

1. Explain the concept of gender budgeting? Why is it significant? Explain with the help of suitable examples.

Approach:

It is straightforward question. It expects student to write - in first part about gender budgeting - in second part write its significance with suitable example

Introduction:

Gender budgeting means preparing budgets from a gender perspective. It aims at dealing with budgetary gender inequality issues, including gender hierarchies and the gender pay gap. Gender budgeting allows governments to promote equality through fiscal policies by setting goals or targets for equality and allocating funds to support those goals.

Body:

Concept of gender budgeting:

- Gender Budget Statement (GBS) was first introduced in the Indian Budget in 2005-06. This GB Statement comprises two parts–
 - Part A reflects Women Specific Schemes, i.e. those which have 100% allocation for women.
 - Part B reflects Pro Women Schemes, i.e. those where at least 30% of the allocation is for women.
- India's gender budgeting efforts stand out globally because they have not only influenced expenditure but also revenue policies (like differential rates for men and women in property tax rates and reconsideration of income tax structure) and have extended to state government levels.
- Gender budgeting efforts in India have encompassed four sequential phases: (i) knowledge building and networking, (ii) institutionalizing the process, (iii) capacity building, and (iv) enhancing accountability.
- Gender budgeting in India is not confined to an accounting exercise. The gender budgeting framework has helped the gender-neutral ministries to design new programs for women.
- Gender Budgeting Cells (GBC) as an institutional mechanism have been mandated to be set up in all Ministries/Departments.
- GBCs conduct gender based impact analysis, beneficiary needs assessment and beneficiary incidence analysis to identify scope for re-prioritization of public expenditure and improve implementation etc.

Significance of gender budgeting:

- It acts as a powerful tool for achieving gender mainstreaming so as to ensure that benefits of development reach women as much as men.
- It recognise the need of an affirmative action to address specific needs of women.

- It sensitise government and society towards discrimination and gaps among women and men in a given sector.
- Gender responsive budgets policies can contribute to achieve the objectives of gender equality, human development and economic efficiency.
- Gender budgeting at department/ministry lead to more focus on issues of women's inequality and empowerment and thereby led to more specific allocation on such schemes.
- It put pressure and focus on gender sensitive programme formulation and implementation. Therefore, it mainstream gender concerns in public expenditure and policy.
- It leads to women empowerment by increasing and improving the social, economic, and political situation of the women, and ensure equal rights to women. It helps women to control and benefit from resources, assets and income, as well as the enable them to manage risks and take decisions good for them.
- It ensures that benefits of development reach each women as much as it benefit men. E.g. Schemes like SukanyaSamridhiYojana enhance economic status of girls.
- It leads to increased focus on education, health, and safety of women. E.g. Betibachao, betipadhao has resulted in increased child sex ratio in vulnerable areas.
- It ensures women's health through policies and schemes. E.g Janani surakshayojana, Maternity Benefit Act 2016 ensure good health of women.
- Poor socio-economic indicator of women –
 - Literacy – female ~ 65%; male ~ 80% (2011 census)
 - Males get more medical care compared to girls
 - Son meta preference (less opportunity to come to the world)
 - Child marriage ~ 27% (UNICEF)
 - Female labour force participation rate ~ 26% (NitiAayog)
 - Gender pay gap ~ 34% (ILO)
 - Glass ceiling
 - Feminization of informal sector and de-feminization of formal sector.
 - female representation in Parliament ~ 99th in the world
 - Lok Sabha ~ 12%; Rajya Sabha ~ 11%.
- Global Gender Gap report 2020 ranked India 112 in terms of inequality in economy, education, health and political representation.

Conclusion:

Women warrant special attention due to their vulnerability and lack of access to resources. The way Government budgets allocate resources has the potential to transform gender inequalities. In view of this, Gender Budgeting, as a tool for achieving gender mainstreaming can be extremely useful. Gender-targeted spending creates a virtuous cycle and has a multiplier effort on women's living standards, and overall growth and development.

2. The goal of sustainable and inclusive economic growth can't be achieved without empowering women entrepreneurs. Do you agree? Substantiate your views

Approach:

As the directive in the question is to substantiate, we need to provide relative facts, figures, and examples for our arguments. In introduction, one can start by defining what is sustainable and inclusive economic growth. In the first half of main body part, candidate may elaborate more on what is sustainable and inclusive economic growth and then explain what are the tools through which sustainable and inclusive growth can be achieved. As a bridging paragraph one can show, how empowering women entrepreneurs is one of the core pillars of the sustainable and inclusive economic growth. In the second half candidate can show, how empowering women entrepreneurs will support sustainable and inclusive economic growth. In conclusion, candidate can show how it will boost overall development of economy and conclude accordingly. To fetch more marks value addition is necessary, candidate can show Government initiatives, examples, facts and figures regarding women entrepreneurship which have helped sustainable and inclusive economic growth.

Introduction:

Goal 8 of Sustainable Development Goals specifically aims to promote Sustainable and inclusive economic growth. Sustainable and Inclusive economic growth is a concept that advances equitable opportunities for economic participants during economic growth with benefits incurred by every section of society and creates opportunities for all, especially the most disadvantaged, and distributes the gains from prosperity more equally over a sustaining period of time which ensures availability of resources for upcoming generations too.

Body:

Importance of Goal of sustainable and inclusive economic growth:

- According to the Tendulkar committee report, poverty in India is at 22%. Low agriculture growth, low-quality employment growth, low human development, rural-urban divides, gender and social inequalities, and regional disparities etc. are the problems for the nation.
- Access to education and health is not the same for all sections of the population. Females are treated to be subordinate to males and are dependent on their families in all spheres. Inclusive growth is hence the key to women empowerment.
- Natural ecosystems are under stress and decline across most of the country; some 10 per cent of the country's wildlife is threatened with extinction; agricultural biodiversity has declined by over 90 per cent in many regions.
- India with its population of 139 crores is the second most populous Nation in the world. Meanwhile, it is going to overtake China by 2027 to be the most populous country in the world.

- The multitude effect of these problems can be seen as a big problem for the larger section of vulnerable and marginalised section of population and for upcoming generations of India. The reason is fast pace of population growth and industrial development and their explosive negative effects and parallel slow pace of natural growth and development of Natural resources.

The sheer scale and impact of these things on the vulnerable and marginalised sections of population is noteworthy. However, the scale of effect on women is relatively more as their vulnerability is affected by many factors. Hence, it becomes of critical importance that for sustainable and inclusive economic growth empowerment of women entrepreneurs should take place.

Need of empowerment of women entrepreneurs to achieve inclusive and sustainable economic growth:

- Three core elements of sustainable development are economic growth, social inclusion and environmental protection. When it comes to social inclusion women's inclusion in development and growth amounts to a larger and critical extent as they constitute nearly 50% of population.
- The end of poverty can only be achieved with the end of gender-based discrimination. Women make significant contributions every day from bringing an income to her household as an employed wage earner, to creating jobs as an entrepreneur.
- Women can start a new business that caters to a different market or niche than their male counterparts. Enabling women benefits future generations because women tend to spend more time on their children's education and family member's health, which in turn boosts productivity of not just their work but also the productivity of other family members also.
- Women entrepreneurs inspire other women to start business leading to job creation for women, which ultimately helps in bridging the gender pay gap in the workforce. Narrowing the gender pay gap in employment will increase global income.
- Once the gender pay gap is narrowed down, it helps to spend more money for the education, health etc. i.e. all-inclusive development of family members.
- Creating and preserving a strong positive company culture is a pre-requisite for the growth and long term success of any company. Studies show that a women-led company tend to have a better company culture, high values and transparency. For instance, Ameera Shah is an Indian entrepreneur and the Managing Director of Metropolis Healthcare, a multinational chain of pathology centers based in Mumbai, with presence in seven countries. The success of Metropolis health care is synonymous with her name.
- Only about 16 percent of Indian women own or run businesses, according to the Economic Census conducted by IMF. More than 90 percent of companies run by women are microenterprises, and about 79 percent are self-financed.
- At present, women's entrepreneurial role is limited in the large-scale industries and technology-based businesses. But even in small scale

industries, the women's participation is very low. As per the third all India census of Small-Scale Industries, only 10.11% of the micro and small enterprises were owned by women, and only 9.46% of them were managed by women

- The participation of women has increased in the past decade. Yet, women constitute only one third of the economic enterprises. The government has introduced schemes like Skill India Mission, Stand Up India, Mudra scheme etc., which have helped Indian women to start their own business.
- Despite these government initiative to promote women entrepreneurship, India was ranked 16th/17 countries only above Uganda. Countries like Turkey, Morocco and Egypt has outperformed India, in a survey conducted by Dell and Global Entrepreneurship and Development Institute (GEDI).
- Looking into the state level distribution of women-owned enterprises, we will find that there is a variation in the distribution of women-owned enterprises across India at state level, suggesting diversity in the enabling environments for women entrepreneurship. The largest share in the number of establishments under women entrepreneurs are clustered in the southern states of India. In terms of female owned proprietary establishments, out of the top ten states, six states are from North East India.
- The 6th economic census, we will find that 13.76 percent of MSME's are women owned i.e. approximately 8.05 million out of 58.5 million businesses. The World Bank Enterprise Survey Data, an internationally comparative data set, suggests that 10.7 percent of MSMEs have female participation in ownership.
- In India, there are also urban/rural differences in rates of women's entrepreneurship, with more women's enterprises based in rural areas (22.24 per cent of all rural enterprises), compared to urban areas (18.42 per cent of all urban enterprises) according to Ministry of MSME Annual Report as shown in Table 1 Percentage distribution of male and female owned enterprises in Rural and Urban areas. Women's enterprises are also mainly micro sized or proprietary and the majority are informal.

SECTOR/GENDER	Male	Female	All
Rural	77.76	22.24	100
Urban	81.52	18.42	100
All	79.63	20.37	100

Table 1: Percentage distribution of male and female owned enterprises in Rural and Urban areas

Economic development of the today's woman is crucial for economic development of any country specially a country like India. Government Initiatives have created many entrepreneurial opportunities for women entrepreneurs that they can utilize to enhance their social standing and reputation, however, their development and growth needs to be ensured for the broader objective of sustainable and inclusive development would not get hampered. It can be done in following ways:

- Increasing awareness among parents is shattering the patriarchal mindset and stereotyping within the families and hence women are seen as potential resources to do business.
- Increasing Urban population has shattered the patriarchal mindset about women which has increased opportunity for women. E.g. the incidents of dowry have come down and marriage of women is not a liability and hence provide additional capital for ventures. Hence, there arises the need to increase minimum marriage age for women from 18 to 21.
- Government promotion to women entrepreneurship through various schemes by providing capital and infrastructural support. For instance, Mahila E-HAAT is a bilingual direct online marketing platform leveraging technology for supporting women entrepreneurs and Self-Help Groups for showcasing their products and services. It was adjudged as one of the top 100 projects in India during 2016.
- Also, Stand Up India was launched in 2016 for providing bank loans to woman borrowers for setting up a Greenfield enterprise.
- International recognition of women entrepreneurial potential and increasing international support. Recently NITI Aayog organized Women Entrepreneur Summit with Ivanka Trump as chief guest which saw numerous investment support.
- Increasing Literacy and skill levels of the present generation women which has provided an opportunity to involve in business activities. For instance, Mahila Shakti Kendra is an initiative that supports establishment of Women Empowerment Centres at the village-level. The Centres aim to converge action in several areas including skill development, employment, digital literacy, health and nutrition to provide a comprehensive package of services.
- Promotion to traditional crafts through various government schemes like Tribes India etc., has increased the self-help groups which are mainly driven by women. For instance, Women Transforming India is an online contest launched by NITI Aayog, in partnership with United Nations, India and MyGov for crowd sourcing stories of women who are making a difference in their respective fields. The best stories are awarded.

Conclusion:

When women move forward, the family moves, the village moves and then ultimately the Nation moves forward. The glass ceilings are shattered and women are found indulged in every line of entrepreneurship. There is a need for more Awareness programme, training Programmes, skill development, loans and subsidies, grievance forums etc., for promoting women entrepreneurship which will ensure a more sustainable inclusive economic growth thereby supporting 'SabkaSath, Sabka Vikas' in turn making Indian economy and women entrepreneurs more self-reliant i.e. 'AatmNirbhar'.

3. Why is regional imbalance a grave threat in the Indian context? Examine. Can the creation of infrastructure alone ensure inclusive growth and reduce the feeling of alienation? Critically comment.

Approach – You need to examine the issue of regional imbalance in context of India and the threats arising out of it. Further in the 2nd part, you need to focus on critically commenting on creation of infrastructure as sole tool towards ensuring inclusive growth and reducing the feeling of alienation in people.

Introduction

Regional disparities are an alarming issue in India, and it has been widening in spite of various policy initiatives by the government to develop backward areas. The fruit of high growth have not been distributed fairly across India's different regions and have given rise to the threat of regional inequality.

Body

- Regional imbalance is the disparity in the economic and social development of two regions. Regional imbalances mean wide differences in per capita income, literacy rates, health and education services, levels of industrialization between different regions.
- Disparities in social and economic development, employment, and infrastructure amenities across the regions and within regions have been a major challenge to policy makers and economists. Consequently, regional imbalance is considered a grave threat in Indian context due to the following factors:
 1. **Inter - States and Intra State Agitations** - Uneven regional development or regional imbalances lead to several agitations with in a State or between the States. The erstwhile combined State of Andhra Pradesh can be sited as the best example of the consequences of intra - state regional imbalance in terms of development.
 2. **Migration** - Migration takes from backward areas to the developed areas in search livelihood. For example, migration from rural to urban. Because, urban areas will provide better quality of life and more job opportunities when compared to rural. This leads to tremendous pressure on urban areas in terms of planning and resources.
 3. **Social Unrest** - Differences in prosperity and development leads to friction between different sections of the society causing social unrest. For example Naxalism. Naxalites in India function in areas which have been neglected for long time for want of development and economic prosperity.
 4. **Housing, Water Problem** - Establishment of several industries at one place leads to shortage of houses as a result rental charges will increase abnormally. For example, Mumbai, New Delhi, Chennai and Hyderabad and over population leads to water crisis.

5. **Aggregation of the imbalance** - Once an area is prosperous, more investments pour-in neglecting the less developed regions. For examples, the rate of growth of the metropolitan cities like Mumbai, Delhi, etc. is higher compared to other metro cities of India.
6. **Under – Developed Infrastructure** - Rural and backward areas do not have 24 hours power, proper houses, safe drinking water, sanitation, hospitals, doctors, telephone and internet facilities

Here, the creation of infrastructure alone can ensure inclusive growth and reduce the feeling of alienation due to the following factors:

- Availability of adequate infrastructure especially the physical infrastructure facilities is the pre-condition for sustainable economic and social development. Non-availability or inadequate availability of infrastructure poses a serious threat to growth.
- The social infrastructure broadly includes health, education and sanitation. It is well recognised that the literacy of any region or area has a positive relation to the overall development. Regional disparity can also be observed from the gap in literacy level in different states in India.
- The physical infrastructure includes transport, communication, electricity etc. India suffers from inadequate availability of physical infrastructure, as measured by any accepted indicator. Not only is infrastructure inadequate and weak, it varies from interstate to intra state.

At the same time, for overcoming any problem, a balanced approach is necessary where tackling regional imbalance would require a host of other measures along with infrastructure development like:

- The most important factors driving growth come from the health, education, transport, agriculture, and energy sectors, which are used to construct composite infrastructure index.
- Efficient investment in all these sectors would provide the much-needed boost required for economic and human development, which would ultimately result in sustainable and satisfactory economic growth which is broad based.
- Investment in agriculture needs to be stepped up especially in the lagging regions. Since agricultural growth is found to be different in different regions, steps to equalise it will certainly reduce the regional imbalances.

Conclusion

Regional imbalance is a threat to the goal of inclusive growth and reduction of poverty. Ultimately, the key to balanced regional development lies not merely in increasing resource flows to backward regions but in creating an enabling environment to attract more resources, using them properly and assuring a fair deal to investors and also ensuring the ideal path of 'economic growth with integrity'.

4. Examine the factors that have led to India's lower tax to GDP ratio. What are its implications for the economy? Analyse.

Approach:

Students are expected to examine those factors, which led to India's lower tax to GDP ratio in first part, and analyse its implications on economy in second part.

Introduction:

Tax revenue is income collected by governments through taxation. The tax-to-GDP ratio is used to measure how much a government controls its economic resources. The low ratio represents that the government won't be able to finance its expenditure and hence increases government's dependence on borrowings. Although India has improved its tax-to-GDP ratio in the last six years, it is still far lower than the average OECD ratio, which is 34 per cent.

Body

India despite seeing higher growth rates, has struggled to widen the tax base.

Factors that have led to India's lower tax to GDP ratio:

- Low per capita income keeps tax collections low: Low average incomes and a high poverty rate result in a very small portion of the labour force being eligible to pay personal income taxes. As per OECD report, income taxes accounted for a lower proportion around 16% of the general government's revenue.
- A large proportion of economic activity generated by SME: Although SMEs have enjoyed strong profitability growth over the past decade, the government has not captured their earnings in tax revenues due to a variety of exemptions and compliance issues.
- Tax Exemptions to Start-ups: Start-ups with turnover up to Rs. 25 crores are allowed deduction of 100% of its profits for three consecutive assessment years. Indeed, it boost the economic activity and entrepreneurship, a large proportion of income government missed to capture here.
- Tax exemptions on agriculture related activity: The incomes of the small and marginal farmers are far below the minimum threshold limit of personal income taxation. Wealthy farmers are reportedly misusing this benefit to evade taxes. The proportion of agricultural households holding 4-10 hectares of land is just 3.7% and 0.4% over 10 hectares. Just by taxing the incomes of the top 4.1% of agricultural households, at an average of 30%, as much as Rs 25,000 crore could be collected as agricultural tax.
- Low service tax net: Although it has been progressively expanded to include a greater number of services each year, and service tax revenue has grown the

fastest of all revenue sources. Yet, service taxes constitute merely 5 per cent of total general government revenues, although they comprise about 60 per cent of GDP.

- Tax exemptions to SEZ: According to the sunset clause, there is 100 per cent income tax exemption on export income for SEZ units for the first five years, 50 per cent for next five years and 50 per cent of the ploughed back export profit for subsequent five years.
- Drop in corporate tax revenue: Surprise cut in corporate tax rate last year aimed at wooing manufacturers and boosting investment in Asia's third-biggest economy is another key reason behind the sluggish tax collections.

Lower tax-to-GDP ratio constrains the government to spend on infrastructure and puts pressure on the government to meet its fiscal deficit targets.

Implications of lower tax to GDP ratio on economy:

- It lowers the GDP: One of the reasons for lower tax to GDP is due to pervasive structure of exemptions, which indirectly affects the GDP growth, as it is a vicious cycle that means low tax produces less revenue resources with the state. It results in less public investment and lower job opportunities, thus lower economic progress.
- Lesser spending on health and education also disturbs Socio-Economical structure: Lower revenue means lesser spending on Important social sectors such as Health and Education, which are key sectors for developing country. As it diminishes the welfare measures provided by the state, ultimately it affects the social structure and develop further inequality.
- Affects government policy: It creates political incentives for successive governments to ignore some eligible sections of society for vote-bank politics, rather than building an effective tax system that will spur economic growth.
- High Government Borrowing: It also increases government borrowing. To stimulate the economic activity in the country government is forced to borrow from, within and outside the country and thus it becomes difficult to manage fiscal deficits.
- Low spending on national security: Even though the actual amount of defence expenditure is seen to be increased in each budget, the defence expenditure percentage to GDP is reduced almost every year since last decade.
- Burden on few sectors: Some economists argue that as high productive sectors are taxed it is incentivizing the low productivity sectors not to come into formal tax system.
- Parallel economy: Low taxation means most of the money in economy goes unaccounted and hence will encourage parallel economy.

Although there are numerous implications of Low ratio, India's number does not look that bad given the significant difference in per capita income of the developed country. Therefore, it does have some positive implications.

Positive implications of low tax to GDP ratio:

- Tax cuts increases demand: Tax cut also stimulate the economic activity by increasing workers' take-home pay. Tax cuts can also boost business demand by increasing firms' after-tax cash flow, which can be used to pay dividends and expand activity, and by making hiring and investing more attractive.
- Low tax Attracts Investment: The government always hopes that, lower tax rates will attract more investments into the country and help revive the domestic manufacturing sector, which has seen lacklustre growth. So there is constant pressure on governments across the world to offer the lowest tax rates in order to attract investors.
- OECD, group of developed nations: Out of 36 member countries of OECD, most of them from the developed world. Such high average tax-GDP ratio in OECD could be attributed to some of the European countries like France, Denmark etc. hence its generalised numbers are not exactly relevant to Indian economy.

Conclusion:

Continues efforts government putting in the form of various schemes to generate more tax and to increase revenue collection. To avoid tax disputes government announced various schemes like "vivad se vishwas" scheme and "sabakavishwas" scheme. The Central Government also introduced the "Faceless Assessment Scheme" to provide greater transparency, efficiency and accountability in Income Tax assessments. Rationalisation of GST and moving towards a two-rate structure can also help in increasing compliance and putting an end to tax evasion. While measures to improve tax compliance and widen the tax base will yield higher tax revenue, the importance of higher economic growth cannot be ignored.

6. What do you understand by public debt? What are its components? Discuss. Also, comment on India's current public debt scenario.

Approach:

It is straightforward question, where it expects student to write - in first part about public debt - in second part write about components of public debt - in third part write about India's current public debt scenario .

Introduction:

The public debt is how much a country owes to lenders outside of itself. These can include individuals, businesses, and even other governments. The term "public debt" is often used interchangeably with the term sovereign debt. Public debt usually only refers to national debt.

Body:

Public debt:

- In the Indian context, public debt includes the total liabilities of the Union government that have to be paid from the Consolidated Fund of India. Sometimes, the term is also used to refer to the overall liabilities of the central and state governments.
- However, the Union government clearly distinguishes its debt liabilities from those of the states. It calls overall liabilities of both the Union government and states as General Government Debt (GGD) or Consolidated General Government Debt.
- Since the Union government relies heavily on market borrowing to meet its operational and developmental expenditure, the study of public debt becomes key to understand the financial health of the government.
- The study of public debt involves the study of various factors such as debt-to-GDP ratio, and sustainability and sources of government debt. The fact that almost a fourth of the government expenditure goes into interest payment explains the magnitude of the liabilities of the Union government.
- The Union government broadly classifies its liabilities into two broad categories. The debt contracted against the Consolidated Fund of India is defined as public debt and includes all other funds received outside Consolidated Fund of India under Article 266 (2) of the Constitution, where the government merely acts as a banker or custodian. The second type of liabilities is called public account.

Components of public debt:

- These are listed as follows:
 - Dated government securities or G-secs.
 - Treasury Bills or T-bills
 - External Assistance
 - Short term borrowings

- Public Debt definition by Union Government
- The Union government describes those of its liabilities as public debt, which are contracted against the Consolidated Fund of India. This is as per Article 292 of the Constitution.

India's current public debt scenario:

- As per the International Monetary Fund (IMF), India's public debt ratio is projected to jump by 17 percentage points to almost 90% because of an increase in public spending due to Covid-19.
- Increase in Public Debt Ratio:
 - The increase in public spending, in response to Covid-19, and the fall in tax revenue and economic activity, will make the public debt ratio jump by 17 percentage points. The ratio is projected to stabilise in 2021, before slowly declining up to the end of the projection period, in 2025.
 - The pattern of public debt in India is close to the norm around the world. This debt-to-GDP ratio is the metric comparing a country's public debt to its Gross Domestic Product (GDP). It is often expressed as a percentage.
 - By comparing what a country owes (debt) with what it produces (GDP), the debt-to-GDP ratio reliably indicates a particular country's ability to pay back its debts. A country with a high debt-to-GDP ratio typically has trouble paying off public debts.
- Assessment of Fiscal situation (relating to taxation, public spending, or public debt):
 - India has been an important source of growth in the world since the 1991 economic liberalisation reforms. Real GDP growth averaged 6.5% between 1991 to 2019, and real GDP per capita was multiplied by four over that period.
 - Real GDP is calculated in a way such that the goods and services are evaluated at some constant set of prices. Nominal GDP, on the other hand, is simply the value of GDP at the current prevailing prices. This impressive growth performance helped lift millions of people out of extreme poverty.
 - The extreme poverty rate, measured as the proportion of people whose income is less than \$1.90 a day at purchasing power parity (the international poverty line), fell from 45% in 1993 to 13% by 2015. India achieved the millennium development goal of halving poverty by 2015 (from its 1990 level).
 - India has made astonishing progress in other areas. Education enrolment is nearly universal for primary school. Infant mortality rates have been halved since 2000. Access to water and sanitation, electricity, and roads has been greatly improved.

Conclusion:

In the near-term, additional fiscal action should be deployed as needed to support the poor and the vulnerable. This should be accompanied by a credible medium-term fiscal consolidation plan that can reinforce market confidence and structural

reforms that boost India's growth potential. The effects of Covid-19 on health, education, poverty and nutrition render progress towards the Sustainable Development Goals even more urgent. Macroeconomic and financial stability are important necessary conditions for sustainable development.

7. How sustainable is the vision of export led economic growth in the current changing global order? Critically examine.

Approach:

It expects student to write about - in first part write about positive aspects of export led economic growth - in second part mention why it is not sustainable for economy - in third part write way forward/suggestions.

Introduction:

Export led growth is where a significant part of the expansion of real GDP, jobs and per capita incomes flows from the successful exporting of goods and services from one country to another. As the global supply chains look to diversify their sources, amid Covid-19 pandemic, India hopes to become one of the replacements for China. Moreover, the idea of turning the Indian economy into an export-led economy is not new.

Body:

Export-led growth sustainable due to:

- Exports of goods and services are an injection into the circular flow of income leading to a rise in aggregate demand and an expansion of output. This helps to raise per capita incomes and reduce extreme poverty especially in developing/emerging economies.
- Growing export sales provide revenues and profits for businesses which can then feed through to an increase in capital investment spending through the accelerator effect. Higher investment increases a country's productive capacity which then increases the potential for exports.
- Many industries help facilitate trade such as trade insurance, logistics and port facilities. Countries with fast-growing export sectors are likely to see increased investment and employment in these related industries. A good example is the importance of trade to countries such as the Netherlands (including the port of Rotterdam), and Singapore and Hong Kong both of which have developed in globally-scaled hubs for trade.
- India's big, unexploited opportunities are in unskilled labour exports. India is vastly under-exporting relative to its labour force. Because China's wages are rising as it has become richer, it has vacated about \$140 billion in exports in unskilled-labour intensive sectors. Post-COVID, the move of investors away from China will probably accelerate to hedge against supply chain disruptions.

- As India contemplates atmanirbharta, two deeper advantages of export orientation are always worth remembering. 1) Foreign demand will always be bigger than domestic demand for any country. 2) If domestic producers are competitive internationally, they will be competitive domestically and domestic consumers and firms will also benefit.

However, there are potential risks and drawbacks from export-led growth:

- Focusing on exporting might lead to over-dependence on the economic cycles of trade partner countries and vulnerability to external economic and political shocks.
- Running persistent trade surpluses might incite a protectionist response from other nations who feel that the benefits of trade have been unequally skewed in favour of exporting countries. Huge trade imbalances remain a big concern in the global economic system.
- Production capacity allocated to supply goods and services for export cannot be put to use meeting domestic needs and wants. There might be a consequent dip in domestic living standards unless the country is also prepared to import goods and services using the revenue generated from exporting.
- Rapid export-led growth might lead to demand pull inflation and higher interest rates. High relative inflation might then have the effect of making export industries less competitive in overseas markets and domestic producers less price competitive against imports.
- Export-led growth might be unsustainable if it contributes extraction of natural resources beyond what is required for long term balanced growth to be maintained. Consider for example the impact of deforestation and over-fishing and degradation of land by industrial-scale farming.

Way Forward:

- **Building Domestic Demand:** No matter how bleak the global demand remains in the present times, a robust industrial architecture is crucial for a country to become self-sufficient. Thus, there is a need to build strong domestic demand, to sustain industrial activity in India.
- **Focus on Knowledge Power:** As the population in the majority of the developed world is ageing, India can leverage its demographic dividend and export its human resource to the world. For this, India needs to invest in its education, research & innovation capabilities and turn into a Knowledge superpower.
- **Addressing Structural Issues:** All countries that promoted export-led growth invested heavily in human capital and ensured very good infrastructure with ports, roads, airports and railways. Thus, India needs to: Invest in its labour force and provide them with regular, affordable food supply and housing. Build a well- functioning infrastructure and take various trade facilitation measures like easier customs clearances, less paperwork.
- **Economic Decentralisation:** There is also the need for economic planning to be devolved lower and lower down all levels of government so that people are empowered to take up an economic activity that suits them and develop the resilience needed to respond to new opportunities and threats.

- **Providing Easy Credit:** Providing easy credit remains a critical aspect of mobilising investment. Hence, India also needs cleaning up of the Non-Performing Assets. In this context, the privatisation of banks will be a step in the right direction.

Conclusion:

The idea of the export-led economy has been very successful for many East-Asian countries (also called East-Asian Miracle). In the 1960s and 70s, these countries transformed their economies rapidly from developing countries to become middle-income countries through high export. However, the viability of a new export-based economy, that India aspires to be, depends on policy restructuring, reaping demographic dividend and leveraging its domestic market.



8. Why is India grappling with the challenge of unemployment? Discuss. Examine the sectors that have high potential for creating jobs for the youth.

Approach:

As the question has two directives it is better to answer straightforwardly. The core of the question lies in unemployment and creating jobs for the youth. Hence, one can start by introducing some facts or stats regarding unemployment besides quoting any report regarding unemployment. In main body part, it is necessary to divide the question in two parts. For the first half of the answer, candidate needs to write the reasons due to which India is grappling with the challenge of unemployment. As a bridging gap between first half and second half, candidate may show which sectors have high potential for creating jobs for youth. In the second half, directive is examine, here a candidate is expected to investigate and establish the key facts and issues related to those specific sectors which have the high potential for creating jobs for the youth in India. For value addition, one can show a graph regarding unemployment, mentioning sector specific unemployment in table format, one can also mention current government schemes/programmes which works with objective of creating employment.

Introduction:

Unemployment occurs when a person who is actively searching for employment is unable to find work. As per the report of Centre For Monitoring Indian Economy(CMEI), unemployment rate in India fell to 7% in September 2020 from 3.37% of July 2017. As unemployment indicates the health of the economy and has subsequent critical domino effects on economy, it becomes essential to look at the reasons due to which India is grappling with the challenge of unemployment.

Body:

Reasons for grappling challenge of unemployment in India:

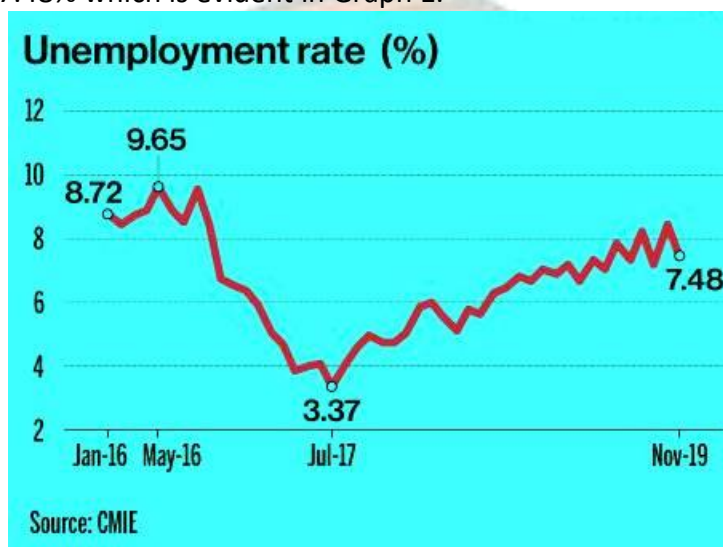
- Most of the decline in employment has happened due to the fall in the number of workers in agriculture and a sharp fall in the absolute number of female workers.
- Roughly 37 million workers left agriculture in the last six years. During the same time, 25 million women workers were out of the workforce. However, The low productivity in the agriculture sector plus the lack of alternative opportunities for agricultural workers makes transition among the three sectors difficult.
- Surprising trend is of declining women workers, which has absolutely no parallel in any developing or developed country of similar per capita income.

In most East Asian countries, the period of rapid growth was also accompanied by a rising number of women workers.

- Along with the fact that the number of people aged 25-64 years increased by around 47 million during the six-year period, it also means that the economy should have created at least 83 million jobs between 2012 and 2018 to accommodate those who have entered the labour force and those forced out of agriculture.
- The unemployment in India is not due to single reason, but it is due to multitude of reasons. For instance, disguised unemployment, structural unemployment, seasonal unemployment, vulnerable unemployment, technological unemployment, cyclical unemployment, and cyclical unemployment. Hence, it becomes a multi-fold crisis for India as economy is interdependent.
- Inadequate skills: Lack of vocational skills, skill gap of the working population posed one of the biggest sector specific challenge of unemployment. For instance, According to the Developer Skills report of an online learning platform, there is a strong mismatch between the frameworks/ skills required by the corporate world and the ones being learned by students. Close to 80% of the engineers blamed a lack of focus and hands-on coding experience for this situation.
- In the past few years, India's GDP grew at about 7-8%, but growth does not translated into creating more employment opportunities for the labour force of the country. For instance, the number of salaried jobs contracted by 1.8% in 2019-20. So, even before Covid kicked in, we were struggling to create salaried jobs.
- Legal complexities, Inadequate state support, low infrastructural, financial and market linkages to small businesses making such enterprises unviable with cost and compliance overruns. For instance, despite the fact that attempt were made to lure foreign investors to set up their manufacturing plants in India under Make in India initiative. Very less investors are attracted to set up their manufacturing plants in India, just like Apple manufacturing plant set up issue.
- Also figures can be cited that in 2014, the share of manufacturing in India's GDP was 15%, However, in 2019 it contracted by 1% reaching to 14%.
- Inadequate growth of infrastructure and low investments in the manufacturing sector, hence restricting the employment potential of the secondary sector. For instance, despite being an emerging field in the economy, electric vehicles market is failing to create more job opportunities in 2nd and 3rd tier cities.
- The huge workforce of the country is associated with the informal sector because of a lack of required education or skills, and this data is not captured in employment statistics.
- The core cause of structural unemployment lies in the education we provide and how we provide it. For instance, the system of rote learning and targeting marks as an indicator of merit led to loss of true potential of child's

intellect, like Indian middle class aspiration of making their son engineer and daughter.

- Gender based selection of jobs is also one of the factors which is affecting the job availability. For instance, a day time job is considered as safe and secure job for woman. Which contradicts job choices for woman.
- As per CMEI report, even before Covid-19, job opportunities were low for Indian youth. For instance, in November 2019, Unemployment rate in India fell to 7.48% which is evident in Graph 1.



Graph 1: Unemployment Rate in India (November 2019)

Unemployment affects the economy of the country as the workforce that could have been gainfully employed to generate resources actually gets dependent on the remaining working population, thus escalating socio-economic costs for the state. For instance, a 1% increase in unemployment reduces the GDP by 2%. Hence, creation of job opportunities becomes of critical importance. Meanwhile, manufacturing sector in the economy holds the key to create more jobs in India due to its forward and backward linkages.

