

Regent Education & Research Foundation

GENERAL STUDIES - I	2
Social Issues	2
Food sufficient India should be Hunger-Free too	2
Ensuring safety net for Gig Workers	4
GENERAL STUDIES - II	7
Governance	7
Need for Simpler Laws in India	7
Issues in the treatment of rare diseases	8
Right to free food	10
International Relations	12
Chagos Archipelago — Lessons from Indian Ocean	12
GENERAL STUDIES - III	15
Economics	15
Need for more containers to boost India's trade	15
India's \$500 billion Opportunity	17
Agriculture	19
Yield cannot be the sole indicator for agriculture	19
Environment	21
Warming Antarctic Peninsula	21

GENERAL STUDIES - I

Social Issues

Food sufficient India should be Hunger-Free too

The aim of **ending hunger, food insecurity, and malnutrition by 2030** is a critical component of the United Nations' **Sustainable Development Goals (SDGs)**.

However, **achieving this goal appears increasingly difficult, with factors such as rising conflicts, climate change, and economic slowdowns threatening progress**, particularly in vulnerable and food-deficient regions.

Therefore, **it is important to have an assessment on the current state of global hunger, the challenges in achieving food security**, and the necessary measures to ensure a transition from mere food sufficiency to widespread nutritional well-being.

The Global State of Hunger and the Role of Economic Access in Food Security -

- Prevalence of Hunger —
- The **global prevalence of hunger remains alarmingly high**, with progress towards achieving the goal of zero hunger lagging.
- **According to recent data, 9.4% of the world's population**, or approximately 757 million people, are **undernourished as of 2023**.
- **The problem is particularly acute in Africa, where 20.4% of the population faces hunger**, compared to 8.1% in Asia, 6.2% in Latin America and the Caribbean, and 7.3% in Oceania.
- **Despite a lower percentage, Asia has the largest number of undernourished individuals, with 384.5 million people facing hunger**, followed by 298.4 million in Africa.
- Increasing Undernourished Population —
- Projections indicate that **by 2030, Africa will be home to half of the world's undernourished population**.
- The **distribution of undernourishment is also uneven within regions**, showing a rural bias where rural areas fare worse than urban and semi-urban areas.
- Additionally, **there is a gender dimension to hunger, with women being more disadvantaged** than men, although this gap is narrowing.
- **Addressing these disparities is crucial for achieving global food security** and ensuring that all individuals, regardless of location or gender, have access to sufficient and nutritious food.
- The Role of Economic Access in Food Security: Lack of Purchasing Power —
- One of the primary reasons behind food insecurity is **the lack of purchasing power to afford adequate diets**.
- The **cost of a healthy diet (CoHD) has increased globally**, reaching an average of 3.96 purchasing power parity (PPP) dollars per person per day in 2022.
- This **cost varies across regions**, with Asia experiencing a higher average of \$4.20 per day.
- Despite this increase, **the number of people unable to afford a healthy diet decreased slightly from 2.88 billion in 2021 to 2.83 billion in 2022**.
- However, in low-income countries, access to healthy diets remains a significant challenge.

The Global Hunger Index (GHI) and the Indian Context -

- The **GHI has often been a topic of debate, especially in relation to India's ranking**.
- Critics argue that the **GHI's focus on indicators like nutrition and early-age mortality may not fully capture the broader reality** of hunger.
- In India, data from surveys like those conducted by the National Sample Survey Office (NSSO) provide insights into actual food consumption patterns.
- For example, **recent statistics show that 3.2% of the population does not meet the minimum requirement of 60 meals per month**, while more than half of the population has three meals per day.

- This reveals that, while a majority of the population has access to food, a significant number still face challenges in securing even basic sustenance.

The Challenges of Unhealthy Diets in India -

- Affordability of Healthy Foods —
- A primary challenge in promoting healthy diets in India is the **affordability of nutrient-rich foods**.
- **According to the EAT-Lancet Commission, a healthy diet includes a variety of food groups**, such as fruits, vegetables, protein sources (especially plant-based), and whole grains.
- However, **these foods can be expensive for a significant portion of India's population**.
- For example, **studies have shown that adopting a diet aligned with the EAT-Lancet reference might cost up to 60% of the mean daily per capita household income** in South Asia.
- This makes it difficult for many low-income families to incorporate these foods into their diets regularly.
- Cultural Preferences and Dietary Habits —
- Cultural factors and traditional dietary habits play a significant role in shaping food choices in India.
- **While Indian diets are diverse, many are heavily reliant on staple grains** such as rice and wheat.
- These **staples often dominate meal composition, leading to an imbalance** when it comes to the intake of other essential food groups, like proteins and healthy fats.
- **Protein-rich foods such as lentils, eggs, dairy products, and meats are sometimes seen as supplementary rather than integral to daily diets**.
- Awareness and Knowledge Gaps —
- A lack of awareness about what constitutes a balanced diet contributes significantly to unhealthy eating patterns in India.
- **Many people are unaware of the specific nutrient requirements** for different stages of life, such as childhood, pregnancy, and old age.
- For example, **the importance of protein-rich foods, iron-rich greens, and calcium-rich dairy products is often underappreciated**, particularly in rural areas where access to nutritional education is limited.
- The Role of Government Policies and Subsidies —
- Government policies and subsidies also shape dietary patterns in India.
- **Programs like the Public Distribution System (PDS) focus primarily on providing staple grains** like rice and wheat at subsidised rates.
- While **these programs are crucial in addressing hunger and food security, they do not necessarily promote a diverse or balanced diet**.
- The limited focus on pulses, fresh fruits, vegetables, and protein-rich foods in such programs means that many households primarily rely on carbohydrates for their daily energy intake.

Necessary Measures to Ensure a Transition from Mere Food Sufficiency to Nutritional WellBeing -

- Addressing the Challenge of Unhealthy Diets —
- To overcome the challenge of unhealthy diets in India, **a multi-pronged approach is needed**.
- **Educational campaigns that emphasise the benefits of balanced diets**, especially in rural and low-income areas, can play a significant role in shifting dietary habits.
- Additionally, **government policies should prioritise not just food security but also nutritional security** by ensuring that programs like the PDS include a wider range of nutrient-rich foods.
- Need for a Cultural Shift —

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It is important to develop a cultural shift towards valuing nutrition as part of daily life.

- This includes dispelling myths around traditional diets and introducing people to new, healthy recipes that incorporate a variety of food groups.
- Regulating Prices, Availability of Fresh Foods, and Food Banks —
- **Efforts to make healthy foods more affordable**, such as regulating the prices of essential food items and encouraging local production, **are also crucial**.
- Moreover, **increasing the availability of fresh produce in both urban and rural areas through better infrastructure and distribution networks** can help improve access to nutritious foods.
- **Encouraging local food banks, reducing food waste, and promoting community-supported agriculture are steps** that can ensure that surplus food reaches those who need it most.
- Need for a Humanitarian Approach to Food Distribution —
- For countries that are proud of being self-sufficient in food production, **achieving true success means going beyond sufficiency to becoming hunger-free**.
- This involves **adopting a humanitarian approach to food distribution**, where surplus food in one region can be redirected to food-deficient areas.
- Ultimately, **the global community must work together to address inequalities**, build resilience in food systems, and ensure that nutritious diets are within reach for everyone.

