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1   7th India-Germany Inter-Governmental Consultations (IGC)

Context: The seventh edition of the India-Germany Inter-Governmental Consultations (IGC) was held, co-chaired by India's Prime Minister and Germany's Federal Chancellor, who visited India. The discussions were themed "Growing Together with Innovation, Mobility, and Sustainability," reflecting the shared vision for a sustainable, interconnected future.

Major Outcomes of the IGC:

1. **UN Security Council Reform**: India and Germany reiterated the need for UN Security Council reform, advocating for text-based negotiations under the Intergovernmental Negotiations (IGN) with a set timeframe.

2. **Upholding UN Charter Principles**: The two nations emphasized respect for the UN Charter, condemning any threats or force against nations' sovereignty and territorial integrity.

3. **Mutual Legal Assistance Treaty**: A treaty on mutual legal assistance in criminal matters was concluded to facilitate sharing information, evidence, capacity-building, and exchange of best practices in criminal justice.

4. **Agreement on Classified Information Protection**: An agreement for the exchange and mutual protection of classified information was finalized, creating a framework for handling, protecting, and transmitting classified data between the two countries.

5. **Regional Consultations on West Asia and North Africa (WANA)**: Regional consultations on WANA were established, complementing existing dialogues on Africa and East Asia, with the respective foreign ministries managing the consultations.

6. **Indo-Pacific Region**: Both nations committed to promoting a free, open, inclusive, peaceful, and prosperous Indo-Pacific region based on international law.

7. **Migration and Mobility Partnership Agreement (MMPA)**: India and Germany pledged to implement the MMPA fully. This agreement aims to enhance mobility and employment opportunities while addressing irregular migration and human trafficking.

India-Germany Relations:

Since establishing a **'Strategic Partnership' in 2000**, relations between India and Germany have strengthened, particularly with the launch of IGC in 2011.

Areas of Cooperation:

- **Multilateral Cooperation**: Both countries support each other's bids for UN Security Council reforms within the G4 framework.

- **Economic Relations**: Germany ranked as India's 12th largest trading partner in 2022-23, with India constituting about 1% of Germany's total foreign trade in 2022.

- **Sustainability:** The Indo-German Energy Forum (IGEF) has been pivotal in fostering cooperation on energy security, energy efficiency, renewable energy, and other sustainability initiatives.

GS Paper 3 – Environment and Ecology

2 | United Kingdom Ends Coal-Based Electricity Production

Context: The UK recently became the first country to cease electricity production from coal, closing its last coal-based power plant and marking the end **of 142 years of coal-generated electricity.** In 2012, coal accounted for **40% of the UK's electricity,** but it has been steadily replaced by cleaner energy sources. The world's first coal plant opened in London in **1882**, while India's first major thermal power plant, the **Hussain Sagar Thermal Power Station**, was commissioned in **Hyderabad in 1920.**

Reasons for Closing Coal-Based Electricity Production:

1. **Pollution**: The energy sector is responsible for approximately three-quarters of global greenhouse gas emissions, as per the International Energy Agency (IEA).

2. **Commitment Limitations**: IEA projections indicate that even with current commitments, limiting the temperature increase to 1.5°C, per the Paris Agreement, remains challenging.

3. **Feasibility of Renewable Technologies**: Renewables have become increasingly scalable, and advancements in energy storage and R&D investments are supporting their adoption.

Challenges in Closing Coal-Based Power Plants:

1. **Dependence on Coal**: Coal is still a primary energy source in low- and middle-income countries like India and China, where it meets crucial energy and employment needs.

2. **Economic Impact**: Shifting away from coal is financially challenging for countries with new coal power plants, such as China and India, where existing plants represent significant investment.

3. **Challenges with Renewables**: Renewable energy faces hurdles like intermittency, high capital costs, and policy uncertainties.

Status in India:

1. **Current Reliance on Coal**: As of September 2024, coal generates around 70% of India's total electricity, with significant coal dependency expected in the short term.

2. **Net-Zero Target**: India aims to achieve net-zero emissions by 2070.

