



APPROACH – ANSWER: G. S. MAINS MOCK TEST - 2345 (2024)

Answer all the questions in NOT MORE THAN 200 WORDS each. Content of the answers is more important than its length. All questions carry equal marks.

12.5X20=250

1. What are Primary Agricultural Credit Societies? Discuss their significance in India.

Approach:

- In the introduction, briefly explain Primary Agricultural Credit Societies (PACS).
- Discuss the significance of PACS in the Indian Agriculture sector.
- Conclude accordingly.

Answer:

Primary Agricultural Credit Societies (PACS) are village level cooperative credit societies that serve as the last link in a three-tier cooperative credit structure headed by the State Cooperative Banks (SCB) at the state level. Credit from the SCBs is transferred to the District Central Cooperative Banks (DCCBs), which operate at the district level. The DCCBs work with PACS, which deal directly with farmers.

Since these are cooperative bodies, individual farmers are members of the PACS, and office-bearers are elected from within them. A village can have multiple PACS.

PACS have the following significance:

- **Last mile credit facility:** PACS are involved in short-term lending- also called crop loan. The attraction of the PACS lies in the last mile connectivity they offer. For farmers, timely access to capital is necessary at the start of their agricultural activities, which helps to improve production and increases farm income.
- **Financial Inclusion:** They provide basic banking services of credit to farmers who may not have access to formal banking services. Thus, PACS help to increase financial inclusion in rural areas, where access to formal financial services is limited.
- **Ease of credit:** PACS have the capacity to extend credit with minimal paperwork within a short time, thus providing hassle-free services to rural populations. Most of the paperwork is taken care of by the office-bearer of the PACS.
- **Provisioning of Non-Credit Services:** Apart from credit requirements, PACS provides other critical non-credit services such as farm advisory, quality input supply, provision of farm machinery, processing, output marketing, technology support, etc.
- **Promoting Savings Culture:** PACS encourages farmers to save money, which can be used to improve their livelihoods and invest in their farms.
- **Enhancing Credit Discipline:** PACS promotes credit discipline among farmers by requiring them to repay their loans on time. This helps to reduce the risk of default, which can be a major challenge in the rural financial sector.
- **Multi Service Center:** PACS can be used for providing a diversified suite of products to the local community. These may include trading in pesticides, seeds and fertilizers; custom hiring of agri equipment, value addition activities such as rice milling, seed production, processing infrastructure, and marketing support etc. E.g., Mulkanoor Co-operative Rural Bank and Marketing Society Limited (MCRBMSL) in Telangana.

The Union Budget 2023 has announced Rs 2,516 crore for digitization of 63,000 Primary Agricultural Credit Societies (PACS) over the next five years. It aims at bringing greater transparency and

accountability in their operations and enabling them to diversify their businesses and undertake more activities.

2. *In the context of port-led development in India, highlight the significance of the Sagarmala programme. Also, discuss the challenges associated with it.*

Approach:

- Give a brief introduction about port-led development and the Sagarmala project.
- Highlight the significance of the project.
- Discuss the associated challenges.
- Conclude with a way forward.

Answer:

Port-led development is an approach that leverages the advantages of ports (its location, infrastructure, and connectivity) to create a cluster of economic activities that generate jobs and boost economic growth. In India, the Sagarmala project has been initiated to usher in port-led development in the country.

Sagarmala is a flagship project of the Ministry of Ports, Shipping and Waterways that aims to achieve the development of coastal areas and convert them into engines of economic growth through port modernization, post connectivity enhancement, port-led industrialization, and coastal community development.

Significance of the Sagarmala Project:

- **Reduced logistics cost:** It aims to reduce logistics costs for domestic and international trade through improved connectivity between ports and production centers.
- **Increased efficiency and ease of doing business:** Better administration of major ports, creation of world-class modern infrastructure, and use of digital technologies would result in efficient cargo movement and ease of doing business.
- **Promotion of coastal shipping and inland waterways:** The contribution of India's waterways in the transportation modal mix can be significantly improved from its current level of 6% due to a higher impetus on cargo movement through sustainable and environmentally friendly coastal and inland waterways.
- **Job creation and economic growth:** It would increase merchandise export by an estimated \$110 billion by 2025 and create 10 million new jobs.
- **Better regional growth:** The project would allow India to revive and strengthen its age-old trade links with traditional African, West Asian, and South-East Asian entrepôts.
- **Coastal community development:** Community development funds under the project would be utilized for skill development, livelihood generation, fisheries development and coastal tourism.

Challenges associated with the Sagarmala Project

- **Resource mobilization:** A study by ICRA highlights the mobilization of investments in a timely manner, allocation, and availability of adequate budgetary support as a major impediment to the effective implementation of the Sagarmala project.
- **Multiple taxes:** In comparison to the leading nations of the world, the shipping industry in India is subject to a multiple and complex taxation regime which increases the cost of doing business while deterring maritime investment in the country.
- **Poor coordination:** A Parliamentary Standing Committee Report has flagged poor coordination among different ministries leading to works being planned and executed in silos. This is not only leading to inefficiency but also increased costs and delays.
- **Environmental concerns:** The development of infrastructure along fragile ecosystems presents the threat of coast erosions, coastal accretion, and severe problems of dredging.
- **Increased vulnerabilities to disasters:** Coastal areas, especially the eastern coasts, are vulnerable to natural disasters like cyclones.
- **Security concerns:** The development of a large number of small ports, especially along India's western coast would increase security vulnerabilities, due to the presence of hostile neighbours and the golden crescent drug corridor.

To address the aforementioned challenges, there is a need for better inter-ministerial coordination, integrated planning, resource allocation, and factoring in climate change to create disaster resilience infrastructure.

3. Explain how Minimum Support Prices (MSPs) are decided. Also, discuss the issues associated with the MSP regime in India.

Approach:

- Give a brief introduction about Minimum Support Prices (MSPs).
- Explain how MSPs are calculated.
- Discuss the issues associated with the MSP regime.
- Conclude with a way forward.

Answer:

Minimum Support Price (MSP) is a price support mechanism that acts as a safety net given to farmers to ensure guaranteed prices and assured markets for their products. The MSP based procurement system is aimed to save the crops from price fluctuations due to various unwarranted factors such as delayed monsoon, information asymmetry etc.

The MSPs are fixed twice a year on recommendations of the Commission for Agricultural Costs and Prices (CACP) and then approved by the Cabinet Committee on Economic Affairs. The CACP considers the following three kinds of production cost for every crop, both at state and all-India average levels:

- **'A2'**: It covers all paid-out costs directly incurred by the farmer — in cash and kind — on seeds, fertilisers, pesticides, hired labour, leased-in land, fuel, irrigation, etc.
- **'A2+FL'**: It includes A2 plus an imputed value of unpaid family labour.
- **'C2'**: It is a more comprehensive cost that factors in rentals and interest forgone on owned land and fixed capital assets, on top of A2+FL.

CACP considers **both A2+FL and C2** costs while recommending MSP. CACP reckons only **A2+FL cost for return**. However, C2 costs are used by **CACP primarily as benchmark reference costs** (opportunity costs) to see if the MSPs recommended by them at least cover these costs in some of the major producing States.

