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GS 2 : Polity, Governance, International Relations

1. NITI : Over 50% of Bihar population multidimensionally poor

Over 50% of Bihar's population is classified as multidimensionally poor, according to the government think tank NITI Aayog's Multidimensional Poverty Index (MPI).

Details:

National Multidimensional Poverty Index (MPI) Report on Bihar:

- In Bihar, 50% of the population was classified as “multidimensionally poor.”
- Among all the States and Union Territories, Bihar has the highest percentage of people living in poverty.
- Bihar has the highest poverty rate at 51.91 percent, followed by Jharkhand (42.16 percent), Uttar Pradesh (37.79 percent), Madhya Pradesh (36.65 percent), and Meghalaya (32.67 percent).

Other States

- Kerala has the lowest rate of poverty (0.71 percent), followed by Puducherry (1.72 percent), Lakshadweep (1.82 percent), Goa (3.76 percent), and Sikkim (3.82 percent).
- Tamil Nadu (4.89 percent), Andaman & Nicobar Islands (4.30 percent), Delhi (4.79 percent), Punjab (5.59 percent), Himachal Pradesh (7.62 percent), and Mizoram (9.8%) are among the states and union territories where fewer than 10% of the population is impoverished.

Additional Information

National Multidimensional Poverty Index

- A national Multidimensional Poverty Index is a poverty metric that is adapted to each country's specific circumstances.
- Niti Aayog, an Indian think tank, produces the National Multidimensional Poverty Index (MPI).
- The Oxford Poverty and Human Development Initiative (OPHI) and the United Nations Development Programme (UNDP) created rigorous methods for it.

What is multidimensional poverty?

- Multidimensional poverty refers to the multiple deprivations that poor people face on a daily basis, such as poor health, a lack of education, insufficient living standards, disempowerment, low employment quality, the fear of violence, and living in ecologically hazardous places, to name a few.
- In order to formulate policies aiming at alleviating poverty and hardship in a nation, a multidimensional measure of poverty might include a variety of indicators that represent the complexity of this phenomenon.

2. Won't add to vaccine hesitancy: SC

Recently, the Supreme Court made it clear that it will not do anything to bring on COVID-19 vaccine hesitancy.

Details:

Vaccine Hesitancy

- Vaccine hesitation is defined by the World Health Organization (WHO) as “a delay in accepting or refusing immunisation notwithstanding the availability of vaccination services.”
- Aspects of vaccination hesitancy:
 - Despite the availability of vaccination services, there is a delay in accepting, or refusing immunizations.
 - Is complicated and context-dependent, shifting according to time, place, and vaccination.
 - Complacency, convenience, and confidence are all elements that impact this.

Vaccine Hesitancy Challenge For India

- Vaccine hesitancy has hampered a number of government programmes, including polio eradication, even before the Covid epidemic.
- For a number of causes, including a lack of health knowledge, it has been more frequent in rural regions.
- In India, misdirected scepticism and false information regarding vaccinations pose a significant threat to the pandemic's abolition and achievement of herd immunity.

- Due to a lack of information, a bigger share of the populace remains concerned about them.
- High vaccine hesitancy is fueled by a lack of trust in the safety and efficacy of newly developed vaccines, fear of side effects, rumours about infertility and death after receiving the vaccine, as well as the inconvenience of registration/booking slots, low-risk perception from Covid-19, and the absence of incentives for rural and urban poor, among other factors.

Solutions to Overcome Vaccine Hesitancy in India:

1. **Need for Targeted Strategy:** A targeted strategy focused on the needs and concerns of people, groups, and communities will be necessary to overcome Covid-19 vaccine hesitancy.
2. **Providing incentives and timely information:**
 1. Local influencers, religious leaders, traditional healers, local NGOs, local physicians, panchayat heads, and others may play a role in increasing vaccination adoption.
 2. Vaccination sites might be set up in locations that people trust, such as temples and mosques, Election Commission offices, and so on.
3. **Raising Awareness through campaigns:** There should be public campaigns like “I am pleased to be vaccinated” which can raise awareness and generate momentum for vaccines in low-uptake areas.
4. **Increasing Vaccination through Nationalism:** Indelible ink, which is commonly used in elections, can be put to the fingertips of those who have been vaccinated. A programme like this may instil a sense of nationalism and inspire participation.
5. **Compensating for Vaccination:**
 1. Small incentives (1 kg rice and pulses, 1 litre cooking oil, etc.) can be given to compensate people for the time and money they spend getting the vaccine.
 2. Given that a large portion of the rural population works as daily wagers and is concerned about missing a day’s pay as a result of vaccination, employees may be paid a one-day MGNREGA payment in exchange for getting the injection.
6. **Behavioural Change:** The behaviour innovations such as announcing prize money (lucky draw) among those vaccinated in selected low-uptake centres can help to increase vaccination rates.

3. A close reading of the NFHS-5, the health of India

Recently, key results from the second phase of the fifth round of the National Family Health Survey (NFHS-5) were released.

