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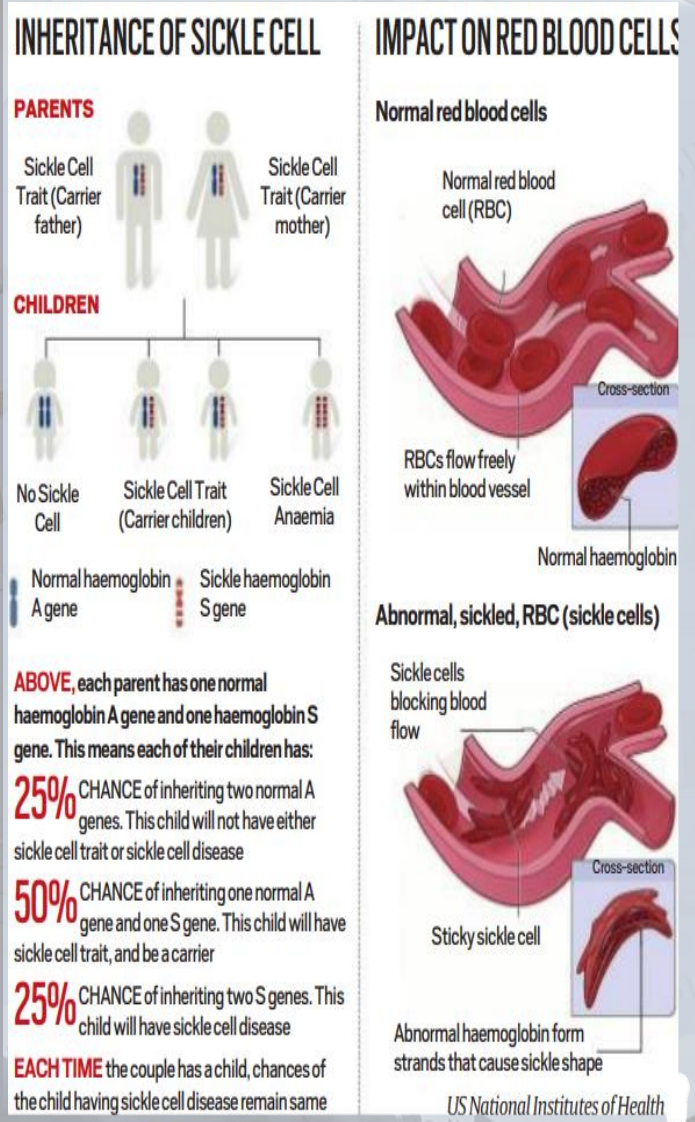


Table of Contents

1. Sickle Cell and Thalassaemia
2. Sub Categorization of SCs
3. GDPIR
4. Global Diversity Framework Fund
5. Avian Influenza
6. SURYA KIRAN - XVII
7. MOU on Semiconductor
8. Lachit Borphukan
9. APEDA
10. Rare Disease

SICKLE CELL AND THALASSAEMIA

(Syllabus: GS Paper 3 – Sci and Tech)



Context: Recently, the **UK drug regulator granted approval for a gene therapy** designed to **treat sickle cell disease and thalassaemia**, marking a significant breakthrough in medical advancements.

- **This is the first licensed therapy in the world** based on the gene editing technology Crispr-Cas9 which earned its innovators a Nobel Prize in 2020.

How does the therapy work?

- Both **sickle cell disease and thalassaemia are caused by errors in the gene** for hemoglobin, a protein in the red blood cells that carry oxygen to organs and tissues.
- The **therapy uses the patient's own blood stem cells,** which are precisely edited using Crispr-Cas9.
- A gene called **BCL11A**, which is crucial for switching from foetal to adult hemoglobin, is targeted by the therapy.
- **Foetal haemoglobin, which is naturally present in everyone at birth**, does not carry the same abnormalities as adult hemoglobin. The therapy uses the body's own mechanisms to start producing more of this foetal hemoglobin, alleviating the symptoms of the two conditions.