Issues associated with MSPs in India:

- **Limited reach**: A survey showed that less than 6%, or over nine crore agricultural households, are the direct beneficiaries of this programme. In 2019-20 alone, three states — Punjab, Haryana and Madhya Pradesh — accounted for 85% of the wheat procurement.
- **Distortion of cropping patterns**: The MSP is biased against 70% of rainfed farmers who grow millets, oilseeds, fruits and vegetables. This has led to a distortion in cropping patterns, not only affecting food crops but also impacting the edible oil sector, forcing India to spend huge amounts on imports.
- **Procurement**: Centralised procurement and storing is one of the biggest challenges of the MSP regime. This not only adds to overhead costs but also leads to a high percentage of wastage as grains rot in warehouses due to inadequate storage facilities.
- **Ecological impact**: MSP regime promotes excessive application of chemical inputs will lead to the loss of soil health, destruction of natural pollinators, excessive extraction of water and reliance on monocultures. This has led to ecological issues such as decreased ground water table, salinity as seen in Punjab.
- **Make India's agri-exports non-competitive**: Mandatory MSPs will render India's agri- exports non-competitive because the government's assured prices are way higher than both domestic and international market prices.
- **Farmer income**: Skewed MSP system of rice and wheat discourages farmers to grow other crops and horticulture products, which has higher demand and could lead to increase in farmers' income.
- **Fiscal burden**: In 2020-21, food subsidy bill was nearly 30% of net tax revenue of the central government, reflecting a huge financial burden on the government.

India needs to improve procurement through increased diversification in procurement interventions. Also, there is a need to come up with better area planning as well as look into the demand of legalizing the MSP.

4. Discuss why the issue of poverty continues to persist in India despite various measures taken for poverty eradication in recent times.

Approach:

- Give a brief introduction about poverty in India.
- Enumerate the initiatives taken by India in this regard.
- Discuss the reasons why poverty is prevalent in India despite the various measures taken to alleviate it.
- Conclude accordingly.

Answer:

Poverty refers to lack of adequate financial resources to meet even the basic needs such as food, clothing, and shelter. As many as **415 million people** exited multidimensional poverty in India over the last 15 years (2005-06 to 2019-21) with the incidence of poverty showing a steep decline from around 55% to around 16% as per the Global Multidimensional Poverty Index 2022.

India has taken various **initiatives to eradicate poverty, such as:**

- **Health and nutrition:** Schemes like Ayushman Bharat for universal health coverage; Pradhan Mantri Matru Vandana Yojana for pregnant and lactating mothers; POSHAN Abhiyaan, the Public Distribution System and the National Food Security Act, 2013 for providing required nutrition to the population, etc., have been implemented.
- **Employment and livelihood:** Various schemes like Deen Dayal Antyodaya Yojana, MGNREGA, Pradhan Mantri Kaushal Vikas Yojana, etc. have been initiated for providing employment opportunities for sustainable livelihood.
- **Social security:** Schemes like Pradhan Mantri Jeevan Jyoti Bima Yojana, Pradhan Mantri Suraksha Bima Yojana, etc. provide social security to the poor by ensuring financial coverage to the insured's dependents in case of their unfortunate death.
- **Schemes to overcome the impact of the COVID-19 pandemic:** Schemes like Pradhan Mantri Garib Kalyan Yojana, PM Cares for Children, PM Street Vendor's AtmaNirbhar Nidhi (PM SVANidhi), etc., have been implemented for providing help during the COVID-19 pandemic.
- **Others:** Affordable housing through the Pradhan Mantri Awas Yojana, and affordable clean cooking fuels through subsidised fuels through the Pradhan Mantri Ujjwala Yojana are a few other measures towards fighting poverty.

Despite these measures, the UNDP states that India continues to have the largest number of poor people worldwide (228.9 million). The **reasons for persistent poverty in India are:**

- **Limited fiscal capacity** of the Central as well as state governments, which restricts the government from allocating commensurate resources for poverty eradication schemes.
- Benefits of schemes do not reach the poorest people due to existing **corruption and administrative inefficiencies**.
- Factors like fragmentation of land holdings, disguised unemployment due to surplus labour, etc. lead to low agricultural productivity due to which a major chunk of the population is not able to raise its income level.
- Due to rapid population growth and limited resource availability, it becomes difficult to invest in the human capital needed to secure the well-being of the poor people.
- There is a lack of **adequate economic growth and wealth distribution** in India due to lack of inclusive growth. Also, the trickle-down effect of overall economic growth is effective only to a small extent.
- **International events** like wars, pandemics, etc. lead to abnormal economic situations, which destabilise macroeconomic parameters such as rate of inflation, which further fuels poverty.

India needs to reorient its spending away from subsidies towards support to targeted poor and vulnerable sections and increase public investment to support long-term development to tackle the situation of persisting poverty.

5. The roads and highways sector is expected to lead the growth of physical infrastructure in India. Discuss. Also, bring out the reasons behind the delay in implementation of projects in this sector.

Approach:

- Give a brief introduction about the road sector in India.
- Analyse the role of the roads and highways sector in leading the growth path for infrastructure.
- Bring out the reasons for delay in implementation of projects in this sector.
- Conclude accordingly.

Answer:

India has the **second largest road network** in the world of about 63.72 lakh km. Road networks contribute more than **3.6 per cent of the Gross Domestic Product (GDP)** and over 85 percent of India's passenger traffic and about 65 percent of its freight are transported on roads.

Road infrastructure expansion has a multiplier impact on the development of a country and is **expected to lead the growth of physical infrastructure in India due to the following reasons:**

- **Supports logistics sector:** Roads and highways help to improve the supply chain management by cutting logistic costs, increasing cargo handling capacity and reducing the turn-around time.
- **Complements other modes:** Roadways facilitate the multi-modal logistics parks and act as a feeder to other modes of transport, as they provide a link between railway stations, air and seaports.
- **Creation of new urban centres:** A number of satellite towns get developed around existing urban areas due to road connectivity, which also provides easy and quick mobility to the workforce.
- **Addressing development deficit:** The development of roadways in hitherto deficit areas helps other facilities like schools, hospitals, internet connectivity, etc. to develop.
- **Enhancing integration:** Roadways provide for the integration of a region hitherto inaccessible due to difficult terrain and provide people and businesses new opportunities for economic growth. For example, the Zojila tunnel on the Srinagar-Leh road.

Despite the significance, as per the report by the Ministry of Statistics and Programme Implementation, in the road transport and highways sector, 407 out of 717 projects are delayed. **The various factors that cause delay during the different phases are:**

- **Initiation of the projects:**
 - **Financial problems:** It is due to improper project feasibility study, underestimation of project cost, etc.
 - **Land acquisition issues:** Unpredictable and lengthy land acquisition process coupled with agitations and lengthy inter-departmental permission processes are major concerns.
- **Planning:**
 - **Delay in handing over site to the contractors:** Delay in approval of project-related documents, poor project planning and scheduling, delay in conducting field surveys, delay in awarding the contracts, etc. are the major issues in this phase.
 - **Late procurement of machinery and equipment:** This is mainly due to slow mobilisation of proper machinery and equipment, delay in material procurement, late approval/permission/permits by the concerned authorities, etc.
- **Execution stage:**
 - **Slow decision-making:** Slow decision-making due to factors like lack of collaboration among the stakeholders, non-availability of timely and correct information for effective decision-making, etc.
 - **Incorrect contracting practices:** Delays occur owing to poorly written and heavily one-sided contracts, tendency to transfer all the risks to the contractor, etc.

- **Monitoring and control:** Poor project monitoring and control, ineffective delay penalties, improper site supervision, shortage of technical and site staff are the major issues in this regard.

India's roads and highway sector is evolving due to strong demand, increased investments, and significant policy backing. Ensuring proper compensation and rehabilitation during the land acquisition stage, greater private sector participation, increased contribution of long-term investors, proper project planning and scheduling, etc. will go a long way in timely completion of the roads and highway projects.

