

GOVERNANCE**Green Hydrogen/Green Ammonia Policy**

Recently, the Ministry of Power has notified Green Hydrogen/Green Ammonia Policy for production of Green Hydrogen or Green Ammonia using renewable sources of energy. National Hydrogen Mission launched in 2021 aims to aid the government in meeting its climate targets and making India a green hydrogen hub.

What are the Provisions of the Green Hydrogen/Green Ammonia Policy?

- Under the policy, the government is offering to set up manufacturing zones for production, connectivity to the ISTS (Inter-State Transmission System) on priority basis, and free transmission for 25 years if the production facility is commissioned before June 2025.
 1. This means that a green hydrogen producer will be able to set up a solar power plant in Rajasthan to supply renewable energy to a green hydrogen plant in Assam and would not be required to pay any inter-state transmission charges.
 2. Besides, producers will be allowed to set up bunkers near ports for storage of green ammonia for export by shipping.
- Production target has also been raised five times from 1 million tonnes (m) to 5 mt by 2030. In October, 2021 it was announced that India is targeting initially around 1 million tonnes annual green hydrogen production by 2030.
- Manufacturers of Green hydrogen and ammonia are allowed to purchase renewable power from the power exchange or set up Renewable Energy (RE) capacity themselves or through any other developer, anywhere.
- Further, it provides facility for producers to bank any surplus renewable energy generated with discoms (power distribution companies) for upto 30 days and use it as required.
- Discoms may also procure renewable energy to supply green hydrogen producers but will be required to do so at a concessional rate which will only include the cost of procurement, wheeling charges and a small margin as determined by the state commission, under the new policy. Such procurement would also count towards a state's Renewable Purchase Obligation (RPO) under which it is required to procure a certain proportion of its requirements from renewable energy sources.
- To ensure ease of doing business a single portal for carrying out all the activities including statutory clearances in a time bound manner will be set up by MNRE (Ministry of New and Renewable Energy).

What is Green Hydrogen?**About:**

- It is produced by splitting water into hydrogen and oxygen using an electrolyzer powered by renewable energy sources such as wind and solar.
- The fuel can be a game-changer for the energy security of India, which imports 85% of its oil and 53% of gas requirements.
- To promote clean fuels, India is considering making it mandatory for fertilizer plants and oil refineries to purchase green hydrogen.

Significance:

- Green hydrogen energy is vital for India to meet its Nationally Determined Contribution (INDC) Targets and ensure regional and national energy security, access and availability.
- Green Hydrogen can act as an energy storage option, which would be essential to meet intermittencies (of renewable energy) in the future.
- In terms of mobility, for long distance mobilisations for either urban freight movement within cities and states or for passengers, Green Hydrogen can be used in railways, large ships, buses or trucks, etc.
- Hydrogen has the potential to be the key renewable target in supporting infrastructure as well.

What is Green Ammonia?**About:**

- Ammonia is a chemical which is used mainly in the manufacture of nitrogenous fertilizers, like urea and ammonium nitrate, but can be put to other uses too, such as to run engines.
- Green ammonia production is where the process of making ammonia is 100% renewable and carbon-free.
- One way of making green ammonia is by using hydrogen from water electrolysis and nitrogen separated from the air. These are then fed into the Haber process (also known as Haber-Bosch), all powered by sustainable electricity. In the Haber process, hydrogen and nitrogen are reacted together at high temperatures and pressures to produce ammonia, NH₃.

Significance:

- Green ammonia is intended to be used in the production of carbon-neutral fertiliser products, decarbonising the food value chain, and also has potential as a future climate-neutral shipping fuel.

- Green ammonia production makes use of renewable energy sources such as hydro-electric, solar power or wind turbines.
- Green ammonia is crucial to tackle the existential challenges of producing enough food to feed a growing global population and generating CO₂-free energy.