- There are number of labour intensive manufacturing sectors in India such as food processing, leather and footwear, wood manufacturers and furniture, textiles and apparel and garments. Special packages, individually designed for each industry are needed to create jobs.
- The share of manufacturing in the Indian economy has varied between 14.7% of gross domestic product (GDP) and 16.7% of the GDP, between FY05 and FY20.
- Manufacturing activity leads to the creation of large employment in several service sector areas for instance, consider industry of readymade garments where backward linkages will provide job opportunities for youth in the rural areas for raw materials production, transport and for the youth in urban area with subsequent industrial and market development.
- Of course, just manufacturing cannot create enough jobs for the 10-12 million individuals who enter the workforce every year in India. In stark

contrast, between 2004-05 and 2019-20, the share of services in the economy has gradually increased from 43.5% of the GDP to 50.4%.

- As per the study conducted by Climate Policy Initiative and Indian School of Business, India's renewable energy sector, including the solar and wind power generation segments, could create new job opportunities between 2 million and 4.5 million over the next 25 years.
- Besides tourism industry has more potential to generate more jobs. For instance, tourism Council calculated that tourism generated 8.31 lakh crore (US\$120 billion) or 6.3% of the nation's GDP in 2015 and supported 37.315 million jobs, 8.7% of its total employment. The sector is predicted to grow at an average annual rate of 7.5%.
- Credit facilities have not been penetrated in to rural areas. The current grants to Microcredit institutes and small scale banks holds the key potential to create more jobs. For instance, network of Garmeen bank in Bangladesh.
- It not only holds the potential to generate jobs in banking sector, but also in other sectors too such as a loan granted to one organisation will create other jobs due to its forward and backward linkages.
- By improving the infrastructure and building post-harvest storage & processing units, and improving transportation facilities to distribute and sell the produce can create a large number of employment opportunities. Raising farmers' income is very important to boost the agricultural sector. For that, Minimum Support Price should be increased. Taking steps to boost Agri exports can also create number of jobs.
- Approximately 51% of MSMEs are in rural India. Strengthening them and providing the necessary tools & technologies to MSMEs can create multiple job opportunities.
- Also new fields like Artificial intelligence and Machine Learning hold the potential to create more jobs. According to accountancy firm PwC, over 7 million jobs will be displaced by AI between 2017 and 2037. However, it will also lead to the generation of 7.2 million jobs, which is a net gain of 200,000 jobs in India.
- For sector specific job creation opportunities, Government of India launched following schemes to ensure creation of job opportunities. For instance, Mahatma Gandhi National Rural Employment Guarantee Act launched in 2005 providing the right to work to people. An employment scheme of MGNREGA aimed to provide social security by guaranteeing a minimum of 100 days paid work per year to all the families whose adult members opt for unskilled labour-intensive work. However, recently Azim Premji Foundation suggested increasing MGNREGA workdays from 100 to 200 to compensate for the lack of employment opportunities in rural areas.
- Pradhan MantriKaushal Vikas Yojana was launched in 2015. The objective of PMKVY was to enable the youth of the country to take up industry-relevant skill training in order to acquire a secured better livelihood.
- The government launched the Start-Up India Scheme in 2016. The aim of Startup India programmes was to develop an ecosystem that nurtures and promotes entrepreneurship across the nation. Besides, Stand Up India

Scheme also launched in 2016 aimed to facilitate bank loans to women and SC/ST borrowers between Rs 10 lakh and Rs. 1 crore for setting up a greenfield enterprise.

- National Skill Development Mission was set up in November 2014 to drive the 'Skill India' agenda in a 'Mission Mode' in order to converge the existing skill training initiatives and combine scale and quality of skilling efforts, with speed.

Conclusion:

India has the opportunity to build a productive and inclusive workforce in the near future due to its advantage of demographic dividend. However, necessary cautions have to be addressed. It will not only help to create more jobs and reduction of unemployment in near future but it will help to ensure realising the dream of 'AatmNirbhar Bharat'.



9. The continuance of retrospective amendments to taxation laws hurts investor sentiments and is detrimental to India's economic aspirations. Do you agree? Substantiate your views.

Approach – You need to enumerate various recent retrospective amendments to taxation laws and show its effect on investor sentiments as well as India's economic aspirations in both positive and negative forms while also mentioning the side you agree with. Proper substantiation of points is necessary.

Introduction

India, one of the fastest growing economies of the world with an exemplary rate of GDP, has tax as the main source of Government revenue, which contributes approximately 18% revenue to the GDP, and has always been a very sensitive issue taking into consideration the economic condition of population at large which have led to issues like retrospective amendments to taxations laws.

Body

- Retrospective taxation allows a country to pass a rule on taxing certain products, items or services and deals and charge companies from a time behind the date on which the law is passed.

Consequently, the retrospective amendments to taxation laws can be seen to have the following benefits:

1. From the ancient time, retrospective law or ex post facto law has been a part of standard jurisprudence. It is neither an Indian creation, nor it is being used exclusively in India.
2. Some retrospective amendments are always required either to prevent the misuse of law or to harmonize various decisions of honourable courts with the statutes.
3. Further, many experts opine that such amendments are sometimes required to correct the "aberrations" that had come in by decisions of the quasi-judicial bodies, which went against the legislative intent.
4. Many consider this instrument as a platform of a great instrument to finance State welfare and achieve the much desired dream of egalitarianism.
5. Apart from India, many countries including the US, the UK, the Netherlands, Canada, Belgium, Australia and Italy have retrospectively taxed companies, which had taken the benefit of loopholes in the previous law.

At the same time, continuance of retrospective amendments to taxation laws can be seen as hurting investor sentiments and detrimental to India's economic aspirations due to the following points:

1. Introducing a retrospective taxation amendment into a present taxation system is hard on both ends i.e. for the government to implement and for the people to accept. The increased money flow towards the government results

in lack of credit in the hands of the public and they are left helpless with a heavy tax burden on their heads.

2. A company's business decisions are based upon the tax situation that exists today. It is very difficult to organize its activities today based on a future law that will be made applicable from today. An ideal tax system should be predictable certain and stable. Hence retrospective implementation is considered a bad move.
3. Hurts Investor Confidence: The amendments are criticised by investors globally, who said the change in law was "perverse" in nature. This impacts the market sentiment and the flow of foreign funds to India.
4. Hurts Companies: While governments often use a retrospective amendment to taxation laws to "clarify" existing laws, it ends up hurting companies that had knowingly or unknowingly interpreted the tax rules differently.
5. As a retrospective amendment affects ongoing contracts too, it is very difficult for the contracting parties to accommodate a new levy against their private interest agreeable to both ends at once. In addition to domestic issues, international transactions also suffer a heavy blow and will certainly affect the foreign investment and faith, triggering financial crunches.
6. The legislature in recent times has perverted its power to enact retrospective changes in taxing statutes. One major instance would be of the Finance Act, 2009, which exemplifies several retrospective alterations in the Income Tax Act. For example – the Vodafone case.

Way Forward -

- Reducing scope of litigation by signing Advance-pricing Agreements (APA's) to avoid Transfer pricing disputes.
- Need to Bring More Clarity on Tax laws: India has already rolled out Anti-tax avoidance regulations i.e. the General Anti-Avoidance Rules (GAAR) from assessment year 2018-19.
- Indian Finance Code for simplification of taxation laws in India. In this context there is a need to implement recommendations of the Financial Sector Legislative Reforms Commission.
- Implementing Shome Committee recommendations: which recommended that any taxation involving indirect transfer of assets located in India should be prospective and not retrospective.

Conclusion

It can thus be concluded that retrospective application of tax law should occur in exceptional or rarest of rare cases, and with particular objectives. Moreover, retrospective application of a tax law should occur only after exhaustive and transparent consultations with stakeholders who would be affected which would be help in improving India's ease of doing business and overall business environment.

10. Explain the phenomenon of jobless growth in the Indian context. Why does it occur? Is there a way to address it? Discuss.

Approach:

It is straightforward question, it expects student to give explanation about jobless growth in India context, reason behind it and in end mention measures to address it.

Introduction:

The World Bank, in its publication, "South Asia Economic Focus, Spring: Jobless Growth?", says that over the long-term, India has been creating 7,50,000 new jobs for everyone per cent rise in gross domestic product (GDP), at an average of 7% growth, India should be creating at least 5.25 million jobs, if not more.

Body:

Jobless growth in India:

- In a jobless growth economy, unemployment remains stubbornly high even as the economy grows. This tends to happen when a relatively large number of people have lost their jobs, and the ensuing recovery is insufficient to absorb the unemployed, under-employed, and those first entering the workforce.
- During the last decade (2001-11), the growth rate of the labour force (2.23 per cent) was significantly higher than the growth rate of employment (1.4 per cent), which itself was several-fold less than the growth rate of the economy. According to Census 2011, the average growth rate of the economy was 7.7 per cent per annum, when it was only 1.8 per cent for employment.
- 66th round of the National Sample Survey Office (NSSO) data on employment in 2011 revealed that between 2004-05 and 2009-10, only 1 million jobs were added per year; in a period when the economy averaged a record 8.43% growth annually.
- An Indian Labour Bureau survey of 2015 showed that 2,000 companies in eight sampled industries generated all of one lakh jobs, a fall from the four lakh generated in 2014, even though growth in 2014 was lower than in 2015.
- A HDFC Bank report on India's tapering jobs growth says that "employment elasticity" in the economy is now close to zero – for every one-point rise in GDP, jobs grow only 0.15. Fifteen years ago, it was 0.39

Reasons behind the Jobless growth

- In India, growth is attributed to service sector, whereby both employment and wages have seen a rise. But as figures say, the biggest employing sector in India is the Agriculture sector, employing 45% of the population but contributing 15% to the GDP, whereas Service sector is the biggest contributor to the GDP but employs less than 30%. IT and Financial services are drivers of service sector growth in last 2 decades however both of these sector are not employment intensive. Thus contributing to jobless growth in India.

- Labour –intensive manufacturing sector did not become the engine of growth in India. In fact, it was the knowledge-intensive services sector which along with some segments of capital intensive manufacturing was the engines of growth in India. But these sectors by their nature were not employment-intensive.
- Stagnation in manufacturing output and employment and contraction of labour-intensive segment of the formal manufacturing sector.
- Therefore, the nature of the trade regime in India is still biased towards capital-intensive manufacturing.
- The nature of Indian manufacturing is not employment-friendly. Most of them are automated and any employment is highly skilled. Thus they have contributed to growth, but not necessarily to employment.
- The labour intensity of MSME is four times higher than that of large firms. - but they are not treated well in India they have poor access to credit and they are plagued by many serious problems which has limited their growth potential.
- Impediments to entrepreneurial growth in small firms (such as high costs of formalisation) along with a long history of small scale reservation policy which has prohibited the entry of large scale units in labour intensive industries.
- The tax incentives, subsidies, depreciation allowance all are solely linked to the amount invested and not to the number of jobs created.
- Sluggish process in education and skill levels of workers.

However, following measures can be taken to address problem of Jobless growth:

- Improving the labour market information system where emerging demand for skills are spotted quickly and the necessary training and certifications for the same are created.
- Quick improvements in public-private partnership in capturing demand for skills and following through with quick investments in skill-building to match demand with supply.
- Jobs and skills planning should be decentralized and it has to be done at state and district levels, where there is granular information on education, skills and job options.
- Implementing a new model of manufacturing which is high-skilled, and where high-end cottage manufacturing can create employment at the small scale level.
- If urbanization is good and well planned, then job growth will be positive. Government should concentrate on the development of towns and narrow areas and service it with good infrastructure to generate employment alongside development.
- If government starts spending on public goods (schools, hospitals, dams, roads etc.) instead of spending on freebies (deep subsidies on food, farm loan waivers etc.) the capacity of government to create employment increases.

Conclusion:

India needs a new strategy to counter the phenomena of jobless growth. This requires manufacturing sector to play a dominant role. “MAKE IN INDIA” initiative a

great step forward which will boost the manufacturing. Complementary schemes like Skill India, Start-up India etc. can enhance the skillsets and employment generation.

11 . Do you think the inability of the Indian subcontinent to forge long lasting economic alliances, unlike its western and eastern counterparts, has hurt it badly? Critically examine.

Approach:

It expects student to write about - in first part write about how inability of the Indian subcontinent to forge long lasting economic alliances hurt it badly - while in second part write about how it doesn't hurt - in third part write way forward.

Introduction:

Despite geographical proximity and the existence of bilateral and multilateral free trade agreements (FTAs), South Asia is one of the least economically integrated regions in the world. Owing to protectionist policies, high logistics cost, lack of political will and a broader trust deficit, intra-regional trade in South Asia remains well below its potential at 5% of the region's global trade.

Body:

Impact of least economic integration:

- On east side ASEAN and on west Gulf cooperation council and European union helped member countries to achieve rapid economic growth.
- India achieve high growth rate but external trade potential not harnessed to its capacity majorly due to less economic integration in neighbourhood.
- Countries like Sri-lanka, Maldives, Nepal became too dependent on external debt for their development created debt-crisis and interference from big power like China.
- Failure of SAARC and spoiler role of Pakistan could not generate economic alliance which reduced growth pace in Nepal and Bangladesh.
- Till recently India's north-east remained underdeveloped due to lack of geographic connectivity which was possible through Bangladesh even before. Eg: Chittagong port, Kolkata-Pabna-Agartala train etc.
- India and other South Asian nations, collectively forecast to grow by 7.3% in 2017, can integrate their dynamic economies into the rest of Asia.
- Removing obstacles to trade and investment between South Asia, Southeast Asia and other parts of Asia is the key to erase extreme poverty in the region.
- If South Asia and Southeast Asia each cut non-tariff barriers by 50% and trade costs by 15%, will lead to gains of 8.9% of GDP in South Asia and 6.4% of GDP in Southeast Asia.
- Sub-regions of Asia have their respective weaknesses. So the Asia's growth spurt can be achieved from integrating these regions.

However, despite of lack of economic alliance:

- India and Bangladesh achieved high GDP growth rates.

- India-Srilanka free trade agreement increased trade volume between two countries.
- India-Bhutan share special relationship and with Maldives also.
- India's initiatives of 'non-reciprocity' in neighbourhood, 'Neighbourhood first' policy increased economic alliance.

Way forward:

- As always, the problems are not economic but political and geopolitical.
- The drive for regional integration can only come from India.
- Political volatility in the other countries has further dimmed the prospects of economic integration.
- South-East Asian economies grew quickly even after the global financial crisis through new trade agreements, highways, shipping routes, communications and cross-border logistics. This should be replicated in Indian subcontinent.
- Indian subcontinent lacks the institutional framework provided by ASEAN, which has galvanized the above mentioned economic integration. SAARC should be strengthened on these lines.
- The trilateral highway connecting India, Myanmar and Thailand will deliver physical connectivity.
- More robust value chains should be developed with Southeast Asia and East Asia to make such movement of goods efficient.
- Market and institutional links are also to be strengthened.
- A host of new economic corridors, like Bangladesh-China-India-Myanmar (BCIM), are another key to connecting Asia's fastest growing countries.

Conclusion:

Making long lasting economic alliances a reality is everyone's business. While the challenges may be large, the rewards of a more integrated region can be even larger for all the countries of the region. The time to act is now.

12. Explain the concept of gender budgeting? Why is it significant? Explain with the help of suitable examples.

Approach:

It is straightforward question. It expects student to write - in first part about gender budgeting - in second part write its significance with suitable example

Introduction:

Gender budgeting means preparing budgets from a gender perspective. It aims at dealing with budgetary gender inequality issues, including gender hierarchies and the gender pay gap. Gender budgeting allows governments to promote equality through fiscal policies by setting goals or targets for equality and allocating funds to support those goals.

Body:

Concept of gender budgeting:

- Gender Budget Statement (GBS) was first introduced in the Indian Budget in 2005-06. This GB Statement comprises two parts—
 - Part A reflects Women Specific Schemes, i.e. those which have 100% allocation for women.
 - Part B reflects Pro Women Schemes, i.e. those where at least 30% of the allocation is for women.
- India's gender budgeting efforts stand out globally because they have not only influenced expenditure but also revenue policies (like differential rates for men and women in property tax rates and reconsideration of income tax structure) and have extended to state government levels.
- Gender budgeting efforts in India have encompassed four sequential phases: (i) knowledge building and networking, (ii) institutionalizing the process, (iii) capacity building, and (iv) enhancing accountability.
- Gender budgeting in India is not confined to an accounting exercise. The gender budgeting framework has helped the gender-neutral ministries to design new programs for women.
- Gender Budgeting Cells (GBC) as an institutional mechanism have been mandated to be set up in all Ministries/Departments.
- GBCs conduct gender based impact analysis, beneficiary needs assessment and beneficiary incidence analysis to identify scope for re-prioritization of public expenditure and improve implementation etc.

Significance of gender budgeting:

- It acts as a powerful tool for achieving gender mainstreaming so as to ensure that benefits of development reach women as much as men.
- It recognise the need of an affirmative action to address specific needs of women.
- It sensitise government and society towards discrimination and gaps among women and men in a given sector.
- Gender responsive budgets policies can contribute to achieve the objectives of gender equality, human development and economic efficiency.
- Gender budgeting at department/ministry lead to more focus on issues of women's inequality and empowerment and thereby led to more specific allocation on such schemes.
- It put pressure and focus on gender sensitive programme formulation and implementation. Therefore, it mainstream gender concerns in public expenditure and policy.
- It leads to women empowerment by increasing and improving the social, economic, and political situation of the women, and ensure equal rights to women. It helps women to control and benefit from resources, assets and income, as well as the enable them to manage risks and take decisions good for them.

- It ensures that benefits of development reach each women as much as it benefit men. E.g. Schemes like SukanyaSamridhiYojana enhance economic status of girls.
- It leads to increased focus on education, health, and safety of women. E.g. Betibachao, betipadhao has resulted in increased child sex ratio in vulnerable areas.
- It ensures women's health through policies and schemes. E.g Janani surakshayojana, Maternity Benefit Act 2016 ensure good health of women.
- Poor socio-economic indicator of women –
 - Literacy – female ~ 65%; male ~ 80% (2011 census)
 - Males get more medical care compared to girls
 - Son meta preference (less opportunity to come to the world)
 - Child marriage ~ 27% (UNICEF)
 - Female labour force participation rate ~ 26% (NitiAayog)
 - Gender pay gap ~ 34% (ILO)
 - Glass ceiling
 - Feminization of informal sector and de-feminization of formal sector.
 - female representation in Parliament ~ 99th in the world
 - Lok Sabha ~ 12%; Rajya Sabha ~ 11%.
- Global Gender Gap report 2020 ranked India 112 in terms of inequality in economy, education, health and political representation.

Conclusion:

Women warrant special attention due to their vulnerability and lack of access to resources. The way Government budgets allocate resources has the potential to transform gender inequalities. In view of this, Gender Budgeting, as a tool for achieving gender mainstreaming can be extremely useful. Gender-targeted spending creates a virtuous cycle and has a multiplier effort on women's living standards, and overall growth and development.

13. The goal of sustainable and inclusive economic growth can't be achieved without empowering women entrepreneurs. Do you agree? Substantiate your views

Approach:

As the directive in the question is to substantiate, we need to provide relative facts, figures, and examples for our arguments. In introduction, one can start by defining what is sustainable and inclusive economic growth. In the first half of main body part, candidate may elaborate more on what is sustainable and inclusive economic growth and then explain what are the tools through which sustainable and inclusive growth can be achieved. As a bridging paragraph one can show, how empowering women entrepreneurs is one of the core pillars of the sustainable and inclusive economic growth. In the second half candidate can show, how empowering women entrepreneurs will support sustainable and inclusive economic growth. In conclusion, candidate can show how it will boost overall development of economy and conclude accordingly. To fetch more marks value addition is necessary, candidate can show Government initiatives, examples, facts and figures regarding women entrepreneurship which have helped sustainable and inclusive economic growth.

Introduction:

Goal 8 of Sustainable Development Goals specifically aims to promote Sustainable and inclusive economic growth. Sustainable and Inclusive economic growth is a concept that advances equitable opportunities for economic participants during economic growth with benefits incurred by every section of society and creates opportunities for all, especially the most disadvantaged, and distributes the gains from prosperity more equally over a sustaining period of time which ensures availability of resources for upcoming generations too.

Body:

Importance of Goal of sustainable and inclusive economic growth:

- According to the Tendulkar committee report, poverty in India is at 22%. Low agriculture growth, low-quality employment growth, low human development, rural-urban divides, gender and social inequalities, and regional disparities etc. are the problems for the nation.
- Access to education and health is not the same for all sections of the population. Females are treated to be subordinate to males and are dependent on their families in all spheres. Inclusive growth is hence the key to women empowerment.
- Natural ecosystems are under stress and decline across most of the country; some 10 per cent of the country's wildlife is threatened with extinction; agricultural biodiversity has declined by over 90 per cent in many regions.
- India with its population of 139 crores is the second most populous Nation in the world. Meanwhile, it is going to overtake China by 2027 to be the most populous country in the world.

- The multitude effect of these problems can be seen as a big problem for the larger section of vulnerable and marginalised section of population and for upcoming generations of India. The reason is fast pace of population growth and industrial development and their explosive negative effects and parallel slow pace of natural growth and development of Natural resources.

The sheer scale and impact of these things on the vulnerable and marginalised sections of population is noteworthy. However, the scale of effect on women is relatively more as their vulnerability is affected by many factors. Hence, it becomes of critical importance that for sustainable and inclusive economic growth empowerment of women entrepreneurs should take place.

Need of empowerment of women entrepreneurs to achieve inclusive and sustainable economic growth:

- Three core elements of sustainable development are economic growth, social inclusion and environmental protection. When it comes to social inclusion women's inclusion in development and growth amounts to a larger and critical extent as they constitute nearly 50% of population.
- The end of poverty can only be achieved with the end of gender-based discrimination. Women make significant contributions every day from bringing an income to her household as an employed wage earner, to creating jobs as an entrepreneur.
- Women can start a new business that caters to a different market or niche than their male counterparts. Enabling women benefits future generations because women tend to spend more time on their children's education and family member's health, which in turn boosts productivity of not just their work but also the productivity of other family members also.
- Women entrepreneurs inspire other women to start business leading to job creation for women, which ultimately helps in bridging the gender pay gap in the workforce. Narrowing the gender pay gap in employment will increase global income.
- Once the gender pay gap is narrowed down, it helps to spend more money for the education, health etc. i.e. all-inclusive development of family members.
- Creating and preserving a strong positive company culture is a pre-requisite for the growth and long term success of any company. Studies show that a women-led company tend to have a better company culture, high values and transparency. For instance, Ameera Shah is an Indian entrepreneur and the Managing Director of Metropolis Healthcare, a multinational chain of pathology centers based in Mumbai, with presence in seven countries. The success of Metropolis health care is synonymous with her name.
- Only about 16 percent of Indian women own or run businesses, according to the Economic Census conducted by IMF. More than 90 percent of companies run by women are microenterprises, and about 79 percent are self-financed.
- At present, women's entrepreneurial role is limited in the large-scale industries and technology-based businesses. But even in small scale

industries, the women's participation is very low. As per the third all India census of Small-Scale Industries, only 10.11% of the micro and small enterprises were owned by women, and only 9.46% of them were managed by women

- The participation of women has increased in the past decade. Yet, women constitute only one third of the economic enterprises. The government has introduced schemes like Skill India Mission, Stand Up India, Mudra scheme etc., which have helped Indian women to start their own business.
- Despite these government initiative to promote women entrepreneurship, India was ranked 16th/17 countries only above Uganda. Countries like Turkey, Morocco and Egypt has outperformed India, in a survey conducted by Dell and Global Entrepreneurship and Development Institute (GEDI).
- Looking into the state level distribution of women-owned enterprises, we will find that there is a variation in the distribution of women-owned enterprises across India at state level, suggesting diversity in the enabling environments for women entrepreneurship. The largest share in the number of establishments under women entrepreneurs are clustered in the southern states of India. In terms of female owned proprietary establishments, out of the top ten states, six states are from North East India.
- The 6th economic census, we will find that 13.76 percent of MSME's are women owned i.e. approximately 8.05 million out of 58.5 million businesses. The World Bank Enterprise Survey Data, an internationally comparative data set, suggests that 10.7 percent of MSMEs have female participation in ownership.
- In India, there are also urban/rural differences in rates of women's entrepreneurship, with more women's enterprises based in rural areas (22.24 per cent of all rural enterprises), compared to urban areas (18.42 per cent of all urban enterprises) according to Ministry of MSME Annual Report as shown in Table 1 Percentage distribution of male and female owned enterprises in Rural and Urban areas. Women's enterprises are also mainly micro sized or proprietary and the majority are informal.

SECTOR/GENDER	Male	Female	All
Rural	77.76	22.24	100
Urban	81.52	18.42	100
All	79.63	20.37	100

Table 1: Percentage distribution of male and female owned enterprises in Rural and Urban areas

Economic development of the today's woman is crucial for economic development of any country specially a country like India. Government Initiatives have created many entrepreneurial opportunities for women entrepreneurs that they can utilize to enhance their social standing and reputation, however, their development and growth needs to be ensured for the broader objective of sustainable and inclusive development would not get hampered. It can be done in following ways:

- Increasing awareness among parents is shattering the patriarchal mindset and stereotyping within the families and hence women are seen as potential resources to do business.
- Increasing Urban population has shattered the patriarchal mindset about women which has increased opportunity for women. E.g. the incidents of dowry have come down and marriage of women is not a liability and hence provide additional capital for ventures. Hence, there arises the need to increase minimum marriage age for women from 18 to 21.
- Government promotion to women entrepreneurship through various schemes by providing capital and infrastructural support. For instance, Mahila E-HAAT is a bilingual direct online marketing platform leveraging technology for supporting women entrepreneurs and Self-Help Groups for showcasing their products and services. It was adjudged as one of the top 100 projects in India during 2016.
- Also, Stand Up India was launched in 2016 for providing bank loans to woman borrowers for setting up a Greenfield enterprise.
- International recognition of women entrepreneurial potential and increasing international support. Recently NITI Aayog organized Women Entrepreneur Summit with Ivanka Trump as chief guest which saw numerous investment support.
- Increasing Literacy and skill levels of the present generation women which has provided an opportunity to involve in business activities. For instance, Mahila Shakti Kendra is an initiative that supports establishment of Women Empowerment Centres at the village-level. The Centres aim to converge action in several areas including skill development, employment, digital literacy, health and nutrition to provide a comprehensive package of services.
- Promotion to traditional crafts through various government schemes like Tribes India etc., has increased the self-help groups which are mainly driven by women. For instance, Women Transforming India is an online contest launched by NITI Aayog, in partnership with United Nations, India and MyGov for crowd sourcing stories of women who are making a difference in their respective fields. The best stories are awarded.

Conclusion:

When women move forward, the family moves, the village moves and then ultimately the Nation moves forward. The glass ceilings are shattered and women are found indulged in every line of entrepreneurship. There is a need for more Awareness programme, training Programmes, skill development, loans and subsidies, grievance forums etc., for promoting women entrepreneurship which will ensure a more sustainable inclusive economic growth thereby supporting 'SabkaSath, Sabka Vikas' in turn making Indian economy and women entrepreneurs more self-reliant i.e. 'AatmNirbhar'.

14. Why is regional imbalance a grave threat in the Indian context? Examine. Can the creation of infrastructure alone ensure inclusive growth and reduce the feeling of alienation? Critically comment.

Approach – You need to examine the issue of regional imbalance in context of India and the threats arising out of it. Further in the 2nd part, you need to focus on critically commenting on creation of infrastructure as sole tool towards ensuring inclusive growth and reducing the feeling of alienation in people.

Introduction

Regional disparities are an alarming issue in India, and it has been widening in spite of various policy initiatives by the government to develop backward areas. The fruit of high growth have not been distributed fairly across India's different regions and have given rise to the threat of regional inequality.

Body

- Regional imbalance is the disparity in the economic and social development of two regions. Regional imbalances mean wide differences in per capita income, literacy rates, health and education services, levels of industrialization between different regions.
- Disparities in social and economic development, employment, and infrastructure amenities across the regions and within regions have been a major challenge to policy makers and economists. Consequently, regional imbalance is considered a grave threat in Indian context due to the following factors:
 7. **Inter - States and Intra State Agitations** - Uneven regional development or regional imbalances lead to several agitations with in a State or between the States. The erstwhile combined State of Andhra Pradesh can be sited as the best example of the consequences of intra - state regional imbalance in terms of development.
 8. **Migration** - Migration takes from backward areas to the developed areas in search livelihood. For example, migration from rural to urban. Because, urban areas will provide better quality of life and more job opportunities when compared to rural. This leads to tremendous pressure on urban areas in terms of planning and resources.
 9. **Social Unrest** - Differences in prosperity and development leads to friction between different sections of the society causing social unrest. For example Naxalism. Naxalites in India function in areas which have been neglected for long time for want of development and economic prosperity.
 10. **Housing, Water Problem** - Establishment of several industries at one place leads to shortage of houses as a result rental charges will increase abnormally. For example, Mumbai, New Delhi, Chennai and Hyderabad and over population leads to water crisis.

11. **Aggregation of the imbalance** - Once an area is prosperous, more investments pour-in neglecting the less developed regions. For examples, the rate of growth of the metropolitan cities like Mumbai, Delhi, etc. is higher compared to other metro cities of India.
12. **Under – Developed Infrastructure** - Rural and backward areas do not have 24 hours power, proper houses, safe drinking water, sanitation, hospitals, doctors, telephone and internet facilities

Here, the creation of infrastructure alone can ensure inclusive growth and reduce the feeling of alienation due to the following factors:

- Availability of adequate infrastructure especially the physical infrastructure facilities is the pre-condition for sustainable economic and social development. Non-availability or inadequate availability of infrastructure poses a serious threat to growth.
- The social infrastructure broadly includes health, education and sanitation. It is well recognised that the literacy of any region or area has a positive relation to the overall development. Regional disparity can also be observed from the gap in literacy level in different states in India.
- The physical infrastructure includes transport, communication, electricity etc. India suffers from inadequate availability of physical infrastructure, as measured by any accepted indicator. Not only is infrastructure inadequate and weak, it varies from interstate to intra state.

At the same time, for overcoming any problem, a balanced approach is necessary where tackling regional imbalance would require a host of other measures along with infrastructure development like:

- The most important factors driving growth come from the health, education, transport, agriculture, and energy sectors, which are used to construct composite infrastructure index.
- Efficient investment in all these sectors would provide the much-needed boost required for economic and human development, which would ultimately result in sustainable and satisfactory economic growth which is broad based.
- Investment in agriculture needs to be stepped up especially in the lagging regions. Since agricultural growth is found to be different in different regions, steps to equalise it will certainly reduce the regional imbalances.

Conclusion

Regional imbalance is a threat to the goal of inclusive growth and reduction of poverty. Ultimately, the key to balanced regional development lies not merely in increasing resource flows to backward regions but in creating an enabling environment to attract more resources, using them properly and assuring a fair deal to investors and also ensuring the ideal path of 'economic growth with integrity'.

15. Examine the factors that have led to India's lower tax to GDP ratio. What are its implications for the economy? Analyse.

Approach:

Students are expected to examine those factors, which led to India's lower tax to GDP ratio in first part, and analyse its implications on economy in second part.

Introduction:

Tax revenue is income collected by governments through taxation. The tax-to-GDP ratio is used to measure how much a government controls its economic resources. The low ratio represents that the government won't be able to finance its expenditure and hence increases government's dependence on borrowings. Although India has improved its tax-to-GDP ratio in the last six years, it is still far lower than the average OECD ratio, which is 34 per cent.

Body

India despite seeing higher growth rates, has struggled to widen the tax base.

Factors that have led to India's lower tax to GDP ratio:

- Low per capita income keeps tax collections low: Low average incomes and a high poverty rate result in a very small portion of the labour force being eligible to pay personal income taxes. As per OECD report, income taxes accounted for a lower proportion around 16% of the general government's revenue.
- A large proportion of economic activity generated by SME: Although SMEs have enjoyed strong profitability growth over the past decade, the government has not captured their earnings in tax revenues due to a variety of exemptions and compliance issues.
- Tax Exemptions to Start-ups: Start-ups with turnover up to Rs. 25 crores are allowed deduction of 100% of its profits for three consecutive assessment years. Indeed, it boost the economic activity and entrepreneurship, a large proportion of income government missed to capture here.
- Tax exemptions on agriculture related activity: The incomes of the small and marginal farmers are far below the minimum threshold limit of personal income taxation. Wealthy farmers are reportedly misusing this benefit to evade taxes. The proportion of agricultural households holding 4-10 hectares of land is just 3.7% and 0.4% over 10 hectares. Just by taxing the incomes of the top 4.1% of agricultural households, at an average of 30%, as much as Rs 25,000 crore could be collected as agricultural tax.
- Low service tax net: Although it has been progressively expanded to include a greater number of services each year, and service tax revenue has grown the fastest of all revenue sources. Yet, service taxes constitute merely 5 per cent

of total general government revenues, although they comprise about 60 per cent of GDP.

- Tax exemptions to SEZ: According to the sunset clause, there is 100 per cent income tax exemption on export income for SEZ units for the first five years, 50 per cent for next five years and 50 per cent of the ploughed back export profit for subsequent five years.
- Drop in corporate tax revenue: Surprise cut in corporate tax rate last year aimed at wooing manufacturers and boosting investment in Asia's third-biggest economy is another key reason behind the sluggish tax collections.

Lower tax-to-GDP ratio constrains the government to spend on infrastructure and puts pressure on the government to meet its fiscal deficit targets.

Implications of lower tax to GDP ratio on economy:

- It lowers the GDP: One of the reasons for lower tax to GDP is due to pervasive structure of exemptions, which indirectly affects the GDP growth, as it is a vicious cycle that means low tax produces less revenue resources with the state. It results in less public investment and lower job opportunities, thus lower economic progress.
- Lesser spending on health and education also disturbs Socio-Economical structure: Lower revenue means lesser spending on Important social sectors such as Health and Education, which are key sectors for developing country. As it diminishes the welfare measures provided by the state, ultimately it affects the social structure and develop further inequality.
- Affects government policy: It creates political incentives for successive governments to ignore some eligible sections of society for vote-bank politics, rather than building an effective tax system that will spur economic growth.
- High Government Borrowing: It also increases government borrowing. To stimulate the economic activity in the country government is forced to borrow from, within and outside the country and thus it becomes difficult to manage fiscal deficits.
- Low spending on national security: Even though the actual amount of defence expenditure is seen to be increased in each budget, the defence expenditure percentage to GDP is reduced almost every year since last decade.
- Burden on few sectors: Some economists argue that as high productive sectors are taxed it is incentivizing the low productivity sectors not to come into formal tax system.
- Parallel economy: Low taxation means most of the money in economy goes unaccounted and hence will encourage parallel economy.

Although there are numerous implications of Low ratio, India's number does not look that bad given the significant difference in per capita income of the developed country. Therefore, it does have some positive implications.

Positive implications of low tax to GDP ratio:

- Tax cuts increases demand: Tax cut also stimulate the economic activity by increasing workers' take-home pay. Tax cuts can also boost business demand by increasing firms' after-tax cash flow, which can be used to pay dividends and expand activity, and by making hiring and investing more attractive.
- Low tax Attracts Investment: The government always hopes that, lower tax rates will attract more investments into the country and help revive the domestic manufacturing sector, which has seen lacklustre growth. So there is constant pressure on governments across the world to offer the lowest tax rates in order to attract investors.
- OECD, group of developed nations: Out of 36 member countries of OECD, most of them from the developed world. Such high average tax-GDP ratio in OECD could be attributed to some of the European countries like France, Denmark etc. hence its generalised numbers are not exactly relevant to Indian economy.

Conclusion:

Continues efforts government putting in the form of various schemes to generate more tax and to increase revenue collection. To avoid tax disputes government announced various schemes like "vivad se vishwas" scheme and "sabakavishwas" scheme. The Central Government also introduced the "Faceless Assessment Scheme" to provide greater transparency, efficiency and accountability in Income Tax assessments. Rationalisation of GST and moving towards a two-rate structure can also help in increasing compliance and putting an end to tax evasion. While measures to improve tax compliance and widen the tax base will yield higher tax revenue, the importance of higher economic growth cannot be ignored.

