



**Q.1 Innumerate the indirect taxes which have been subsumed in the goods and services tax (GST) in India. Also, comment on the revenue implications of the GST introduced in India since July 2017.**

Goods and Services Tax (GST) is an indirect tax (or consumption tax) imposed in India on the supply of goods and services. It is a comprehensive multistage, destination based tax: comprehensive because it has subsumed almost all the indirect taxes. Goods and services are divided into five different tax slabs for collection of tax - 0%, 5%, 12%, 18% and 28%.

**Taxes Subsumed under it:**

- central excise duty
- services tax
- additional customs duty
- surcharges
- state-level value added tax
- Octroi

Petroleum products, alcoholic drinks, and electricity are not taxed under GST and instead are taxed separately by the individual state governments.

**Revenue Implications of the GST:**

The average revenue collection per month in the eight months of 2017-18 was Rs 89,700 crore per month . The monthly average revenue collection increased further in 2018-19 by about 10 per cent to Rs 97,100 crore.

- In the first year of implementation of GST, revenues grew by 11.9% and the buoyancy was 1.20.
- A buoyancy ratio over 1 shows progressiveness in the revenue growth and opens up the prospect of a rising tax-to-GDP ratio.
- Tax-to-final consumption expenditure also grew from 10.3% in the year before GST (2015-16) to 11.9% (including adjustments for transitional credits) in 2017-18.
- Revenue base has expanded exponentially. The assessee base under GST has increased by about 85 per cent in the past two years.
- The revenue collection missed the target that the government had set for the GST for both the years since its rollout.
- The states that had a high percentage of origin-based taxes in subsumed revenues — Bihar, Chhattisgarh, Himachal Pradesh, Punjab and Odisha — were found to lag behind in subsequent revenue performance.



**GST collection trend:**



**Causes Behind revenue not meeting the targets:**

- Continuous rationalization of taxes.
- Non-incorporation of invoice matching while filing of GST. It has allowed higher return.
- GST non-compliance is on rise. People not filling their GST returns are increasing.
- Businesses are generating fake invoices to claim higher input tax credits than they should be receiving.
- Overall slowdown in economy has further affected the GST revenue.

**Way Forward:**

- GST must incorporate invoice matching.
- Simplification of GST filing.
- Merging of GST slabs to bring closer to ideal GST.

**Q.2 Do you agree with the view that steady GDP growth and low inflation have left the Indian economy in good shape? Give reasons in support of your arguments.**

India has witnessed GDP growth rate around 7% continuously while the inflation rate has been below 4% . It has made Indian economy more resilient in nature.

- Current Account deficit has been below 3% continuously ensuring stable balance of payment.
- Fiscal deficit is also controlled and moving to FRBM target of 3% of GDP.
- It has made Indian economy an attractive destination for investment and India has been largest recipient of the FDI in last few years.
- Inflation acts as tax on the self-employed poor. With continued GDP growth rate and low inflation has helped pulling more people out of poverty.
- Low inflation is due to benign crude oil prices which has ensured cheap raw material. It has been critical in growth of motor vehicle industries, gig economy thus providing employment.



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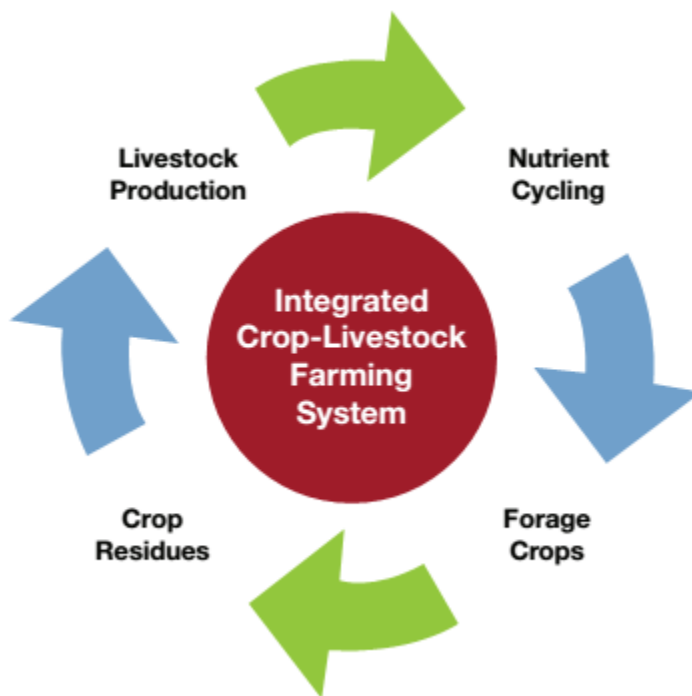
- Low inflation doesn't erode away purchasing power of the economy. It further boosts the Indian economy by increasing consumption and investment. Effective saving rate due to low inflation increases.