Sickle Cell Anaemia

- **About**: It is one of a **group of inherited disorders** known as sickle cell disease.
- **Cause**: It is caused by a **change in the gene** that tells the body to make the iron-rich compound in red blood cells **called haemoglobin**.
- **Symptoms**: Extreme tiredness or irritability due to anaemia, painful swelling of hands and feet, and jaundice in the early stages.
- **Treatment**: Blood transfusions alleviate anaemia and lower pain crisis risk.

Thalassemia

- **About**: Thalassemia is an inherited blood disorder caused when the body doesn't make enough of a protein called hemoglobin, an important part of red blood cells.
- **India also has the largest number of children with thalassemia** major in the world.

THE HINDU

Page 5

SUB CATEGORIZATION OF SCs

Syllabus GS Paper 2 - Polity)

PM sets in motion process for Madiga sub-categorisation

Committee to look into the long-pending demand of the Madiga community that makes up around 50% of the Scheduled Castes in Telangana; move comes just days ahead of the Assembly election

Nistula Hebbar
NEW DELHI

Days ahead of the Assembly election in Telangana, Prime Minister Narendra Modi on Friday set in motion the process of setting up a committee that will go into the issue of sub-categorisation of the Madiga community within the Scheduled Castes, a long-pending demand.

No details given

Government sources said Mr. Modi met with Cabinet Secretary Rajiv Gauba and other officials for this purpose. No other detail was provided on the timeline of the setting up of the committee.

At a programme organised by community leader Manda Krishna Madiga on November 11, Mr. Modi promised that his government was committed to providing sub-categorisation to the Madigas.

"From today, Manda Krishna, founder of the Madiga Reservation Porata Samithi is my leader in the movement to end the decades of injustice being done to the community. I will be on his side till you all get justice," Mr. Modi said at the rally.

The Madiga community constitutes at least 50% of the total Scheduled Castes in Telangana. The 2011 census puts the total SCs at a little over 15% of the population of the State.

For years, the Madiga community has said that the benefits of reservation under the SC category have been cornered by the Mala community, with the Madigas being left out.



Support base: Prime Minister Narendra Modi with Madiga leader Manda Krishna Madiga in Hyderabad recently. NAGARA GOPAL

Struggle since 1994

The Madigas have been struggling since 1994 for sub-categorisation, and Mr. Modi's announcement was considered an important step.

BJP sources had told *The Hindu* the party was completely in favour of the move as it would help consolidate the support of the "three Ms" – Madiga, Mudiraju and Munnur Kapu communities – in the run-up to the 2024 Lok Sabha poll if not the Assembly election.

Context: Recently, the **Prime Minister of India initiated the establishment of a committee** to examine the longstanding demand for **sub-categorization within the Scheduled Castes**, specifically **focusing on the Madiga community**.

Background

- **Historical Struggle**: The Madiga community initiated the quest for sub-categorization in 1994 through the Madiga Dandora movement.
- **Persistent Advocacy (MRPS)**: Over the years, the movement continued with the formation of the Madiga Reservation Porata Samiti (MRPS) to advocate for sub-categorization.
- **Commission Inquiries**: In 1996, Justice P. Ramachandra Raju led a commission to examine the demands of sub-categorization put forth by the Madiga community.

Madiga Community

- **About:** Madiga is a Telugu caste from southern India.
- **Majority**: They mainly live in the states of Andhra Pradesh, Telangana and Karnataka, with a small minority in Tamil Nadu.
- **Occupation**: Work of tannery, leatherwork and small handicrafts.
- **Population**: The Madiga community constitutes at **least 50% of the total Scheduled Castes** in Telangana.

Sub-Categorisation of Scheduled Caste

- **Under-representation among SCs**: States argue that certain Scheduled Castes (SCs) remain under-represented despite existing reservation policies.
- **Highlight in Reports**: Many reports underline the inequality within the SCs, drawing attention to the need for addressing the disparities.
- **Special Quotas**: To address the under-representation, special quotas have been framed and implemented in various states.
- **Initiatives in Specific States**: Andhra Pradesh, Punjab, Tamil Nadu, and Bihar have introduced special quotas specifically targeting the most vulnerable Dalits.