Conclusion -

- **Achieving the goal of ending hunger, food insecurity, and malnutrition by 2030 is an urgent priority**, but progress remains uneven due to economic disparities, regional vulnerabilities, and rising food costs.
- **Addressing these challenges requires a multifaceted approach, including reforms in food distribution systems, awareness campaigns**, and initiatives to make healthy diets more affordable.
- **By focusing on sustainable solutions** and fostering global cooperation, **the world can move closer to a future where hunger is eradicated** and every individual has access to a better life through the right to nutritious food.

Source - [The Hindu](#)

QUESTION - Achieving the goal of ending hunger and malnutrition by 2030 remains a critical challenge, especially in the face of rising conflicts, climate change, and economic disparities. Discuss the global prevalence of hunger, the role of economic access in food security, and the specific challenges faced by India in promoting healthy diets. What measures can be adopted to ensure a transition from food sufficiency to nutritional wellbeing in India and globally?

Ensuring safety net for Gig Workers

The **growth of the gig economy has transformed labour dynamics across the globe**, offering flexibility but raising questions about worker rights and protections.

In India, the Union Ministry of Labour and Employment is drafting a national law to bring gig workers under the umbrella of social security schemes, addressing their needs for health insurance, retirement savings, and other benefits.

So, **it is crucial to critically examine the existing legal framework for gig workers in India, the limitations of the Social Security Code 2020**, and the path forward for ensuring fair treatment and protection of gig workers.

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Proposed New Legislation for Gig Workers and Existing Mechanism -

- **Proposed New Legislation: Expanding Social Security for Gig Workers** —
- The new legislation proposed by the Union Ministry **aims to incorporate gig workers into social security schemes through a welfare board model.**
It mandates the creation of a social security fund, requiring aggregators to contribute **1%-2% of their revenue.**
- This **fund would offer health insurance and other benefits**, potentially alleviating the precarious nature of gig work.
- **Additionally, the legislation proposes the registration of gig workers and demands transparency in their treatment by aggregators**, such as providing a 14-day notice before termination and introducing dispute resolution mechanisms.
- **Existing Mechanism: Gig Workers Under the Social Security Code 2020** —
- **The Social Security Code 2020 is a key element of India's approach to integrating gig workers** into the formal economy.
- This **code is one of four labour codes introduced in 2019 and 2020**, aiming to simplify and rationalise existing labour laws **by merging 29 central labour laws into four broad categories: wage, social security, industrial relations, and occupational safety and working conditions.**
- **Gig workers, however, are only explicitly mentioned in the Social Security Code 2020**, which treats them as a subset of informal workers.
- **As a result, gig workers are encouraged to register on the e-Shram portal**, much like informal workers, but this categorisation falls short of recognising their unique employment situation.

Limitations of the Existing Legal Framework for Gig Workers (Social Security Code 2020) -

- **Ambiguous Definition of Gig Workers** —
- The **Social Security Code 2020 is the only one of India's four labour codes** that explicitly mentions gig and platform workers.
- However, **it classifies them as a subset of the informal workforce** rather than as part of the formal economy.
- **This categorisation fails to reflect the realities of gig work**, which often straddles the line between traditional employment and independent contracting.
- **Because they are categorised as informal, gig workers do not enjoy the same legal entitlements as those in traditional, formal employment**, such as access to comprehensive social benefits and job security.
- This **ambiguity prevents a nuanced understanding of the employment dynamics in the gig economy** and results in a framework that is ill-suited to the unique nature of gig work.
- **Exclusion from Traditional Employer-Employee Relationship** —
- One of the critical challenges in the Social Security Code 2020 is its **failure to establish gig workers within the traditional employer-employee paradigm.**
- In many cases, **companies that utilise gig workers, such as ride-sharing and delivery services, operate as formal businesses** within the formal economy.
- However, **these companies often classify their workers as independent contractors** rather than employees.
- This **allows them to avoid obligations under labour laws**, such as providing minimum wages, paid leave, or job security.
- **Avoidance of Employer Responsibilities by Aggregators** —
- **The classification of gig workers as independent contractors rather than employees is not a mere oversight but a strategic move by aggregators** to minimise their responsibilities.

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- **Many aggregators intentionally blur the lines of employment relationships**, labelling their workforce as independent contractors to sidestep legal obligations.
- This **classification allows companies to avoid providing benefits like health insurance, paid leave**, or contributions to retirement funds.
- **By doing so, they leverage the flexibility of the gig economy** while avoiding the costs associated with formal employment.
- This **ambiguity not only disadvantages gig workers but also challenges the enforcement of labour laws**, as the existing framework does not account for this strategic obfuscation.
- Limited Coverage Under Social Security Schemes —
Although the Social Security Code 2020 recognises the need for social security schemes for gig workers, **it only offers a limited scope of benefits**, which fall short of the protections available to formal employees.
- For example, **while the code allows for the provision of social security schemes like health insurance, it does not extend to other essential benefits** such as unemployment insurance or robust pension schemes.
- **These limitations mean that gig workers are often unable to secure their long-term well-being** or protect themselves against income disruptions.
- Lack of Dispute Resolution Mechanisms —
- Another significant challenge is the **absence of effective dispute resolution mechanisms for gig workers**.
- **While the Industrial Relations Code 2020 includes provisions for addressing workplace disputes, these are not extended to gig workers**, who remain outside the scope of the code.
- This means that **when gig workers face issues like unfair dismissal, wage disputes, or discrimination, they lack a formal avenue for seeking redress**.

Impact of the Informal Classification on Worker Rights -

- The classification of gig workers as part of the informal sector not only **limits their access to benefits but also reinforces the precarious nature of their work**.
- Informal workers in India, including gig workers, are **typically subject to greater economic instability** due to the lack of job security and weaker legal protections.
- The **informal classification means that gig workers are often unable to access minimum wage protections or occupational safety regulations** that would be standard in formal employment.
- For example, **gig workers may face unsafe working conditions or unreasonable workloads without recourse to regulations** that ensure their safety and well-being.
- The **informal classification thus perpetuates a cycle where gig workers remain vulnerable to exploitation**, lacking the rights and protections afforded to their formally employed counterparts.

Way forward -

- Addressing the Core Issue: The Need for Redefining Employment Relationships —
- The **absence of a clear definition of employment relationships** within the gig economy is at the **heart of the issue**.
- To genuinely protect gig workers, **the government must redefine gig work to acknowledge the role of aggregators as employers**.
- This **shift would align with international precedents, such as the 2021 ruling by the U.K. Supreme Court, which recognised Uber as an employer and its drivers as workers** entitled to labour protections.
- **Establishing a similar recognition in India would enable the inclusion of gig workers under the existing labour codes**, rendering separate legislation unnecessary and promoting greater formalisation of gig work.