But, low inflation rate with GDP growth has not been good for farmers. Farm production has increased but prices have declined leading to farm distress. Further dissection of the low inflation rate shows that several key sectors like Mining, manufacturing is showing decline which is not good in long term.

Thus, low inflation with steady GDP growth has been good for management of overall macroeconomic parameters. But to ensure sustainability of this benign scenario, interest rate in India needs to be bring down, supply side reforms like Marketing or warehousing needs to be carried out in farm sector and simplification of procedure for increasing manufacturing growth.

### Q.3 How far is Integrated Farming System (IFS) helpful in sustaining agricultural production.

Integrated farming system refers to agricultural systems that integrate livestock and crop production or integrate fish and livestock and may sometimes be known as integrated biosystems. In this system, an inter-related set of enterprises is used so that the "waste" from one component becomes an input for another part of the system.





**Helpful in sustaining agricultural production :**

Sustainable agricultural production refers to removal of all kinds of subsidy from the agriculture but still keeping it remunerative in nature. Government will take away agricultural, water subsidy, fertiliser subsidy , MSP of produce. Integrated farming makes the agricultural production cyclic in nature leading to decline in external inputs.

- Biowaste increase productivity of farming.
- It reduces cost.
- It fetches greater value in the market as it is organic farming.
- It can connect farmers with the other agro-processing industries as other outputs of livestock can be sold in market.
- Other activities like Bee keeping, aquaculture helps in providing additional income for the farmers.
- The farming is environmentally sustainable in nature.
- Less reliance to outside inputs like fertilizers, chemicals, seeds saves farmer from outside shock.
- Effective recycling technique for organic wastes available in the system can be utilized to generate biogas. It would reduce electricity bill for the farmers.

Government has realized the importance of integrated farming. Recently, government talked about zero budget natural farming in the budget which is closer to integrated farming. Andhra Pradesh government has already allocated 100 crore rupees to promote zero budget farming.

**Q.4 Elaborate the impact of National Watershed Project in increasing agricultural production from water-stressed areas.**

Watershed management is the process of guiding and organizing the use of land and other resources in a watershed to provide desired goods and services without adversely affecting soil and water resources. Good watershed management practices and approaches can go a long way and help India potentially better manage and augment its water resources.

The concept of watershed development has expanded from simple soil and water conservation to holistic natural resources development approach. Watershed Management is the only viable option to harness production requirement in the agricultural sector especially in the rain fed unirrigated areas of the Country.

**Impact in increasing agricultural production in water-stressed areas:**

- It has led to reduction in soil erosion thus maintaining the nutrition profile of soil needed for production.
- Net sown area has increased in rain-fed states leading to higher production.



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- Cropping intensity has further increased in many states. Farmers are able to take two crops in a year of watershed regions.
- Enhancement of production has led to reduction of debt of farmers. It has provided with higher inputs in agriculture leading to higher productivity.
- It has increased surface as well ground water level in water-stressed areas. It provided opportunity for irrigation to the farmers.
- It has allowed diversification of the crops leading to higher income.
- It created work opportunity in these areas leading to reduction of pressure on farming system.

Government has realized the enormous benefits of watershed management. The Department of Land Resources, Ministry of Rural Development is implementing the Integrated Watershed Development Programme (IWMP) from 2009-10 with an objective to cover 55 million hectare of rain fed land by 2027. The programme envisages restoring the ecological balance by harnessing, conserving and developing degraded natural resources such a soil, vegetative cover & water through watershed management initiatives.

### **Q.5 How was India benefitted from the contributions of Sir M. Visvesvaraya and Dr. M. S. Swaminathan in the fields of water engineering and agricultural science respectively?**

India has produced numerous scientists and engineers of high calibre and capacity. But among all these, M.Visvevarya and M.S.Swaminathan stands out separately for their contribution in water engineering and agricultural science.

#### **Contribution of M.Visvesvaraya:**

He designed the flood drainage system for the Hyderabad city. He invented the block system, automated doors that close the water overflows and designed and patented the floodgates. His work even prevented Visakhapatnam port from sea erosion.

- His work became template for future engineering work in order to channelling of water resources.
- He brought a revolution in construction of dams which became foundation for enhancing irrigation facility, drinking water supply in India.
- His design of storm drainage helped in designing flood protection system across India.

#### **Contribution of M.S.Swaminathan:**

He is known as the 'Father of Green Revolution'. He developed high-yielding varieties (HYV) of wheat and later, promoted sustainable development which he called, the 'evergreen revolution'.



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- Promoting basic scientific insights and understanding where physical, (bio)chemical, physiological, ecological and genetical principles and knowledge are used and integrated.
- Stimulating and introducing inclusive approaches where various objectives such as environmental aims, sustainable development, gender, next to productivity increases are combined and used to strengthen harmonious developments.
- Activating and adapting institutions, national and international, and rules and regulations such that farmers are empowered and protected and that biodiversity is protected and where possible promoted and strengthened.