National Family Health Survey (NFHS-5):

- The National Family Health Survey (NFHS) is a multi-round, large-scale survey that is undertaken in a representative sample of Indian households.
- NFHS-5 surveys have been conducted under the stewardship of the Ministry of Health and Family Welfare (MoHFW), Government of India.
- The National Family Health Survey (NFHS-5) for 2019-20, the fifth in the series, collects data on India's population, health, and nutrition for each state and union territory.

The key results from National Family Health Survey (NFHS-5) Phase 2

1. The Total Fertility Rates (TFR) declined from 2.2 to 2.0 at the national level and all 14 States/UTs ranging from 1.4 in Chandigarh to 2.4 in Uttar Pradesh.
2. Overall Contraceptive Prevalence Rate (CPR) has increased substantially from 54% to 67% at the all-India level.
3. Unmet needs of family planning have witnessed a significant decline from 13 per cent to 9 per cent at the all-India level and in most of the Phase-II States/UTs.
4. Full immunization drive among children aged 12-23 months has recorded a substantial improvement from 62 per cent to 76 per cent at the all-India level.
5. Institutional births have increased substantially from 79 per cent to 89 percent at the all-India level.
6. More than half of the children and women (including pregnant women) are anaemic in all the phase-II States/UTs.
7. Child nutrition indicators portrayed a marginal improvement at the all-India level.

Critical Evaluation of NFHS-5 Findings:

A. Population has stabilised

- A comparison of NFHS-5 and NFHS-4 shows improvements in a variety of areas, including educational attainment, institutional births, immunizations, infant mortality, and much more.

- The most encouraging finding from NHFS-5 is that the total fertility rate (TFR) has been steadily declining over time, and is presently barely below the replacement rate of 2.1.
- This is true in all of India's states. This indicates that the entire population has reached a point of stability.

B. Data on sex ratio

- For the first time, there are 1,020 adult women for every 1,000 males.
- The natural Sex Ratio At Birth (SRB) is 105 males to 100 girls, with a 50-50 adult sex ratio commonly stabilising.
- Uttar Pradesh, Haryana, Punjab, Rajasthan, Bihar, Delhi, Jharkhand, Andhra Pradesh, Tamil Nadu, Odisha, and Maharashtra are among the states having low SRBs.
- A portion of this imbalance would persist over into adulthood if there were widespread sex-selective abortions.
- However, several causes other than sex-selective abortions influence the adult sex ratio.
- The adult sex ratio in household surveys may also be influenced by problems, such as undercounting migrant males.

C. Anaemia

- The incidence of anaemia in children under the age of five (from 58.6 to 67 percent), women (53.1 to 57 percent), and men (22.7 to 25 percent) has increased in all Indian states.
- All Indian states are in the "severe" category, ranging from 39.4 percent in Kerala to 79.7 percent in Gujarat.

Malnutrition

- Stunting (low height-for-age), wasting (low weight-for-height), and underweight (low weight-for-age) are the three signs of malnutrition that have improved generally.
- These factors all point to chronic or recurring malnutrition, which is often linked to poverty, poor maternal health and nutrition, frequent sickness, and/or unsuitable early feeding and care.
- Children are unable to realize their full physical and cognitive potential as a result of these factors.
- In addition to anthropometric parameters, micronutrient deficiencies, or a lack of vitamins and minerals required for biological processes such as the production of enzymes, hormones, and other substances required for growth and development, are also assessed.

Concerns With NFHS-5 Findings:

- Women's anaemia is still a major cause of worry. In every state, women suffer from anaemia at a substantially greater rate than males.
- As seen by the poor uptake of condoms and male sterilisation across states, male participation in family planning remains limited and discouraging.
- Despite the measures taken, the growth of child weddings in a number of states is concerning.
- While most states and UTs have seen a decrease in spousal violence, it has increased in five states: Sikkim, Maharashtra, Himachal Pradesh, Assam, and Karnataka.

Issues With NFHS-5 Survey:

- Based on comparisons between NHFS-4 and NHFS-5 to the improvements between the two prior rounds, some assessments have claimed that the rate of development has decreased.
- Some have claimed that COVID-19 is to blame for the bad health consequences.
- The data for the second phase of NFHS-5 were obtained during the COVID-19 pandemic's exceedingly unique conditions.
- The survey focuses on indicators of women's empowerment, autonomy, and mobility.
- It throws light on women's reproductive health, revealing, for example, that the number of caesarian deliveries has risen considerably.
- C-section deliveries account for 47.5 percent of newborns in private health institutions (14.3 percent in public health facilities).
- These findings are exceedingly unusual and bring into question the unethical actions of private health practitioners that put financial gain before women's health.

Conclusion:

The evidence is overwhelming that health should be a priority for all political parties and all levels of government, national and state. The survey reveals significant disparities in health outcomes. An action plan to enhance India's health must be comprehensive, resolute in its commitment, and well-funded.

4. Show that celebrated 200 years of Bengal art to shut down

Recently, the announcement was made to shut down the popular museum-exhibition Ghare Baire in Kolkata.