Way Forward

- India has the potential to bring down the cost of green hydrogen by using low-cost renewable generating plants and cost-curtailed experience gained through solar and wind reverse auctions. Huge market potential, owing to the young demography and thriving economy, will be a long-term benefit for the government while pushing the application of hydrogen-based technologies.
- Hydrogen needs to be considered as complementary to its alternatives rather than contemplating it as an ultimate and stand-alone solution as it comes with its own constraints.
 1. The present storage and transportation technologies are expected to be mature and cost-effective by 2030.
 2. Hence, the production and near-real-time utilization of hydrogen at the same location can be promoted to safeguard investments against undesirable sunk costs.

INTERNATIONAL RELATION

Afghanistan's Humanitarian Crisis

Recently, the World Bank has approved a plan to use some USD 1 billion in a frozen Afghanistan trust fund for education, agriculture, health and family programs to ease the country's worsening humanitarian and economic crises. The aim is to protect the vulnerable, help preserve human capital and key economic and social institutions and reduce the need for future humanitarian assistance.

Earlier, the Delhi Regional Security Dialogue on Afghanistan was held in India.

What is the Current Situation in Afghanistan?

- An insecure Afghanistan has not only dangerous implications for the region but also the whole world.
- Afghanistan has been unstable and insecure for decades, but the Taliban's capture of power in August 2021 has had the entire region hanging by a thread.
 1. The current situation in Afghanistan is disturbingly similar to the geopolitical scenario in the late 1990s.
 2. The Taliban seized power in 1996, but the international community did not fully grasp the potential consequences of the new paradigm.
- International aid organisations have left the country. The Taliban are unable to pay the wages to government employees. The public health care sector is in a disarray.
- The war-ravaged country is facing an unprecedented humanitarian crisis, which could turn into another violent conflict.
- Apart from the suffering of the rural population, even Afghans based in cities are finding it impossible to make ends meet.
- Afghanistan could face a bigger catastrophe if the Taliban are unable to improve the economic situation, adding that they will find it difficult to govern and a civil war could erupt.
- It is easier for terrorist groups to operate in a country that is facing economic turmoil. Afghanistan is no exception.

What are the Impacts of the Humanitarian Crisis in Afghanistan?

- Many western nations see an immediate security threat emanating from Afghanistan. The Taliban, seeking to gain international recognition and financial aid, are more inclined toward a "diplomatic" approach than employing violent tactics. But this superficial calm may not last for long. If the humanitarian crisis aggravates in Afghanistan, even the Taliban won't be able to manage the situation, as evidenced by violent "Islamic State" (IS) attacks.
- A possible violent conflict in Afghanistan could spill over to other countries in the region. If that happens, regional powers will start supporting proxies to keep the violence within Afghanistan's boundaries. But it will only be a short-term solution to the Afghan conflict. The more the Taliban stay in power, the more difficult it will get to maintain stability in the region.
- The Taliban have ties with international terrorists. Their return to power has emboldened jihadi organizations in the region.
- As they consolidate themselves, their tactical and strategic ties with terrorism financiers and sponsors will grow and will eventually jeopardize peace and security in the region and beyond.

What should the World do for Afghanistan?

- The humanitarian crisis in Afghanistan cannot be resolved through humanitarian aid alone.
- Afghanistan's economy needs to be improved so that Afghans can be brought out of poverty. But to lift Afghanistan's economy, the international community needs to engage with the Taliban.

- Terrorism will not be contained within Afghanistan's borders if the humanitarian situation in the country does not improve.

What will be the Implications on India?

- **Strategic Concern:**The Taliban's control will also mean a bigger hand for the Pakistani military and intelligence agencies to influence outcomes for the country, which will mandate a much smaller role for Indian development and infrastructure work that has won it goodwill over the past 20 years.
- **Threat of radicalisation:**There is the threat of growing radicalisation and space for pan-Islamic terror groups in India's neighbourhood.