6. Highlighting the challenges faced by the food processing sector in India, bring out the steps taken by the government to address them.

Approach:

- Give a brief introduction about the current status of the food processing industry (FPI) in India.
- Write the challenges faced by the food processing sector in India.
- Bring out the steps taken by the government to address these challenges.
- Conclude accordingly.

Answer:

The Indian food processing industry accounts for **32% of the country's total food market, and is ranked fifth in terms of production, consumption, export and expected growth**. It contributes around 13% of Indian exports, and 6% of the overall industrial investment in the country. While the food processing industry in India is on an impressive growth trajectory, **there are certain challenges that are holding it back, as given below:**

- **Lack of cutting-edge infrastructure:** Many food processing businesses operate in the **small and medium enterprises (SMEs) sector**, which often lacks cutting-edge infrastructure like post-harvest facilities, cold storage, etc.
- **Limited access to credit:** Access of the SMEs to finance is a perennial problem, predominantly due to a lack of proper credit history mechanism for SMEs.
- **Inefficient supply chain:** Inadequate availability of raw material, overdependence on Agricultural Produce & Livestock Market Committee (APMCs), poor and inadequate primary processing and storage and distribution facilities, result in fragmented and institutional gaps in value chains thereby affecting the last mile connectivity and leading to excessive wastages.
- **Inadequate quality standards:** Enforcing quality and safety standards remains challenging in a large number of entities participating in the food value chain, particularly in the unorganized sector, leading to adulteration of common processed foods.
- **Lack of innovation and research:** There is lack of research and academia-industry linkage as well as lack of innovation in cold storage solutions and quality standards, which limit the development of the food processing industry.

In this context, **the Ministry of Food Processing Industries (MoFPI) has taken various steps to boost investments in the food processing industry, such as:**

- The government has launched the umbrella **Pradhan Mantri Kisan Sampada Yojana (PMKSY)** for the sectors which aim to create modern infrastructure for food processing and preservation, improve access to finance for food processing SMEs, and provide training and technical assistance to these enterprises.
- The government has launched **Pradhan Mantri Formalisation of Micro food processing Enterprises (PM-FME) scheme** envisioning enhancement of the existing individual micro-enterprises in the unorganized segment of the food processing industry and formalization of the sector.
- **Food processing is one of the key sectors identified under the Production Linked Incentive (PLI) scheme** to support creation of global food manufacturing champions and support Indian brands of food products in the international markets.
- The government has also set up a number of **Mega Food Parks and integrated clusters**, which provide a range of world-class facilities and support services to food processing companies and clusters.

- **NABARD has established a special fund** to provide low-cost financing to approved food parks and agro-processing facilities.
- **100 percent Foreign Direct Investment (FDI)** approval under automatic route has been permitted in the food-processing sector.

The food processing industry in India holds critical links and synergies between the two pillars of our economy i.e. industry and agriculture. With greater impetus on robust infrastructure, effective implementation of policies and with coordination among all stakeholders, this sector can become an even more important component of India's GDP and overall economic growth.

7. **What is urban agriculture? Highlight the benefits and challenges associated with it.**

Approach:

- Define urban agriculture and mention its types in introduction.
- Highlight the benefits of urban agriculture.
- Mention various challenges associated with urban agriculture.
- Conclude with suggestions.

Answer:

Urban agriculture refers to agricultural practices in urban and peri-urban areas. Urban agricultural practices are geared towards cultivating or growing a wide range of food and non-food products. In recent years, urban and peri-urban areas worldwide are estimated to have produced between **5-10 percent of legumes, vegetables, and tubers, and 15-20 percent of all food**. Various types of urban agriculture include **vertical farming, rooftop gardens, street landscaping, aquaponics, urban beekeeping etc.**

Benefits of urban agriculture

- **Health and nutrition benefits:**
 - Urban agriculture **eliminates the supply chain intermediaries**, thus reducing nutrient deterioration and food damage during transportation.
 - Urban agriculture promises **fresh food availability** thus reducing the dependence on processed foods thereby reducing risk of lifestyle diseases.
- **Economic benefits:**
 - Food supply chain depends on various factors like oil prices, import and export of agricultural commodities etc. Urban agriculture can help build a **resilient food supply chain by reducing time and distance** from farm to fork.
 - Urban agriculture leads to the establishment of **new businesses, which generates employment opportunities** for people in the community.
- **Environmental benefits:**
 - Urban agriculture supports **biodiversity, improves air quality, and can mitigate urban heat island impacts**.
 - It can help in reducing carbon emission by **cutting down the need for transportation and packaging**. Green plantations can also act as **carbon sinks**.
 - Urban agriculture has plenty of benefits on the environment. It **reduces storm water runoff** through aquaponics and street landscaping.
- **Waste management:**
 - **Organic waste can be composted** and used in food production that can reduce total quantum of waste, thereby, reducing requirement of landfills.

Challenges associated with urban agriculture:

- **Limited and exclusive practice:** Due to **high rents, limited accessibility** to land, and high input costs, farming on private land remains an **exclusive practice**.
- **High water demand:** Urban farmers are using water from **potable municipal water supplies**, which can lead to **water shortages** in the cities.
- **Lack of recognition:** Urban agriculture is largely **invisible from government policies** for urban areas. For instance, farming on the Yamuna floodplain was traditionally **regarded as a nuisance** and **remained unrecognised** for a long time.

- **Others issues**

- It is **prone to sun and radiant heat problems** as it is practiced in areas where there is concrete, pavement and large structures.
- Usage of pesticides and harmful chemicals can lead to presence of **heavy metals and other toxic chemicals in water, soil and air**.
- Concerns regarding **food products being stolen and destroyed** by the people, street dogs etc.

Urban agriculture shows great potential in the fulfilment of basic human needs and protection of the environment. So, it is imperative that urban agriculture is properly incorporated in city plans and tax benefits can be provided to promote the same among private players.

8. Explain the link between human capital and economic growth. Also, identify the key areas that need to be focused upon in order to tackle the human capital deficit in India.

Approach:

- Define human capital in introduction.
- Explain the link between human capital and economic growth.
- Discuss the key areas where the government can focus to address the human capital deficit in India.
- Conclude appropriately.

Answer:

Human capital can be broadly defined as the stock of knowledge, skills and other personal characteristics embodied in people that helps them to be productive. It includes assets like **education, training, intelligence, skills, health**, and other things employers value such as **loyalty and punctuality**. Human capital formation plays an important role in overall economic growth of any country.

Link between human capital and economic growth

- The **skill of an educated person is more than that of an uneducated person** and the former generates more income than the latter. Hence, **an educated person contributes more to the economic growth** as compared to an uneducated person.
- Similarly, a **healthy person could provide uninterrupted labour supply** for a longer period of time, thus promoting economic growth.
- Both education and health, along with other factors like **on-the-job training, job market information and migration**, increase an individual's income generating capacity.
- The enhanced productivity of human beings or human capital stimulates **innovation and creates the ability to absorb new technologies**.
- Further, the **causality between human capital and economic growth flows in either direction**. That is, higher income causes the building of a high level of human capital and high level of human capital causes growth of income and thereby economy.

India was ranked at the **116th position out of 174 countries** in the World Bank's annual **Human Capital Index 2020** that benchmarks key components of human capital across countries. There is a significant human capital deficit in India and the key areas that need to be focused upon to tackle this deficit are:

- **Healthcare:** India is among the countries having one of the **lowest public healthcare budgets**. There is a high prevalence of **malnutrition and a high incidence of diseases**. Improving healthcare infrastructure, access, and quality can help improve the health of the population, leading to a healthier workforce.
- **Quality Education:** According to UNICEF, **poor quality education is leading to poor learning outcomes in India**, ultimately pushing children out of the education system. To improve human capital, there needs to be a focus on improving the quality of education and increasing access to education for all, especially girls and those living in rural areas.

