Vizhinjam International Seaport Project

For Prelims: Vizhinjam International Seaport, Public Private Partnership

For Mains: Issues and Challenges in Development Projects in India, Growth, Development and Employment, Ports.

Source: IE

Why in News?

The **Vizhinjam International Seaport Project**, India's first deepwater transshipment port, has gained attention recently as the **first cargo ship arrived at the port.**

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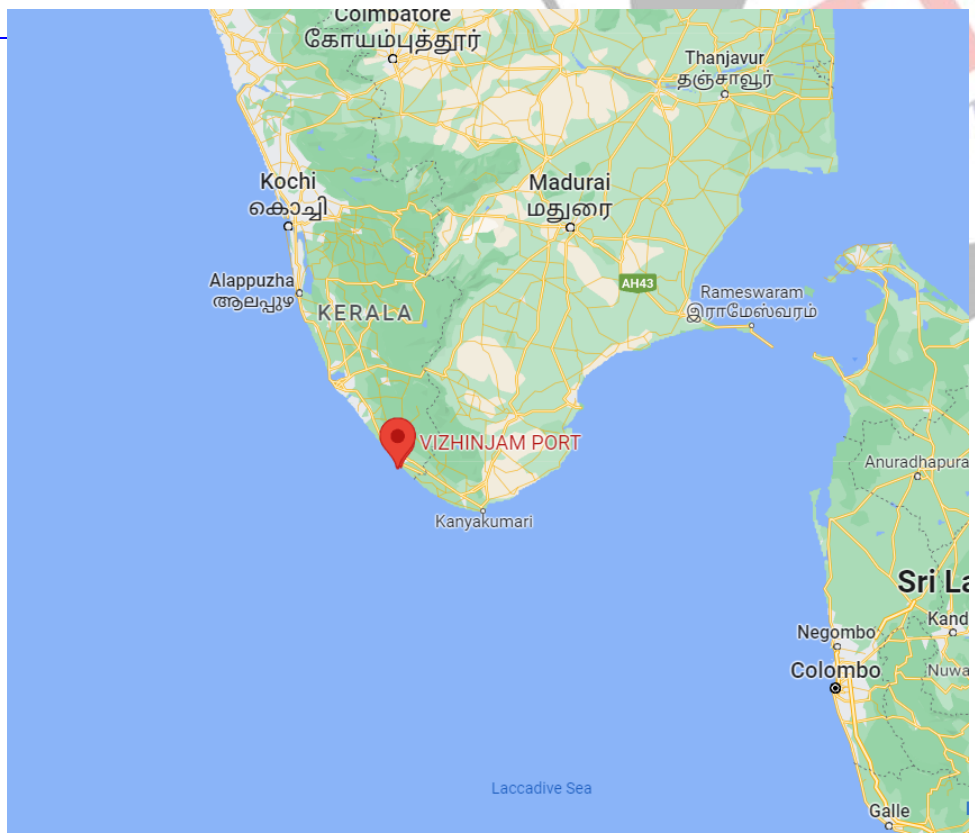


Note

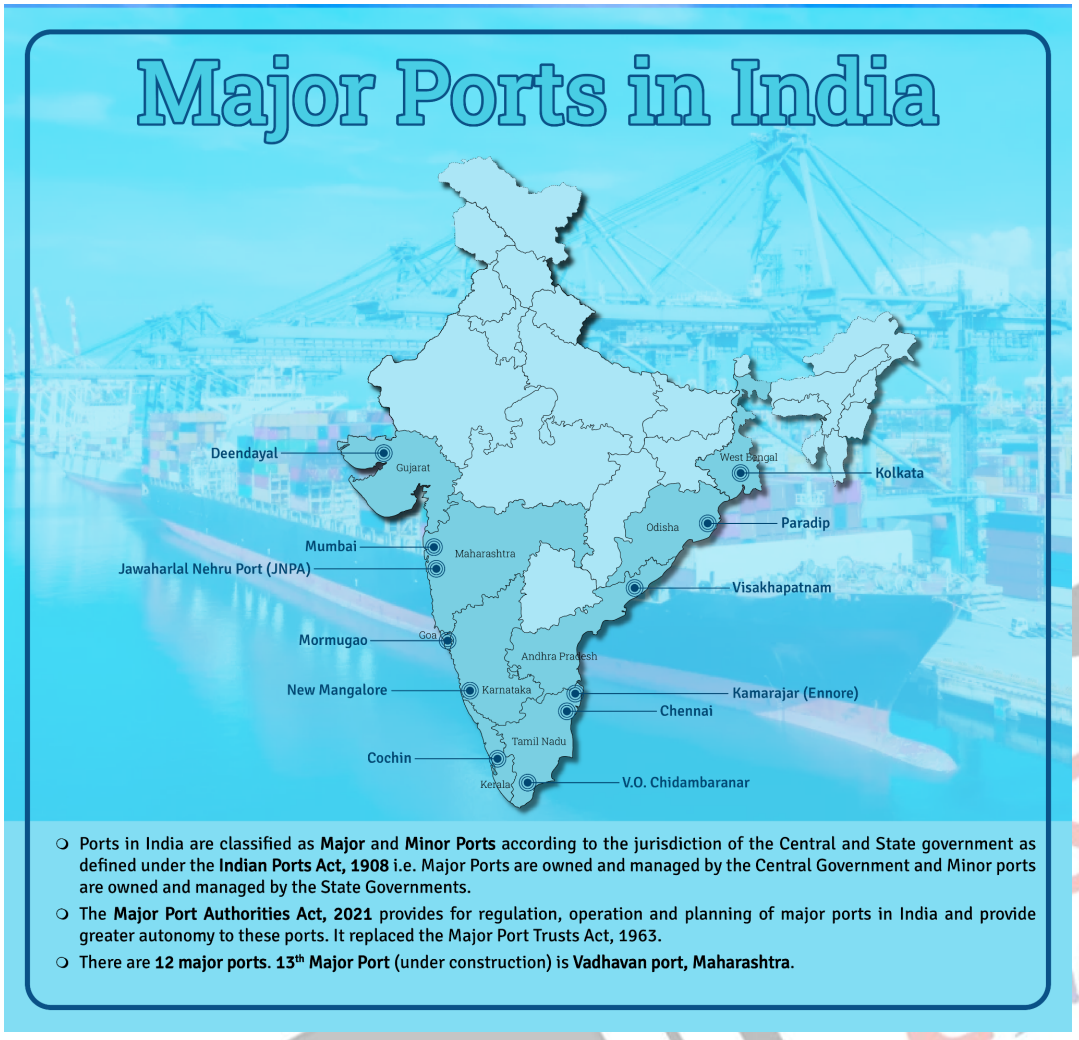
- A transshipment deepwater seaport is a port that can handle large ships that carry cargo from one place to another.
- It has a **deep water channel and a large berth area** for loading and unloading goods. It also allows the transfer of cargo from one ship to another at the port.