16. What do you understand by public debt? What are its components? Discuss. Also, comment on India's current public debt scenario.

Approach:

It is straightforward question, where it expects student to write - in first part about public debt - in second part write about components of public debt - in third part write about India's current public debt scenario .

Introduction:

The public debt is how much a country owes to lenders outside of itself. These can include individuals, businesses, and even other governments. The term "public debt" is often used interchangeably with the term sovereign debt. Public debt usually only refers to national debt.

Body:

Public debt:

- In the Indian context, public debt includes the total liabilities of the Union government that have to be paid from the Consolidated Fund of India. Sometimes, the term is also used to refer to the overall liabilities of the central and state governments.
- However, the Union government clearly distinguishes its debt liabilities from those of the states. It calls overall liabilities of both the Union government and states as General Government Debt (GGD) or Consolidated General Government Debt.
- Since the Union government relies heavily on market borrowing to meet its operational and developmental expenditure, the study of public debt becomes key to understand the financial health of the government.
- The study of public debt involves the study of various factors such as debt-to-GDP ratio, and sustainability and sources of government debt. The fact that almost a fourth of the government expenditure goes into interest payment explains the magnitude of the liabilities of the Union government.
- The Union government broadly classifies its liabilities into two broad categories. The debt contracted against the Consolidated Fund of India is defined as public debt and includes all other funds received outside Consolidated Fund of India under Article 266 (2) of the Constitution, where the government merely acts as a banker or custodian. The second type of liabilities is called public account.

Components of public debt:

- These are listed as follows:
 - Dated government securities or G-secs.
 - Treasury Bills or T-bills
 - External Assistance
 - Short term borrowings

- Public Debt definition by Union Government
- The Union government describes those of its liabilities as public debt, which are contracted against the Consolidated Fund of India. This is as per Article 292 of the Constitution.

India's current public debt scenario:

- As per the International Monetary Fund (IMF), India's public debt ratio is projected to jump by 17 percentage points to almost 90% because of an increase in public spending due to Covid-19.
- Increase in Public Debt Ratio:
 - The increase in public spending, in response to Covid-19, and the fall in tax revenue and economic activity, will make the public debt ratio jump by 17 percentage points. The ratio is projected to stabilise in 2021, before slowly declining up to the end of the projection period, in 2025.
 - The pattern of public debt in India is close to the norm around the world. This debt-to-GDP ratio is the metric comparing a country's public debt to its Gross Domestic Product (GDP). It is often expressed as a percentage.
 - By comparing what a country owes (debt) with what it produces (GDP), the debt-to-GDP ratio reliably indicates a particular country's ability to pay back its debts. A country with a high debt-to-GDP ratio typically has trouble paying off public debts.
- Assessment of Fiscal situation (relating to taxation, public spending, or public debt):
 - India has been an important source of growth in the world since the 1991 economic liberalisation reforms. Real GDP growth averaged 6.5% between 1991 to 2019, and real GDP per capita was multiplied by four over that period.
 - Real GDP is calculated in a way such that the goods and services are evaluated at some constant set of prices. Nominal GDP, on the other hand, is simply the value of GDP at the current prevailing prices. This impressive growth performance helped lift millions of people out of extreme poverty.
 - The extreme poverty rate, measured as the proportion of people whose income is less than \$1.90 a day at purchasing power parity (the international poverty line), fell from 45% in 1993 to 13% by 2015. India achieved the millennium development goal of halving poverty by 2015 (from its 1990 level).
 - India has made astonishing progress in other areas. Education enrolment is nearly universal for primary school. Infant mortality rates have been halved since 2000. Access to water and sanitation, electricity, and roads has been greatly improved.

Conclusion:

In the near-term, additional fiscal action should be deployed as needed to support the poor and the vulnerable. This should be accompanied by a credible medium-term fiscal consolidation plan that can reinforce market confidence and structural

reforms that boost India's growth potential. The effects of Covid-19 on health, education, poverty and nutrition render progress towards the Sustainable Development Goals even more urgent. Macroeconomic and financial stability are important necessary conditions for sustainable development.



17. While economic liberalisation has done well to untie the manufacturing and service sectors, the agricultural sector hasn't yet been liberalised in the true sense. Do you agree? Critically examine.

Approach:

It expects student to write about - in first part write impact of economic liberalisation on manufacturing and service sectors - in second part its impact on agriculture sector (both positive and negative) - in third part write way forward

Introduction:

In the recent past, India has seen a rapid transformation in her economy yielding a different perspective altogether for the country from rest of the world. The economic reforms of 1991 (liberalization, privatization and globalization) not only affected our economy but also affected the way we live dramatically.

Body:

Impact of economic liberalisation on manufacturing and service sectors:

- Positive impact:
 - The industrial sector of India was passing through a period of recession prior to the policy of liberalisation. The foreign and private investment has checked the recession trend. This happened because of the massive investment in modernisation, expansion, and setting up of many new projects.
 - Industries like automobiles, auto-components, coal-mining, consumer electronics, chemicals, food-processing, metal, petrochemicals, software, sport-goods, and textiles have undergone a growth rate of about 25 per cent. In addition to these, other industries, like crude-oil, construction, fertilisers, and power generation have shown an increase of about 15 per cent.
 - The heavy investments in industries and infrastructure by the Indian and foreign investors have generated great employment opportunities for the professionals, and skilled and unskilled workers.
 - There is a phenomenal increase in export after liberalisation. Simultaneously India is importing raw materials, machinery, and finished products. Despite heavy imports, there has been a tangible improvement in the balance of payment. In this case globalization has been boon for developing countries and bane for developed ones.
 - Due to historic economic disparity between two groups, human resources have been much cheaper in developing economies. This was further facilitated by IT revolution and this all culminated in exodus of numerous jobs from developed countries to developing countries.
 - Software, BPO, KPO, LPO industry boom in India has helped India to absorb a big chunk of demographic dividend, which otherwise could have wasted. Best part is that export of services result in export of high value. There is almost no material exported which consume some natural

resource. Only thing exported is labour of Professionals, which doesn't deplete, instead grows with time. Now India is better placed to become a truly Knowledge Economy.

- Exports of these services constitute big part of India's foreign Exchange earnings. In fact, the only three years India had Current Account surplus, i.e. 2000-2002, was on back of this export only.
- Further, in banking too India has been a gainer. Since reforms, there have been three rounds of License Grants for private banks. Private Banks such as ICICI, HDFC, Yes Bank and also foreign banks, raised standards of Indian Banking Industry. Now there is cut through competition in the banking industry, and public sector banks are more responsive to customers.
- Negative impact:
 - Liberalisation in a country like India has adversely affected the traditional cottage and small scale industries which are unable to compete with the large-scale industries established by the multinationals.
 - The cottage and small scale industries need protection in the form of subsidies, technology, technical access, funds, and network to export their products, Indian traditional workers such as silk workers of Bihar are threatened by the imported synthetic silk.
 - The latest technology, being sophisticated, replaces labour and thus results in unemployment. This may be counterproductive and detrimental to our industrial structure.

Economic liberalisation has following impact on agricultural sectors:

- APMC's in various states created monopolistic structures without space for private investment.
- Nexus between politicians and agricultural merchants is another factor inhibiting the liberalisation was the nexus enjoyed by the rich farmers and merchants with the local politicians which prohibited advancement of farmer's welfare. For instance, through price stabilisation mechanism, or even the deficient payment system, which were meant for farmer's welfare.
- Government control in pricing of agricultural produce, evident in form of MSP, Essential commodities act etc.
- Foreign direct investment in agricultural and allied sector is minimal.
- Forum like WTO pressurizing to tone down security net for agriculture sector
- Restriction in export in certain agricultural products.
- Raising the Production of Food grains: Total production of food grains has increased from 176.4 million tonnes in 1990-91 to 211.9 million tonnes in 2001-02. It is felt that if the country maintains 4 per cent growth rate in agricultural production, then after meeting its domestic demand, the country can export the surplus amount of food grains to the foreign countries.
- Increasing Trend in Horticultural Output: With the increase in the production of fruits, vegetables and other horticultural products, the value of exports of these products has continuously been increasing. Total

value of exports of fruits, vegetables and pulses was recorded to be Rs. 1,029 crores in 1998-99 against Rs. 216 crores in 1990-91. The value of exports of fruits and vegetables alone stand at 414 crores in 1997-98. Thus horticultural exports of the country contribute nearly 25 per cent of the total agricultural exports.

- Diversification of Agriculture: Agriculture is not only meeting the demand for food-grains but also other needs of development. In recent years, agricultural sector has been diversified to produce commercial crops and horticultural crops viz., fruits, vegetables, spices, cashew, arecanut, coconut and floricultural products like flowers, orchards etc. dairy and other animal husbandry products. The demand for these products has been increasing considerably. Thus, there is an ample scope for the development of agricultural sector both in terms of increased production and trade.
- Agricultural Exports: Another important emerging trend of agriculture is the increasing volume of agricultural exports. Agricultural exports are playing an important role in expanding economic activities along with generating employment opportunities. Accordingly, the total value of agricultural and allied exports of India has increased from Rs. 6295.2 crore in 1991-92 to Rs. 23,691 crores in 1999-2000 i.e. 18.8 per cent of country's total exports as compared to that of only 10.59 per cent in 1992-93.
- Rising Productivity of Agricultural Resources: Another impact of liberalisation has been felt that it boosted the productivity of agricultural resources. Improvement in the productivity of resources is being done through better allocation of resources and latest technology between different areas under present circumstances. Stress is laid on export oriented policies, applying new improved technologies in food processing and marketing and giving stress on planting crops as per geographical suitability.
- Input cost for agriculture is also effected by global events. Tension in Eurasian region can cause fluctuation in price of P fertilizers.
- Prices in global markets able to impact local prices e.g.- sugar industry
- Cash crop demand increase farmer focus on these crops. But demand and price of these crops may fluctuate. This has major implication when farmer deviate from food crops. This have issues for countries food security.
- More importantly, economic liberalisation has shifted the public discourse from agriculture to industry. Globalisation has indirectly led to industrial growth. This needs land and resultantly increase in displacement of farmers.

Conclusion:

The 1991 reforms focused too much on market and hence balance needs to be restored by the state intervention. There has to be a holistic change. Individual and

unconnected changes in agriculture will not help as the resources are limited. And hence, the resources have to be allocated in such a way that all the sectors have something to gain. More emphasis on agriculture and employment generation through investment pattern and choice of technology pattern changes. Thus, the future course of action should be focused on greater concern for agriculture and an Industrial policy.



18. What measures would you suggest to address the regional imbalance with respect to land under irrigation? What role can technology play in this regard? Explain.

Approach:

The question expects that the candidate needs to provide the solution regarding regional imbalance of land under irrigation. For introduction, one can mention a report or facts regarding regional imbalance wrt land under irrigation or one can explain land irrigation and then mention need of balanced regional development of land under irrigation. In the first half of answer, one can show how there is a regional imbalance, for value addition add a map and tag the regions. Then in the next half suggest the measure. Also emphasise more on how technology will play role in this regard. Giving success stories across the world to yield more marks.

Introduction:

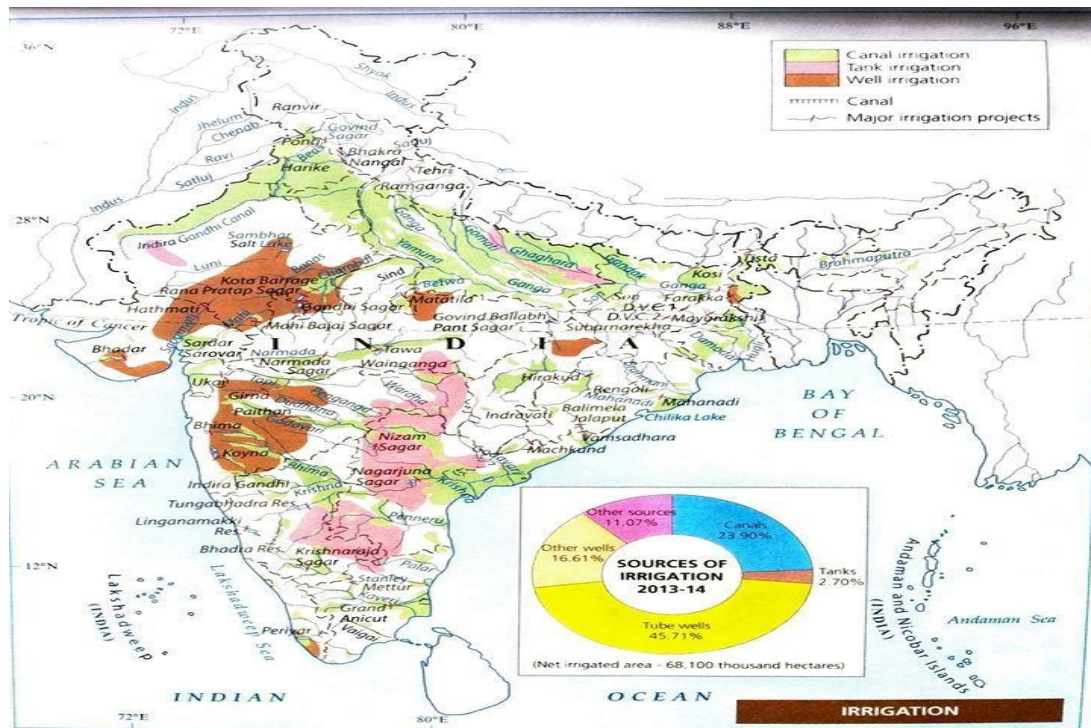
Out of about 141 m.Ha of net area sown in the country, about 65 million hectare (or 45%) is presently covered under irrigation. Substantial dependency on rainfall makes cultivation in un-irrigated areas a high risk, less productive profession. Empirical evidences suggest that assured or protective irrigation encourages farmers to invest more in farming technology and inputs leading to productivity enhancement and increased farm income. Hence, it becomes of critical importance to balance the regional irrigation development.

Body:

The key challenge facing the irrigation sector in India is the growing gap between Irrigation Potential Created (IPC) and Irrigation Potential Utilised (IPU), and uneven distribution of water over the length of the canal system. Following are the reasons for the regional imbalance of land under irrigation.

- Less accessibility of irrigation facilities and less expansion of cultivable range under guaranteed irrigation areas. For instance, in the hilly regions of North east despite the region comes under the high rainfall region, regional imbalance of land under irrigation is stark visible.
- Energy crisis due to power outages and unscheduled interruptions across rural and urban India is one of the main factors behind less expansion of irrigation in different regions.
- With an increased variability of monsoons and rapidly depleting groundwater tables, large parts of India are reeling under water stress. Hence, the traditional methods of irrigation are also facing problem. Which leads to regional imbalance despite it is possible to irrigate the land.
- For instance, A number of peninsular regions like Bundelkhand, Vidarbha and Marathwada have been facing recurring drought-like situations. Only 18% of Maharashtra's complete cultivable land is irrigated whereas the national average is over 35%.

- The regional imbalance regarding land under irrigation can be clearly observed in following Map 1: Irrigation and regional disparities in across India.



Map 1: Irrigation and regional disparities in across India.

- Hence, it is observed that land under irrigation is mostly concentrated in Central and western part of India. Whereas the north east and hilly regions are almost devoid of land under irrigation.
- It is also to be noted that Well irrigation and Tank irrigation are the prominent irrigation facilities used by farmers in western and central part of India. However, other irrigation facilities are scarcely distributed across India.
- Hence, regional imbalance in terms of use of different irrigation facilities is also observed.

Measures to address regional imbalance with respect to land under irrigation:

- Awareness generation with respect to different irrigation facilities is necessary. For instance, farmers in central and western part of India tend to focus more on wells and tank irrigation. However, if they come to know about use, efficiency and advantages of other irrigation types then it will be easy to penetrate more irrigation across different regions.
- Access to credit is one of the biggest hurdle which needs to be addressed. For instance, small holder farmers in India are nearly 78%. As this much population holds very less land, consequently their income sources are minimal. It leads to less availability of Capital to invest for improvement in agriculture.
- Hence, provision of access to affordable credit to farmers needs to be done to ensure wide regional spread of irrigation. For instance, The Micro irrigation fund has been set up under NABARD, which will provide this

amount to states on concessional rate of interest to promote micro-irrigation.

- Customization of methods of irrigation is necessary. For instance, drip irrigation practise is generally practised in the plain regions, however, it becomes less or of no use when it needs to implemented in regions like North-east which are topographically different than other regions.
- Integration of traditional irrigation practises with that of current one needs to be done to ensure conservation of traditional practises and increasing their efficiency. For instance, The International Commission on Irrigation and Drainage (ICID) has accepted Telangana's nomination of Sadarmattanicut across river Godavari in Nirmal district and PeddaCheruvu in Kamareddy district in the ICID Register of Heritage Irrigation Structures (HIS). This will not only to conserve the heritage, but it will increase its reach across the region.
- Integration and adoption of emerging technologies with that of other technologies is also the need to the hour. As the emerging technologies address the disadvantages of earlier irrigation technologies. For instance, Maharashtra govt. launched Atal Solar Krishi Pump scheme for farmers to provide subsidy of upto 95% on solar agriculture pumpsets. Which will complement traditional well irrigation techniques with that of renewable energy.
- Integration of state specific agricultural policies with respect to irrigation in to one national level policy will help to address the problem of resource utilization. For instance, in 2015 PradhanmantriKrishiSichaiYojana is launched by Gol with one of its objectives being Integration of water source, distribution and its efficient use, to make best use of water through appropriate technologies and practices.

Use of technology to address the regional imbalance with respect to land under irrigation:

- **Water Measurement:** In irrigation systems, water used to irrigate land is carried under pressure to its destination via pipes. However, excessive water use, overexploitation makes the water scarcity and regional imbalance problem more worse. Hence, water measuring through water metering technology becomes of critical importance.
- For instance, Most flow measurement devices measure flow, or discharge, indirectly. These devices are commonly classified into 2 types – those that measure velocity and those that measure pressure. Use of these devices will help to have judicious use of water for irrigation thereby ensuring sustainable use of water resources across the region. There by addressing the problem of regional imbalance of irrigation.
- Flood irrigation practise must be replaced with precise application systems like drip and hose reel for 50-70 per cent water-saving. It ensures judicious use of water.
- **Use of data analytics:** Using predictive analytics through satellites be developed which gives the farmers guidelines regarding which technological tool can be used to irrigate their land neatly.

- Seamless Communication: The Government could create a unified, reliable data base of farmers with complete details of every cultivatable area. Which will help the farmer to make informed choices regarding which irrigation technique to be use. For instance, implementing a scheme like Soil health card scheme, which will ensure dissemination of data to farmers for apt use of irrigation techniques.
- Use of more advanced and powerful version of technology in irrigation will be of utmost importance. For instance, The Kaleshwaram project is an off-shoot of the original Pranahitha-Chevella Lift Irrigation Scheme taken up by the government in 2007 when Andhra Pradesh was not divided. It is aimed to make Telangana drought proof by harnessing the flood waters of the Godavari. It is claimed as the world's largest multi-stage and multi-purpose lift irrigation scheme.
- These kind of comprehensive schemes will ensure more utilization of state machinery with that of concerted efforts in ensuring improvement of one technology.
- Irrigation methods like canal, tube well, drip irrigation etc. needs to be complemented/integrated with other emerging technologies. For Instance, Maharashtra governments scheme of Solar pumps.
- Use of emerging technologies like Artificial intelligence or Internet of things will ensure widespread use of irrigation techniques. For instance, a person can start the motor from long distance using IoT technology. Which in turn is useful for people who are living at distant places from their farms and fail to do farming due to distance. It will ensure that the farmer can have more than one source of income too.
- For instance, a person residing in city can use this technology, thereby increasing her income and subsequently ensuring spread of irrigation in the distant and hilly areas like North East.

One of the success stories of use of technology to improve irrigation is observed in Maharashtra:

- "Phule Irrigation Scheduler" mobile and web based applications estimate the reference evapotranspiration (ET_r) by the different standardized methods for the specific form by fetching the required input weather data (maximum temperature, minimum temperature, maximum relative humidity, minimum relative humidity, wind speed, sunshine hours, etc).
- In these mobile and web based applications, farmer initially need to register the farm by providing information on location of farm, crop, soil and irrigation system that he/she easily has. Then farmer has to access the mobile application/web based application at least once in 3-4 days so that the current weather information is registered in the farm. By entering the previous date of irrigation and the desired date of irrigation, farmer can know the irrigation requirement and time of application immediately and accordingly can operate the irrigation system to provide irrigation water precisely to the farms. It thereby ensured wide reaching spread of Irrigation techniques across water deficient regions of Maharashtra.

- Also, SOLAR POWERED COMMUNITY LIFT-MICRO IRRIGATION PROJECT of Punjab benefitted nearly 8500 beneficiaries.

Conclusion:

India is experiencing a very significant water challenge, due to changing climate. When it comes to agriculture the problem is more worse as water demand of agriculture is more. Hence, it becomes of crucial importance to ensure 'HAR KHET KO PANI', wide scale penetration of irrigation practise is done. Also to ensure 'per drop more crop', integration of technology in to irrigation methods is done. This cumulatively will help to tackle the problem of regional imbalance of land under irrigation in turn assuring 'SamrudhKisan, Samrudh Bharat'.



19. In India, organic farming has got huge export potential. Do you agree? Comment. In this regard, examine the challenges that need to be overcome.

Approach – A straightforward question where in the first part you need mention your views regarding export potential of organic farming from India and then in the second part, you need to examine the challenges to be overcome towards realising this export potential.

Introduction

India is a country that is bestowed with indigenous skills and potentiality for growth in organic agriculture where presently it has achieved rapid growth in organic agriculture and now is home to 30 per cent of the total organic producers in the world (according to the World of Organic Agriculture 2018 report).

Body

- Organic products are grown under a system of agriculture without the use of chemical fertilizers and pesticides with an environmentally and socially responsible approach.
- The Agricultural & Processed Food Products Export Development Authority (APEDA), an autonomous organisation under the administrative control of Department of Commerce, has been mandated with the export promotion of organic products.
- APEDA provides assistance to the exporters of organic products under various components of its export promotion scheme. Consequently, Organic farming can be seen to have a huge export potential in India, which can be seen from the following points:
 1. India is bestowed with lot of potential to produce all varieties of organic products due to its various agro climatic conditions. As per the available statistics, India's rank 8th in terms of World's Organic Agricultural land and 1st in terms of total number of producers as per 2020 data.
 2. In several parts of the country, the inherited tradition of organic farming is an added advantage. In 2015, the export and domestic market of the Indian organic industry grew by 30% and 40% respectively. Organic farming has seen a drastic overall development in almost every crop type due to increase in awareness in food security and environmental safety.
 3. Due to climate changes, organic farming has made an important place around the globe. The Government is promoting organic farming through various schemes under National Mission Sustainable Agriculture (NMSA). The Government has introduced ParamparagatKrishi Vikas Yojna (PKVY) scheme under the NMSA to promote organic farming in the country which will help the overall export potential of the sector.
 4. India has good potential for the export of organic fruits and vegetables, as three major importing markets are the U.S., EU, and Japan which are high income countries with higher demand. For example, India can target EU,

especially the UK and the Netherlands for export of grapes as there is a current consumption trend increasingly favouring organic wine.

At the same time, most organic farmers are struggling due to poor policy measures, rising input costs and limited market, says a study by ASSOCHAM. Consequently, the challenges towards realising the export potential of organic farming can be seen from below:

1. Recent study found that the phasing out of chemicals in Sikkim was not complemented by a simultaneous increase in availability of and access to organic manure.
2. According to the ICAR, productivity on an average dips by 6.7 per cent in the first year, and the government needs to have a plan in place to support farmers during the transition.
3. The report on Doubling of Farmers' Income by Ashok Dalwai committee, too, echoes the concern of the farmers who claim up to 30 per cent drop in yields when embracing organic. It takes about a decade to attain pre-conversion yield levels, according to the committee report.
4. As organic farming prohibits synthetic pesticides, the vulnerable farmer is at the mercy of severe attacks from mutant pests. Thus highlighting an acute shortage of effective and viable methods of organic pest control.
5. Recent study also found that the supply chain for organic farming to be underdeveloped. As a result, the small and mid-sized farmers located in hilly regions and tribal belts find it extremely difficult to access the export market.
6. The existing certification systems for organic food are not only cumbersome and time-consuming, but also expensive. It is important to eliminate confusion over multiple certification systems and multiple ministries regulating organic production and sales.

Way forward –

- Government should devise a mechanism to cover losses to farmers due to reduced yields by combination of lower input costs and favourable price premium for the produce.
- Setting Central Organic Farming Research Institute as well as research stations and model organic farms across states.
- Tax waivers for organic input production units.
- Dedicated Organic market yards and marketing outlets.

Conclusion

The promotion of exports of organic products is a continuous process. The newly introduced Agriculture Export Policy provides an assurance that no restrictions will be placed on export of organic products which is evident from the recent growth of organic products exports by 50% and thus contributing towards the target of doubling farmer's income by 2022.

20. Discuss the recent measures taken to upgrade the storage and transportation infrastructure for agricultural produce. Also, comment on its backward and forward linkage potential.

Approach:

It expects students to write about the storage and transportation infrastructure development measures taken by government recently in first part, and comment about its forward and backward linkage potential in second part.

Introduction

Agriculture is the primary source of livelihood for about 58% of India's population. India is a surplus producer in several agri commodities. However, the country's farmers do not get remunerative prices because of a lack of investment storage and transportation infrastructure. For a country where a large part of the population is dependent on agriculture for livelihood, it is essential to invest heavily in storage and warehouse facilities.

Body

Recently through various schemes and stimulus fund government have focused on agri infrastructure development.

Recent measures taken to upgrade the storage and transportation infrastructure:

- **Transport and Marketing Assistance (TMA):** The Government of India came out with Transport and Marketing Assistance (TMA) scheme to provide financial assistance for transport and marketing of agriculture products in order to boost agriculture exports.
- **More warehouses will be developed:** Under Union Budget 2020-21, the Ministry of Finance announced that more warehouses that comply with the requirements of the Warehousing Development and Regulation Authority (WDRA) will be developed on a public-private partnership (PPP) basis at the block/ taluka level.
- **Mapping of Cold storage facility:** National Bank for Agriculture and Rural Development (NABARD) will be undertaking the exercise of geotagging all cold storage facilities, which will help NABARD direct resources so as to expand capacities where there is a need.
- **Direct Procurement from Farmer:** As part of stimulus package, the government has announced a Rs 1 trillion fund for entrepreneurs to set up facilities to procure, store and market agricultural produce. Aggregators, cooperative societies and farm entrepreneurs for strengthening farm gate infrastructure and establishing post-harvest management infrastructure will use this proposed fund.
- **Operation Greens:** The government has announced that Operation Greens, a price fixation scheme that aims to ensure that farmers are given the right price for their produce, will be extended from tomatoes, onions and

potatoes(TOP) to all fruits and vegetables. The scheme will include a 50 per cent subsidy on transportation from surplus to deficit markets. It will also include a 50 per cent subsidy on storage, including cold storage. The project will be implemented on a pilot basis for six months and will later be extended further.

- SAMPADA Scheme: Government plans to triple the capacity of food processing sector in India from the current 10% of agriculture produce and has also committed Rs 6,000 crore (US\$ 936.38 billion) as investments for mega food parks in the country, as a part of the Scheme for Agro-Marine Processing and Development of Agro-Processing Clusters (SAMPADA).
- Dairy Processing & Infrastructure Development Fund: The Cabinet Committee on Economic Affairs has approved a “Dairy Processing & Infrastructure Development Fund” (DIDF) with an outlay of Rs 11,184 crore during the period from 2018-19 to 2030-31 through which 95 Lakh milk producers will be benefited by covering 50,000 villages.
- Animal husbandry infrastructure development: Government announced the launch of animal husbandry infrastructure development fund of Rs 15,000 crore with an interest subsidy scheme to promote investment by private players and MSMEs in dairy, meat processing and animal feed plants.
- Venture Capital fund By NABARD: In May 2019, NABARD announced an investment of Rs 700 crore venture capital fund for equity investment in agriculture and rural-focused start-ups.
- Digitalisation in Agriculture: The Government of India is going to provide Rs 2,000 crore for computerization of Primary Agricultural Credit Society (PACS) to ensure cooperatives are benefitted through digital technology.
- Pradhan MantriKrishiSinchaiYojana (PMKSY): The Government of India launched the Pradhan MantriKrishiSinchaiYojana (PMKSY) with an investment of Rs 50,000 crore aimed at development of irrigation sources for providing a permanent solution from drought.
- RashtriyaKrishi Vikas Yojana (RKVY): In 2019–20, Rs 202.5 crore was allocated to the Rainfed Area Development, a sub-scheme under RashtriyaKrishi Vikas Yojana (RKVY).

Backward and forward production linkages always requires modern agriculture production and distribution system.

Forward linkage potential:

- Supermarkets can replace intermediaries: Provision of quality chilling infrastructure can attract the supermarkets to procure from farmers directly, which will result in Reduction of intermediaries.
- Adequate knowledge of Market through Digitalisation: Lack of adequate operational knowledge of smartphones resulted in loss for regular updates on fair prices of crops (MSP), future crops and weather updates etc. Digitalisation in this sector bridging this gap.

- **Vital Role of Cold storage facility:** The demand for frozen goods is increasing by the day, leading to an expansion of the cold storage market. The cold storage sector in agriculture is opening various business opportunities. Fully integrated cold chain will include, both forward and backward linkage such as Pre-cooling, packaging, small cold storage facilities and in forward linkage, Reefer vehicles, large cold-storage facilities, ripening chambers, waxing, and packaging from cold storage to consumer.

Backward linkage potential:

- **Scientific approach farm processes:** It has been reported that postharvest losses can be substantial, resulting in annual economic losses of at least Rs 1,00,000 crore. Investments in research labs for scientific gradation and quality assessment. Training centres for farmers to provide knowledge transfer on quality management, seed selection, crop forecasting etc. will avoid this loss.
- **Development of infrastructure like road and transport:** Good quality roads for farm produce to processing centres reduces time as well as preserve the quality of the product.
- **Credit facility necessary for expansion:** Easily available credit facility increases expansion ability of the farmers. Credit facilities also develop the farmers to enter into the farm allied businesses.

Going forward, the adoption of food safety and quality assurance mechanisms such as Total Quality Management (TQM), Good Manufacturing Practices (GMP) and Good Hygienic Practices (GHP) by the food processing industry will offer several benefits.

Conclusion:

India is expected to achieve the ambitious goal of doubling farm income by 2022. The agriculture sector in India is expected to generate better momentum in the next few years due to increased investment in agricultural infrastructure. Furthermore, the growing use of genetically modified crops will likely improve the yield for Indian farmers.

21. Critically evaluate the performance of support instruments like subsidies and MSP for the farm sector. What have been the negative fallouts of these instruments.

Approach:

It expects students to write about- in first part about positive impacts of instruments like subsidies and MSP - in second part write about negative fallout of these instruments - in third part write way forward

Introduction:

Farm subsidies refer to the governmental financial support paid to the farmers and agribusinesses to reduce their input expenditures and supplement their income. Farm subsidies are worldwide phenomenon and India is of no exception.

Body:

Policy Instruments of Farm Subsidy

- There are five main policy instruments of delivering direct and indirect farm subsidies as follows:
 - Price and Income Support Policy
 - R&D support
 - Input subsidies
 - Import measures
 - Export measures

Price and Income Support Policy

- Government of India has several instruments to safeguard the interest of farmers under its price and income support policy. The main price and income support instruments are
 - Minimum Support Price (MSP)
 - Minimum Export Price (MEP)
 - Market Intervention Price (MIP)
 - Buffer Stocks Operations
 - Public Distribution System

Issues with agricultural subsidies:

- **Heavy Fiscal Burden:** The total outgo on fertilizer subsidy alone in 2017-18 was Rs. 70,000 crores.
- **Excessive use of Ground water:** The power subsidy has led to overuse of ground water which has further resulted into dramatic fall in ground water levels. In several villages, wells have gone dry. Water extracted from deep inside earth has shown contamination of Arsenic and other heavy metals.
- **Environmental Effects and decline in Soil Fertility:** Indiscriminate use of fertilizers (recommended ratio of NPK fertilizer is 4:2:1 while actual usage is 8:3:1. Similarly, urea consumption has increased to 60% in 2017 from 55% in 2010-11) harm the soil fertility, biodiversity, and also leads to eutrophication

(increased nutrients in water bodies, eventually leading to decreased oxygen concentration in them) and bio accumulation/bio magnification (increasing concentration of toxic material in tissues of living organisms at successively higher levels in a food chain).

- No benefits to the targeted groups: Fertilizer subsidies are generally cornered by the manufacturers and the rich farmers of Punjab, Haryana and Western UP.
- Cereal Centric, Regionally Biased, and Input Intensive: Price subsidies has affected Indian agriculture negatively. This has made Indian agriculture cereal centric, and neglectful towards pulses, oil seeds and coarse cereals. This has led to import of these crops and food insecurity in lower strata which depend upon coarse cereals. Also, most of the subsidies go to the rich farmers, and the rich states which are able to grow marketable surplus and have well developed infrastructure.

Issues of Minimum Support Price

- Injects an element of certainty and confidence: The advance announcement of MSP and procurement prices by CACP (Commission for Agricultural Costs and Prices) provides an assurance to the farmers and they can confidently invest in the crops.
- Contributes to inflationary trend: There has been continuous hike in MSP and Procurement prices due to the rich farmers' lobby and it has pushed up the carrying cost of buffer stocks of FCI considerably. This has pushed up the food subsidy bill to a very high level.
- Bias in favour of surplus states: Almost all states produce wheat, but 95% procurement is from Punjab, Haryana and Western UP. Similarly, around 20 states produce rice, while 90% is procured from Punjab, Andhra Pradesh, Haryana, UP and Tamil Nadu. Other states do not get much benefit from it.
- Adverse impact on investment: Due to extra expenditure in food procurement, the other sectors loses out on new investments. It has been observed that a 10% increase in MSP of wheat and rice leads to a decline in investment by 1.9% and in overall GDP by 0.33%.
- Distortion in cropping pattern: MSP of wheat and rice has generally been higher than the cost of production and that of cereals and pulses has been less than the cost of production. So farmers get incentivised for growing profitable crops and hence cropping pattern gets distorted.

Way forward:

- A better targeting of subsidies with the usage of JAM (JanDhan – AADHAAR-Mobile Number) trinity can reduce the fiscal burden.
- Separate agriculture feeder network (under DeenDayalUpadhayay Gram JyotiYojna). This separate agriculture feeder will supply electricity only for a few hours a day. The process has shown positive results in arresting decline of ground water levels in Gujarat.
- Creating awareness among farmers, increasing penetration of soil health card scheme, promoting organic farming and innovative products like neemcoated urea will go a long way to check the issue.

- Nutrient based subsidy and Neem-Coated Urea has been introduced by Government. There should be Direct Benefit Transfer of fertiliser subsidy through Aadhaar authentication, organic farming should be encouraged and there should be phased increase in the price of urea.
- Crop diversification by including more crops under MSP, Mission on Integrated Development of Horticulture, Organic and Cooperative farming, food processing, mixed farming, Direct Benefit Transfer.

Conclusion:

Procurement policy of the government needs reforms that are easier to implement. Efforts must be made to balance market price and farmer's support. Cash transfer gives better choices to farmers than imposing subsidies.



22. How are beneficiaries identified for different schemes in India? What are the merits and limitations of the processes adopted for such identifications? Examine.