Way Forward

- **Inclusive Government:** The solution comes only through the formation of an inclusive government with the participation of all ethnic groups.
- **Russian Support:** Russia has cultivated links with the Taliban in recent years. India would need Russia's support in any form of direct engagement with the Taliban.
- **Bonhomie With China:** India should talk with China, with the objective of finding a political settlement and lasting stability in Afghanistan.
- **Engaging with Taliban:** Talking to the Taliban would allow India to seek security guarantees from the insurgents in return for continued development assistance or other pledges as well as explore the possibility of the Taliban's autonomy from Pakistan.

BIODIVERSITY

Plastic Waste Management (Amendment) Rules, 2022

Recently, the Ministry of Environment, Forest, and Climate Change announced the Plastic Waste Management (Amendment) Rules, 2022, which notified the instructions on Extended Producer Responsibility (EPR) for plastic packaging. Plastic Waste Management Rules 2016 has been amended to fast-track the elimination of single-use plastics and promote alternatives.

- The term Extended Procedure Responsibility means the responsibility of a producer for the environmentally sound management of the product until the end of its life.

What are Plastic Waste Management Rules 2016?

- It mandates the generators of plastic waste to take steps to minimize generation of plastic waste, prevent littering of plastic waste, and ensure segregated storage of waste at source among other measures.
- The rules also mandate the responsibilities of local bodies, gram panchayats, waste generators, retailers and street vendors to manage plastic waste.

What are the Provisions under the New Rules?

Classification of Plastics:

1. **Category 1:** Rigid plastic packaging will be included under this category.
2. **Category 2:** Flexible plastic packaging of single layer or multilayer (more than one layer with different types of plastic), plastic sheets and covers made of plastic sheet, carry bags, plastic sachet or pouches will be included under this category.
3. **Category 3:** Multi-layered plastic packaging (at least one layer of plastic and at least one layer of material other than plastic) will be included under this category.
4. **Category 4:** Plastic sheet or like used for packaging as well as carry bags made of compostable plastics fall under this category.

Plastic Packaging:

- Reuse of rigid plastic packaging material has been mandated in the guidelines to reduce the use of fresh plastic material for packaging. The enforceable prescription of minimum level of recycling of plastic packaging waste collected under EPR along with use of recycled plastic content will further reduce plastic consumption and support recycling of plastic packaging waste.

Extended Producer Responsibility Certificates:

- In a significant first, the guidelines allow for sale and purchase of surplus extended producer responsibility certificates. This will set-up a market mechanism for plastic waste management.

Centralised Online Portal:

- The government has also called for establishing a centralised online portal by Central Pollution Control Board (CPCB) for the registration as well as filing of annual returns by producers, importers and brand-owners, plastic waste processors of plastic packaging waste by 31st March, 2022. It would act as the single point data repository with respect to orders and guidelines related to implementation of EPR for plastic packaging under Plastic Waste Management Rule, 2016.

Environmental Compensation:

- Environmental compensation will be levied based upon polluter pays principle, with respect to non-fulfilment of EPR targets by producers, importers and brand owners, for the purpose of protecting and

improving the quality of the environment and preventing, controlling and abating environment pollution. The Polluter Pays Principle imposes liability on a person who pollutes the environment to compensate for the damage caused and return the environment to its original state regardless of the intent.

Committee to Recommend Measures:

- A committee constituted by the CPCB under the chairmanship of CPCB chairman will recommend measures to the environment ministry for effective implementation of EPR, including amendments to Extended Producer Responsibility (EPR) guidelines.

Annual Report on EPR Portal:

- State Pollution Control Board (SPCBs) or Pollution Control Committees (PCCs) have been tasked to submit an annual report on EPR portal with respect to its fulfillment by producers, importers and brand-owners and plastic waste processors in the state/Union Territory to the CPCB.

What is the Significance of the Guidelines?