- **Skill development:** India has a **huge demographic dividend but only 49 per cent of its young population is employable**. India needs to invest in skill development programs that equip individuals with the necessary skills for the workforce.
- **Gender equality:** India has historically reported **low female labour force participation rate**. Improving gender equality and empowering women can help increase human capital and economic growth.

The economic and social benefits of human capital formation are well known. India has a rich stock of scientific and technical manpower in the world. The need of the hour is to improve it qualitatively and provide such conditions so that they are utilised for India's development. In view of this, the Indian government has taken various initiatives to strengthen human capital, such as Ayushman Bharat Yojana, National Education Policy, Atmanirbhar Bharat Yojana, Samagra Shiksha, Urban Learning Internship Programme and National Skill Development Mission.

9. *Despite several initiatives taken by the government to promote organic farming in India, there remain various challenges that need to be addressed before it becomes a viable alternative for Indian farmers. Discuss.*

Approach:

- Give a brief introduction about organic farming.
- Enumerate the initiatives taken by the government of India to promote organic farming in India.
- Discuss the challenges associated with organic farming, which prevents it from being a viable option for Indian farmers.
- Conclude by giving a way forward.

Answer:

Organic farming is an agricultural system, which is based upon sound agronomic practices, crop rotation, use of farmland manure as biofertilizers for enhancing soil productivity and use of natural methods and biopesticides to control pests and weeds.

In light of the benefits of organic farming in terms of addressing issues of soil, ecology and human health and giving impetus to sustainable agriculture, several initiatives have been taken by the government to promote it:

- **Organic Farming Policy, 2005:** It aims to promote technically sound, economically viable, environmentally non-degrading and socially acceptable use of natural resources for organic farming.
- **Paramparagat Krishi Vikas Yojana (PKVY):** It promotes organic farming through adoption of organic villages by cluster approach and Participatory Guarantee System (PGS) certification.
 - **Bharatiya Prakritik Krishi Paddhati:** It is a sub scheme of PKVY which aims at promoting traditional indigenous practices, which give freedom to farmers from externally purchased inputs.
- **Mission Organic Value chain development for North-eastern Region:** It aims to develop certified organic production in a value chain mode to link growers with consumers.
- **National Program for Organic Production (NPOP):** It grants organic farming certification through a process of third party certification for export purposes.
- **Certification scheme for regulation of organic products:** Food Safety and Standards Authority of India (FSSAI) is responsible for regulating and certifying organic food in the domestic market and imports.
- **Agri-export Policy 2018:** It aims to promote novel, indigenous, organic, ethnic, traditional and non-traditional Agri products exports.

However, there remain following challenges, which need to be addressed to make organic farming a viable option for Indian farmers:

- Many **farmers have only vague ideas** about organic farming and its advantages as against the conventional farming methods. Use of bio-fertilizers and bio pesticides requires awareness and willingness on the part of the farming community.

- The **cost of cultivation increases** as it takes more time and energy to produce than its chemical-intensive counterpart. Many farmers are apprehensive about adopting organic farming due to the high production cost and the **three-year transition period** when farmers have to wait before getting their farms certified.
- Moreover, **specialised farmer training costs, higher processing and inventory holding costs, and increased packaging, logistics and distribution costs** add to the price of end products.
- The **absence of organic food products across all segments** in the market is a concern. Consumers find little value buying limited organic products at a premium when the rest of the foodstuff they consume is non-organic.
- Organic farmers are **unable to save their crops using traditional methods of pest control** and there is inadequate research and development of organic herbicides.
- Many **counterfeit organic products are available** in the markets, which adversely impact the industry, consumer trust and farmer income.

Thus, measures such as vigorous campaigns for increasing awareness of farmers and consumers, training and hand holding of farmers, financial assistance by government, capacity building in certification, green market development. Maintaining an accurate audit stream and stringent punishment for selling counterfeit products etc. are required to make organic farming a viable option.

10. Bring out the differences between the New and the Old Pension Schemes. Also, discuss the rationale behind the introduction of the New Pension Scheme in 2004.

Approach:

- Introduce by highlighting the significance of pension.
- Enlist the differences between old and new pension scheme.
- Briefly explain the rationale behind introduction of New Pension Scheme.
- Conclude accordingly.

Answer:

A pension is a fund into which a sum of money is added during an employee's employment years and from which payments are drawn to support the person's retirement from work in the form of periodic payments. Pension, which forms a key component of social security, plays a crucial role in a country like India, by ensuring the retirement security of the elderly, whose number is likely to increase significantly in the coming decades.

In India, multiple options are available for pension. Two of the most prominent ones have been the Old and the New Pension Schemes. **The New Pension Scheme (NPS) replaced the Old Pension Scheme (OPS) but recently, revival of the OPS by a few states** has triggered the debate between the two.

Difference between NPS and OPS

Particulars	New Pension System (NPS)	Old Pension System (OPS)
Nature	NPS is a defined contribution pension where employees contribute towards NPS during their years of employment.	OPS is a defined benefit pension for government employees on the basis of their last drawn salary . They also benefit from the Dearness Relief's twice-yearly revision.
Eligibility	All Indian citizens between 18 and 65 years are eligible for the NPS.	It applies to Government employees only.
Risk	It involves risk as the NPS amount is invested in market-linked securities .	No Risk is involved.

Tax Benefits	Tax-deductible annual investments of up to ₹1,50,000 are under Section 80C and ₹50,000 under Section 80CCD (1B) of the Income Tax Act, 1961 .	No tax benefits are applicable to the employees.
Pension Amount on retirement	60% of pension funds are tax-free when redeemed, while the remainder is taxable and remains invested in annuities .	It provides a fixed monthly pension of 50% of the last drawn salary .

Rationale behind introduction of NPS

NPS was introduced in **2004** based on the report of **OASIS (Old Age Social and Income Security) Project** due to following reasons:

- **Increasing pension liability** of the government with **no specific growing corpus** for payments.
- **Unsustainable nature of OPS** as pension liabilities kept climbing with increasing life expectancy due to better health facilities.
 - By **2020-21**, the **Centre's** pension bill jumped by **58 times from its 1991 figure**. For some states, it is very serious. For instance, for Himachal, pensions account for almost 80% of the state's own tax revenues.
- NPS seeks to **inculcate the habit of saving** for retirement amongst the citizens. It is an attempt towards finding a sustainable solution to the problem of providing adequate retirement income.
- NPS provides **seamless portability across jobs and across locations**, unlike all current pension plans, including that of the EPFO. It would provide a hassle-free arrangement for individual subscribers.

According to the RBI, OPS increased the government's liability. In short, the OPS puts the burden of employees' pensions on the states, risking their financial security. Whereas, returns in the new pension system are market-linked, and involve contributions from both employers and employees.

11. *Bring out the difficulties that India faces in achieving energy security. What steps have been taken in recent times in this context?*

Approach:

- Introduce by highlighting the need for energy security in India.
- Mention the hurdles that India faces in this regard.
- Enlist the steps taken to achieve energy security.
- Conclude accordingly.

Answer:

Energy security means **uninterrupted availability of energy sources** at an affordable price. India, being one of the fastest growing major economies, is also the fastest growing energy consumer in the world. However, India with 17% of the world's population, has just 0.8% of the world's known oil and natural gas resources.