Approach:

It is straightforward question; it expects student to write about - in first part write method for identification of beneficiaries for different scheme - in second part write merits - in third part write limitation of these processes

Introduction:

Government Schemes in India are launched by the government to address the social and economic welfare of the citizens of this nation. These schemes play a crucial role in solving many socio-economic problems that beset Indian society, and thus their awareness is a must for any concerned citizen.

Body:

For identification of beneficiaries for different scheme of different ministries wide range of sources used as follows:

- Dated database based on 2011 numbers: The Socio-Economic Caste Census (SECC). The SECC is being used in central schemes such as the Ayushman Bharat and Pradhan Mantri Awas Yojana to identify beneficiaries.
- A district-wise comparison with data from the last census conducted in 2011
- National Family Health Survey (NFHS 2015-16)
- SECC, in principle, remains a targeted approach for welfare delivery mechanism
- Poverty level under different government data
- Most of the government initiatives depend on either land records.

Merits of current beneficiary identification method are:

- It promotes equity and reduce favouritism.
- It brings transparency in identification method.
- It increases penetration of scheme or benefits to needy people.
- It helps in identifying sections of people which needs upliftment.

However, Limitations of current identification method:

- Targeted programs create tensions between those who are excluded—some of whom may be among the poor but “missed” by targeting schemes—and the beneficiaries.
- Many scholars have pointed out the tendency of politicians to abuse targeted programs by converting them into instruments of patronage.
- Additionally, most of the benefits meant for end-up being elite captured. As, Amartya Sen points out, “benefits that go only to the poor often end up being poor benefits.”
- SECC database is that it is already eight years old in an economy which is transforming fast, and where some people have climbed up the income ladder while others have fallen down.
- This means that a SECC-type exercise needs to be repeated at frequent intervals to ensure that it matches current reality. But the more the database is

mined for such use, the greater the chances of reporting biases creeping in, as people learn how to game the database to remain within the 'right' cut-off limits.

- Migration– As the schemes are implemented at state level, migration of poor denies them benefits of scheme in another state.
- Exclusion error– Eligible beneficiaries are excluded from benefits due to infrastructural issues, lack of awareness on part of people, lack of verifiable documents etc.

Conclusion:

The inherent challenges in any targeting exercise suggests that quasi-universal schemes with simple exclusion criteria based on regular and professionally conducted censuses may be a better bet for a country such as ours.



23. Despite having reasonable success on the food security front, India has fared poorly on the barometer of nutritional security. Why? Analyse. What measures would you suggest to address this anomaly?

Approach:

When a candidate is asked to Analyse, he/she is expected to break an issue into constituent parts and explain how these relate to one another and present as one summary. The general perception about food security is that it will ensure nutritional security. However, this is not the case on ground level. Hence, here it is expected to show the reasons why India fared poorly on nutritional security. For the intro part, one can start with any report related to food security or nutritional security or one can also start by simply defining what is food security and nutritional security and what are its prospective outcomes. In the main body part it is expected to argue the reasons due to which India fared poorly on nutritional security. To address the problems associated with nutritional security, one needs to give relative measures to ensure nutritional security with it. To fetch more marks, diagrams, tables, graph, any report finding, success stories or best practises can be cited.

Introduction:

As per the report 'National Food and Nutrition Security Analysis' of World Food Programme (WFP) and the Ministry of Statistics and Programme Implementation, malnutrition amongst children in India is projected to remain high, despite all the progress made in food security. Which indicates India has fared poorly on nutritional security.

Body:

Food security is defined as the availability and the access of food to all people; whereas nutrition security demands the intake of a wide range of foods which provides the essential needed nutrients. As per 'National Food and Nutrition Security Analysis', Access to nutritious food has not increased due to following reasons.

- Food grain yields have risen 33% over the last two decades, but are still only half of 2030 target yields.
- The consumer's access to rice, wheat and other cereals has not increased at the same rate, due to population growth, inequality, food wastage and losses, and exports.
- As a result, the average per capita consumption of energy among the poorest 30% of the population is 1811 kilocalories, much lower than the norm of 2155 kilocalories per day.

Hence, it is evident that though India has fared well on food security front, it fared poorly on nutritional security front.

Reasons for poor performance on Nutritional security front:

- Too much emphasis on Under nutrition: For several decades India was dealing with only one form of malnutrition- under nutrition. However, in the last decade, the double burden which includes both over- and under nutrition, is becoming more prominent and poses a new challenge for India.
- Micronutrient deficiency: Despite positive trends and patterns in improving food security, the prevalence of malnutrition in India remains high, with many people, especially women and children, suffering from micronutrient deficiency.
- Performance of States: In Bihar and Uttar Pradesh the stunting rate is around 48% and 46% respectively. It shows that in these states almost every 2nd child is stunted. Whereas in Kerala and Goa, it is only one in five children.
- Vulnerable and Marginalised sections: There are high rates of stunting among children in the poorest wealth quintile is (51.4%), Scheduled Tribes (43.6%) and Scheduled Castes (42.5%), and children born to mothers with no education (51%).
- Slow decline of child stunting: Over the last decade, child stunting has reduced at a rate of about 1% per year, the slowest decline among emerging economies. At this rate, 31.4% of children will still be stunted by the 2022 deadline. Almost one in three Indian children under five years will still be stunted by 2022 going by current trends.
- As per comprehensive 'National Nutrition Survey' conducted by the Ministry of Health and Family Welfare and the United Nations Children Fund (UNICEF) to measure malnutrition hard evidence of the coexistence of obesity and undernutrition, among school-going children has been recorded in India.
- According to UNICEF, 38% of children younger than five years of age in India are stunted, a manifestation of chronic undernutrition. Stunting and other forms of under-nutrition are thought to be responsible for nearly half of all child deaths globally.
- Also as per, The State of Food Security and Nutrition in the World 2020, Hundreds of millions of people in India cannot afford a healthy or nutritious diet. Which shows that there is access to food. However, there is less or no access to nutritious food.
- This analysis confirms the fact that the problem of poor nutrition in India is largely on account of the unaffordability of good diets, and not on account of lack of information on nutrition or tastes or cultural preferences. The reasons for non affordability are different such as more number of people in a household, less per capita income, etc.
- Those we officially count as poor in India – with a cut-off that is lower than the international norm of \$1.9 a day – cannot afford a nutrient-adequate diet let alone a healthy diet.
- Also the Covid-19 pandemic has aggravated this situation as the number of people who cannot afford a healthy diet have risen in the last three months, as employment and incomes collapsed for the majority of workers in the informal sector.

India, currently has the largest number of undernourished people in the world i.e. around 195 million. Nearly 47 million or 4 out of 10 children in India do not meet their full human potential because of chronic undernutrition or stunting. Also As per the Global Hunger Index, 2020, India was ranked 94th out of 107 qualifying countries. The situation is grim and the country is battling widespread hunger and thereby aggravating the problem of nutritional security.

Measures to address the anomaly of nutritional security vs. food security:

- Sustainability of nutritious food productivity: Innovative and low-cost farming technologies, increase in the irrigation coverage and enhancing knowledge of farmers in areas such as appropriate use of land and water should be encouraged to improve the sustainability of food productivity.
- Redefine poverty line: The Indian poverty line of 2011-12, as defined by the Tendulkar Committee, amounted to ₹33 per day in urban areas and ₹27 per day in rural areas, and corresponded roughly to \$1 a day at international PPP prices. It needs to be redefined as per Indian needs.
- Agricultural Diversification: Farmers should be encouraged and incentivised for agricultural diversification. For this the government could improve policy support for improving agricultural produce of traditional crops in the country.
- For instance, RashtriyaKrishi Vikas Yojana initiated with objective of making farming a remunerative economic activity through strengthening the farmer's effort, risk mitigation and promoting agri-business entrepreneurship. Major focus is on pre & post-harvest infrastructure, besides promoting agri-entrepreneurship and innovations.
- It is important to pay attention to the life cycle approach advocated in the National Food Security Act, 2013, particularly the first thousand days in a child's life when the cognitive abilities of the child are shaped. Otherwise, there may be negative effects on nutritional security in the medium to longer term. The life cycle approach of NFSA is as mentioned below in Figure 1.

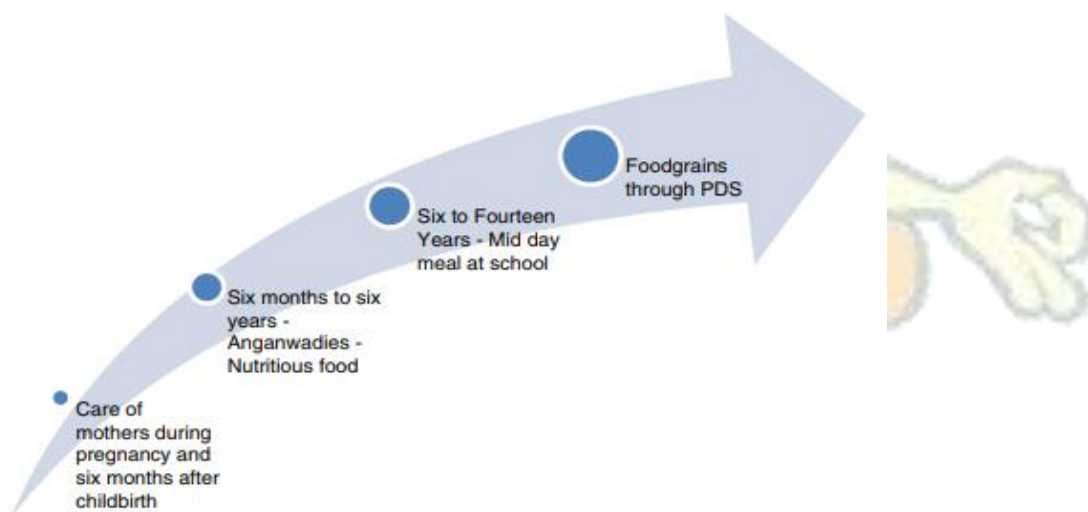


Figure 1: Life cycle approach of NFSA

- Improving forward and backward linkages in agriculture: Storage capacity should be improved to prevent post-harvest losses.

- Fortification of Food: The targeting efficiency of all food safety nets should be improved, especially that of the Targeted Public Distribution System (TPDS), to ensure that the poorest are included. It should be complimented by fortified food. For instance, Golden rice variety.
- Child feeding practices should be improved in the country, especially at the critical ages when solid foods are introduced to the diet. For instance, Under the Pradhan MantriMatruVandanaYojana (PMMVY), Rs.6,000 is transferred directly to the bank accounts of pregnant women for availing better facilities for their delivery.
- Fortification, diversification and supplementation may be used as simultaneous strategies to address micro and macronutrient deficiencies.
- For instance, POSHAN Abhiyaan, launched in 2017-18, aims to reduce stunting, under-nutrition, anaemia and low birth weight babies through synergy and convergence among different programmes, better monitoring and improved community mobilisation.
- Mid-day Meal (MDM) scheme aims to improve nutritional levels among school children which also has a direct and positive impact on enrolment, retention and attendance in schools. However, lacunas in its implementation are observed which needs to be checked. For instance, incidences of mixing large quantity of water with 1 packet of milk powder, Also in one of the schools in Uttar Pradesh Salt was provided as a substitute for sabji with Roti.

The Goal 2 of the 2030 Sustainable Development agenda seeks to end hunger and all forms of malnutrition and double agricultural productivity in the next 15 years.

Conclusion:

The National Food Security Act (NFSA), 2013, aims to ensure food and nutrition security for the most vulnerable through its associated schemes and programmes, making access to food a legal right. Though its performance on the front of Food security fared good, its effort to address nutritional security is lacking. Hence, arise the need to implement the NFSA,2013 in its letter and spirit with above mentioned measures to ensure 'Nutrition for all with Food for all'.

24. Without a much deeper technology assimilation, India's farm sector can't compete in the global markets. Do you agree? Identify the areas that require such technology assimilation to improve the overall performance of the farm sector.

Approach:

In the first part, you need to give your views regarding deeper technology assimilation in India's farm sector for competing in the global markets. Further in the second part, you need to identify the areas that require such technological assimilation to improve overall performance of the sector.

Introduction

Technology has always played a crucial role in every industry in our country. The farm sector is no exception to this. This industry is gaining tremendous benefits from several modern technologies that are arising which is helping it improve its competitiveness in the global markets where multiple interventions have led to improved overall performance of the farm sector.

Body

- Consequently, it becomes inevitable that without a much deeper technology assimilation, India's farm sector can't compete in the global markets due to the following factors:
 1. **Technology assimilation leads to more precise targeting of pests and diseases** - Technological advances in the science of pest control are expected to continue to produce chemical control agents that over time are at least as effective in controlling pests as the ones they replace, but which are also less toxic, less persistent and less mobile through the soil.
 2. **Technology assimilation leads to more efficient administering of nutrients** - Inorganic fertilisers allowed the separation of crop production from animal husbandry, restored fertility to depleted soils, and contributed to the development of livestock production based on grain and other feed ingredients.
 3. **Technology assimilation lead to more efficiency** – For example, Drones eliminate wastage of time by quickening activities. Agricultural drones are very much useful for farmers in monitoring crop growth and allows to take necessary steps for increasing the production.
 4. **Farm Mechanisation** - India's massive agricultural potential can be best utilised by increasing productivity through timely and cost-effective field work. To make this possible, agricultural mechanisation plays a principal role.
 5. **AI and related technology** - With the help of AI and IT, this sector is now advancing rapidly in spaces like satellite monitoring, data analytics and weather simulations. One such major area that has been impacted by both these technologies is 'precision agriculture'. This area involves collecting and analysing data at the individual plant level.

But at the same time, it is important to consider that competitiveness in global markets is not only a function of technology assimilation but other factors too, like –

- Developed countries are providing huge subsidies to agriculture sector and thereby, create distortions in the international market.
- The lack of know-how about foreign markets and consumers, coupled with stringent quantitative and qualitative restrictions, make access to international markets difficult.
- There is definitely a need to look into the food consumption patterns of target markets vis-a-vis Indian produce.

Following can be considered with regards to technology assimilation to improve the overall performance of the farm sector in India:

1. Training in good agricultural practices, climate-smart agriculture, agri-input usage, modern packaging facilities, pre-harvest and post-harvest management practices in line with importing country requirements are important.
2. A national contaminant and residue monitoring programme is also proposed to boost spice exports. Investments through public-private partnerships could prove beneficial in this regard.
3. In 2015, the EU rejected Indian grape consignments due to the use of a banned chemical, as a result of which scientists at the National Research Centre for Grapes trained farmers in the appropriate use of pesticides through a software called Grapenet. Such intervention are a need of the hour.
4. On the operational front, future actions must include strengthening export infrastructure: investment in cold chains, logistics, etc. The development of integrated food processing facilities might help in pushing processed food, which occupies minimal share in India's exports.
5. Further, synchronisation of Indian production regimes with target markets in terms of counter-seasonality, quality, consumer behaviour and technical barriers to trade can help attain our targets of enhancing exports and doubling farmers' incomes.
6. In order to overcome quality hurdles, advanced specialised capacity building programmes for farmers might help. Specialised training programmes refer to those targeted at specific commodities and specific markets.

Conclusion:

The new Indian agricultural export policy aims to double agricultural exports from the present \$30 billion to \$60 billion by 2022 and attain a market size of \$100 billion in the next few years which requires bridging the gap between farmers and markets through world-class knowledge and technologies—AI, GIS, remote sensing—backed by appropriate policy measures.

25. Critically evaluate the performance of direct benefit transfers in addressing food security challenges.**Approach:**

It expects students to write about the challenges of food security, and role of DBT in addressing those challenges. It also expects students to write issues in DBT to ensure food security.

Introduction:

Food security, as defined by the United Nations' Committee on World Food Security, means that all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their food preferences and dietary needs for an active and healthy life. Estimates show that while 27.8% of India's population suffered from moderate or severe food insecurity in 2014-16, the proportion rose to 31.6% in 2017-19. National Food Security Act (2013) provides for reforms in the TPDS including schemes such as Cash transfers for provisioning of food entitlements.

Body:

Food security challenges in India:

- **Corruption:** Diverting the grains to open market to get better margin, selling poor quality grains at ration shops, irregular opening of the shops adds to the issue of food insecurity.
- **Increase in rural-to-urban migration:** Nation-wide lockdown in March 2020, migrant workers, among the country's poorest citizens, had a particularly difficult time adhering to lockdown measures faced food insecurity. Large proportion of informal workforce resulting in unplanned growth of slums which lack in the basic health and hygiene facilities, insufficient housing and increased food insecurity.
- **Inadequate distribution of food through public distribution mechanisms (PDS i.e. Public Distribution System):** Deserving beneficiaries of the subsidy are excluded on the basis of non-ownership of below poverty line (BPL) status, as the criterion for identifying a household as BPL is arbitrary and varies from state to state.
- **Lack of access to remote areas:** For the tribal communities, trans migratory communities, habitation in remote difficult terrains and practice of subsistence farming has led to significant economic backwardness and intensity of food insecurity goes on increasing with extreme climate.
- **Climate Change:** Higher temperatures and unreliable rainfall makes farming difficult. Climate change not only impacts crop but also livestock, forestry, fisheries and aquaculture, and can cause grave social and economic

consequences in the form of reduced incomes, eroded livelihoods, trade disruption and adverse health impacts.

- Gender inequality: Women are vulnerable on all dimensions of food security: availability, access, utilization and stability. Due to patriarchal pattern in food consumption many times women and girls in household goes through deficiency in food and nutritional level and faces malnutrition condition due to food insecurity.

Direct benefit transfer ensures food security:

- To reduce the need for huge physical movement of food grains: it reduces the stress on different mode of transport and warehousing challenge from wastage of food grains and spoilage.
- To provide greater autonomy to beneficiaries to choose their consumption basket in specified area and Identified areas for example tribal community's different requirement based on their local conditions.
- To enhance dietary diversity: with money in bank account or cash a household has option to consume different high nutritional food.
- To reduce leakages: Direct transfer to bank account ensures no intermediary in between therefore fall in leakages.
- To facilitate better targeting: Benefit is provided directly to needy and vulnerable people with increasing their purchasing power. Eligible households to enable them to purchase food grains from open market.
- Direct benefit transfer policy can cover the entire country. If implemented effectively, this policy may yield positive outcomes for migrants who were facing food shortage and food insecurity during lockdown phase.

Issues in Direct benefit transfer for food security:

- Diversion of benefit: Direct cash may not be used for intended purpose and can be used in unhealthy ways. For example, the cash instead of food subsidy may be spent on drinking and smoking as most of beneficiary family heads are men.
- Social exclusion: Still there are many homeless family in urban-rural & tribal areas, which don't have banking facility and road connectivity. Many daily wages workers involved in manual labor face identification problem due to finger prints during authentication. Lack of adequate documents also leads to exclusion of many poor from banking sector.
- Difficulty in identifying beneficiary: As of now, only 3% Indians pay income tax. So, determining the income of the rest of the citizens is still a challenge hence making it difficult to identify the deserving beneficiaries.
- Infrastructure deficiency: Micro ATMs, which were set up to deliver cash benefits at door step are not present in many areas hence many beneficiaries have to travel long to withdraw money.
- Illiterate vulnerable community: Most of the banks appoints Business Correspondents to enroll beneficiaries in rural areas. They may open more than one account for each beneficiary for incentive. And there are many complaints that they are not giving passbooks to the beneficiaries making

them unaware of the scheme. Illiterate beneficiaries are more vulnerable in this case.

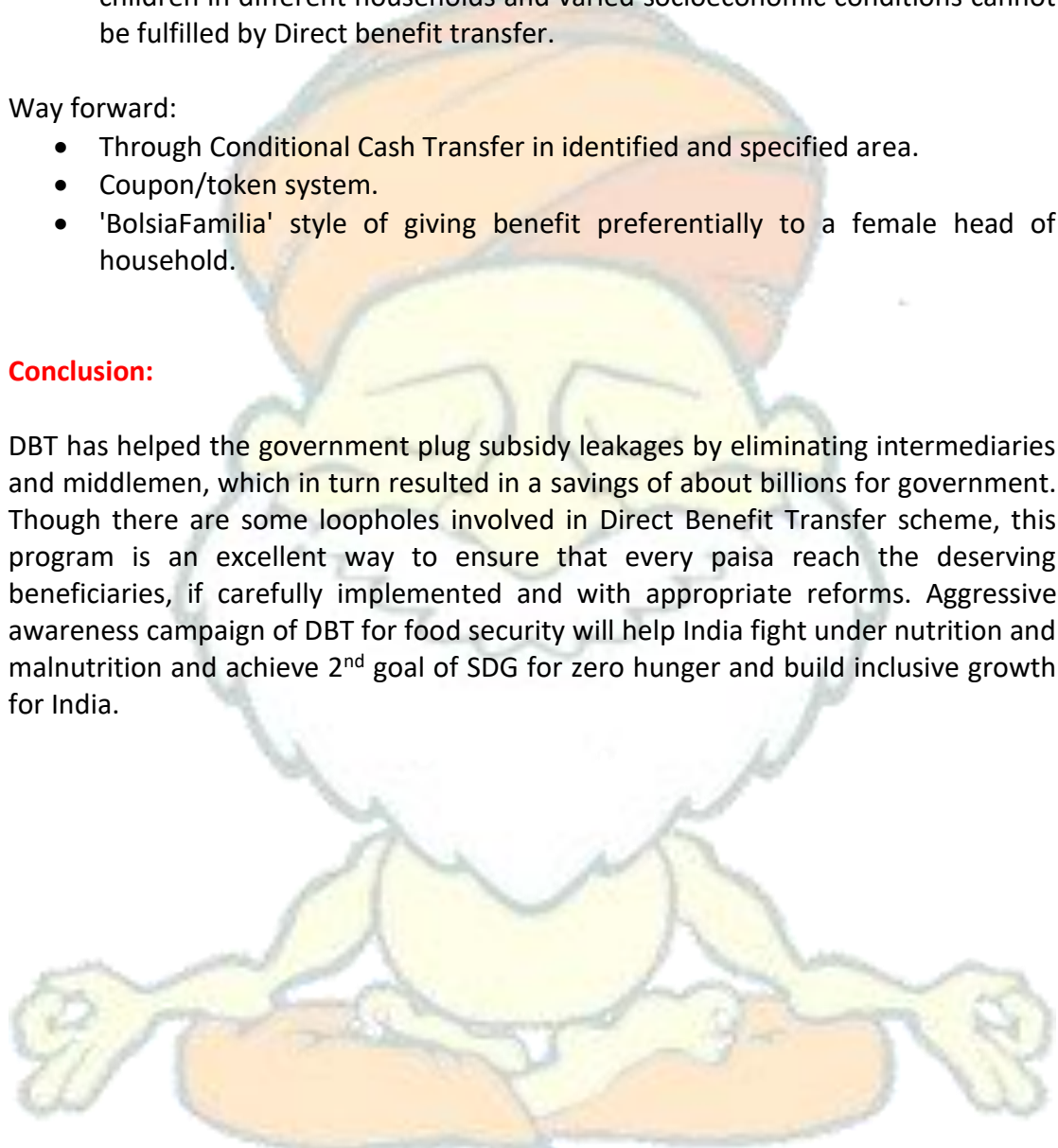
- Zero balance accounts: Bank staff are reluctant to cooperate in opening accounts, especially unprofitable 'zero balance' accounts, they are quite unfamiliar with opening and operating bank accounts and they are often seen as supplicants rather than clients.
- Various socio-cultural factors: Food based discrimination to women and children in different households and varied socioeconomic conditions cannot be fulfilled by Direct benefit transfer.

Way forward:

- Through Conditional Cash Transfer in identified and specified area.
- Coupon/token system.
- 'BolsiaFamilia' style of giving benefit preferentially to a female head of household.

Conclusion:

DBT has helped the government plug subsidy leakages by eliminating intermediaries and middlemen, which in turn resulted in a savings of about billions for government. Though there are some loopholes involved in Direct Benefit Transfer scheme, this program is an excellent way to ensure that every paisa reach the deserving beneficiaries, if carefully implemented and with appropriate reforms. Aggressive awareness campaign of DBT for food security will help India fight under nutrition and malnutrition and achieve 2nd goal of SDG for zero hunger and build inclusive growth for India.



26. Developing entrepreneurship in the field of livestock and fisheries can be a game changer for the rural economy. Elucidate.

Approach:

It expects students to write about - in first part write about livestock and fisheries sector - in second part write about how developing entrepreneurship in the field of livestock and fisheries can be a game changer for the rural economy - in third part write way forward.

Introduction:

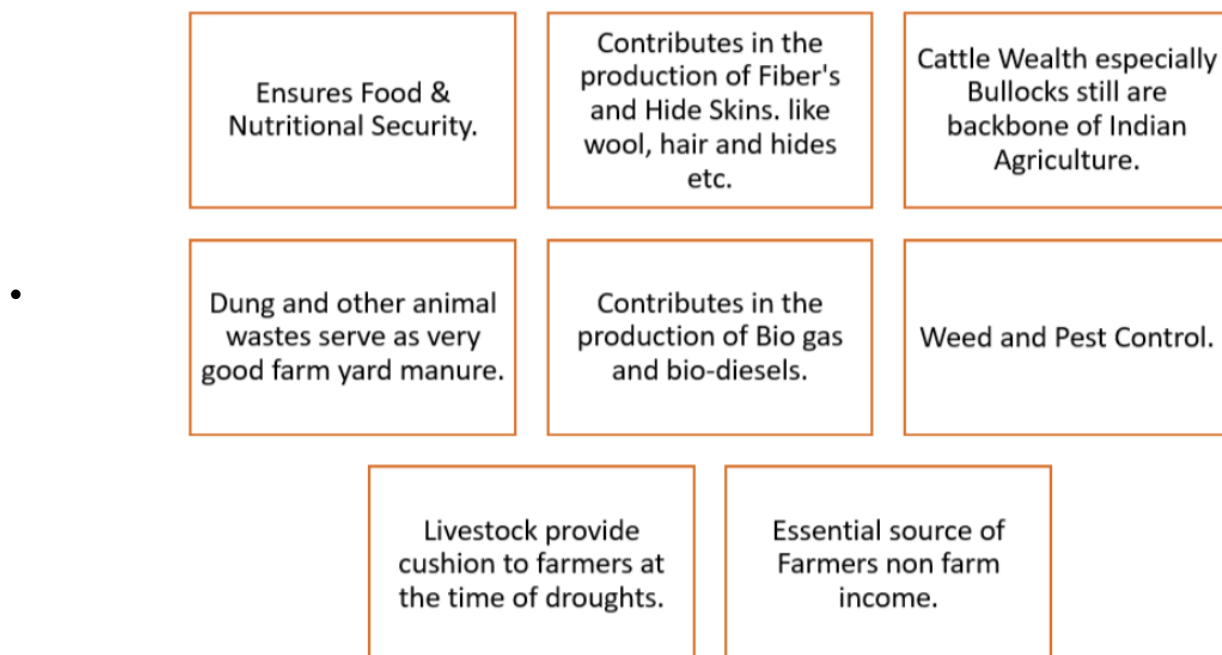
Livestock rearing, Dairying, Fisheries activities, along with agriculture, are an integral part of human life since the start of civilization. These activities have helped to improve the food basket and to gain draught animal power. As a result of conducive climate and topography, Animal Husbandry, Dairying and Fisheries Sectors have played a prominent socio-economic role in India.

Body:

Livestock and fisheries sector of India:

- Livestock, fishing and aquaculture account for nearly 32% of the overall agricultural GDP and 5% of national GDP.
- Livestock and fish products together contribute over Rs 7 lakh crore to total value of the agricultural output.
- The average annual growth rate of Livestock and fisheries sector together is 6 times more than that in the crop sector between 2012-13 and 2016-17.
- The share of crops in the value of agricultural output has been declining, but that of livestock and fish products is on a steadily upward trend.

Importance of Livestock sector in the Indian Economy.



Developing entrepreneurship in the field of livestock and fisheries can be a game changer for the rural economy because:

- Livestock contributed 16% to the income of small farm households as against an average of 14% for all rural households.
- Livestock provides a livelihood to two-third of the rural community. It also provides employment to about 8.8 % of the population in India.
- It will provide self-employment to millions of people especially rural households.
- It will have contributed significantly to the empowerment of women and has increased their income and role in society.
- It can be a major risk mitigation approach for small and marginal farmers, particularly across the rain-fed regions of India.
- It will be at the centre of poverty alleviation programs from equity and livelihood standpoints.
- A Food and Agriculture Organisation study has shown that one rupee of investment in the livestock sector can generate a return of four rupees.
- It will be faster than many other sectors of agriculture and continuing this trend will contribute as main sector for development of Indian economy.
- Livestock productivity has been identified as one of the seven sources of income growth by the Inter-Ministerial Committee under the government's target of doubling of farmers' income by the year 2022.

Important Initiatives by the Government:

- Animal Husbandry Startup Grand Challenge
 - To appreciate innovations coming from the villages to expand the dairy sector in India.

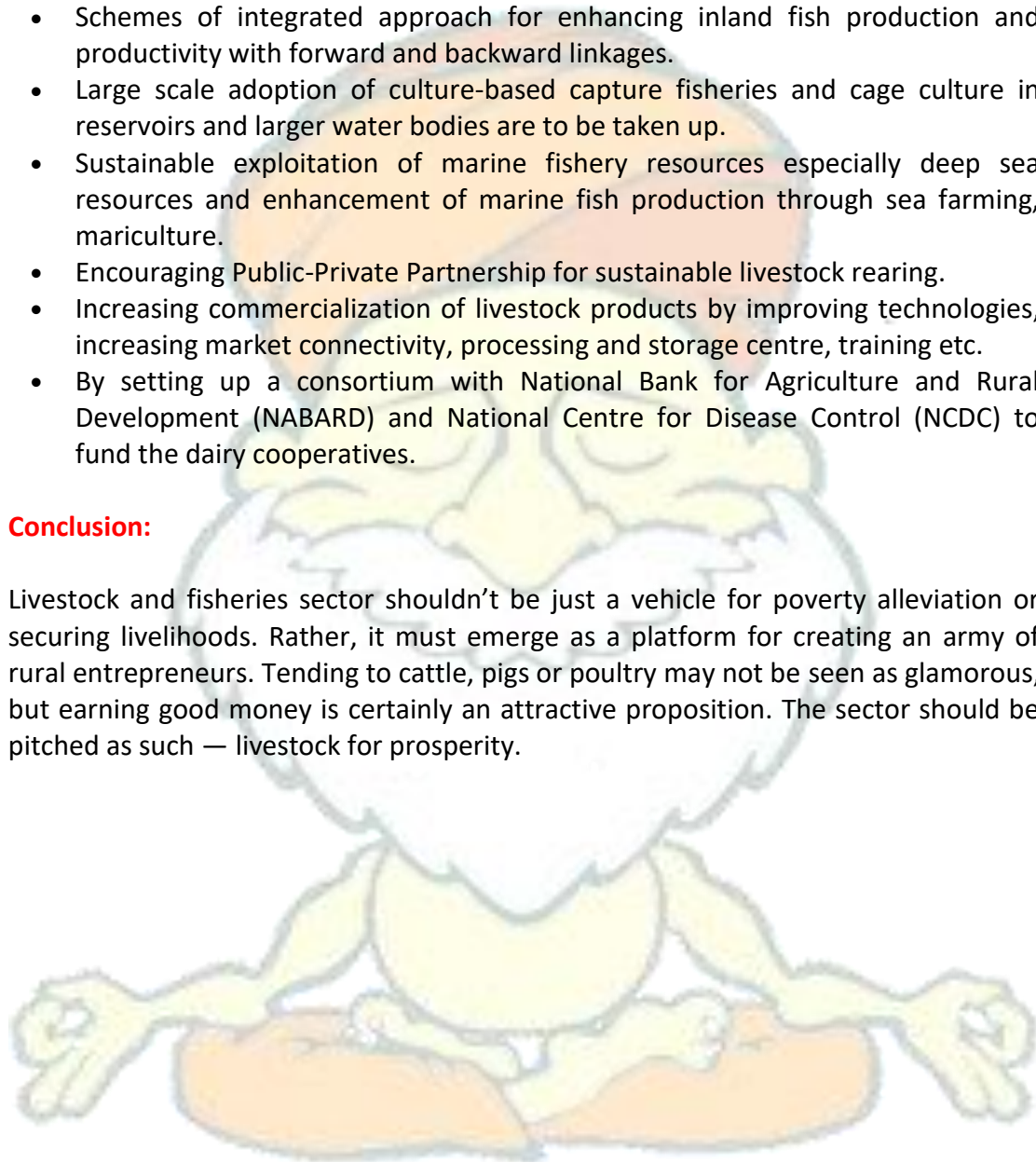
- National Livestock Mission
 - To ensure quantitative and qualitative improvement in livestock production systems and capacity building of all stakeholders.
- Central Sector Scheme on Blue Revolution: Integrated Development and Management of Fisheries (CSS)

Way forward:

- Schemes of integrated approach for enhancing inland fish production and productivity with forward and backward linkages.
- Large scale adoption of culture-based capture fisheries and cage culture in reservoirs and larger water bodies are to be taken up.
- Sustainable exploitation of marine fishery resources especially deep sea resources and enhancement of marine fish production through sea farming, mariculture.
- Encouraging Public-Private Partnership for sustainable livestock rearing.
- Increasing commercialization of livestock products by improving technologies, increasing market connectivity, processing and storage centre, training etc.
- By setting up a consortium with National Bank for Agriculture and Rural Development (NABARD) and National Centre for Disease Control (NCDC) to fund the dairy cooperatives.

Conclusion:

Livestock and fisheries sector shouldn't be just a vehicle for poverty alleviation or securing livelihoods. Rather, it must emerge as a platform for creating an army of rural entrepreneurs. Tending to cattle, pigs or poultry may not be seen as glamorous, but earning good money is certainly an attractive proposition. The sector should be pitched as such — livestock for prosperity.



27. With the help of suitable examples, illustrate the economic linkage effects of food processing industry.

Approach:

It expects students to write - in first part write about various economic linkages in food processing industry with examples - in second part write about its effects of economic linkages on economy.

Introduction:

The Food Processing Industry is of enormous significance for India's development because of the vital linkages and synergies that it promotes between the two pillars of the economy, namely Industry and Agriculture.

Body:

Economic Linkage of Food Processing Industry:

- Linkages is a phenomenon which measures the capability of an industry to generate demand for the products of the other industries.
- From the point of view of development strategy, linkages are one of the essential feature of an industry. Linkages are of three types: Forward, Backward and sideways.
- Forward Linkage:
 - It is when, the establishment of a processing industry can lead to the development and establishment of the number of advanced stage industries.
 - Example, Forest Industry, when established as a base industry, results in establishment of vast number of advanced processing industries like: manufacturing of paper, paper bags, stationary, boxes made of paper, cartons, wooden boxes etc.
 - There are many other examples: products such as vegetable oils and rubber are used in a wide variety of manufacturing industries; based on the preparation of hides and skins, tanning operations can be started, as can the manufacture of footwear and other leather goods.
- Backward Linkage:
 - The feedback effects generated by a base industry on the development of the base sector is called backward linkage. The development of the food processing industry has many feedback effects on the agriculture sector itself.
 - For Example, once a food processing industry is established, it results in increasing the demand of raw materials provided by the agriculture sector. The establishment of processing facilities is itself an essential first step towards stimulating both consumer demand for the processed product and an adequate supply of the raw material.
 - The provision of transport, power and other infra-structural facilities required for agro-industries also benefits agricultural production. The development of these and other industries provides a more favourable

atmosphere for technical progress and the acceptance of new ideas in farming itself.