3. **Government Initiatives for Renewable Energy**: Programs like the **National Green Hydrogen Mission**, **PM-KUSUM**, **PM Surya Ghar Yojana**, and **Production-Linked Incentive (PLI) schemes** for solar PV modules are driving India's transition toward cleaner energy sources.

The UK's coal phase-out sets a global benchmark, though transitioning away from coal remains complex for developing nations due to energy demands and economic dependencies.

3 **Ministry of Fisheries, Animal Husbandry & Dairying Launches Pandemic Fund Project**

Context: The Ministry of Fisheries, Animal Husbandry & Dairying has launched the **Pandemic Fund Project** to enhance animal health security in India, specifically to improve pandemic preparedness and response. The project aims to bolster the country's ability to tackle animal health threats and respond to potential zoonotic pandemics. As part of this initiative, the Minister also introduced **Standard Veterinary Treatment Guidelines (SVTG)** and a **Crisis Management Plan (CMP)** for animal diseases.

Launch
Pandemic Fund Project
Animal Health Security Strengthening in India for Pandemic Preparedness and Response
&
21st Livestock Census Operation

About the Pandemic Fund Project:

- **Funding**: $25 million, provided by the G20 Pandemic Fund.
- **Establishment**: Formed during Indonesia's G20 Presidency in 2022.
- **Objective**: To strengthen the capacity of low- and middle-income countries in responding to animal health threats through strategic investments.
- **Implementing Entities**: Asian Development Bank (ADB), World Bank, Food and Agriculture Organization (FAO).

Need to Focus on Animal Disease Outbreaks:

1. **Prevent Zoonotic Diseases**: WHO notes that 5 out of 6 recent public health emergencies had animal origins, highlighting the risk posed by zoonotic diseases.
2. **Minimize Socio-Economic Impacts**: Animal-related pandemics like SARS and Avian Flu have previously caused significant global economic losses, estimated at $50 billion and $30 billion, respectively.

Major Interventions Under the Project:

- **Upgrading Animal Health Infrastructure**: Expansion and modernization of animal health laboratories and vaccine manufacturing facilities.
- **Strengthening Early Warning and Surveillance**: Enhanced systems to detect outbreaks, allowing for prompt responses.
- **Data and Risk Assessment Enhancements**: Improved data management and analytical systems for better risk evaluation.
- **Institutional Capacity Development**: Addressing capacity gaps at the national and regional levels with a disaster management framework specifically for the livestock sector.

India's Initiatives to Improve Animal Health:

- **National Animal Disease Control Program (NADCP)**: Aims to control and eradicate Foot and Mouth Disease (FMD) and Brucellosis, which have significant impacts on animal health and productivity.
- **Rashtriya Gokul Mission**: Focuses on the development and conservation of indigenous bovine breeds, enhancing their productivity and supporting livestock sustainability.

This project aligns with India's broader efforts to improve animal health and resilience, reduce the risks associated with zoonotic diseases, and strengthen biosecurity measures.

4 New 'Guidelines for Import of Live Seaweeds into India' Notified

Context: The Ministry of Fisheries, Animal Husbandry, and Dairying has issued new guidelines for importing live seaweeds into India. These guidelines aim to streamline the import of high-quality seaweed seed material from abroad, promote seaweed enterprises in coastal regions, ensure environmental safety, and address biosecurity risks associated with seaweed importation.

Need for the Guidelines:

1. **Unique Characteristics of Seaweeds**: Seaweeds live underwater and are subject to various environmental conditions, including salinity changes and temperature fluctuations.
2. **Biosecurity Risks**: Seaweeds may carry diseases, pests, or pathogens that can affect local ecosystems.
3. **Biological Factors**: Differences in reproductive strategies and genetic traits may cause imported seaweeds to persist and spread in new environments, posing risks to local biodiversity.