Thus, these two are the stalwarts of their own sectors and given birth to science in these areas.

### **Q.6 What is India's plan to have its own space station and how will it benefit our space programme?**

A space station is a spacecraft capable of supporting crew members, designed to remain in space for an extended period of time and for other spacecraft to dock.

Recently, ISRO chief stated that India is planning to have its own space station. India will not join the International Space Station (ISS). The mission will also be an extension of the Gaganyaan project. ISRO is looking at 5-7 years time frame for execution of the programme. It would be placed in an orbit 400 km above earth.

#### **Benefits of having a space station:**

- Commercializing low-Earth orbit: Commercial companies can pay to use the space station's unique facilities to further research and development.
- Supporting worldwide water purification efforts : Technologies will be developed to convert Urine into drinking water. These technology can further be used on earth to reduce water stress.
- Improving robotics on the ground : Space station has robots along with humans. It will help in developing Robots.
- ISRO will be able to monitor natural disasters from the space station and send the signal to government for undertaking corrective actions.
- It will help in keeping the leadership in the space arena.
- The space station will help to accelerate the development of reusable rockets, in-orbit docking systems, and manned missions.
- The station will create new opportunities for other spacecraft to dock as well as allowing for cross-collaboration experiments.
- Indian Space station will be important because after 2028 when the ISS likely to have been wound up, the only crewed space station is likely to be China's.



**Challenges:**

- Around \$120 billion has been spent on the ISS while the cost of maintaining it annually is around \$6-7 billion.

**Way Forward:**

Isro should collaborate with countries like the US who have the experience and will be comfortable working with India.

**Q.7 Coastal sand mining, whether legal or illegal, poses one of the biggest threats to our environment. Analyze the impact of sand mining along the Indians coasts, citing specific examples.**

Sand is a naturally occurring granular material composed of finely divided rock and mineral particles. Sand in the river channel and floodplains constitutes an important raw material in the construction industry and has a variety of uses in this sector.

**Impact of Sand Mining:**

- Depletion of sand in the river bed causes the deepening of rivers and estuaries, and the enlargement of river mouths, which leads to saline water intrusion.
- The excess extraction of sand affects the normal course of the river. Any variation in the course of the river will either lead to river erosion in a few areas or will lead to flooding during monsoon.
- Due to rampant sand mining and ecological imbalance, fishing activity has declined in the Mangaluru and fishermen are forced to take up alternative jobs outside their village.
- Trees that come under the buffer zone are felled to facilitate the movement of vehicles to collect sand from the riverside.
- Sand mining during the monsoons affects the fish species as they lay eggs in the shores. Crabs, fishes has declined drastically at the coast of Karnataka.
- Recently, Moolarapattana bridge in Bantwal had collapsed due to illegal sand mining.

Impacts on	Description
<b>Biodiversity</b>	Impacts on related ecosystems (for example fisheries)
<b>Land losses</b>	Both inland and coastal through erosion
<b>Hydrological function</b>	Change in water flows, flood regulation and marine currents
<b>Water supply</b>	Through lowering of the water table and pollution
<b>Infrastructures</b>	Damage to bridges, river embankments and coastal infrastructures
<b>Climate</b>	Directly through transport emissions, indirectly through cement production
<b>Landscape</b>	Coastal erosion, changes in deltaic structures, quarries, pollution of rivers
<b>Extreme events</b>	Decline of protection against extreme events (flood, drought, storm surge)



**Steps to tackle Sand Mining:**

- Sand is a minor mineral. Mines and Minerals (Development and Regulation) Act, 1957 (MMDR Act) empowers state governments to make rules for regulating the grant of mineral concessions in respect of minor minerals and for purposes connected therewith.
- Ministry of Environment, Forest and Climate Change has issued Sustainable Sand Mining Management Guidelines, 2016.
- Grant of Environment Clearance for minor minerals, including sand and gravel, for mining lease of area up to 5 hectare will be done by the District Environment Impact Assessment Authority headed by the District Collector / District Magistrate.
- Several states have formed their own rules to regulate sand mining.

**Q.8 Vulnerability is an essential element for defining disaster impacts and its threat to people. How and in what ways can vulnerability to disasters be characterized? Discuss different types of vulnerability with reference to disasters.**

Vulnerability describes the characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard. Any disaster impact is result of hazard , exposure and vulnerability. Thus vulnerability remains key for defining disaster impacts.

Vulnerability is determined by historical, political, cultural and institutional and natural resource processes that shape the social and environmental conditions people find themselves existing within.

These processes produce a range of immediate unsafe conditions such as living in dangerous locations or in poor housing, ill-health, political tensions or a lack of local institutions or preparedness measures.