- Sideways Linkage:
 - Sideways linkages are mostly derived from the use of by products and waste products of the main base industrial activity.
 - For example: many food processing industries using agriculture raw materials produce waste that can be used further in production of fuel, bio-fuels, paper pulp and fertilizer. The production of sugar results in production of molasses as a waste product, which is used by the Alcohol Brewing industry in the production of ethanol.
 - The capacity of Food Processing industry to generate demand and employment in other industries is the important aspect of the processing industry. It works because of processing industry growing potential for activating backward, forward and sideways linkages.

Effective and seamless backward, forward and Sideways linkages in food processing industry plug gaps in supply chain in terms of availability of raw material and linkages with the market. With multiplier effects economy is likely to benefit in following ways:

- Drives rural economy by increasing consumption due to increased income, essential for sustaining economic growth.
- Decrease in post-harvest wastage losses due to better technologies and improved logistics.
- Farmers are benefited by better farm gate prices and lower risks due to contract farming.
- Increase in employment generation in rural areas.
- Promotes investment in rural infrastructure-power, transport.
- Food processing can provide boost to exports by
 - Increasing value addition.
 - Hygiene and best practices.
 - Better compliance to food quality standards and thus expand market base.
- Stabilize food prices in the economy (food inflation). Consumers will be benefited with access to larger variety of products at reasonable prices.
- Helps in diversification of crops in agriculture and gives boost to allied enterprises poultry, dairying, fishing and horticulture. This will also help meet nutritional requirement in rural areas.

Conclusion:

Rising per-capita income, changing life styles and food preferences provide significant opportunities for the growth of FPI. Realising its potential and likely benefits government has come out with SAMPADA yojana.

28. Explain the integrated planning approach for supply chain management in agriculture. Why is it important in the Indian context? Discuss.

Approach:

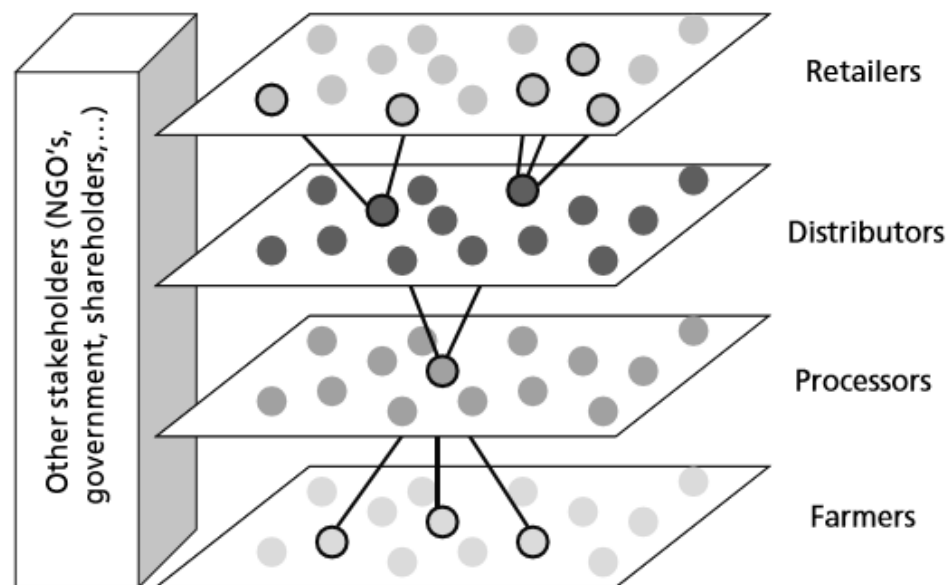
It is straightforward question, where it expects students - in first part write about Integrated planning approach for supply chain management in agriculture - in second part why it is important in Indian context.

Introduction:

Supply Chain is a sequence of flows that aim to meet final customer requirements, that take place within and between different stages along a continuum, from production to final consumption. The Supply Chain not only includes the producer and its suppliers, but also, depending on the logistic flows, transporters, warehouses, retailers, and consumers themselves. In a broader sense, supply chains also includes, new product development, marketing, operations, distribution, finance and customer service.

Body:

Integrated planning approach for supply chain management in agriculture.

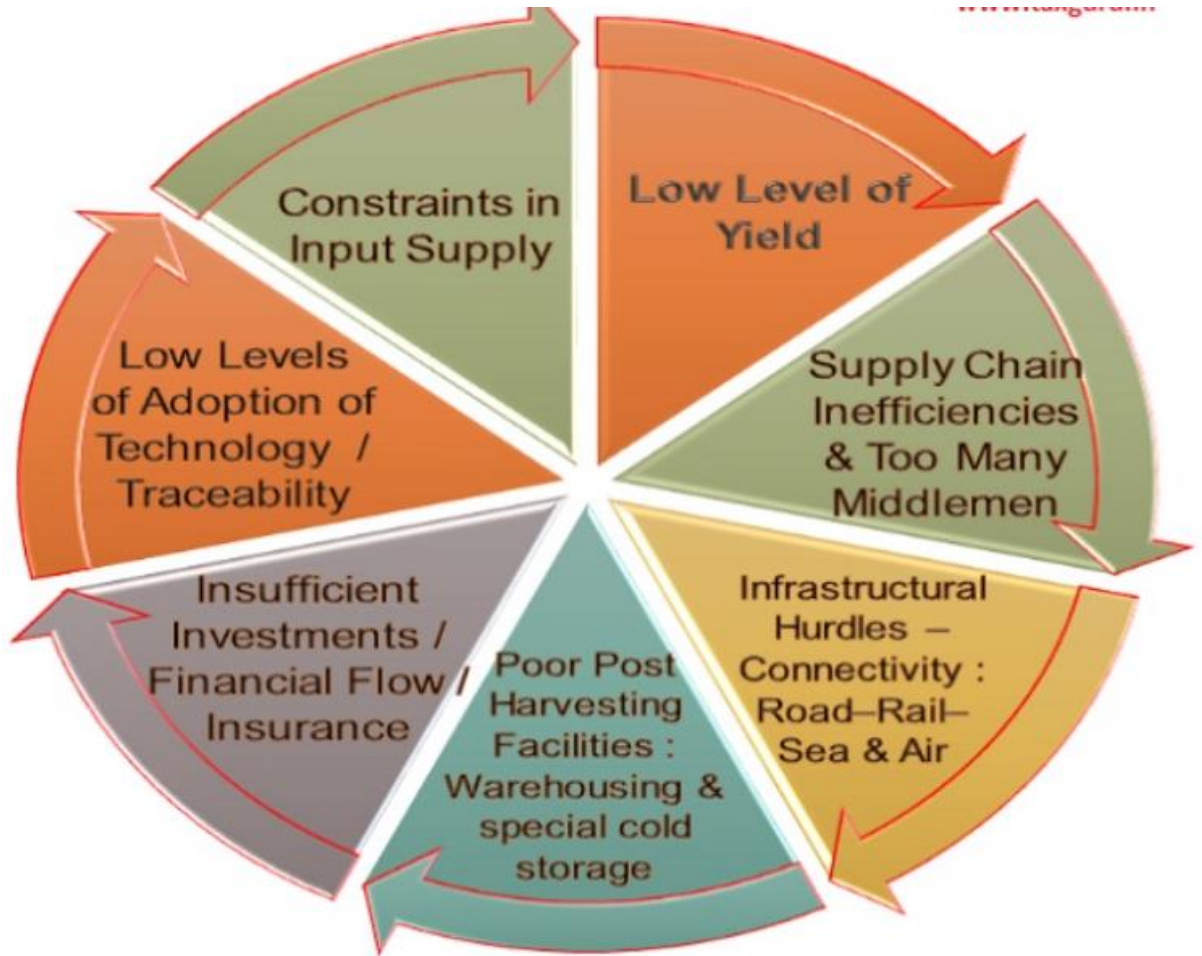


- Supply chains are principally concerned with the flow of products and information between supply chain member organizations—procurement of materials, transformation of materials into finished products, and distribution of those products to end customers.

- Today's information-driven, integrated supply chains are enabling organizations to reduce inventory and costs, add product value, extend resources, accelerate time to market, and retain customers.
- The real measure of supply chain success is how well activities coordinate across the supply chain to create value for consumers, while increasing the profitability of every link in the supply chain. In other words, supply chain management is the integrated process of producing value for the end user or ultimate consumer.
- The agrisupply chain system of the country is determined by different sartorial issues like dominance of small/ marginal farmers, fragmented supply chains, absence of scale economies, low level of processing/value addition, inadequacy of marketing infrastructure etc.
- Early processing-based supply chain management success included improved relationships between warehousing and transportation within companies as a result of reduced inventory and better response time to customer requests for products and services.
- Supply chain management then entered a logistics stage where other functional areas within companies joined forces to incorporate manufacturing, procurement, transportation, distribution, and marketing to effectively compete in the marketplace.
- This stage was aided by the use of telecommunications, electronic data interface, and other technological advances that made the transfer of information more transparent across the functional areas between companies.

Importance of Integrated Agri-supply chain management in Indian context:

- In a land where roughly 70% of the population resides in rural areas and half of the nation's population farms for a living, the importance of India's agricultural sector cannot be overstated. Despite these massive numbers, the country's agricultural output has been unable to keep pace with growing demands and global competition.
- According to the World Bank, "India's rice yields are one-third of China's and about half of those in Vietnam and Indonesia. With the exception of sugarcane, potato and tea, the same is true for most other agricultural commodities.
- There are multiple reasons for this productivity gap, but one significant one is glaring inefficiencies in India's agricultural supply chains. Logistics play a critical role in any economic sector, but when goods are perishable the supply chain becomes that much more important.
- Another factor is the overall lack of consolidation that has occurred in the agricultural sector, with the majority of production still operating at the single farmer level.



- Agriculture supply chain management in India is weak, leading to limited reach of farmers to reach mandis.
- Transmission of Price Signals are weak leading to over and under production by farmers.
- Too many middle man in the supply chain, leading to artificial price rise and huge differences between the price farmer gets and final consumer pay.
- Presence of Asymmetric Information (usually the middle man has more information than both farmers and consumers regarding prices, supplies and stocks available).
- Lack of Infrastructure and storage facilities like ware houses and cold chains, leading to post harvest loses.
- Skewed distribution of storage capacity between states.
- Underdeveloped ICT infrastructure and e-supply chains to transmit right price signals.
- Unavailability of Insurance Products to protect goods while on move.

Conclusion:

As the Supply Chain involves a number of players, the extent of integration of services

depends on the degree of trust and information sharing amongst the players. It is often observed that the big players in their efforts to make vertical/horizontal integration of different activities end up gobbling up the weak ones. So, current requirement is strengthening of the system and process, so that requisite synergies evolve to give benefits to all the partners.



29. What role do technical and exports considerations play in deciding the location of food processing industries? Discuss with the help of suitable examples.

Approach:

As the directive here is discuss, it is necessary to put forth comprehensive arguments in it. One can start in introduction by explaining food processing industry (FPI) and what factors play a prominent role in deciding the location of FPI. In the main body part one needs to explain the role of technical and export considerations in deciding location of FPI. To fetch more marks it is necessary to give examples. One can conclude by showing how these factors have played a prominent role in giving impetus for the FPI in India or one can also show how the government schemes are a step in the right direction to supplement these considerations while deciding the location of FPI.

Introduction:

Food processing is the transformation of raw ingredients into food, or of food into other forms. Food processing industry in India is a sunrise sector that has gained prominence in the recent years. The FPI is always of enormous significance as it provides vital linkages and synergies almost all the sectors of the economy.

Body:

From the perspective of deciding the location of food processing industry varied factors play role. For instance, availability of raw material, cheap and surplus labour, connectivity, availability of transport, export potential of location and technological advancement etc.

Role of technical considerations to decide location of food processing industry:

- Where there is a high degree of technical freedom in the choice of location, industries have frequently tended to be located in proximity to the markets because of the more efficient labour supply, better infrastructure and lower distribution costs in the large market centres.
- For instance, the Maramara region has FPI based on these factors. As the availability of efficient labour is easy, and due to its prime location, it has better connectivity hence, lower distribution cost.
- The availability of necessary infrastructure for processing, preservation and transport of the raw or processed food is also one of the considerations. As food is a perishable product, it requires the necessary equipments to preserve it for a certain period of time. For instance, the food processing industry and related technical infrastructure developed in the region of Kokan region of Maharashtra is one such example.
- Technical consideration about the expertise play a prominent role. For instance, the necessary technical expertise available in the region of Darjiling and nearby area contributes for the better quality and variety of tea types to be developed in the region.
- The raw material requires preservation for some time, either it through big ware houses or through cold storage chains. These factors also play a role in

defining the location of industry. For instance, cold storage chain present in the Nashik and Sangli districts of Maharashtra give impetus to industry of liquor and raisin in those regions.

- With production for export, technical freedom factor has often tended to favour the location of processing in the importing country. This tendency has been reinforced by other factors, including the need for additional raw materials and auxiliary materials (particularly chemicals) that may not be readily available in the raw material-producing country; the greater flexibility in deciding the type of processing according to the end use for which the product is required; and the greater regularity of supply and continuity of operations that are possible when raw materials are drawn from several different parts of the world.

Export considerations to decide location of food processing industry:

- Export considerations depend mostly on the demand in the region, connectivity to the region and availability of preservation facility in the region. For instance, Mango Pulp has high demand in the regions of Saudi Arabia, Kuwait, UAE, and Hong Kong. Depending on it the FPI of mango products are located across the Western and eastern coast of India for better connectivity, cheap transport, high demand.
- With improved infrastructure, enhanced labour efficiency and growing domestic markets in the developing countries, there is increased potential for expanding such processing in the countries where the raw materials are produced.
- In addition, with growing liberalization of world trade, more developing countries will be able to take advantage of lower labour costs to expand their exports of agro-industrial products. For instance, Fruit juice products have more demand in the urban regions, accordingly the fruit juice industries are located mostly on the outskirts of urban areas so that there is easy reach to market is available.
- When it comes to export, middlemen play a prominent role. However if they create Nuisance then it becomes highly difficult to utilise the full export potential. For instance, Lack of timely financing from banks / financial institutions, the fruit-farmer goes to middlemen, who advance money to take the farm on lease. Then middlemen manipulates selling prices, to enhance their margins. For instance, Indian Mangoes have wide price fluctuations in Middle-east. Hence, lack of pro export policies also affect the location of FPI.
- When it comes to export overseas then regulatory issues also comes in to picture. Which affect the location of industry. For instance, business firm may choose to set up Food processing plant in such a country where export regulations are favourable to them.
- Geographical location plays a pivotal role in deciding the export potential and location of industry. For instance, India is geographically close to key export

destinations like Middle East, South East Asia who are the major importers of processed food.

India is the world's second largest producer of fruits & vegetables after China but hardly 2% of the produce is processed. In spite of a large production base, the level of processing is low (less than 10%). Approximately 2% of fruits and vegetables, 8% marine, 35% milk, 6% poultry are processed. Lack of adequate processable varieties continues to pose a significant challenge to this sector. The technical and export consideration have a large impact on deciding the location of Food Processing Industry. Considering these things in mind Government of India took some initiatives which supplement the growth of food processing industry in India.

- The Ministry of Food Processing Industries (MoFPI) is implementing PMKSY (Pradhan Mantri Kisan SAMPADA Yojana) with the objective to supplement agriculture, modernize processing and decrease agri-waste.
- Under PMKSY the following schemes are to be implemented, Mega Food Parks, Integrated Cold Chain, Value Addition and Preservation Infrastructure, Infrastructure for Agro Processing Clusters, Food Safety & Quality Assurance Infrastructure. For instance, Godavari Food Park, Satara Food Park.
- To encourage creation of facilities of setting up cold storage and temperature controlled perishable cargo centres through Public Private Partnership (PPP) Kisan Vision Project is implemented.
- Special horticulture trains are started to eliminate the locational disadvantage of food processing industry. For instance, "Banana Train" which connects Maharashtra to Delhi launched in Sept. 2012.
- Agricultural and Processed Food Products Export Development Authority (APEDA) an apex organization under the Ministry of Commerce and Industry focuses on 'export' of scheduled products.

Conclusion:

Technical and export considerations are critical to decide the location of Food processing industry. They not only play a prominent role by deciding the location but also give an impetus for growth of such industries. With respect to India, Food processing industry is expected to reach \$300 billion by 2020. Hence, to utilise the advantage of technical and export considerations Government schemes like PM SAMPADA yojana, mega food parks, cold storage schemes etc., and national mission on food processing are steps in right direction.

30. The agricultural sector has become much more important for harmonious development and stability of the economy. Elucidate.

Approach - It expects students to write about the significance of agriculture sector in India and highlight on agriculture sectors role in harmonious development of people and stability of Indian economy.

Introduction

The history of agriculture in India dates back to Indus Valley civilization era where in the present times, the agriculture sector is one of the most important industries in the Indian economy with approximately 60 percent of the Indian population working in the industry, contributing about 18 percent to India's GDP.

Body

Significance of Indian agriculture in economy -

1. **Agriculture for Industrial Development:** Agriculture in India has been the major source of supply of raw materials to various important industries of our country. Cotton and jute textiles, sugar, vanaspati, edible oil plantation industries and agro-based cottage industries.
2. **Source of Government Revenue:** Agriculture is one of the major sources of revenue to both the Central and State Governments of the country. Some other sectors like railway, roadways are also deriving a good part of their income from the movement of agricultural goods.
3. **Rural economy:** The majority of India's poor are found in rural areas. And rural economy in many states are immensely dependent on agriculture.
4. **Employment Generation:** Most people in India derive their livelihood from agriculture. Agriculture is still the most dominant sector in as much a high proportion of working population continues to depend on agriculture. Over 70 per cent of the rural households depend on agriculture.
5. **Diversified Agriculture sector:** Tremendous diversification has taken place in agriculture post-independence. At the time of independence, agriculture was dominated by the crop sector but in the following decades, especially after the 1980s, the share of livestock rose sharply.
6. **Globalization of Indian Agriculture:** Both agricultural exports and imports have registered significant and steady growth in terms of value over this period. The most notable feature of Indian agriculture since the early 1990s is the rising share of agro-trade to agricultural GDP. It is indicative of accelerated globalization of the agricultural sector in India.

Consequently, following points demonstrate important issues in agriculture sector for India's overall harmonious development and stability of Indian economy -

- **Reducing rural poverty through a socially inclusive strategy:** Moreover, there are strong regional disparities, the majority of India's poor are in rain-fed areas or in the Eastern Indo-Gangetic plains. Problems of rural indebtedness and the exploitative practices of the village moneylenders need to be address

for overall harmonious development of poor, landless, women, scheduled castes and tribes.

- Recognize women in agriculture: There is invisibility of gender in Indian agriculture. According to Oxfam (2013), around 80 per cent of farm work is undertaken by women in India. Addressing issues of recognition, absence of land rights and issues of female agricultural labourers for overhauling development of women in agriculture is required.
- Tribal agriculture: Their families depend on small holding and cursed to spend entire life in misery. Measures needed against depleting forests and stringent forest laws. More diverse programmes under TRIFED can be beneficial for all round development.
- Sustaining the environment: More extreme events droughts, floods, erratic rains are expected and would have greatest impact in rain-fed areas. Agricultural practices need adapting to reduce soil erosion and increase the absorption of rainfall. Climate change must also be considered for sustainable agriculture practice which will prove sustainable economy.
- Raising agricultural productivity per unit of land: Productivity will need to be the main engine of agricultural growth as virtually all cultivable land is farmed. All measures for increasing yields, diversification to higher value crops, and developing value chains to reduce marketing costs.
- Promoting new technologies and reforming agricultural research and extension: Need to replace aging research technique and access to state-of-the-art technologies. Providing connection between research, extension and private sector needed for all round development.
- Developing Larger land holdings: Due to shrinking agricultural land holdings farmers have limited incentive to adopt capital-intensive farming techniques and exploiting economies of scale are minimal. Larger land would allow farmers to engage in multiple cropping and help diversify their income base thus it will benefit in remunerative farm income.
- Raising growth rate: From 2002-03 to 2015-16, based on NSSO and NABARD surveys, farmers' real incomes have increased only by 3.6 per cent per annum. Doubling farmers' real incomes by 2022-23 over a base of 2015-16 requires a growth rate of 10.4 per cent per annum.

Conclusion

To achieve targeted mark of doubling farmer's income by 2022, the government needs to provide support in case of land, bank loans and other machineries to the small farmers along with reforms to land distribution, water management and food distribution systems which will further enhance productivity and help India meet its growing demand for food and enhance sustainable development.

31. Examine the significance of land records management and its role in urban and rural planning.**Approach:**

It expects students to write about the significance of land records management and present its role in urban and rural planning.

Introduction:

Post-independence, the responsibility for land administration was transferred to states. All the records were collected and maintained manually by the respective revenue department. Land administration essentially involves recording, processing and dissemination of information about the ownership, value, and use of land. The system of land records management varies across states, depending on factors such as historical evolution and local traditions.

Body:

Land as an asset is unique because it is immovable, its value depends on its location, and with growing population, its demand keeps increasing, while its supply is limited. Significance of land records management such as:

- High litigation: As per World Bank study from 2007 states that some estimates suggest that land-related disputes account for two-thirds of all pending court cases in the country. Proper land record management will reduce judiciary burden.
- Development of new infrastructure: Over the last few decades, the economy of the country has seen a shift from being agrarian based to becoming manufacturing and services based. Land record management will help shift in land use from agriculture to commercial, industrial, and residential, power plants, manufacturing units, build roads, housing, and shopping malls.
- Agricultural credit: Land is often used as collateral for obtaining loans by farmers. It has been observed that disputed or unclear land titles inhibit supply of capital and credit for agriculture. Small and marginal farmers, who account for more than half of the total land holdings, and may not hold formal land titles, with effective land record management they can get Institutional credit.
- Benami transactions: White Paper on Black Money (2012) had noted that black money generated in the country gets invested in benami properties. Unclear titles and non-updated land records enable carrying out property transactions in a non-transparent way. Benami transactions could be pre-empted and eliminated by digitisation of land records and their regular land record management.
- Land records for Gram panchayat: Land record also play an important role in the financial resilience of Gram Panchayats. Gram Panchayats that are able to generate their own revenues will be able to invest in the needs of their local communities.

- Housing shortage: The scarcity of affordable housing in urban areas drives the urban poor to live in slums or unauthorised colonies. These slum dwellers do not have access to a clear land title, or any ownership rights. Such slums may occupy prime land in urban areas.

Land record management have major role in Rural and Urban planning such as:

- Under new schemes: For urban development (Smart Cities Mission, AMRUT), cities are trying to raise their own revenue through property taxes and land-based financing. This further necessitates the importance of providing a system of clear land titles in urban areas. Which can be achieved through digitization of land records. For example, Digital India Land Records Modernization Programme (DILRMP).
- Spatial land records: Spatial land records contain details of a property sketched on a map. These include land boundaries, plot area, connectivity with roads, presence of water bodies, details of surrounding areas, land use (agricultural, residential, commercial, etc), and land topology. This can help in planning in both urban and rural area. For example, Svamitva (Survey of Villages and Mapping with Improvised Technology in Village Areas) Scheme
- Land bank system: Clarity and transparency allow land markets to function efficiently. Financial institutions such as banks benefit if property offered as collateral has no ambiguity in terms of ownership, use and encumbrances. This will be beneficial for REITs and InvITs.
- Land acquisition: In eminent domain-related land acquisition, updated and comprehensive land records can facilitate monetisation of various claims and benefits and facilitate smoother payment of compensation, will be beneficial of urban planning.
- Land pooling: Transparent land records management with a single window to handle land records will aid online approvals of plans and occupancy certificates, streamline land pooling which in return will benefit cities planning for example Amravati and NCT Delhi. Overall, it becomes easier for the developers and buyers to check on the authenticity of the land or the property.

Conclusion:

Population growth, technological and social hazards, and environmental degradation have all to be taken into greater account today by policy makers, resource planners, and administrators who make decisions about the land. They need more detailed land information than has been traditionally available.

32. Critically evaluate the impact of liberalisation in addressing the twin problem of poverty and unemployment in India.

Approach:

As the directive here is critically evaluate, it is necessary to arrive on the overall analysis of the pros and cons backed by evidence. In the first part of answer it is expected to show what were expected outcomes of liberalisation in addressing the twin problem of poverty and unemployment in India. In the next part you can show what are positive impacts and what are the negative ones. A constructive way forward will fetch you more marks.

Introduction:

In the economic history of India major economic reforms occurred in 1991 when a new economic policy was announced. This policy focussed on three aspects i.e. liberalisation, privatisation and globalisation. Though the macro objective of these reforms was to dismantle the excessive regulatory framework, micro objectives were focussed at increasing growth rate of per capita income and achieving full employment there by reducing income inequality, reducing number of people living below poverty line.

Body:

Liberalization refers to the process of making policies less constraining of economic activity and also reduction of tariff or removal of non-tariff barriers. Poverty and unemployment are inseparable twins as unemployment leads to lack of a regular income, which in turn leads to the inability of a person to be able to maintain the basic needs, such as having sufficient healthy foods, availing health care and having adequate shelter and lack of education. However, even it is possible to live in poverty even while employed. For instance, A low paid worker may suffer much the same hardships.

Positive impacts of liberalisation on Poverty and Unemployment:

- There are two conclusions on trends in poverty. The first one, shown in a World Bank study by Gaurav Datt and others, is that poverty declined by 1.36 percentage points per annum after 1991, compared to that of 0.44 percentage points per annum prior to 1991.
- The second conclusion is that in the post-reform period, poverty declined faster in the 2000s than in the 1990s. Around 138 million people were lifted above the poverty line during this period.
- The poverty of Scheduled Castes and Scheduled Tribes also declined faster in the 2000s. The Rangarajan committee report also showed faster reduction in poverty during 2009-10 to 2011-12.
- Higher economic growth, agriculture growth, rural non-farm employment, increase in real wages for rural labourers, employment in construction and programmes like the Mahatma Gandhi National Rural Employment

Guarantee Act (MGNREGA) contributed to higher poverty reduction in the 2000s compared to the 1990s.

- Unemployment rate is reduced: In 1991 unemployment rate was 4.3% but after adoption of new LPG policy more employment is generated because of globalization many new foreign companies came in India and due to liberalization many new entrepreneurs have started new companies because of an abolition of Industrial licensing / Permit Raj so, employment is generated, and due to which India's unemployment rate is reduced from 4.3% in 1991 to 3.6% in 2014.
- Strongest revolution of new century has been one of Information Technology, which started in last years of past century. This revolution was different because it made globalization even more obvious and stark. It made possible transfer of real time human labour across nations, without transfer humans themselves. There by it increased the employment rate in India.

Negative impacts of liberalisation on Poverty and Unemployment:

- Liberalisation benefits to those who have the skills and technology in the country. The higher growth rate achieved by an economy can be at the expense of declining incomes of people who may be rendered redundant. Hence, liberalisation has widened the gap between the rich and poor, rises inequalities and thereby increasing the number of poor in the country.
- In 1991, agriculture provided employment to 72 percent of the population and contributed 29.02 per cent of the gross domestic product. However, in 2018 the share of agriculture in the GDP went down drastically to 15% and employment to nearly 50%
- . This has resulted in a lowering the per capita income of the farmers and increasing the rural indebtedness which in turn grappled more and more farmers in to poverty. Rising suicides of farmers in Maharashtra is one such example.
- As per the methodology of the Suresh Tendulkar Committee report, the population below the poverty line in India was 354 million (29.6% of the population) in 2009-2010 and was 269 million (21.9% of the population) in 2011-2012. Till 2014 unemployment rate came down to 3.6%. However, after 2014 due to jobless growth unemployment rate has increased to 6.1% in 2018.
- Former vice chairperson of NITI aayog, Arvind Panegariya also pointed out that Underemployment, and not unemployment is the key challenge facing India. He also argued that, it is not possible to grow at 7% and have no jobs growth. Most people are employed but earn low wages, especially in agriculture output per worker is one-fifth of that in industry.

Way forward to overcome the twin problem of poverty and unemployment:

- India needs to continue to follow the two-fold strategy of achieving high economic growth and direct measures through social protection programmes.

- The focus should also be on increase in urban growth and income as the share of urban poverty will rise with urbanization.
- It is necessary to focus here on the two important measures: creating productive employment and providing quality education for reduction in poverty and inequality.
- Employment focus is the major part of equity approach. Studies have shown that agricultural growth leads to reduction in poverty twice as that of non-agriculture. We need more diversified agriculture for raising the income of farmers.
- However, future employment has to be created in manufacturing and service. In this context, the Make in India initiative, focus on start-ups, Mudra, financial inclusion, etc., are steps in the right direction. Equally, service sector employment has to be promoted.
- Over time, the share of the organized sector has to be raised while simultaneously improving productivity in the unorganized sector.
- Efficient delivery systems of public services. Many reckon that poor governance is the biggest constraint in achieving the aspirations of a new generation and reduction in poverty, inequality and unemployment.

Conclusion:

Sustainable Development Goal 1, one of the 17 Sustainable Development Goals established by the United Nations in 2015, calls for "no poverty". Though Liberalisation focused on creating employment and thereby reducing poverty, some of the issues still remain a challenge for the policymakers. There is a need of an effective anti-poverty programme at solving the unemployment problem through structural, institutional and technological reforms in the economic sectors for speeding up the pace of economic growth, and reduction in poverty. If the expected reforms are implemented in their letter and spirit we can realise true meaning of 'SabkaSaath, SabkaVikaas'.

33. How do tax policies affect the investment climate? Illustrate.

Approach - It expects students to write about tax policies and how it affect the investment climate and analyze with different examples.

Introduction

To foster economic growth and development governments need sustainable sources of funding for social programs and public investments. Programs providing health, education, infrastructure and other services are important to achieve the common goal of a prosperous, functional and orderly society. And they require that governments raise revenues. Taxation not only pays for public goods and services; it is also a key ingredient in the social contract between citizens and the economy. And also impacts the investment business cycle in economy.

Body

Tax policies affecting investment climate:

- Retrospective tax: The policy of retrospective taxation has acted as an “irritant” and adversely affected the inflow of foreign capital to India.
- Abrupt Policy Changes: There has been a lack of certainty about tariff and taxes. This uncertainty needs to be resolved soon to boost business and investments ties.
- Plethora of Taxation Laws: There have been many taxation laws of the Central and many State Governments which increases complexities and litigation and reduces predictability, fairness and automation.
- High price reduce investable amount: Multiple governments levy so many taxes on businesses that "taxes" is the highest budget items on the ledger sheets of most businesses. Businesses have to raise prices to get money to pay these taxes. So product prices go up. In return it reduces the investment in business cycle.
- Recession due to taxation policy: The high taxation takes so much away from the economy that it enters a permanent form of recession. If government tries to boost the economy with increased government spending, the result is stagflation (simultaneous high inflation and unemployment) instead of prosperity.
- Reduction in Investable Income: First of all, taxes reduce your investable income, that is, the amount of income you can invest. When you pay taxes before you invest, you have less money to invest into the stock market and other investments.

Recent government taxation policies and its effect on investment:

- Vodafone case: Following a setback from Supreme Court decision the government, made amendment to the Finance Act in 2012 to give retrospective effect to its claims. This was the trigger for Vodafone to seek arbitral recourse. And spoiled the investment environment in India.

- Re-introduced long-term capital gains tax 2018: LTCG tax on sale of equities will be applicable on gains exceeding Rs1 lakh. The tax rate is 10%. The tax roiled equity markets on budget day. Its worst budget-day performance in the five years of this government.
- Tax holiday for SEZ: SEZs typically feature liberal tax laws. Such zones have generated significant interest in investment in developing countries, demonstrating sharp increase in international trade and economic activity. This investment in SEZ have helped in employment generation with almost 1.8 million people being employed by SEZ units in the country.
- GST implementation: GST implementation is a breakthrough tax-reform with respect to Foreign Direct Investments in India. Increased tax compliance will ensure reduced litigations and increased investor confidence. In a slow global economy, GST will provide the required boost to international trade and FDI, which will aid in the economic growth of the country.
- Corporate tax cut in 2019: Lowering of corporate tax rate has made India a globally competitive and favoured destination for investment and the impact of this landmark reform will be felt in the coming years.

Way Forward

- Reducing Scope of Litigation: There is a need to focus on signing Advance-pricing Agreements to avoid Transfer pricing disputes.
- Need to Bring More Clarity on Tax laws: India has already rolled out Anti-tax avoidance regulations i.e. the General Anti-Avoidance Rules (GAAR) from assessment year 2018-19. However, there is a need to bring more transparency for avoiding issues related to retrospective taxation.
- Indian Finance Code: There is a need for simplification of taxation laws in India. In this context there is a need to implement recommendations of the Financial Sector Legislative Reforms Commission.
- Adopting International Best Practice: India may explore the option to revise the standard of treatment clause to align it with international practices and include the traditional standard of protection of fair and equitable treatment.

Conclusion

Thus, taxation creates both favourable and unfavourable effects on various parameters. Unfavourable effects of taxes can be wiped out by the judicious use of progressive taxation. Further, if India really wants to become an international hub of global investment, there is a need for ensuring transparency and certainty in India's tax regime.

34. Examine the ways in which digital technologies can improve the ease of doing business in India.**Approach:**

Students are expected to examine the ways in which digital technologies can improve the ease of doing business in India in the first part and explain the other concerns pertaining to Ease of doing business in the second part.

Introduction:

The ease of doing business index is an index created by the World Bank Group. India has jumped 14 places to rank 63rd out of 190 countries in the World Bank's Doing Business 2020 report on account of significant improvement in its various parameters. India's success in boosting its ease of doing business ranking is spectacular and digitalisation played a great role in ranking up of ease of doing business.

Body:

On the back of multiple policy reforms, digital led process transformation and capacity building in government has changed things for good.

- **COMPACT and GePG:** This initiative targets the 'Selling to Govt' parameter of EoDB. The Government e-Payment Gateway at the Pay and Accounts Offices of the Government of India has reduced the average payment cycle from 20-25 days to 4-5 days. The automation of payment process helps the corporate citizens who sell to the government. Selling to the government also became easier after the launch of the e-procurement module in various government departments. Tendering process has become online and transparent because of it.
- **e-biz portal:** This initiative targets the 'Starting the Business' parameter of EoDB. The e-biz portal provides various services to the entrepreneurs in starting and running a business. The entrepreneur can create an account and avail the industry specific services at one location.
- **e-Courts:** This initiative targets the 'Enforcing Contract' parameter of EoDB. Automation of courts through e-courts which allow the complainants to file cases electronically. This ultimately reduces the time of companies which earlier required during physical process.
- **MCA 21:** This initiative targets the 'Starting the Business' parameter of EoDB. The MCA 21 project is instrumental in the incorporation process and application is designed to fully automate all processes. It impacts the starting a business parameter in ease of doing scores. With this project in place the ministry of corporate affair offers a broad bouquet of e-services to the corporate citizens.
- **GST:** This initiative targets the 'Paying Taxes' parameter of EoDB. Multiplicity of indirect taxes, multiplicity of institutions managing & collecting indirect

taxes became history now. GST clubs all the indirect taxes into one and hence there is uniform and easy procedures of payment.

- Digitization of Land records and property registration: This initiative targets the 'Registering Property' parameter of EoDB. Digitization of land records and property registration helps businesses to have a seamless experience. Digital records are less prone to forgery and hence offer better enforceability.
- Power Sector Reforms: This initiative targets the 'Getting Electricity' parameter of EoDB. India's score on getting an electricity connection is good for the EODB ranking. This can be attributed to the power sector reforms in general and digitalization of application process in particular.
- ShramSuvidha Portal: This initiative targets the 'Labour Market Regulation' parameter of EoDB. ShramSuvidha Portal is a one-stop-shop for Labour Laws compliance. It consolidates information of labour inspection and its enforcement. It promotes the use of a common Labour Identification Number (LIN) to comply with more than 40 labour laws.
- Taxpayers services and TRACES: This initiative targets the 'Paying Taxes' parameter of EoDB. Corporate Income Tax is adding value to the score of EoDB. Through multiple projects, the Income Tax Department has facilitated various e-services to the individuals as well as the corporate citizens. These services include e-filing of income tax return, online payment of taxes, e-TDS reconciliation etc.
- EDI for eTrade: This initiative targets the 'Trading across borders' parameter of EoDB. This Mission Mode Project seeks to simplify procedures, introduce electronic delivery of services, provide 24/7 access to users, increase transparency, reduce transaction cost and time.