Details:

- Ghare Baire is a notable Kolkata museum exhibition that presents two centuries of Bengali art.
- The museum-exhibition opened on January 11, 2020, on BBD Bagh, popularly known as Dalhousie Square, in the refurbished Currency Building, which was established in 1833 and nearly demolished in 1996.
- The name Ghare Baire comes from the title of Rabindranath Tagore's famous work, which prompted Satyajit Ray to produce a film with the same name.
- The art museum Ghare Baire focuses on Bengali art from the 18th to the 20th century.

GS 3 : Economy, Science and Technology, Environment

5. NITI Aayog's Multidimensional Poverty Index (MPI)

The Government think-tank NITI Aayog has released the National Multidimensional Poverty Index (MPI).

Multidimensional Poverty Index (MPI)

- This baseline report of India's first-ever national MPI measure is based on the reference period of 2015-16 of the National Family Health Survey (NFHS)- 4.
- It uses the globally accepted and robust methodology developed by the Oxford Poverty and Human Development Initiative (OPHI) and the United Nations Development Programme (UNDP).
- It captures multiple and simultaneous deprivations faced by households.

Parameters used

- The NMPI is calculated using 12 indicators – nutrition, child and adolescent mortality, antenatal care, years of schooling, school attendance, cooking fuel, sanitation, drinking water, electricity, housing, assets and bank account,
- They have been grouped under three dimensions namely, health, education and standard of living.

Why NFHS-4?

- Data collected during the NFHS-4 (2015-2016) corresponds to the period before the full roll out of new governments' flagship schemes.
- Hence it serves as a useful source for measuring the situation at baseline i.e. before large-scale rollout of nationally important schemes.

How is the data used?

- The national MPI 2021 is calculated using the household microdata collected at the unit-level for the NFHS-4 that is used to derive the baseline multidimensional poverty.
- Further, the country's progress would be measured using this baseline in the NFHS-5, for which the data was collected between 2019 and 2020.
- The progress of the country with respect to this baseline will be measured using the NFHS-5 data collected in 2019-20.

Key highlights NMPI

- As per the index, 51.91% of the population in Bihar is poor, followed by Jharkhand (42.16%), Uttar Pradesh (37.79%), Madhya Pradesh (36.65%) and Meghalaya (32.67%).
- On the other hand, Kerala registered lowest population poverty levels (0.71%), followed by Puducherry (1.72%), Lakshadweep (1.82%), Goa (3.76%) and Sikkim (3.82%).
- Other States and UTs where less than 10% of the population are poor include Tamil Nadu (4.89%), Andaman & Nicobar Islands (4.30%), Delhi (4.79%), Punjab (5.59%), Himachal Pradesh (7.62%) and Mizoram (9.8%).

6. Places in news: Solomon Islands

Australia has announced sending police, troops and diplomats to the Solomon Islands to help after anti-Government demonstrators.

Solomon Islands

- Solomon Islands is a sovereign country consisting of six major islands and over 900 smaller islands in Oceania, to the east of Papua New Guinea and northwest of Vanuatu.
- Its capital, Honiara, is located on the largest island, Guadalcanal.

- The country takes its name from the Solomon Islands archipelago, which is a collection of Melanesian islands that also includes the North Solomon Islands (a part of Papua New Guinea).
- It excludes outlying islands, such as the Santa Cruz Islands and Rennell and Bellona.

7. Omicron new variant of concern

Omicron, a new coronavirus variant, was recently recognised as a “variant of concern” by the World Health Organization (WHO).

Details:

Omicron

- The number of new cases in South Africa has increased fourfold, corresponding with the introduction of the B.1.1.529 variant.
- The B.1.1.529 variant discovered in South Africa has been categorised as a SARS-CoV-2 “variant of concern” by the World Health Organization (WHO).
- This variant is named Omicron.

Additional Information:

What is Variant of Concern (VOC)?

- There is evidence of increased transmissibility, more severe sickness, and a considerable reduction in neutralisation by antibodies developed from previous infection or immunisation for this variety.
- Besides that, it might be the result of decreased treatment or vaccination efficiency, or diagnostic detection failures.

Possible Attributes Of A Variant Of Concern

- There is evidence of a negative influence on diagnoses, treatments, or immunizations.
- Evidence of a significant reduction in sensitivity to one or more therapeutic classes
- Evidence of diminished vaccine-induced protection against severe illness.
- Evidence of increased transmissibility
- Evidence of a worsening of the disease

8. Indian agriculture needs a Verghese Kurien

This editorial highlights the contribution of Verghese Kurien and the significance of the Amul Cooperative model.

Verghese Kurien

A. Who was Verghese Kurien & what were his contributions?

- Dr Verghese Kurien was a chairman of Amul, an Indian cooperative dairy company.
- He is also called ‘the father of the White Revolution’ in the country.
- Verghese Kurien is known for transforming India’s dairy’s sector; his contribution made the country the largest milk producer in the world.
- “India’s place in the sun will come from the partnership between the wisdom of its rural people and the skill of its professionals”, captures the essence of his life and mission.