- It will promote development of new alternatives to plastics and provide a roadmap for businesses to move towards sustainable plastic packaging.
- The guidelines provide a framework to strengthen the circular economy of plastic packaging waste. A circular economy depends on reuse, sharing, repair, refurbishment, remanufacturing and recycling of resources to create a closed-loop system, minimising the use of resources, generation of waste, pollution and carbon emissions.
- These are important steps for reducing pollution caused due to littered plastic waste in the country.
 1. India generates about 3.4 million tonnes of plastic waste annually. The United Nations Development Programme aims to almost triple its plastic waste management to 100 cities in India by 2024.
 2. Accumulation of plastic waste is detrimental to the environment and when this waste finds its way into the sea, there can be major harm to aquatic ecosystems, too.

What are the other Initiatives taken to Curb Plastic Waste?

Swachh Bharat Mission

1. India Plastics Pact
2. Project REPLAN
3. Un-Plastic Collective
4. GoLitter Partnerships Project

Way Forward

- A blanket ban will not stop manufacturers from producing single-use plastic products.
- Finding substitutes for use-and-throw plastic and ensuring alternative livelihoods for producers, waste pickers and other groups involved in the business will go a long way in solving the problem.
- The government should not only place fines for not adhering to the guidelines but incentivise producers to switch to more sustainable products. Along with proper monitoring, promoting responsible consumerism is very important.
- Citizens also have to bring behavioural change and contribute by not littering and helping in waste segregation and waste management.

PRELIMS FACT

Statehood Day of Mizoram

Recently, the Prime Minister of India extended his wishes to the people of Mizoram on its 36th Statehood Day (20th February). The formalization of Mizoram State took place on 20th February, 1987 after the 53rd Amendment of the Indian Constitution, 1986.

What do we know about Mizoram?

- **Historical background:** The Mizo hills area became the Lushai Hills district within Assam at the time of independence. Further, in 1954 it was renamed the Mizo Hills District of Assam.
 1. Mizoram was granted the status of a Union Territory in 1972 after signing an accord with the moderates of the Mizo National Front (MNF).
 2. The Union Territory of Mizoram was conferred the status of a full state in 1986 after signing of a memorandum of settlement (Mizoram Peace Accord) between the Central government and the MNF.

Geographical Location:

1. **International Border:** Myanmar and Bangladesh
2. **State Border:** Tripura (northwest), Assam (north) and Manipur (northeast).

Demography: Mizoram population in 2022 is estimated to be 1.27 Million and is the second least populous state in India after Sikkim.

1. The Sex Ratio is 975 female per 1000 male (National: 943).

- The Literacy rate of the state is 91.58 % (National: 74.04%).

Biodiversity: According to India State of Forest Report (ISFR), 2021 Mizoram has the maximum forest cover as a percentage of their own geographical area at (84.53%) from the North eastern region of the country.

- State Animal:** Saza (serow)
- State Bird:** Vavu (Hume Bartailed Pheasant).

Protected Areas:

- Dampa Tiger Reserve
- Murlen National Park
- Phawngpui National Park
- Ngengpui Wildlife Sanctuary
- Tawi Wildlife Sanctuary

Tribals: It has the highest concentration (percentage) of tribal population among all states of India.

- Mizos consist of 5 major and 11 minor tribes known as Awzia. The 5 major tribes include: Lushei, Ralte, Hmar, Paihte and Pawi.
- The Mizos are a close- knit society with no class distinction and discrimination on grounds of sex, status or religion.
- Mizos are agriculturists, practise “Jhum Cultivation” or slash- and- burn system of cultivation.

Festivals and Dance: The Mizos have two main festivals- Mim Kut and Chapchar Kut.

- Mim Kut:** It is a Maize festival that is celebrated during the months of August and September, after the harvest of maize.
- Chapchar Kut:** It is a Spring Festival, most popular and celebrated after completion of the task of jungle clearing for “jhum” operations.
- The most colourful and distinctive dance of the Mizo is called Cheraw. Long bamboo staves are used for this dance, therefore many people call it ‘Bamboo Dance’.