**Different types of vulnerability:**

- **Physical Vulnerability:** The physical vulnerability of an area also depends on its geographic proximity to the source and origin of the disasters. Odisha is prone to cyclonic vulnerability while Himalayan states are prone to earthquake.
  - Physical vulnerability includes the difficulty in access to water resources, means of communications, hospitals, police stations, fire brigades, roads, bridges and exits of a building or/an area, in case of disasters. It can enhance the impact of any disasters on any population.
- **Economic Vulnerability:** Economic vulnerability of a community can be assessed by determining how varied its sources of income are, the ease of access and control over means of production (e.g. farmland, livestock, irrigation, capital etc.). Disasters like floods, droughts have different impacts on different economic strata of society.





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- **Social Vulnerability** : A socially vulnerable community has weak family structures, lack of leadership for decision making and conflict resolution, unequal participation in decision making, weak or no community organizations, and the one in which people are discriminated on racial, ethnic, linguistic or religious basis. Lack of information, lack of participation in the decision-making enhances this vulnerability.
- **Environmental Vulnerability**: Natural resource depletion and resource degradation are key aspects of environmental vulnerability. It augments impact of floods, high tidal waves.
- **Vulnerability to climate change**: It will bring changes in seasonal rainfall with increased vulnerability of low rain fall areas towards drought.
- **Industrial vulnerability**: Industrial areas are vulnerable to industrial disasters like Bhopal gas leak or Chernobyl nuclear accident.
- **Geographical vulnerability**: Areas which are very close to mountains generally receive high rainfall and are vulnerable to floods as seen in Kerala.

Thus, Vulnerability of area, people and country changes with disaster to disaster. Proper institutional mechanism with vulnerability analysis, developing of standard operating procedure is the key to deal with disaster management.

Government following the Sendai agreement which focusses on risk reduction through improvement of governance will further reduce our vulnerability.

**Q.9 The banning of ‘Jammata-e-Islami’ in Jammu and Kashmir brought into focus the role of over-ground workers (OGWs) in assisting terrorist organizations. Examine the role played by OGWs in assisting terrorist organizations in insurgency affected areas. Discuss measures to neutralize influence of OGWs.**

Government has banned Jammata-e-Islami under the Unlawful Activities (Prevention) Act. Government highlighted that it was "in close touch" with militant outfits and is expected to "escalate secessionist movement" in the state. Government said the outfit claims "secession of a part of the Indian territory from the union" and supporting terrorist and separatist groups fighting for this purpose.

**Role Played by Over-Ground workers (OGWs) in assisting terrorist organizations:**

- They work as charity organization and channelize their money into financing the terror activities.
- They radicalize people through their speeches in the name of freedom of organization.
- They become the political outfit of terrorist organization thus spreading its work.
- They provide conduit for infiltration specially in J&K by providing safe harbour to terrorists.
- Highly educated qualified individuals help in protecting through legal means by fighting cases on their behalf.



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- Qualified individuals help terrorist organization by providing intellectual paradigms to their ideology.
- They try to thwart attempts of development by citing it self-centric or by delaying it through court procedure. It happens mostly in Naxal areas.
- They also provide logistics support to terrorist organizations.

### Measures to neutralize influence of Over Ground worker:

- Putting cadre of over ground worker in the Jail.
- Engaging cadre of over ground worker in other governmental activities thus utilising their expertise.
- Constantly monitoring the activities of the organisations.
- Running a counter propaganda by state to counter the influence of these organisations.
- Increasing people's participation in local decision making to gain their trust.
- Decentralisation of power to local level so that effective developmental works could be taken up.

### Q.10 What is Cyber Dome Project? Explain how it can be useful in controlling internet crimes in India.

#### Cyber dome Project:

- Cyberdome is technological research and development Centre of Kerala Police Department.
- It aims to meet the long term security challenges of bridging the gap between the latest innovations in the cyber space and the skill set of Kerala Police, in combating the emerging cyber threats.
- It has an online office called 'Virtual dome' where technical experts and ethical hackers who assist the police in the cyber security.

#### Useful in Controlling internet crimes:

- It led successful propaganda war against online games such as Blue Whale.
- It had exposed a vital security vulnerability in the State's Integrated Financial Management System.
- It has developed cyber-surveillance tools to detect and convict those responsible for industrial espionage.
- It saved kerala from possible ransomware attack.
- It has used social engineering as the lynchpin of its policing strategy to snoop on radical groups that use the net for extremist activities.
- It has launched a covert cyber-surveillance and infiltration programme to crack down on child pornography.



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- It has cobbled together an international alliance with Interpol that entails transfer and development of the latest artificial intelligence-powered cyber tools to crack down on a wide range of crimes.
- It helps law enforcers conduct targeted surveillance of persons who share and trade child pornography on peer-to-peer user networks.
- The tools unearth moles that lie deep in critical information networks and siphon off data clandestinely.

