



29 September, 2023

Green Revolution in India

Context: On September 28, Dr. Monkomb Sambasivan Swaminathan, the renowned agricultural scientist, breathed his last at the age of 98.

- He was often referred to as the 'Father of the Green Revolution' due to his significant contributions to transforming farming practices in India during the 1960s and '70s, which played a crucial role in achieving food security.
- Although he initially passed the civil services examination, Swaminathan's primary interest was in agriculture, leading him to pursue a career in agricultural research.
- Throughout his career, Swaminathan held various important positions related to agriculture in India and internationally, including:
 - Independent Chairman of the Food and Agricultural Organisation Council from 1981 to 1985.
 - President of the International Union for the Conservation of Nature and Natural Resources from 1984 to 1990.
 - President of the World Wide Fund for Nature (India) from 1989 to 1996.
 - Director General of the Indian Council of Agricultural Research (ICAR), among other roles.

Green Revolution

➤ Background

- In 1943, India experienced a severe food crisis known as the Bengal Famine, resulting in the death of approximately 4 million people in eastern India due to starvation.
- After gaining independence in 1947, the Indian government initially focused on expanding agricultural land, but the population was growing faster than food production.
- This situation necessitated immediate and drastic measures to increase food production, leading to the implementation of the Green Revolution.
- The Green Revolution in India marked a period when Indian agriculture transitioned into an industrial system, thanks to the adoption of modern techniques and technologies, including:
 - High-Yielding Variety (HYV) seeds
 - Tractors
 - Irrigation facilities
 - Pesticides
 - Fertilizers

➤ Course of Revolution

- The Green Revolution in India began in 1961 when the country faced the threat of famine.
- Dr. M. S. Swaminathan, the adviser to the Indian Minister of Agriculture, invited Norman Borlaug to India, marking the initiation of the Green Revolution.
- Dr. M. S. Swaminathan is recognized as the Father of the Green Revolution in India.
- Under the leadership of Prime Minister Lal Bahadur Shastri, the Green Revolution officially commenced in 1968, primarily focusing on increasing food grain production in Punjab, Haryana, and Uttar Pradesh.
- Punjab was chosen as the initial testing ground for new wheat seeds due to its dependable water supply.
- The introduction of improved wheat seeds led to a significant increase in wheat production, tripling between 1967-68 and 2003-04.
- India initiated its own Green Revolution program, involving plant breeding, irrigation development, and financial support for agrochemicals.
- Modern agricultural methods and technologies, such as high-yielding variety (HYV) seeds, tractors, irrigation systems, pesticides, and fertilizers, were adopted, transforming Indian agriculture into an industrial system.
- India also adopted IR8, a semi-dwarf rice variety developed by the International Rice Research Institute (IRRI), which increased rice production significantly when combined with specific fertilizers and irrigation.
- By 2006, India had emerged as one of the world's most successful rice producers, reflecting the success of its Green Revolution initiatives.

Global Innovation Index 2023

Context: India retains 40th rank out of 132 economies in the Global Innovation Index 2023 rankings published by the World Intellectual Property Organization.

- India ranks 40th out of 132 economies in the Global Innovation Index 2023.
- India has shown significant progress in the GII rankings, improving from 81st place in 2015.
- Innovation is considered crucial for India's resilience, aligning with the Atma Nirbhar Bharat (self-reliant India) initiative.
- Factors contributing to India's GII improvement include knowledge capital, a thriving startup ecosystem, and contributions from public and private research organizations.
- NITI Aayog has been actively working to promote policy-led innovation in various sectors.
- The GII serves as a valuable tool for governments worldwide to assess innovation-driven social and economic changes.
- A virtual India Launch of GII 2023 was hosted by NITI Aayog in partnership with CII and WIPO on September 29, 2023.