PIB Nov 23

GDPIR
(Syllabus: GS Paper 2 – Governance)

Prime Minister announces completion of Global Digital Public Infrastructure Repository and creation of a Social Impact Fund to advance Digital Public Infrastructure in Global South

Context: Recently, Prime Minister of India unveiled two India-led ventures at the Virtual G20 Leaders' Summit: **the Global Digital Public Infrastructure Repository** and a **Social Impact Fund**, propelling Digital Public Infrastructure in the Global South.

Global Digital Public Infrastructure Repository (GDPIR)

- **About:** Digital public infrastructure (DPI) is a digital network that enables countries to safely and efficiently deliver economic opportunities and social services to all residents.
  - The GDPIR is an initiative spearheaded by the Ministry of Electronics and Information Technology (MeitY).
- **Resource Hub Overview**: Functioning as a hub, GDPIR consolidates valuable insights and expertise from G20 members and guest nations.
- **Bridging Knowledge Gaps**: The primary goal of GDPIR is to address the knowledge gap related to choices and methodologies crucial for the development, implementation, and governance of Digital Public Infrastructures (DPIs).
- **Information Presentation**: GDPIR presents information in a standardized format, encompassing maturity scales, source codes (where available), and governance frameworks. Currently, it features 54 DPIs from 16 countries.
- **Incorporated Indian DPIs**: The GDPIR includes prominent Digital Public Infrastructures from India, such as Aadhaar, Unified Payments Interface (UPI), DigiLocker, Umang, eSanjeevani, API Setu, Co-WIN, Government e-Marketplace, Diksha, E-Hospital, Poshan Tracker, and Ayushman Bharat Digital Mission (ABDM).

Social Impact Fund

- **About:** The initiative is conceptualized as a multi-stakeholder effort led by the government, aimed at expediting the implementation of Digital Public Infrastructures (DPIs) in the global south.
- **Fund Purpose**: The fund is designed to provide financial support, offering both technical and non-technical assistance, to countries involved in the development of DPI systems.

DTE Nov 24

GLOBAL DIVERSITY FRAMEWORK FUND
(Syllabus: GS Paper 3 – Env and Eco)

Can the Global Biodiversity Framework Fund make a difference?

Context: Recently, **countries took a significant step in addressing the longstanding financial challenges in biodiversity conservation** by **establishing the Global Biodiversity Framework Fund (GBFF)**, marking almost 30 years since the 1992 Rio Earth Summit.

- It **will help countries achieve the 23 targets** set under the **Kunming-Montreal Global Biodiversity Framework (KMGBF)**.

Global Biodiversity Framework Fund

- **About**: The fund was established at the 7th Assembly of the Global Environment Facility (an agency set up in 1991 for protecting the environment) in Vancouver, Canada.
- **Aim:** To finance the implementation of the Kunming-Montreal Global Biodiversity Framework.
- **Funding**: This fund is crucial as nearly 50% of its resources will be allocated to biodiversity-related work during the GEF-8 period.
- **20% will be allocated to Indigenous Peoples** and local communities (IPLCs**), 25% to GEF agencies**, **36% to SIDS** (Small Island Developing States), and 3% to LDCs (Least Developed Countries).
- **Purpose:** To **mobilize and expedite investments in the preservation and sustainability of wildlife and ecosystems** facing threats such as wildfires, flooding, extreme weather, and human activities like urban sprawl that jeopardize their well-being.

Kunming-Montreal Global Biodiversity Framework (KMGBF)

- **Adoption of the KMGBF**: The 15th Conference of Parties (COP15) to the UN Convention on Biological Diversity adopted the "Kunming-Montreal Global Biodiversity Framework" (GBF).
- **Four Goals & 23 Targets**: The GBF comprises four overarching goals and 23 specific targets to be achieved by 2030.
- **Location**: COP15 took place in Montreal, Canada.
- **Protecting 30% of the Planet**: Through the KMGBF, participating countries committed to safeguarding 30 percent of the planet's biodiversity by 2030.
- **Ecosystem Restoration**: Countries vowed to attain the 23 GBF targets aimed at reversing ecosystem degradation, and securing the survival of the natural world.