What is the Vizhinjam International Seaport Project?

- The Vizhinjam International Transhipment Deepwater Multipurpose Seaport is an ambitious project taken up by the **Government of Kerala.**
    - It is designed to primarily cater to the **transshipment and gateway container business** with provision for a cruise terminal, liquid bulk berth and facilities for additional terminals.
- The port is currently being developed with a **Public Private Partnership** , with **Adani Ports Private Limited** with a component structured on a **design, build, finance, operate, and transfer ("DBFOT") basis.**
- It is strategically situated near **Thiruvananthapuram, Kerala.** Its location along the southern coast of India provides easy access to **international shipping routes.**
    - It is positioned to compete with global transshipment hubs like **Colombo, Singapore, and Dubai,** reducing the **cost of container movement** to and from foreign destinations.
- The port boasts a **natural depth of more than 18 meters,** which can be further scaled up to 20 meters.
    - This depth is crucial as it enables the port to accommodate large vessels and mother ships with substantial cargo capacities.
- Initial capacity in the **first phase is set at one million (twenty-foot equivalent units)TEUs,** with potential for expansion to 6.2 million TEUs.
- **Project Progress:**
    - Expected to generate 5,000 direct job opportunities and stimulate an industrial corridor and cruise tourism.
    - The project is approximately **65.46% complete**. The project has experienced delays over the years, mainly due to factors like natural disasters, protests, and logistical challenges.
        - The current timeline anticipates the first phase's operational readiness by December 2024.

Why India Needs a Deepwater Container Transshipment Port?

- India has **12** major ports. However, the country lacks a **landside mega-port and terminal infrastructure** to deal with ultra-large container ships.
    - Hence, nearly **75% of India's transshipment cargo** is handled at ports **outside India**, mainly Colombo, Singapore, and Klang.
- In fiscal 2021-22, the total transshipment cargo of India was about **4.6 million TEUs, out of which about 4.2 million TEUs** were handled outside India.
- Developing a port into a Transshipment Hub will accrue significant benefits such as **forex savings, foreign direct investment**, **increased economic activity** at other Indian Ports, development of related logistics infrastructure, employment generation, improved operation/logistics efficiencies and increase in revenue share.
    - It also encourages related businesses, including ship services, logistics, and bunkering.
- A deepwater container transshipment port can attract a large share of the container transshipment traffic which is now being diverted to Colombo, Singapore and Dubai.



UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims

Q. Recently, which of the following States has explored the possibility of constructing an artificial inland port to be connected to the sea by a long navigational channel? (2016)

(a) Andhra Pradesh
(b) Chhattisgarh
(c) Karnataka
(d) Rajasthan

Ans: (d)

Fostering Sustainable Agrifood System

For Prelims: Fostering **Sustainable** Agrifood System, 16th Agricultural Science Congress (ASC), National Academy of Agricultural Sciences (NAAS).

For Mains: Need for Adopting Sustainable Agri-Food Systems, Food processing and related industries in

India– scope and significance, location, upstream and downstream requirements, and supply chain management.

Source: PIB

Why in News?