B. Influence of Gandhian Thoughts:

- Kurien’s enthusiasm for the cooperative model was influenced by Gandhian ideas on poverty alleviation and social development.
- **He thought that co-operatives were the most physical incarnation of Mahatma Gandhi’s powerful insight that “what the world needs is not mass production, but production by the masses.”**
- He also questioned the business sector’s objectives in terms of social responsibility.
- He argued that profit drove much of the corporate sector, rather than public benefit.

Agriculture and Amul

A. Issues in Agricultural Sector:

- In India, the cooperative movement is in a state of change. It has suffered as a result of a lack of competent management, inadequate funding, and low technological uptake.
- Suicides among farmers are not uncommon, and they weigh hard on the nation’s conscience.
- Meanwhile, the epidemic has widened the gap between urban and rural areas.
- In rural India, incomes are decreasing, and the country appears to be on the verge of a major human disaster.

B. Significance of Amul in Agriculture:

- The success of Amul has sparked similar movements in other agricultural commodities in India.
- The private sector excels in areas such as marketing and management, branding, and technology, and sets benchmarks for firms all around the world to follow and adapt.
- Simultaneously, Amul was progressively establishing itself as a laboratory, creating important inventions and inventing its own technologies, which have bolstered its competitiveness against global firms.

C. Case Study: Amul Cooperative Model

- Amul has steadily expanded its product line and added new ones, building on the strong foundation created by its visionary leader.
- Amul is still one of India's most well-known food brands, and other dairy cooperatives such as Nandini in Karnataka, Aavin in Tamil Nadu, and Verka in Punjab look up to it for inspiration.

Conclusion

India's digital revolution has bypassed the agriculture sector. India should focus on smart villages and development models such as Amul.

THE INDIAN EXPRESS

GS 2 : Polity, Governance, International Relations

1. Key Demographic Transitions captured by 5th round of NFHS

The Union health ministry released the summary findings of the fifth round of the National Family and Health Survey (NFHS-5), conducted in two phases between 2019 and 2021.

About NFHS

- The NFHS is a large-scale, multi-round survey conducted in a representative sample of households throughout India.

- The previous four rounds of the NFHS were conducted in 1992-93, 1998-99, 2005-06 and 2015-16.
- The survey provides state and national information for India on:

Fertility, infant and child mortality, the practice of family planning, maternal and child health, reproductive health, nutrition, anaemia, utilization and quality of health and family planning services etc.

Objectives of the survey

Each successive round of the NFHS has had two specific goals:

- To provide essential data on health and family welfare needed by the Ministry of Health and Family Welfare and other agencies for policy and programme purposes
- To provide information on important emerging health and family welfare issues.

Key highlights of the NFHS-5

[1] Women outnumbering men

- NFHS-5 data shows that there were 1,020 women for 1000 men in the country in 2019-2021.
- This is the highest sex ratio for any NFHS survey as well as since the first modern synchronous census conducted in 1881.
- To be sure, in the 2005-06 NFHS, the sex ratio was 1,000 or women and men were equal in number.

[2] Fertility has decreased

- The Total Fertility Rate (TFR) has also come down below the threshold at which the population is expected to replace itself from one generation to next.
- TFR was 2 in 2019-2021, just below the replacement fertility rate of 2.1. To be sure, in rural areas, the TFR is still 2.1.
- In urban areas, TFR had gone below the replacement fertility rate in the 2015-16 NFHS itself.

[3] Population is ageing

- A decline in TFR, which implies that lower number of children are being born, also entails that India's population would become older.

- Sure enough, the survey shows that the share of under-15 population in the country has therefore further declined from 28.6% in 2015-16 to 26.5% in 2019-21.

[4] Children's nutrition has improved

- The share of stunted (low height for age), wasted (low weight for height), and underweight (low weight for age) children have all come down since the last NFHS conducted in 2015-16.
- However, the share of severely wasted children has not, nor has the share of overweight (high weight for height) or anaemic children.
- The share of overweight children has increased from 2.1% to 3.4%.

[5] Nutrition problem for adults

- For children and their mothers, there are at least government schemes such as Integrated Child Development Services (ICDS) that seek to address the nutritional needs at the time of childbirth and infancy.
- However, there is a need to address the nutritional needs of adults too.
- The survey has shown that though India might have achieved food security, 60% of Indians cannot afford nutritious diets.
- While the share of women and men with below-normal Body Mass Index (BMI) has decreased, the share of overweight and obese (those with above-normal BMI) and the share of anaemic has increased.

[6] Basic sanitation challenges

- Availability of basic amenities such as improved sanitation facilities clean fuel for cooking, or menstrual hygiene products can improve health outcomes.
- There has been an improvement on indicators for all three since the last NFHS. However, the degree of improvement might be less than claimed by the government.
- For example, only 70% population had access to an improved sanitation facility.
- While not exactly an indicator of open defecation, it means that the remaining 30% of the population has a flush or pour-flush toilet not connected to a sewer, septic tank or pit latrine.

[7] Use of clean fuel

- The share of households that use clean cooking fuel is also just 59%.

[8] Financial inclusion

- The share of women having a bank account that they themselves use has increased from 53% to 79%.
- Households' coverage by health insurance or financing scheme also has increased 1.4 times to 41%, a clear indication of the impact of the government's health insurance scheme.