LIVEMINT Nov 24

AVIAN INFLUENZA

(Syllabus: GS Paper 3 – Sci and Tech)

Monitoring respiratory illness outbreak in China but risks low for India: Govt

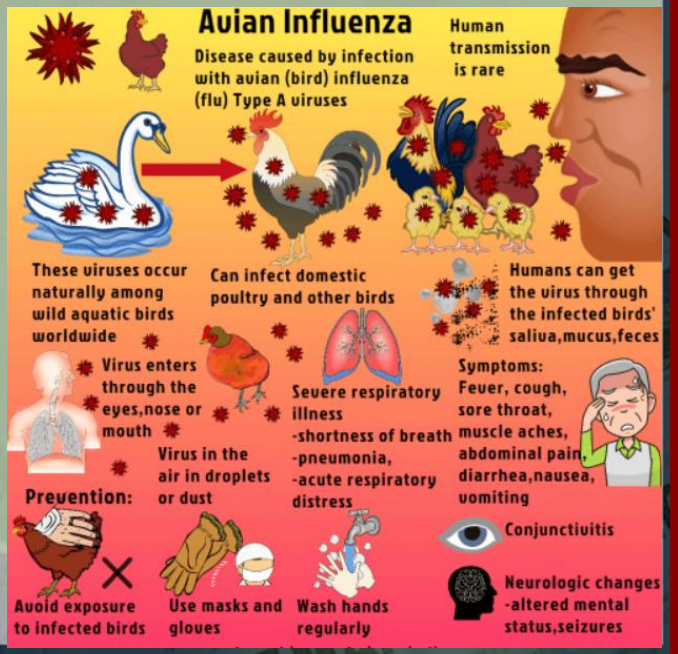
Context: Recently, the **Union health ministry of India stated that it is closely monitoring** the **reported outbreak of human cases of avian influenza virus (H9N2)** and **clusters of respiratory illness in children in northern China**, assuring that there is a **low risk to India from both situations**.

Avian Influenza

- **About**: Influenza A viruses can be categorized into avian influenza (commonly known as bird flu) and swine influenza (often referred to as swine flu0), depending on their origin host.
  - These viruses are distinct from human influenza viruses and do not readily spread among humans.
- **Classification:** The terms "H" and "N" in the names of flu viruses represent hemagglutinin and neuraminidase, two proteins found on the virus's surface that facilitate its entry into and exit from host cells.
- **Initial Components:** Hemagglutinin and neuraminidase.
- **Primary Reservoir**: Aquatic birds, and these birds often experience asymptomatic or mild infections.
- **Impacts:**
  - Avian Influenza **outbreaks can lead to devastating consequences** for the country, particularly the poultry industry.
  - **Farmers might experience a high level of mortality** in their flocks, with rates often around 50%.

China's Child Pneumonia Outbreak

- **About:** Pneumonia is a lung infection that affects one or both lungs resulting in the filling of air sacs (alveoli) with fluid or pus caused by bacteria and viruses.
- **Symptoms**: fever, sore throat, myalgia, fatigue, oose stool and vomiting



PIB Nov 24

SURYA KIRAN - XVII
(Syllabus: GS Paper 2 – IR)

INDIA- NEPAL JOINT MILITARY EXERCISE SURYA KIRAN- XVII COMMENCES AT PITHORAGARH

Context: Recently, a contingent of 334 personnel from the **Nepal Army arrived in India** to partake in the 17th edition of the **Joint Military Exercise SURYA KIRAN**.

Exercise SURYA KIRAN

- **About:** It is an annual army exercise between India and Nepal and conducted alternatively in the two countries.
- **Aim:** To enhance interoperability in jungle warfare, counter-terrorism operations in mountainous terrain and Humanitarian Assistance and Disaster Relief under United Nations Charter on peacekeeping operations.
- **Focus**: The exercise will focus on the employment of drones and counter-drone measures, medical training, aviation aspects and also environment conservation.
- The **exercise will provide a platform for soldiers from India and Nepal** to exchange ideas and experiences; **share best practices** and foster a deeper understanding of each other's operational procedures.
- **XVI Edition 2022**: Saljhandi, Nepal

Significance

- Exercise SURYA KIRAN signifies the strong bonds of **friendship, trust, and common cultural linkages** that exist between India and Nepal.
- It **sets the stage for a productive and fruitful engagement,** showcasing the unwavering commitment of both nations towards a broader defence cooperation.
- The exercise **aims to achieve shared security objectives and foster bilateral relations** between two friendly neighbors.