Recently, the Ministry of Agriculture & Farmers Welfare has inaugurated the 16th Agricultural Science Congress (ASC) in Kochi, Kerala in order to promote Sustainability **in the Agri-Food System.**

- Organized by the National Academy of Agricultural Sciences (NAAS), the ASC will come out with recommendations that facilitate the agriculture sector for moving towards a path of greater sustainability.

Note

- **Agricultural Science Congress (ASC):** The ASC serves as a platform for experts, researchers, practitioners, and stakeholders in the **agricultural and allied sectors** to come together and discuss various critical areas related to agriculture, sustainability, and related subjects.
- **National Academy of Agricultural Sciences (NAAS):** NAAS is a **prestigious organization based in India,** established with the aim of promoting agricultural science and research. The primary objective of NAAS is to provide a forum for agricultural scientists to deliberate on significant issues and advancements in the field of agriculture and related sciences.

What are Sustainable Agri Food Systems?

- **About:**
  - Sustainable agri-food systems encompass a **holistic approach to agricultural production, distribution, consumption, and waste management** that is environmentally sound, socially equitable, and economically viable.
  - These systems aim to **meet current food needs** while ensuring long-term sustainability, minimizing **negative impacts on the environment,** improving livelihoods, and promoting social well-being.
    - In 2020, global agrifood systems **emissions were 16 billion tonnes of carbon dioxide equivalent,** an increase of 9 % since 2000.
- **Need for Adopting Sustainability in Agri Food Systems:**
  - **Rising Demand for Food:**
    - The increasing **global demand for food necessitates** sustainable agri-food systems to ensure sufficient and consistent food production to meet the needs of a growing population.
  - **Environmental Degradation:**
    - Widespread environmental degradation **caused by unsustainable agricultural practices** underlines the urgency to transition to sustainable methods to mitigate further harm to the environment.
  - **Climate Change Challenges:**
    - Climate change **poses a significant threat to agriculture.** Sustainable practices are essential to adapt to these challenges and reduce the sector's contribution to climate change.
      - There are several sustainable and climate resistant agricultural practices in India which are recognised by the **GIAHS (Globally Important Agricultural Heritage Systems)**, like Pokkali rice, Kuttanad below Sea Level Farming System of Kerala etc.

How can Sustainability be Adopted in Agri Food Systems?

- **Enhanced Technological Interventions:**
  - Scientific innovations and advanced technological interventions are pivotal for sustainable agricultural practices, aiding in efficient resource use and reducing negative environmental impacts.
- **Genome Editing and Modern Technologies:**
  - Genome editing and other modern technologies are highlighted as core tools for technological breakthroughs in agriculture, addressing limitations of traditional breeding methods.
- **Carbon-Neutral Agricultural Practices:**
  - Transitioning to carbon-neutral agricultural practices can be adopted to mitigate climate impacts, promote environmental sustainability, and contribute to global efforts to reduce carbon emissions.

What are the Issues in Adopting a Sustainable Agrifood System?

- **Food Waste and Loss:**
  - A significant portion of food is wasted at various stages of the food supply chain, from production to consumption. Addressing food waste and loss is critical to improving the sustainability of the food system.
- **Climate Change and Environmental Impact:**
  - Agriculture is a major contributor to greenhouse gas emissions, deforestation, water pollution, and soil degradation. Implementing sustainable practices to mitigate these impacts is essential for a sustainable food system.
- **Resource Scarcity:**
  - Depletion of natural resources such as water, arable land, and energy poses a challenge to sustainable food production. Efficient use of resources and adopting sustainable farming practices is crucial.
- **Biodiversity Loss:**
  - Modern agriculture practices often lead to loss of biodiversity, affecting ecosystem services and disrupting natural balances. Promoting biodiversity-friendly farming approaches is vital for a sustainable food system.
- **Monoculture and Crop Diversity:**
  - The dominance of monoculture farming can lead to vulnerability in the food supply. Encouraging crop diversity and sustainable farming systems can enhance resilience and sustainability.

What are the Government Initiatives to Promote Agrifood Systems?

- **Indian Initiatives:**
  - India has created a dedicated **Agriculture Infrastructure Fund** which aims to create farm gate and agriculture marketing infrastructure in rural areas by providing interest subsidies and credit guarantee to entrepreneurs which will greatly help in **reducing the post-harvest losses.**
  - To conserve precious water resources, the Government has launched a scheme to increase water use efficiency at the farm level by using **micro-irrigation technologies for which a dedicated** micro-irrigation fund has been set up.
    - India has developed 262 abiotic stress-tolerant varieties of different crops.
  - To address the issues of under-nutrition and malnutrition, India is running the world's largest food-based safety net programmes which include the **Targeted Public Distribution System (TPDS)** that will serve about 800 million people in 2020.
  - The UN recognised India's proposal of celebrating the year **2023 as the 'International Year of Millets'.**

Conclusion

The integration of sustainability into agri-food systems is imperative to address the increasing demand for

food, environmental challenges, and climate change impacts while ensuring the well-being of farmers and the broader society.