The following are the difficulties that India faces in terms of its energy security:

- **Policy-related difficulties:** India has not been as successful as envisaged in attracting international investments in domestic hydrocarbon exploration. For instance, the New Exploration Licensing Policy (NELP) and Hydrocarbon Exploration and Licensing Policy have failed to attract interest from major players in the sector.
 - There are also delays due to regulatory and environmental clearances affecting coal mining in India.
- **Economic issue:** Over 80% of India's energy needs are met by coal, oil and natural gas. Inadequate domestic supplies of these hydrocarbons is forcing the country to increase its import bill.
 - Rising fuel subsidies, and rising Current Account Deficit (CAD) increase the vulnerability of the Indian economy.

- **Accessibility challenge:** In rural areas, biomass accounts for approximately 85-90% of total primary fuel consumption for cooking. This has serious health impacts on the rural population.
- **Inadequate infrastructure and lack of skills:** There is lack of skilled manpower and poorly developed infrastructure for developing conventional and unconventional energy and making energy accessible.
- **External challenges:** India's energy security is also affected by geo-political factors. For instance, due to conflict between the USA and Iran, India had to reduce oil imports from Iran.

The following are the steps taken by India in this regard:

- **Enhancing efficiency:**
 - The **National Mission for Enhanced Energy Efficiency** has been launched to conduct a thorough cost-benefit analysis of the available energy-efficient technologies and products across all sectors.
 - To enhance vehicle fuel efficiency gains, **BS VI norms were implemented** in 2020.
- **Infrastructure:**
 - Indian Strategic Petroleum Reserves Ltd. has constructed **three strategic petroleum reserves** in order to meet any supply shocks due to any external exigencies like wars, natural disasters, etc.
- **Policy changes:**
 - NITI Aayog launched the **India Energy Security Scenarios, 2047**, as an energy scenario-building tool to explore a range of potential future energy scenarios for India, for diverse energy demand and supply sectors.
 - India is aiming to harness **50% of required energy from renewable resources** by 2030.
- **India's energy diplomacy:**
 - **The Indo-US Nuclear Deal opened new vistas** for India in the field of nuclear energy facilitating cutting-edge technology and nuclear fuel. India has also started to engage with Kazakhstan and Australia for nuclear fuel.
- **Increasing accessibility to clean energy:**
 - India has already committed to bring **electricity to every household by 2022**.
 - To bring clean fuel in rural areas, the **Pradhan Mantri Ujjawala Yojana** has been launched.
 - On the agricultural front, through the PM KUSUM scheme, solar irrigation pumps have been distributed.

Recently, the Prime Minister has also asked for the implementation of "**Energy Atmanirbharta**" by 2040, which addresses our "strategic autonomy" while focusing on "energy security".

12. *Discuss how technology can help in addressing the challenges faced by the agricultural sector in India.*

Approach:

- Introduction by highlighting the challenges faced by the agricultural sector in India.
- Explain how technology can provide solutions for these problems.
- Conclude accordingly.

Answer:

Agriculture in India is a primary source of livelihood for the majority of the population. The challenges that adorn agriculture include smaller and fragmented land holdings affecting crop output and productivity, labour shortages, inadequate price earnings for farmer produce, inefficient farming techniques, unavailability of credit, etc. Further, changing weather patterns owing to climate change has led to higher temperatures and unanticipated rainfall across the country, resulting in reduced crop yields and overall food production. All of these challenges need a different and technological approach to deal with.

Technologies that can provide solutions to the challenges faced by Indian agriculture are discussed below:

- **Biotechnology:** Advances in **seed science** (molecular markers and HYVs such as Pusa Basmati), **genetically engineered crops** (BT Cotton, BT Brinjal), **tissue culture** (especially in fruits and vegetables) are making crops resilient, high yielding, more drought and pest resistant, boosting agricultural productivity and increasing the resilience of food producers to environmental shocks.
- **Precision agriculture:** Micro-irrigation systems like **sprinkler and drip** irrigation systems can enhance water efficiency in areas of depleted groundwater tables and make farming sustainable. Real-time weather forecasting and ultra-high-resolution imaging using optical sensors and drones can help farmers with their day-to-day decisions on fertilizer inputs, water stress and soil degradation with pinpoint accuracy.
- **Frontier technologies:** With more than 80% land holdings being marginal and fragmented in India, vertical farming and hydroponics promise scale of operations reducing land and water costs and improving quality of produce and yields. **LED lighting and automated control systems** are increasingly being used in modern greenhouses to exactly adjust to the growing environment with the requirement of lesser sunlight to grow plants.
- **Digitized platforms:** Tech-enabled integrated online platforms such as **e-NAM** connect farmers directly with consumers, which not only boosts the income of farmers by reducing intermediaries but also improves the overall efficiency of the entire agri-food system by reducing food loss and wastages. Further, digitization of information and access to credit through Direct Benefit Transfer (DBT), timely updates and tips for farmer inputs, government schemes via mobile apps, etc. have made agri-extension services more accessible to the farmers at the last mile.
- **Smart solutions:** The emergence of cutting-edge technologies like GIS, GPS, Big data analytics, AI and IoT, has the potential to provide farmers with better crop output, anomalies and early disease detection in plants, price predictions, etc helping them in forming educated decisions. Further, **cloud seeding technology** addresses the challenge of erratic rainfall, especially in drought prone regions.
- **Farm mechanization:** Labour shortages and manual labour can be dealt with farm mechanization tools and advanced equipment such as GPS enabled autonomous tractors, tillers, drones, robotics, etc. to increase farm productivity.
- **Bio-fortification:** Bio-fortified varieties (rich in zinc, iron, calcium, etc.) with increased nutrient density of food crops through conventional plant breeding methods can play an important role in improving nutritional security of the poor and undernourished population.

Technological solutions must be adopted effectively by farmers to reap the benefits and must be complemented with the structural changes in the agricultural sector in order to make farming more sustainable and profitable and double the income of farmers as envisaged.

13. Give a brief overview of the various industrial policies that India has implemented since its independence.

Approach:

- Introduce by giving brief details about the importance of industrial policies.
- Discuss the various industrial policies implemented in India since independence.
- Conclude accordingly.

Answer:

A nation can progress only if it has a thriving industrial sector, as it provides relatively stable employment, which promotes modernisation and overall prosperity. India has implemented various industrial policies since independence, as the industrial sector helps to maintain steady growth in productivity, create more employment opportunities, utilize human resources optimally and accelerate a nation's progress by matching international standards and competitiveness.

Overview of the industrial policies implemented since independence in India:

- **Industrial Policy Resolution, 1948:** It ensured that the Indian economy became a **mixed economy**.
 - Industries were **divided into 4 categories** i.e. exclusive monopoly of the Central government (arms and ammunitions, atomic energy and railways), new undertakings undertaken only by the State (coal, iron and steel, ship building, etc.), industries of basic importance to be regulated by the government and the remaining which were open to the private enterprises, individuals and cooperatives.
 - The government **restricted foreign investments**.
- **Industrial Policy Resolution, 1956:** This policy is also known as the **Economic Constitution of India**.
 - It emphasised on the **need to expand the public sector**, build up a large cooperative sector and prevent private monopolies.
 - It **classified industries into three sectors** i.e. **Schedule A**, which covered the public sector (17 industries), **Schedule B**, which covered the mixed sector i.e. both public and private (12 Industries) and **Schedule C**, which covered only private industries.
 - It stressed on the importance of cottage and small-scale industries for expanding employment and economic decentralisation.
- **Industrial Policy Statement, 1977:** It was an **extension of the 1956 policy**.
 - It focussed on employment to the poor and reduction in the concentration of wealth, decentralisation and **prioritised small-scale industries**.
 - This policy imposed restrictions on multinational companies (MNCs).
- **Industrial Policy Statement, 1980:** It addressed the need for **promoting competition** in the domestic market, modernization, selective liberalization, and technological upgradation. It **liberalised licensing** and provided for the automatic expansion of capacity.
 - Due to this policy, the faith in the Monopolies and Restrictive Trade Practices Act, 1969, (**MRTTP Act**) and Foreign Exchange Regulation Act, 1973, (**FERA Act**) was reaffirmed.
- **New Industrial Policy, 1991:** Its main objective was to provide facilities to the market forces and to increase efficiency through **liberalization** (reduction of government control), **privatization** (increasing the role and scope of the private sector) and **globalisation** (integration of the Indian economy with the world economy).
 - The government allowed domestic firms to import better technology to improve efficiency and to have access to better technology.
 - The foreign direct investment (FDI) ceiling was increased from 40% to 51% in selected sectors.
 - The maximum FDI limit was made 100% in selected sectors like the infrastructure sector. Also, the Foreign Investment Promotion Board was established.
 - Industrial licensing was abolished, except for 18 industries.
 - Under the MRTTP Act, a MRTTP commission was established to regulate monopolistic, restrictive and unfair trade practices.

Further, in this direction, the government launched the **National Manufacturing Policy, 2011** and **Make in India scheme in 2014**. Also, in recent times, the need of a new industrial policy has been felt for scripting the emergence of a new and confident India, which is able to provide inclusive and sustainable prosperity for all.

14. *India could emerge as the top aviation market globally by the turn of the decade. In this context, discuss the key drivers of this growth as well as the challenges associated with the Indian civil aviation sector.*

Approach:

- Briefly explain the potential of Indian aviation market in the introduction.
- Discuss the key factors, which are driving this growth.
- Also, state some key challenges, which the sector is facing.
- Conclude with a way forward.

Answer:

India has become the **third-largest domestic aviation market** in the world and is expected to **overtake the UK** to become the third-largest air passenger market by **2024**. Further, the Indian aviation sector **contributed approximately 5% of the GDP** and created around 4 million jobs. There is also a US\$ 72 billion gross value-added contribution to the GDP by the sector.

Key factors driving the growth of the aviation sector in India include:

- **Higher household income:** Increasing household income is adding to more business travel by professionals and increased leisure travel by individuals.
- **Entry of low-cost carriers:** It has made air travel affordable for the common man and is driving domestic traffic.
- **Increased FDI inflows:** Up to **100% FDI through the automatic route** has been permitted in non-scheduled air transport services, helicopter and seaplanes services, etc. thereby driving infrastructure development in aviation.
- **Increased tourist inflows:** With an increase in tourism, air travel growth has also increased. In 2021, out of 1.52 million Foreign Tourist Arrivals in India, 87.5% entered via air routes.
- **Development of modern airports with new technologies:** Modern airports with advanced technology in terms of speed, capacity, sustainability goals, etc., contribute further to the aviation industry.
- **Supportive policies of the government:** Government interventions such as Ude Desh ka Aam Naagrik (UDAN), NABH (Nextgen Airports For Bharat) Nirman Initiative, etc. are also supporting aviation development.

Challenges associated with the aviation sector in India are the following:

- **Fuel cost:** Jet fuel price, which accounts for 20% to 30% of operational costs, rose by more than 70% during the first 6 months of 2022, one of the steepest increases since 2002. Also, the cost of Aviation Turbine Fuel (ATF) in India is among the **highest in the world** due to high taxes and other levies.
- **Infrastructure:**
 - Many airports in the country are either old and need modernization or are located in areas that are difficult to access.
 - To accommodate increasing number of flights and passengers, more runways are required but building them is expensive, time-consuming, and requires land acquisition, which faces significant hurdles in India.
 - India's air traffic management system needs to be upgraded to improve efficiency and safety.
- **Multiple regulations:** Involvement of multiple government agencies in regulating different aspects, including the Ministry of Civil Aviation, the Directorate General of Civil Aviation, the Airports Authority of India, and the Bureau of Civil Aviation Security, creates uncertainty in the regulatory policies, unnecessary delays and increases compliance costs.
- **Shortage of skilled workforce:** Aviation training is expensive and requires significant investment in infrastructure and equipment. This makes it difficult to pursue a career in the industry. Also, training facilities in India need to be updated to meet the international standards.
- **Security measures and efficiency:** The industry is subjected to a wide range of security regulations, given the potential of terrorist attacks and evolving security threats. Security measures can be time-consuming and add to the overall cost of travel.

Though India pursues a dynamic aviation policy, it needs to encourage a **vibrant private sector without permitting cartelisation** and develop its major metro airports into **mega transportation hubs** like Dubai, Singapore and London. Further, **the Aircraft Act (1934) and the Aircraft Rules, 1937** need to be regularly updated in order to keep pace with modern aerospace technology.

15. Discuss the gaps that exist in creating a safe and secure railway network in India.

Approach:

- Introduce by stating the recent initiatives taken for a safe and secure railway network in India.
- Discuss the gaps in this context.
- Suggest some measures to ensure rail safety.
- Conclude accordingly

Answer:

In the past few years, many steps have been taken to improve the railway's safety and security, such as creating the Rashtriya Rail Sanraksha Kosh, eliminating level crossings, track modernisation, etc. However, several gaps still remain. Recently, the **CAG** has stated that more than 3.30 lakh wagons of the Indian railways were operated without requisite approvals after repairs in workshops and terminal yards, thereby compromising with rail safety.

Gaps in creating a safe and secure railway network in India include:

- **Lack of coordination:** As per the CAG report, a huge demand and supply gap is created due to a lack of coordination between the Railway Board and Zonal Railways necessitating the use of old and broken down wagons.
- **Backlogs and delays:** As per the Standing Committee on Railways, there are almost 1.5 lakh bridges in serious need of care. Also, there are huge backlogs in the renewal and replacement of overaged assets critical for the safe running of railways.
- **Financial constraints:** Over-reliance on budgetary allocations to meet capital expenditure needs and the inability of the railways to mobilize enough internal resources, coupled with a **high operating ratio (from 97 % in 2018-19 to 107 % in 2021-22)**, creates major hurdles in the modernization of railways.
- **Inadequate safety systems:** Lack of fire detection systems, and poor maintenance of tracks combined with their location in extreme weather conditions increase the vulnerability of the railway networks and hamper safety of operations.
- **Increase in crimes:** More than 1,500 incidents of stone pelting on moving trains were reported nationwide in 2022. Further, in 2020, nearly 373 cases of robbery were registered that increased to 571 in 2021 and 699 in 2022.
- **Human errors:** Out of the major factors that led to accidents, such as mechanical errors, poor track repair, and maintenance, bridge/tunnel collapse, etc., most of the railway accidents were attributed to human errors.

In this context, various steps need to be taken to address the gaps, such as:

- **Modernization of railway infrastructure:** Renewal or replacement of the railway network and bridges needs to be prioritized to ensure their structural safety for near as well as long-term future.
- **Internal resource mobilization:** The railways should look to reduce its operating ratio so that there is augmentation of internal resources for capital expenditure.
- **Greater focus on R&D:** Apart from importing modern technology, indigenous R&D in railway safety should be augmented to reduce accidents and passenger casualties.
- **Creation of a Rail Safety Authority:** It is needed to ensure effective coordination among different stakeholders, including Ministries and Departments and to avoid duplication of effort.
- **Establishment of a State-Level Security Committee:** It would lead to increased coordination between the Central and State level agencies and address the misuse of railway networks by criminal elements.
- **Better training and framing of code of conduct:** Creating a code of conduct for safety to infuse safety ethos among employees, along with better training can help reduce human errors.