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- Evaluating the Welfare Board Model —
- While the **proposed welfare board model represents a step towards providing gig workers with social security, it has its limitations.**
- **Past experiences with similar models**, such as those created for construction workers, reveal that **they have been insufficient in providing adequate protection.**
- Despite working for formal employers, **construction workers often remain classified as informal, resulting in subpar coverage.**
- **Thus, merely establishing a welfare board for gig workers may not fully address the systemic issues unless the employment relationship is made explicit** and aggregators are held accountable as employers.

Conclusion -

- The proposed legislation by the Union Ministry of Labour and Employment aims to address the long-standing need for social security among gig workers in India.
- However, its success depends on redefining the employment relationship within the gig economy and ensuring that gig workers are recognised as part of the formal labour force.
- The ambiguity surrounding the status of gig workers must be resolved to bring them under the protections of the existing labour codes.

Source - [The Hindu](#)

QUESTION - Examine the challenges faced by gig workers in India under the current legal framework, particularly the Social Security Code 2020. Discuss the proposed legislative measures by the Union Ministry of Labour and Employment to address these challenges, and critically evaluate whether the proposed welfare board model sufficiently protects the rights of gig workers.

GENERAL STUDIES - II

Governance

Need for Simpler Laws in India

Laws are essential for regulating society, but their complex language often makes them inaccessible to ordinary citizens. This lack of understanding can lead to confusion, fear, and alienation from the legal system.

The Problem of Complex Legal Language -

- **Unintelligible Clauses** — Laws often contain convoluted language that is difficult to understand, even for those with a basic legal background. For example, consider this clause from the Public Examinations (Prevention of Unfair Means) Bill, 2024: "Every rule made under this Act shall be laid, as soon as may be after it is made, before each House of Parliament, while it is in session, for a total period of thirty days which may be comprised in one session or in two or more successive sessions, and if, before the expiry of the session immediately following the session or the successive sessions aforesaid, both Houses agree in making any modification in the rule or both Houses agree that the rule should not be made, the rule shall thereafter have effect only in such modified form or be of no effect, as the case may be; so, however, that any such modification or annulment shall be without prejudice to the validity of anything previously done under that rule."
- **Archaic Terminology** — The use of outdated terms like "notwithstanding" and "hereunder" further complicates matters. These terms may have been common in the past, but they are now unfamiliar to many people.
- **Lengthy Sentences** — Statutes are often filled with long, winding sentences that can be challenging to follow. This can make it difficult for people to understand the meaning of the law.

Examples of Complex Legal Language -

- **Public Examinations (Prevention of Unfair Means) Bill, 2024** — The clause mentioned above is just one example of the complex language found in Indian laws.
- **Banking Laws (Amendment) Bill, 2024** — Another example is this provision from the Banking Laws (Amendment) Bill, 2024: "if the default occurs again on the last day of the next succeeding fortnight, or, if the last day of such fortnight is a public holiday, on the preceding working day, and continues on the last day of the succeeding fortnights or preceding working days, as the case may be, the rate of penal interest shall be increased to a rate of five per cent. per annum above the bank rate on each such shortfall in respect of last day of that fortnight and last day of each succeeding fortnight or preceding working day, if last day of such fortnight is a public holiday, on which the default continues;" [1] [5EP]

The Impact of Complex Legal Language -

- **Alienation** — The complexity of laws can alienate citizens from the legal system. When people cannot understand the laws that govern their lives, they may feel disconnected and powerless.
- **Confusion** — Laws can be a source of confusion for those who do not understand them. This can lead to mistakes and misunderstandings, which can have serious consequences.
- **Inaccessibility** — Complex language can make laws inaccessible to many people. This can be particularly problematic for people who are not well-educated or who do not have access to legal assistance.

The Need for Simpler Laws -

- **Improved Access to Justice** — Simpler laws can help people understand their rights and obligations, making it easier for them to access justice. When people understand the law, they are more likely to know how to protect their rights and seek redress for wrongs.
- **Reduced Costs and Time** — Clear and concise laws can save time and money for individuals and businesses. When people do not have to spend hours poring over complex legal documents, they can focus on other important matters.
- **Increased Public Participation** — Simpler laws can encourage greater public participation in the legal system. When people understand the law, they are more likely to be interested in participating in the legal process.

Conclusion -

The complex language of Indian laws is a significant barrier to understanding and accessing justice. By simplifying legal language, the government can make laws more accessible to citizens and foster a more inclusive legal system. This will not only benefit individuals and businesses, but it will also help to strengthen democracy and promote the rule of law.

Source - [The Hindu](#)

QUESTION - Critically analyse the impact of complex legal language on the Indian legal system. Suggest measures to simplify legal language and enhance its accessibility to the general public.

Issues in the treatment of rare diseases

The Delhi High Court recently issued directions to improve the availability of **orphan drugs**, which are used to treat rare diseases.

The Centre provides financial assistance to Centres of Excellence (CoE) for treatment, but stakeholders have approached the courts, citing difficulties in accessing these funds.

Rare diseases -

- Definition —
- According to the World Health Organization (WHO), a **rare disease** is a debilitating, lifelong condition affecting 1 or fewer people in 1,000.
- In India, around 55 medical conditions, including **Gaucher's disease**, **Lysosomal Storage Disorders (LSDs)**, and certain forms of muscular dystrophy, are classified as rare diseases.
- While a majority of rare diseases are believed to be genetic, many — such as some rare cancers and some autoimmune diseases — are not inherited.
- Prevalence in India —
- The **National Registry for Rare and Other Inherited Disorders (NRROID)**, initiated by the Indian Council of Medical Research (ICMR), has recorded **14,472 rare disease patients** in the country.
- However, therapies exist for less than 5% of rare diseases, with only 1 in 10 patients receiving disease-specific care.
- The treatments available are often prohibitively expensive.

- Categories of rare diseases —
- In India, rare diseases are categorised into three groups based on the nature and complexity of available treatment options.
- **Group 1** includes diseases that can be treated with a one-time curative procedure.
- **Group 2** diseases require long-term or lifelong treatment which are relatively less costly and have shown documented benefits, but patients need regular check-ups.
- **Group 3** diseases are those for which effective treatments are available, but they are expensive and must often continue lifelong.
- Associated challenges —
- **Early diagnosis** —
- **Early diagnosis** is a major challenge owing to a variety of factors that include lack of awareness among primary care physicians, lack of adequate screening and diagnostic facilities etc.
- **Less knowledge of pathophysiology in Indian context** —
- Relatively little is known about the pathophysiology or the natural history of majority of rare diseases, particularly in the Indian context.
- **Challenges in R&D** —
- Rare diseases are also difficult to research upon as the **patients pool is very small** and it often results in inadequate clinical experience.
- **High cost** —
- The cost of treatment of rare diseases is prohibitively expensive. For example, treatment for Spinal Muscular Atrophy (SMA) costs approximately Rs. 16 crore.
- Many **orphan drugs** are patented, making them highly expensive due to limited market size and high development costs.
- Pharmaceutical companies often avoid producing these drugs, leading to inflated prices.
- **Manufacturing orphan drugs domestically** could lower costs, but government incentives such as **tax breaks** would be needed to encourage production.