Even though through the digitalisation India have climbed up the position, these are not the only factors which helps. There are certain business-oriented factors which needs to address.

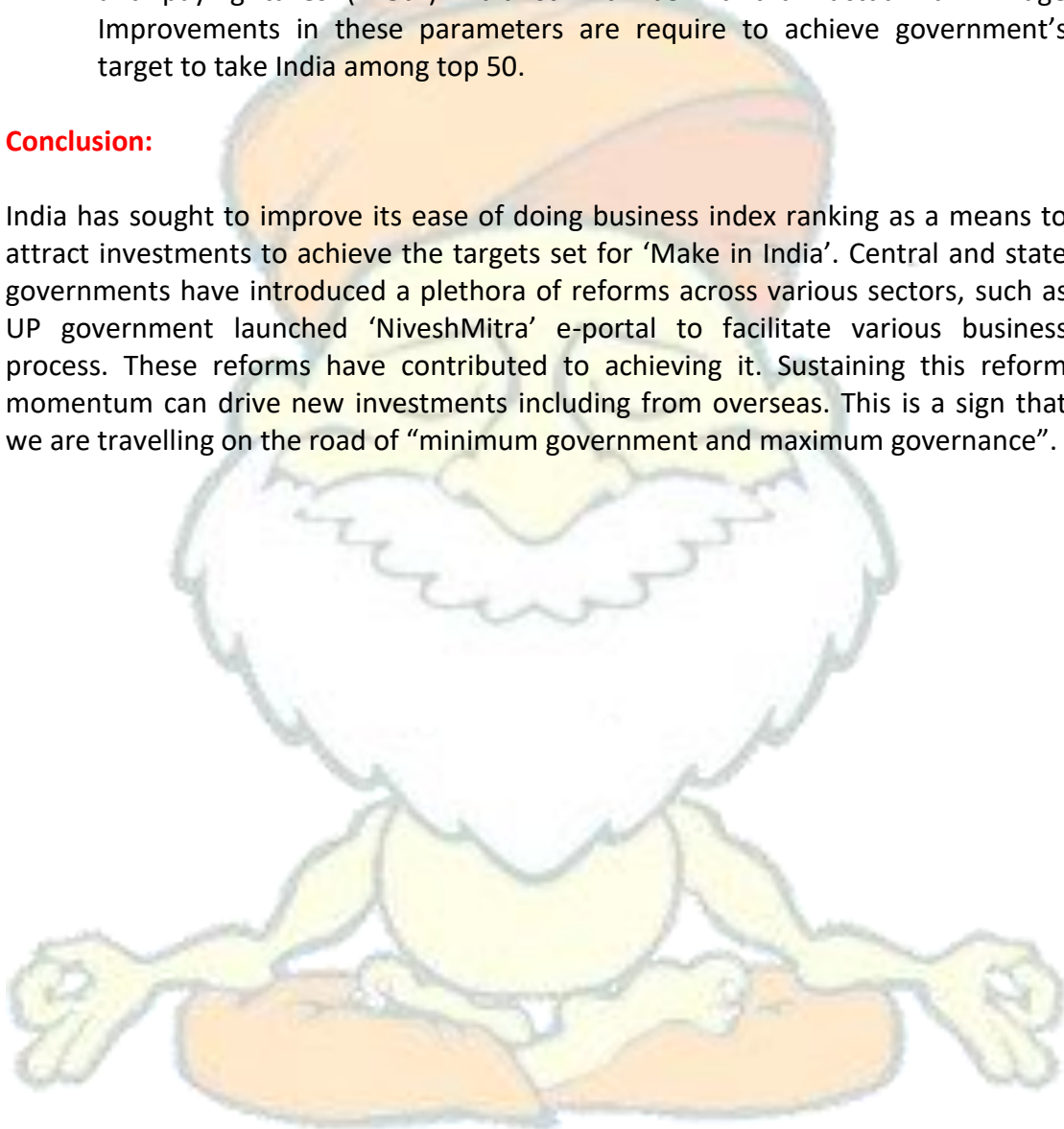
- Operating cost of Business: The big milestone for the EoDB is a reduced cost of doing business through lower regulatory burden and management of factors of production. While the National Infrastructure Pipeline is a step in the right direction to reduce logistics costs and improve infrastructure, reducing the cost of land, power, and capital can significantly ease the burden for businesses.
- Faster implementation of initiatives: Faster implementation of the initiatives that we have taken so far will also help India consolidate its location-product matrix and realise its potential in high value-add segment.
- Burden of Statutory compliances: The Indian regulatory landscape has 1,536 Acts, more than 69,233 compliances and 6,618 regulatory filings across the Centre and states. This is an indication that ease of doing business for companies still remains a work-in-progress for India despite an improvement in the rankings.
- Overburdened Courts: Even though e-court initiative reduce the time for filling the cases there are still much to achieve in it as courts are already

overburdened. Infrastructural developments are much needed part of Indian Legal system faster closer of cases.

- Special Focused for MSME's: As CII suggested in its report, Micro, small and medium enterprises need a special helping hand, and should be exempted from approvals and inspections for three years under state laws while following all rules.
- Low performance in few parameters: In the four parameters i.e. enforcing contracts (163rd), starting a business (136th), registering property (154th), and paying taxes (115th) India still far behind than actual rank. Huge Improvements in these parameters are require to achieve government's target to take India among top 50.

Conclusion:

India has sought to improve its ease of doing business index ranking as a means to attract investments to achieve the targets set for 'Make in India'. Central and state governments have introduced a plethora of reforms across various sectors, such as UP government launched 'NiveshMitra' e-portal to facilitate various business process. These reforms have contributed to achieving it. Sustaining this reform momentum can drive new investments including from overseas. This is a sign that we are travelling on the road of "minimum government and maximum governance".



Q.35 What is the role of government in a liberalised economy? Discuss. In this light, assess the performance of the Indian governments post 1991 economic reforms.

Approach:

In the introduction part candidate can explain what is a liberalised economy and in brief explain what role government plays. In the main body part, it is expected to give in detail the role of government in a liberalised economy. In the next part it is necessary to assess the performance of the Indian government post 1991 economic reforms.

Introduction:

Liberalised economy is the economy where elimination of the control of the state over economic activities takes place. It provides greater autonomy to the business enterprises in decision-making and eliminates government interference.

Body:

Role of government in a liberalised economy:

- **Ensuring efficiency of services:** The government could attempt to correct market failures like monopoly and excessive pollution to ensure efficient functioning of the economic system. Externalities (or social costs) occur when firms or people impose costs or benefits on others outside the marketplace.
- **Infrastructure building:** The government could provide an integrated infrastructure. Infrastructure (or social overhead capital) refers to those activities that enhance, directly or indirectly, output levels or efficiency in production.
- **Essential elements are systems of transportation, power generation, communication and banking, educational and health facilities, and a well-ordered government and political structure.** Since the cost of providing these essential services are very high and benefits accrue to numerous diverse groups, such activities are to be financed by the government.
- **Promotes and ensures Equity:** Markets do not necessarily produce a distribution of income that is regarded as socially fair or equitable. As market economy may produce unacceptably high levels of inequality of income and wealth. Government programmes to promote equity use taxes and spending to redistribute income toward particular groups.
- **Economic Growth or Stability:** Governments rely upon taxes, expenditures and monetary regulation to foster macroeconomic growth and stability to reduce unemployment and inflation while encouraging economic growth.
- **Macroeconomic policies for stabilisation and economic growth includes fiscal policies (of taxing and spending) along with monetary policies (which affect interest rates and credit conditions).** Since the development of macro-economics in the 1930s governments have succeeded in bringing inflation and unemployment under control.

Performance of the government post 1991 reforms: India's New Economic Policy was announced on July 24, 1991 known as the LPG or Liberalisation, Privatisation and Globalisation model.

Positive performance:

- End of license raj which was characterized by overarching dominance of slow moving bureaucracy.
- The key objective was to plunge Indian economy into the arena of "Globalization" and to give it a new thrust on market orientation. The policy was intended to move towards higher economic growth rate and to build sufficient foreign exchange reserves.
- End of state owned enterprises monopoly in capital intensive sectors thus giving rise to competition and fair market price discovery and gradual decline of complacency of State owned enterprises.
- India's GDP growth rate increased. During 1990-91 India's GDP growth rate was only 1.1% but after 1991 reforms GDP growth rate increased year by year and in 2015-16 it was estimated to be 7.5% by IMF.
- In the field of agriculture, it has brought many agricultural practices like the usage of technology and investing in the R&D sector of the agricultural economy. In the industrial sector it has brought in competition and variety of goods which made our Indian industries make the goods more competent and various techniques of manufacturing goods. In the service sector India has become of the top player in the providing services in the field of Information Technology which brings valuable FOREX to the country with the companies investing in India.
- Since 1991, India has firmly established itself as an attractive foreign investment destination and FDI equity inflows in India in 2019-20 (till August) stood at US\$ 19.33 billion.
- In 1991 the unemployment rate was high but after India adopted new LPG policy more employment got generated as new foreign companies came to India and due to liberalisation many new entrepreneurs started companies.
- Per Capita income increased due to an increase in employment. Infrastructure, improved considerably because of PPP model adoption in various projects.

Negative performance:

- In 1991, agriculture provided employment to 72 percent of the population and contributed 29.02 percent of the GDP. Now the share of agriculture in the GDP has gone down drastically to 18 percent. This has resulted in a lowering the per capita income of the farmers and increasing the rural indebtedness.
- Due to opening up of the Indian economy to foreign competition, more MNCs are competing local businesses and companies which are facing problems due to financial constraints, lack of advanced technology and production inefficiencies.

- Globalization has also contributed to the destruction of the environment through pollution by emissions from manufacturing plants and clearing of vegetation cover. It further affects the health of people.
- LPG policies have led to widening income gaps within the country. The higher growth rate is achieved by an economy at the expense of declining incomes of people who may be rendered redundant.

Conclusion:

Thus economic reforms of 1991 have brought out mixed results however it is to be noted that India has since been able to grow at a very fast pace. On the whole the GDP has witnessed rise from ~USD 275 million in 1991 to ~USD 2 trillion in 2014. But in this process our economy has jumped from primary sector to tertiary i.e. service sector, overlooking manufacturing (secondary) sector which encompasses sustainability. Schemes like Make in India need an impetus to make India 'Aatmnirbhar' in its true sense which will help the government to balance its role as a regulator and facilitator.



36. The MSME sector holds the key to engender fast and equitable socio-economic growth in India. Do you agree? Substantiate.

Approach:

As the directive here is substantiate, it is necessary to give examples to support the arguments. In the introduction candidate can explain about the MSME sector. In the main body simply explain the potential of MSME sectors potential to speed up the inclusive socio-economic growth in India. These arguments need to be substantiated by examples. Candidate can conclude by showing how this sector will contribute to the development of India to achieve inclusive development.

Introduction:

Micro small and medium enterprises (MSMEs) have always been vital in the socio-economic development of India. Spread across both urban and rural areas, MSMEs produce a diverse range of products and services and provide large-scale employment at low capital cost. They not only support in industrialisation of rural and backward areas, but also help in reducing regional imbalances and assuring equitable distribution of national income and wealth.

Body:

MSME sector holds the key to engender fast and equitable socio-economic growth in India:

- MSMEs are part of the larger industrial ecosystem and act as ancillary units for large enterprises. They cater to the needs of local markets as well as to national and international value chains.
- Employment generation potential: MSME is the second largest employment generating sector after agriculture. For instance, as per present estimates, the Indian MSME sector, including khadi, village and coir industries, consists of 51 million units and provides employment to over 117 million persons.
- Contribution to GDP: With around 36.1 million units throughout the geographical expanse of the country, MSMEs contribute around 6.11% of the manufacturing GDP and 24.63% of the GDP from service activities.
- It also accounts for contributing 7 per cent to India's GDP while accounting for 45 per cent of the total manufacturing output and 40 per cent of the exports from India. Besides, it contributes around 45% of the overall exports from India.
- Inclusive growth: MSMEs promote inclusive growth by providing employment opportunities in rural areas especially to people belonging to weaker sections of the society.
- For example: Khadi and Village industries require low per capita investment and employs a large number of women in rural areas.
- Financial inclusion: Small industries and retail businesses in tier-II and tier-III cities create opportunities for people to use banking services and products.
- Promote innovation: It provides opportunity for budding entrepreneurs to build creative products boosting business competition and fuels growth.

Thus, Indian MSME sector is the backbone of the national economic structure and acts as a bulwark for Indian economy, providing resilience to ward off global economic shocks and adversities. It thereby also engenders fast and equitable socio-economic growth in India. However, there are some challenges which needs to be addressed.

- As per 2015-16 survey of the National Statistical Office, two most important problems mentioned were a lack of demand and unpaid dues.
- MSME sector is also affected by the political economy of state intervention, which seems biased in favour of large corporations.
- Unlike the ₹1.5 trillion tax bonanza that large companies received as part of a pre-pandemic stimulus, there was no such bounty for the MSME sector.
- Less access to credit, less access to market, low technological improvement, have plagued the growth potential of this sector.
- Also, the MSME sector has to now compete with a corporate sector that has easy access to capital, cheap and unregulated labour and a lower tax burden than before.

Considering these challenges government came up with some of the initiatives such as launch of the UdyamiMitra Portal, launched an e-commerce platform on the lines of "Amazon and Alibaba" to sell products from MSMEs and the Khadi and Village Industries Commission, simplification of government procedures, MSME Sambandh etc. These programmes hold the potential to solve the challenges posed in front of MSME sector.

Conclusion:

MSME ministry has set a target to up its contribution to GDP to 50% by 2025 as India becomes a \$5 trillion economy. As recommended by 'India MSME Report 2018', we need an entitlement approach that can have the potential of compelling all related stakeholders to work on a common national agenda and provide solutions under a scientifically structured framework which will supplement the 'vocal for local' campaign there by engendering fast and equitable socio-economic growth in India.

Q 37. Do you think river interlinking is the most suitable way forward for water management in India? Critically examine.

Approach:

As the directive here is critically examine, it is necessary to cover various angles and arrive at a fair judgment. In the introduction explain what is river interlinking or National River Linking programme. In the main body part give both sides views regarding river water interlinking. Adding a way forward with supplementary techniques to address the issue is necessary.

Introduction:

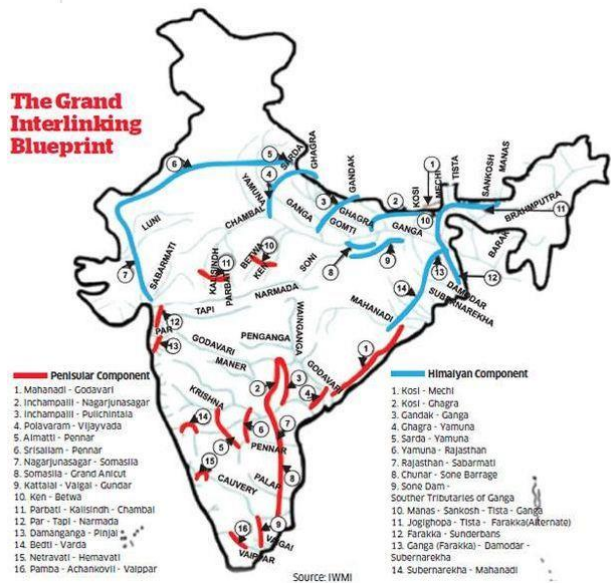
The river interlinking, envisages the transfer of water from water 'surplus' basins where there is flooding, to water 'deficit' basins where there is drought/scarcity, through inter-basin water transfer projects.

Body:

The National River Interlinking Project (NRLP) is such a project. NRLP will comprise of 30 links to connect 37 rivers across the nation through a network of nearly 3000 storage dams to form a gigantic South Asian Water Grid. It includes two components, Himalayan Rivers Development Component and Southern Water Grid.

Pros of river interlinking for water management in India:

- **Hydropower generation:** This project envisages the building of many dams and reservoirs. For instance, NRLP can generate about 34000 MW of electricity if the whole project is executed.
- **Round the year water availability:** River interlinking will help in dry weather flow augmentation. That is when there is a dry season, surplus water stored in the reservoirs can be released. This will enable a minimum amount of water flow in the rivers.
- **Irrigation benefits:** River interlinking project will provide irrigation facilities in water-deficient places. For instance, Indian agriculture is primarily monsoon-dependent. This leads to problems in agricultural output when the monsoons behave unexpectedly. This can be solved when irrigation facilities improve.
- **River interlinking project will also help commercially** because of the betterment of the inland waterways transport system. For instance, as shown in Map 1, it will help to have intricate network of rivers across India where NRLP will implement river interlinking. Thereby it will increase transportation capacity.
- Moreover, the rural areas will have an alternate source of income in the form of fish farming, etc. It will also augment the defence and security of the country through the additional waterline defence.



Map 1: National River Interlinking Programme

Cons of River Interlinking Programme:

- **Ecological issues:** One of the major concerns is that rivers change their course in 70–100 years and thus once they are linked, future change of course could create huge practical problems for the project.
- **Aqua life:** A number of leading environmentalists are of the opinion that the project could be an ecological disaster. There would be a decrease in downstream flows resulting in reduction of fresh water inflows into the seas seriously jeopardizing aquatic life.
- **Deforestation:** Creation of canals would need large areas of land resulting in large scale deforestation in certain areas.
- **Areas getting submerged:** Possibility of new dams comes with the threat of large otherwise habitable or reserved land getting submerged under water or surface water. Fertile deltas will be under threat, with coastal erosion expected to threaten the land and livelihoods of local economies that support 160 million people.
- **Displacement of people:** As large strips of land might have to be converted to canals, a considerable population living in these areas must need to be rehabilitated to new areas.
- **Dirtying of clean water:** As the rivers interlink, rivers with dirty water will get connected to rivers with clean water, hence dirtying the clean water.
- **Disrupting of ecological flow** for instance, on implementation of NRLP, water discharge in 23 out of 29 rivers will reduce considerably, they say. The Ganga will see a 24% decrease in flow. Its tributaries Gandak (-68%) and Ghaghara (-55%) will be the worst affected.
- While the Brahmaputra will see only a 6% loss, its tributaries will see massive flow reductions: Manas (-73%), Sankosh (-72%) and Raidhak (-53%). Changes in water flow and trapping of silt in reservoirs will see a dip in the sediment deposited by rivers.

This raises questions about India's Rs. 11 lakh crore (\$165 billion) plan to transfer water from "surplus" to "deficit" basins. However, Australia's failure of Snowy River Scheme where Australia ended up destroying the river's wetland habitat in its lower reaches is cited by the conservationist as a North star to not to give green signal to this project. Due to these reasons river interlinking can't be the only solution to address the water management issue. Following alternative methods also needs to be implemented.

Alternatives for water management in India:

- Local solutions (like better irrigation practice) and watershed management, should be focused on. For instance, Artificial glaciers in the regions of Ladakh can be one such example. It resulted in significant increase in agricultural production, thereby increasing income of the locals.
- Farm ponds, filled during rainy season, can effectively act supplementary to tubewells and canals, leading to lesser stress on both govt and farmer. For instance, Maharashtra's JalyuktShivar is such a scheme.
- The Bundelkhand region of central India is the hotspot of water scarcity. Bundelkhand. Project Bhujal specifically aimed in rejuvenating the watershed and it created a storage capacity of 100 million liters of water. After this intervention the cropping intensity increased up to 30% and there was a significant increase the ground water recorded up to 2 to 5 meters.
- The government should alternatively consider the National Waterways Project (NWP) which "eliminates" friction between states over the sharing of river waters since it uses only the excess flood water that goes into the sea unutilized.

Conclusion:

With a bird's eye view it seems river interlinking has the potential to address the water stress issue of India. However, it is necessary to look at this issue on the basis of necessity and feasibility of river-interlinking. Most suitably it should be seen on case to case basis, with adequate emphasis on easing out federal issues. Besides as a supplementary measure we can incorporate traditional water harvesting and water management techniques which will help India to have a water security.

38. Discuss the working principle of DNA and RNA vaccines.

Approach - It expects students to write about DNA and RNA and working principles of DNA and RNA vaccines.

Introduction

The two main types of nucleic acids are DNA and RNA. Both DNA and RNA are made from nucleotides, each containing a five-carbon sugar backbone, a phosphate group, and a nitrogen base. Nucleic acid vaccination is a technique for protecting against disease by injection with genetically engineered DNA (as a plasmid) or RNA (as mRNA). Nucleic acid vaccines consist only of DNA or RNA, which is uptake by cells and transformed into protein.

Body

Vaccination is the process in which substances called antigens are introduced artificially into the body to stimulate the immune system, the set of cells that protects the body against infections. Development of nucleotide vaccines based on DNA, and the related molecule RNA, promising area of progress in the field.

Working principle of the DNA and RNA vaccine:

- **Vaccine mechanism:** An RNA is injected in the body. This RNA encodes the information to produce the antigen, which is a protein from a pathogen, which will stimulate the immune system. Inside the cells, the RNA is used to synthesise the antigen, which is exposed to the cell surface. Then, a subset of immune system cells recognises the antigen and trigger an immune response (direct response and long-term memory)
- **Mode of injection:** They can be injected in various ways (under the skin, in the vein or in lymph nodes) and then they can enter our body's cells. Those cells will use the RNA sequence of the antigen to synthesise the protein. After this step, the mechanism is similar to classical vaccines: the antigen is presented at the surface of a subset of cells and triggers the activation of specific cells of the immune system.
- **Disease prevention:** Vaccination with RNA induces a primary response by instructing the body's cells to produce an antigen that is presented to the immune system. This activates specific cells, which create a memory for this antigen. Later, when the real pathogen is present, those cells recognise the same antigen and react rapidly and strongly against the infectious agent secondary response.
- **Different from conventional:** For a classical vaccine, the antigen is introduced in the body to produce an immune response. However, in the case of DNA or RNA-based vaccines, no antigen is introduced, only the RNA or DNA containing the genetic information to produce the antigen. That is, for this specific class of vaccines, introduction of DNA and RNA provides the instructions to the body to produce the antigen itself.

Advantages -

- **Inexpensive:** There are several reasons why naked nucleic acids are attractive candidate vectors for the development of vaccines for infectious diseases and cancer. Genetics vaccines are relatively inexpensive and easy to manufacture and use.
- **High Efficacy:** Nucleic acid vaccines consist only of DNA or RNA, which is taken up and translated into protein by host cells. Their immunogenicity and efficacy have been analysed in a large number of systems, and the results of preclinical studies have supported human clinical trials. They may even be effective against non-infectious conditions such as cancer and autoimmune diseases, where conventional vaccines do not work.
- **Stable in harsh conditions:** DNA vaccines are also said to be more stable than conventional vaccines in warm climates if kept dry and/or sterile at pH8. They can be stored at room temperature without losing their activity, whereas traditional vaccines require refrigeration.
- **Large scale production:** A DNA or RNA vaccine, on the other hand, takes a small part of the virus' own genetic information. Experts say the virus' genetic information can be replicated and produced relatively easily. And that's what scientists want in a live situation, such as the SARS-CoV-2 / COVID-19 pandemic, where billions of people need protection very quickly.

Disadvantages -

- Problem which exists with all gene therapy, that is, the DNA of the vaccine may be integrated into the host chromosome, resulting in oncogenes or turn off tumour suppressor genes. Extended immune stimulation of exogenous antigens may cause chronic inflammation or autoantibody production.
- Limited to protein immunogens (not useful for non-protein based antigens such as bacterial polysaccharides).
- Inducing antibody production against DNA.
- DNA vaccines may have a relatively poor immunogenicity.

When will we see gene-based vaccines for COVID-19?

- Some DNA vaccines have been approved for veterinary use. And there are many others in clinical trials for human use, including those for SARS-CoV-2.
- Many will use what's called an "adaptive clinical trial design" to speed up the process from discovery to development to trial and approval to production. Moderna is studying its messenger RNA (mRNA) vaccine in the US.

Conclusion

Biotech companies have been touting mRNA and DNA vaccines as the ideal technologies for rapidly fighting new pathogens, and the coronavirus pandemic may be their best chance yet to prove their worth. There are no approved mRNA or DNA vaccines, and neither has ever been tested in a large-scale clinical trial for an infectious disease. The COVID crisis is a great opportunity for those technologies to be pushed.

39. What are the most critical impediments to scientific innovation and indigenisation in India? Examine.**Approach:**

As the directive here is examine, it is necessary to establish a cause effect relationship besides covering various angles of the topic. In the introduction you can talk about the culture of scientific innovation and indigenisation in India. In the first half of main body part you need to explain about the challenges to scientific innovation and indigenisation in India. In the next half you need to suggest solutions. Giving government initiatives to promote innovation and indigenisation culture will fetch you more marks.

Introduction:

India has an impressive scientific heritage in terms of innovation-in fields such as mathematics, astronomy, medicine and material science which has been carried out in the Indian sub-continent since ancient times. However, in today's time a remarkable gap exist between this scientific knowledge and the 'common' man and woman, until recently, few efforts have been made by the government to bridge this gap.

Body:

Critical Impediments to Scientific innovation and indigenisation in India:

- Institutional problems: Our educational institutions are heavily exam oriented and thus lack in focusing on creativity, critical thinking, and open-mindedness. Which hampers the innovative and indigenisation spirit.
- Poor university-industry linkage: This leads to limited application oriented R&D. For instance, as per 'Quacquarelli Symonds (QS) world ranking of institutes, 2019' only three Indian institutes were placed in the top 200 universities of the world. The curriculums are outdated and they lack focus on skill development and employability potential.
- Administrative bottlenecks: Dominance of bureaucratic administrative structure in Indian research units and political interference in day to day activities of research institutions by government is in conflict with intellectual sum. Public access to science and scientists is limited.
- No cordial interaction between interaction of the scientific community with administrators and lawmakers for public engagement and societal support for science and the scientific activity.
- Funding Issues: India (Public and Private) spends only 0.82% of GDP on R&D, Private sector spends less than 0.2% of GDP on R&D, India attracts only 2.7% of global spending in R&D whereas China attracts 17.5%.
- Lack of curiosity-driven research and role of indigenous knowledge or "folk science" in a diverse bio and geo sphere has pushed India backwards. There is no proper networking between practitioners and experts from diverse field into a national platform and share the same with scientific community and students.

- Weak IPR regime of patents and trademarks reduces incentives for entrepreneurs to invest in innovation and research.
- Reducing Fiscal Deficit: For instance, India is the second largest arms importer in the world (after Saudi Arabia). Higher import dependency leads to increase in the fiscal deficit. Despite having the fifth largest defence budget in the world, India procures 60% of its weapon systems from foreign markets.
- World Economic Forum survey says that only 17% of Indian respondents stated that the so-called "cultural support pillar" was available in the country. Thus it hinders people from taking up research and other activities which have uncertain outcomes. It has created a cultural affinity for stability and job security over risk-taking.
- Large country, Diverse issues: While literacy levels are increasing, scientific literacy is still drastically low. Given India's large population, limited resources and multitude of languages, mass science education faces particularly great challenges. Without more attention on local languages, much of the population will miss out on science communication efforts.

India's innovation policy has to shift beyond a mere focus on R&D spending to transforming the ecosystem. Our innovation policy has to shift beyond a focus on increasing R&D spending to inculcating a mindset of "out-of-the-box" thinking in our universities, start-ups and corporate.

Steps needed to be taken up:

- Elimination of rote learning: India's educational policies need to be redesigned, with a focus on building cognitive abilities, beyond rote learning and focus on quantitative subjects. For instance, recent New Education Policy is a step in such a direction.
- Need to use Data analytics boom: Need to focus on taking advantage of the data analytics boom, improving educational qualities beyond our existing islands of excellence to the whole university system
- Greater access to public data to build innovative applications: A supporting ecosystem for this will require providing greater access to public data, through the Right to Information Act and a push to providing public data (for example, on train punctuality, water scarcity, air pollution metrics) for building innovative applications on a real-time basis.
- The Economic Survey 2017-18 recommends doubling national expenditures on R&D with most of the increase coming from the private sector and universities.
- There is a need to encourage investor-led research. In this direction, the Science and Engineering Research Board (SERB) has already been established. It is a promising start that needs to expand with more resources and creative governance structures.
- Impetus to various indigenous start-ups under Make in India. Stand-up India is the need of the hour.

As a supplement to these steps following government initiatives also need to be implemented in their letter and spirit to inculcate culture of scientific innovation and indigenisation.

- Atal Innovation Mission: It was launched by the NITI Ayog as an innovation promotion platform involving academics, entrepreneurs, and researchers utilizing national and international experience to promote the culture of innovation, R&D in India particularly in technology-oriented areas.
- India Innovation Growth programme (IIGP) 2.0: The programme provides funding, capacity building, mentoring, incubation and business development support to the innovators.
- Defence Procurement Policy: Based on the recommendations of the Dhirendra Singh committee, Defence Procurement Procedure 2016 (replaced DPP 2013) added an additional category "Buy (Indian-IDDMM)" i.e. Indigenously Designed, Developed and Manufactured, as the most preferred way of defence goods acquisition.

Conclusion:

With globalisation, it is easier to notice the growing contrast between the designs for promoting innovation and indigenisation in the western world and in India. Having a young population and a strong Diaspora that is more affluent than any other country, India has the potential pioneering high-tech innovation and indigenisation. If necessary steps are implemented in letter and spirit will definitely India to be a 'Vishwaguru' in modern technological developments and their indigenisation.



40. What are the potential applications of 5G technology? How can it contribute to the vision of Digital India? Discuss.

Approach:

It expects students to write - in first part write about potential application of 5G - in second part write how it can contribute to vision of digital India - in end write few challenges before it.

Introduction:

5G is next generation wireless network technology that's expected to change the way people live and work. It will be faster and able to handle more connected devices than the existing 4G LTE network, improvements that will enable a wave of new kinds of tech products.

Body:

Potential application of 5G:

- **Workspaces:** The first use cases based on 5G will pertain to company workspaces, whether they are physical or virtual. The capacities of 5G will enable a wider use of video and the manipulation of large files on the go (architectural plans for example), as well as a shift towards greater use of virtual, augmented or mixed reality.
- **Industry 4.0:** A majority of analysts believe that Industry 4.0 will emerge as one of the first concrete applications of 5G and specialized services. Customers have already shown high expectations in this sector. However, the goal is not simply to connect a factory to the web, it is also about transforming business models, production methods, processes, etc. The densification of connected objects and real-time data analysis will play an essential part in environments where autonomous machines, humans and robots will work side by side.
- **Sales:** 5G will also make it possible to manage orders in a very precise way. In the event of a problem on a production line, immediate feedback will recalculate the production plan right away and automatically inform the end customer of a possible delivery delay. It will also become possible to integrate connectivity into the product itself. In this way, it will communicate with artificial intelligence and offer predictive maintenance. It will also become possible to guide applications remotely via a hologram, showing the user exactly how to use the product and thus multiply the examples. In all these situations, it is truly a whole new field of possibility that opens up with 5G.
- **Transport:** The rising number of connected vehicles is another important issue pertaining to 5G. With communication between vehicles, as well as other road users (pedestrians, cyclists, etc.) and even infrastructure (roads, traffic signals and traffic lights, for example), new applications may be developed to reduce accident rates and journey times in order to improve the flow of traffic. 5G will also enhance operational efficiency for transport professionals. The ability to download a large amount of content in near real time will enable ships, trains

and aircraft to quickly retrieve navigation information and share refuelling and predictive maintenance data when docking, landing or arriving at stations.

- Critical communications: In the future, it will be possible to host a vast range of critical communications in order to secure processes, goods and people. 5G will help facilitate enterprise security applications by powering connected security teams capable of responding to emergencies in real time. 5G will also improve fixed network performance until fiber is rolled out everywhere. Why not also secure fiber in 5G? This is the type of hybrid installation we are now exploring.

It can contribute to vision of digital India as follows:

- Smart cities
 - Video surveillance and analytics
 - Intelligent transport and traffic management
 - Smart grids and metering systems with smart street light
 - Solid waste management
- Government
 - This revolution also provides an opportunity for the government to improve its connect with the citizens. Digitalisation could help improve delivery of government services to citizens and also lower transaction costs for citizens
- Public protection and disaster relief
 - National authorities or relevant operators use Public Protection and Disaster Relief (PPDR) radio communications for managing services with regards to public safety, security, defense and emergency. To further modernise and enable reliability over critical communications, the use of 5G network is expected to be supportive in addressing the requirements.
 - Sensors, cameras and other automated devices are significant sources of information to ensure public safety. Through building synergies across such source feeds, 5G networks could also support integrating information from diverse source feeds or devices into Public Safety operations, enabling it to become less reactive and more proactive.
- Manufacturing
 - Enhance efficiency through robotics
 - Automation through Internet of Things (IoT)
 - Effective operations through Augmented Reality (AR)
- Agriculture and allied industry
 - Soil and crop monitoring
 - Precision farming
 - Smart irrigation & climate change alignment
 - Livestock monitoring
 - Agricultural drones
- Energy and utilities
 - Distribution of energy within a smart-grid
 - Smart meters for the smart homes
 - Remote monitoring of energy sites
 - Energy efficiency and reducing the effects of climate change
 - Smart Power generation, Green energy and distribution automation
- Healthcare industry

- Mobility
- Monitor Health
- Automation
- Online consultations
- Data Management
- Media and entertainment
 - Immersive experiences
 - Enriching gaming experience
 - User/machine generated content from smart devices
- Retail
 - In-store analytics
 - Interactive storefront windows
 - Handheld devices

However, it faces following challenges:

- Problem of network coverage
- Lack of 5G devices
- Lack of digital inclusion
- Lack of uniform policy framework
- Industry crippling under margin pressure
- Network modernisation and densification will be complex
- Strengthening the security apparatus with evolving technologies

Conclusion:

Regulatory support from the government providing the right ecosystem for research and development, regulatory framework for spectrum, data and information security, IoT, digital as well as inclusive business environment to encourage domestic and international players to invest in the technology would be key to technology implementation.



41. What is the CRISPR-Cas9 technique? What are its potential applications? Examine.

Approach:

It is straightforward question where it expects students to write about - in first part write about CRISPR-Cas9 technique - while in second part write about potential applications of CRISPR-Cas9 technique.

Introduction:

Recently, the Nobel Prize in Chemistry for 2020 was given to two women scientists namely Emmanuelle Charpentier (France) & Jennifer A. Doudna (Germany). The Nobel prize was given to them for the development of a method for genome editing. The two scientists have pioneered the use of CRISPR (Clustered Regularly Interspaced Short Palindromic Repeats) – Cas9 (CRISPR-associated protein 9) system as a gene-editing tool.

Body:

CRISPR-Cas9 technique:

- It is a method of genome editing in which genetic genes can be added, deleted, or changed. This system mainly consists of two molecules which are the factors of transformation in DNA.
- Cas9 is an enzyme used in this method and acts as a molecular scissor and it cuts the strand of DNA from a specific location in the genome to convert the desired DNA.
- The function of guide RNA is also important in this technique with Cas 9. It is a part of the RNA sequence whose function is to find and bind to a specific sequence of DNA. The guide RNA contains an RNA base that complements the targeted DNA sequence in the genome.
- It will help diagnose genetic diseases and diseases like cancer, Hepatitis B, HIV. Scientists are still working to determine how it will be used for the general public.