Key Provisions of the Guidelines:

- **Restrictions on Certain Imports**: Import is prohibited for seaweeds known to carry pathogens or those listed under CITES, the IUCN threatened list, or the exporting country's threatened list, unless certified by the exporting country's competent authority.
- **Permit and Clearance Requirements**: Importers must obtain a permit from the Department of Fisheries, Government of India, and clearance from the National Committee on the Introduction of Exotic Aquatic Species into Indian Waters.
- **Market Restrictions**: Direct sale of imported seaweed in domestic or international markets is not permitted.
- **Intellectual Property Rights**: No intellectual property claims are allowed by either the exporter or importer on the imported seaweed material.

About Seaweeds:

- **Definition**: Seaweeds refer to various species of marine plants and algae that thrive in oceans, rivers, lakes, and other water bodies.
- **Examples**: Common types include *Kappaphycus alvarezii*, *Gelidiella acerosa* (red algae), and *Gracilaria edulis*.
- **Applications**: Widely used in laboratories, pharmaceuticals, cosmetics, cardboard, paper, paint, and processed foods.

India's Seaweed Production and Initiatives:

- **Current Production**: India's seaweed production is around 34,000 tonnes annually, while the potential is estimated at approximately 9.7 million tonnes per year.
- **Pradhan Mantri Matsya Sampada Yojana (PMMSY)**: This flagship scheme aims to increase the country's seaweed production to over 1.12 million tonnes by 2025, promoting sustainable growth in the fisheries and seaweed sectors.

5 Centre for Generative AI - Shrijan

Context: Meta, in partnership with the Ministry of Electronics and Information Technology (MeitY) and the All India Council for Technical Education (AICTE), has launched the Center for Generative AI, named **Shrijan**, at IIT Jodhpur. This center, along with the **YuvaAI initiative for Skilling and Capacity Building**, aims to enhance India's AI capabilities by fostering innovation, providing skill development opportunities, and addressing real-world challenges with generative AI.

Centre for Generative AI, Shrijan:

- **Objective**: Shrijan aims to support and empower the next generation of AI innovators and entrepreneurs in India.

- **Key Focus Areas**: Leveraging open-source AI and exploring the potential of large language models (LLMs) for various applications.

- **Target**: To nurture 100,000 youth developers and entrepreneurs with AI skills over the next three years, supporting India's AI talent pool and growth in the tech sector.

YuvaAI Initiative for Skilling and Capacity Building:

- **Purpose**: This initiative targets young individuals (ages 18-30) to equip them with essential AI skills, particularly focusing on open-source LLMs, to solve real-world challenges.

- **Goal**: Empower 100,000 students and young developers to bridge the AI talent gap and bolster India's AI workforce.

What is Generative AI?:

- **Definition**: Generative AI refers to deep learning models that can produce high-quality content, including text and images, based on their training data.

- **Technology**: It builds on large language models and other machine learning techniques that interpret and respond to human language.

Significance of Generative AI for India:

- **Employment**: AI has created approximately 416,000 jobs in India, with the potential for continued growth.

- **Sector Growth**: AI's growth rate is projected at 20-25%, reflecting rapid development in the field.

- **Economic Impact**: Expected to add $957 billion to India's economy by 2035.

Challenges:

- **Data Privacy and Security**: Safeguarding personal information remains a concern.

- **Regulatory Gaps**: AI regulation is still evolving in India.

- **Skill Shortage**: There is a need for more AI experts to keep pace with the sector's demands.

GS Paper 1 – Geography

6 Kadar Tribe

Context: The **Kadar Tribe** of Kerala has recently taken up forest restoration efforts to address the degradation caused by invasive alien species. Here's an overview of the **Kadar tribe** and their unique relationship with the forest ecosystem:

About the Kadar Tribe:

- **Location**: Primarily found in Kerala and Tamil Nadu, specifically in the Vazhachal forest region of Kerala.

- **Status**: Classified as a **Particularly Vulnerable Tribal Group (PVTG)** by the Indian government.

- **Cultural Connection**: The name "Kadar" derives from "kaadu," meaning forest in Tamil and Malayalam, signifying their deep-rooted bond with forests.

- **Language**: They speak a Dravidian language, Kadar, which is influenced by Tamil and Malayalam.