Steps taken by the government -

- **National Policy for Rare Diseases (NPRD) 2021** —
- In 2021, NPRD was launched, offering financial aid up to **₹50 lakh** for patients undergoing treatment at designated Centres of Excellence (CoEs) such as AIIMS Delhi, PGIMER Chandigarh, and SSKM Hospital in Kolkata.
- **Digital Portal for Crowdfunding & Voluntary Donations** —
- In 2022, the Health Ministry introduced a Digital Portal for Crowdfunding & Voluntary Donations, providing details about patients, treatment costs, and CoE bank accounts for potential donors.
- **Financial aid released by the government** —
- Between 2021 and August 2024, the government released financial aid of ₹3.15 crore (2021-22), ₹34.99 crore (2022-23), ₹74 crore (2023-24), and ₹24 crore (2024-25).
- Additionally, ₹35 crore was allocated to improve patient care services by purchasing equipment.
- **Import Duties and GST Exemptions** —
- Currently, patients importing rare disease medicines are exempt from customs duty, but companies still pay 11% customs duty and 12% GST on these imports.
- The Delhi High Court has set a 30-day deadline to process these exemptions for medicines under customs, GST, and income tax laws.
- **Provision for third-party manufacturing** —
- If treatments for rare diseases are unavailable, the government can invoke provisions of the **Patents Act of 1970** to allow third-party manufacturing or acquire patents to ensure drug availability.

Criticism -

- **Concerns Over Price Control Exemption** —

- In 2019, the Department of Pharmaceuticals exempted orphan drugs from price controls.
- The Delhi High Court raised concerns over this exemption, stating that this practice "cannot continue in this manner."
- **Delays in Drug Approvals —**
- Delays in approvals, such as for medicines from US-based Sarepta Therapeutics, have impacted patient treatment in India.

- The National Rare Diseases Committee highlighted that a delay in approval from the Drug Controller General of India (DCGI) forced CoEs like AIIMS to import drugs through distributors, affecting timely patient care.

Source - [The Indian Express](#)

QUESTION - Critically analyse the challenges associated with the diagnosis, research, and treatment of rare diseases in India, and evaluate the effectiveness of government initiatives such as the National Policy for Rare Diseases (NPRD) 2021 in addressing these challenges. Also, suggest measures to improve access to affordable treatment for rare disease patients in India.

Right to free food

World Food Day is observed annually on October 16 by the United Nations Food and Agriculture Organisation (FAO) and this day serves as a reminder of the global commitment to achieving food and nutritional security.

Despite significant strides in agriculture over the years, such as increased food production through advanced farming methods and improved incentives for farmers, **achieving true food security remains a global challenge.**

The theme for this year's World Food Day, Right to Foods for a Better Life and a Better Future, underscores the ongoing need for a balanced approach to ensuring access to food, especially in the context of evolving socio-economic dynamics.

Current State of Global Food Security -

- **The global food security scenario**, according to the FAO's State of Food Security and Nutrition in the World (SOFI) report, **is concerning.**
- **Approximately 2.33 billion people continue to experience moderate to severe food insecurity.**
- This represents a serious challenge for those committed to providing food and nutritional security.
- **Efforts to address this issue often involve a combination of policy initiatives**, innovations in agriculture, and targeted interventions.
- However, **the complex interplay between economic policies, subsidies, and accessibility to food creates a challenging landscape** for achieving the desired outcomes.

The Policy Perspective of India's National Food Security Act (NFSA) -

- A Transformative Step to Ensure Food Security —
- **Enacted in 2013, NFSA aimed to provide subsidised food grains** to approximately two-thirds of the Indian population, making it one of the most ambitious social welfare programs.
- **The primary focus was to ensure that the most vulnerable sections of society had access to basic food staples** such as rice, wheat, and coarse grains, which would be made available at highly subsidised rates of Rs 3/kg, Rs 2/kg, and Rs 1/kg respectively.
- **The NFSA sought to legally guarantee food security, moving from a welfare-based approach to a rights-based approach**, ensuring that access to food became a legal right for eligible citizens.
- Tied to Global Right to Food Movement —
- **The Right to Food approach aimed to address hunger and malnutrition, especially among marginalised communities**, by ensuring a steady supply of essential food grains through the Public Distribution System (PDS).
- **The PDS, which had been functioning since the 1960s, received a substantial boost under the NFSA** as it became the primary mechanism for the distribution of subsidised grains to eligible households.
- Covers a Wide Demographic —

- The NFSA covered a wide demographic, **with an estimated 800 million beneficiaries**, including children, pregnant women, and lactating mothers.
- The **Act also introduced provisions for nutritional support, such as free meals for children in schools and anganwadis (rural child care centres)**, to address malnutrition among young children.
- The **inclusion of such provisions highlighted a recognition of the link between access to food and improved nutritional outcomes**, as well as the importance of targeting food support towards vulnerable populations.
- **Moreover, it aimed to empower women by making the eldest female the head of the household for the purpose of receiving food rations**, thus ensuring a degree of gender sensitivity in the implementation of the policy.

Concerns and Criticism of NFSA -

- **Economic Sustainability** —
- The implementation of the NFSA raised several questions and concerns regarding its economic sustainability and its long-term impact on India's fiscal health.
- The decision to provide such large-scale subsidies **came at a significant cost to the government.**
- The **NFSA's subsidised pricing structure, while well-intentioned, required a substantial increase in the food subsidy bill**, which became a **considerable burden on the Union budget.**
- **Criticism Regarding Policy's Expansive Scope** —
- **At the time of NFSA's enactment, India's poverty ratio** was estimated by the Planning Commission to be **about 21%.**
- However, **this estimate was contested by NGOs and subsequently revised upwards to 29% by the Rangarajan Committee**, which led to questions about the targeting efficiency of the NFSA.
- **Even with the revised estimates, the Act's provision for covering roughly two-thirds of the population with subsidised food grains appeared overly generous to many policy analysts.**
- **Challenges Due to Inefficiencies within PDS** —
- **The PDS**, though instrumental in delivering food to millions, **has historically been plagued by issues of corruption, under-reporting, and distribution inefficiencies.**
- **Studies revealed that a substantial portion of the subsidised food did not reach the intended beneficiaries**, being siphoned off or misappropriated along the supply chain.
- This **resulted in a significant portion of the food subsidy being wasted**, raising questions about the effectiveness of the delivery mechanism under the NFSA.
- **Debate About the Role of State in Providing Social Welfare** —
- Critics argued that **while the Act aimed to fulfil a humanitarian goal, it risked creating a dependency on subsidised food**, which could undermine the incentive for beneficiaries to achieve economic self-reliance.
- **This debate highlighted a key tension in the policy approach—between ensuring immediate relief for the hungry and fostering a long-term path towards empowerment and self-sufficiency** through economic opportunities.

Current Government's Approach to Poverty and Food Distribution -

- The discussion becomes even more pertinent when considering the current government's **poverty metrics.**
- The **Multi-dimensional Poverty Index by NITI Aayog suggests a significant reduction in India's poverty ratio**, from 29.13% in 2013-14 to 11.28% in 2022-23.
- **If such a reduction is accurate, it raises the question of why the distribution of free food continues to cover over 800 million people.**

- This **inconsistency points to deeper issues** within the policy framework. Providing free food beyond a certain threshold, to around 15% of the population, **could be seen as a politically motivated decision rather than an economically sound one.**
- The **allocation of resources towards such broad-based subsidies may detract from more productive investments** that could foster long-term food security.