HINDUSTAN TIMES
Nov 24

MOU ON SEMICONDUCTOR

(Syllabus: GS Paper 2 – Sci and Tech)

India, EU sign MoU on semiconductors

Context: Recently, **India and the European Union inked a Memorandum** of **Understanding on semiconductors, paving the way for collaboration** in this critical technology sector ahead of the EU-India Trade and Technology Council meeting.

Semiconductor

- **About:** Semiconductors are materials with electrical conductivity between that of conductors and insulators. silicon (Si) and germanium (Ge).
- **Relation with temperature:** -Resistance decreases with increasing temperature and vice-versa.
- **Types:** - Intrinsic semiconductors are pure semiconductors, while extrinsic are doped with impurities to enhance conductivity.
- **Reason for vast applications:** -The electrical conductivity of a semiconductor device can be controlled over a wide range. Through a process known **as doping**, the properties of these materials are modified to make them exhibit both conductive and non-conductive behavior as needed.
- **Examples:** Silicon, Germanium, and Gallium arsenide.

India's Status in Semiconductor

- This **signifies India's growing emphasis on internal semiconductor production**, as well as its desire to establish a formidable presence in the global semiconductor supply chains.
- **India has become the hub for semiconductor design with nearly 2,000 chips** being designed per year.
- **Expected Consumption**: India's own consumption of semiconductors is projected to exceed $80 billion by 2026 and $110 billion by 2030.
- **Employment potential**: Generate 6 lakh employment opportunities by 2030; an exceptional semiconductor design talent pool making up to 20% of the world's semiconductor design engineers.
- **SEMICONINDIA 2023**: Organized by the India Semiconductor Mission in collaboration with industry and industry associations.

LACHIT BORPHUKAN
(Syllabus: GS Paper 1 – History)

PM Modi pays tributes to Lachit Borphukan on Lachit Diwas

Context: Recently, the **Prime Minister of India paid tributes** to **Lachit Borphukan** on Lachit Diwas.

Lachit Borphukan

- **Born Year**: 24 November 1622
- **Family:** His father Momai Tamuli Borbarua was the commander-in-chief of the Ahom army.
- Role in Ahom Kingdom: Lachit Borphukan served as a commander and councilor in the Ahom Kingdom.
- The Ahom Kingdom, enduring over 600 years, valiantly resisted multiple invasions by the Mughal Empire in present-day Assam.
- **Ahom-Mughal Conflicts**: In 1615, the Ahom Dynasty encountered its first significant clash with the Mughal Empire, which eventually led to the Mughals conquering the Ahom capital of Garhgaon in 1662.
- **Triumph at Saraighat**: During the pivotal battle of Saraighat in 1671, under the leadership of Lachit Borphukan, the Ahoms successfully repelled the Mughals, marking a turning point in the conflict.
- **Borphukan's Leadership:** Lachit Borphukan is chiefly celebrated for his leadership during the Battle of Saraighat.
- **End of Mughal Influence**: By 1682, the Ahoms, led by Borphukan, completely eradicated Mughal influence in the region, securing a lasting victory.

Battle of Saraighat

- **About**: The Battle of Saraighat was a naval battle fought in 1671 between the Mughal Empire and the Ahom Kingdom on the Brahmaputra river at Saraighat.
- It was the last battle in the last major attempt by the Mughals to extend their empire into Assam.

Ahom Kingdom

- **Establishment**: The Ahom dynasty, with a rich history spanning nearly 600 years, was first established in 1228.
- **Prosperous Kingdom**: This multi-ethnic kingdom flourished across the upper and lower Brahmaputra valley, relying on rice cultivation in its fertile lands for sustenance.
- **Conflicts with the Mughals**: Engaging in a series of conflicts with the Mughals, the Ahoms faced challenges from 1615 to 1682, spanning the reigns of Jahangir to Aurangzeb.

PIB

24th Nov

APEDA

(Syllabus: GS Paper 3 - Economy)

Agricultural and Processed Food Products Development Authority (APEDA) facilitates Cashew Exports on National Cashew Day to Bangladesh, Qatar, Malaysia and USA

Context: The Agricultural and Processed Food Products Development Authority (APEDA), an organization under the Ministry of Commerce, Government of India, played an instrumental role as an export facilitator and flagged off its Cashew Nut shipment to Bangladesh, Qatar, Malaysia and the USA to mark National Cashew Day.

