing best practices on supply chain resilience and holding investment promotion events and buyer-seller matching events to provide opportunities for stakeholders to explore the possibility of diversification of their supply chains.
- The SCRI aims to create a virtuous cycle of enhancing supply chain resilience with a view to eventually attaining strong, sustainable, balanced and inclusive growth in the Indo-Pacific region.
- Joint measures may include supporting the enhanced utilisation of digital technology and trade and investment diversification.
- Expansion of the SCRI may be considered based on consensus, if needed, in due course. The ministers have decided to convene at least once a year to provide guidance to the implementation and development of the SCRI.
- This assumes significance in the wake of Japan's keenness to onboard the ASEAN in the initiative, something that India has opposed.
- India wants to safeguard its interests from China's indirect influence through the bloc (ASEAN) as it builds on its self-reliance through reduced dependence on imports.

Significance to India:

- Following the border tensions with China, partners such as Japan have sensed that India may be ready for dialogue on alternative supply chains.
- China still remains a large source of critical imports for India, from mobile phone components to pharmaceutical ingredients. An internal push to suddenly cut links with China would be impractical.
- Over time, if India enhances self-reliance or works with exporting nations other than China, it could build resilience into the economy's supply networks.

Way Forward

- It will help boost India's manufacturing competitiveness and increase its share in world trade. In this pursuit, there is a need to create an infrastructure that raises the competitiveness of India's exports.
- While India appears an attractive option for potential investors both as a market and as a manufacturing base, it needs to accelerate progress in ease of doing business and in skill building.

2. Post-Brexit Trade Treaty

The post-Brexit trade deal between the European Union and the United Kingdom (UK) has ratified in the European Parliament.

Key Points**About the Trade and Cooperation Agreement (TCA):**

- Provisionally Enacted: This deal was provisionally enacted in January 2020 in order to minimize trade disruptions between the EU and the UK.
- Provisional approval was set to expire on 30th April 2021, so the European Parliament's ratification ensures that the flow of trade between the EU and the UK will continue uninterrupted.

Key Provisions:

Level Playing Field: It essentially means that in order to trade with the EU's single market, the UK will have to follow the same rules and regulations to ensure that it does not have an unfair advantage over other EU businesses.

Rules of Governance: These will dictate how any deal is enforced as well as the penalties that will be imposed if one party violates the terms of a mutually-approved agreement.

Fishing Rights: The agreement gives free access to EU fleets to fish in UK waters, including up to six miles off the shoreline for a five-year transition period. At the end of the transition, everything will return to normal arrangements and the UK will have full control over its waters.

Limitations: The important sectors of the UK economy, such as legal and financial services, were left unaddressed. Currently, legal and financial service companies based in the UK are subject to the same restrictions as other firms outside of the EU.

European Union (EU) and United Kingdom (UK):

- The United Kingdom is an island nation in northwestern Europe.
- It is made up of England, Scotland, Wales and Northern Ireland.
- The United Kingdom borders one European Union member state: Ireland.
- Relations between the EU and the United Kingdom of Great Britain and Northern Ireland (UK) date back to the foundation of the European Communities (EU predecessor) in 1957.
- The UK was a member state of the European Union after joining it in 1973, until it became the first country to voluntarily end its membership on 31st January 2020 after a referendum was held in 2016.

North Ireland Issue:

- Geographically, Northern Ireland is part of Ireland. Politically, it's part of the UK.
- Northern Ireland is the only part of the UK that has a border with an EU nation, Ireland. It has been called the "problem child" of Brexit.
- An open Irish border, over which people and goods flow freely, underpins the peace process, allowing people in Northern Ireland to feel at home in both Ireland and the UK.
- The insistence of Britain's government on a "hard Brexit" that took the country out of the EU's economic order meant the creation of new barriers and checks on trade.
- Both Britain and the EU agreed that the border could not be in Ireland because of the risk that would pose to the peace process.
- The alternative was to put it, metaphorically, in the Irish Sea between Northern Ireland and the rest of the UK.
- That arrangement has alarmed British unionists, who say it weakens Northern Ireland's place in the UK and could bolster calls for Irish reunification.