Way Forward -

- Need for Strategic Investments Over Subsidies —
- **Critics argue that these extensive subsidies**, particularly those on food and fertilisers, **constrain the potential for more strategic investments in agriculture.**
- **Areas like agricultural R&D, precision farming, micronutrient fortification, and educational initiatives for women could yield greater benefits** in terms of enhancing food security.
- **Studies from institutions (like the ICRIER) indicate that a considerable portion of subsidies—between 25% and 30%—fail to reach the intended beneficiaries** due to systemic inefficiencies and leakages.
- Reforming the Subsidy Regime —
- Reforming the existing subsidy regime **requires the government to adopt a courageous and strategic approach**, with a clear plan for implementation over a relatively short lead time of six to twelve months.
- **Such a reform could involve digital solutions** to create a more transparent and efficient distribution system.
- **Digital tools and platforms can play a pivotal role in building a more robust agricultural system** that supports the Sustainable Development Goal (SDG) of Zero Hunger by 2030.

Conclusion -

- **World Food Day serves as a crucial reminder of the progress made and the challenges** that remain in the quest for food security.
- While policies like the NFSA represent significant efforts towards achieving this goal, **a more targeted and efficient approach is needed to ensure that resources reach those who need them the most.**
- **As the global community renews its commitment to eliminating hunger, a balanced approach combining subsidies, technological advancement, and strategic investment can pave the way for a future** where food and nutritional security is accessible to all.

Source - [The Indian Express](#)

QUESTION - Discuss the significance of World Food Day in the context of global food security challenges, highlighting India's National Food Security Act (NFSA) as a response to these challenges. Evaluate the strengths and weaknesses of the NFSA and suggest potential reforms that could enhance its effectiveness in ensuring food and nutritional security for vulnerable populations.

International Relations

Chagos Archipelago — Lessons from Indian Ocean

The **Chagos Islands**, a remote archipelago in the Indian Ocean, **hold a rich history of cultural connections, colonial struggles, and significant ecological importance.**

The islands, comprising seven atolls, are geographically close to the **Maldives** and share deep historical ties with the region.

It is imperative to explore the historical claims of the Maldives over the Chagos Islands, the cultural and navigational connections between the regions, and the contemporary issue of marine conservation.

Cultural and Historical Connections Between the Maldives and the Chagos Islands -

- Historical Evidence of Maldivian Claims —
- **One of the most compelling pieces of evidence supporting the Maldives' historical claims is a letter from 1560**, written by a Sultan of the Maldives and preserved in a Portuguese archive in Lisbon.
- In this letter, **the Sultan explicitly refers to the Peros Banhos Atoll, a northern part of the Chagos Islands, as being under his domain.**
- **The significance of this letter lies in the clear assertion of the Maldives' political authority over these islands** during a time when European powers, particularly the Portuguese, were expanding their influence in the Indian Ocean.
- **The letter suggests that even as these European powers sought to dominate trade routes, local rulers like the Sultan of the Maldives continued to assert control over their traditional maritime territories**, which included the Chagos Islands.
- Linguistic and Toponymic Connections —
- **The Maldivians refer to the Chagos Islands as Foalhavahi**, a name that resonates with that of FoaMulak, an atoll located near the southern tip of the Maldives, in proximity to the Addu Atoll.
- **The similarity in names hints at a shared cultural and geographical understanding** that transcends mere linguistic coincidence.
- **This cultural affinity is reinforced by the way British historians such as Albert Gray and H.C.P. Bell**, in the 19th century, **examined the origins of island names.**
- **They suggested that the term FoaLhavahi might derive from the Malay word pulo or pulau, meaning island.**
- **This etymological connection indicates a broader cultural linkage that ties the Maldives and the Chagos Islands to the Malay world.**
- Historical Narratives and Regional Interconnectedness —
- **In 1640, the French traveller Vincent le Blanc recorded a narrative he heard in Pegu (modern-day Myanmar) about an island called Polouois**, which he placed south of the Maldives.
- **This island, which aligns with what the Maldivians call FoaLhavahi**, was reportedly under the rule of the King of Achen in Sumatra.
- **According to le Blanc's account, the island was part of a network of territories controlled by the Sumatran king**, who divided it among his descendants.
- **The political struggle between two of the king's sons over control of these territories eventually led to the transfer of FoaLhavahi back to FoaMulak.**
- **This narrative, although partly mythological, highlights the interconnectedness of the Indian Ocean region** and the way local political dynamics played out across distant islands.
- Cultural Blending and Shared Heritage —
- **These historical narratives also underscore the close cultural ties between the Maldives and other regions in the Indian Ocean**, such as Sumatra and the Malay Peninsula.
- **Not only did these regions share trade routes, but there is evidence that populations from FoaMulak, an atoll in the Maldives, show Malay features**, suggesting a blend of cultures and peoples over the centuries.
- **The Chagos Islands, therefore, were not isolated territories but part of a broader maritime network that included traders, travellers, and rulers from across the Indian Ocean.**

Colonial Interventions, Changing Sovereignties, and the African Connection of Chagos Islands -

- Colonial Interventions and Changing Sovereignties —
- **Throughout the British-French conflicts of the 18th and 19th centuries, the sovereignty of the Chagos archipelago shifted**, ultimately remaining under British control by the 20th century.
- **Despite decolonisation movements in the 1960s, the United Kingdom retained sovereignty over the Chagos Islands**, even as it relinquished control over other Indian Ocean territories.
- This decision excluded the possibility of returning the Chagos Islands to the Maldives, despite their historical ties.
- **Historical records indicate that even as late as the 1930s, the Sultan of the Maldives undertook expeditions to the Chagos Islands**, marking coconut palms with the royal seal.
- These activities reflected the ongoing interest of the Maldivian leadership in maintaining a connection to the islands, whether for economic activities such as fishing or for asserting historical claims.
- **Such expeditions culminated in a final one led by the father of a former Maldivian foreign minister**, further underscoring the Maldives' historical involvement in the Chagos region.
- The African Connection —
- The history of the Chagos Islands and the Maldives also intersects with the African continent through the grim legacy of the slave trade.
- **In the 1700s and 1800s, slaves from Africa were brought to both the Maldives and the Chagos Islands by traders.**
- This shared history has left cultural imprints, with descendants of African origin still found in the Maldives.
- The **African heritage of these populations suggests that the demographic histories of the Maldives and Chagos are intertwined**, adding another layer to the cultural and historical bonds between the two regions.