2. National Courts of Appeal

Attorney General of India (AGI) K.K. Venugopal argued on the Constitution Day, for the revival of a 11-year-old proposal to set up National Courts of Appeal in four regions of the country.

Key Takeaways from AGI Statements

- **Intermediate appellate Courts:** Attorney General said four 'Courts of Appeal' with 15 judges each could act as intermediate appellate courts between the State High Courts and the Supreme Court.
- **Utility of such Courts:** They would absorb matrimonial disputes, rent control cases and such like which burden the Supreme Court, adding to pendency. The judgments of these courts of appeal would be final.
- **Increase in Judges Strength:** These courts would also mean we are adding 60 judges who would be taking over these cases. Pendency would be cut down to a very great extent.
- **Unburden Supreme Court:** Such intermediate court of appeals would unburden the Supreme Court, which could focus on interpreting constitutional questions of law, references, death sentence cases.
- **Better Jurisprudence:** Supreme Court judges could hear cases leisurely, read and write better judgments with time on their hands when their work load is decreased.
- **Chances of Rationalising SC Strength:** In fact, the Supreme Court would not need 34 judges. Just 15 would be ample. These judges of the Supreme Court could sit in three Constitution Benches.
- **Enhanced Access to Justice:** It is noted that cases remain pending in the Supreme Court for 10 years. It would have reached the Supreme Court after spending a decade each at the trial and high court levels.

GS 3 : Economy, Science and Technology, Environment

3. Production Linked Incentive (PLI) scheme for the Pharmaceutical Sector

The PLI Scheme for Pharmaceuticals is based on the strategy of “Atmanirbhar Bharat- Strategies for enhancing India’s manufacturing capabilities and enhancing exports in ten sectors”, which had been approved by the Union Cabinet.

Objectives

- To enhance India’s manufacturing capabilities by increasing investment and production in the sector and contributing to product diversification to high value goods in the pharmaceutical sector.
- To create global champions out of India who have the potential to grow in size and scale using cutting edge technology and thereby penetrate the global value chains.

About the Scheme

The Scheme is expected to bring in investment of Rs.15,000 crore in the pharmaceutical sector.

- It will be part of the umbrella scheme for the Development of the Pharmaceutical Industry.
- **Objective:** (1) To enhance India’s manufacturing capabilities by increasing investment; (2) Product diversification to include high-value goods.
- **Target Groups:** The manufacturers who are registered in India will be grouped based on their Global Manufacturing Revenue (GMR) to ensure wider applicability of the scheme
- **Quantum of Incentive:** 15,000 crores.
- **Category of Goods covered:**

1.

1. **Category 1:** Biopharmaceuticals; Complex generic drugs; Patented drugs or drugs nearing patent expiry; Cell-based or gene therapy drugs; Orphan drugs; Other drugs as approved.
2. **Category 2:** Active Pharmaceutical Ingredients, Key Starting Materials, Drug Intermediates.
3. **Category 3:** Drugs not covered under Category 1 and 2.

4. Learning from Dairy Revolution

November 26, 2021 was Verghese Kurien's 100th birth anniversary. Kurien's deep understanding of Indian farming and the trust he earned from the farming community could have helped to find a possible solution to the current crisis over farm laws.

Initial Scepticism over V. Kurien

- There was a time when Kurien seemed to be an improbable architect of a rural revolution that would eventually transform the lives of millions of farmers in Gujarat.
- There were many who saw him as an outsider to that world.
- He hailed from distant Kerala, belonged to an upper middle-class Christian family, and was educated in a western university in a subject like metallurgy which is far removed from agriculture.

Key Role Played by V. Kurien - Started White Revolution

- Despite the initial scepticism, Kurien quietly and with self-confidence, Kurien won the farmers over with his professional integrity and his vision of a central role for farmers in India's journey of development.
- It is on that foundation that Kurien went on to design his idea of Amul as a co-operative, turned it over the years into a global brand, and later **launched the White Revolution** that would make India the largest milk producing nation in the world.
- Central to Kurien's vision was the co-operative model of business development.
- He decided that Amul would grow and establish its identity neither as a public sector undertaking nor as a private corporate entity.

Why did he choose Cooperative model for dairy sector?

- The co-operative model, he felt, was in the best interests of Gujarat's milk producers.
- He had reservations about the social objectives of the private sector. Much of the corporate sector, he felt, was led more by a profit motive than by public good
- Kurien had a deep distrust over Public Sector model and Indian bureaucracy. He saw it as a leftover of the colonial mindset and the product of a western lifestyle.

- Kurien's fascination for the co-operative model was also influenced by **Gandhian thinking on poverty alleviation** and social transformation.
- He viewed co-operatives as the closest embodiment of Mahatma Gandhi's powerful insight that "what the world needs is not mass production, but **production by the masses**".

Did he completely reject Corporate model?