Lifestyle and Occupation:

- **Traditional Lifestyle**: Traditionally a **nomadic hunter-gatherer** community, the Kadar are highly knowledgeable about the forest and depend on gathering honey, fruits, tubers, and medicinal plants.

- **Current Occupations**: Some Kadars have shifted towards small-scale agriculture and wage labor but still rely heavily on forest resources.

- **Medicinal Knowledge**: Known for their expertise in traditional medicine, especially herbal remedies from forest plants.

- **Sustainable Practices**: The Kadar follow traditional protocols to ensure sustainable harvesting, allowing resources to regenerate before being collected again.

Social Structure and Settlements:

- **Organization**: Their social structure revolves around extended families, often living in **small hamlets** or "oorus" made of bamboo, leaves, and other natural materials.

- **Population**: Approximately 2,000 individuals in the early 21st century.

- **Spiritual Beliefs**: They worship jungle spirits, a creator couple, and local forms of Hindu deities, reflecting their reverence for nature.

Kadar and Forest Restoration:

- **Recent Initiative**: For the first time, the Kadar are actively involved in restoring natural forests impacted by invasive species in Vazhachal, Kerala.

- **Philosophy**: Their symbiotic relationship with nature is central, and they believe in the coexistence of "Kadar" and "Kaadu" (forest).

About Particularly Vulnerable Tribal Groups (PVTGs):

- **Definition**: PVTGs are identified as a more vulnerable subset among tribal communities, characterized by geographical isolation, low literacy, and a near pre-agricultural level of technology.

- **Current Statistics**: There are 75 PVTGs in India across 220 districts in 18 states and UTs, comprising about 2.8 million individuals living in 22,544 villages.

7 Unique Land Parcel Identification Number (ULPIN)/ Bhu-Aadhaar

Context: The **Unique Land Parcel Identification Number (ULPIN)**, or **Bhu-Aadhaar**, is a landmark initiative launched by the Indian government in 2021 under the **Digital India Land Records Modernisation Programme (DILRMP)**. Its purpose is to assign each land parcel a unique, 14-digit alpha-numeric identity, helping to streamline land records, improve accuracy, and support efficient management of land ownership details across India.

Key Features of Bhu-Aadhaar (ULPIN):

- **Initiative**: Part of the **Digital India Land Records Modernisation Programme (DILRMP)**.

- **Launched**: 2021.

- **Identification Method**: Each land parcel is assigned a **14-digit alpha-numeric ID** based on **longitude and latitude coordinates** through detailed surveys and geo-referenced cadastral mapping.

- **Structure**: The 14-digit code includes:
  - **State code**
  - **District code**
  - **Sub-district code**
  - **Village code**
  - **Unique plot ID number**

Working and Application:

- **Permanent ID**: The ULPIN is permanently assigned to a land parcel, remaining unchanged even if ownership transfers, subdivisions, or boundary changes occur.

- **Stamping on Records**: Once generated, ULPIN is stamped on the land records held by the landowner.

- **Coverage**: As of now, approximately 30% of rural land parcels have been assigned a ULPIN.

Objectives of Bhu-Aadhaar:

1. **Unique Identification**: Assigning a unique ID to each plot for easy identification and retrieval.

2. **Accurate Digital Land Records**: Maintaining comprehensive records of land owners, plot boundaries, usage, and more.

3. **Linking with Registration**: Integrating land records with property registration processes.

4. **Online Services**: Enabling online access to land record services.

5. **Support for Government Planning**: Helping maintain updated land data, which aids in government schemes and infrastructure planning.

8. The National Mission for Manuscripts (NMM)

Context: The **National Mission for Manuscripts (NMM)** is an initiative established by the Government of India to preserve and promote the rich manuscript heritage of the country. It focuses on documenting, conserving, and disseminating the knowledge contained within these manuscripts, which are vital to India's cultural and historical identity.

Overview of the National Mission for Manuscripts (NMM):

- **Current Status**: The Union Ministry of Culture plans to "revive and relaunch" the NMM and is considering forming an autonomous body, likely named the **National Manuscripts Authority**, which will operate under the Ministry of Tourism and Culture.