Thus, Cyberdome projects have brought together police establishment, private players, ethical hackers and coders, freelancers to mitigate the internet crimes in state. It should be launched statewide for mitigating its impact.

#### **Q.11 It is argued that the strategy of inclusive growth is intended to meet the objectives of inclusiveness and sustainability together. Comment on this statement.**

The agenda for inclusive growth was envisaged in the Eleventh Plan document which intended to achieve not only faster growth but a growth process which ensures broad-based improvement in the quality of life of the people, especially the poor, SCs/STs, other backward castes (OBCs), minorities and women and which seeks to provide equality of opportunity to all.

Inclusive growth means economic growth that creates employment opportunities and helps in reducing poverty. Strategy of inclusive growth will lead to fulfilment of twin objectives: inclusiveness and sustainability.

Inclusive growth definition is to include everybody in growth without hampering the future growth like undertaking excessive debt. It focusses on steady and continuous growth than sudden rise and fall. It goes hand in hand with concept of sustainability which demands fulfilment of present needs without hampering the future needs as given by Brudtland commission.

**Focus on education:** Inclusive growth requires excessive focus on education to enhance the capability of the most vulnerable section and make them part of the growth of country. Today, environment education is one of the foremost area and prescribed by most of the international organisation.

**Focus on Health:** availability of public health ensures reduction in out of pocket expenditure for poor section. It will reduce biomedical waste, better handling of the waste management leading to decline in environmental pollution..

**Public transport:** Public transport is foundation of inclusive growth as it provides mobility to all at affordable cost. It also leads to decline of green house gas emission leading to decline in pollution.



**Right to work:** Indian right to work which includes Mahatma Gandhi national employment scheme not only provides work to all thus reducing the poverty but also works undertaken under it like water management structure helps in dealing with water scarcity.

Fulfilment of other basic necessities: Government efforts to provide basic necessities like toilet, house through different schemes will lead to a dignified life to all but it also prevents water contamination, felling of the tree and soil contamination.

But, sustainable development requires more than inclusive growth. It requires changes in the habit of people, changes in the mindset of people and changes in the technologies of the world. Thus, it requires shift to renewable energy, protection of river from throwing the waste materials, changes in the religious ceremonies like cremation which leads to high pollution.

Hence, inclusive growth doesn't only provide inclusiveness to all but also support the sustainable development. A framework analysis of UN SDG goals point towards targeting the inclusive growth like elimination of poverty, hunger, malnutrition, planned urbanisation which will eventually lead to sustainable growth.

**Q.12 The public expenditure management is a challenge to the Government of India in context of budget making during the post liberalization period. Clarify it.**

Budget making during the post liberalization period has undergone massive changes leading to issues in public expenditure management. Public expenditure management refers to keeping the fiscal deficit in check or in control, ensuring achievement of the societal aims and bringing efficiency in the functioning of government.

**It has been challenging during post liberalization period:**

1. Increased societal aspiration: Societal aspirations are on rise in relationship with the services provided in developed economies which is difficult to fulfill in limited economic framework.
2. Pressure of global agencies: Global rating agencies like Moody, WTO and IMF puts continuous pressure on various subsidies provided by government to deal with poverty. They reduce the ratings of government borrowing making borrowing expensive for the government.
3. Tax haven: With borders disappearing for the capital, more and more capital is being invested through tax havens, government is not getting the taxes it must get for the businesses.
4. There is increased competition among economies to reduce the taxes which is also declining government tax revenue. In such scenario, government response to dealing with poverty also gets weakened.



**But, liberalization has also brought certain effective way to augment the public expenditure management.**

1. Use of technology: government efficient use of technology like JAM to enhance the efficiency of governmental schemes has helped in rationalization of the subsidies.
2. Clear demand of services: Enhanced civil society activism due to globalization has helped in bringing transparency in governmental expenditure management leading to curtailment of waste expenditure and more focus on health, education.
3. Global institutions: Global institutions like G20 has constantly undertaken the issues of black money, terror financing which are reducing the government incomes and took effective measures to deal with it.

Globalization has put government budgeting to vagaries of international hiccups thus creating challenges. But, effective utilization of technology, good relationship with all the major stakeholder of global economy whether institutions or countries and decentralization of power is the way forward to deal with the issue.

**Q.13 What are the reformative steps taken by the Government to make food grain distribution system more effective?**

Food grain distribution refers to procurement of food from farmers, distribution of food to different states and finally supply it to the needy beneficiaries.

Shanta Kumar Committee had undertaken detailed study in order to reform the food grain distribution to make it more transparent, accountable and effective. The reforms will help in reducing the wastage of food grains, bringing more efficiency in its distribution and saving the precious resources.