DAILY ANSWER WRITING PRACTICE

Qns. Global competitiveness will be increasingly determined by the quality of science and technology, which in turn will depend on dynamism of research and development ecosystem aided by budgetary allocation. Analyse. (250 words)

Introduction

India spends only 0.66 percent of its GDP on Research and Development as per latest figures. This is below the expenditure of countries like the US (2.8), China (2.1), Israel (4.3) and Korea (4.2). A quick analysis of the allocations to various R&D organisations in the recently presented 2022-23 budget shows continued stagnation. This does not augur well for the future.

Government expenditure, almost entirely the Central Government, is the driving force of R&D in India which is in contrast to the advanced countries where the private sector is the dominant and driving force of R&D spend.

Body

Link between R&D vis-a-vis nation’s development and competency

- Research and Development of new products are key drivers of economic performance and social well-being. Solutions to diseases, new technology to overcome obstacles in various sectors are hallmark of having good ecosystem.
- It is important to inculcate scientific temper among masses in order to fight superstitions, distorted truth and religious fanaticism that has been crippling India
- Innovation and technological improvement have become essential to combat and adapt to climate change and promote sustainable development.
- It is imperative for combating national security threats ranging from cyber warfare to autonomous military systems such as drones.
- Investing in research and providing adequate incentives leads to creation of jobs, especially for the pool of engineers and researchers in the society. Under the ‘Make in India’ program, the government has targeted to create 100 million jobs from the manufacturing sector by 2022.

Improving R&D ecosystem in India

- The growth in research and development (R&D) expenditure should be commensurate with the economy’s growth and should be targeted to reach at least 2% of the Gross Domestic Product (GDP) by 2022.
- The line ministries at the Centre could be mandated to allocate a certain percentage of their budget for research and innovation for developing and deploying technologies as per the priorities of the respective ministries.
- To stimulate private sector’s investment in R&D from current 0.35% of GDP, it is suggested that a minimum percentage of turn-over of the company may be invested in R&D by medium and large enterprises registered in India.

- To help and keep the industry enthused to invest in R&D, the weighted deduction provisions on R&D investment should continue.
- The states can partner Centre to jointly fund research and innovation programmes through socially designed Central Sponsored Schemes (CSS).
- The report also pitched for creating 30 dedicated R&D Exports Hub and a corpus of Rs 5,000 crore for funding mega projects with cross cutting themes which are of national interest.

Conclusion

There is a need for greater participation of State Governments and the private sector in overall R&D spending in India especially in application-oriented research and technology development. There is a need to encourage investor-led research. In this direction, the Science and Engineering Research Board (SERB) has already been established. It is a promising start that needs to expand with more resources and creative governance structures.

DAILY QUIZ

- Q1. In India, the registration of Political parties is governed by the provisions of the
- a. Representation of the People Act, 1950
 - b. Representation of the People Act, 1951**
 - c. Registration of Electors Rules, 1960
 - d. All of the above
- Q2. The Malimath Committee is associated with reforms in the field of
- a. Defence
 - b. Collegium/Judiciary
 - c. Criminal justice system**
 - d. Fin-tech
- Q3. Consider the following statements:
1. Food fortification has the increased nutritional micronutrient content embedded in the crop being grown.
 2. Biofortification increases the nutritional value of foods by adding trace amounts of micronutrients to foods during processing.
- Which of the given above statements is/are correct?
- a. 1 only
 - b. 2 only
 - c. Both 1 and 2
 - d. Neither 1 nor 2**
- Q4. Arrange the following cities in the direction of East to West:
1. Ho Chi Minh city
 2. Phuket
 3. Yangon
- Select the correct answer using the code below:
- a. 3-2-1
 - b. 2-1-3
 - c. 1-2-3**
 - d. 2-3-1
- Q5. World Bank's 'STARS' project has been mentioned in the news, which aims to:
- a. improve infrastructure development
 - b. enhance job opportunities
 - c. improve the quality and governance of school education**
 - d. strengthening the public health system