- **Establishment**: The NMM was launched in **February 2003** as part of efforts to protect India's manuscript wealth.

Objectives of the NMM:

1. **Locate Manuscripts**: Conduct a national survey to identify manuscripts across the country.

2. **Document Manuscripts**: Create a **National Electronic Database** to compile information on manuscripts, currently housing data on approximately **four million manuscripts**.

3. **Conserve Manuscripts**: Use both modern and traditional conservation techniques to preserve manuscripts and train new conservators.

4. **Train Scholars**: Educate the next generation in **Manuscript Studies**, which includes language, script analysis, critical editing, cataloging, and conservation methods.

5. **Digitize Access**: Promote access to manuscripts by digitizing rare and endangered texts.

6. **Publish Editions**: Facilitate the publication of critical editions of unpublished manuscripts and catalogs to enhance accessibility.

7. **Public Engagement**: Increase public interest and knowledge about manuscripts through lectures, seminars, and other outreach programs.

Significance of Manuscripts:

- **Cultural Heritage**: India possesses an estimated **ten million manuscripts**, potentially the largest collection in the world, covering diverse themes, scripts, and aesthetics. Approximately **75%** of these manuscripts are in **Sanskrit**, while the remaining **25%** are in various regional languages.

- **Historical Importance**: Manuscripts are handwritten documents on materials like paper, cloth, palm leaf, or metal, dating back at least **seventy-five years**. They are distinct from printed volumes and hold significant scientific, historical, or aesthetic value.

What is a Manuscript?

A **manuscript** is defined as a handwritten document that meets specific criteria:

- It can be composed on various materials such as paper, bark, cloth, metal, or palm leaves.

- It must be at least **75 years old** and have significant historical, cultural, or aesthetic value.

- It does not include lithographs or printed works and is found in many languages and scripts, with a single language often represented in multiple scripts.

Conclusion: The National Mission for Manuscripts plays a crucial role in safeguarding India's literary heritage, ensuring that the knowledge contained within these manuscripts is preserved, studied, and made accessible to future generations. Its efforts contribute to enhancing cultural awareness and historical understanding in the country.

9 Nemaline Myopathy

Context: Recently, the Chief Justice of India discussed nemaline myopathy during a national consultation on children's rights, highlighting its impact on his foster daughters.

What is Nemaline Myopathy?

- **Definition:** Nemaline myopathy is a rare genetic muscle disorder characterized by the presence of thread-like structures called nemaline bodies within muscle fibers, leading to weakness in skeletal muscles.

- **Other Names:** It is also known as rod myopathy due to the rod-shaped structures seen in affected muscle tissue.

- **Prevalence:** The condition affects approximately **1 in every 50,000 births**, making it relatively rare.

- **Inheritance:** The disorder is hereditary, caused by genetic mutations that affect muscle proteins, which are essential for normal muscle function.

Severity:

- The severity of nemaline myopathy can vary significantly:

  - **Mild Cases:** Some individuals may experience minimal impact on daily life.

  - **Severe Cases:** Others may face substantial muscle weakness that necessitates significant medical intervention.

Symptoms: Symptoms of nemaline myopathy can include:

- **Muscle Weakness:** Primarily in the face, neck, and trunk.

- **Feeding Difficulties:** Challenges in feeding and swallowing.

- **Breathing Issues:** Respiratory complications due to weak chest muscles.

- **Physical Deformities:**

  - Foot deformities (e.g., clubfoot).

  - Abnormal curvature of the spine (scoliosis).

  - Joint deformities (contractures).

Treatment:

- **No Cure:** Currently, there is no cure for nemaline myopathy.

- **Supportive Care:** Treatment focuses on managing symptoms and improving quality of life, which may include:

  o **Physiotherapy:** To enhance muscle strength and mobility.

  o **Occupational Therapy:** To assist with daily activities and adaptations.

  o **Speech Therapy:** If speech or swallowing is affected.

What is a Genetic Mutation?

- A genetic mutation refers to a permanent alteration in a gene's DNA sequence. These mutations can:

  o Change the way a gene functions.

  o Result in the production of different proteins.