The implementation of above-mentioned recommendations coupled with intensive investigation and safety campaigns across the country are required to create a secure railway in India and achieve the goal of zero accidents and zero deaths.

16. Discuss the impact of persistent economic inequality in India and state the challenges in addressing the issue.

Approach:

- Introduce the answer with data related to inequality in India.
- Discuss the impact of persistent economic inequality.
- State the challenges in addressing economic inequality.
- Conclude accordingly.

Answer:

According to a report released by **Oxfam India on inequality**, India is not only one of the fastest growing economies in the world but also one of the most unequal countries. The report finds that just **5 percent of Indians own more than 60 percent of the country's wealth**, while the bottom 50 percent of the population possess only 3 percent of the wealth.

Such a high level of economic inequality may have the following impacts:

- **Economic risks:** Widening inequality has significant implications for growth and macroeconomic stability. Higher inequality lowers growth by depriving the ability of lower-income households to stay healthy and accumulate physical and human capital. Also, extreme inequality may damage trust and social cohesion and is associated with conflicts, which discourage investment.
- **Increased social polarizations:** Inequality affects the pace at which economic growth enables poverty reduction and reduces social mobility. For India, with an already fractured society over religion, region, gender, or caste, it adds another fracture point.
- **Political risks:** Increasing inequality can concentrate political and decision-making power in the hands of a few, leading to marginalization of vulnerable segments of the population in policy decisions, reduced ability to question policies, etc. It may also lead to monopoly and growth of crony capitalism.
- **Hampering of social justice:** Inequality causes a wide range of health and social problems, from reduced life expectancy and higher infant mortality to poor educational attainment.
- **Policy risks:** It can lead to a backlash against economic liberalization and fuel protectionist pressures against globalization and market-oriented reforms.

Challenges in addressing economic inequalities include:

- **Proliferation of low paid jobs:** NITI Aayog highlighted that India is facing severe under-employment indicating proliferation of jobs with low wages and low productivity. These low paying jobs inhibit upward mobility of citizens.
- **Low investment on health and education:** The existing economic inequalities hamper the spending capacity of the majority of the population on health and education, which in turn hampers their overall development and has a domino effect on the economy as human capital resources are not developing at the pace that was intended. Adding to it, the government budgetary allocation in health and education is minimal when compared to developed countries.
- **Taxation issue:** Lack of proper redistributive policies leads to tax burden falling unevenly on the poor, thus becoming a challenge in addressing economic inequality. For example, indirect taxes, such as the Goods and Services Tax, form a large portion of tax revenue with the poorest half of the population bearing nearly two-thirds of the GST burden.
- **Social factors:** Caste, gender inequality, etc. play a key role in limiting both intra-generational and inter-generational upward mobility in India.

Measures like taxing the wealth of the richest 1%, easing the tax burden on the poor and the marginalised, improving access to public services like health and education, strengthening safety nets and the bargaining power of labour can be taken in order to ensure equity and social justice in India.

17. What do you understand by 'casualization of workforce'? Discuss the disadvantages associated with this phenomenon in India.

Approach:

- Briefly explain the phenomenon of 'casualization of workforce'.
- Discuss the disadvantages associated with this phenomenon in India.
- Conclude with a way forward.

Answer:

Casualization of the workforce refers to a pattern in which the employers increasingly tend to hire workers on a temporary or contractual basis, rather than providing permanent employment with social benefits such as security of tenure and employee benefits. Casual workers are typically hired on a short-term or as-needed basis, with no guarantee of ongoing work.

India has witnessed increasing casualization of its workforce, as the proportion of casual labour in the workforce has risen from 13.4% in 2019-20 to 14.1% in 2020-21 in urban India.

Disadvantages associated with 'casualization of workforce' in India are:

- **Job insecurity:** Casualization means there is no security of employment for the workers. They can be 'hired and fired' at will of the contractor or the employer. This can make it difficult for the workers to make long-term plans in their lives such as buying a house or starting a family.
- **Lack of employment benefits:** Casual workers may not receive the same benefits and protections as permanent employees, such as health insurance, retirement benefits, or paid leave. This can make it difficult for workers to access healthcare, save for retirement, or take time off when they need it.
- **Lower wages:** Casual labourers tend to get lower wages as compared to the permanent employees for the same amount of work. This acts as a hindrance for them when it comes to sustaining themselves and their family.
- **Less motivation for work:** Lower wages/benefits, no promotion avenue, unstable work schedules, and lower financial stability may translate into less motivated and less productive workers in casual jobs.
- **Lack of bargaining power:** Casualization can weaken the bargaining power of workers, as they are not part of a collective bargaining unit and they may not have the same protections as unionised workers. This raises the difficulties for workers to negotiate better wages or working conditions.
- **Impact on women:** Studies suggest that more women are employed in casual jobs. This may subject them to more exploitative work conditions with fewer benefits and lower wages.
- **Lack of skill development:** Due to the casual nature of the jobs, workers are not eager to focus on skill development in any particular field, thus lowering their chances of getting good employment opportunities.

On the positive side, casualization can offer flexibility for workers and employers. However, India needs to create an ecosystem that would encourage enterprises, even micro and small, to move towards formalisation, as it would mean access to better finance, better infrastructure, market information, government incentives, platform for formal associations that provide legal framework, efforts to overcome uncertainty in financial returns and safety nets for them as well as their workers.

18. Discuss the significance of agricultural marketing in India. Also, bring out the initiatives taken by the government to improve the agricultural marketing system in the country.

Approach:

- Briefly define agricultural marketing in the introduction.
- Discuss the significance of agricultural marketing in India.
- Mention the initiatives taken by the government to improve the agricultural marketing system.
- Conclude accordingly.

Answer:

Agricultural marketing covers the services involved in moving an agricultural product from the farm to the consumer. It involves all the aspects of market structure, both financial and institutional, based on technical and economic considerations, and includes pre- and post-harvest operations such as assembling, grading, storage, transportation and distribution.

Significance of agricultural marketing in India

- **Reduction in post-harvest losses:** An efficient marketing system can help increase marketable surplus by **scaling down the losses arising out of inefficient processing, storage and transportation**. For instance, 5-7% of food production in India is lost due to post harvest losses.
- **Increase in Farm Income:** It can ensure higher levels of income for the farmers **reducing the number of middlemen** and ensuring better price discovery for their farm products. This is important as more than half of India's population is employed in agriculture and allied sectors.
- **Widening of markets:** A well-established marketing system widens the market for the products by taking them to remote corners both within and outside the country.
- **Growth of food processing industries:** It helps in the growth of agro- based industries such as cotton, sugar, edible oils, processed foods, jute etc. depend on agriculture for the supply of raw materials. Hardly 10% of the total food production is processed in India at present.
- **Adoption and Spread of New Technology:** The marketing system helps the farmers in the adoption of new scientific and technical knowledge. If farmers are assured of market clearance at remunerative prices they will invest in new technology. Since most of the farmers are poor, adoption of agricultural technologies in India is still not good enough.