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Key Findings:

- Switzerland retains its top position as the most innovative economy for the 13th consecutive year.
- Sweden, the United States, the United Kingdom, and Singapore follow as the top innovative economies.
- Middle-income economies in the top 40 include Malaysia (36th), Bulgaria (38th), Türkiye (39th), and India (40th).
- Nine out of 26 Sub-Saharan African economies improve their rankings, with South Africa entering the top 60, Rwanda leading the low-income group, and Senegal and Nigeria making significant progress.
- In 2022, science and innovation exhibited mixed performance.
- Investment challenges resulted in a decline in innovation financing, while scientific publications increased at a slower rate.
- Government R&D budgets were expected to grow, but uncertainty lingered due to rising inflation. Conversely, corporate R&D spending notably increased.
- International patent filings stagnated, and venture capital investments sharply declined.
- Progress in information technology, health, mobility, and energy sectors continued, with strong computing power and decreasing costs for renewable energy and genome sequencing.
- Technology adoption increased, improving access to sanitation, connectivity, and electric vehicle (EV) uptake.
- Automation, including robot installations, grew.
- However, overall innovation penetration rates remained medium to low, and access to cancer treatment through radiotherapy was insufficient in many countries.
- The socioeconomic impact of innovation remained limited.
- The COVID-19 crisis disrupted labor productivity, which remained stagnant.
- Life expectancy fell for the second year, with slower growth in healthy life expectancy.
- Carbon dioxide emissions continued to rise, with no global reductions in sight, despite a lower growth rate compared to 2021.

GII and its Calculation

- The Global Innovation Index (GII) was introduced in 2007 and is published annually.
- Collaborating institutions for the GII include INSEAD, Cornell University, and the World Intellectual Property Organization (WIPO), among others.
- The GII relies on 80 indicators to assess innovation, covering diverse aspects such as education, political climate, business sophistication, and infrastructure.
- Data for the GII is collected from various sources, both objective and subjective, including the World Bank, International Telecommunication Union (ITU), and International Monetary Fund (IMF).
- The GII serves as an important reference point for governments and businesses to evaluate a country's innovation performance.
- It calculates its scores by averaging two sub-indices: the Innovation Input Index and the Innovation Output Index.
- The Innovation Input Index is composed of five pillars, while the Innovation Output Index consists of two pillars, each describing a specific facet of innovation. These pillars can contain up to five indicators each, and scores are determined using weighted averages.

Review of Maritime Transport 2023

Context: In 2023, international shipping saw a 20% increase in greenhouse gas (GHG) emissions compared to a decade ago, as reported by the UNCTAD Review of Maritime Transport 2023.

Shipping's Global Impact

- The shipping industry handles over 80% of global trade volume.
- It contributes nearly 3% of the world's total greenhouse gas emissions.

Global Maritime Shipping Trends

- In 2022, global maritime shipping volumes experienced a 0.4% drop due to COVID-19 supply chain disruptions.
- A growth of 2.4% is projected for 2023.
- Containerized trade, which declined by 3.7% in 2022, is expected to grow by 1.2% in 2023 and further by 3% from 2024 to 2028.
- Oil and gas trade volumes showed robust growth in 2022, while tanker freight rates saw a strong revival due to geopolitical events.

Challenges in Fleet Renewal

- As of January 2023, commercial ships were on average 22.2 years old.
- Over half of the world's fleet is over 15 years old.
- The uncertainty about technology and regulatory regimes poses a challenge for shipowners in renewing their fleets.
- Port terminals also face similar challenges in investment decisions.

Transition to Alternative Fuels

- Currently, 98.8% of the global fleet uses conventional fuels such as heavy fuel oil, light fuel oil, and diesel/gas oil.
- Only 1.2% use alternative fuels, primarily LNG, with lesser usage of battery/hybrid, LPG, and methanol.
- Approximately 21% of vessels on order are designed to run on alternative fuels, with LNG comprising the majority.
- In terms of active tonnage, nearly 6% of the active fleet operates on alternative fuels.

IMO's Role in Emissions Reduction

- The International Maritime Organization (IMO) set a target to achieve net-zero GHG emissions by around 2050.

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- The IMO's 2023 GHG Strategy aims to ensure the uptake of alternative zero and near-zero GHG fuels by 2030, targeting 5% to 10% of energy used in international shipping by 2030.