SCIENCE AND TECHNOLOGY**Global Health Security : Antimicrobial Resistance**

Antimicrobial resistance (AMR) is a growing global problem to which the ongoing Covid-19 pandemic may further contribute.

Key Points**Antimicrobial Resistance (Meaning):**

- Antimicrobial resistance is the resistance acquired by any microorganism (bacteria, viruses, fungi, parasite, etc.) against antimicrobial drugs (such as antibiotics, antifungals, antivirals, antimalarials, and anthelmintics) that are used to treat infections.
- As a result, standard treatments become ineffective, infections persist and may spread to others.
- Microorganisms that develop antimicrobial resistance are sometimes referred to as "superbugs".

Basis of Antimicrobial Resistance:

- Some bacteria due to the presence of resistance genes are intrinsically resistant and therefore survive on being exposed to antibiotics.
- Bacteria can also acquire resistance. This can happen in two ways:
 - By sharing and transferring resistance genes present in the rest of the population, or
 - By genetic mutations that help the bacteria survive antibiotic exposure.

Reasons for Spread of Antimicrobial Resistance:

- The misuse of antimicrobials in medicine and inappropriate use in agriculture.
- Contamination around pharmaceutical manufacturing sites where untreated waste releases large amounts of active antimicrobials into the environment.

Concerns:

- AMR is already responsible for up to 7,00,000 deaths a year.
- A threat to prevention and treatment of infections - medical procedures such as organ transplantation, cancer chemotherapy, diabetes management and major surgery (for example, caesarean sections or hip replacements) become very risky.
- Increases the cost of healthcare with lengthier stays in hospitals, additional tests and use of more expensive drugs.
- It is putting the gains of the Millennium Development Goals at risk and endangers achievement of the Sustainable Development Goals.
- No new classes of antibiotics have made it to the market in the last three decades, largely on account of inadequate incentives for their development and production.

- Without urgent action, we are heading to antibiotic apocalypse – a future without antibiotics, with bacteria becoming completely resistant to treatment and when common infections and minor injuries could once again kill.

AMR in India:

- India, with its combination of large population, rising incomes that facilitate purchase of antibiotics, high burden of infectious diseases and easy over-the-counter access to antibiotics, is an important locus for the generation of resistance genes.
- The multi-drug resistance determinant, New Delhi Metallo-beta-lactamase-1 (NDM-1), emerged from this region to spread globally.
- Africa, Europe and other parts of Asia have also been affected by multi-drug resistant typhoid originating from South Asia.
- In India, over 56,000 newborn deaths each year due to sepsis are caused by organisms that are resistant to first line antibiotics.
- India has undertaken many activities like Mission Indradhanush — to address low vaccination coverage — strengthened micro-planning and additional mechanisms to improve monitoring and accountability.
- The Ministry of Health & Family Welfare (MoHFW) identified AMR as one of the top 10 priorities for the ministry's collaborative work with the World Health Organisation (WHO).
- India has also launched the National Action Plan on AMR resistance 2017-2021.

IMPORTANT FACTS FOR PRELIM

Agriculture Infrastructure Fund

Agriculture Infrastructure Fund has crossed the eight thousand crore mark. The investment will give a boost to several agricultural projects which will unlock value for farmers across the country.

Key Points

It is a central sector scheme

Aim: To provide medium - long term debt financing facility for investment in viable projects for post-harvest management Infrastructure and community farming assets. The funds will be provided for setting up of cold stores and chains, warehousing, grading and packaging units, e-marketing points linked to e-trading platforms, besides PPP projects for crop aggregation sponsored by central/state/local bodies.

Duration: Financial Year 2020 to 2029.

- **Features:**
- **Eligible Beneficiaries:** They are Farmers, FPOs, PACS, Marketing Cooperative Societies, SHGs, Joint Liability Groups (JLG), Multipurpose Cooperative Societies, Agri-entrepreneurs, Start-ups, and Central/State agency or Local Body sponsored Public-Private Partnership (PPP) Projects.
- **Financial Support:** Rs. 1 Lakh Crore will be provided by banks and financial institutions as loans to eligible beneficiaries. Moratorium for repayment may vary subject to minimum of 6 months and maximum of 2 years.
- **Interest Subvention:** Loans will have interest subvention of 3% per annum up to a limit of Rs. 2 crore. This subvention will be available for a maximum period of seven years.
- **CGTMSE Scheme:** A credit guarantee coverage will be available for eligible borrowers from the scheme under Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE) scheme for a loan up to Rs. 2 crore.