Initiatives taken by the government to improve the agricultural marketing system

- **Integrated Scheme for Agricultural Marketing (ISAM):** To provide farmers with access to competitive markets with adequate infrastructure and help them to realise better prices, ISAM was launched in 2014. Following sub schemes are cover under this initiative:
 - **Agricultural Marketing Infrastructure (AMI)**
 - **Marketing Research and Information Network (MRIN)**
 - **Strengthening of Agmark Grading Facilities (SAGF)**
 - **Agribusiness Development (ABD) through Venture Capital Assistance (VCA) and Project Development Facility (PDF)**
- **E-NAM:** The Government launched the National Agriculture Market (e-NAM) scheme to enhance transparency in transactions, price discovery and farmers' reach to a larger number of markets.
- **Farmer Producer Organizations (FPOs):** The Central Sector Scheme for "Formation and Promotion of 10,000 FPOs" was launched for ensuring better marketing opportunities & market linkages on a sustainable basis.
- **Schemes for food processing sector:** Government has launched schemes like Pradhan Mantri Kisan SAMPADA Yojana (PMKSY) and Production Linked Incentive scheme (PLIS) for overall development of the food processing sector and supporting Indian brands of food products in the international market.

The Government has introduced various reforms in agricultural marketing to improve the system and help farmers have better access to the market. This is expected to facilitate farmers realising better income and investment in new technologies. The cumulative effects are expected to change the face of Indian agriculture in future.

19. What is the hybrid annuity model (HAM) of investment? Discuss the issues associated with it.

Approach:

- Briefly explain the hybrid annuity model (HAM) of investment.
- Discuss issues associated with this model of infrastructure investment in India.
- Conclude accordingly.

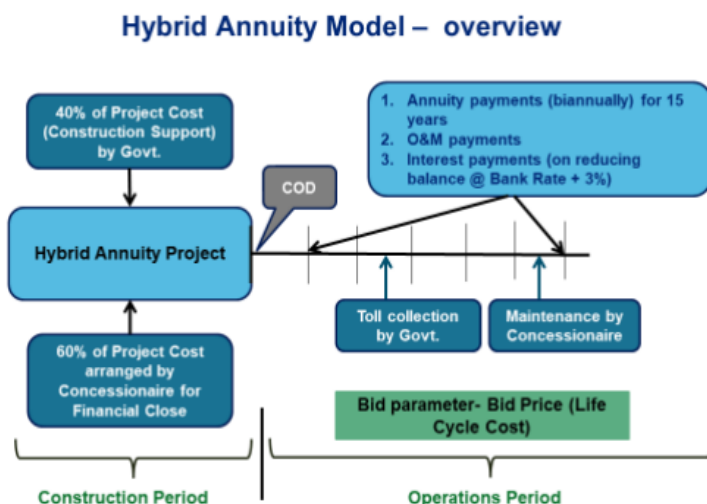
Answer:

The Hybrid Annuity Model (HAM) is a mix of the EPC (engineering, procurement, and construction) and the BOT (build, operate, transfer) models. This model presents a healthy blend of the existing models, incorporating their strengths to expedite the project execution amidst pessimistic business sentiments. The HAM provides assured returns to private players and shifts the responsibility of revenue collection to the government. Additionally, the government bears 40 per cent of the project cost and provides land and the related environment and forest clearances. The HAM was launched in 2016 for road infrastructure development in India.

However, the HAM suffers from following issues:

- **Bidding pattern under HAM:** The market for HAM has been a fairly closed one with the majority of projects being awarded to a mix of five to six large key players, who have advantage of operation of scales as compared to smaller players. Besides, developers are more careful while bidding for HAM projects. Banks are also cautious with respect to experience and financial strength of developers thus limiting the number of developers capable of raising adequate finances.
- **Delays in financing:** Studies suggest that initially financial closure of HAM projects was relatively easy. However after 2017-18, due to lending restrictions on public sector banks, financial closures have become difficult leading to delays of more than 10 months on an average. Road developers have been facing difficulties in obtaining loans and bank guarantees due to low equity requirements on the part of the developer under the model.
- **Land Acquisition issues:** Several HAM projects are facing delays due to land acquisition issues. Also the cost of acquisition has been rising over the years. Further, the government does not accord the mobilisation advance until the appointed date is fixed, and that is announced only after the government secures 80 per cent right of way for a project.
- **Requirements of funding arrangements by the authority:** The concessionaires who are technically and financially qualified are more inclined to bid for NHAI projects than for state-implemented highway projects due to poor creditworthiness of state government road-implementing agencies.

Despite certain issues, HAM has proved to be a game changer for PPP projects in India. In the first six years of its existence, the model has helped India develop several crucial roads and highways. The model can also be considered in long-tenure asset sectors. However, there is a need to incentivise developers for timely completion of projects and take credit enhancement measures, which can enhance the investor's confidence.



20. Highlight the reasons behind degradation of agricultural land in India. What measures can be taken to alleviate this issue?

Approach:

- Briefly introduce with data on degradation of agricultural land in India.
- Highlight the reasons for the agricultural land degradation.
- Mention the suggestion to curb further degradation and rejuvenate the already degraded land.
- Conclude accordingly.

Answer:

According to ISRO's Desertification and Land Degradation Atlas of India, close to 30% (97.85 million hectares) of India's geographical area is already affected by land degradation. Almost all Indian states have recorded an increase in degraded land in the past 15 years, with the most rapid increase being noted in the biodiversity-rich north eastern states.

Reasons for the agricultural land degradation

- **Soil erosion:** In rainfed areas, soil erosion leads to decrease in the fertility of the soil.
 - Water erosion is the most common reason (80%) for degradation of un-irrigated farmland, followed by wind erosion (17%), salinity / alkalinity in land (2%) and water logging (1%).
- **Chemical contamination:** Construction activity and the overuse of pesticides and chemical fertilisers for farming also contribute to land degradation. It reduces the nutrient content of the soil and makes it unsuitable for agricultural purposes. For example, the Green Revolution helped enhance productivity but also led to degradation of soil over time.
- **Shifting cultivation:** The practice of shifting/Jhum cultivation in the northeast has led to large-scale soil erosion that has affected fertility of the soil resulting in low productivity and increased pressure on land.
- **Improper land use practices:** Such as overgrazing, forest conversion, and uncontrolled expansion of urban areas, contribute to land degradation. For example, the real estate boom around Delhi NCR has transformed thousands of hectares of arable land into plots for high-rise apartments and offices.
- **Weather conditions:** Extreme weather events such as droughts and coastal surges which salinate land also contribute to the loss of land productivity. For example in 2019, India witnessed the second-driest pre-monsoon season in more than 60 years, leading to droughts in its north-western and southern states.

The UN Convention to Combat Desertification aims to achieve a land degradation neutral world by 2030. India needs to restore at least 30 million hectares in the next 10 years to reverse land degradation by 2030. **Some of the measures to alleviate the problem of land degradation in India are as follows:**

- **Agroforestry:** Agroforestry systems are an appropriate management tool for both acid and salt-affected soils, because perennial woody vegetation recycles nutrients, maintains soil organic matter, and protects soil from surface erosion and runoff.
- **Organic Farming:** It involves growing and nurturing crops without the use of chemical based fertilizers and pesticides.
- **Intercropping and Contour Farming:** Agronomical practices like use of cover crops, mixed/inter/strip cropping, crop rotation, and mulch farming are vital practices associated with integrated nutrient management.
- **Efficient Water Management:** Such as rainwater harvesting, drip irrigation, and micro-irrigation can help in conserving water resources and reducing water scarcity.
 - Also to **combat soil loss by water erosion**, there is a **need to initiate watershed interventions immediately**.
- **Land-Use Planning:** Proper land-use planning can help in preventing the conversion of agricultural land into non-agricultural uses, such as urban areas or industrial sites. It can also help in promoting sustainable agricultural practices and preserving natural resources.

Agricultural land degradation is a critical issue that needs urgent attention from policymakers and farmers alike. Combating further land degradation and investing in soil conservation is a major task in promotion of sustainable agriculture.