**Steps undertaken:**

- Fair price shops have been digitized.
- Cash benefit transfers are being implemented in few urban areas to widen its scope.
- Ration cards have been seeded with Aadhar to weed out the bogus ration cards. A total of 2.33 crore ration cards have been cancelled.
- Increased storage through construction of new warehouses in order to reduce the wastage.
- 5-year Action Plan has been drawn by FCI for Uttar Pradesh (with focus on Eastern U.P.), Bihar, Jharkhand, West Bengal & Assam, where concerns exist about distress sale of paddy (procurement is already robust in Chhattisgarh & Odisha).
- To bring all operations of FCI Godowns online and to check leakages and automate operations at depot level, a “Depot Online” system has been launched.



These steps are critical for implementing the national food security act in letter and spirit. It ensures availability of food grains for all at affordable prices. It has also helped in diplomacy where government has provided food grains as humanitarian assistance to countries in need.

**Q.14 Elaborate the policy taken by the Government of India to meet the challenges of the food processing sector.**

**Food** processing sector refers to industry which add value to raw food. It is a sunrise industry which brings integration between farmers and consumers.

Food processing industry faces many major challenges:

**Supply side bottlenecks:** Small and dispersed marketable surplus due to fragmented holdings, low farm productivity, high seasonality, perishability and intermediation result in lack of distribution on supply and quality, and in turn, impede processing and exports.

**Infrastructure bottlenecks:** More than 30 per cent of the produce from farm gate is lost due to inadequate cold chain infrastructure (covering only 1 per cent of total F&Vs production) and inadequate logistics.

Likewise, instead of using specialised transportation for perishables like reefer vans, their logistics predominantly rely on traditional modes, commonly used for grains. Yet, development of cold chains and logistics infrastructure remains an unviable investment option, on account of, lack of critical scale and high operating costs (twice than in the West).

The food processing industry has a high concentration of unorganised segments, representing almost 75 per cent across all product categories. Thus, explaining the inefficiencies in the existing production system, ascribed to the debility of small regional players to invest in technology up gradation and diversify into alternate product categories.

**Deficiencies in the regulatory environment:** Lack of integration & clarity: Numerous laws, under the jurisdiction of different ministries and departments, govern food safety and packaging. The multiplicity of legislation leads to contradictions in specifications, conflicting approach, lack of co-ordination and administrative delays.

For instance, manufacturers of packaged food products such as jams and squashes are obligated to comply with quality standards and label declarations prescribed under multiple legislations such as The Standards of Weights & Measures (Packaged Commodities) Rules, Prevention of Food Adulteration (PFA) and Fruit Products Order (FPO). Correspondingly, FPO allows usage of Class II sweeteners in Fruit Products, whereas PFA does not.

Lack of Holistic Approach



Despite conferring numerous incentives for establishing new processing units, proportionate results have not been achieved. This can be credited to the absence of vital peripheral infrastructural linkages and legislation for contract and corporate farming, inadequate implementation of the APMC Act and cumbersome procedures to avail grants. Also, unlike for small scale industries, fewer schemes have been designed to promote scale by incentivising large scale investors.

**Steps to address challenges of food processing sector:**

- Mega Food Parks: Mega Food Parks create modern infrastructure facilities for food processing along the value chain from farm to market with strong forward and backward linkages through a cluster based approach.
- Creation/Expansion of Food Processing Preservation Capacities(CEFPPC)
- Intergrated\_Cold Chain : the objective is to arrest post-harvest losses of horticulture & non-horticulture produce and providing remunerative price to farmers for their produce.
- Creation of Backward and Forward Linkage
- Reduction of excise duty on refrigerated container from 12% to 6%.
- Launch of SAMPADA Scheme to target creation of Infrastructure and increasing capacities of processing and preservation in entire supply chain of food processing sector right from farm gate to retail outlets.
- Setting up of investment tracking and facilitation Desk of Invest India to identify new potential investors and approach them in a focussed and structured manner for investment and follow-up the investment cases by providing hand holding services.
- To enhance the transparency and reduce human interface on-line software has been developed and put in use for filing of claims for the infrastructure development projects.

Thus , Government is bringing transformation in food processing sector by working along with the private players and farmers.

**Q.15 How is the Government of India protecting traditional knowledge of medicine from patenting by pharmaceutical companies?**

Traditional knowledge refers to the perennial practices that have been indigenously developed, evolved, preserved and utilized over ages by local communities. This knowledge is perpetuated through stories, cultural rituals, practices.



**Need of the Protection of traditional knowledge:**

- It may have high commercial value in particular medicinal effect Hence, making it a good reason for corporations and individuals to go for patent protection of such knowledge based inventions just to gain monopoly.
- It ensures that traditional practices are not monopolized by big multinational companies.
- It brings sharing of benefits for all community members.
- It ensures that such practices remain affordable and accessible to all.
- Companies has tried to patent turmeric, Neem and thwarting of such patents have caused government a huge money.