DAILY ANSWER WRITING PRACTICE

Q. Hydrogen is being dubbed as the alternative fuel. However, there are many problems associated with the leveraging of hydrogen technology. Discuss. (250 words)

Ans:

Recently, the government has launched the National Hydrogen Energy Mission (NHEM) in Budget 2021. The NHEM proposes a roadmap for using hydrogen as an energy source and augmenting India's growing renewable capacity with the hydrogen economy.

Hydrogen is a clean source of energy and considered an alternative source of renewable energy. However, there are many challenges before leveraging it.

Body

Pros of Hydrogen as a fuel:

- **Renewable and Abundant:** It's the most abundant element in the universe, is lighter, energy-dense, and two-three times more efficient than burning petrol. It may take some time to acquire it, but it is renewable, so no one would have to worry about wasting it like other sources of fuel.
- **No Catastrophic Emissions:** Another unique trait that separates hydrogen from other fuel sources is that it is non-toxic and non-polluting. India's electricity is heavily coal-dependent. Hydrogen will replace fossil fuels, address pollution, and oil-price rise. It will benefit transportation (contributes 1/3rd of India's greenhouse-gas emissions), iron and steel, and chemicals sectors.

Cons of Hydrogen as a fuel:

In spite of being a relatively cheaper source of energy for many, hydrogen also comes with its share of shortcomings as well.

- **Expensive to Extract:** Hydrogen only exists in chemical compounds like hydrocarbon and water. However, it can be separated using the method of electrolysis, which is quite expensive.
- **Lack of Infrastructure:** There is no infrastructure that is there to replace hydrogen as the prime source of fuel (e.g. petrol or diesel) for land vehicles.
- **Safety Issue:** Hydrogen is highly combustible. It is stored at very high (up to 700 bar) pressure, but the tank is outside the passenger bay. This makes the explosion risk very high.
- Further, hydrogen is at a lower density than gasoline, it has to be kept at lower temperatures to maintain its liquid form and effectiveness as a fuel source.

Conclusion

India has set the goal to decarbonize by 2050. In this pursuit, it envisages installing 175 GW of renewable energy capacity by 2022. In this context, the National Hydrogen Energy Mission is a step in the right direction.

DAILY QUIZ

Q. Consider the following statements regarding Project DANTAK:

1. Project DANTAK was raised in 1961 for works in Nepal.
2. It is one of the oldest Projects of the Border Roads Organisation (BRO).
3. Which of the given above statements is/are correct?
a) **2 only** b) 1,2,3 c) 1,2,3,4 d) None of the above

Q.2 The term 'Zhurong', sometimes mentioned in media, is related to which of the following?

- (a) first rocket to run on biofuel
- (b) launch vehicle suited for student and budget payloads
- (c) **China's first Mars rover**
- (d) None of the above

Q.3 Consider the following statements:

1. Liquid oxygen has a dark white color and is strongly paramagnetic.
2. Liquid oxygen is a very powerful oxidizing agent.
3. Liquid oxygen is the most common cryogenic liquid oxidizer propellant for spacecraft rocket applications.
4. Which of the given above statements is/are correct?
a) 1,2,4 b) **2 & 3 only** c) 1,2,3,4 d) 1,3

Q.4 Consider the following statements about the Disaster Management Act, 2005:

1. It came into force in India in 2006.
2. It calls for the establishment of National Disaster Management Authority (NDMA), with the Minister of Home Affairs of India as chairperson.
3. It mandates that all State Governments must establish a State Disaster Management Authority (SDMA).

Which of the given above statements is/are correct?

- a) 1 only b) 2 only c) **1,3 only** d) 1,2,3

Q. 5 The Chairmen of public sector banks are selected by the

- (a) **Banks Board Bureau**
- (b) Reserve Bank of India
- (c) Union Ministry of Finance
- (d) Management of concerned bank