Need for Sustainable Marine Fuels

- Renewable ammonia and methanol fuels are more suitable for newer ships with dual-fuel engines.
- Sustainable marine fuels must achieve zero or near-zero carbon dioxide equivalent emissions throughout their life cycle.
- International regulations, led by the IMO, are essential to drive the adoption of sustainable marine fuels.
- The IMO is revising carbon intensity regulations for ships, with deadlines set for 2026 and 2027.
- Estimates suggest that decarbonizing the global fleet by 2050 could require annual investments ranging from \$8 billion to \$90 billion.

UNCTAD

- Established in 1964.
- Aims to facilitate the development-friendly integration of developing countries into the global economy.
- It is a permanent intergovernmental organization.
- Headquartered in Geneva, Switzerland.
- Key Reports Published by UNCTAD:
 - Trade and Development Report.
 - World Investment Report.
 - The Least Developed Countries Report.
 - Information and Economy Report.
 - Technology and Innovation Report.
 - Commodities and Development Report.

NEWS IN BETWEEN THE LINES

Gems and Jewellery Export Promotion Council (GJEPC)



About GJEPC:

- The Gems and Jewellery Export Promotion Council (GJEPC) is the **apex body** of the **Gem and Jewellery industry in India**.
- It is **sponsored by the Ministry of Commerce & Industry**, Government of India.
- It provides market information to its members, including **foreign trade inquiries, trade regulations, import duty rates** and updates on **jewellery fairs and exhibitions**.

Headquarters: Mumbai, Maharashtra.

- It facilitates cooperation in the supply of **rough diamonds, coloured gemstones** and **finished jewellery**.

About Rough Diamonds:

- Rough diamonds are diamonds in their natural state, **untouched** after extraction from the earth, before they undergo cutting and polishing to become finished **gemstones**.

Kimberley Process (KP):

- The Kimberley Process (KP) is a **multilateral trade regime established in 2003** to prevent the trade in conflict diamonds.
- It includes the **Kimberley Process Certification Scheme (KPCS)**, ensuring that rough diamonds are certified as "**conflict-free**."

Dengue Prevention and Management



Dengue Outbreak in India: Dengue is prevalent in India, with recent data reporting **94,198 cases** and **91 deaths**.

Acute Viremic Phase: The first three days of dengue are characterized by **continuous fever, severe headaches, muscle pain** and a **rash**.

Symptoms: **High fever, nausea, vomiting, rash, aches** and laboratory-confirmed dengue are key indicators.

Warning Signs: Severe **abdominal pain, persistent vomiting, fluid accumulation, bleeding**, and **low platelet count** are severe dengue warning signs.

Pediatric Considerations: Parents should watch for symptoms in children, including reduced **appetite, abdominal pain, bleeding**, and **dizziness**.

Discharge Criteria: Patients can be discharged when **fever-free for 24 hours**, improved **appetite, stable hematology** and **rising platelet counts**.

Preventive Measures: Prevent dengue by wearing **full-sleeved clothing, using nets, repellents** and **eliminating mosquito breeding sites**.

Medication Caution: Avoid **antibiotics, steroids, NSAIDs** and **injections**, as they can worsen dengue.

Manis Mysteria



About Manis Mysteria:

- Manis Mysteria" is a newly discovered **pangolin species**.
- It was identified through a detailed study of scales seized in **China's Yunnan province in 2015 and 2019**.
- This newly identified pangolin species is believed to have diverged from its **Philippine and Malayan** relatives approximately **five million years ago**.

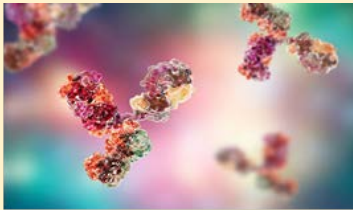

About Pangolin:

- Pangolins are **mammals** known for their distinctive appearance, including **protective scales**.
- They are often referred to as "**scaly anteaters**" due to their characteristic scales and their diet, primarily consisting of ants and termites.