- **Importance of Genetic Variation:** While some mutations can lead to diseases (like nemaline myopathy), genetic variations are also essential for evolution, contributing to the diversity of traits in populations over generations.

Conclusion: Nemaline myopathy is a complex condition that poses significant challenges for affected individuals and their families. While supportive treatments can help manage symptoms, ongoing research is crucial for developing effective therapies and interventions for this rare genetic disorder.

10 Right to Die with Dignity: SC Guidelines and Legal Framework in India

Context: The Ministry of Health and Family Welfare has released draft guidelines to implement the Supreme Court's orders regarding the right to die with dignity, aiming to provide a framework for state governments and hospitals to withdraw life support for terminally ill patients.

PASSIVE EUTHANASIA
RIGHT TO DIE WITH DIGNITY

Key Concepts:

Withholding or Withdrawing Life-Sustaining Treatment:

- **Definition:** Involves ending medical interventions (e.g., ventilators, feeding tubes) when they no longer benefit the patient and may prolong suffering. The goal is to allow the natural progression of the illness, focusing on comfort care instead of futile treatments.

Right to Refuse Medical Treatment:

- **Legal Basis:** The right to refuse medical treatment is upheld under common law and recognized as a fundamental right under **Article 21** (Right to life and personal liberty) of the Indian Constitution. This was affirmed in the **2018 Supreme Court decision** in *Common Cause vs Union of India*.

- **Patient Autonomy:** Patients have the right to refuse life-sustaining treatments even if it may lead to death.

Process for Withholding or Withdrawing Life Support:

1. **Patient Consent:** If a patient has decision-making capacity, they can refuse treatment.

2. **Advance Directives (Living Wills):** Patients may outline their wishes regarding future medical care in a living will if they lose decision-making capacity.

3. **For Patients Without Capacity or Living Will:** If a patient cannot make decisions and lacks a living will, the treating physician may recommend withholding or withdrawing treatment if recovery is unlikely and further intervention would prolong suffering.

Euthanasia:

- **Definition:** Euthanasia refers to intentionally ending the life of a terminally ill patient by a doctor to relieve suffering.

- **Passive Euthanasia Misconception:** Often equated with withholding or withdrawing life-sustaining treatment, passive euthanasia has caused misunderstandings about the right to die with dignity.

Do-Not-Attempt-Resuscitation (DNAR) Orders:

- **Explanation:** DNAR orders indicate that resuscitation efforts will not be attempted, decided upon in consultation with the patient or family. It does not mean that other medical treatments will stop.

Living Will:

- **Purpose:** A living will allows individuals aged 18 or older to specify their medical care preferences should they lose decision-making capacity.

- **Requirements:** It must name at least two trusted surrogate decision-makers and be signed before an executor, two witnesses, and attested by a notary or gazetted officer.

Medical Procedure for Withholding or Withdrawing Life-Sustaining Treatment

The Supreme Court's guidelines outline a structured procedure involving the following:

1. **Primary Medical Board Assessment:**

   o Composed of the treating doctor and two subject-matter experts with at least five years of experience.

   o This board assesses the patient's condition and determines the appropriateness of stopping life-sustaining treatment.

2. **Secondary Medical Board Review:** A separate board reviews the Primary Board's decision, comprising a registered medical practitioner appointed by the district Chief Medical Officer and two experienced subject-matter experts.

3. **Consent from Family or Surrogate Decision-Makers:** Consent is required from the patient's nominated representatives in an advance directive or surrogate decision-makers before withholding or withdrawing treatment.

4. **Judicial Notification:** Hospitals must notify the local judicial magistrate about the decision to withdraw treatment.

5. **Shared Decision-Making:** This process promotes collaboration between the medical team and the patient's family or surrogates, ensuring that treatment decisions are made collectively, respecting patient autonomy and ethical standards.

Conclusion : The Supreme Court's guidelines and the draft from the Ministry of Health and Family Welfare provide a crucial framework for addressing the right to die with dignity in India. These measures aim to balance patient autonomy, ethical medical practice, and legal responsibilities in end-of-life care.