UPSC Civil Services Examination Previous Year Questions (PYQs)

Prelims

Q. What are the significances of a practical approach to sugarcane production known as 'Sustainable Sugarcane Initiative'? (2014)

1. Seed cost is very low in this compared to the conventional method of cultivation.
2. Drip irrigation can be practiced very effectively in this.
3. There is no application of chemical/inorganic fertilizers at all in this.
4. The scope for intercropping is more in this compared to the conventional method of cultivation.

Select the correct answer using the code given below:

(a) 1 and 3 only
(b) 1, 2 and 4 only
(c) 2, 3 and 4 only
(d) 1, 2, 3 and 4

Ans: (b)

Mains:

Q. How far is Integrated Farming System (IFS) helpful in sustaining agricultural production? **(2019)**

Q. What are the reformative steps taken by the Government to make the food grain distribution system more effective? **(2019)**

Need for a National Crisis Management Response Framework

For Prelims: National Security Guard, Israel-Palestine

For Mains: Security Challenges and their Management, Security Forces & Their Mandate, National Security Guard

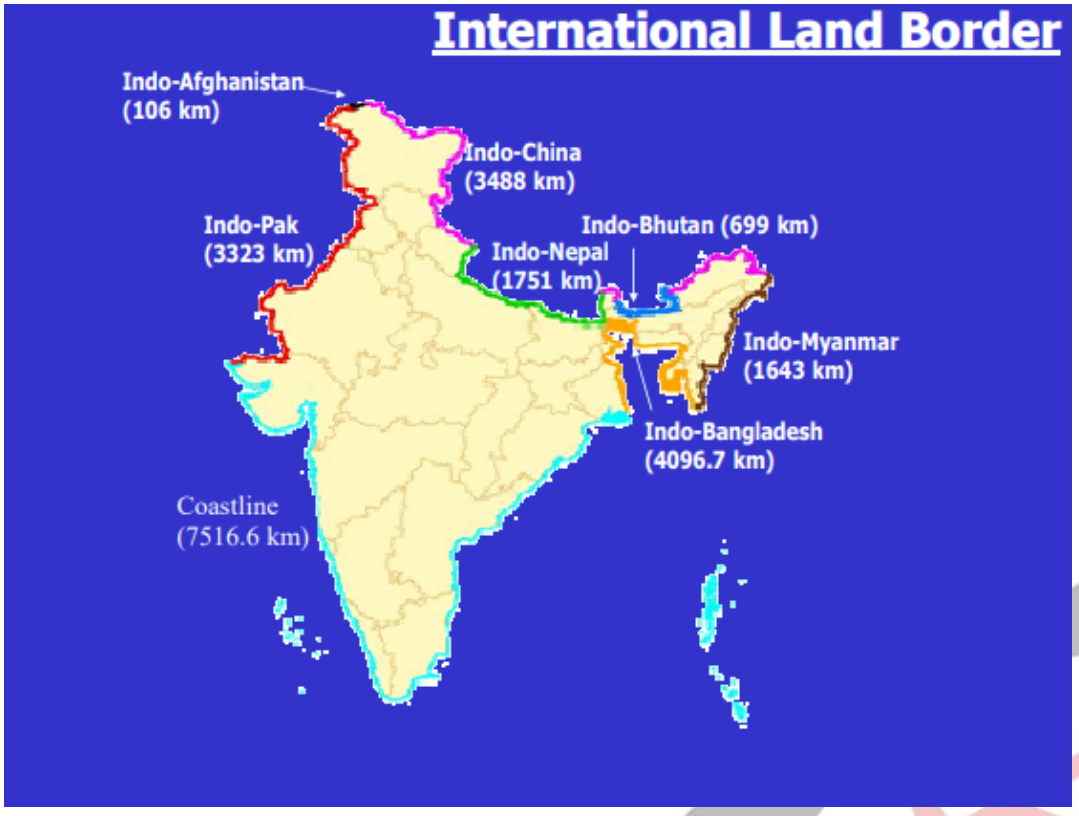
Source: TH

Why in News?

In light of the **recent** attack in Israel, India's **National Security Guard** Director has stressed the **importance of building a crisis management response framework** for extreme terrorist scenarios.

What is the Need for a National Crisis Management Response Framework?

- **Preparedness for Unpredictable Threats:**
  - Extreme terrorist scenarios often unfold with little warning, necessitating a well-defined preparedness strategy.
  - A crisis management framework ensures that authorities are equipped to handle **unexpected security challenges.**
    - Coordination among various agencies, both at the **federal and state levels, is crucial in countering terrorism effectively.**
  - The framework will establish clear protocols for collaboration and communication during crises.
- **Mitigating Impact:**
  - Rapid and well-coordinated responses can significantly reduce the impact of terrorist incidents, minimizing casualties and damage.
  - A structured crisis management framework provides guidance on mitigation strategies.
- **Safeguarding Critical Infrastructure:**
  - Terrorists frequently target critical infrastructure, endangering national security.
    - The framework should incorporate measures to **protect vital infrastructure during a crisis**, ultimately enhancing **national security** by comprehensively addressing extreme terrorist scenarios.
    - This framework will be a crucial component of the nation's security infrastructure, ensuring resilience against evolving threats.
- **Enhancing Counterterrorism Capabilities:**
  - The framework encourages continuous **training and skill development for personnel** involved in counterterrorism efforts.
    - Ongoing investment in skills and capabilities ensures that responders remain at the forefront of their craft.
  - The framework should acknowledge the synergy between **advanced technology and highly skilled personnel.** However, it's the combination of individuals and weaponry that ultimately makes the decisive difference, despite technological advancements.
- **Border Security Challenges:**
  - India's immense landmass and its strategic location in Southern Asia give rise to significant security concerns.
    - India's 7,683 km coastline and a vast **Exclusive Economic Zone (EEZ)** necessitate robust **maritime security measures.**
    - With over **15,000 km of land borders** shared with seven countries, including challenging borders with **China and Pakistan,** the demand for **effective** border management **is paramount.**
    - Porous borders and challenging terrain add complexity to security. Issues include cross-border **terrorism, militant infiltration/exfiltration**, and the rise of non-state actors.
  - The above-mentioned challenges underscore the need for a comprehensive national crisis management framework.