Chagos Marine Protected Area and the Importance of Preserving the Marine Life of Chagos Islands -

- The Chagos Marine Protected Area (MPA) —
- **In 2010, the United Kingdom declared the Chagos archipelago as a MPA**, one of the largest of its kind in the world.
- This designation aimed to create a no-take zone where fishing and other extractive activities are prohibited, allowing the region's marine life to thrive without human interference.
- The establishment of the MPA has been praised by conservationists for providing a refuge for numerous species, including several that are endangered or threatened, such as certain species of sharks, turtles, and coral reefs.
- The MPA acts as a sanctuary, where marine populations can recover and flourish, contributing to the broader health of the Indian Ocean ecosystem.
- Depletion of Fish Stocks in the Indian Ocean —
- In recent years, **fish stocks in the Indian Ocean have been rapidly depleting due to unsustainable fishing practices.**
- Many countries, driven by economic interests, have handed over fishing rights to large-scale commercial fishing fleets, including factory trawlers and purse seiners.
- **These fishing methods are often characterised by their lack of selectivity**, leading to overharvesting of target species and significant bycatch—unintentionally caught fish and marine life.
- **This trend poses a serious threat to the ecological balance** of the Indian Ocean and to the smaller island nations whose economies depend on fishing as a primary source of income and food security.

Way forward -

- Great Britain must be congratulated for bringing the whole of Chagos under protected status.
- **For Great Britain, the best and most respectable way to leave the Indian Ocean would be to discuss with the Maldives** how this protected status can be maintained indefinitely.
- **Britain must learn its leaving lessons.** Leaving India in 1947 was good, but the human cost from Partition was horrific.
- **It is vital that as the process of decolonising proceeds, all island countries of the Indian Ocean, including the Maldives, Mauritius, Seychelles, and Sri Lanka,** jointly agree to maintain the Chagos archipelago's fully protected status, in the interests of marine conservation.

Conclusion -

- **The Chagos Islands embody a complex blend of historical claims, cultural connections, and ecological imperatives** that make their governance a subject of international significance.
- While the Maldives has deep historical and cultural ties to the Chagos Islands, **the strategic interests of various nations have shaped the islands' modern political status.**
- **As the world moves towards a more collaborative approach to conservation, it is crucial that the Chagos Islands be preserved as a sanctuary for marine life,** guided by the lessons of history and the necessity for regional cooperation.

Source - [The Hindu](#)

QUESTION - The Chagos Archipelago presents a complex intersection of historical claims, cultural connections, and ecological imperatives. Discuss the historical and cultural ties between the Maldives and the Chagos Islands, and evaluate the contemporary challenges of marine conservation in this region. In your answer, critically analyse the role of colonial legacies and regional cooperation in shaping the future of the Chagos Islands.

GENERAL STUDIES - III

Economics

Need for more containers to boost India's trade

India's trade is growing rapidly, with a significant focus on **containerised transport** to facilitate swift movement of goods across the country and internationally.

However, a major challenge hindering India's trade expansion is the **shortage of containers**. Currently, India's capacity for producing containers falls far short of what is needed to support its ambitious trade targets.

Importance of Containers in Global Trade -

- **Containers** are essential to modern trade. These standardised, box-like structures allow for goods to be efficiently transported via **rail, road, and sea**.
- Containerisation revolutionised global trade by reducing transportation time, minimising port delays, and enabling the seamless movement of cargo. The key advantages of containers include:
- **Efficiency** — Once goods are sealed inside containers, they can be transported over long distances without disturbance.
- **Global Standardisation** — Containers come in **standardised sizes** (such as the 20-foot equivalent unit, or TEU), making them compatible with transport systems across the world.
- The availability of containers has become so critical that it is often referred to as the **untold story of globalisation**.
- Without sufficient containers, even the best infrastructure cannot efficiently handle the trade of goods.

India's Current Container Production Scenario -

- Despite being strategically located on the **East-West trade route**, India's ability to become a **global trade hub** is limited by its container production capacity.
- Currently, India manufactures **10,000 to 30,000 containers** annually, which is a small fraction of what is required to support the projected growth in trade.
- In contrast, **China** produces **2.5 to 3 million containers** per year, dominating the global container manufacturing market.
- India's production costs are also higher, with container manufacturing costing between **\$3,500 and \$4,800** per unit, compared to **\$2,500 to \$3,500** in China.
- As a result, India has to **lease containers**, mostly from China, further increasing the cost and limiting India's ability to fully utilise its ports.

Strategic Importance of Increasing Container Production -

- India's ports, such as those at **Vadhavan** and **Galathea Bay**, along with initiatives like the **IndiaMiddle East-Europe Economic Corridor**, are built around the assumption of **increased container capacity**.
- If India fails to scale up container production, these ventures risk underperforming.
- At present, India's container handling market is expected to grow from **11.4 million TEUs in 2023 to 26.6 million TEUs by 2028**.
- Without adequate container supply, India's ports will struggle to handle the increased demand, and global shipping giants will continue to favour other hubs like **Colombo, Dubai, and Hong Kong** over Indian ports.
- Global Context & Challenges —
- India's container shortage is exacerbated by global factors.
- The **Russia-Ukraine war** and **conflicts in West Asia** have disrupted shipping routes, causing longer voyages and delays in container availability.
- Rising **piracy** and the closure of key ports due to geopolitical tensions have further increased freight rates.
- These factors make it even more crucial for India to establish a stable and secure supply of containers to avoid disruptions in its trade.

Government Initiatives and Solutions —

- To address the container shortage, the Indian government has launched several initiatives under the **Make in India** program, which aims to boost indigenous container production. Some of the key measures being considered include —
- Public-Private Partnerships (PPP) —
- Collaboration between the **Container Corporation of India** and private sector players to ramp up container manufacturing.
- Subsidies and Incentives —
- The government is exploring **direct subsidies** and **viability gap funding** to support container manufacturers.
- **Production Linked Incentives (PLI)** are being considered, but they have yet to be implemented.
- Incentives for Raw Materials —
- **GST relaxation** for raw materials used in container production would reduce input costs, making domestic production more competitive.
- Long-term contracts between Indian shippers and container manufacturers could help stabilise the market and build confidence.
- Tracking and Management —
- The government is working on a **Unified Logistics Interface Platform (ULIP)** and a **Logistics Data Bank** to track and trace containers more efficiently, thereby reducing the turnaround time for export containers and easing shortages.

Long-Term Benefits of Boosting Container Production -

- Lower Freight Costs — With more locally produced containers, the reliance on leased containers from China will decrease, lowering freight costs for Indian shippers.
- Improved Port Utilisation — Indian ports could handle more **mother ships** (large ocean vessels), which would enhance India's position as a **global trade hub**.
- Job Creation — Expanding the container manufacturing sector would create jobs and stimulate **economic growth** within India.
- Resilience in Global Trade — By developing a strong domestic supply of containers, India would be less vulnerable to global disruptions and fluctuations in freight rates.

Conclusion -

- India's container shortage presents a significant challenge to its trade ambitions, but the government is taking steps to address this bottleneck through initiatives like **Make in India** and **PPP collaborations**.
- By increasing container production, reducing manufacturing costs, and improving logistics, India can strengthen its position in global trade, reduce dependency on foreign suppliers, and ensure the smooth transport of goods through its strategically located ports.
- The success of these initiatives will be crucial in realising India's goal of becoming a global trade powerhouse.

Source - [The Hindu](#)

QUESTION - India's container shortage is a critical bottleneck in its trade expansion, despite significant investments in port infrastructure and trade corridors. Discuss the challenges India faces in container production and suggest viable strategies that could enhance its domestic manufacturing capabilities to support its ambitious trade goals. How can government initiatives like the Make in India program and public-private partnerships contribute to resolving this issue?