**Steps taken to protect traditional Knowledge:**

- Government has initiated traditional knowledge digital library (TKDL) which digitalizes traditional knowledge and thwarts patenting of the same.
- Till date 3,35,260 formulations have been transcribed, 220 wrongful patent filings have been prevented and 12 patent offices have been provided access to TKDL database.
- Government has signed Nagoya Protocol which aims for equal sharing of benefits with the community.
- Government has passed biodiversity act to protect rich biodiversity of India. Under this, biodiversity committees exist at district level. These committees ensure exploitation of biodiversity with prior informed consent and on mutually agreed terms.
- Protection of Plant Varieties and Farmers' Rights Act (PPVFRA) has been passed which allows farmers to engage in conservation of their genetic resources.
- Government has implemented forest rights act where tribes have complete control over minor produce of forest.
- Prior permission required by any entity seeking IPRs "based on knowledge/resource obtained from India" from national biodiversity authority.

Thus, Government has taken measures to thwart the illegal patenting of traditional knowledge. Now, government should document the oral knowledge also and seek more participation of private players in the ambit of Ayush ministry to strengthen TKDL and make it available to all communities.

**Q.16 How can biotechnology help to improve the living standards of farmers?**

Biotechnology involves biological engineering namely genetic engineering , molecular research to modify the farming system in order to enhance the output from farming.





**Role of biotechnology in improving living standards of farmers:**

1. GM Crop : Biotechnology is directly utilized in developing GM crops. These crops are more productive, drought resistant and pest resistant thus provides more income for farmers.
2. Organic Farming : Biotechnology is effective in encouraging organic farming through development of bio-fertilisers, bio-pesticides. Organic farming leads to better health of soil, greater value for the produce.
3. Value addition: Biotechnology can be used in value addition to existing crops like Bio-fortification which enhance the crop value. Golden rice is an excellent example of bio-technology use in bio-fortification.
4. Animal husbandry: Biotechnology is critical in promoting IVF technology for breed development. Many animal diseases are dealt through intervention of biotechnology.
5. Bio-fertilisers: Bio-fertilisers can be crop specific reducing the need to apply multiple fertilisers thus bringing down the total cost of input in farming.
6. Other alternative products through farming like use of algae to develop biofuels, or to invent artificial photosynthesis to augment production can be game changing for the farming community in terms of productivity.

Government of India has realized the enormous benefits realized through application of biotechnology for farmers welfare. It has initiated many programs for development:

1. Biofuel policy where biofuels of 3<sup>rd</sup> and 4<sup>th</sup> generation seeks to utilize biotechnology for development of fuel.
2. Government has launched Biotech Kisan scheme for solution of farmers problems through intervention of science by scientist.
3. Department of biotechnology has undertaken genome sequencing programs for wheat and rice in order to bio-fortify them.

Thus, Biotechnology can be effective in overcoming rural distress, elimination of the farm suicide, doubling of the farmers income by 2022. But, incorporation of biotechnology must not result into dependence of farmers over multinational companies, inculcation of monoculture, complete elimination of the traditional practices and patenting of the agricultural inputs leading to enhancement of agricultural costs.



**Q.17 Define the concept of carrying capacity of an ecosystem as relevant to an environment. Explain how understanding this concept is vital while planning for sustainable development of a region.**

Carrying capacity of an ecosystem refers to ability of an ecosystem to provide services for the demands of population without putting it into stress. It is critical for ensuring sustainable development. It helps in proper recycling of all the nutrients. It controls diseases and temperature of the earth.

**Vitality of the carrying capacity:**

1. It brings long term view of the development than narrow fulfillment of the demands. Focus is to ensure the needs of future without compromising the ecosystem.
2. It maintain the ecological balance of the region. No stress is put on water, forests, wildlife in order to let human survive. Thus , the region experiences no flood, drought or catastrophic disasters.
3. Following carrying capacity is essential for dealing the global epidemics like global warming.
4. It promotes innovation in the region. It brings resource efficiency in the region. Cyclical economy becomes key for sustainable development.
5. It helps in vulnerability mapping of the region. It ensures proper identification of the available local resources and development of economy based on those resources.
6. It ensures cropping pattern as per the region. Rajasthan would have low water crops while coastal area can have high water crops.
7. It focusses on development of infrastructure in order to deal with pollution arising out of the human intervention.

In today's times, district plans of India are to keep carrying capacity of the region while preparing their plans. Government is already preparing resource efficiency plan to encourage cyclical economy. Central ground water board undertakes aquifer mapping to promote carrying capacity. Indian government has put up a target to achieve 33% forest under forest policy.

**Q.18 Disaster preparedness is the first step in any disaster management process. Explain how hazard zonation mapping will help disaster mitigation in the case of landslides.**

India has been traditionally vulnerable to natural disasters on account of its unique geo-climatic conditions. Floods, droughts, cyclones, earthquakes and landslides have been a recurrent phenomena.