What is the National Security Guard?

- **About:**
  - NSG is a Federal Contingency World Class Zero Error Force that deals with **anti-terrorist activities** in all manifestations.
  - The NSG is a Force specially equipped and trained to deal with specific situations and is therefore, to be used only in exceptional circumstances to thwart serious acts of terrorism.
  - NSG formally came into existence in **1986 by an act of Parliament- 'National Security Guard Act, 1986'.**
- **Vision:**
  - A World Class Zero Error Force.
- **Mission:**
  - "Train, equip, and maintain in readiness a special force capable of swiftly and effectively combating terrorism to uphold its motto of **'Sarvatra Sarvottam Suraksha'.**
- **Functioning:**
  - It operates under the **Ministry of Home Affairs** and is a task-oriented force that has two complementary elements in the form of
    - **Special Action Group (SAG)** comprising of the Army personnel- is the main offensive or the strike wing of the NSG, and
    - **Special Ranger Groups (SRG)** comprising of personnel drawn from the Central Armed Police Forces/State Police Forces. They generally handle VIP securities.
    - The head of **NSG- designated as Director General (DG),** is selected and appointed by the Minister of Home Affairs.
- **Operations undertaken:**
  - **Operation Black Thunder** (Golden Temple, Amritsar, 1986 & 1988).
  - **Operation Ashwamedh** (Indian Airlines Flight-IC427 hijacking, India, 1993).
  - **Operation Thunderbolt or Vajra Shakti** (Akshardham Temple attack, Gujarat, 2002).
  - **Operation Black Tornado** (Mumbai Blasts, 2008).
  - **Operation Dhangu Suraksha, Pathankot, 2016.**
- **NSG Headquarters:** Manesar, Gurugram.

India's Space Endeavors

For Prelims: Indian Space Research Organisation, Gaganyaan , NavIC, Project NETRA, Weather forecasting, Bharatiya Antariksha Station.

For Mains: Potential Benefits of India's Growing Involvement in Space Activities, Roadblocks to India's Space Journey.

Source: TH

Why in News?

Recently, the Prime Minister of India has charted a visionary roadmap for the **Indian Space Research Organisation (ISRO)** during a review meeting for the **upcoming** Gaganyaan mission, which is set to be India's first manned mission to space.

What are the Key Aspects of the Roadmap for ISRO?

- One of the central objectives is the establishment of an **Indian-crafted, indigenous space station**, known as the **"Bharatiya Antariksha Station."** It will serve as a key asset in India's space infrastructure.
    - This monumental endeavor is expected to be realised by the year 2035.

Note

The **International Space Station**, currently managed by the US, Russia, Canada, Japan, and European space agencies, is anticipated to be **decommissioned by 2030.**

- Landing an **Indian astronaut on the Moon by the year 2040.** This lunar mission promises to be a historic achievement for the nation.
    - To realise this vision, the Department of Space will **develop a roadmap for Moon exploration** which will encompass Chandrayaan missions, development of a Next Generation Launch Vehicle (NGLV), construction of a new launch pad, setting up human-centric laboratories, and associated technologies.
- The Prime Minister has urged Indian scientists to expand their horizons further by working on **interplanetary missions.**
    - These include the development of a space vehicle for **orbiting Venus and another for landing on Mars**, indicating a broader commitment to exploring the solar system.

What are the Potential Benefits of India's Growing Involvement in Space Activities?

- **Economic Benefits:** India's space capabilities bring forth substantial economic benefits by generating revenue through **commercial** satellite launch services**, creating jobs, stimulating technological advancements** with cross-industry applications.
- **Geopolitical Leverage:** India's space capabilities can serve as a **diplomatic tool in resolving international disputes peacefully.**
    - It can also provide India a **geopolitical leverage in international negotiations,** enabling the country to negotiate more favorable terms in **trade,** climate accords**, and global agreements.**
- **Enhanced Disaster Management:** India could significantly improve disaster management **by using space assets for real-time monitoring and response.**

    - Satellites can aid in predicting **natural disasters**, such as **earthquakes, tsunamis, and floods**, allowing for timely evacuation and resource allocation.
- **Agricultural Revolution:** Space-based technologies, including **satellite imagery and** weather forecasting, can lead to an agricultural revolution.
    - Farmers could receive **precise data on soil conditions, weather patterns, and crop health,** enabling them to optimize farming practices and increase yields.
- **Affordable Space Tourism**: India's **cost-effective space capabilities** could pave the way for affordable space tourism. With advancements in space technology, **suborbital and orbital space tourism might become more accessible to Indian citizens and visitors** from around the world, which can in turn generate massive revenue for the country.