- Notwithstanding his reservations, he did borrow from the ideas and the practices of the corporate world.
- In areas such as innovations in **marketing and management**, branding and technology, the private sector excels and sets benchmarks for businesses across the world to follow and adopt.
- At the same time, Amul was **steadily emerging as a laboratory (priority to innovation)**, developing significant innovations and evolving technologies of its own, and these have strengthened its competitive power against multinational corporations.
- Its biggest success came when under the leadership of H.M. Dalaya, a distinguished dairy engineer, Amul achieved a breakthrough in converting buffalo milk into skim milk powder and condensed milk. It was one single innovation that gave Amul a distinct competitive advantage and profoundly changed the lives of milk producers in Gujarat and beyond.

Two questions are central to evaluating Verghese Kurien's legacy and his contributions to India's growth story.

One, how has Amul performed in the years after its iconic founder left the world in 2012?

- Amul has grown steadily on the strong foundation laid by its visionary leader, diversifying its product range and adding new ones.
- Amul continues to remain one of **India's best-known food brands**.
- It is an **inspiration to other dairy cooperatives** such as Nandini in Karnataka, Aavin in Tamil Nadu and Verka in Punjab.

Second, how far has the cooperative movement in general met its professed objective of an economic transformation at the grass-roots level.

- Sadly, Amul's success has not been the catalyst for similar movements across other agricultural commodities in India. For millions of farmers, life is still a struggle for survival.
- India's digital revolution has bypassed the agriculture sector. India talks about smart cities, not smart villages, nor even liveable villages.

- The **cooperative movement in India** has suffered due to lack of professional management, adequate finance and poor adoption of technology.

Conclusion

This is truly a moment to reflect on Verghese Kurien's remarkable legacy and the unfinished task he has left behind.

5. The hunt for coronavirus variants

Since early in the COVID pandemic, the Network for Genomics Surveillance in South Africa has been monitoring changes in SARS-CoV-2. This was a valuable tool to understand better how the virus spread. In late 2020, the network detected a new virus lineage, 501Y.V2, which later became known as the beta variant. Now a new SARS-CoV-2 variant has been identified, known as **B.1.1.529**.

The science behind the search

- Hunting for variants requires a concerted effort. South Africa and the UK were the first big countries to implement nationwide genomic surveillance efforts for SARS-CoV-2 as early as April 2020.
- Variant hunting, as exciting as that sounds, is performed through **whole genome sequencing of samples** that have tested positive for the virus. This process involves checking every sequence obtained for differences compared to what we know is circulating in South Africa and the world. When they see multiple differences, this immediately raises a red flag and they investigate further to confirm what they've noticed.
- The beta variant spread much more efficiently between people compared to the "wild type" or "ancestral" SARS-CoV-2 and caused South Africa's second pandemic wave. It was therefore classified as a variant of concern. During 2021, yet another variant of concern called delta spread over much of the world, including South Africa, where it caused a third pandemic wave.
- Very recently, routine sequencing by Network for Genomics Surveillance member laboratories detected a new virus lineage, called **B.1.1.529**, in South Africa. Seventy-seven samples collected in mid-November 2021 in Gauteng province had this virus. It has also been reported in small numbers from neighbouring Botswana and Hong Kong. The Hong Kong case is reportedly a traveller from South Africa.

Whether B.1.1.529 will be classified as a variant of interest or of concern, like beta and delta, has not been decided by the World Health Organization yet.

Why is this variant worrying?

We still do not know but B.1.1.529 carries certain mutations that are concerning.

- They have not been observed in this combination before and the spike protein alone has over 30 mutations. This is important, because the **spike protein** is what makes up most of the vaccines.
- B.1.1.529 has a genetic profile very different from other circulating variants of interest and concern. It does not seem to be a “daughter of delta” or “grandson of beta” but rather represents **a new lineage of SARS-CoV-2**.
- Some of its genetic changes are known from other variants and we know they can affect transmissibility or allow immune evasion, but many are new and have not been studied as yet. While we can make some predictions, we are still studying how far the mutations will influence its behaviour.

Do early indications point to this variant causing different symptoms or more severe disease?

- There is no evidence for any clinical differences yet. What is known is that cases of B.1.1.529 infection have increased rapidly in Gauteng, where the country’s fourth pandemic wave seems to be commencing. This suggests easy transmissibility, albeit on a background of much relaxed non-pharmaceutical interventions and low number of cases.
- COVID-19 is more likely to manifest as severe, often life-threatening disease in the elderly and chronically ill individuals. But the population groups often most exposed first to a new virus are younger, mobile and usually healthy people. If B.1.1.529 spreads further, it will take a while before its effects, in terms of disease severity, can be assessed.
- Fortunately, it seems that all diagnostic tests that have been checked so far are able to identify the new virus. Even better, it appears that some widely used commercial assays show a specific pattern
- Two of the three target genome sequences are positive but the third one is not. It’s like the new variant consistently ticks two out of three boxes in the existing test.
- This may serve as a marker for B.1.1.529, meaning we can quickly estimate the proportion of positive cases due to B.1.1.529 infection per day and per area. This is very useful for monitoring the virus’s spread almost in real time.

Are current vaccines likely to protect against the new variant?

- We do not know. The known cases include individuals who had been vaccinated. However we have learnt that the immune protection provided by

vaccination wanes over time and does not protect as much against infection but rather against severe disease and death.