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	<ul style="list-style-type: none"> Pangolins have armor-like scales covering their bodies, made of keratin, similar to human hair and nails. <p>Conservation Status: All pangolin species, including "Manis Mysteria," are listed on the International Union for Conservation of Nature (IUCN) Red List of Threatened Species.</p> <p>Indian Pangolin Status: The Indian pangolin, also known as the thick-tailed pangolin, is classified as Endangered under the IUCN Red List.</p>
<p>Monoclonal Antibodies</p> 	<p>About Monoclonal Antibodies:</p> <ul style="list-style-type: none"> Monoclonal antibodies are laboratory-made proteins designed to mimic natural antibodies produced by the immune system. They attach specifically to antigens (foreign substances), aiding the immune system in targeting and eliminating them. They are produced using recombinant DNA technology, allowing for large-scale manufacturing. Monoclonal antibodies have various therapeutic applications, including treating infectious diseases and cancers. Niels K. Jerne, Georges J.F. Köhler, and César Milstein received the Nobel Prize in Medicine in 1984 for their work on monoclonal antibody production. <p>About m102.4:</p> <ul style="list-style-type: none"> It is a fully human monoclonal antibody that neutralizes Hendra and Nipah viruses. It has passed phase-one clinical trials and is used on a compassionate use basis.
<p>Place in News</p> <p>Maldives</p>	<p>Recently, the Maldives held its first-round presidential election on September 9, where none of the candidates managed to secure more than 50% of the votes.</p> <p>Maldives (Capital: Male)</p> <p>Geographical Location:</p> <ul style="list-style-type: none"> The Maldives is located in the Indian Ocean, southwest of Sri Lanka and India. It comprises nearly 1,200 islands, most of which are uninhabited. <p>Geographical Features:</p> <p>Coral Atolls:</p> <ul style="list-style-type: none"> The Maldives is characterized by a chain of 26 coral atolls, each comprising numerous coral islands. These atolls are ring-shaped coral reefs enclosing lagoons. <p>Coral Reefs: The Maldives is famous for its extensive coral reefs, hosting diverse marine life, including colorful corals, fish species and other aquatic organisms.</p> <p>Highest Point: The highest natural point is approximately 2.4 meters (7 feet 10 inches) above sea level, while some sources mention Mount Villingili as 5.1 meters (17 feet).</p> <p>Political History: The Maldives has experienced political instability since the electoral defeat of long-serving President Maumoon Abdul Gayoom in 2008.</p> 
<p>Personality in News</p> <p>M. S. Swaminathan</p>	<p>Mankombu Sambasivan Swaminathan (7 August 1925 – 28 September 2023)</p> <ul style="list-style-type: none"> He was born in Kumbakonam, Madras Presidency (now in Tamil Nadu, India). M.S. Swaminathan is hailed as the "Father of India's Green Revolution." <p>Contributions:</p> <ul style="list-style-type: none"> Swaminathan, along with Norman Borlaug, played a pivotal role in initiating the Green Revolution in India during the 1960s. Appointed Member (Agriculture, Rural Development, Science, and Education) in the Union Planning Commission. Headed the International Rice Research Institute (IRRI) in the Philippines from 1982 to 1988. Established the M.S. Swaminathan Research Foundation (MSSRF) in 1988. Led the National Commission on Farmers (Swaminathan Commission), advocating for minimum support prices 50% above the cost of production. <p>Awards and Honors:</p> <ul style="list-style-type: none"> Awarded the Padma Shri in 1967. Received the Ramon Magsaysay award for community leadership in 1971. Honored with the Padma Bhushan in January 1972. Received the World Food Prize in 1987. Awarded Padma Vibhushan in 1989. First recipient of the World Agriculture Prize in 2018. Albert Einstein World Science Award (1986). 

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POINTS TO PONDER

- ❖ **Who became the Chief Justice of the United States in 2005, nominated by President George W. Bush?** - John G. Roberts Jr.
- ❖ **Which Sea separates the two countries that established diplomatic relations in 1972, despite strained ties?** - The Arabian Sea, India and Pakistan
- ❖ **Who was the Calcutta-based industrialist behind the planetarium that began operating in 1962 and was named after him?** - Ghanshyam Das Birla
- ❖ **What was the theme for World Heart Day last year, before "Use Heart, Know Heart"?** - "Use Heart to Beat Cardiovascular Disease"
- ❖ **Who was the first Asian woman to successfully swim across the English Channel on this day (September 29, 1959)?** - Arati Saha

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