What are the Roadblocks to India's Space Journey?

- **Technical Challenges:**
    - Despite significant strides made by the private sector in **India's space domain**, there remains a substantial journey ahead, posing a formidable challenge in developing **cutting-edge technology for space missions demands that require substantial investment.**
- **Financial Constraints:**
    - Balancing the **costs of space exploration with other national priorities**, such as healthcare and education, poses financial challenges.
    - Also, maintaining sustained investment in space initiatives requires careful planning and support from the government.
- **International Collaboration v/s Competition:**
    - India faces competition with established space powers like the **US, Russia, and China**, who have made significant strides in space exploration.
    - Striking a balance between **collaborating with international space agencies and competing** on the global stage is crucial.
- **Managing the Environmental Impact:**
    - The **environmental impact of space launches and operations** needs to be managed responsibly as increased space activities **contribute to** space debris**,** which poses risks to both operational satellites and future space missions.

Way Forward

- **Skill Development**: Investing in **space-related skill development programs** can create a workforce with the knowledge and expertise needed for innovative space projects.
    - Establishment of **Space Technology Incubation Centers** is a good step in this direction.
- **Infrastructure Development:** Upgrading space launch facilities and research centers ensures that India has the necessary infrastructure for more ambitious space missions.
    - The **Virtual Launch Control Center (VLCC)** at Vikram Sarabhai Space Centre is a good step in this direction.
- **Space Security:** Establishing robust cybersecurity measures is crucial to **safeguard space assets against potential** cyberattacks and data breaches.
- **Government-Industry Collaboration:** Collaborative efforts between government agencies and private enterprises can leverage the **strengths of both sectors to advance space exploration and technology.**
- **Promote Indigenous Technologies**: Encouraging the development of homegrown technologies ensures self-reliance and reduces dependence on external sources for space hardware.
    - NavIC **or the Indian Regional Navigation Satellite System (IRNSS)** and **Project NETRA** are significant steps in this direction.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Q.1 What is India's plan to have its own space station and how will it benefit our space programme? **(2019)**

Q.2 Discuss India's achievements in the field of Space Science and Technology. How the application of this technology helped India in its socio-economic development? **(2016)**

Q.3 What is the main task of India's third mood mission which could not be achieved in its earlier mission? List the countries that have achieved this task. Introduce the subsystems in the spacecraft launched and explain the role of the 'Virtual Launch Control Centre' at the Vikram Sarabhai Space Centre which contributed to the successful launch from Sriharikota. **(2023)**

White Phosphorus Munitions

Source: IE

Why in News?

Recently, global human rights organizations, Amnesty International **and** Human Rights Watch have accused the Israel Defense Forces (IDF) of using **white phosphorus munitions** in Gaza and Lebanon, in violation of **International Humanitarian Law (IHL).**

What is the White Phosphorus?

- **About:**
  - **White phosphorus** is a pyrophoric that ignites when exposed to oxygen, producing thick, light smoke as well as **intense 815-degree Celsius heat.**
    - **Pyrophoric substances** are those which ignite spontaneously or very quickly (under five minutes) when in contact with air.
- **Global Status:**
  - Under the **Globally Harmonized System of Classification and Labeling of Chemicals,** the internationally agreed-upon system to standardize chemical hazard classification and communication, **white phosphorus falls under "Pyrophoric solids, category 1**", which includes chemicals that catch fire "spontaneously" when exposed to air. It is among the most unstable of pyrophoric substances.
- **Military Uses:**
  - White phosphorus is dispersed in artillery shells, bombs, and rockets. It can also be delivered via felt (textile) wedges soaked in the chemical.
  - Its primary military use is as a **smokescreen** — used to hide troop movement on the ground. The smoke acts as a visual obscurant. **White phosphorus is also known to mess with infrared optics** and weapons tracking systems.
  - White phosphorus can also be used **as an incendiary weapon.** US forces used white phosphorus munitions during the **second battle of Fallujah in Iraq in 2004**, to force concealed combatants to abandon their positions.
- **Harmfulness:**
  - **Causes Severe Burns often down to the bone upon exposure, Respiratory Problems and can damage Infrastructures, crops and kill livestock, with raging fires,** especially in windy conditions.

Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

- The GHS, developed following a number of major industrial accidents in the 1970s and 1980s, plays a fundamental role in protecting workers from chemical hazards through its system of harmonized chemical labels (pictograms) and safety data sheets.
- Following-up on Chapter 19 of Agenda 21 from the Rio Earth Summit in 1992, the first official version of the GHS was endorsed by the United Nations in 2003.