- Ultimately, everything known about B.1.1.529 so far highlights that universal vaccination is still our best bet against severe COVID-19 and, together with non-pharmaceutical interventions, will go a long way towards helping the healthcare system cope during the coming wave.

6. Aatmanirbhar in Defence

To give a thrust to Aatmanirbhar Bharat in the defence sector, Prime Minister Narendra Modi, formally handed over indigenously designed and developed equipment to the Armed forces Service Chiefs.

Some Recent developments -

- HAL- designed and developed Light Combat Helicopter were handed over to the Chief of the Air Staff
- Drones and UAVs designed and developed by Indian startups were given to the Chief of the Army Staff
- DRDO designed and Bharat Electronics Limited (BEL) manufactured Advanced Electronic Warfare suite for naval ships were handed over to the Chief of Naval Staff
- Besides, the Prime Minister also laid the foundation stone of the Rs 400 crore project at Jhansi node of the UP Defence Industrial Corridor.
- In addition to Jhansi, the corridor has nodes at Agra, Aligarh, Chitrakoot, Lucknow and Kanpur.
- For the Jhansi Node, the state government has made nearly 1,034 hectares of land available. The facility will involve an investment of Rs 400 crore.

Aatmanirbharta in Defence

A strong and well-equipped military provides a country the immunity to resist attack and thwart unprovoked aggression from external sources and deal with any kind of internal disturbance. It works as a defence mechanism and reflects the country's military capability and capacity to defend itself against the hostile countries.

Equipping the military with the latest technology and modernising the existing inventory of weapons and surveillance systems is therefore crucial for any country. India too needs to build a strong military force armed with all types of technologically advanced defence equipment to strengthen its security and intelligence and to secure its territorial integrity.

To maintain its regional autonomy:

- India needs to assert its presence and sovereignty over the border regions and for that, it needs to have modernised defence products and strategic autonomy over such defence products.
- This strategic autonomy can be achieved by having a self-reliant defence industry which would ultimately strengthen the Indian economy as well.
- It is the need of the hour to increase the indigenous defence production to meet the requirements of the armed forces along with putting lesser burden on the exchequer.

To create a robust security framework:

- India requires an overhaul of its defence products to meet the current requisites of modern warfare.
- India needs to strengthen its surveillance system which requires inducting of modernised radars and drones so that suspicious activities and trespassing at the border areas could be detected at the earliest.
- India also needs to understand that it cannot always depend on the emergency purchases of defence equipment during the times of crises, which has been seen during the recent border clashes with Chinese troops and the rising tension along the northern borders.
- This has forced accelerated domestic and foreign purchase of weapons, however relying on the imports for emergency purchases leads to excessive spending.

Promoting investments in R&D and production in the defence sector

- Will prove to be significant in enhancing the manufacturing of defence products and in creating employment opportunities.
- Will reduce dependency on imports which will lead to a reduction in the foreign exchange expenditure and enhance the level of operational preparedness considerably.
- Domestic manufacturing will promote the growth of many ancillary industries within the country and at the same time, it will generate a lot of revenue by exporting defence products to other countries.
- Restructuring of approximately 200-year-old Ordnance Factory Board into seven State-owned corporate entities in line with the vision of Aatmanirbhar Bharat would not only increase competitiveness, but will also improve quality, cost-efficiency while ensuring self-reliance in the defence sector. This will help in reducing the trade deficit as well.
- Defence Acquisition Procedure, DAP-2020 has aimed to bring into line and support the Aatmanirbhar Bharat Abhiyan by focusing on self-reliance by

boosting domestic manufacturing and encouraging private sector involvement.

The Way Forward

1. A time-bound defence procurement process through
 1. Overhauling trial and testing procedures to speed up the procurement process
 2. Establishing a professional project management unit
2. Corporatisation of the Ordnance Factory Board.
 1. OFBs structure, work culture and product range now need to be responsive to technology and quality demands of modern armed forces.
 2. Corporatisation, including public listing of some units, ensures a more efficient interface of the manufacturer with the designer and end user
3. Self-reliance should not be taken to extremes: Thrust for indigenous R&D should coexist with the import of cutting-edge military technologies to safeguard defence vulnerabilities
4. Domestic Procurement: When we import weapon systems, we should plan for the ammunitions and spares for them to be eventually manufactured in India
5. A long-term integrated perspective plan of the requirements of the armed forces is needed to give industry a clear picture of future requirements.
6. The definition of indigenisation itself needs to privilege technology over value or volume
7. Export Promotion: Investment, Indian or foreign, will be viable only if the door to defence exports is opened, with a transparent policy.
8. Promoting indigenous research and development through tax incentives
9. To give private industry a level playing field for developing defence technologies, conflicts of interest, created by the role of DRDO as the government's sole adviser, developer and evaluator of technologies have to be addressed.

Prelims Practice Questions

1. In the Constitution of India, promotion of international peace and security is included in the

- a. Preamble to the Constitution
- b. Directive Principles of State Policy (DPSP)
- c. Fundamental Duties

d. Ninth Schedule

Answer: b

Explanation:

- Article 51 of the Indian Constitution deals with the promotion of international peace and security. It states that the State shall endeavour to –
 - promote international peace and security;
 - maintain just and honourable relations between nations;
 - foster respect for international law and treaty obligations in the dealings of organized peoples with one another; and
 - encourage settlement of international disputes by arbitration.