Potential applications:

- Embryonic stem cell and transgenic animals: CRISPR-Cas systems can be used to rapidly and efficiently engineer one or multiple genetic changes to murine embryonic stem cells for the generation of genetically modified mice.
- Disease modelling: Disease animal models have been essential resources in advancing the biomedicine field. With the help of genome editing technologies, many applicable models with specific mutations which could mimic clinical phenotypes have been generated.
- Cancer models: With the help of genome editing tools, numerous studies have been carried out through modifying key genes for generating accurate and specific cancer models. Cancer models are the most effective ways to study mutational functions which result in cancer.
- Productivity improvement: Continuous decrease in the availability of land and water for agriculture, uncertain weather conditions and a growing population

are signals for the urgent need for an alternative approach in the country. In this scenario, scientists are optimistic about the possibilities of genome editing for enhancing crop productivity to overcome the shortcomings of traditional transgenic methods like irregular breeding cycles, lack of precision in intended trait selection and uncertainty in getting desirable mutations.

- Allergy-free food: Food allergies affect a huge percentage of the population and can be life-threatening in some cases. With CRISPR, it could be possible to make milk, eggs or peanuts that are safe for everyone to eat.
- Greener fuels: Gene editing could improve the production of biofuels by algae. Using CRISPR-Cas9, the company Synthetic Genomics has created strains of algae that produce twice as much fat, which is then used to produce biodiesel. In particular, the gene-editing tool allowed scientists to find and remove genes that limit the production of fats.
- Eradicating pests: CRISPR could help us control the numbers of animal species that transmit infectious diseases or that are invasive in a particular ecosystem. The gene-editing technology can be used to create 'gene drives' that ensure a genetic modification will be inherited by all the offspring, spreading throughout an animal population over several generations.

Conclusion:

This CRISPR technology is indeed a path-breaking technology, to alter genes in order to tackle a number of conventional and unconventional problems, especially in the health sector. However, experiments and tests to validate its use must be subjected to appropriate scrutiny by the regulators, and their use must be controlled to prevent commercial misuse.

42. What are the commercial prospects of IoT in India? What are the challenges in its adoption? Discuss.

Approach:

As the directive here is discuss it is necessary to consider various angles and provide a solution to challenges. In the introduction you can start by explaining what is IoT. In the first half of main body part give commercial prospective applications of IoT in India. In the next half give challenges. A brief way forward with conclusion will fetch you more marks.

Introduction:

Internet of Things (IoT) is the interconnection of digital devices, electronic appliances, human, machines, and other objects with one another across a wireless networks. It is the next step in evolution of internet and has the potential to improve public utility services thereby improve their efficiency.

Body:

Commercial prospects of IoT in India:

- As per Nasscom, the Indian IoT market is expected to reach \$15 billion by 2020 and constitute 5 % of the global market.
- Investing in IoT will boost India's economy on par with global leaders. Many of global counterparts have already begun reaping the rewards of investing in IoT-based infrastructure. It will bring in investments, boost job creation and improve Indian public infrastructure.
- With a network of interconnected devices, the economy becomes digital, the healthcare network and services will get interconnected. For instance, voice-enabled systems to remind people to take their medication in time.
- It has tremendous potential to improve commercial prospects for the care/service of vulnerable sections of society. For instance, Japan is using humanoid smart robots as elder care robots.
- In the field of agriculture, it can be used to improve overall productivity by having enhanced weather forecasting, soil nutrient content, pest infestation, etc.
- Besides in Industry, IoT can be used to reduce human error, increase efficiency, and improve productivity, etc.
- Commercial prospects of IoT in the transportation sector has humongous potential. It has commercial prospects to revolutionise the transportation sector. For instance, IoT can be used on toll booths, traffic management, driverless cars, etc.
- Also, Indian government has outlined a plan to leverage IoT as part of the Digital India mission and the National Digital Communications Policy has come out with a machine-to-machine (M2M) roadmap, with an aim to put regulators, industry agencies that develop standards, users and manufacturers on the same page.

Challenges in adoption of IoT:

- Complexity: The designing, developing, and maintaining and enabling the large technology to IoT system is quite complicated.
- Evolution of IoT faces the threat of data security. The Data Protection framework submitted by the Justice Srikrishna Committee had provisions for personal data protection.
- Job loss threat: Automation in Industries will naturally bring in job losses. It will lead to replacement of humans with machines.
- Lack of Transparency: As per IoT Security Foundation report, many of the IoT brands did not want to share vulnerabilities in their application/service with the public.
- Adaptation only with Artificial Intelligence: Processing the tremendous amount of real-time IoT data is possible only through artificial intelligence or AI algorithms. If AI systems power essential functions of smart cities, preventing hackers and miscreants from accessing it and manipulating its data still remains a challenge.
- Specifically with respect to India, its data security concerns are widened as Justice BN Srikrishna commission recommended Aadhaar Act 2016 should be amended to ensure the autonomy of the UIDAI and to "bolster data protection".
- Justice BN Srikrishna commission also expressed concerns citing RTI act. It also recommended that RTI Act 2003 should be amended so, that there is no obligation to reveal personal information which was not related to "public activity or interest".

Although IoT technology has tremendous potential to change the world, with greater advantage comes a potential risk to privacy. Hence, following steps are needed to be taken up:

- Across the world, legislators, device manufacturers, and law enforcement agencies should come together to figure out how to benefit from IoT while mitigating risks.
- The government also permitted 100% FDI in the telecom sector. This should also aid the development of IoT in India.
- The Department of Electronics and Information Technology (DeiTY) also published a draft policy for IoT in India. Which needs to be modified as per requirement of the time.

Conclusion:

IoT technology has the potential to facilitate the 'convergence of real and virtual world'. An integrated, concerted and collaborative policy approach is necessary to fully utilise the potential of IoT. It will not only boost growth and development of India but it will also ensure better facilitation of products and services to the Indian citizens thereby easing their lives.

43. What are the challenges posed by deepfakes? What can be the possible strategy to counter it? Suggest.

Approach - It expects students to write about deepfakes and its challenges, also suggest possible strategy to counter it.

Introduction

The word deepfake combines the terms “deep learning” and “fake,” and is a form of artificial intelligence. In simplistic terms, deepfakes are falsified videos made by means of deep learning. Deep learning is “a subset of AI,” and refers to arrangements of algorithms that can learn and make intelligent decisions on their own. This technology can be used to make people believe something is real when it is not.

Body

Challenges posed by deepfakes:

1. **Damage to Personal Reputation:** Deepfake can depict a person indulging in antisocial behaviours and saying vile things. These can have severe implications on their reputation, sabotaging their professional and personal life. Even if the victim could debunk the deep fake, it may come too late to remedy the initial harm. Further, Deepfakes can be deployed to extract money, confidential information, or exact favours from individuals.
2. **Disrupting Electioneering** - A high-quality deepfake can inject compelling false information that can cast a shadow of illegitimacy over the voting process and election results. Leaders can also use them to increase populism and consolidate power. Deepfakes can become a very effective tool to sow the seeds of polarisation, amplifying division in society, and suppressing dissent.
3. **Undermining Democracy** - A deepfake can also aid in altering the democratic discourse and undermine trust in institutions and impair diplomacy. False information about institutions, public policy, and politicians powered by a deepfake can be exploited to spin the story and manipulate belief.
4. **Targeting Women** - The malicious use of a deepfake can be seen in pornography, inflicting emotional, reputational, and in some cases, violence towards the individual.
5. **Pornographic deep fakes** can threaten, intimidate, and inflict psychological harm and reduce women to sexual objects. Deepfake pornography majorly targets women.
6. **New Front of Warfare** - A deepfake could act as a powerful tool by a nation-state to undermine public safety and create uncertainty and chaos in the target country.
7. **Nation-state actors with geopolitical aspirations, ideological believers, violent extremists, and economically motivated enterprises** can manipulate media narratives using deepfakes. It can be used by insurgent groups and terrorist organisations, to represent their adversaries as making inflammatory

speeches or engaging in provocative actions to stir up anti-state sentiments among people.

8. Catfish accounts - Catfishing refers to the practice of setting up fictitious online profiles most often for the purpose of luring another into a fraudulent romantic relationship.
9. Spreading distrust - Distrust through victimisation, extortion business, factual relativism, communal chaos, hate speeches

Possible strategy to tackle deepfakes -

- Detect and amplify: We also need easy-to-use and accessible technology solutions to detect deepfakes, authenticate media, and amplify authoritative sources.
- Need for Regulation: Meaningful regulations with a collaborative discussion with the technology industry, civil society, and policymakers can facilitate disincentivizing the creation and distribution of malicious deep fakes.
- Technological Interventions: There is also a need for easy-to-use and accessible technology solutions to detect deep fakes, authenticate media, and amplify authoritative sources.
- Enhancing Media Literacy: Media literacy for consumers and journalists is the most effective tool to combat disinformation and deep fakes. Improving media literacy is a precursor to addressing the challenges presented by deepfakes. As consumers of media, they must have the ability to decipher, understand, translate, and use the information. Even a short intervention with media understanding, learning the motivations and context, can lessen the damage.

Conclusion

To counter the menace of deepfakes, we all must take the responsibility to be a critical consumer of media on the Internet, think and pause before we share on social media, and be part of the solution to this infodemic. To defend the truth and secure freedom of expression, there is a need for a multi-stakeholder and multi-modal approach. Collaborative actions and collective techniques across legislative regulations, platform policies, technology intervention, and media literacy can provide effective and ethical countermeasures to mitigate the threat of malicious deep fakes.

44. What is your assessment of India's recent commitment to global efforts for combating climate change? Comment.

Approach - It expects you to write about climate change and assess the India recent commitment to global efforts for combating climate change.

Introduction

Climate change is the global phenomenon of climate transformation characterised by the changes in the usual climate of the planet (regarding temperature, precipitation, and wind) that are especially caused by human activities. As a result of unbalancing the weather of Earth, the sustainability of the planet's ecosystems is under threat, as well as the future of humankind and the stability of the global economy.

Body

India's recent commitments to global efforts for combating climate change:

1. **Coalition in resilient future:** India is also keen on fostering international cooperation to fight climate change. Prime Minister highlighted that India along with France set up the International Solar Alliance (ISA). ISA promotes and facilitates cooperation on solar among developing countries.
2. **Infrastructure to prevent disaster:** The Coalition for Disaster Resilient Infrastructure is an international organisation in the making. The coalition will work towards a common goal of establishing infrastructure which is resilient to pressures of climate change and environmental disasters. India has pledged INR 4.8 billion (Around USD 70 million) to the CDRI.
3. **Paris agreement:** Ratifying the Paris Agreement in 2016, India's pledge lays out a comprehensive approach to limit climate impacts while fostering economic growth. India is an emerging economic powerhouse. It is also the world's third-largest energy consumer and greenhouse gas (GHG) emitter where Indian efforts to fast track Paris commitments will clearly help in speeding global efforts due its size.
4. **Sustainable Mobility:** Increasing the fleet of electric vehicles and its charging infrastructure in India with FAME II will be key to improve air quality in cities, enhance energy security by reduced dependence on imported crude, and is also a key solution to fight climate change.
5. **Innovative technologies:** India is partnering 22 member countries and the European Union in the 'Mission Innovation' on clean energy, and is co-lead in smart grid, off-grid and sustainable biofuels innovation challenges.
6. **Taking leadership:** India is on track to meet its Copenhagen commitments. Such an effort will help India take leadership role in tackling climate change across the globe and thus ensuring fast-tracking of global efforts.
7. **Renewable energy commitments:** UN's Climate Week in New York this past September, India's Prime Minister committed to a target of 450 gigawatts (GW) of renewable energy installations, likely by 2030 equivalent to five times more than India's current installed renewable capacity (82.6

GW) and bigger than the size of India's electricity grid size in 2019 (362 GW).

Assessment of India's commitments to combat climate change:

- Per capita, India's emission from fossil fuels (in 2017) is by far the lowest among major economies at 1.83 MT carbon dioxide (CO₂). Despite its low per capita emissions, India has made significant commitments in its Intended Nationally Determined Contribution (NDC). However, to meet our Paris commitments and fully implement our NDCs in a timely manner, India requires Conclusion enhanced new and additional financial, technological and capacity building support, which has been missing on the global front.
- The Green India Mission, which seeks to work towards the target is woefully underfunded and has been regularly missing its annual targets. This has rendered the fulfilment of the 2030 pledge hard if not altogether unlikely.
- India's third NDC commitment is to create an additional carbon sink of 2.5 to 3 billion tons of carbon dioxide equivalent through additional forest and tree cover by 2030. However, the progress has been limited and the country has more work to do on this target.
- In its second Biennial Update Report submitted to the UNFCCC in 2019, India claimed to have reduced the emission intensity of its economy by 21 per cent by 2014. But it didn't specify emissions data for 2005 or the GDP data series used to arrive at the conclusion.
- Among the Group of 20 (G-20) countries, which are some of the biggest GHG emitters, only India and the UK rank among high performers. In fact, eight of the G-20 countries rank among low performers. This clearly shows that individual performance can't bring about much change in global discourse.
- The Climate Action Tracker website has rated India's climate efforts as "2-degree compatible" — that can contribute to limiting warming by the end of the century to 2° Celsius; making India the only major economy to be so highly rated. This showcases the global significance of Indian efforts.

Conclusion

Climate change strategy needs to focus on supporting design of policies and action plans, promoting early adaptation as well as long-term strategies like directing investment towards low carbon technologies and practices and finally integrating climate change broadly into development assistance at the global, regional and national levels.

45. Examine the problem of groundwater contamination in India's agrarian states. What are the possible ways to address this challenge? Discuss.

Approach - It expects students to write about ground water contamination problem in India's agrarian states. And also highlight few possible way to address the challenge of ground water contamination problem.

Introduction

Groundwater contamination occurs when man-made products such as gasoline, oil, road salts and chemicals get into the groundwater and cause it to become unsafe and unfit for human use. Materials from the land's surface can move through the soil and end up in the groundwater. For example, pesticides and fertilisers can find their way into groundwater supplies over time as seen in India's many agrarian states.

Body

Problem of Ground water contamination in Indian agrarian states:

1. DDT, BHC, carbamate, Endosulfan, etc. are the most common pesticides used in India. But, the vulnerability of groundwater to pesticide and fertiliser pollution is governed by soil texture, pattern of fertiliser and pesticide use, their degradation products, and total organic matter in the soil.
2. A recent study conducted by the Water Resources Ministry and a comparative analysis of the data done by The Tribune, reveals that while Haryana is on the top with regard to overall contamination of underground water, Punjab has the highest quantity of Nitrate, Cadmium and Chromium (heavy metals) among the region's states.
3. Indiscriminate extraction of groundwater for irrigation purposes has led to inland salinity problem in parts of Punjab, Haryana. Uranium contamination has aggravated by groundwater-table decline. Decline in groundwater table induces oxidation conditions. As a result, uranium enrichment in shallow groundwater is enhanced.
4. A recent survey undertaken by Centre for Science and Environment from eight places in Gujarat, Andhra Pradesh and Haryana reported traces of heavy metals such as lead, cadmium, zinc and mercury. Shallow aquifer in Ludhiana city, the only source of its drinking water, is polluted by a stream which receives effluents from 1300 industries.
5. Arsenic contamination is by far the biggest mass poisoning case in the world putting 20 million people from West Bengal.
6. There are no estimates of the public health consequences of groundwater pollution as it involves methodological complexities and logistical problems. Pesticide are toxic or carcinogenic. Generally, pesticides damage the liver and nervous system. Tumour formation in liver has also been reported.

Issues in Tackling Groundwater Contamination and Pollution in agrarian states:

- Lack of data and information: The step towards evolving measures to prevent and cure groundwater quality deterioration is generating reliable and

accurate information through water quality monitoring (WQM) to understand the actual source/cause, type and level of contamination. However, there are a few observation stations in the country that cover all the essential parameters for water quality and hence the data obtained are not decisive on the water quality status.

- **Costly water technologies:** WQM involve expensive and sophisticated equipments that are difficult to operate and maintain and require substantial expertise in collecting, analysing and managing data. Since water technology is still not advanced in India, it is very likely that the available data is less reliable.
- **Inadequate methods:** The existing methodology for WQM is inadequate to identify the various sources of pollution. Integration of data on water quality with data on water supplies, which is very important from the point of view of assessing water availability for meeting various social, economic and environmental objectives, is hardly done.
- **Varying results:** In the absence of any stringent norms on water quality testing, results can change across agencies depending on sampling procedure, time of testing, and testing instruments and procedure.

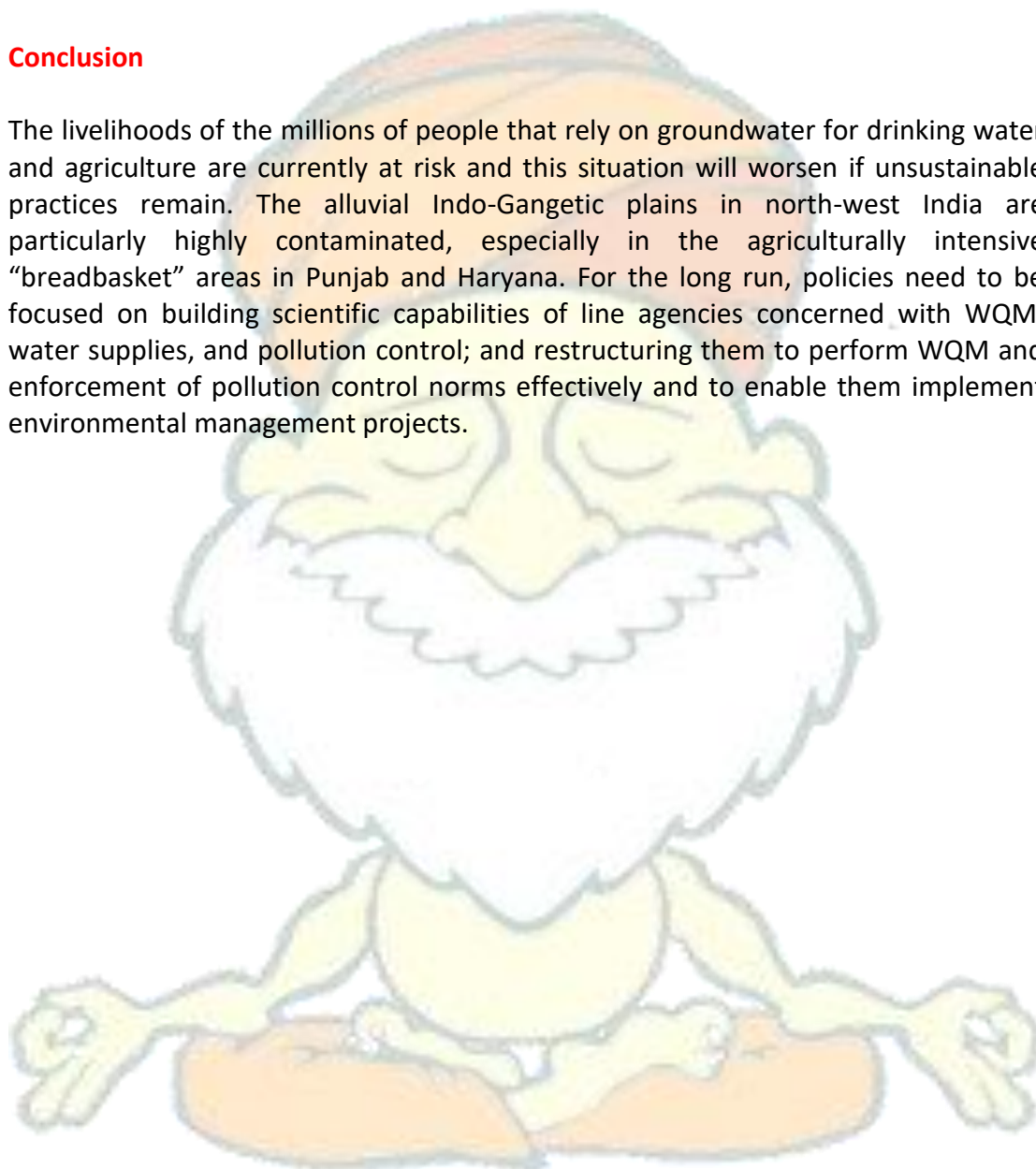
Possible ways to address thisground water contamination challenges:

1. **Bioremediation:** Bioremediation of an aquifer contaminated with organic compounds can be accomplished by the biodegradation of those contaminants and result in the complete mineralization of constituents to carbon dioxide, water, inorganic salts, and cell mass, in the case of aerobic metabolism; or to methane, carbon dioxide.
2. **Recharging water table:** Artificial recharge could push seawater-freshwater interface seawards. These techniques can also be used to reduce the levels of fluoride, arsenic or salinity in aquifer waters on the principle of dilution.
3. **In situ treatment:** In Indian context, it is not economically viable to clean aquifers. In the case of arsenic, methods for in situ treatment have already been in used. In situ- valent, iron permeable reactive barriers (PRBs) are used in situ to remove chromium and several chlorinated solvents in groundwater and are tested successful for removing arsenic.
4. **Reverse Osmosis (RO):** It is a process to get rid of all the impurities in drinking water including deadly ions and organisms and pesticide/fertiliser residues. RO systems are suitable for removing several of the toxic substances present in water in dissolved form, including fluoride, fertiliser and pesticide residues, and heavy metals.
5. **A coagulation system:** Household arsenic treatment method is the ferric chloride coagulation system. This involves precipitation of arsenic by adding a packet of coagulant in 25 litres of tube well water, and subsequent filtration of the water through a sand filter.
6. **Community Aquifer Management:**A more practical consideration was to use groundwater associations as agents in monitoring and enforcement of government policies and laws. The idea of groundwater organisations has a wide appeal; it was advocated to India by a British Geological Survey study.

7. Research in water resource: Information Systems and Resource Planning through establishing appropriate systems for groundwater monitoring on a regular basis and undertaking systematic and scientific research on the occurrence, use and ways of augmenting and managing the resource
8. Water user associations (WUAs): By emphasising on local-level institutions like the WUAs, the Atal BhujalYojana has signalled the Jal Shakti ministry's inclination towards such persuasive solutions.

Conclusion

The livelihoods of the millions of people that rely on groundwater for drinking water and agriculture are currently at risk and this situation will worsen if unsustainable practices remain. The alluvial Indo-Gangetic plains in north-west India are particularly highly contaminated, especially in the agriculturally intensive "breadbasket" areas in Punjab and Haryana. For the long run, policies need to be focused on building scientific capabilities of line agencies concerned with WQM, water supplies, and pollution control; and restructuring them to perform WQM and enforcement of pollution control norms effectively and to enable them implement environmental management projects.



46. What are the key principles and objectives of environmental impact assessment (EIA)? Illustrate with the help of suitable examples.

Approach:

It is straightforward question where it expects students to write about - in first part write about main Principles of Environment Impact Assessment (EIA) - in second part write about various objectives of Environmental Impact Assessment.

Introduction:

Environmental Impact Assessment (EIA) is a process of evaluating the likely environmental impacts of a proposed project or development, taking into account inter-related socio-economic, cultural and human-health impacts, both beneficial and adverse. Environment Impact Assessment in India is statutorily backed by the Environment Protection Act, 1986 which contains various provisions on EIA methodology and process.

Body:

Main Principles of Environment Impact Assessment (EIA):

There are eight guiding principles that govern the entire EIA process: The principles of EIA:

- **Participation:** The process should provide appropriate opportunities to inform and involve the interested and affected publics, and their inputs and concerns should be addressed explicitly in the documentation and decision making. Appropriate/timely access for interested parties is important.
- **Transparency:** The process should have clear, easily understood requirements for EIA content, ensure public access to the information, identify the factors that are taken into account in decision making and acknowledge limitations and difficulties. Open and accessible assessment decisions are important in EIA.
- **Efficient:** The Process should impose the minimum cost burdens in terms of time and finance on proponents and participants consistent with meeting accepted requirements and objectives of EIA.
- **Accountability:** The decision maker should inform decision making and result in appropriate levels of environmental protection and community well-being. Decision makers should be responsible for their actions and decisions.
- **Credibility:** The process should be carried out with professionalism, rigour, fairness, objectivity, impartiality and balance and be subject to independent checks and verification.
- **Cost-effective:** The process should achieve the objectives of EIA within the limits of available information, time, resources and methodology.
- **Integrated:** The process should address the interrelationships of social, economic and biophysical aspects.
- **Practicality:** The process should result in information and outputs which assist with problem solving and are acceptable to and able to be implemented by

proponents. Information/outputs readily usable in decision making and planning is important.

Objectives of Environmental Impact Assessment:

- To make sure that environmental considerations are explicitly addressed and incorporated into the development decision making process.
- To forestall and avoid, reduce or offset the adverse significant biophysical, social and other relevant effects of development proposals.
- To shield the productivity and capacity of natural systems and the ecological processes which maintain their functions.
- To encourage development that is sustainable and optimizes resource use and management opportunities.

Examples:

- For river valley project like Narmada river valley project
- EIA of mineral mines in Odisha

Conclusion:

There is a need to strengthen the implementation of EIA, Independent EIA Authority is required for fair and objective decisions. There is also a need for centralised data bank for storing information and the transparency must be maintained in dissemination of all information related to projects from notification to clearance to local communities and general public.



47. Is lack of development the real cause for the spread of left wing extremism (LWE)? Critically comment.

Approach - It expects you to write about LWE and critically analyse whether lack of development is the real cause for spread of left wing extremism.

Introduction

Left-wing extremism, also known by various other names such as Naxalism and Maoism, is a form of armed insurgency against the State motivated by leftist ideologies. LWE organizations are the groups that try to bring change through violent revolution. They are against democratic institutions and use violence to subvert the democratic processes at ground level. These groups prevent the developmental processes in the least developed regions of the country & try to misguide the people by keeping them ignorant of current happenings.

Body

Lack of development the real cause for spread of left wing extremism –

- Issues arising out of mal-governance or non-governance: Dissatisfaction with improper and often mal-governance created anger among the suffering population. The Naxalites exploit the situation for their own political gain by giving the affected persons some semblance of relief or response. Thereby they tend to legitimise in the eyes of the masses their own legal or even illegal activities.
- Social oppression: The fight against the social oppression that the Dalits and the lower among the OBCs have been regularly subjected to is perhaps the most significant among the issues used by the Naxalite movement. Apart from the concrete issues undertaken by the Naxalites against social oppression, the fact that the cadre and also most of local leaders of the Naxalite organisations consist of poor villagers of castes looked upon as lowly has endowed the oppressed with much strength.
- Livelihood: The Minimum Wages Act remains an act on paper in much of rural India. Agricultural labour is governed by the Act but the minimum wage rates under the Act are not implemented, except where the prosperity of the farmers and the demand for labour makes it unavoidable. By giving fair minimum wage with dispute settlement of people's court they expand their social influence.
- Displacement and forced evictions: Internal displacement caused by irrigation / mining / industrial projects, resulting in landlessness and hunger, is a major cause of distress among the poor, especially the adivasis. The law and administration provides less succour to displaced people, and in fact often treats them with hostility since such internally displaced forest-dwellers tend to settle down again in some forest region, which is prohibited by the law. The Naxalite movement has come to the aid of such victims of enforced migration in the teeth of the law.

- Land related factors: Naxalite movement has succeeded in helping the landless to occupy a substantial extent of government land whether for homesteads or for cultivation. In the case of forest land, occupation by the adivasis with the encouragement and assistance of the Naxalites, has taken place on an extensive scale in Andhra Pradesh, Chhattisgarh, the Vidarbha region of Maharashtra, Orissa and Jharkhand. In fact much of it is not fresh occupation but reassertion of traditional usufructory rights declared by the law to be illegal.

Development of LWE Affected Areas with few schemes being implemented by the government for LWE affected areas are:

- Special Central Assistance (SCA)- for filling critical gaps in public infrastructure and services of emergent nature.
- Road Connectivity Project- for construction of 5,412 km roads.
- Skill Development- for construction of 47 ITIs (01 ITI per district) and 68 Skill Development Centers (02 SDCs per district) by 2018-19.
- Education Initiatives- for building new Kendriya Vidyalayas (KVs) & Jawahar Navodaya Vidyalayas (JNVs) where they are not present. It is also planned to open more schools under the Eklavya model.
- Installation of Mobile Towers- for endless telecom connectivity.
- Financial inclusion- for ensuring the presence of banking facilities within 5 km to all citizens residing in LWE affected areas.

Not only development but other issues can help in reducing the spread of LWE:

Political mobilisation:

- Creating conditions for political engagement, bringing locals into the political mainstream as partners and decision-makers. Political parties have an important role here – they must conduct local membership drives and provide opportunities to local leadership in state politics.
- Political engagement also requires that tribals have more secure property rights and a greater say in local decisions, especially those relating to their land and livelihoods.
- A number of recent legislations have made a start – Panchayat Extension to Scheduled Areas Act (PESA) and the Forest Right Act for example.

Security level intervention:

- Two things will further strengthen the state's security response, which include First, we need greater representation of local people in the police and paramilitary forces; this is essential to bridge the trust deficit.
- Second, we need a better understanding of local social and tribal networks and need to make the local tribal leadership our allies.
- To fill the critical infrastructure gaps that are not covered under existing government schemes, the Centre created the Special Infrastructure Scheme. These include requirements of mobility for the police and security forces by upgrading existing roads and rail tracks in inaccessible areas, and providing secure camping grounds and helipads at strategic locations in remote and interior areas.

- The current government has launched other initiatives, amongst them the SAMADHAN which was announced by the minister of Home Affairs in May 2017. The acronym stands for the following: S – Smart Leadership, A – Aggressive Strategy, M – Motivation and Training, A – Actionable Intelligence, D -Dashboard Based KPIs (Key Performance Indicators), and KRAs (Key Result Areas), H- Harnessing Technology, A – Action plan for each theatre and N- No access to Financing.

Respect for rule of law:

- Governmental agencies must not be allowed to transgress law even in dealing with critical situations caused by insurgency or terrorism.
- If an extraordinary situation cannot be dealt with by the existing laws, new laws may be enacted so that law enforcement agencies are not provoked or tempted to resort to extra-legal or illegal methods. Police and all other governmental forces must adhere to some basic codes of conduct.

Effective implementation of protective legislation:

- It is necessary to build up an impregnable protective shield of the State, against multi-faceted exploitation of these communities. This should be done by effective implementation of the existing constitutional provisions, protection of civil rights and SC/ST (Prevention of Atrocities) Act laws and programmes in place for this purpose.

2nd ARC recommendations to overcome red corridor challenges:

- For effective implementation of the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Rights) Act, 2006, multidisciplinary Oversight Committees may be constituted to ensure that the implementation does not adversely affect the local ecosystems.
- Special efforts are needed to monitor the implementation of constitutional and statutory safeguards, development schemes and land reforms initiatives for containing discontent among sections vulnerable to violent left extremism.
- Performance of the States in amending their Panchayati Raj Acts(PESA) and implementing these provisions may be monitored and incentivised by the Union Ministry of Panchayati Raj.
- Special anti-extortion and anti-money laundering cell should be established by the State police/State Government. To break the nexus between illegal mining/forest contractors and transporters and extremists which provides the financial support for the extremist movement.

Conclusion

Though the number of incidents of LWE violence has come down in the recent past, continued efforts and focus are needed in eliminating such groups. States also need to adopt a focused time-bound approach to completely eliminate LWE groups and ensure all-round development of the affected regions. For the holistic last-mile development of “New India”, it is necessary to get rid of the menace of such radicalized groups, & the synergized efforts of the Centre and the States are crucial in achieving the same.

48. What is the difference between extremism and fundamentalism? Explain. Examine the threat perception associated with these terms.

Approach - It expects students to write about extremism and fundamentalism and their difference. Also examine the threat perception related to both.

Introduction

The rise of fundamentalism and extremism, in diverse forms, represent major threats to human rights worldwide and are growing challenges that must be faced with urgency, using a human rights approach.

Body

Fundamentalism and extremism:

- The term 'fundamentalism' today names a religio-political perspective found in most if not all major religions in the contemporary world. At the present time it is associated with various expressions of religious extremism and, most worryingly, with religiously-motivated terrorism.
- A fundamentalist is someone who believes in a specific interpretation of their holy text and strictly adheres to its tenets. A fundamentalist will believe that their bible represents the absolute truth in terms of matters moral as well as literal historical accuracy. Many fundamentalists are characterised as intolerant of those with views in opposition of their own or those with secular beliefs.
- An extremist is someone who takes their religious beliefs to a fanatical level causing them to act in ways that are not understood by the general public. An extremist may believe in using force, fear, or violence as means to bring about religious change. An extremist may take action in order to indoctrinate their beliefs that play on fear. Often religious extremism is seen in opposition to a person, people, or government that is acting against the fundamental beliefs of a religion. Especially in the Middle East, religious extremism can be closely tied to extreme nationalism.

India has moved to the seventh position from the previous year's eighth in the annual Global Terrorism Index (GTI) 2019. The countries ahead of it are Afghanistan, Iraq, Nigeria, Syria, Pakistan and Somalia.

Threat perception associated with extremism and fundamentalism:

- **Political Tension:** Extremism has impacted domestic political structures in India in a negative way. It has led to political instabilities across the nation. Political class trying to interfere in religious laws, codes, etc. All these acts, not only hurting feelings of particular people but also converting them into more orthodox. For example Shah Bano case.
- **Social tension:** Religious fundamentalism growth decreases tolerance level in society which result in communal clashes in many parts of the country and affects internal security. This hatred among religions can be taken as

advantage by the external terrorist organisations. This can increase vulnerability for terrorist activities in the country. This will destabilise social fabric which will lead to displacements, and migration.

- Demographic loss: Extremism has misguided the youth of the region on the basis of false ideologies for destructive activities by brainwashing them. This has not only endanger demography but also lead to loss of demographic dividend in the region.
- Education: Lack of quality education leading to blindly follow rules and regulations and beliefs propounded by religious leaders. For example madrasa.
- Monolithic view: Monolith world views, their limiting of the enjoyment of women's human rights and restriction of the sexual and reproductive rights of all, and the desire to quash cultural opposition to their own agenda, including through stifling freedom of artistic expression and curtailing scientific freedom.
- Social media threat: Misinformation and disinformation spread in the media is becoming a serious social challenge. It is leading to the poisonous atmosphere on the web and causing riots and lynching on the road. In the age of the internet (WhatsApp, Facebook, Twitter,) it is a serious problem as rumours, morphed images, click-baits, motivated stories, unverified information, planted stories for various interests spread easily among 35 crore internet users in India.

Conclusion

Internal and external security are interlinked and cannot be viewed in isolation, especially considering the digital psycho-extremism emerging from a source which is hard to identify. They are destroying the nation's valuable human resource which needs to be checked at the earliest by initiating effective measures, not only at the level of securities but by effective participation of our leadership and society. In order to survive as a developing nation, preventing erosion of human resource, staying unaffected by negativity of those threatening internal security and participation of the society are also essential.

49. What are India's most severe challenges emanating from external state actors? Examine. What has been India's response to those? Discuss.

Approach:

It is a straightforward question where it expects students to write about - in the first part write various challenges posed by external state actors for the Indian internal security - in the second part write about measures taken by India to address the challenge.

Introduction:

India has been facing challenges on the front of internal security since independence from various state and non-state actors. Politico-social and economic sphere of sovereign state has been controlled by the popular elected government. But peace and security can be disturbed by some external and non-state actor, through various means and ways.