What is the History and Legal Status of Phosphorus Munitions?

- **History:**
  - Irish nationalists in the **late 19th century first used white phosphorus munitions,** in a formulation that became known as **"Fenian fire"** (Fenian was an umbrella term for the Irish nationalists).
  - These munitions have since been used around the world, from the Normandy invasion in World War II and the long-drawn **Nagorno-Karabakh conflict.**
- **Legal Status:**
  - White phosphorus munitions are **not under a blanket ban**, though their use is regulated under the IHL.
  - It is not considered a chemical weapon because its operational utility is primarily due to heat and smoke, rather than toxicity. Thus, its use is governed by the **Convention on Conventional Weapons (CCW),** specifically Protocol III,which deals with incendiary weapons.
    - **First,** it restricts some **but not all use of ground-launched incendiary weapons** where there are concentrations of civilians.
    - **Second**, the protocol's definition of incendiary weapons covers weapons that are **"primarily designed" to set fire to and burn people, and thus arguably excludes multipurpose munitions** such as those containing white phosphorus, which are considered to primarily be "smoking" agents.

UPSC Civil Services Examination, Previous Year Questions (PYQ)

Q1. With reference to 'Organization for the Prohibition of Chemical Weapons (OPCW)', consider the following statements: (2016)

1. It is an organization of the European Union in working relation with NATO and WHO.
2. It monitors the chemical industry to prevent new weapons from emerging.
3. It provides assistance and protection to States (Parties) against chemical weapons threats.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

Ans: (b)

Q 2. Recently, the USA decided to support India's membership in multi-lateral export control regimes called the "Australia Group" and the "Wassenaar Arrangement". What is the difference between them? (2011)

1. The Australia Group is an informal arrangement which aims to allow exporting countries to minimize the risk of assisting chemical and biological weapons proliferation, whereas the Wassenaar Arrangement is a formal group under the OECD holding identical objectives.
2. The Australia Group comprises predominantly Asian, African and North American countries whereas the member countries of Wassenaar Arrangement are predominantly from the European Union and American Continents.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only

(c) Both 1 and 2
(d) Neither 1 nor 2

Ans: (d)

Tilapia Parvovirus

Source: TH

Why in News?

India has witnessed its first encounter with **Tilapia Parvovirus (TiPV),** in Tamil Nadu causing a significant impact on the **country's aquaculture.**

- This virus has been reported in **farm-bred** tilapia, a freshwater fish species, and has raised concerns due to its high mortality rates.

What is Tilapia Parvovirus?

- **About:**
  - TiPV is a **viral pathogen** that primarily affects tilapia.
  - It belongs to the **Parvoviridae family,** known for its small, non-enveloped, single-stranded DNA viruses.
- **Emergence and Impact**
  - First reported in China in 2019 and Thailand in 2021. India is the third country to report the occurrence of TiPV.
    - TiPV has caused mortality rates ranging from 30% to 50% on fish farms.
    - In laboratory settings, it has led to 100% mortality, highlighting its devastating impact.
- **Consequences of TiPV Outbreak:**
  - TiPV outbreak can also pose a threat to the biodiversity and ecology of freshwater bodies as tilapia is an invasive species that can compete with native fish for food and space.
  - TiPV outbreak can also affect the food security and nutrition of the people who depend on tilapia as a source of protein and income.

What are the Key Facts About Tilapia Fish?

- **About:**
  - Tilapia is a freshwater fish species that is widely cultured and consumed in India. It belongs to the **family Cichlidae** under the **order Perciformes.**
  - These fish are **native to Africa** and have gained popularity as a widely cultivated and harvested food source.

- **Tilapia Farming in India:**
  - Tilapia farming is carried out in various parts of the country, particularly in **Andhra Pradesh and Kerala.**
  - The introduction of different tilapia species, including **Nile tilapia and Mozambique tilapia, has led to diverse farming practices.**
    - Nile tilapia, introduced in the 1970s, is favoured for **its larger size and scale of cultivation.**
    - **Mozambique tilapia, referred to as "Jilabi" in Tamil,** was introduced to Indian freshwater bodies in the 1950s.
      - Mozambique Tilapia is known for its **adaptability to low-oxygen levels in water.** It can survive in a variety of aquatic environments.
  - The Indian government authorized the import of specific tilapia species, namely ***Oreochromis niloticus and red hybrids,*** in 1970. These species were favored for their **fast growth and market demand,** maintaining a level of control over the aquaculture.

UPSC Civil Services Examination, Previous Year Questions (PYQ)

Prelims

Q. The release of which one of the following into ponds and wells helps in controlling mosquitoes? (2008)

(a) Crab
(b) Dogfish
(c) Gambusia fish
(d) Snail

Ans: (c)

Exp:

- The western mosquitofish (Gambusia affinis) and eastern mosquitofish (Gambusia holbrooki) are a species of freshwater fish, known commonly as mosquitofish or by its generic name, Gambusia, or by the common name gambezi.
- It survives in all kinds of water, thereby it is widely used to curtail the mosquito menace.
- Each Gambusia consumes over 250-300 mosquito larvae a day.
- It was first detected in Italy in 1931 that Gambusia consumes mosquito larvae.
- Larvicidal fish such as gambusia and lebistes (guppies) are stated to be very effective in controlling the breeding of mosquitoes without disturbing the ecological balance.
- **Therefore, option (c) is the correct answer.**

CCSEA Withdraws Stray Dogs from Vaccine Trials

Source: TOI

Why in News?