India's \$500 billion Opportunity

Last month, PM Modi announced a target of \$500 billion (Rs 4.20 lakh crore) in electronics manufacturing by 2030 and this ambition to become a global hub for electronics manufacturing is bold and transformative.

To succeed, India must focus on export-led growth and regional clusters, supported by targeted regulatory reforms.

It is crucial to explore the potential benefits of this initiative, the challenges it faces, and a strategic path forward through regional clustering and regulatory improvements.

Potential Benefits of Electronics Manufacturing for India's Economy -

- Potential to Transform India's Economy —
- Growth in electronics manufacturing can directly contribute to job creation, a critical need given India's large workforce.
- A case in point is the Apple ecosystem, which alone has generated exports of around \$14 billion (Rs 1.17 lakh crore) and employs 160,000 people in India.
- Expanding this sector would multiply such benefits across a range of other companies and supply chains.
- An Opportunity to Capture Electronics Market —
- By becoming a competitive exporter of electronics, India can reduce its trade deficits and enhance its strategic position in global supply chains.
- India's total manufacturing output in 2023-24 was roughly \$660 billion (Rs 55.4 lakh crore), which highlights the scale of the leap required to meet the \$500 billion target in electronics alone.

The Role of Regional Clusters in Driving Growth -

- Engines of Industry Growth —
- A key lesson from the history of manufacturing is that **regional clusters have often been the engines of industry growth.**
- **Successful clusters have emerged in regions like Silicon Valley in the United States, Taiwan, Japan, South Korea, and more recently, Shenzhen in China and the Northern Key Economic Region (NKER) in Vietnam.**
- **These clusters have benefited from geographical proximity, shared infrastructure, and a concentration of suppliers and manufacturers** that collectively boost competitiveness.
- Potential to Become Competitive Manufacturing Zones —
- In India, **regions like Sriperumbudur in Tamil Nadu and Noida in UP have emerged as budding electronics hubs**, contributing nearly 50% of India's electronics exports.
- **Building on these existing clusters** through region-led reforms **could create globally competitive manufacturing zones.**
- However, **for these clusters to match global benchmarks like Shenzhen, significant investments in infrastructure and supportive policies are needed.**

Strategic Steps for Building Competitive Manufacturing -

- Expanding Existing Clusters and Developing Large Special Zones —
- Rather than creating new clusters from scratch, **India can benefit from scaling up regions that are already contributing significantly to electronics exports**, such as Sriperumbudur in Tamil Nadu and Noida in Uttar Pradesh.
- **These clusters already have established ecosystems**, including a network of suppliers, manufacturers, and supporting services.
- However, **their current sizes limit their ability to compete on a global scale.**
- To address this, **the government could declare a large special zone of around 300 square kilometres** that incorporates both existing factories and new industrial parks.
- Attracting Anchor Investors and Building Supply Chain Networks —
- **Anchor investors are typically large companies**, such as global electronics brands or leading component suppliers, whose presence can attract other firms along the supply chain.
- For example, **Apple's decision to partner with suppliers like Foxconn and Pegatron has significantly boosted India's electronics manufacturing ecosystem.**
- To attract such anchor investors, **the government could offer targeted incentives like tax breaks, subsidies for setting up manufacturing units**, and streamlined processes for land acquisition and construction permits.
- These **incentives would make it more attractive for global brands to set up operations in India**, even when other countries like Vietnam and China might offer competitive alternatives.
- Enhancing Infrastructure and Worker Support Facilities —
- Physical Infrastructure —
- This **includes building robust transportation networks, such as highways, ports, and rail links**, which connect the cluster to major cities and international markets.
- **Efficient transport reduces the time and cost of moving goods to ports for export**, which is particularly important for electronics manufacturing, where speed and flexibility are critical.
- Additionally, **the availability of consistent power supply, water, and internet connectivity is essential** for operating high-tech electronics factories.
- Social Infrastructure —
- **Manufacturing clusters also need to address the needs of workers**, who form the backbone of any production ecosystem.
- **Large zones can house worker accommodations, educational facilities, healthcare centres**, and recreational areas.
- This **ensures that workers are close to the factories**, reducing their commute time and improving their overall quality of life.

- **Providing such facilities also makes it easier for companies to attract and retain skilled workers**, thereby enhancing productivity and reducing turnover rates.
- **Implementing a Pro-Export Regulatory Framework —**
- Customising Labor Laws —
- **Electronics manufacturing often involves long production cycles**, which may require flexibility in working hours and shifts.
- **India needs to implement labour laws that allow for extended shifts, overtime, and flexible working conditions**, particularly for women, who constitute a significant proportion of the workforce in electronics factories.
- **By making labour regulations more business-friendly, the government can help attract manufacturers** that require flexibility to meet global demand.
- Easing Taxation and Inventory Management —
- **Electronics manufacturing is characterised by a fast-paced innovation cycle**, requiring the frequent import and export of components.
- To compete with other manufacturing hubs, **India must simplify its tax structure to facilitate seamless cross-border movement of goods.**
- **For instance, allowing foreign companies to manage component inventories without complex customs regulations** could make India a more attractive destination for electronics brands.
- **By benchmarking corporate tax and GST rates** against those in countries like Vietnam and China, **India can ensure that it remains competitive in attracting investments.**
- Streamlining Environmental Regulations —
- While it is important to maintain environmental standards, **many of India's regulatory norms related to pollution, green cover, and building permits are not aligned with global manufacturing practices.**
- **In special electronics zones, the government could grant the EMC authorities the power to adapt these norms** to suit industrial requirements, as long as the broader environmental objectives are maintained.
- **Such flexibility would enable quicker factory setup and expansion**, making India more attractive for large-scale manufacturing projects.
- **Decentralising Administrative Power for Faster Decision-Making —**
- In many successful clusters, local authorities can grant approvals, licenses, and permits without needing to navigate complex layers of bureaucracy.
- **This decentralised approach ensures that businesses can respond swiftly to changes in market demand** or production requirements.
- In India, **devolving such powers to the EMC authority would enable quicker and more efficient resolution** of business concerns.
- **Encouraging Public-Private Partnerships (PPP) for Development —**
- **PPP can play a crucial role in the development of manufacturing clusters** by bringing in expertise, investment, and speed.
- **Private developers can be involved in building plug-and-play industrial parks**, where factories can start production quickly without the need to invest in basic infrastructure.
- **This model has been successful in countries like China, where private developers have helped create high-quality industrial zones** that attract foreign investment.

Conclusion -

- **India's \$500 billion electronics manufacturing target represents a bold vision that could transform the country's economy** and generate millions of jobs; however, the scale of the ambition requires an equally bold approach to reform.
- **By leveraging the power of regional clusters, investing in infrastructure, and implementing tailored regulatory changes, India can create a competitive manufacturing ecosystem.**

QUESTION - India has set an ambitious target of becoming a global hub for electronics manufacturing, with a goal of \$500 billion in electronics manufacturing by 2030. Discuss the potential benefits of this initiative for India's economy and the strategic role of regional clusters in achieving this target. What are the key challenges India must address, and what policy measures can be implemented to ensure the success of this transformative goal?