2. With reference to the Digital Services Tax, consider the following statements:

1. It aims to tax revenues generated by multinationals like Google, Amazon and Apple for providing certain digital services.
2. There is no legal provision for taxing digital services in India.

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

Answer : A

Explanation

Digital Services Taxes (DSTs)

- These are the **adopted taxes on revenues** that certain companies generate from providing certain digital services. E.g. digital multinationals like Google, Amazon and Apple etc. **Hence, statement 1 is correct.**
- The **OECD** is currently hosting negotiations with over 130 countries that aim to adapt the international tax system. One goal is to address the tax challenges of the digitalization of the economy.
- **India's Tax on Digital Companies:** The government had moved an amendment in the **Finance Bill 2020-21 imposing a 2% Digital Service Tax (DST)** on trade and services by non-resident e-commerce operators with a turnover of over Rs. 2 crores. **Hence, statement 2 is not correct.**

3. With reference to Havana Syndrome, consider the following statements:

1. It is characterised by a person having odd physical sensations and hearing peculiar sounds.
2. Directed microwave radiation is found to be the plausible cause of Havana syndrome.

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

Answer : C

Explanation

- In late 2016, a few diplomats from the USA and their employees had reported certain usual symptoms during their stay in Havana, Cuba.
 - They **experienced some odd physical sensations and heard peculiar sounds**, after which they started feeling sick. **Hence, statement 1 is correct.**
- The US had even accused Cuba of carrying out sonic attacks. But Cuba denied the accusations of the sonic attacks and refused awareness of any such illness or syndrome.
 - Ever since many bodies and institutions have been researching the cause of the Havana syndrome and many plausible factors have been discovered till date.
- The symptoms of the syndrome include Nausea, Severe headaches, Fatigue, Dizziness, Sleep problems, Hearing loss.
 - A few of those who had been affected more faced chronic issues like vestibular processing and cognitive problems.
- In 2020, a report by the National Academies of Sciences (NAS), **US found directed microwave radiation to be the plausible cause** of the Havana syndrome. **Hence, statement 2 is correct.**

4. The herb “Withania somnifera” is often seen in News as:

- a. It is a widely used herb in traditional Indian Medicine.

- b. It is an invasive species present in the Kole Wetlands in Kerala.
- c. Its extract is widely used in making pesticides.
- d. It is a herb that contains a dangerous amount of Iodine which can cause goitre, high thyroid-stimulating hormone levels, and hypothyroidism.

Answer: a

Explanation:

- *Withania somnifera*, known commonly as ashwagandha is an annual evergreen shrub in the Solanaceae or nightshade family that grows in India, the Middle East, and parts of Africa. It is a very revered herb of the Indian Ayurvedic system of medicine as a Rasayana (tonic).

5. With reference to microwave weapons, consider the following statements:

1. They are capable of affecting both machines and human beings.
2. China is the only country to display a prototype of microwave weapons.

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

Answer : A

Explanation

Microwave Weapons

- **Direct Energy Weapon (DEW):** They are a type of direct energy weapons, which aim highly focused energy in the form of sonic, laser, or microwaves, at a target.
 - They release electromagnetic radiation which causes sensations in the human body..
- A number of countries are thought to have developed these weapons to target both humans and electronic systems.
 - **China** had first put on display its microwave weapon, called Poly WB-1, at an air show in 2014.
 - The **US has also developed a prototype microwave-style weapon**, which it calls the “Active Denial System”, which is the first non-lethal,

directed-energy, counter-personnel system with an extended range greater than currently fielded non-lethal weapons. **Hence, statement 2 is not correct.**

- Recently, the DRDO has also announced its plans to develop DEWs using high-energy lasers and microwaves.
- These weapons are a cause of concern as they **can affect both machines and human beings. Hence, statement 1 is correct.**
 - They can cause long-term damages without leaving a single mark on the human body.

6. Consider the following statements with respect to INS Vela:

1. It is the first of the Indian Navy's six submarines under Project 75.
2. It is a Stealth Scorpene-Class Submarine.
3. It is a diesel-electric attack submarine of Kalvari-class.★

Which of the given statements is/are INCORRECT?

- a. 2 and 3 only
- b. 1 only
- c. 3 only
- d. None of the above

Answer: b

Explanation:

- INS Vela is the fourth of the Indian Navy's six submarines under Project 75.
- It is a Scorpene-Class Submarine. It is a diesel-electric attack submarine of Kalvari-class.

Mains Practice Questions

1Q. What are “orphan crops”? How are they significant for ensuring food security globally? (150 words)

Approach

- Define Orphan Crops
- Mention the significance of Orphan Crops in ensuring global food security.
- Give conclusion

2Q. What is international ethics? Explain its significance with the help of examples. (250 words)

Approach

- Define international ethics.
- Explain its significance with the help of examples.
- Give conclusion.