Recently, the **Committee for Control and Supervision of Experiments on Animals (CCSEA)** in India has **withdrawn its recommendation to employ stray dogs in vaccine trials.**

- This decision comes in response to concerns raised by **People for the Ethical Treatment of Animals (PETA) India** regarding the **scientific and ethical implications of using stray dogs in experiments.**

What were the Concerns Raised Regarding CCSEA's Recommendation to Use Stray Dogs in Vaccine Trials?

- PETA emphasized that the CCSEA's recommendation to employ stray dogs in vaccine trials, contradicted its obligations under the **Prevention of Cruelty to Animals Act, 1960**, and the **Breeding of and Experiments on the Animals (Control and Supervision) Amendment Rules, 2006.**
  - Also, it pointed out that the recommendation to **use stray dogs contrasted with the policies adopted by the EU, UK, US, and Australia,** India's counterparts in the field of science and technology.
- PETA India has argued that **relying on stray dogs in tests cannot accurately predict human responses to vaccines,** leading to delays in the approval of effective treatments.
  - The withdrawal of this recommendation represents a positive stride toward safeguarding animal welfare and fostering scientific progress.

Note

PETA India is the animal rights organization. It's a **non-governmental organization (NGO)** that works to **end animal abuse in business and society.**

- PETA India's mission is to: raise awareness about animal cruelty, educate policymakers and the public and promote respect for all animals

What is the Committee for Control and Supervision of Experiments on Animals?

- **About**:
  - **CCSEA** is a **statutory** Committee of the **Department of Animal Husbandry and Dairying (DAHD), Ministry of Fisheries, Animal Husbandry and Dairying (MoFAH&D)** constituted under the **Prevention of Cruelty to Animals (PCA) Act, 1960.**
- **Function:**
  - CCSEA is duty bound to take all such measures as may be necessary to ensure that **animals are not subjected to unnecessary pain or suffering before, during or after performance** of experiments on them.
  - For this purpose, the Committee formulated the **Breeding of and Experiments on Animals (Control & Supervision) Rules, 1998 (amended in 2001 & 2006)** to

regulate the experimentation on animals.
    - Under the provisions of the above rules, establishments who are engaged in Bio-medical research, breeding and trading of laboratory animals are **required to get themselves registered with CPCSEA.**

What is the Prevention of Cruelty to Animals Act, 1960?

- It is an act of the Parliament of India that **prevents the infliction of unnecessary pain or suffering on animals.**
    - The act was originally passed in 1890 and **replaced by the 1960 act.**
- The act provides for the prevention and protection of animals from: **Cruelty, Unnecessary pain, Overwork, Torture, Abuse.**
    - The act also establishes the **Animal Welfare Board of India.**

Rapid Fire Current Affairs

REC Limited Honoured with Golden Peacock Award

REC Limited (formerly Rural Electrification Corporation Limited) a Maharatna Central Public Sector Enterprise under the Ministry of Power, has received the **Golden Peacock Award in Risk Management** for its commitment to implementing **effective risk assessment strategies.**

- The Golden Peacock Awards, established by the **Institute of Directors (IOD)**, India in 1991, has emerged as an internationally acclaimed **standard for corporate excellence.**
    - The IOD is an apex professional association for Directors in India under the **Societies Registration Act, XXI of 1860** to fill the need for professional development of **Corporate Directors and building effective Boards.**
- REC Limited is a **Non-Banking Financial Company (NBFC)** focused on Power Sector Financing and Development in India. It provides financial assistance to various entities in the power sector.
    - REC's funding contributes to **lighting every fourth bulb in India.**

Read more: Maharatna Status to REC

Little Ice Age Was Wet

A recent study on the **Little Ice Age (LIA)**, a global climatic event spanning CE 1671-1942, has unveiled significant variations in **rainfall patterns,** challenging the traditional assumption of a **uniformly cold and dry climate during the LIA.**

- The **Western Ghats**, influenced by both the **southwest summer** monsoon **(SWM) and** northeast winter monsoon **(NEM),** was chosen for the study.
- Researchers reconstructed vegetation dynamics and climate variability from CE 1219-1942 using **pollen-based analysis** from the Western Ghats, India.
    - Pollen analysis **uses pollen(male spores in a seed plant) to reconstruct past environments**
- The study indicated a **record of a moist (wet) LIA in the Western Ghats due increased NEM contributed to the moist conditions** during the LIA.
    - Vegetation types in the study area were **primarily** moist/semi-evergreen and dry tropical deciduous forests.
- The study also suggests that factors like the movement of the Inter Tropical Convergence Zone (ITCZ)**, temperature anomalies,** sunspot numbers, and solar activity influenced the climate during the LIA.

Read more: Western Ghats

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