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Disaster management process mean managing the whole disaster. It involves process of preparedness, response, recovery and mitigation. Disaster Preparedness is the first step as it focusses on mitigation and reducing the risk of disaster. It involves activities like vulnerability identification, installation of the early warning system, development of standard operating procedure to mitigate the disaster.

Hazard zone mapping refers to identification of vulnerability of the areas to landslides. It means identification of the areas as per the perceived and historical data of landslides.

### How it helps in disaster mitigation:

- Hazard zonation mapping helps in identification of the underlying causes for landslide. Man made causes can be mitigated with suitable changes in the policy. Shifting to small hydro dam than large hydro dam shows usage of hazard zone mapping in mitigating underlying causes of landslides.
- It helps in shifting of most vulnerable villages from the area to reduce the impact of disasters.
- Standard operating procedure is developed with the help of hazard zone mapping.
- Installation of the early warning system at the most critical places.
- Training of the grass –root workers as per the input of hazardous zone.
- Integration of landslides mitigation plan in the overall socio-economic planning of the region.
- It provides a probable list of places for construction of safe houses.
- Earthquake prone region specially Himalayan states becomes key for hazardous zone mapping for mitigation of landslides and impact of earthquake.

Thus, Hazardous zone mapping is critical for disaster preparedness in case of landslides. Geological survey of India maps hazardous zone in India.

**Q.19 Indian Government has recently strengthened the anti-terrorism laws by amending the unlawful Activities (Prevention) Act (UAPA), 1967 and the NIA act. Analyze the changes in the context of prevailing security environment while discussing the scope and reasons for opposing the UAPA by human rights organizations.**

Recently government has brought changes in the UAPA and NIA act. These changes have been brought to manage the internal security in country.



**Introduced changes:**

1. It will allow designation of an individual as terrorist.
2. It empowers the NIA officers to conduct raid without obtaining state government prior approval.
3. It empowers NIA to attach property when the case is being probed.
4. Under this law, personal or financial information of an individual terrorist can be shared with western agencies.

**Reasons for changes in prevailing security environment:**

1. With the increase in home grown terrorism and rise of state sponsored terrorism , new framework of law is needed to curtail it.
2. Earlier UAPA banned the organization but individual floated new organization to continue with terror activities. New law will allow to curb such practices.
3. These changes in law provide enough teeth to officers to take preemptive actions.
4. These changes bring Indian law at par with international practice.

**Reasons for opposing the UAPA:**

1. Lifelong stigma gets attached to a person notified as terrorist even after being denotified.
2. UAPA is violative of fundamental rights as enshrined under Article 14 (Right to Equality), 19 (Right to Free Speech and Expression) and 21 (Right to Life) of the Constitution.
3. It doesn't specify grounds on which an individual can be declared as terrorist.
4. It can be used to curtail the right to dissent.
5. It doesn't allow an individual to present his or her case.
6. By terming an individual as terrorist even before the trial , it violates the right to reputation.

Thus, UAPA act violates individual dignity and freedom. But government has highlighted that these provisions will be used sparingly for terrorist like Hafiz Saeed and DawoodIbhraim. Individual will have hearing to a committee constituted under home ministry to present his case. It is needed to prevent the lacunae in the existing law.



**Q.20 Cross-Border movement of insurgents is only one of the several security challenges facing the policing of the border in North-East India. Examine the various challenges currently emanating across the India-Myanmar border. Also, discuss the steps to counter the challenges.**

India- Myanmar shares a long land border. There exists a free movement regime (FMR) upto 16 km across the India- Myanmar border. The system of FMR along with porous and unfenced border is being exploited by the anti-national elements.

**Present Challenges:**

- It has helped in sustaining the secessionist movement in India. Greater Nagalim secessionist movement is carried out by insurgents living in Myanmar.
- Insurgent groups of North-east regions have ties with groups in Myanmar who provide political backing, economic assistance, logistics support ,military training.
- Recent crisis of Rohingyamuslims in Myanmar can also fuel the refugee crisis in India through the porous border. It can further exacerbate the spread of terrorism in India.
- Porous border is used for smuggling narcotics in India. The border lies at Golden crescent ( Thailand, Laos, Cambodia and Myanmar) which leads to drug trafficking in India.
- The border can further be used by anti-nationalist element to spread the fake currency in India.

**Steps taken to counter it:**

- Assam Rifles have been posted at Indo-Myanmar border to protect the borders.
- Modern weapons like UAV, CCTV cameras are used for monitoring the borders.
- Government has initiated the project to fence the border in order to prevent illegal migration.
- Government has undertaken comprehensive border infrastructure project for upgradation of the roads.
- Integrated check posts are being installed to streamline the migration.