Agriculture

Yield cannot be the sole indicator for agriculture

India's agricultural system, like many others, has traditionally focused on maximising yield per unit of land. While this approach has ensured food security for a growing population, it has also led to several challenges, including declining nutritional value, environmental degradation, and economic instability for farmers.

The Limitations of Yield-Based Agriculture -

- **Nutritional Decline** — The pursuit of high-yielding varieties has often resulted in a decline in the nutritional content of crops, leading to micronutrient deficiencies among the population. A recent study by the Indian Council for Agricultural Research (ICAR) found that the chase for high-yielding varieties of rice and wheat has reduced micronutrient densities, with zinc levels dropping by 33% in rice and 30% in wheat, and iron dropping by 27% in rice and 19% in wheat.
- **Environmental Impact** — Intensive farming practices, driven by the focus on yield, have contributed to soil degradation, water pollution, and biodiversity loss. The overuse of chemical fertilisers and pesticides has depleted soil nutrients, contaminated water bodies, and harmed beneficial insects and microorganisms.
- **Economic Instability** — While high yields may seem beneficial for farmers, they can also lead to economic instability due to factors such as declining soil fertility, rising input costs, and price fluctuations. For example, the excessive use of chemical fertilisers can deplete soil nutrients over time, requiring farmers to invest more in inputs to maintain yields. Additionally, fluctuations in global commodity prices can have a significant impact on farmers' incomes.

A Need for a Broader Perspective -

- **Beyond Quantity** — Agriculture should not be solely about maximising quantity but also about ensuring quality, particularly in terms of nutritional value. A balanced diet is essential for human health and well-being, and focusing solely on yield can lead to deficiencies in essential micronutrients.
- **Holistic Approach** — A holistic approach to agriculture should consider factors such as environmental sustainability, economic resilience, and social well-being. By adopting sustainable practices, farmers can protect the environment, improve their livelihoods, and contribute to the overall health and development of their communities.
- **Diversification** — Promoting crop diversity can help to mitigate risks, improve soil health, and enhance the nutritional value of food. By growing a variety of crops, farmers can reduce their reliance on a single commodity, protect themselves from market fluctuations, and improve the resilience of their farming systems.

Redefining Agricultural Indicators -

- **Multiple Stakeholders** — Agricultural indicators should be developed by a range of stakeholders, including ministries of health, agriculture, water, and environment. This will ensure that the indicators are relevant to the diverse needs and priorities of different sectors.
- **Outcome-Oriented** — Indicators should focus on outcomes, such as nutritional security, environmental sustainability, and economic resilience. Rather than simply measuring yield, indicators should assess the overall performance of the agricultural system in terms of its ability to meet these goals.

- **Beyond Yield** — Metrics such as soil health, water-use efficiency, and biodiversity should be included in agricultural assessments. These indicators can provide a more comprehensive picture of the health and sustainability of agricultural systems.
- **Landscape Diversity** — Capturing the diversity of crops at both farm and regional levels is essential for resilience. A diverse agricultural landscape can help to mitigate risks, such as pests, diseases, and climate change.

Conclusion -

While yield has been a crucial metric for Indian agriculture, it is time to adopt a broader perspective that considers nutritional quality, environmental sustainability, and economic resilience. By redefining agricultural indicators and promoting a more holistic approach, India can build a more sustainable and equitable food system for the future. This will not only benefit farmers and consumers but also contribute to the overall health and well-being of the nation.

Source - [The Hindu](#)

QUESTION - Critically analyse the limitations of yield-based agriculture in India. Discuss the need for a broader perspective that considers nutritional quality, environmental sustainability, and economic resilience. Suggest measures to redefine agricultural indicators and promote a more holistic approach to agriculture in India.

Environment

Warming Antarctic Peninsula

The Antarctic Peninsula, a mountainous region pointing toward South America, is **experiencing significant changes due to climate change**. A recent study has shown that **plant cover in this area has increased dramatically** over the past few decades, raising concerns about the future of this unique ecosystem.

About the Antarctic Peninsula -

- The Antarctic Peninsula is the **northernmost and most accessible part** of the Antarctica continent.
- The peninsula's Antarctic **tundra** features mountainous landscapes, glaciers and ice shelves.
- The west coast of the peninsula, the area most commonly explored, has the mildest weather in all of Antarctica, where the warmest month is January with an average temperature of 1 to 2 °C.

Key Findings of the Study on Antarctic Peninsula -

- **Rapid increase in vegetation** —
- Research published in Nature Geoscience reveals that vegetation, **mainly consisting of mosses and lichen**, has expanded significantly.
- In 1986, plant life covered less than 1 square kilometer, but by 2021, it had **grown to nearly 12 square kilometers**.
- This is a remarkable **fourteen-fold increase over just 35 years**, with **more than 30% of this growth occurring between 2016 and 2021**.
- **Climate change** —
- The Antarctic Peninsula is **warming at an alarming rate** - five times faster than the global average. The average temperature has **risen nearly 3 degrees Celsius since 1950**.
- This rapid warming is **linked to extreme weather events**, including record-breaking heatwaves.
- **For example**, in July 2023, some areas experienced temperatures around 10 degrees Celsius higher than usual.

What are the Impacts of Increased Vegetation?

- **Soil and ecosystem changes —**
- Mosses can help create soil in an otherwise barren landscape.
- This soil formation could make the region **more hospitable for invasive species**, which may threaten local flora and fauna.
- The changing landscape is a clear sign of human-induced climate change, even in such a remote area.
- **Alteration in Albedo effect —**
- More vegetation could also alter the Antarctic Peninsula's albedo effect, which refers to the ability of surfaces to reflect sunlight.
- **This change can create a feedback loop**, further accelerating warming and impacting global climate patterns.

What are the Implications of Rising Temperatures?

- **Ice loss —**
- A study from 2019 indicated that **the continent has lost 280% more ice mass** in the 2000s and 2010s compared to the previous decades.
- The 2024 sea ice extent was reported to be the second smallest on record, only slightly more than the record low set in 2023.
- As greenhouse gas emissions continue to rise, **the situation is expected to worsen**, leading to more vegetation growth and additional ice loss.
- **Rising global sea levels —** The loss of ice in Antarctica contributes to rising global sea levels, which poses risks for coastal communities worldwide.

Recommendations to Preserve the Integrity of the Antarctica -

- The changes occurring in the Antarctic Peninsula serve as **a stark reminder of the impacts of climate change**.
- As temperatures rise and vegetation increases, **the delicate balance of this unique ecosystem is at risk**.
- The consequences of these transformations could have far-reaching effects, not only for Antarctica but for the entire planet.
- **Addressing climate change** is crucial to mitigate these impacts and preserve the integrity of this remote wilderness.

Source - [The Indian Express](#)

QUESTION - Given the rapid increase in vegetation and rising temperatures in the Antarctic Peninsula, discuss the potential ecological implications and the challenges in preserving the region's unique ecosystem. What measures can be implemented to mitigate the adverse effects of climate change on this fragile environment?