Agricultural and Processed Food Products Development Authority (APEDA)

- **Established by**: Agricultural and Processed Food Products Export Development Authority Act, 1985. It came into effect from 13th February, 1986.
- **Headquarte**r: New Delhi.
- **Functions performed by APEDA:**

- Development of industries relating to the scheduled products for export,
- Registration of persons as exporters of the scheduled products,
- Fixing of standards and specifications for the scheduled products for the purpose of exports;
- Carrying out inspection of meat and meat products in slaughter houses, processing plants, storage premises, conveyances or other places,
- Improving of packaging of the Scheduled products;
- Improving of marketing of the Scheduled products outside India;
- Promotion of export-oriented production and development of the Scheduled products;
- Collection of statistics from the owners of factories or establishments engaged in the production, processing, packaging, marketing or export of the scheduled products,
- Training in various aspects of the industries connected with the scheduled products.

Composition

1. **Chairman,** appointed by the Central Government
2. The **Agricultural Marketing Advisor** to the Government of India, ex-officio;
3. **One member appointed by the Central Government** representing the NITI Aayog;
4. **Three members of Parliament** of whom two are elected by the House of People and one by the Council of States
5. **Eight members** appointed by the Central Government representing various Ministries of the Central Govt.
6. **Five members** appointed by the Central Government by rotation in the alphabetical order to represent the States and the Union Territories,
7. **Seven members appointed by the Central Govt. representing**
   - Indian Council of Agricultural Research
   - National Horticultural Board
   - National Agricultural Cooperative Marketing Federation
   - Central Food Technological Research Institute
   - Indian Institute of Packaging
   - Spices Export Promotion Council and
   - Cashew Export Promotion Council.
8. **Twelve members appointed by the Central Government representing:**
   - Fruit and Vegetable Products Industries
   - Meat, Poultry and Dairy Products Industries
   - Other Scheduled Products Industries
   - Packaging Industry
9. **Two members appointed by the Central Government from amongst specialists and scientists** in the fields of agriculture, economics and marketing of the scheduled products.

THE PRINT Nov 42

RARE DISEASE

(Syllabus: GS Paper 3 – Sci & Tech)

First 4 made-in-India drugs for rare diseases launched, 4 more in pipeline, announces govt

Context: Recently, the **Union Health Ministry of India revealed** the **launch of the first four domestically manufactured drugs for rare diseases**, significantly reducing medication costs by up to a hundred-fold.

Rare Disease

- **About**: A rare disease is defined as often debilitating lifelong disease or disorder with a prevalence of one or less per 1,000 population, according to the World Health Organization (WHO).
- **Also known as**: It is also **called Orphan Disease**.
- The Union health ministry had formulated and launched the **National Policy for Rare Diseases** March 30, 2021.
- **Type of Disease**: Mostly considered genetic, these rare diseases are typically inherited from one generation to the next.
- **Rare Disease in India**: Haemophilia, Thalassemia, Sickle cell anaemia and Primary Immuno Deficiency in children, auto-immune diseases, Lysosomal storage disorders.

National Policy for Rare Diseases (NPRD), 2021

- **About:** It provides financial assistance for a **single treatment, with a cap of Rs. 20 lakh**, introduces a crowdfunding mechanism, **establishes a registry for rare diseases,** and facilitates early detection.
- **Aim: T**o enhance emphasis on domestic research and the local manufacturing of medications.
- **Categories**
- **Group 1**: Disorders eligible for a one-time curative treatment, with financial support of up to Rs. 20 lakh provided under the Rashtriya Arogya Nidhi umbrella scheme.
- **Group 2**: Conditions necessitating long-term or lifelong treatment.
- **Group 3**: Diseases with available definitive treatment, facing challenges such as optimal patient selection for benefits, very high costs, and the requirement for lifelong therapy.
- **Rashtriya Arogya Nidhi**: It is a centrally sponsored scheme which aims at providing financial assistance to the patients who live under the poverty line.

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