Body:

Challenges posed by external state actors for the Indian internal security:

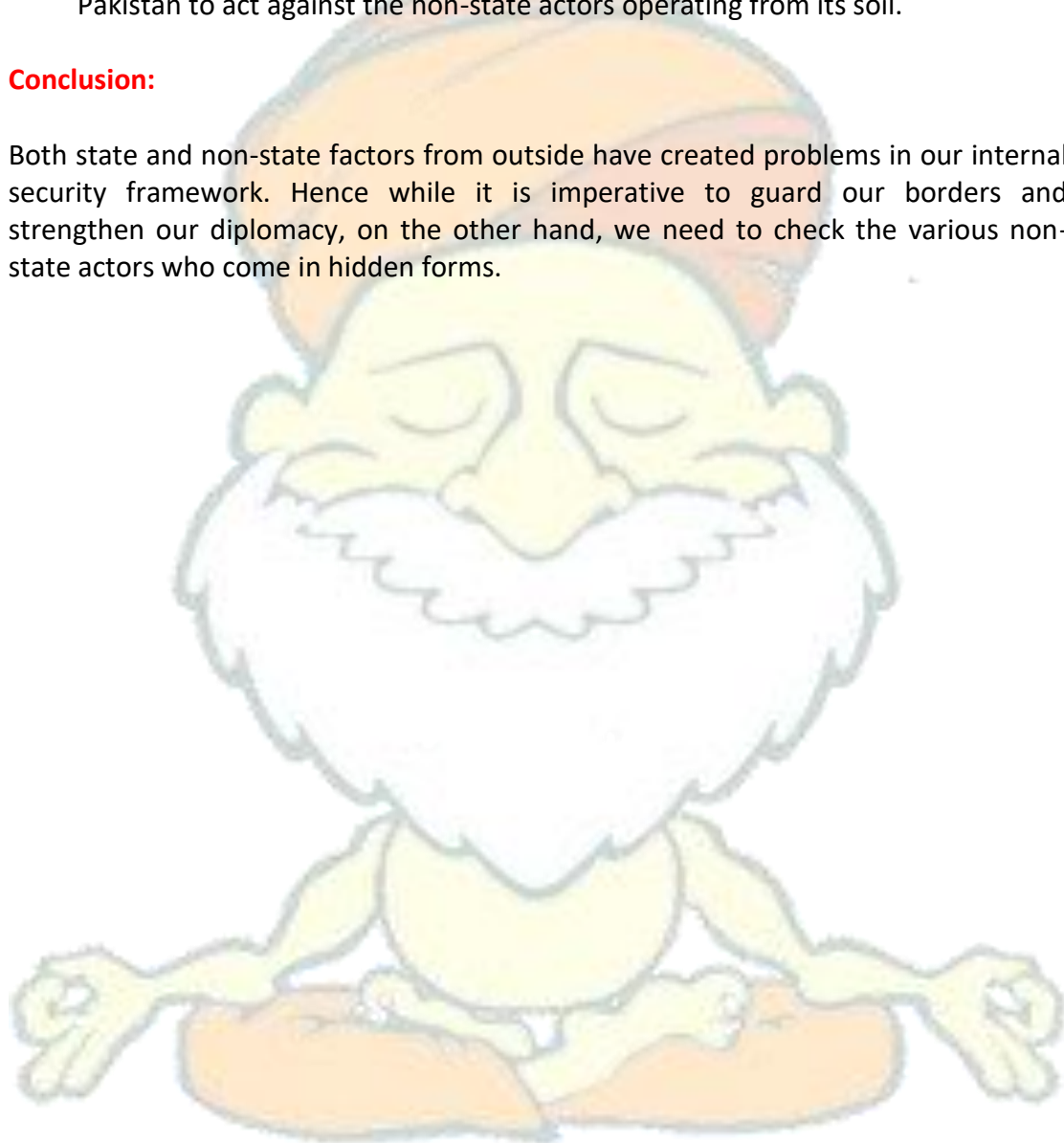
- Insurgency: North-East suffers from violent movements based upon ethnic identities leading to clashes. China is alleged to support such acts e.g. ULFA members of Assam were given shelter by China.
- Terrorism: Pakistan has been a major exporter of terrorism to India. Non-state actors like terrorist groups (eg Lashkar-e-Taiba, Jaish-e-Mohammad) are a continuous threat.
- Naxalism: Left wing extremism affects states like Chhattisgarh, Jharkhand and West Bengal.
- Drug smuggling: Inter and Intra state trafficking takes place, through golden crescent and golden triangle routes. Drug from Pakistan, Afghanistan and Iran has affected Punjab.
- Human-trafficking: while child and women trafficking takes place via Bangladesh and Nepal.
- Counterfeit currency: Especially from Pakistan. It corrodes economy from inside, by facilitating black money and money laundering activities as well as funding terrorism, which itself creates a demand for fake currency, thereby creating a positive feedback loop.
- Communalism: Propagandas are run and funded by enemy country and other non-state actors to destabilize India by damaging the socio-religious fabric and ensure riots.
- Cyber Security: Recent cyber-attacks by Legion, ATM skimming are examples. Pakistani hackers often hack government websites.
-

Measures taken by India to address the challenge:

- Actively pursuing the agenda of comprehensive convention against terrorism to bring all the state actors on the same page in fight against terrorism.
- Using bilateral and multilateral forums like BRICS, SCO, G20, BIMSTEC to build an alliance against terrorism.
- Strengthening of the borders by the implementation of recommendations of Madhukar Gupta committee report and formation of the border protection grids along the eastern front.
- Isolating Pakistan and adopting the technique of name and shame to force Pakistan to act against the non-state actors operating from its soil.

Conclusion:

Both state and non-state factors from outside have created problems in our internal security framework. Hence while it is imperative to guard our borders and strengthen our diplomacy, on the other hand, we need to check the various non-state actors who come in hidden forms.



50. Is fake news the most potent threat to democracies today? Critically comment.

Approach - It expects you to write about fake news critically analyse whether fake news is the most potent threat to democracies today.

Introduction

Fake news is not a new phenomenon which is linked to the rise of social media, on the contrary from the times of ancient Greece, the governments and political actors have always invested in disinformation campaigns to build narratives of their choice. Fake news is news, stories or hoaxes created to deliberately misinform or deceive readers. Fake news, defined by the New York Times as “a made-up story with an intention to deceive”.

Body

The Supreme Court has recently asked the Centre to explain its “mechanism” against fake news and bigotry on air, and to create one if it did not already exist.

Fake news as the most potent threat to democracies today:

1. The emerging threat of fake news could have an unprecedented impact on election cycle, raising serious questions about the integrity of democratic elections, policy-making and our society at large.
2. People’s faith in social, print and electronic media reduces which could affect the benefits of these Media as well the spirit of democracy as media being the fourth estate of democracy. In its purest form, fake news is completely made up, manipulated to resemble credible journalism and attract maximum attention and, with it, advertising revenue.
3. Computational propaganda is the use of algorithms, automation, and human curation to purposefully distribute misleading information over social media networks. Computational propaganda involves learning from and mimicking real people so as to manipulate public opinion across a diverse range of platforms and device networks.
4. It affects social & communal harmony by spreading extremists’ ideologies especially in sensitive areas like radicalisation of youths, inciting violence and hatred among the communities, swinging public opinions etc.
5. In Sri Lanka, online rumours have led Buddhists to target Muslims; in Nigeria, inflammatory images on Facebook have led young Berom men to pursue Fulani Muslims.
6. In countries already suffering from ethnic tensions, misinformation can exasperate tensions and generate violence. In perhaps the most well-known case, Facebook was used in Myanmar to incite violence against the Rohingya.
7. 2018 Photos of Police Using Water Cannon made Viral amid the Ongoing Farmers' Protest. These were used to intensify farmer’s anger and create discontent against new laws.
8. New face of fake news as deep fakes – Disrupting Electioneering -A high-quality deep-fake can inject compelling false information that can cast a shadow of illegitimacy over the voting process and election results. Leaders

can also use them to increase populism and consolidate power. Deep-fakes can become a very effective tool to sow the seeds of polarisation, amplifying division in society, and suppressing dissent. Undermining Democracy - A deep-fake can also aid in altering the democratic discourse and undermine trust in institutions and impair diplomacy. False information about institutions, public policy, and politicians powered by a deep-fake can be exploited to spin the story and manipulate belief.

But at the same time, there are multiple other potent threats to democracies around the world today, some of which can be seen from the points below –

- **Polarization:** While some partisan polarization is healthy for democracy, one of the key drivers of democratic decay in new and established democracies is intense polarization, where political opponents begin to regard each other as existential enemies, allowing incumbents to justify abuses of democratic norms to restrain the opposition, and encouraging the opposition to use “any means necessary” to regain power.
- **Immigration and sustaining multi-ethnic democracies:** The challenge of sustaining multi-ethnic democracies is one of the most significant challenges facing democracies of all types today. The politics of redistribution has also been notoriously complicated by ethnic diversity, but the growing ethnic diversity of both new and old democracies, driven in part by immigration, have generated different forms of right-wing populist backlash and has exacerbated political polarization.
- **Globalization, economic inequality, and democratic discontent:** The threat economic inequality, often driven by global economic forces, poses to the survival and viability of democracy. Unequal economic resources diminishes the quality of democracy, through voting, institutional design, campaign spending, and media.
- **Populism:** In the past several years, there has been renewed attention to the upsurge of populist parties and movements from Latin America and North America to western and Eastern Europe. Many populist outsiders come to power speaking on behalf of “the people” but often doing so in ways that seem to challenge basic norms of liberal democracy.
- Further, existing institutions may be ill-suited for the challenges facing contemporary democracies.

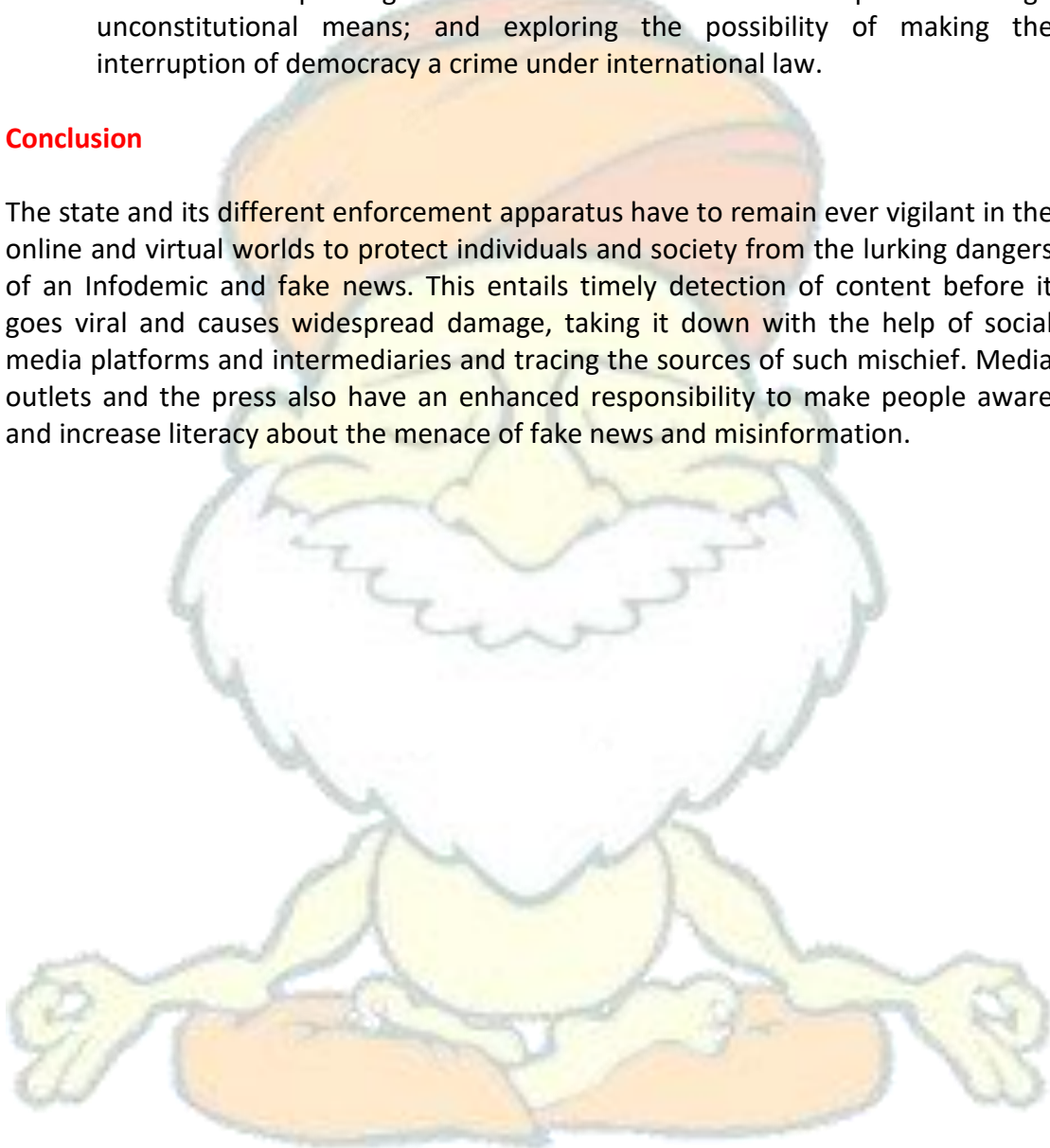
Way forward –

- Increasing development assistance to new democracies, especially where there is popular frustration about the lack of economic benefits deriving from the establishment of a democracy.
- Government should have independent agency such as FactCresendo and Boomlivo to verify the data being circulated in social and other media. The agency should be tasked with presenting real facts and figures.
- Developing “democracy erosion” indicators for international financial and trade institutions to target their assistance and stem the erosion.

- Social media websites should be made accountable of such activities so that it becomes their responsibility to have better control over the spread of fake news.
- The artificial intelligence technologies, particularly machine learning and natural language processing, might be leveraged to combat the fake news problem.
- Spurring regional organizations to adopt “democracy clauses” that would bar the membership of governments that have come to power through unconstitutional means; and exploring the possibility of making the interruption of democracy a crime under international law.

Conclusion

The state and its different enforcement apparatus have to remain ever vigilant in the online and virtual worlds to protect individuals and society from the lurking dangers of an Infodemic and fake news. This entails timely detection of content before it goes viral and causes widespread damage, taking it down with the help of social media platforms and intermediaries and tracing the sources of such mischief. Media outlets and the press also have an enhanced responsibility to make people aware and increase literacy about the menace of fake news and misinformation.



51. What role do social media platforms play in elections nowadays? Has it affected the democratic discourse? Examine.

Approach - It expects students to write about social media and its role of social media platforms in election also highlight how it is affecting the democratic discourse.

Introduction

Social media is computer-based technology that facilitates the sharing of ideas, thoughts, and information through the building of virtual networks and communities. By design, social media is internet-based and gives users quick electronic communication of content.

Body

The 2008 Presidential election in the United States is widely seen as the first time social media played a big part in politics. Candidate Barack Obama used of platforms such as Facebook helped him emerge as a winner.

Role of social media platforms in elections:

- **Quick interactions:** One of the positive effects that social media has on politics is the opportunity for voters to interact more easily with candidates and elected officials. Traditionally, if you wanted to meet a politician or candidate, you'd have to attend a live event. Not everyone is able to do this. With modern technology, it's now possible to attend virtual events where you can participate in live streaming events and interact with politicians and candidates.
- **Constant and continuous news:** One of the ways that social media has transformed politics is the sheer speed at which news, poll results and rumours are shared. Whereas in the pre-internet days, people had to wait for the next newspaper or TV news show to get the latest information, online news is a 24/7 phenomenon. While you can access news on many websites at any hour, most people spend more time on sites such as Facebook and Twitter than they do on serious news or political websites.
- **Fake news:** Political campaigns are now influenced by every story, whether true or not, that gets spread around social media. It's getting more and more difficult to separate actual news from fake news online. Social media makes this distinction especially confusing. The constant stream of memes, links and rumors about political leaders and candidates is a mixture of truth, lies, satire and speculation.
- **Confirmation Bias:** One of the hidden forces that operates on social media is confirmation bias. This is especially powerful when it comes to controversial topics, including politics. If you're like most people, the majority of your friends and followers on social media probably share your outlook.
- **First time voters:** As per different survey first time voter in Loksabha 2019 election were influenced by political messages on social media. Half of 15

crore first time voter received the messages from political leaders in India on social media.

- Inlusiveness: Social media has made Indian politics more inclusive by allowing citizens, who were traditionally excluded from politics due to geography and demography, to gain direct entry into the political process.
- Opportunity to influence female audiences: Last but not the least, with the increase in female internet penetration, it becomes an active source of influence and education for the female voters which constitute close to 49% of potential voters. There are increasing expectations that more campaign staffers actively use Twitter and Facebook to promote the campaign and engage voters.

Social media affecting democratic discourses:

- The rise of polarising and divisive content has been a defining moment of modern politics, which is fed by fake news propagation through social media channels.
- Social media has enabled a style of populist politics, which on the negative side allows hate speech and extreme speech to thrive in digital spaces that are unregulated, particularly in regional languages.
- Freedom of speech does not grant the right to deceive. Freedom of speech provides that political advertising should not be strictly regulated. But freedom of speech is meant to ensure protection of diversity of opinion and the individual's right to express in a reasonable manner. Lies, deception and treachery are not covered under freedom of speech to influence voting behaviour. Manipulated content is incongruous with freedom of speech.
- The big problem with social networks is their business model. This business model has led to a "winner-takes-all" industry structure, creating natural monopolies and centralising the once-decentralised democratic internet.
- Online advertising allows, especially on social networks, personalised targeting based on multiple attributes that wasn't possible at the same level before. For example CambridgeAnalytica misuse of data for profiling, micro-targeting etc. These platforms make it possible to go from manufacturing consent to manipulating consent. A person is continuously fed with information to vote for a particular party.

Conclusion

Social media has changed the way people think, write and react but political pundits believe it has also influence the way people vote. Most of the political parties are aware of the pulse and the impulse of the public on social media timelines, which is why more and more politician are realising the importance of social media as an electoral tool.

52. Why is data privacy regarded sacrosanct in the 21st century? Examine from the point of view of security.**Approach:**

It expects students to write about - in introduction define data privacy or give any recent example of breach of data privacy - in main body part write reasons for data privacy is important in 21st century from security point of view.

Introduction:

Data privacy, also called information privacy, is the aspect of information technology (IT) that deals with the ability an organization or individual has to determine what data in a computer system can be shared with third parties.

Body:

India has recently banned 118 additional Chinese apps. As per reports, this ban comes under Section 69A of the Information Technology Act and is due to the illegal data collection practices followed by these apps. These apps were found to be collecting extensive information about their users without taking explicit permission. Collected information included but not limited to – data from users' clipboard, their GPS locations, and vital network related information such as IP, local IP, MAC addresses, WIFI access point names, etc. Some of the apps were even found setting up local proxy servers on users' devices to transcode media without permission.

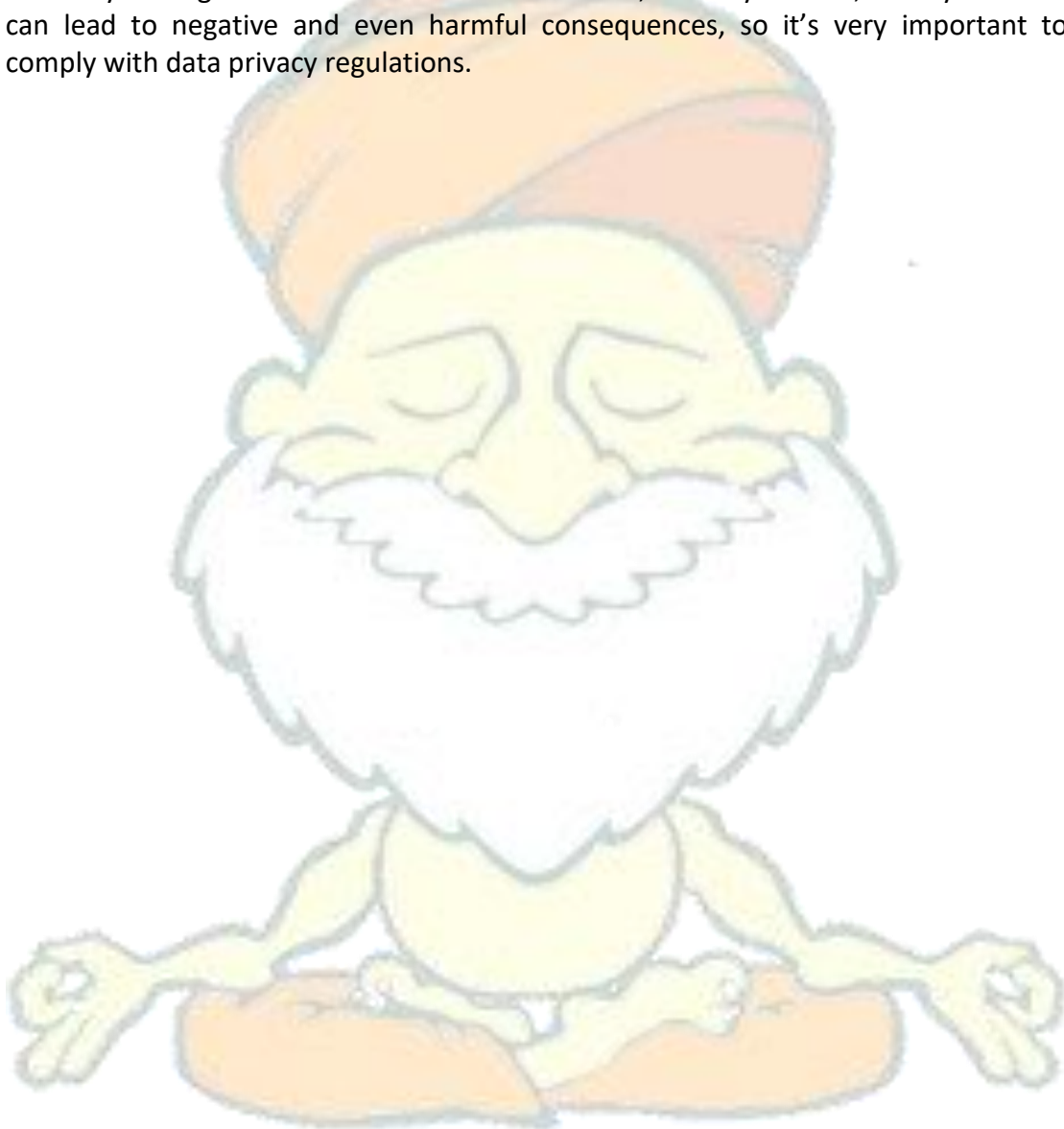
Data privacy regarded as sacrosanct in 21st century due to:

- When data that should be kept private gets in the wrong hands, bad things can happen.
- A data breach at a government agency can, for example, put top secret information in the hands of an enemy state.
- A breach at a corporation can put proprietary data in the hands of a competitor.
- A breach at a school could put students' Personally identifiable information (PII) in the hands of criminals who could commit identity theft.
- A breach at a hospital or doctor's office can put Protected Health Information in the hands of those who might misuse it.
- Economic threats such as frauds, attack on banking communication infrastructure, acquisition of critical data such as customer's credit/debit card data, Financial theft to destabilize the economy
- Information warfare
- Destabilizing critical infrastructure like Nuclear power plants, power grids, Dams, Share Market operations through cyber attacks. g. Stuxnet's alleged involvement in destabilizing Iran's Nuclear programme.
- Data theft through social media applications, infringement of privacy
- Penetrating value chain of production of communications network infrastructure and spying through this penetration

- Theft of critical medical history data of a nation's citizens
- Data alteration and data destruction on the website and impairing its operations
- Intellectual property right infringement through digital piracy

Conclusion:

People all over the world have been concerned about data privacy for a while now, and they have good reasons for it. Data breaches, security threats, and cybercrime can lead to negative and even harmful consequences, so it's very important to comply with data privacy regulations.



53. Border surveillance capability is a critical component of border security. Do you agree? What is India's preparedness on this front? Discuss.

Approach - It expects you to write about border surveillance its critical role in border security and highlight on India's preparedness on such front.

Introduction

India's land border covers around 15,106 km sharing boundaries with Pakistan, Afghanistan, China, Nepal, Bhutan, Bangladesh and Myanmar. Varied terrains, climatic conditions and hostile neighbours make its borders complex and border management an important part of its security.

Body

Border surveillance capability is a critical component of border security:

1. Since the borders with six countries are having entirely different terrain and temperature profile the Indian Army needs for surveillance systems on these different border areas are also hugely varied. While the army would require the unmanned aerial vehicles for across the borders day-night monitoring in all the seasons, the ground level deployment of the night vision devices and other ground level intrusion detection systems are also very important.
2. The border surveillance deal with major border security challenges such as to prevent cross-border terrorism for example Pathankot attack, Uri attack and Pulwama attack.
3. Border surveillance is important for also preventing infiltration and exfiltration of armed militants and insurgents, narcotics and arms smuggling; illegal migration; and separatist movements aided by external powers.
4. Border surveillance helps in maintaining peace and stability by controlling the security concerns related to inter-region and intra-region issues.
5. Another important advantage of border surveillance is in proper and swift disaster management. Difficult and harsh terrains of Indian borders and relatively low development of bordering countries make it inevitable for India to be prepared and self-sufficient to handle any kind of disasters.
6. To increase capability tender for purchase of six Border Surveillance Management Systems (BSMS) to cater to the needs of Indian Army's peace time requirements for countering the infiltration attempts from Pakistan. The border areas are already equipped with a strong surveillance mechanism which includes the three tier fencing, flood lighting, sensors, thermal imagers and manual patrolling.
7. The Army expects to enhance its anti-infiltration capabilities through the BSMS. With increasing challenges from across the border the army also needs to constantly improve upon its existing surveillance mechanism.

India's border surveillance preparedness:

- Space technology in Border Management: ISRO is set to launch a satellite exclusively for Home Ministry. The satellite will be used for improving

communication and navigation, managing security, operational planning and border management. These satellites will help the security forces to know any activity occurring on border with the help of satellite imagery.

- **BOLD QIT:** BOLD-QIT is a project to install technical systems under the Comprehensive Integrated Border Management System (CIBMS), which enables the BSF to equip Indo-Bangla borders with different kinds of sensors in the unfenced riverine area of Brahmaputra and its tributaries. Now, the entire span of the river Brahmaputra has been covered with data network generated by Microwave communication, OFC Cables, DMR Communication, day and night surveillance Cameras and intrusion detection systems.
- **Flood lighting:** Lack of floodlights on the border allows the smugglers to perpetrate cattle smuggling their devious activities during night. In order to curb the attempt of infiltration and cross-border crimes along the Indo-Pakistan border, the government has sanctioned 2,030.44 km of floodlights along the international border in the states of Jammu & Kashmir, Punjab, Rajasthan and Gujarat.
- **Laser Fencing:** In many areas, BSF had decided to install laser fencing two years ago. There are 45 such vulnerable spots along the Indo-Pak border in Punjab and Jammu and Kashmir where it will be installed and eight infrared and laser beam intrusion detection systems have started functioning in the porous treacherous and riverine tracts along the international border in Punjab.
- **Third-generation thermal imagers:** It is technology used in the highly sophisticated border security system of Israel which includes high-quality long-range day cameras along with night observation systems employing third generation thermal imagers.
- **LORROS:** The Army has also deployed the LORROS (Long Range Reconnaissance and Observation System) which has some tactical advantage. This can cover an area of 4 by 4 kms and can give real time video imagery during day and night. It helps in easy detection, identification and recognition of targets.
- **UAVs:** The UAVs and other surveillance gadgets already under installations have significantly reduced the incidents taking place due to human error. The mini UAVs are also intended to carry out reconnaissance in Jammu and Kashmir for counter insurgency along with the LoC with Pakistan and the Line of Actual Control with China.

Conclusion

The traditional approach to border management, i.e. focussing only on border security, has become inadequate. India needs to not only ensure seamlessness but with the adoption of new technologies for border control and surveillance and the development of integrated systems for entering, exchange and storage of data, will facilitate the full proof border security without endangering security personnel and internal security of India.

54. Critically evaluate the evolving trend of India's counterterrorism response in recent years.

Approach - It expects students to write about counterterrorism and critically evaluate the evolving trend of India's counterterrorism response in recent years.

Introduction

Several countries in South Asia, including India, have been facing the challenge of terrorism and over the past few years there have been numerous acts of terror in the region. Many of these incidents are found to have complex international linkages and possible connections with transnational organised crime. Terrorism is an evolving phenomenon, with terrorist organisations continuously changing their modus operandi, thereby adding to the complexity and challenges faced by agencies.

Body

Counter-terrorism also known as anti-terrorism, incorporates the practice, military tactics, techniques, and strategy that government, military, law enforcement, business, and intelligence agencies use to combat or prevent terrorism.

Evolving trend in India's counterterrorism response:

- The November 2008 attacks, brought into clear focus the inability of the Indian security apparatus to anticipate and appropriately respond to major terrorist incidents.
- The National Intelligence Grid (NATGRID) has been constituted to create an appropriate database of security related information.
- The military which is primarily geared toward foreign threats, including terrorism also generates intelligence with relevance to domestic terrorism, and there is a centrally controlled National Security Guard (NSG) that specialises in hostage and terrorist attack situations.
- India has raised Regional Hubs of NSG battalions in important strategic locations, to meet any unforeseen challenges.
- The major domestic response to Mumbai has been an emphasis on streamlined coordination between agencies across state and federal lines, and the creation of a new National Investigation Agency (NIA). The aim of the NIA is to empower a federal agency to investigate major crimes such as terrorism and organized crime without having to be asked to do so by the states. There will be special courts that can rapidly hear terror-related cases.
- Financial Intelligence Unit-IND (FIU-IND) is the central national agency responsible for receiving, processing, analysing and disseminating information relating to suspect financial transactions.
- A special Combating Financing of Terrorism (CFT) Cell has been created in the Ministry of Home Affairs in 2011, to coordinate with the Central Intelligence/Enforcement Agencies and the State Law Enforcement Agencies for an integrated approach to tackle the problem of terror funding.

- U.S. Federal Bureau of Investigation and Indian security services in the wake of Mumbai, illustrating the dramatic improvement in Indo-U.S. relations. There has also been increased counter terrorism intelligence sharing with India, most of it obviously related to Afghanistan and Pakistan.
- Deepening cooperation to reaffirm the support for the central and coordinating role of the UN in combating international terrorism, the need for strict and full implementation of the relevant UN Security Council resolutions related to counter terrorism, comprehensive implementation of the UN Global Counter-Terrorism Strategy in a balanced way, and implementation of the provisions of the relevant international counter-terrorism conventions and protocols. Broadening counter-terrorism cooperation with the United Nations, as well as the G-20 and the for example push for black listing Pakistan in FATF.
- Counter the global threat of terrorism on the basis of the purposes and principles of the UN Charter, relevant UN Security Council resolutions and international counter-terrorism conventions and protocols, where applicable. For example Azhar Masood.
- Countering extremist narratives conducive to terrorism and the misuse of the Internet and social media for the purposes of terrorist recruitment, radicalisation and incitement and providing financial and material support for terrorists.
- Strengthening cooperation against the misuse of information and telecommunication technology for terrorist and other criminal purposes; create counter-narratives disrupting the propaganda of terrorist and extremist ideas conducive to terrorism.
- India will hosted the first counter-terrorism exercise for the 'Quad' countries at the NIA headquarters in national capital on November 2019. The 'CT-TTX' (counter-terrorism table-top exercise) is first such engagement among the Quad countries on regional and global issues of common interest and also in the domain of counter-terrorism and cooperation.
- The Centre has designated 18 key operatives and leaders of extremists groups as individual terrorists under the recently-amended Unlawful Activities Prevention Act (UAPA).

The biggest problem with India's counter-terrorism strategy lies in the fact that it does not have a stated policy. India's approach to fighting terrorism has often been shaped by the approach adopted by other countries such as Australia, Canada, and the US.

Evaluation of India's counterterrorism response:

- India mostly seeks to adopt ideas and concepts from abroad and mould it within the Indian socio-economic context. As a result, there is a lack of clarity in India's approach to the issue. India's response to terrorism has been episodic to a significant degree.
- In many countries concurrent powers are given to the central government to intervene when a state fails to take security measures. Unfortunately, India does not have that system.

- Many times India's dossiers sent to the international community are not taken seriously because they lack evidentiary value, even though they may be of great intelligence value. In a democratic society like India, there is no greater deterrence to terrorism than having full evidence based investigations and intelligence prediction. Thus, a good counter-terrorism matrix needs to be based on both intelligence- and investigation-based foundations.
- Within India's counter-terrorism matrix, there is a serious lack of understanding as well as capacity to deal with data. India also does not have the necessary infrastructure in place at the moment to be able to properly analyse the data. Unless and until the analysis of the intelligence gathered is institutionalised, it will not be possible to obtain relevant intelligence material.
- India's counter-terror efforts continue to be thwarted due to lack of international collaboration in respect of exchange of information and evidence or of extradition of the accused persons who are hiding outside India's territory.
- Terrorism is handled by different state police systems with no legal role by the central government under Schedule 7 of our Constitution. Similarly, the intelligence provided by the central government to the states is only of advisory nature.

Conclusion

Counter-terrorism is a national security issue and political parties must resist the attempts at politicizing them. Such policies only serve to sharpen public fears. Effective counter-terrorism requires a more comprehensive strategy. It requires a constant process of evaluation and adjustment. Also Socio-economic development is a priority so that vulnerable sections of society do not fall prey to the propaganda of terrorists promising them wealth and equity.

55. How do cross border linkages amongst terrorist and insurgent organisations create security threats? Examine.**Approach:**

It expects students to write about - in first part write about threats which emerges due to cross border linkages amongst terrorist and insurgent organisations - in second part write about measures taken by government to address the challenge.

Introduction:

Since independence, India has been grappling with insurgencies and terrorist campaigns. Growing sense of ethnic and religious identities, forcible merger of princely states with the Indian Union, perceived sense of neglect and alienation, and pervasive underdevelopment are variously cited as reasons that have led to the clamour of separatism and the rise of insurgency.

Body:

Following threats emerges due to cross border linkages amongst terrorist and insurgent organisations:

- Drug smuggling: Inter and Intra state trafficking takes place, through golden crescent and golden triangle routes. Drug from Pakistan, Afghanistan and Iran has affected Punjab.
- Human-trafficking: while child and women trafficking takes place via Bangladesh and Nepal.
- Counterfeit currency: Especially from Pakistan. It corrodes economy from inside, by facilitating black money and money laundering activities as well as funding terrorism, which itself creates a demand for fake currency, thereby creating a positive feedback loop.
- Radicalisation: Propagandas are run and funded by enemy country and other non-state actors to destabilize India by damaging the socio-religious fabric and ensure riots.
- North-East suffers from violent movements based upon ethnic identities leading to clashes. China is alleged to support such acts e.g. ULFA members of Assam was given shelter by China.
- Pakistan has been a major exporter of terrorism to India. Non-state actors like terrorist groups (eg Lashkar-e-Taiba, Jaish-e-Mohammad) are a continuous threat.
- Naxalism: Left wing extremism affects states like Chhattisgarh, Jharkhand and West Bengal.

Measures taken by government to address the challenge:

- Strengthening of the borders by the implementation of recommendations of Madhukar Gupta committee report and formation of the border protection grids along the eastern front.
- Legislation like PMLA Act, NIA Act

- Actively pursuing the agenda of comprehensive convention against terrorism to bring all the state actors on the same page in fight against terrorism.

Conclusion:

To resolve this issue India needs comprehensive strategy. The strategy also needs to address long standing structural issues such as judicial and police reforms. Last but not the least, sectarian and collusive politics have been significant for causing and for the persistence of terrorist and insurgent movements. An effective strategy should be able to successfully eschew political manoeuvring and posturing.

